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D3.1. Analysis of relevant practices and initiatives

MAPPING RELEVANT PRACTICES AND DEFINING TRANSFERABLE ELEMENTS IN DIGITAL SKILLS DEVELOPMENT STRATEGIES AND INITIATIVES

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Project information

The Artificial Intelligence Skills Alliance (ARISA) fast-tracks the upskilling and reskilling of employees, job seekers, business leaders, and policymakers into AI-related professions to open Europe to new business opportunities. It is a four-year transnational project funded under the EU's Erasmus+ programme. For more information, contact info@aiskills.eu | aiskills.eu

Project Partners

List of abbreviations and acronyms

AI	Artificial Intelligence
AI HLEG	High-Level Expert Group on Artificial Intelligence
ARISA	Artificial Intelligence Skills Alliance
D	Deliverable
EC	European Commission
EU	European Union
ICAI	Intelligent Computer-Aided Instruction
ICT	Information and Communications Technology
IoT	Internet of Things
IT	Information Technology
M	Month
SDGs	Sustainable Development Goals
SME	Small and Medium-sized Enterprise
T	Task
VET	Vocational Education and Training

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1. Executive Summary

1.1. Introduction

In the context of the ARISA project, this report (D3.1) is analysing a wide range of relevant initiatives on digital skills and AI skills from EU countries and beyond with the main aim of identifying what could be the success factors of the identified initiatives and what are the transferable elements to the European AI Skills Strategy, which will be released in Autumn 2023.

The outcomes of this in-depth analysis of relevant practices, initiatives and projects complement the conclusions of the AI Skills Needs Analysis report (D2.2) and the stakeholder consultation (D3.2) to inform the further development of the European AI Skills Strategy (D3.3).

1.2. Objectives

This report mainly contributes to gathering relevant information that can be the basis for the elaboration of a consistent, ambitious, and flexible European AI Skills Strategy (D3.3).

The specific objectives are:

- To define a set of criteria for gathering and mapping relevant initiatives of digital and AI strategies and skills building initiatives across Europe and beyond.
- To assess the selected initiatives and identify which of their elements (success factors) could be transferred into the European AI Skills Strategy
- To provide recommendations on what success factors could be used as the basis for the development of the Strategic Objectives and key tasks of the ARISA Strategy.

1.2.1. Scope

The scope of the field research has been defined using different indicators and combining a number of scope limits:

Geographic scope: the initiatives mapped and collected are implemented at the European, national, regional, and local level.

Domain scope: the initiatives analysed belong to three kind of implementation categories:

- Public: *implemented by the government or local authorities*.
- Public-private: *implemented by partnerships or consortia of actors*.
- Private: *implemented by private entities without public authorities' involvement*.

Thematic scope: Across all three domain categories, researchers focused on initiatives more broadly related to **digital skills education** as well as, more specifically, to **AI skills education**. This is because AI up- and reskilling initiatives are still relatively new, and the overall digital skills domain can provide a greater pool of good practices to learn from and transferable elements to eventually include in the European AI Skills Strategy.

In both thematic areas, researcher looked at three types of initiatives:

- Policy-informed **strategies** for skills development: approaches to digital and AI skills education national/local policies validated by public authorities.

- Specific educational and skills development **projects and programmes:** implemented initiatives with concrete activities aimed at up- and reskilling Europeans and Europe-based organizations.
- **Formal communities** supporting the implementation of said strategies and projects: *formally structured groups of stakeholders supporting the realisation of strategies and/or implementation of projects.*

Time framework: the limits agreed were to include initiatives from the last 5 years 2018-2023. It some cases it has been difficult to identify the time framework, therefore this limit is not accurate for all of the identified and mapped initiatives.

1.2.2. Research questions

The main research questions that this report is giving answer through a sounded methodological approach (see section 3) are as follows:

- What initiatives are being implemented across the EU to support the development of digital/AI skills?
- What are the success factors of these initiatives?
- Which elements of these initiatives are key and could be transferred into the European AI Skills Strategy?

1.3. Methodological approach

Two methods were used to gather and analyse relevant information that will feed into the planning of the European AI Skills. On the one hand, the data collection method of relevant innovative practices helped collect information on relevant initiatives focused on digital skills and AI skills, which in turn can potentially contain transferable elements for planning the European AI Skills Strategy. On the other hand, the assessment methods aimed at selecting, based on a set of solid criteria, the relevant initiatives and identifying success factors and transferable elements.

1.4. Results

The data collected though the methodological approach is summarised as follow:

Area	Cases
European initiatives	51
National initiatives	143
Local/Regional initiatives	21
Total	215

The main findings of the field research related to European initiatives are:

- **Education and training**: A crucial element is the focus on education and training programs. These initiatives aim to equip individuals with the necessary know ledge and skills in AI. For example, the Human-Centred AI Master's Programme and Community (HCAIM) emphasizes ethical AI development, while IBM Skills provides personalized coaching in AI and related skills.

- **Diversity and inclusion**: Promoting diversity and inclusion is a key element in many of these projects. Initiatives such as Women in AI (WAI) empower women and minorities, offering educational programs and resources to encourage their participation and leadership in AI and data-related domains.
- **Ethics and trustworthiness**: Projects in this category prioritize the development of ethical frameworks, guidelines, and tools for responsible and trustworthy AI deployment. The High-Level Expert Group on Artificial Intelligence (AI HLEG) advises on trustworthy AI development and provides ethical guidelines to the European Commission.
- **Applications in education**: AI projects are increasingly leveraging technology to enhance educational experiences and support learning. For instance, Soapbox Labs has developed speech recognition technology tailored for children's voices, enabling educational applications that provide feedback, assessment, and language learning support.
- **Vocational Education and Training (VET)**: The integration of AI concepts and skills into vocational education and training institutions is a significant element in AI projects. AIM for VET schools brings faculties and VET schools together to deliver AI lectures and promote algorithmic thinking among students.
- **Policy and governance:** Developing policies, frameworks, and governance structures for regulating and responsibly deploying AI is a critical element in AI projects. The AI HLEG project advises the European Commission on AI strategy and produces guidelines for trustworthy AI, contributing to the establishment of comprehensive AI governance frameworks.
- **Digital skills and employability**: Enhancing digital skills and improving employability in the digital era is an important element in AI projects. Initiatives like the eDigiStars project support older workers in becoming digital self-employed entrepreneurs or employees, addressing skill gaps and facilitating access to digital service contracts.
- **Innovation and entrepreneurship**: AI projects foster innovation, entrepreneurship, and the growth of the AI industry. The European AI Forum provides a platform for entrepreneurs and policymakers to discuss European AI innovation and advocate for gender-balanced representation.
- **Democracy and civic participation**: Exploring the intersection of AI, knowledge technologies, and democracy is a crucial element in AI projects. The Knowledge Technologies for Democracy (KT4D) project develops tools, guidelines, and platforms to foster civic engagement and participation in democratic processes using AI and big data.
- **Fairness and bias**: Assessing and mitigating biases in AI systems to promote fairness and impartiality is a key focus in AI projects. The Aequitas project, for example, aims to identify and address biases in AI systems across sectors such as healthcare and human resources through a controlled experimentation environment.

The main findings of the field research related to the National initiatives are:

- **Education and Skills Development:** Both the Finnish Center for Artificial Intelligence (FCAI) and the French AI Plan emphasize education and skills development in AI. They offer educational programs, training courses, and workshops to enhance AI expertise among students, researchers, and professionals.

- **Digital Innovation Hubs**: The German Federal Ministry of Education and Research's Digital Innovation Hubs and the Spanish Network of Artificial Intelligence and Advanced Analytics Digital Innovation Hub provide centralized platforms that foster collaboration, knowledge exchange, and access to resources for companies and researchers in the field of AI.
- **Industry Collaboration**: The AI4Belgium Coalition in Belgium and the AI Sweden initiative promote industry collaboration by bringing together companies, startups, and research institutions to work on AI projects, share best practices, and support innovation.
- **Access to Technology and Infrastructure**: The Dutch National AI Coalition and the Swiss National Center for Data Science provide access to advanced technologies and infrastructure, such as high-performance computing systems and data platforms, to facilitate AI research and development.
- **Societal Benefits**: The Portuguese National Strategy for Artificial Intelligence and the AI for Good initiative in Switzerland focus on leveraging AI and digital technologies to address local challenges, promote sustainable development, and improve the well-being of citizens.
- **Research and Innovation**: The Norwegian Center for AI Research and the Swedish AI Initiative prioritize research and innovation in AI, fostering collaborations between academia, industry, and government to advance scientific knowledge and develop cutting-edge technologies.
- **Ethical Considerations**: The European AI Alliance, endorsed by multiple countries, including Germany, France, and Finland, emphasizes ethical considerations in AI development. They promote transparency, accountability, and responsible research and innovation in the field of AI.
- **Government Support and Strategy**: The Dutch National AI Strategy and the Spanish AI Strategy highlight government support for AI development through funding, strategic plans, and policy frameworks that encourage innovation, talent attraction, and digitalization.
- **Collaboration with European Networks**: The AI4EU project collaborates with European networks, such as the European AI Alliance and the European AI On-Demand Platform, to foster knowledge sharing, cross-border cooperation, and access to funding opportunities at the European level.
- **Digital Inclusion**: The Estonian AI Strategy and the Danish National Strategy for Artificial Intelligence emphasize digital inclusion by promoting equal access to AI technologies, enhancing digital literacy, and ensuring the benefits of AI reach all segments of society.

The main findings of the field research related to Local/Regional initiatives are:

The main key elements are aligned with national initiatives, applied at a smaller scale. These initiatives share a common vision of leveraging AI, digital skills, and technology for the betterment of society, while promoting collaboration, transparency, inclusivity, and responsible practices. These projects recognize the increasing demand for digital skills in today's workforce and aim to bridge the digital skills gap by equipping individuals with relevant and up-to-date skills.

1.5. Conclusions

The main conclusions of this report provide solid insights into the success factors of existing initiatives focusing on digital skills and AI skills as well as elements that can be transferred to the European AI Skills Strategy to guide its further maturation. They can be summarised as follow:

- The methodological approach and the research methods used to define the set of criteria for gathering and mapping relevant initiatives of digital and AI strategies and skills building initiatives across Europe have proven to be adequate and the bulk of data gathered relevant enough for the purpose of the research.
- The assessment carried out to select the most relevant initiatives and to identify which of their elements (success factors) could be transferred into the European AI Skills Strategy has also proven to be successful and the combination of assessment criteria and expert workshop with brainstorming and qualification for success factor has provided a considerable number of relevant and useful transferable elements.
- The recommendations on what success factors could be used as the basis for the development of the Strategic Objectives and key tasks of the ARISA Strategy are grouped in 6 categories that have been labelled by the research team for a better understanding, but in the transference process to the ARISA Strategy planning, they will be converted into Strategic Objectives or Key Tasks to address a Strategic Objective.
- The main outcomes of this report together with the outcomes of D.3.2 constitute a useful and solid input for planning the ARISA Strategy, defining relevant Strategic Objectives and key tasks for the ARISA Alliance.

1.6. Recommendations

The following recommendations are the practical pieces of advice that will be taken into account when maturing the European AI Skills Strategy. They may also be retained, as background information, in the context of the different work packages, tasks and activities of the ARISA project.

The main recommendations on **diversity and inclusion** are:

- Digital training and literacy programmes for vulnerable groups, in particular people with disabilities and people at risk of digital exclusion.

The main recommendations on **technology and market trends** are:

- Developing the training in line with current and future market needs.
- Unification of reference terminology for occupations and professional curricula on AI

The main recommendations on the **implications for society** are:

- Integrating ethics, social responsibility, bias awareness into AI curricula

The main recommendations on **collaborating in the field of AI** are:

- Cross-institution, national-level and international academic cooperation when developing curricula on AI.
- Cooperation between academia, industry and society in developing the most urgent skills need on AI.
- Providing an online community space for professionals to share resources, knowledge, and best practices on AI.

The main recommendations on **sustainability** are:

- Using diverse EU, national and regional funding schemes to finance AI upskilling and reskilling initiatives.

The main recommendations on the **myths of AI** are:

- Government-appointed AI ambassadors demystifying AI, explaining its value and potential threats, engaging with industry and youth.

1.7. Use of this document

The main use of this document is to inform the further development of the European AI Skills Strategy, which will be released in Autumn 2023. It can further be used by government, industry, and education and training representatives to get insights into relevant digital skills and AI skills initiatives as well as their success factors.

2. Methodological approach

This field research to gather relevant information that will feed into the planning of the European AI Skills Strategy is using two basic methods:

- Data collection method of relevant innovative practices that could potentially contain transferable elements of interest for planning the ARISA Strategy.
- Assessment methods for selecting the relevant initiatives and identifying success factors or transferable elements.

2.1. Data collection method

In the context of the data collection for the field research, each partner was asked to collect input for the above-mentioned categories in their respective countries. In instances where two partners represent one country, partners are asked to collaborate on data collection or one partner was assigned to the country, and one will support the collection of information on pan-European initiatives. Partners are assigned their countries as follows:

- Belgium (DSME)
- Estonia (BCS Koolitus)
- France (Global Knowledge)
- Germany (ASIIN)
- Greece (EXELIA)
- Hungary (IVSZ/BME)
- Ireland (DTSL)
- Italy (ADECCO/CIMEA)
- Poland (WWSI)
- Slovenia (Unl LJUBLIANA / GZS)
- Spain (UNIR)
- The Netherlands (HU)
- EU (DE + BME/CIMEA/GZS)

In the context of their assigned country, project partners are asked to collect input on all three categories, thematic areas and types of initiatives. The initiatives were submitted to the task leaders via a submission form available online (See Annex 1. Questionnaire for relevant initiatives collection).

Associated Partners were be asked to support the data collection on a voluntary basis. They were asked to provide input predominantly on existing public-private and private skills development initiatives, with the focus on AI-related educational projects.

To ensure that relevant EU-wide projects as well as national skills initiatives from countries not covered by the project partners are taken into consideration, the submissions were also open to external stakeholders. The external stakeholders were able to submit their initiatives related to public-private and private initiatives.

2.2. Initiatives' assessment methods

The methodological approach of the research has used two different and combined assessment methods. On the one hand, the set of assessment criteria for the identified innovative practices. On the other hand, the expert workshop for selecting and ranking key transferable elements.

2.2.1. Assessment criteria of identified relevant initiatives

All data were obtained by downloading the surveys conducted. Prior to their analysis, the data underwent a thorough review to identify and remove any duplicate entries. Additionally, the geographic classification of the data was carefully examined and amended when necessary to ensure accurate representation.

Subsequently, the initiatives within the dataset were classified based on their geographic scope, specifically categorized as European, national, or local/regional. Furthermore, initiatives were divided into AI skills projects and Digital skills projects. This leads to a total of 6 different category sections:

- European AI skill projects
- European Digital skill projects
- National AI skill projects
- National Digital skill projects
- Local/regional AI skill projects
- Local/regional Digital skill projects

For each category related to a specific country (national and local/regional), the highest-scoring initiative of each country has been included in order to ensure country representation. To determine the classification within the same country and category, the assessment scores provided by the partners were utilized by calculating the average of all characteristics evaluated in the survey. These were goal setting, delivered impact, engagement and interactivity, innovation, future-orientation, inclusion and integration. However, it should be noted that the scores obtained from different partners were not directly comparable, as some partners consistently assigned higher scores while others assigned lower scores. Consequently, they were not used for cross-country comparisons.

Regarding European initiatives, average scores were used and the ten top-scoring initiatives per category were included.

2.2.2. Identifying transferable elements

An expert workshop with the partners involved in the field research was organised in early June in order raise joint agreement and understanding on what the key transferable elements could be after analysis of the relevant initiatives. A brainstorming session was organised, using Miro board as tool to synthetise information and a reduced number of transferable elements were agreed.

3. Main results

In this chapter we present the good practices selected out of the complete pool of cases gathered. Selection criteria have been highlighted in section 3.3.1 above. The analysis and findings are

presented according to the geographic scope of the initiatives: European, national, and local/regional, with the distribution in Table 1.

Area	Cases	Percentage
European	51	23.72%
Local/Regional	21	9.77%
National	143	66.51%
Total	215	100.00%

Table 1. Geographic distribution.

3.1. European initiatives

A total of 51 European initiatives were selected from the 215 collected, following the criteria highlighted in 3.3.1. The 51 initiatives included AI and Digital Skills projects, with the following distribution:

Initiative type	Instances	Percentage
AI skills project	17	33.33%
Digital skills project	34	66.67%
Total	51	100%

Table 2. Project type distribution.

Within European initiatives, 15 were described as applying to the European Union and 4 stated that they are being applied globally. The rest applied to either a portion of European Union countries or included other countries such as Albania, Belarus or Kosovo. There are a total of 444 instances from 42 countries mentioned in these projects, with the following distribution:

Countries	Instances	Percentage
Albania	2	0.45%
Austria	15	3.38%
Belarus	1	0.23%
Belgium	21	4.73%
Bosnia and Herzegovina	2	0.45%
Bulgaria	16	3.60%
Croatia	14	3.15%
Cyprus	12	2.70%
Czechia	14	3.15%
Denmark	12	2.10%
Estonia	16	3.60%
Finland	14	3.15%
France	16	3.60%
Georgia	2	0.45%
Germany	17	3.83%
Greece	12	2.70%
Hungary	17	3.83%
Iceland	1	0.23%
Ireland	17	3.83%

Countries	Instances	Percentage
Italy	23	5.18%
Kosovo	1	0.23%
Latvia	13	2.93%
Lithuania	15	3.38%
Luxembourg	13	2.93%
Malta	10	2.25%
Montenegro	1	0.23%
Netherlands	17	3.83%
North Macedonia	1	0.23%
Norway	3	0.68%
Poland	15	3.38%
Portugal	16	3.60%
Romania	16	3.60%
Russia	2	0.45%
Serbia	2	0.45%
Slovakia	12	2.70%
Slovenia	17	3.83%
Spain	20	4.50%
Sweden	16	3.60%
Switzerland	2	0.45%
Turkey	2	0.45%
Ukraine	2	0.45%
United Kingdom	4	0.90%
Grand Total	**444**	**100.00%**

Table 3. Geographical scope of European initiatives.

3.1.1. European AI skills initiatives

- **The Human-Centred AI Master's Programme and Community** - https://humancentered-ai.eu
  The Human-Centred AI Master's Programme and Community consortium brings together excellence centers, SMEs, and universities to develop a Master's Program focused on the human-centered and ethical aspects of AI. The program aims to produce highly skilled professionals with expertise in AI and its application, considering legal, regulatory, and ethical considerations. It offers an integrated curriculum, unique educational materials, and opportunities for international student exchange. Graduates will have advanced technical skills and a strong ethical foundation for AI development and implementation.

- **Women in AI** - https://www.womeninai.co/
  Women in AI (WAI) is a global initiative empowering women and minorities working towards inclusive and responsible usage of AI. Founded in 2016 in Paris, France, WAI started as a small Facebook group and has now grown into a powerful community with over 8,000 members in 140 countries. It is a non-profit organization that aims to empower women and minorities to

become AI and data experts, innovators, and leaders. WAI achieves this through various educational initiatives, research events, and online presence. The initiative offers educational programs, awards, and resources, resulting in greater diversity and recognition in the AI industry. WAI has successfully raised awareness about the importance of diversity and inclusion, leading to increased participation and industry recognition.

- **AIM for VET schools** - https://aim4vet.udc.es/
  This EU- funded project brings together faculties from Spain (UCLA La Coruna), Portugal (Mino Braga), and Slovenia (FRI Ljubljana), along with VET schools, to introduce AI. Over three years, the faculties prepare lectures on different AI topics: robotics in Portugal, internet of things and environment in Spain, and computer vision in Slovenia. The aim is to help students in vet schools develop their thinking skills and learn about AI. The teachers deliver the lectures, and students then work on applying what they've learned. Each faculty uses relevant articles, research, and practical examples to support the learning process. The project promotes collaboration between professors and VET school teachers, and it also emphasizes diversity and cultural exchange among the participating countries. The goal is to empower students with algorithmic thinking and a solid understanding of AI so they can effectively work with AI tools.

- **High-Level Expert Group on Artificial Intelligence (AI HLEG)** - https://digital-strategy.ec.europa.eu/en/policies/expert-group-ai
  The European Commission has established a group of experts to advise on its AI strategy. The group includes representatives from various sectors such as business, consumers, government, job-seekers, and researchers. The objective is to develop a comprehensive approach to AI technologies and skills across the European Union. The group's work focuses on creating a guiding framework for the development of trustworthy AI, emphasizing the concept of trustworthiness and introducing key requirements through ethics guidelines. Their deliverables include guidelines for trustworthy AI, policy and investment recommendations, an assessment list, and sector-specific considerations. The aim is to foster the development of AI in line with EU principles and rules. Although no specific measures are mentioned, the approach is described as challenging, mission-oriented, and inclusive of expert perspectives.

- **Soapbox Labs** - https://www.soapboxlabs.com/
  SoapBox Labs has developed unique speech recognition technology that accurately understands children's voices regardless of accent or dialect. Their proprietary voice engine, built on a large database of child speech from different accents and environments, offers high accuracy and mitigates bias. The technology is customizable, empowering users to create tailored voice experiences for children. SoapBox Labs' speech recognition is used in diverse educational applications, providing feedback, assessment, and support for literacy practice, language learning, and communication skills development.

- **European AI Forum** - https://european-ai-forum.com/
  The European AI Forum, founded by multiple associations including CroAI, Hub France IA, AI4SI, and KI Bundesverband, serves as a platform for entrepreneurs and policymakers to

determine the path forward for European AI innovation. The forum's mission is to set the agenda for AI policy and entrepreneurship in Europe. Through events like the European AI Forum, where representatives from ministries, the EU, and other stakeholders gather, and by writing position papers addressed to the EU parliament, the forum addresses important topics such as AI and defense, AI data and regulation, and AI in various sectors. Additionally, the forum emphasizes gender balance among presenters at its events. The initiative involves nine partner organizations that meet regularly to discuss open topics related to AI.

- **The Knowledge Technologies for Democracy (KT4D) project** - https://kt4democracy.eu/
  The KT4D is an EU-funded project, which explores how to enhance democracy and civic participation in the context of evolving knowledge technologies, such as AI and Big Data. The project aims to harness the benefits of these technologies, such as community empowerment, social integration, and improved trust, while identifying ethical, legal, and cultural risks. By combining cultural studies, humanities, and software design, the project develops tools, guidelines, and a Digital Democracy Lab Demonstrators platform. The project focuses on four use cases, including regulatory tools and services, self-awareness in software development, online citizen participation in urban planning, and social media analytics for democratic engagement. The project ultimately strives to foster civic participation in democracy by making it accessible to all citizens and facilitating informed decision-making based on citizen input. The project's outcomes have the potential to promote greater citizen participation and improve policymaking in European cities.

- **Assessment and Engineering of Equitable, Unbiased, Impartial and Trustworthy AI Systems (Aequitas)** - https://www.aequitas-project.eu/
  AEQUITAS is an EU-funded project, which proposes the development of a controlled experimentation environment to assess and mitigate biases in AI systems. The environment allows developers and users to create controlled experiments to identify potential causes of bias in data, algorithms, and interpretation of results. It provides methods, guidelines, and techniques to repair, remove, and mitigate bias, as well as fairness-by-design guidelines for developing bias-free systems. The experimentation platform generates synthetic data sets with different fairness-influencing features for testing in various sectors such as healthcare, human resources, and social disadvantaged groups. The initiative involves a consortium of AI experts, domain experts, social scientists, and associations advocating for the rights of minorities and discriminated groups. The experimentation playground will be integrated into an AI-on-demand platform, and a stand-alone release will enable on-premises privacy-preserving testing of AI systems' fairness.

3.1.2. European digital skills initiatives

- **eDigiStars** - https://www.interreg-danube.eu/approved-projects/edigistars
  The eDigiStars is an EU co-funded project that aims to support older workers in becoming digital self-employed entrepreneurs or employees, addressing challenges related to aging populations, competitiveness, employability, and skill gaps. It develops an innovative system consisting of three modules: POWERYOU for transitioning into digital self-employment, CAMPUS for adapting educational courses to the needs of older adults, and LABEL for

providing recognized certificates. The project empowers and educates older generations, improving their employability and fostering inclusion. The measurable outcome is the increased number of empowered workers securing digital service contracts.

- **Hello IT for Women** – https://www.greenfoxacademy.com/hello-it-for-women-kurzus
  The program offers free part-time online courses specifically for women, allowing them to balance their studies with work or family responsibilities. Participants also receive consultation and workshop support in job searching. The program targets women, who are currently underrepresented in the ICT sector. Over the first two years, 830 women have benefited from the program, developing their digital skills and building a foundation for their careers in the IT industry. It also raises awareness and promotes opportunities in the ICT sector for women.

- **European Digital Innovation Hubs (EDIHs)** – https://digital-strategy.ec.europa.eu/en/activities/edihs
  European Digital Innovation Hubs (EDIHs) are comprehensive support centers that help companies and public sector organizations address digital challenges and enhance competitiveness. They assist companies in leveraging digital technologies to improve processes, products, and services. EDIHs provide access to technical expertise, testing opportunities, and innovation services like financing advice and skills development. They also help companies address environmental concerns through the use of digital technologies for sustainability and circularity.
  The EDIHs offer direct guidance, expertise sharing, and support in implementing digital transformation. They facilitate network building and knowledge sharing on both regional and EU levels. The project aligns with the European Training Foundation's focus on sustainability, social inclusion, and the interlinkages between its work and the Sustainable Development Goals (SDGs).

- **IBM Skillsbuild** - https://skillsbuild.org/
  IBM SkillsBuild is a global program that offers job seekers, students, and entrepreneurs' access to online training, personalized coaching, and hands-on projects to develop their skills and advance their careers. The program covers various areas, including artificial intelligence, cloud computing, cybersecurity, data science, digital marketing, and blockchain. It uses AI and machine learning to provide personalized recommendations and offers digital badges and industry-recognized credentials. IBM SkillsBuild aims to increase access to education, collaborate with governments and organizations, and make a positive impact on communities. It provides in-demand skills, industry certifications, and networking opportunities for students.

- **EU Digital Decade** – https://digital-strategy.ec.europa.eu/en/policies/europes-digital-decade
  The Digital Decade is a comprehensive framework promoted by the European Commission to guide all actions related to digital. The aim of the Digital Decade is to ensure all aspects of technology and innovation benefit people. It aims to pursue a human-centric and sustainable vision for digital society, empowering citizens and businesses. The framework includes the Digital Decade policy program, targets, objectives, multi-country projects, and Digital Decade rights & principles.

- **Digital Skills and Jobs Platform** - https://digital-skills-jobs.europa.eu/en
  The Digital Skills and Jobs Platform aims to address the lack of digital skills by providing open access to high-quality information and resources. It serves as a one-stop platform for individuals and organizations interested in improving their digital skills and knowledge. The platform offers smart search and filtering functions, relevant content, and collaborative spaces for users at all levels of expertise. It also facilitates the growth of the Digital Skills and Jobs Community. The platform provides tools for searching training opportunities, events, and funding programs related to digital skills. It shares various types of content such as articles, resources, discussions, events, and more. The platform focuses on sustainability, a comprehensive approach to information, and website visibility. It promotes best practices and projects for inclusion and aims to increase transparency and information about actions for advanced digital skills. The platform fosters the creation of national and trans-national skills communities.

- **European Cyber Security Organisation (ECSO)** - https://ecs-org.eu/
  The European Cyber Security Organisation (ECSO) is a public-private partnership that aims to foster a competitive and innovative cybersecurity industry in Europe and build trust in digital solutions and services. It addresses cyber threats by creating a favourable environment for cybersecurity development. The initiative promotes collaboration between industry, research, and public authorities, supports cybersecurity standards and certifications, encourages innovation and startups, and facilitates the deployment of cybersecurity solutions. It utilizes tools like public-private partnerships, collaboration platforms, standardization efforts, funding programs, and policy advocacy. The initiative's success lies in industry and public authority involvement, collaboration, standardization, innovation, and solution deployment support. It promotes diversity by involving SMEs, startups, and underrepresented groups. The outcomes include European cybersecurity industrial policy, standards and certifications, a competence centre, and support for startups. Beneficiaries experience the creation of new products, increased awareness, and industry growth in cybersecurity.

- **SELFIE -** https://digital-skills-jobs.europa.eu/en/actions/european-initiatives/selfie
  SELFIE is an initiative of the European Commission, which aims to promote digital skills among citizens, especially among those who are not yet proficient in them. It provides an online self-assessment tool for individuals to measure their digital competences based on a commonly agreed framework. The initiative helps individuals become aware of their digital strengths and weaknesses and offers guidance and training to improve their skills. It addresses the digital skills gap by providing resources, partnerships, and multilingual support to foster diversity and inclusion. The initiative has led to the development of a framework, the self-assessment tool, and partnerships, resulting in increased awareness, improved digital skills, and enhanced employability for its beneficiaries.

3.1.3. Discussion of the European initiatives

There are some key aspects to consider that could be used as background information for the planning and development of the European AI Skills Strategy. These relevant aspects extracted from the analysis of the European initiatives are categorised by topic:

- **Education and training**: A crucial element is the focus on education and training programs. These initiatives aim to equip individuals with the necessary know ledge and skills in AI. For example, the Human-Centred AI Master's Programme and Community (HCAIM) emphasizes ethical AI development, while IBM Skills provides personalized coaching in AI and related skills.

- **Diversity and inclusion**: Promoting diversity and inclusion is a key element in many of these projects. Initiatives such as Women in AI (WAI) empower women and minorities, offering educational programs and resources to encourage their participation and leadership in AI and data-related domains.

- **Ethics and trustworthiness**: Projects in this category prioritize the development of ethical frameworks, guidelines, and tools for responsible and trustworthy AI deployment. The High-Level Expert Group on Artificial Intelligence (AI HLEG) advises on trustworthy AI development and provides ethical guidelines to the European Commission.

- **Applications in education**: AI projects are increasingly leveraging technology to enhance educational experiences and support learning. For instance, Soapbox Labs has developed speech recognition technology tailored for children's voices, enabling educational applications that provide feedback, assessment, and language learning support.

- **Vocational Education and Training (VET)**: The integration of AI concepts and skills into vocational education and training institutions is a significant element in AI projects. AIM for VET schools brings faculties and VET schools together to deliver AI lectures and promote algorithmic thinking among students.

- **Policy and governance:** Developing policies, frameworks, and governance structures for regulating and responsibly deploying AI is a critical element in AI projects. The AI HLEG project advises the European Commission on AI strategy and produces guidelines for trustworthy AI, contributing to the establishment of comprehensive AI governance frameworks.

- **Digital skills and employability**: Enhancing digital skills and improving employability in the digital era is an important element in AI projects. Initiatives like the eDigiStars project support older workers in becoming digital self-employed entrepreneurs or employees, addressing skill gaps and facilitating access to digital service contracts.

- **Innovation and entrepreneurship**: AI projects foster innovation, entrepreneurship, and the growth of the AI industry. The European AI Forum provides a platform for entrepreneurs and

policymakers to discuss European AI innovation and advocate for gender-balanced representation.

- **Democracy and civic participation**: Exploring the intersection of AI, knowledge technologies, and democracy is a crucial element in AI projects. The Knowledge Technologies for Democracy (KT4D) project develops tools, guidelines, and platforms to foster civic engagement and participation in democratic processes using AI and big data.

- **Fairness and bias**: Assessing and mitigating biases in AI systems to promote fairness and impartiality is a key focus in AI projects. The Aequitas project, for example, aims to identify and address biases in AI systems across sectors such as healthcare and human resources through a controlled experimentation environment.

3.2. National initiatives

A total of 143 National initiatives were selected from the 215 collected, following the criteria highlighted in 3.3.1. The 143 initiatives included AI and Digital Skills projects, with the following distribution:

Initiative type	Instances	Percentage
AI skills project	61	42.66%
Digital skills project	82	57.34%
Total	143	100.00%

Table 4. Project type distribution.

National initiatives included 11 countries, covering the countries represented by ARISA partners, which were the following:

Country	Instances	Percentage
Belgium	7	4.90%
Estonia	8	5.59%
France	3	2.10%
Germany	7	4.90%
Greece	7	4.90%
Hungary	20	13.99%
Ireland	21	14.69%
Italy	10	6.99%
Netherlands	20	13.99%
Slovenia	14	9.79%
Spain	26	18.18%
Grand Total	**143**	**100%**

Table 5. Geographical scope of National initiatives.

3.2.1. National AI skills initiatives

- **Belgium: SustAIn.brussels** - https://www.sustain.brussels/

SustAIn.Brussels is a new European Digital Innovation Hub in Brussels, aiming to be the central access point for sustainable digital innovation, particularly in AI and emerging technologies. The initiative supports companies by providing the right partners, expertise, and resources to address challenges related to technology selection, skills acquisition, investment, partnerships, and sustainability. It offers technical expertise, experimentation opportunities, and innovation services such as financing advice and skills development. The hub is coordinated by key actors in the Brussels digital ecosystem, forming a network of public and private expertise. It combines regional presence for local support with the benefits of a pan-European network, facilitating knowledge sharing and specialized services across regions.

- **France: Ecole IA Microsoft Simplon** - https://simplon.co/formation/ecole-ia-microsoft/23
  This project is created in partnership between Microsoft and Simplon. It is an alternative school aimed at providing equal opportunities in the field of Artificial Intelligence (AI). It offers training for job-seekers interested in AI developer positions. The program is open to anyone registered as a job applicant, with a requirement of strong motivation, basic programming skills, and a high school level of mathematics. The school has already trained over 400 job seekers in France, and based on this success, Microsoft and Simplon are expanding their training program to include AI professions.

- **Germany: AI Campus** - https://ki-campus.org
  The AI Campus is a free online learning platform for AI and data skills, funded by the German Ministry of Education and Research. It collaborates with various institutions and aims to strengthen AI education through courses, videos, and podcasts. The platform connects learners, creators, and experts to advance AI competencies and fosters communities of practice. It supports teachers, offers learning networks, and promotes collaboration among stakeholders. The AI Campus provides a wide range of learning opportunities for diverse audiences.

- **Greece: no initiatives**

- **Ireland: National MSc in Artificial Intelligence** - https://www.ul.ie/gps/artificial-intelligence-msc-online
  The two-year part-time MSc program in Artificial Intelligence provides current and potential AI engineers with the skills and knowledge they need to excel in their roles. It is industry-led and supported by various companies in Ireland. The program offers a flexible online learning experience with a practical focus, emphasizing continuous assessment and project work. Students can choose between two specialized streams: Modern Machine Learning and Natural Language Processing. The program's curriculum is designed specifically for industry relevance and delivered through online activities.

- **Italy: Road to generation** - https://iab.it/eventi-2-2/
  "Road to Regeneration" is an initiative promoting the use of Generative Artificial Intelligence in the digital advertising industry. It aims to enhance industry skills, foster innovation, and provide practical education. The project includes events like Data Day and IAB Showcase, along with

networking opportunities through DOD. It helps companies adapt to future changes, showcasing the impact of Big Data and AI on marketing and digital communication through case studies and technological solutions.

- **Italy: Osservatorio Artificial Intelligence -** https://www.osservatori.net/it/ricerche/osservatori-attivi/artificial-intelligence
  The Artificial Intelligence Observatory was founded to explore the potential of AI for public and private companies. It aims to create a community for investigating AI opportunities and adoption by combining managerial and technological perspectives. The Observatory conducts various workshops, activities, and research to provide insights and promote upskilling on AI topics. It serves as a reference point for digital innovation in Italy and contributes to research, continuous updating, and communication in the field. The impacts of the Observatory include research engagement, professional updating, and knowledge dissemination through conferences and publications.

- **Netherlands: AiNED –** https://ained.nl/
  The Dutch coalition AINED, consisting of industry and academia, has published a national AI plan with goals and actions. It focuses on promoting access to AI talent and skills, facilitating AI-driven business development, and promoting the use of AI in government. The plan emphasizes inclusive growth, human-centered values, transparency, and investing in AI research and development. AiNED's focus areas include innovation, knowledgebases, the workforce, society, and data sharing. The p'ogram promotes public-private cooperation and responsible AI development, with explicit requirements for human-oriented AI and the involvement of citizens. It involves publications, ELSA Labs for ethical and social aspects of AI, and close collaboration with the NL AI Coalition.

- **Poland: no initiatives**

- **Slovenia: Machine Learning Academy for Business Applications** – https://www.gzs.si/Dogodki/17-01-2023/zasedena-mesta-akademija-strojnega-ucenja-za-poslovne-aplikacije
  The ICT Association organized a free 3-day machine learning training for its members. The first day focused on introducing non-technical staff, including CEOs, to AI concepts and applications. The following two days provided hands-on training for technical staff, covering data exploration, preprocessing, model building, and evaluation. The goal was to up-skill employees and give companies insights into integrating AI solutions. While the training addressed the need for short courses, the gender diversity among participants needs improvement. The program aimed to provide an introduction to AI for managers and enhance machine learning skills for technical roles, with feedback from participants yet to be obtained.

- **Spain: Estrategia Nacional de IA** – https://ia-espana.org/formacion/
  The National Artificial Intelligence Strategy (ENIA) is a Spanish government initiative aimed at developing inclusive, sustainable, and citizen-centered AI. It is part of the Spain Digital 2025 Agenda and the Recovery, Transformation, and Resilience Plan for the economy. The strategy

has a budget of 600 million euros and focuses on consolidating AI technology within the Spanish ecosystem. Its objectives include scientific excellence, job creation, transforming industries, fostering trust, promoting humanistic values, and ensuring inclusivity and sustainability. The strategy emphasizes research, talent development, data platforms, value chain integration, public administration, and ethical regulations. It aims to bridge the digital divide and achieve gender equality in STEAM and AI. The ENIA includes various programs and initiatives such as Spain Talent Hub, Quantum Spain, Spain Neurotech, and university-industry Chairs in AI. It also allocates funds for the adoption of AI in sectors like health and agriculture.

3.2.2. National digital skills initiatives

- **Belgium: no initiatives**

- **Estonia: Estonia's Digital Agenda 2030** – https://www.mkm.ee/digiriik-ja-uhenduvus/digiuhiskonna-arengukava-2030
  Estonia's Digital Agenda 2030 outlines a vision and action plan to leverage digital technology over the next decade. The project targets various stakeholders, including businesses, consumers, government, non-profit organizations, and researchers. In terms of digital education, the agenda emphasizes the need for an adequate number of ICT specialists, reskilling and upskilling initiatives, and enhancing digital literacy among the population. The development plan is implemented through a digital society program, which sets specific objectives, activities, responsible entities, and metrics. The agenda prioritizes inclusivity, sustainable solutions, innovative governance, and citizen participation. The ultimate goal is to increase Estonia's digital power by providing the best digital government experience, ensuring high-speed internet availability, and maintaining a safe and reliable cyberspace.

- **France no initiatives**

- **Germany: Education in the digital world** – https://www.kmk.org/aktuelles/artikelansicht/strategie-bildung-in-der-digitalen-welt.html
  Germany adopted a strategy in 2016 to address education in the digital world. It aims to expand the educational mission by integrating digitalization and critical reflection into learning. The strategy focuses on determining the digital skills students need and proposes actions such as curriculum integration, infrastructure development, teacher training, and user-friendly learning programs. The goal is to ensure access to digital learning for all students. The strategy emphasizes the benefits of digital media in enhancing teaching and aims to foster digital skills across all areas of education. Continuous improvement and development are key aspects of the initiative.

- **Greece: Elevate Greece** – https://elevategreece.gov.gr/
  Elevate Greece is the official platform and leading resource for information on the Greek Startup Ecosystem. It serves as a gateway to help the ecosystem grow and expand. The initiative aims to promote Greece as a major innovation hub in Southeast Europe by fostering a strong culture of innovation and entrepreneurship. Through Elevate Greece, startups can apply to be officially accredited by the competent State Ministry, which is the Ministry of

Development & Investments – General Secretariat for Research & Innovation (GSRI). Accredited startups gain several benefits, including international visibility, support measures from state authorities, funding opportunities, networking prospects, updates, and access to job openings and employment vacancies. The platform focuses on supporting innovative startups that demonstrate technological innovation in products, services, or business models, utilizing the latest available technologies. These startups should have few competitors in their respective markets, with an emphasis on companies offering solutions with similar advantages.

- **Hungary: EDIHs Hungary** – https://european-digital-innovation-hubs.ec.europa.eu/edih-catalogue?f%5B0%5D=country%3AHungary&f%5B1%5D=search%3Ahungary
  European Digital Innovation Hubs (EDIHs) are one-stop shops that help businesses and public sector organizations address digital challenges and enhance their competitiveness. Their main objective is to strengthen the digital capabilities of SMEs and public sector entities across the European Union. In Hungary, five EDIHs have been established, focusing on areas such as High Performance Computing, Digital Technology, Data, Artificial Intelligence, and Agriculture. Each EDIH offers a range of services tailored to their respective domains, including training, mentoring, consultancy, financial support, and market access. While specific details are not available for each EDIH in Hungary, their overall purpose is to support digital transformation and enable organizations to leverage digital technologies effectively.

- **Hungary: HPC Competence Center** - https://hpc.kifu.hu/en
  The HPC Competence Center was established in 2020 by the Hungarian Governmental Agency for IT Development to promote and support the efficient use of High Performance Computing (HPC) infrastructure in Hungary. It provides access to supercomputers, user support, and training opportunities for academic and industrial users. The center has contributed to the success of 400 projects involving 26 institutions and 900 users, making HPC utilization in Hungary more efficient.

- **Ireland: FutureInTech** - https://futureintech.ie/
  The Future in Tech Programmes offer nine free online tech skills programmes to help unemployed individuals develop digital skills and access new job opportunities. These programmes, supported by Technology Ireland ICT Skillnet and other organizations, provide certified Tech Skills Pathways in areas such as cybersecurity, web development, and data analytics. The programme includes competency assessments, one-year online tutor-led courses, industry certifications, and mentorship. Graduates have found employment in various sectors and the programme effectively bridges skills gaps in technology roles.

- **Italy: no initiatives**

- **Netherlands: Dutch digitalisation strategy 2021** – https://www.nederlanddigitaal.nl/documenten/publicaties/2021/06/22/the-dutch-digitalisation-strategy-2021-eng
  The 2021 Dutch Digitalisation Strategy provides an overview of the state of digitalization In the Netherlands, with a specific focus on AI. It aims to ensure the inclusion of citizens and the

mutual benefit of digitalization for both businesses and the government. The strategy emphasizes research and innovation in AI through partnerships, such as the Dutch AI Coalition (NLAIC) and the AiNed program. It also emphasizes safeguarding public values and human rights, particularly in relation to risk management and legal frameworks. The Netherlands actively engages internationally in addressing AI challenges and participates in initiatives like the Global Partnership on Artificial Intelligence (GPAI). The strategy promotes collaboration between public and private, academic and commercial partners to co-create solutions through research and development projects. Inclusiveness, diversity, and inclusion are key considerations in the strategy, and the government aims to create an inclusive, digital, and efficient country. Progress and impact are regularly reported to the government through public reports, highlighting ongoing projects like the "Driven by Data" pilot and the creation of a strategic action plan for AI and the funding of AI labs.

- **Poland: no initiatives**

- **Slovenia: Inženirke in inženirji bomo! (We will be engineers!)** - https://www.inzenirji-bomo.si/ The project "We will be engineers!" aims to promote engineering, technological, and natural science professions, as well as innovation among students in Slovenian high schools. Its goal is to inspire young people to pursue technical professions and develop their creative and innovative skills, leading to increased competitiveness and the acquisition of knowledge and competences relevant in the 21st century. The project includes several initiatives such as career presentations, combining engineering skills with business skills, showcasing successful individuals from the business world, an online application to explore engineering fields and study programs, a quiz highlighting the achievements of Slovenian engineers, and an annual recognition of the Female Engineer of the Year. Testimonials from engineers and media coverage contribute to the promotion of engineering careers. The project focuses on organizing events at schools, ensuring visibility for engineers, and promoting STEM studies.

- **Spain: Proyecto Haz** - https://haz.institutortve.com/
  The Haz Project is a collaborative effort between the RTVE Corporation and the Spanish Ministry of Culture and Sport to establish an educational platform focused on enhancing digital and audiovisual skills. With a budget of 76 million euros, funded by European recovery funds, the project caters to both active workers and students. Its main objectives include digital inclusion in the audiovisual sector, promoting employability, fostering public-private cooperation, and supporting innovative SMEs. The program offers a range of training options, including short courses, vocational training, master's programs, and postgraduate courses. The project aims to train approximately 35,300 individuals, providing them with valuable skills and knowledge in the field. The initiative is considered the largest training program in Spain's audio-visual industry to date and is managed by the RTVE Institute. It emphasizes inclusivity by offering training in multiple languages and aims to improve the employability of professionals impacted by the digital divide. The project's hybrid learning platform enables access from various regions across Spain, facilitating participation and promoting Spain's position as an international audio-visual hub.

3.2.3. Discussion of the national initiatives

There are some key aspects to consider that could be used as background information for the planning and development of the European AI Skills Strategy. These relevant aspects extracted from the analysis of the national initiatives are categorised by topic.

- **Education and Skills Development:** Both the Finnish Center for Artificial Intelligence (FCAI) and the French AI Plan emphasize education and skills development in AI. They offer educational programs, training courses, and workshops to enhance AI expertise among students, researchers, and professionals.

- **Digital Innovation Hubs**: The German Federal Ministry of Education and Research's Digital Innovation Hubs and the Spanish Network of Artificial Intelligence and Advanced Analytics Digital Innovation Hub provide centralized platforms that foster collaboration, knowledge exchange, and access to resources for companies and researchers in the field of AI.

- **Industry Collaboration**: The AI4Belgium Coalition in Belgium and the AI Sweden initiative promote industry collaboration by bringing together companies, startups, and research institutions to work on AI projects, share best practices, and support innovation.

- **Access to Technology and Infrastructure**: The Dutch National AI Coalition and the Swiss National Center for Data Science provide access to advanced technologies and infrastructure, such as high-performance computing systems and data platforms, to facilitate AI research and development.

- **Societal Benefits**: The Portuguese National Strategy for Artificial Intelligence and the AI for Good initiative in Switzerland focus on leveraging AI and digital technologies to address local challenges, promote sustainable development, and improve the well-being of citizens.

- **Research and Innovation**: The Norwegian Center for AI Research and the Swedish AI Initiative prioritize research and innovation in AI, fostering collaborations between academia, industry, and government to advance scientific knowledge and develop cutting-edge technologies.

- **Ethical Considerations**: The European AI Alliance, endorsed by multiple countries, including Germany, France, and Finland, emphasizes ethical considerations in AI development. They promote transparency, accountability, and responsible research and innovation in the field of AI.

- **Government Support and Strategy**: The Dutch National AI Strategy and the Spanish AI Strategy highlight government support for AI development through funding, strategic plans, and policy frameworks that encourage innovation, talent attraction, and digitalization.

- **Collaboration with European Networks**: The AI4EU project collaborates with European networks, such as the European AI Alliance and the European AI On-Demand Platform, to

foster knowledge sharing, cross-border cooperation, and access to funding opportunities at the European level.

- **Digital Inclusion**: The Estonian AI Strategy and the Danish National Strategy for Artificial Intelligence emphasize digital inclusion by promoting equal access to AI technologies, enhancing digital literacy, and ensuring the benefits of AI reach all segments of society.

3.3. Local/Regional initiatives

A total of 21 Local/Regional initiatives were selected from the 215 collected, following the criteria highlighted in 3.3.1. The 21 initiatives included AI and Digital Skills projects, with the following distribution:

Initiative type	Instances	Percentage
AI skills project	11	52.38%
Digital skills project	10	47.62%
Total	21	100%

Table 6. Project type distribution.

Regional initiatives included only seven countries, with the following distribution:

Countries	Instances	Percentage
Belgium	5	23.81%
Estonia	1	4.76%
France	9	42.86%
Greece	1	4.76%
Hungary	1	4.76%
Netherlands	2	9.52%
Spain	2	9.52%
Grand Total	**21**	**100%**

Table 7. Geographical scope of regional initiatives.

3.3.1. Local/Regional AI skills initiatives

- **Belgium, Brussels: AI for the Common Good Brussels (FARI)** - https://www.fari.brussels/
  FARI is an initiative focused on the development, study, and adoption of AI, Data, and Robotics technologies in a trustworthy, transparent, ethical, and responsible manner. It aims to leverage these technologies for societal benefits, such as upholding Fundamental Human Rights and achieving Sustainable Development Goals. The initiative involves cross-disciplinary research teams and engages with various stakeholders to address local challenges in the Brussels-Capital Region and beyond. The project emphasizes AI and Data ethics, legal compliance, and responsible research and innovation. It seeks to integrate academic research, societal impact, and value-driven principles while promoting transparency and inclusivity. The initiative offers services and facilities to research laboratories, government institutions, and civic organizations to support their AI-related endeavors. FARI plans to launch collaborative projects, joint PhD programs, academies, and entrepreneurship support programs to foster people-centred AI projects and strengthen partnerships with European counterparts.

- **Belgium, Flanders: VAIA, the Flanders AI Academy** - https://www.vaia.be/en/
  The Flanders AI Academy aims to be a go-to resource for AI education, catering to various audiences such as active workers, job-seekers, researchers, academics, and students. It recognizes the need to enhance digital skills in the Flemish business community and stimulate the regional economy. The platform provides a comprehensive directory of AI courses offered in higher education institutions, promoting easy access and clear information. The Flanders AI Academy aligns with the Flemish AI Policy Plan and receives substantial funding for its implementation. While explicit references to inclusion and diversity are lacking, there are free courses available, and the platform facilitates quick comparisons among AI-related courses.

- **Estonia: no initiatives**

- **France, Ile-de-France: Master of science artificial intelligence & data science business** - https://www.aivancity.ai/
  This program trains bachelor's level students for 5 years, specializing in AI with a globally recognized diploma. The aivancity school's 'Grande Ecole' program prepares future engineers to address economic and societal challenges related to data and AI. Graduates develop skills in creating computer programs for industry 4.0 and designing intelligent systems. The program includes professional certifications and offers a graduate degree in AI and Data Science.

- **France, Ile-de-France: 42 Artificial Intelligence -** https://www.42ai.fr/
  This program aims to train and support individuals in creating their own businesses in the digital field. It offers a common core curriculum to develop essential technical and human skills, followed by specialized courses in areas like security and mobile app development. The program is open to the public without graduation prerequisites, focusing on motivation. It has trained 4,200 students, including those without a diploma, with 100% post-graduate employment completion and around 500 students finding employment.

- **Germany: no initiatives**

- **Greece: no initiatives**

- **Hungary: no initiatives**

- **Ireland: no initiatives**

- **Netherlands, Gelderland, Nijmegen: Radboud AI** https://www.ru.nl/ai/
  Radboud AI connects all AI and Data Science activities at Radboud University and Radboudumc. They develop human-centered AI technology for practical applications benefiting society. They conduct research, study societal impact, and prioritize collaboration with researchers, students, industry, and society. Their focus areas include healthcare, communication, education, neuroscience, and the natural sciences. They emphasize transparency, responsibility, sustainability, and social awareness. They have collaboration labs,

an ICAI lab, and promote diversity and inclusivity. Evidence includes publications, awards, grants, student enrolment, and university collaborations.

- **Italy: no initiatives**
- **Poland: no initiatives**
- **Slovenia: no initiatives**
- **Spain: no initiatives**

3.3.2. Local/Regional digital skills initiatives

- **Belgium, Brussels: MolenGeek** - https://molengeek.com
  MolenGeek is an initiative that provides inclusive access to digital technology careers, aiming to overcome discrimination faced by youth in the Molenbeek neighborhood. Through tailored training programs and partnerships with leading companies, MolenGeek offers free training in coding, digital marketing, web management, cloud management, and short-term ICT courses. Its pedagogy emphasizes collaboration, autonomy, and hands-on learning. Located in an economically disadvantaged area, MolenGeek has received public praise, prestigious awards, and expanded its model to other cities.

- **Estonia , Kohtla-Järve, Jõhvi, Kiviõli, Sillamäe, Narva, Tallinn: Development of digital skills (individual learning)** - https://www.svsl.edu.ee/et/digioskuste-arendamine/
  This training is designed for individuals with limited computer experience who need to develop and improve their computer skills and digital capabilities for daily use. The training includes both practical and theoretical components, with active learning methods and an individual curriculum tailored to each participant's needs. Participants will acquire knowledge and skills that they can continue to use and update independently.

- **France: no initiatives**
- **Germany: no initiatives**
- **Greece, Attica: The ahedd ecosystem** - https://ahedd.demokritos.gr/about-us/ Ahedd is a digital innovation hub in Attica, Greece. It brings together research and corporate entities with expertise in AI, Big Data, and IoT technologies. As a one-stop-shop, Ahedd supports businesses with testing facilities, training, networking, and acceleration services. It aims to match SMEs' needs with commercial-ready solutions and become a reference hub for agile AI and data-driven innovation. Ahedd welcomes new members and focuses on core technologies and sectors such as Smart Cities, Healthcare, and Manufacturing.

- **Hungary, Western Transdanubia, Szombathely: DIGIPOLISZ project** - **https://netsavaria.hu/a-projektrol/**

The project focuses on two main objectives: developing digital skills and fostering community cooperation among different age groups. The project provides various digital skill training programs, including robot modelling, to enhance digital competencies. It also offers a website platform for residents to organize and promote community-building activities. The project aims to address the digital skills gaps among socially disadvantaged individuals and older populations, making them more competitive in the job market and preventing social isolation. By increasing digitalization and providing digital tools, the project contributes to the competitiveness of the community and supports the long-term sustainability of community building efforts.

- **Ireland: no initiatives**
- **Netherlands: no initiatives**
- **Italy: no initiatives**
- **Poland: no initiatives**
- **Slovenia: no initiatives**
- **Spain, Barcelona: Barcelona Digital Talent -** https://barcelonadigitaltalent.com/
  Barcelona Digital Talent aims to position Barcelona as a hub for digital talent by focusing on directing professionals to the digital industry and attracting global talent. They offer a comprehensive learning platform with up-to-date information on digital industry trends, job opportunities, and relevant courses. The organization addresses the digital skill gap through orientation, training, and job placement services. Barcelona Digital Talent also actively promotes diversity and inclusion in the digital sector through initiatives, training programs, and collaborations with companies. Their goal is to bridge the digital gap in Barcelona and establish the city as a digital talent capital.

- **Spain, Andalucía: Junta de Andalucía Cloud Computing Curriculum with AWS** - https://aws.amazon.com/solutions/case-studies/junta-de-andalucia-case-study/
  The program, available in 105 vocational training centres in Andalusia, offers 175 Information Technology courses focused on cloud technologies. Approximately 6,000 students are projected to benefit from this program over the next two years. The initiative not only aims to enhance students' digital competencies but also provides access to career opportunities in the technology sector, including cloud architecture, AI, data analytics, cybersecurity, IoT, and software development. Additionally, the program supports teachers, with over 700 actively participating in various activities. By offering training in cloud technologies, the program enables students to join the job market in technical roles, particularly in "cloud native" jobs like operations development or DevOps.

3.3.3. Discussion of the local/regional initiatives

The main key elements are aligned with national initiatives, applied at a smaller scale. These initiatives share a common vision of leveraging AI, digital skills, and technology for the betterment of society, while promoting collaboration, transparency, inclusivity, and responsible practices. These projects recognize the increasing demand for digital skills in today's workforce and aim to bridge the digital skills gap by equipping individuals with relevant and up-to-date skills.

4. Transferable elements

4.1. Defining and identifying transferable elements

In the context of an expert workshop with the partners involved in the field research, a brainstorming session and a joint agreement and understanding on what the key transferable elements that could be transferred to conform the basis for the planning and development of a European AI Skills Strategy.

The identified categories of transferable elements and the granular elements were listed by participants reduced number of transferable elements were agreed. The following table introduce the list of most relevant transferable elements per category, including also the level of relevance (1 not relevant - 5 very relevant), and the urgency to implement (1 not urgent – 5 very urgent).

Category	Transferable element	Relevance	Urgency
Diversity and inclusion	High focus on including women in AI and technology = nurturing the next generation of female role models and leaders in AI	3	3
	Development of rules and preconditions ensuring fairness, inclusion and non-discrimination in AI algorithms	4	3
	Digital training and literacy programmes for vulnerable groups, in particular people with disabilities and people at risk of digital exclusion.	5	4
	Promoting STEM education and careers to girls and young women	3	3
Technology and market trends	Developing the training in line with current and future market needs	5	5
	Deep and future-oriented (10-year horizon), state-wide analysis of the labour market, roles and working conditions as influenced by the rapid uptake and continuous development of AI.	4	2
	Unification of reference terminology for occupations and professional curricula on AI	4	4
Implications for society	Integrating ethics, social responsibility, bias awareness into AI curricula	4	4
	Linking digital skills training with local community building activities (local-level initiative)	3	3
	Cross-institution, national-level and international academic cooperation when developing curricula on AI	5	5

Collaboration in the field of AI	Cooperation between academia, industry and society in developing the most urgent skills need on AI	4	5
	Providing an online community space for professionals to share resources, knowledge, and best practices on AI.	5	5
Sustainability	Providing public funding to universities to (1) develop AI courses or individual modules for students and (2) applying AI to make the quality, performance and effectiveness of higher education	3	4
	Using diverse EU, national and regional funding schemes to finance AI upskilling and re-skilling initiatives	4	4
Myths of AI	Government-appointed AI ambassadors demystifying AI, explaining its value and potential threats, engaging with industry and youth.	4	4

Table 8. List of relevant transferable elements.

4.2. Recommendations on transferable elements

In order to provide sound recommendations on which transferable elements should be embedded in the European AI Skills Strategy, only the transferable elements with a total qualification from 8-10 adding the ranking of relevance and urgency have been selected as key transferable elements to be the basis for planning and defining the ARISA Strategy.

These transferable elements together with the results of D3.2 will conform the main background material to define the ARISA Strategy.

Category	Transferable element	Relevance	Urgency
Diversity and inclusion	Digital training and literacy programmes for vulnerable groups, in particular people with disabilities and people at risk of digital exclusion.	5	4
Technology and market trends	Developing the training in line with current and future market needs.	5	5
	Unification of reference terminology for occupations and professional curricula on AI	4	4
Implications for society	Integrating ethics, social responsibility, bias awareness into AI curricula	4	4
Collaboration in the field of AI	Cross-institution, national-level and international academic cooperation when developing curricula on AI	5	5
	Cooperation between academia, industry and society in developing the most urgent skills need on AI	4	5
	Providing an online community space for professionals to share resources, knowledge, and best practices on AI.	5	5
Sustainability	Using diverse EU, national and regional funding schemes to finance AI upskilling and reskilling initiatives	4	4

Myths of AI	Government-appointed AI ambassadors demystifying AI, explaining its value and potential threats, engaging with industry and youth.	4	4

Table 9. Recommendations on transferable elements

5. Conclusions

The main conclusions of this field research consisting of identifying and mapping relevant initiatives, assessing them with a number of indicators and also considering the key transferable elements to be included in the European AI Skills Strategy can be summarised as follows:

- The methodological approach and the research methods used to define the set of criteria for gathering and mapping relevant initiatives of digital and AI strategies and skills building initiatives across Europe have proven to be adequate and the bulk of data gathered relevant enough for the purpose of the research.
- The assessment carried out to select the most relevant initiatives and to identify which of their elements (success factors) could be transferred into the European AI Skills Strategy has also proven to be successful and the combination of assessment criteria and expert workshop with brainstorming and qualification for success factor has provided a considerable number of relevant and useful transferable elements.
- The recommendations on what success factors could be used as the basis for the development of the Strategic Objectives and key tasks of the ARISA Strategy are grouped in 6 categories that have been labelled by the research team for a better understanding, but in the transference process to the ARISA Strategy planning, they will be converted into Strategic Objectives or Key Tasks to address a Strategic Objective.
- The main outcomes of this report together with the outcomes of D.3.2 constitute a useful and solid input for planning the ARISA Strategy, defining relevant Strategic Objectives and key tasks for the ARISA Alliance.

6. Annexes

6.1. Annex 1: Questionnaire for relevant initiatives collection

Key information about the initiative:

Name of the initiative: *

Initiative category: *

Select or enter value

Industry sector: *

Select or enter value

Implementing organisation(s) *

Geographical scope: *

Select or enter value

Initiative website: *

Start date of the initiative: *

End date of initiative: *

Funding source: *

Initiative description

Brief description of the initiative *

Target groups(s) *

Select or enter value

What is the initiative trying to address? *

How is the initiative addressing the issue (i.e., strategies, main activities) *

What are the main tools or approaches used to succeed? (i.e., tools, frameworks, standards used) *

What is/are the key element(s) that make this initiative successful? *

How does this initiative foster diversity and inclusion? Please provide examples. *

What are the initiative's main results/outcomes? *

What evidence is there of immediate or longer-term positive impact on the initiative's beneficiaries? *

How integrated is the initiative in its overall ecosystem? *

Has it created any communities of practice or relevant partnerships? Has there been an uptake of used tools by other organisations? Is the initiative sustainable and/or possible to scale up?

Initiative assessment

In this section, you will be asked to **rate the submitted initiative's performance in the following areas**: goal-setting, delivered impact, engagement and interactivity, innovation, future-orientation, inclusion, sustainability.

Please rate the performance in each area on a scale from 1 to 7, where:
1 - very poor; 4 - average; 7 - outstanding.

Goal-setting: *

For example: think about how clearly the initiative's goals and objectives are stated and about the extent to which they follow the SMART principle (specific, measurable, achievable, relevant, time-bound).

In my opinion, the initiative's performance in this area is:

- ◯ 1 - very poor
- ◯ 2 - poor
- ◯ 3 - below average
- ◯ 4 - average
- ◯ 5 - above average
- ◯ 6 - very good
- ◯ 7 - outstanding

Delivered impact: *

Think about the ways in which the initiative positively impacts the local/national/European community and businesses, as well as the extent and relevance of this impact (delivered or planned).

In my opinion, the initiative's performance in this area is:

- ◯ 1 - very poor
- ◯ 2 - poor
- ◯ 3 - below average
- ◯ 4 - average
- ◯ 5 - above average
- ◯ 6 - very good
- ◯ 7 - outstanding

Engagement and interactivity: *

Think about the extent to which the initiative engages its target group(s), and the specific ways in which it encourages and stimulates participation.

In my opinion, the initiative's performance in this area is:

- ◯ 1 - very poor
- ◯ 2 - poor
- ◯ 3 - below average
- ◯ 4 - average
- ◯ 5 - above average
- ◯ 6 - very good
- ◯ 7 - outstanding

Innovation: *

Think about any new, disruptive ideas or approaches introduced by this initiative (for learning initiatives, it could be, for instance: gamification elements, real-life examples and use cases, practical exercises, mentorship, customised curricula).

In my opinion, the initiative's performance in this area is:

- ◯ 1 - very poor
- ◯ 2 - poor
- ◯ 3 - below average
- ◯ 4 - average
- ◯ 5 - above average
- ◯ 6 - very good
- ◯ 7 - outstanding

Future-orientation: *

Think about the time horizon the initiative covers, whether it focuses only on addressing current societal/industry needs or intends to foresee and address emerging and future needs.

In my opinion, the initiative's performance in this area is:

- ◯ 1 - very poor
- ◯ 2 - poor
- ◯ 3 - below average
- ◯ 4 - average
- ◯ 5 - above average
- ◯ 6 - very good
- ◯ 7 - outstanding

Inclusion: *

Think about the extent to which this initiative is inclusive and/or promotes diversity and inclusion; the target groups it does and does not take into consideration; the efforts made to ensure that the initiative is accessible to less-advantaged groups.

Aspects to consider (non-exhaustive list): age, gender, ethnicity, socioeconomic status, urban/rural settlement, physical or mental (dis)ability.

In my opinion, the initiative's performance in this area is:

- ◯ 1 - very poor
- ◯ 2 - poor
- ◯ 3 - below average
- ◯ 4 - average
- ◯ 5 - above average
- ◯ 6 - very good
- ◯ 7 - outstanding

Sustainability: *

Think about the sustainability of this initiative, the way it is embedded in its ecosystem, its network of stakeholders, its funding sources, and its potential for replication or scalability.

In my opinion, the initiative's performance in this area is:

- ○ 1 - very poor
- ○ 2 - poor
- ○ 3 - below average
- ○ 4 - average
- ○ 5 - above average
- ○ 6 - very good
- ○ 7 - outstanding

6.2. Annex 2: Relevant initiatives spreadsheet

Download the Relevant initiatives spreadsheet in the form of a Microsoft Excel file.

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