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AI Literacy in working context – needs and challenges

Final Report of work package 2

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1. Executive Summary

This interim report of Work Package 2 (WP2) of the "Am I fit?" project centers on the identification and analysis of AI-related skill requirements for non-technical employees in small and medium-sized enterprises (SMEs). Emphasizing results over process, the report combines theoretical modeling and empirical validation to generate actionable insights for vocational education and training (VET) in the context of AI adoption.

Key Findings from Theoretical Analysis:

A cross-country literature review revealed a growing awareness of AI's relevance but also highlighted significant disparities in AI literacy across Belgium, Germany, Italy, Poland, and Portugal.

Despite diverse national strategies and initiatives, common challenges emerged: a lack of foundational AI knowledge, minimal structured training for non-technical staff, ethical concerns (e.g. bias, data protection), and organizational inertia.

The project operationalized AI Literacy through the "Competence Behavioral Model of AI Literacy" (CBM-AIL), identifying four core individual dimensions:

- AI Mental State (motivation, emotion, attitudes),
- AI Understanding (technical, psychological, and data knowledge),
- AI Behavior (application, development, communication),
- AI Reflection (ethical, legal, and societal awareness).

Key Findings from Empirical Research:

Expert Interviews (SME Managers):

Experts across all five countries reported consistent skill gaps among non-technical employees: lack of basic AI understanding, low data literacy, and insufficient capability to use AI tools such as ChatGPT or AI-based CRMs. Ethical awareness and critical thinking were also markedly underdeveloped.

Companies emphasized the need for practical, role-specific competencies rather than technical expertise and called for scalable, modular training formats.

Employee Survey (n=151):

Despite 100% of respondents using AI tools at work, over 40% had no prior formal or informal training. Employees expressed strong intrinsic motivation for learning, driven by curiosity and perceived career relevance.

Only half felt confident using AI tools, and less than 20% reported understanding core AI principles such as machine learning, bias, and transparency.

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Major barriers included lack of time, inadequate training offerings, and perceived topic complexity—especially among those with little existing knowledge.

Focus Groups (AI Experts & Practitioners):

Participants confirmed the theoretical skill dimensions and stressed the importance of a psychologically safe learning environment, organizational encouragement, and context-sensitive training methods.

The idea of an AI Skill Scanner was well received, particularly as a tool for self-assessment and guided learning tailored to employee roles and competence levels.

Implications:

These results underline a strong and unmet demand for structured, accessible, and context-specific AI training in SMEs. The combination of low confidence, fragmented knowledge, and high motivation indicates significant potential for targeted intervention. Furthermore, employees' ethical concerns and uncertainty about AI's role underscore the need to integrate critical reflection and communication skills into training.

The insights directly inform the next phases of the project:

- the development of a modular AI training curriculum aligned with the four competence dimensions,
- the design of an AI Skill Scanner for personalized diagnostics, and
- the implementation of an AI Communication Navigator to support strategic organizational change and foster a culture of informed, responsible AI engagement.

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2. Introduction

Work package two is dedicated to exploring essential needs and requirements for AI skills in vocational education and training in a business environment. As a theoretical and empirical research package, it consists of the following elements:

- Theoretical part: an international literature review to identify an appropriate AI Literacy-model for the project objective (chapter 2)
- Empirical part: interviews with representatives of SME, a survey with employees of SME and focus groups with SME stakeholders in all partner countries to check the practical suitability of the AI-Literacy-model
- Derivation of an AI Literacy Skills Framework from the theoretical and empirical results.
- Development of a concept for the AI Skill-Scanner. A diagnostic tool with which non-technical employees can determine the level of their AI skills.

This interim report describes the procedure used and outlines the results of this multi-stage process. Firstly, the understanding of AI Literacy underlying the project is described as a theoretical basis starting with a definition of AI Literacy followed by "AI country profiles" of the partner countries. Each country profile provides a summarized overview of national current studies, initiatives, challenges and needs, AI concepts and dimensions as well as trends and developments. Based on the findings of the national studies and initiatives, the report derives an expanded holistic working model of workplace AI literacy, which lay the foundation for the AI Literacy skill framework and the Skill Scanner will inform the next steps of this project.

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3. Theoretical basics

A common understanding of AI Literacy forms the theoretical foundation of the “Am I fit?” project. Various aspects had to be taken into account on the way to this shared basis:

- the national characteristics of AI development in each of the project partners' countries
- consideration of the complexity of AI Literacy through a multidimensional approach
- an explicit suitability with a view to scientific precision with simultaneous practical applicability to the professional context

To this end, the project partner initially researched current national studies and initiatives on AI literacy as part of desk research and analyzed them according to challenges, needs and requirements in AI Literacy, dimensions of AI Literacy, key trends and developments (see appendix for an overview of results).

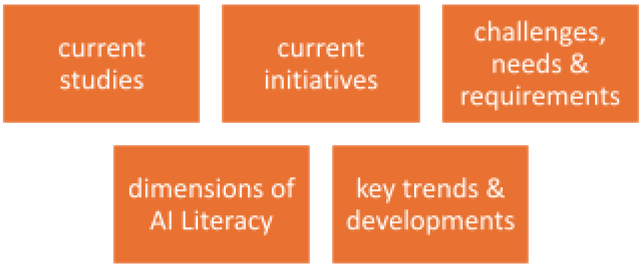

Figure 1: Elements of literature study

The following section begins by defining the project's underlying understanding of AI literacy (section 2.1). This is followed by a comparative description of the status quo in the partner countries (section 2.2) leading to a common understanding of AI literacy dimensions (section 2.3).

3.1. Definition of AI Literacy

This project works with the definition of AI Literacy of Long/Magerko ((Long & Magerko, 2020), according to which AI-Literacy is “a set of competencies that enables individuals to critically evaluate AI technologies, communicate and collaborate effectively with AI, and use AI as a tool online, at home, and in the workplace”.

This definition is not only one of the definitions widely used in international AI Literacy research. Lauchpichler et al. (Lauchpichler, Aster, Schirch, & Raupach, 2022), for example, identify it in their literature review as the one used in most studies. It is particularly suitable for this project because it takes the workplace context into account and pursues an individual-centered approach. This is relevant to address the personal needs, reservations and opportunities of employees when developing training materials.

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3.2. AI Literacy in partner countries

The EU Artificial Intelligence Act (EU Commission, 2025) enters into force on 1 August 2024 and becomes applicable on 2 August 2026. It lays the foundation for the regulation of AI in the EU and creates pressure for action to professionalize the use of AI not only at a political level, but also at a company level. These economic consequences have a significant impact on this project because they directly affect the topic of promoting AI skills in company training. It is important to bear in mind that the AI Act does not exist in a vacuum in the member states but is based on specific national development stages and priorities.

In order to be able to draw a differentiated picture of the state of science and business practice and the practice of AI Literacy in the project partner countries Belgium, Germany, Italy, Poland, and Portugal, studies and initiatives from all countries were analyzed with a view to current challenges, needs and requirements, dimensions of AI Literacy and key trends & developments (status of analysis 2024).

The following country profiles show the results of this analysis, before they are condensed into a common understanding (see chapter 2.3).

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3.2.1. Country profile: AI-Literacy in Belgium

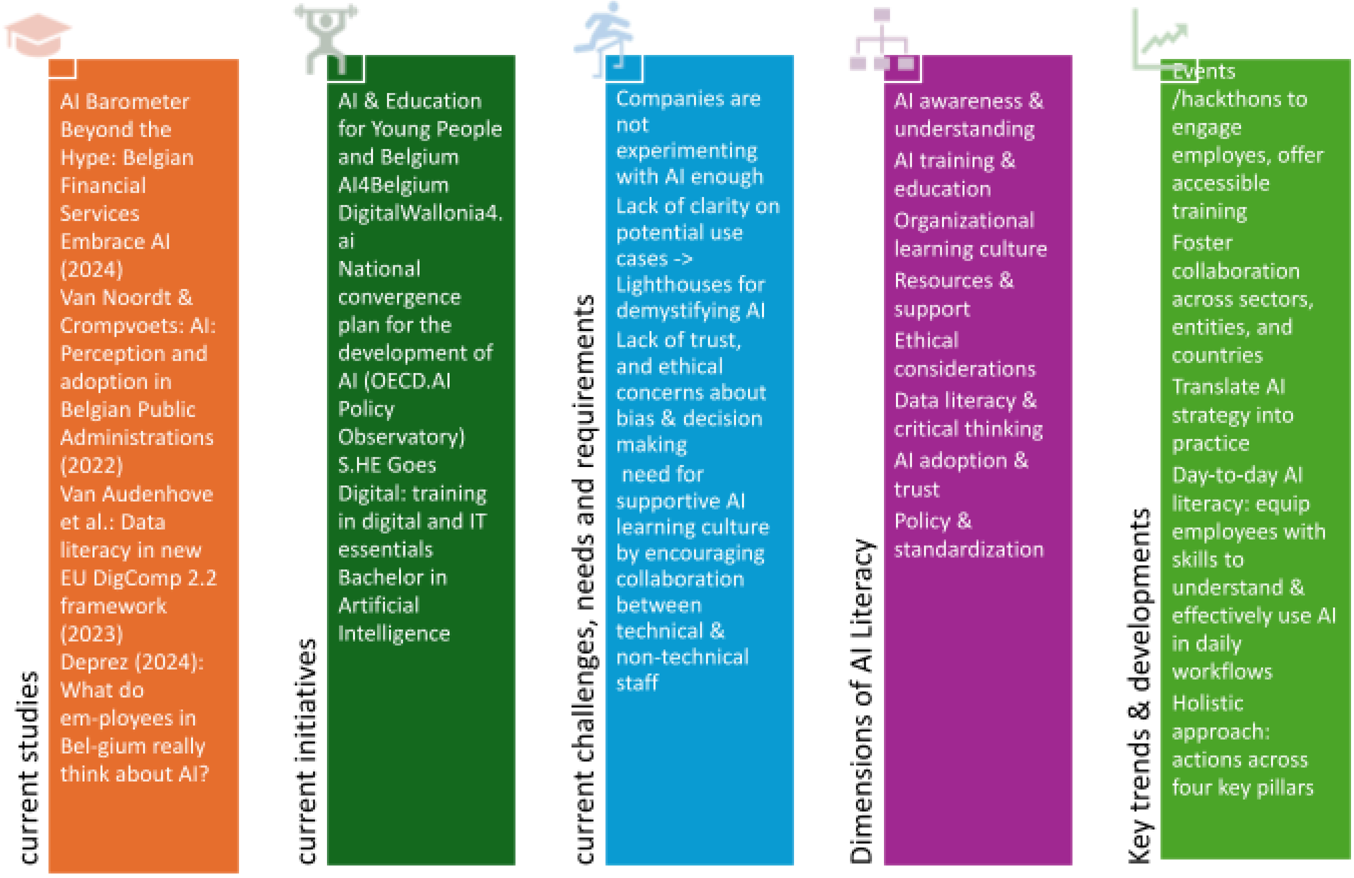

Figure 2: AI Literacy in Belgium

Research papers specifically addressing AI Literacy in Belgium are rare. Many studies are international or cover related topics like data literacy or digital literacy (see e.g. (Noordt & Crompvoets, 2022), (Audenhove, 2023), (Latinne & Deprez, 2024). That is especially interesting while there are many AI initiatives in Belgium. E.g. the "DigitalWallonia4.ai" (https://www.digitalwallonia.be): The program has the main objective of accelerating the adoption of AI in Wallonia and the development of the Wallonia AI ecosystem. Initiated by the Minister of Digital Affairs, Pierre-Yves Jeholet, it was launched in July 2019. In addition to awareness-raising and training initiatives, it includes concrete actions to support companies wishing to incorporate AI into their business up to the development of prototypes.

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One of the challenges seen in Belgium is that companies are not experimenting enough with AI. There seems to be a need for AI Lighthouses for demystifying AI and for opportunities to collaborate. Initiatives such as “AI4Belgium” (https://bosa.belgium.be), a coalition that brings together artificial intelligence stakeholders from public services, the private sector, academia and civil society, experts and non-experts tries to foster collaboration, sharing of technology and access to financing. Events such as “AI & Education for Young People and Belgium” (https://www.fari.brussels/news-and-media-article/belgium-to-accelerate-high-quality-of-education-through-ai-education-initiatives) make initiatives and their offerings visible and tangible, and degree programs such as the Bachelor in Artificial Intelligence put them into practice.

3.2.2. Country profile: AI-Literacy in Germany

In Germany, current studies on AI-Literacy (Wienrich, Carolus, & Markus, 2022), (Lauchpichler, Aster, Schirch, & Raupach, 2022), (Cousseran, Lauber, & Hermann, 2023) have shown that large sections of the German population only have a vague understanding of what AI actually is. Gaps in knowledge and experience are building up here, particularly between generations. One driver of the movement: Simple user interfaces of AI tools make it possible to use them without understanding them. When it comes to teaching AI Literacy, even teachers are often still unaware of what content and structure can be taught. Science calls for a human centered perspective with a focus not only on technology, designs and developments, but also on human users. As a result, it is useful to consider a “Micro level" with individual factors of AI literacy like mental state that is embedded in organizational and social framework conditions.

There are many initiatives that aim to provide AI skills. In addition to broad initiatives that address AI literacy as a challenge for society as a whole (e.g. the Alliance for AI Literacy in Germany, https://aiskillsnavigator.microsoft.com/de-de), there are more specific approaches that target specific populations or sectors (e.g. artificial intelligence in the skilled trades, https://www.ki-di-ha.de/).

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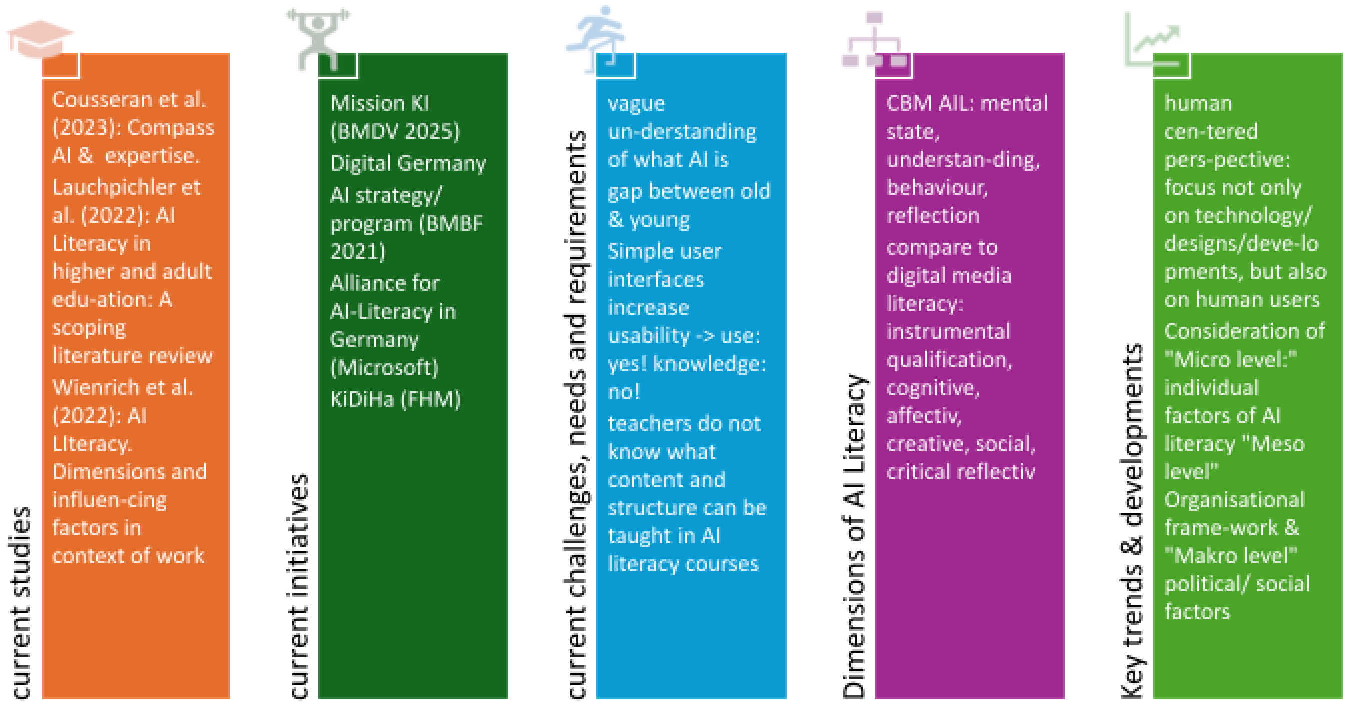

Figure 3: AI Literacy in Germany

3.2.3. Country profile: AI-Literacy in Italy

In Italy, recent academic contributions such as *Introduction to AI* (Riguzzi, 2006), *Knowledge of AI* (Mizzaro, n.d.), and *Training for Teachers and Learning Paths in AI* (Piccione, 2021) provide a foundation for understanding the current landscape of AI literacy. These studies focus on both conceptual understanding and practical training pathways, particularly for educators and learners, highlighting the growing importance of structured approaches to AI education.

The national agenda is guided by the *Italian Strategy for Artificial Intelligence 2024–2026*, coordinated by AGID. This strategy aims to stimulate the integration of AI into public administration and business innovation, foster talent development through high-quality training systems, and reinforce Italy's positioning within international AI research networks.

Among the most pressing challenges are the need to enhance the adoption of AI across sectors, develop favorable conditions for value creation through AI, and align educational systems with the demands of emerging technologies. There is a strong emphasis on facilitating innovation in management practices and streamlining public services through AI-based solutions. Furthermore, connecting national research units with major global development platforms remains a priority.

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Italy's approach to AI literacy includes multiple dimensions: a logical-formal perspective grounded in mathematical logic; a psychological-cognitive dimension based on empirical study of human understanding; and a philosophical-epistemological approach that emphasizes intuitive and reflective inquiry. The latter is considered particularly suitable in the early phases of learning about AI.

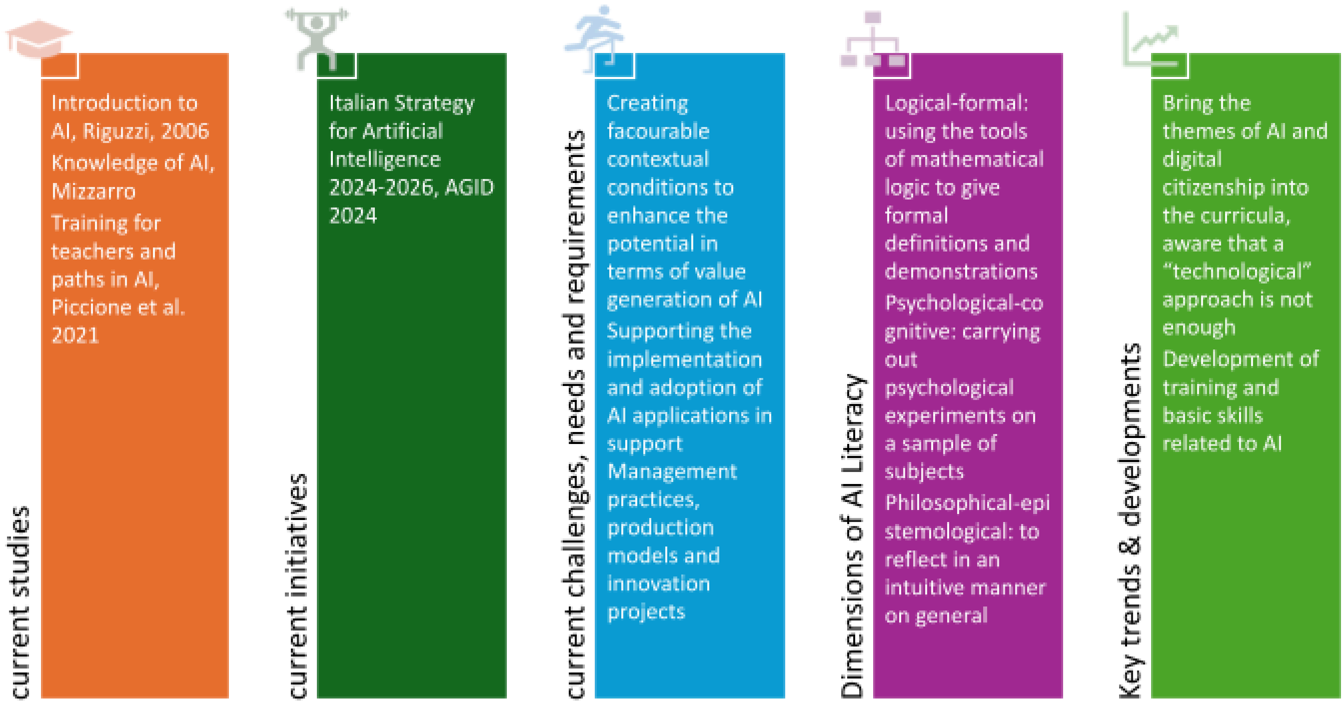

Figure 4: AI Literacy in Italy

Key trends indicate that Italy is committed to increasing investment in both foundational and applied AI research. A particular focus lies in the development of trustworthy and anthropocentric AI systems, consistent with European values. The integration of AI and digital citizenship into formal education curricula is also gaining traction, recognizing that technical knowledge alone is insufficient. Instead, a broader understanding that includes social, ethical, and civic dimensions of AI is being promoted.

3.2.4. Country profile: AI-Literacy in Poland

The "Policy for the development of AI in Poland" (https://wp.oecd.ai/app/uploads/2021/12/Poland_Policy_for_Artificial_Intelligence_Development_in_Poland_from_2020_2020.pdf?utm_source=chatgpt.com) establishes Poland's strategic direction for AI, aiming to integrate AI technologies into education, research, and the

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economy. It highlights the need to build a robust AI ecosystem while ensuring ethical and societal considerations. A cornerstone for this ecosystem is the "AI Lab" at the National Information Processing Institute (https://opi.org.pl/en/). It conducts cutting-edge research in natural language processing and computer vision, addressing both academic and industrial challenges.

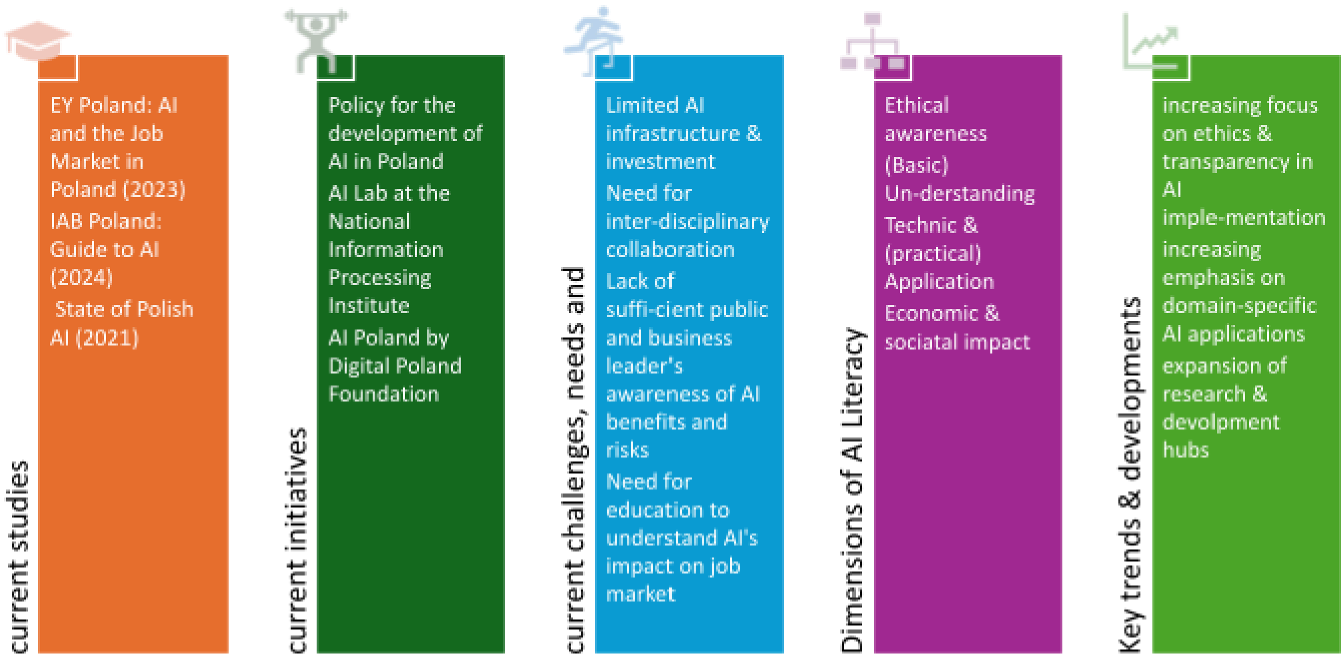

Figure 5: AI Literacy in Poland

The scientific basis for these exemplary initiatives is formed by findings from studies such as "The State of Polish AI 2021" (Fundacja Digital Poland, 2021), a report that provides a comprehensive analysis of the AI ecosystem in Poland, showcasing the country's advancements in AI research, development, and applications. It highlights Poland's ranking in Europe, its strengths in AI implementation, and challenges faced by companies and experts in the field like the limited awareness and understanding of AI among business leaders and SMEs. It identifies a need for deeper integration of AI into business operations and more robust training programs.

Also, the EY study "AI and the Job Market in Poland" (EY Polska, 2023)identifies a significant need for education about AI to understand its impact on the job market and prepare workers for the upcoming changes.

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3.2.5. Country profile: AI-Literacy in Portugal

As early as 2018 in Portugal Veiga et al. (Veiga, Pires, & Paulo, 2018) explored how AI technologies, including machine learning and cognitive computing, will significantly affect work processes, job structures, and economic dynamics. The study highlights employees' uncertainties about AI's impact but also emphasizes its potential benefits, such as reducing workplace accidents. It advocates preventive measures to prepare organizations for AI's revolutionary effects, aiming to balance technological progress with worker wellbeing and safety (see also (Francisco, 2019).

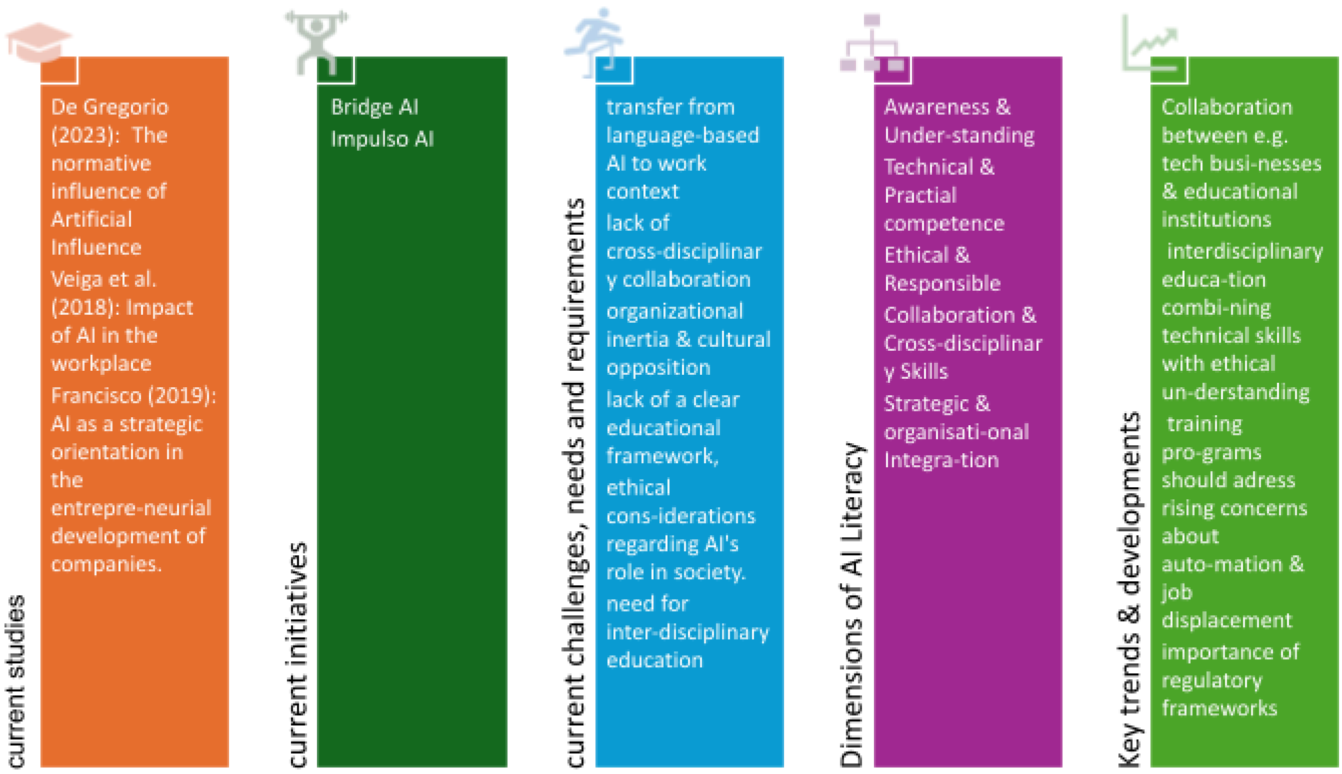

Figure 6: AI Literacy in Portugal

These needs are met by various Portuguese projects such as “Bridge AI” (https://bridge-ai.eu/wp/en), an initiative funded by the Foundation for Science and Technology (FCT) and PlanAPP, through the General Secretariat of the Presidency of the Council of Ministers of Portugal. The initiative aims at promoting the adoption and scaling of trustworthy Artificial Intelligence (AI) within small and medium-sized enterprises (SMEs) across various sectors. The project focuses on fostering innovation, increasing competitiveness, and ensuring responsible use of AI technologies. An example of a practical initiative is “Impulso AI” (https://www.apdc.pt/iniciativas/impulso-ia/): a program developed by Portuguese

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Association for the Development of Communications in partnership with Google, aiming to enhance AI literacy among professionals across various sectors. It offers free, accessible courses covering AI topics such as machine learning, data-driven decision-making, and cloud computing.

De Gregorio (De Gregorio, 2023) takes an overarching political and social view on AI in his study on the normative influence of AI. He explores how AI systems, particularly generative models and algorithmic processes, shape and influence societal norms. It emphasizes the normative power of AI in areas like decision-making and governance. The study examines AI's role in democracy, ethics, and fundamental rights, addressing the regulatory and legal frameworks necessary to govern AI technologies responsibly and ethically. The paper highlights challenges related to AI literacy, such as cultural resistance to new technologies, the lack of a clear educational framework, and ethical considerations regarding AI's role in society. It also underscores the need for interdisciplinary education to improve AI understanding across various sectors and organizational readiness to adapt to AI-driven changes.

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3.3. Towards a common understanding of AI Literacy: dimensions of AI Literacy

The findings of the national studies and initiatives reveal major overlaps with regard to the requirements for AI skills in vocational education and training in a business environment. The following diagram shows how these can be condensed into a common multidimensional understanding of AI skills:

First of all, a distinction can be made between **individual aspects of AI-Literacy** and more **organizational or social aspects**.

Individual aspects of AI Literacy **Organizational aspects of AI Literacy**

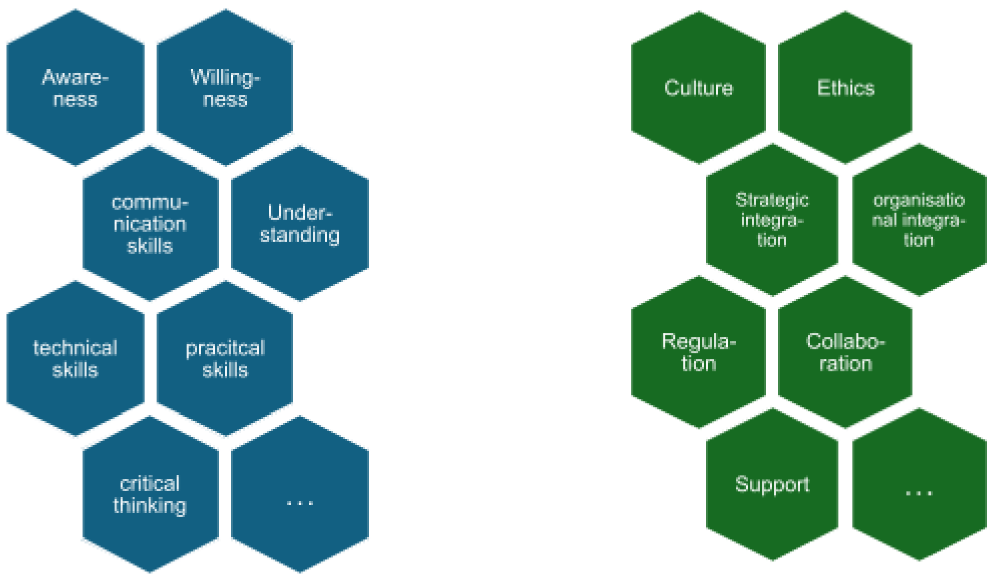

Figure 7: organizational/social-political aspects of AI Literacy and individual aspects of AI Literacy

This is clearly illustrated by the cross-national call for more collaboration between science and practice, between government and business, between sectors, companies and departments: On the one hand, such collaboration requires the *willingness* and ability to work together at an individual level: the *awareness* of the relevance of the topic, its opportunities and risks, *communication skills, understanding, a certain degree of technical and practical skills, …* On the other hand, resources and opportunities to *collaborate* as well as an open *culture* at an organizational and political level are needed.

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A model that distinguishes between the individual and organizational level of AI-Literacy and also takes into account different dimensions at these levels is the "**Competence Behavioral Model of AI Literacy**" (CBM AIL, see Wienrich et al. 2022).

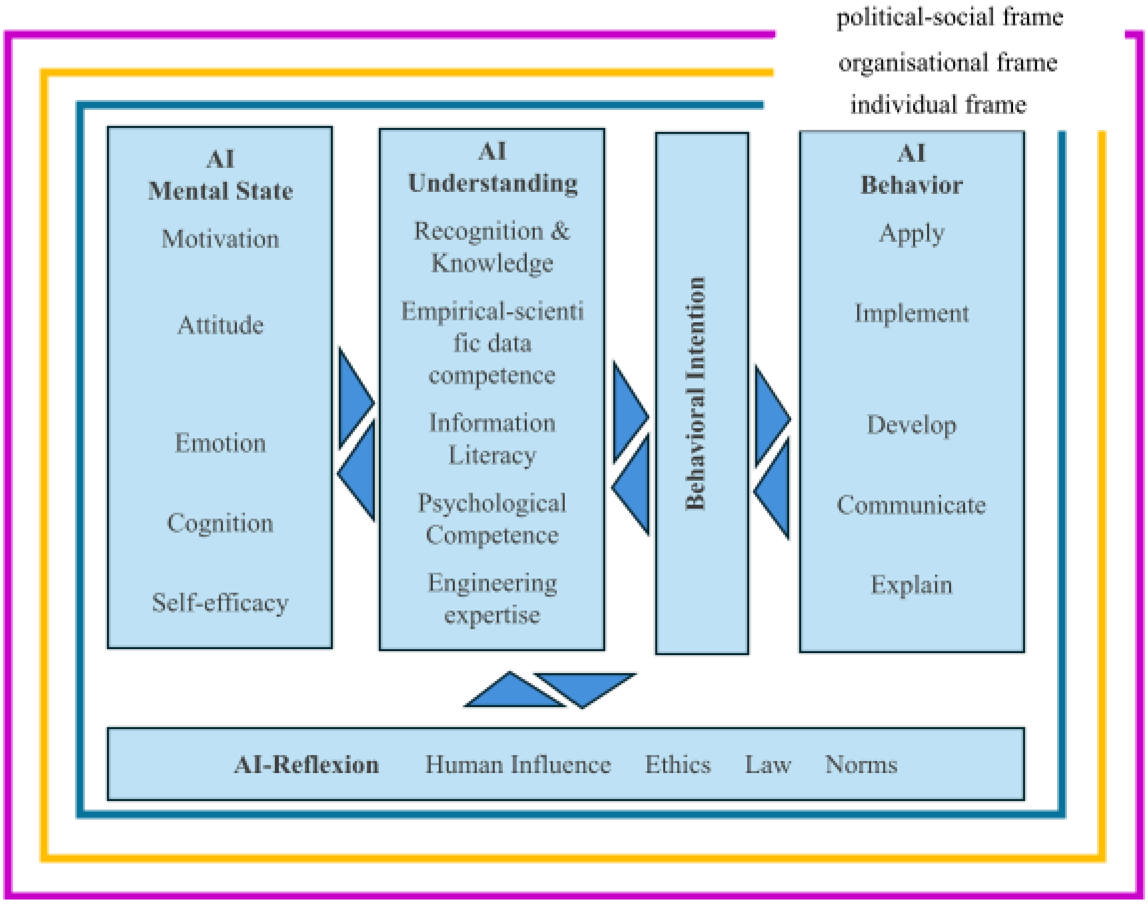

Figure 8: Competece Behavioral Model of AI Literacy (Wienrich et al. 2022: 11)

In detail, the suitability of the model for this project results from several aspects:

- Fundamental to the model is the distinction between the **micro** level as a view of the individual AI Literacy and the **meso** and **macro** levels, which encompass organizational and social factors influencing AI skills. This is an elementary prerequisite for the acquisition of skills, which in vocational education and training starts with the individual learner and must consider the specific organizational and social framework conditions.
- The model takes into account various **dimensions** of AI literacy at an individual level and thus makes it clear that a view that reduces AI Literacy to technical skills is too short-sighted.
- The model has been developed explicitly for AI skills in a **business environment** and thus reflects the specifics of the target group on this project.

The elements of the model are explained below:

3.3.1. Micro level: Dimensions of the individual AI Literacy

The individual level focuses on the person and thus the dispositions and competences of the individual that interact with AI technologies. Four dimensions of AI Literacy are distinguished: AI mental state, understanding of AI, AI behavior(al) intention and AI reflection.

This distinction emphasizes the complexity of the phenomenon of AI literacy and shows that, beyond technical competence, the individual with all its facets must be taken into account.

These four individual dimensions of AI literacy are made up of further sub-dimensions:

Dimension: AI Mental State:

AI Mental State
Motivation
Attitude
Emotion
Cognition
Self-efficacy

Motivation:

- Dealing with AI is fundamentally determined by intrinsic motivation. Motivational aspects generally describe motives and needs that lead to a willingness to act and the pursuit of certain goals in a specific situation.
- In the context of the work, this was specifically understood as the willingness to engage with AI, even if the functionality of the systems is not yet fully understood.
- If there are gaps in understanding, there should also be a motivation to develop further and, for example, to participate in training programs.
- The motivation sub-dimension also includes the willingness to search for information in a targeted manner that includes high-quality sources.

Attitudes:

- In socio-psychological research, attitudes are defined as the willingness to react judgmentally to entities. Consequently, this dimension describes positive or negative attitudes towards AI-based technology in the context of work.
- Attitudes are expressed in cognitive aspects such as assumptions or beliefs, affective aspects such as feelings and emotions and conative aspects. The conative aspects are described in more detail under AI behavior.

Emotion:

- Experts particularly emphasized the extent of fear of AI. Fear arises either in the perception of or in the actual interaction with AI systems, which then contributes to negative emotions towards AI.
- The repertoire of existing coping strategies to overcome these fears was also emphasized.
- In addition, other negatively valanced emotions such as disappointment (e.g. the system does not work as expected) are also relevant.

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Dimension AI-Understanding: Recognition and knowledge. This is the area that tends to be equated with AI literacy in the public debate.

AI Understanding
Recognition & Knowledge
Empirical-scientific data competence
Information Literacy
Psychological Competence
Engineering expertise

Empirical-scientific understanding

- Understanding of data on which AI systems are based.
- This emphasizes competence in the field of data analysis, the identification of data structures and the ability to recognize the quality of and bias in data and evaluate the data.

Computer science-based understanding

- This understanding describes knowledge about algorithms and methods of AI (e.g. machine learning)
- The understanding of basic mathematical and computer science principles.

The psychological understanding

- This dimension describes knowledge about the fundamentals of human information processing, bias, representations, intelligence
- Knowledge about the effects of motives, emotions, cognitions and attitudes on behavior.

Engineering-based understanding

- This understanding is important when the AI has a physical interface.

Dimension: AI-Reflexion: The critical categorization of AI-based systems, their development, their use and their consequences are addressed in the Reflection dimension. Being able to assess and reflect on AI-related potential, but also limitations, broadens the focus of the AIL dimensions. Going beyond mere technical knowledge and understanding, the focus here is on metacognitive skills of the individual and interfaces with the macro and meso levels.

AI-Reflexion	Human Influence	Ethics	Law	Norms

Ethics:

- Basic ethical principles are applied to AI-related activities (development, implementation, use) according to the criteria for good and bad behavior and the underlying motives and the consequences of these actions.
- For these principles, the linking of the individual level of the macro level was emphasized and thus the link to the established or to be established in the AI context of society, which in turn are also reflected in the legal framework conditions.

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- From a human-centered and employee-centered perspective and with a view to the risks of the new technologies, which have already been the subject of intense public debate, the development and application of guiding principles and individual judgement skills were emphasized.
- This is particularly important in light of the fact that AI technologies will continue to develop after their implementation and that skills will be required to recognize deviations from ethical principles at an early stage and take planned countermeasures through to exit-scenarios.

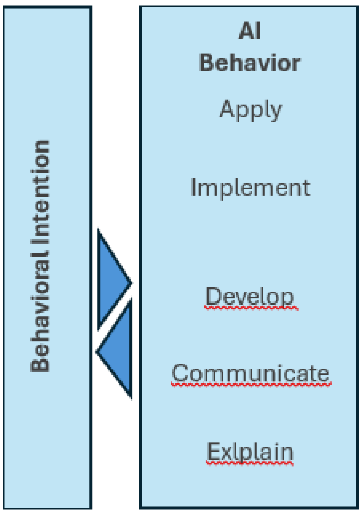
Law:

- AI Literacy includes also legal knowledge implications and the comparison of your own and the organizational trading with these.
- For the work context important is especially knowledge of the rights of employees as well as employers who are affected by AI systems, e.g. protection and security of data.

Human influence on AI:

- While the public debate focused on strong AI and presents it as an omnipotent technology that is independent from humans and which humans cannot influence, the experts emphasized human influence potential and the associated effects and responsibility – especially in context of the weak AI.
- AI Literacy therefore includes also to be aware of these possibilities of influence, make yourself reflect on your own dealings with these and create consciously.
- This also includes self-perception and awareness of it, why certain AI based emotions and cognitions exist and how they influence the AI competent action or inaction.

Behavior and behavioral intentions: AI Literacy becomes visible in AI behavior. A distinction is made here between the sub-dimensions of applying, implementing, (further)developing, communicating and explaining. Interesting: The model takes into account that there is a gap between the intention to show a certain behavior and the actual execution of the behavior and therefore sets the behavioral intention in addition to the behavior.



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Apply:

- Application of AI systems in specific use cases.
- This can mean that you operate a prefabricated menu, a parameter sets himself or more elaborately with the system interacts.

Implement:

- Implementation skills: functions are adapted or added into existing systems
- There can be different degrees of independent execution
- In contrast to applying, functionality or the system can be changed.
  Develop and Evolve:
- Development of new systems or conversion of existing systems into new system variants
- In difference to implement new functionality or new systems are developed.

Communicate:

- Communicative exchange between developers, decision-makers and users.
- Competent feedback should be able to be sent back to the development department when errors or application questions arise. In return, developers should be able to provide feedback that will optimize the application with AI
- Joint assessment of AI through iterative and participatory communication processes between stakeholders

Explain:

- Ability to explain your own understanding of AI to others
- AI systems and how they work are complex; being able to explain them requires, in addition to one's own understanding, an assessment of the other person's AI-related skills, so that appropriate communication can be made (e.g. previous knowledge, attitudes and situation of the other person).

3.3.2. Meso- and Macro-Level: Dimensions of organization, politics and society

As a reminder: The CBM-AIL model takes into account that the individual (with the individual factors of AI competence described above) always acts within an entrepreneurial-organizational framework and a political-social framework in the operational application of AI (see Figure xy). The following section describes which factors at these two higher levels influence AI literacy.

For example, the model highlights the relevance of corporate culture and resources.

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Corporate culture

- A constructive human-centeredness is beneficial for building AI literacy.
- Employees may fear being replaced by AI. It is therefore important for employers to create trust and convey your image of humanity, which promises employees material security, gives them appreciation and emphasizes their autonomy and needs.
- Error culture: In AI-competent companies, errors with AI systems should be allowed and seen as part of learning and further development.

Resources and qualification offer

- It is important for employers to be able to give employees financial and time resources to learn how to use AI.
- For this purpose, a learning budget should be drawn up that reflects the socio-economic Status (origin, education, language) is taken into account, has qualified teachers available and offers enough time and freedom for further training.

3.4. Theoretical interim conclusions

The theoretical foundation of the project is established by conceptualizing AI Literacy as a multidimensional construct. The adopted definition, based on Long & Magerko (2020), frames AI Literacy as a set of competencies enabling individuals to critically assess, communicate with, and effectively use AI technologies across various contexts, including the workplace. This definition aligns with the project's focus on vocational training and non-technical employees.

The in-depth comparative analysis of AI Literacy across the five partner countries Belgium, Germany, Italy, Poland, and Portugal integrates national studies, policy initiatives, identified challenges, and key trends. Common patterns include a general lack of structured training, ethical concerns, low awareness of AI's practical implications, and the need for cross-sector collaboration and organizational support.

Building on these insights, the report converges on a unified, holistic model of AI Literacy. This model distinguishes between individual (micro-level) and organizational/societal (meso- and macro-level) dimensions. At the individual level, four core dimensions are outlined: AI Mental State, AI Understanding, AI Behavior, and AI Reflection. These encompass motivational and emotional readiness, knowledge of AI systems, practical application and communication skills, and critical-ethical reflection on AI technologies.

The theoretical framework is grounded in the Competence Behavioral Model of AI Literacy (CBM-AIL), which emphasizes the interplay between individual dispositions and external contextual factors.

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Following the establishment of the comprehensive theoretical foundation and the formulation of a multidimensional model of AI Literacy, the next step involves the empirical validation of these conceptual insights. To ensure the practical relevance and applicability of the theoretical framework, a mixed-method research design was implemented. This empirical component triangulates data from expert interviews, employee surveys, and focus groups across the five European partner countries. The aim is to examine the extent to which the proposed dimensions of AI Literacy reflect the realities of workplace practices and to identify specific skill requirements, barriers, and support mechanisms from both organizational and individual perspectives. Goal is to build the conceptual cornerstone for the subsequent development of the AI Skills Framework and the AI Skill Scanner, tools aimed at enhancing AI competencies among non-technical staff in SMEs.

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4. Empirical study

4.1. Methodological design

A mixed method approach is used to validate the theoretical and country-specific findings in qualitative and quantitative terms. In order to do justice to the complexity of the task of developing the AI skills of non-technical employees in company training, the topic is examined from three perspectives: qualitative expert interviews with management representatives of SMEs, a survey of employees and focus groups of experts in the respective countries.

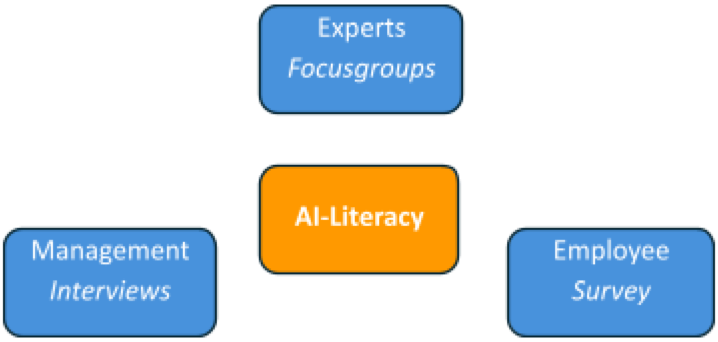

Figure 9: Target groups of empirical survey

This approach should lead to concrete findings with regard to individual qualification needs (micro level) and organizational adaptation needs (meso level).

4.2. Qualitative expert interview with representatives of SME

4.2.1. Methodological setting of interviews

Research question: The aim of the qualitative interviews with representatives of SME is to identify essential AI-related skills, assess their alignment with business needs, and understand the key barriers to AI adoption from the perspective of company management.

Sample: Six representatives of SMEs per project partner (Germany, Poland, Italy, Portugal and Belgium) were interviewed in qualitative guided interviews. People were specifically selected for the sample who have expert status due to their experience in company training and further education, HR management, AI and/or IT. The interviewees represented a diverse mix of industries and professional roles, reflecting the wide applicability of AI across sectors. Participants included company owners, managers, marketing professionals, legal advisors, IT consultants, and public sector stakeholders. Their organizations spanned various fields such as manufacturing, tourism, marketing, education, food distribution, law, and information security. This variety provided rich insights into AI integration needs and challenges across both tech-driven and traditionally non-technical environments.

Survey instrument: The guide covered the following topics (see appendix for the complete instrument):

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- Introduction and integration of AI in your own company
- AI competence requirements for non-technical employees (e.g. psychological or engineering understanding)
- Need for action for companies in the areas of application, implementation, (further) development, communication and explanation,
- Hurdles and challenges for the introduction of AI
- Status quo training and development programs
- AI governance

The interviews were recorded, transcribed and analyzed using qualitative content analysis. The findings below summarize common themes and notable insights shared by the participants.

4.2.2. Results

AI-Related Skills Gaps

Across all countries, there is a clear demand for basic AI literacy among non-technical staff. This includes the following aspects:

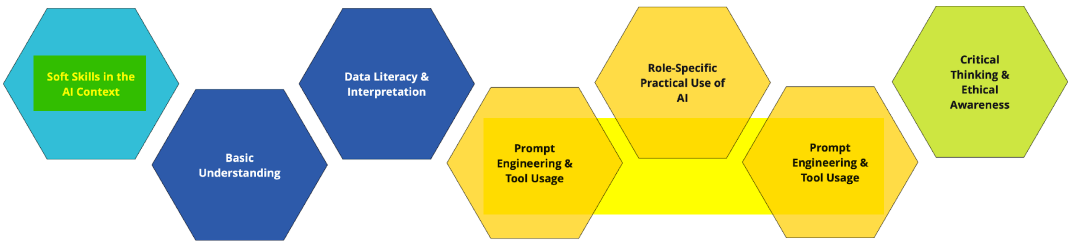

Figure 10: Quotations from interviews regarding skill gaps

- Basic AI Understanding: Most interviewees noted that employees lack a fundamental grasp of how AI systems function, their potential, and limitations (e.g. Germany, Interview 1; Portugal, Interview 2).
- Prompt Engineering & Tool Usage: Many SMEs observed a lack of ability to effectively interact with AI tools like ChatGPT or AI-driven CRMs (Belgium, Interview 3; Poland, Interview 1).
- Data Literacy & Interpretation: The ability to interpret data outputs generated by AI systems is deficient in several organizations (Italy, Interview 4; Portugal, Interview 6).
- Critical Thinking and Ethical Awareness: Interviewees stressed the need for critical assessment of AI results and ethical implications (Germany, Interview 5; Italy, Interview 6).

- Soft Skills in the AI Context: Skills such as adaptability, creativity, and collaborative problem-solving were repeatedly cited as necessary complements to AI literacy (Poland, Interview 3; Belgium, Interview 2). Interviewees consistently indicated that deep technical expertise (e.g., programming or knowledge of neural networks) is not necessary for most employees. Instead, what's needed is a practical, role-specific understanding of how to use AI to enhance daily tasks, supported by training in AI-supported tools and soft skills like adaptability and communication.

Some quotations from the interviews illustrate these findings:

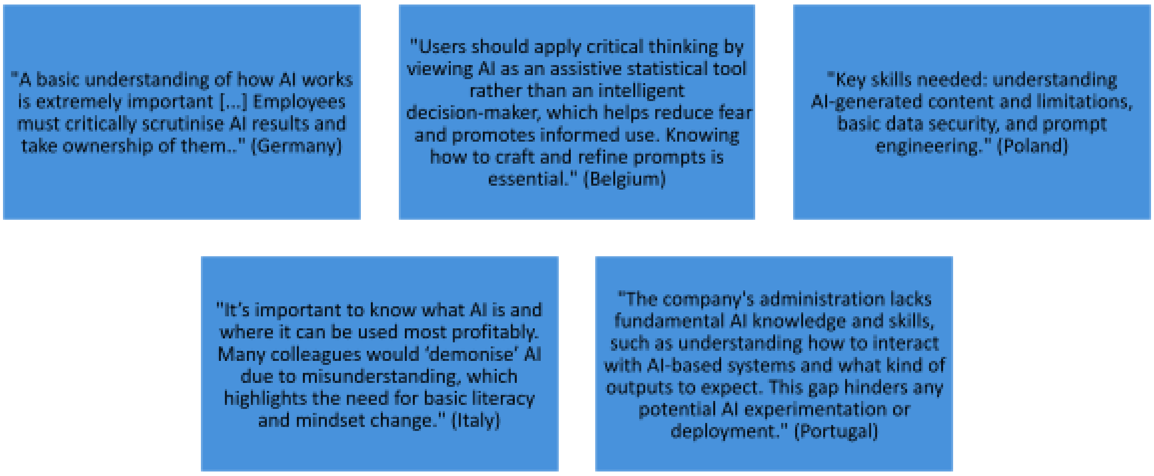

Figure 11: Quotations from interviews regarding skill gaps

Alignment of Identified Skills Gaps with Business Needs

The skills gaps identified align strongly with the way businesses are currently experimenting with AI. Many SMEs are in the early or exploratory stages of AI integration, often relying on small groups of forward-thinking staff to pilot tools.

Common business drivers include:

Improving efficiency (automation of tasks like content generation, data analysis).

- Enhancing customer engagement and marketing.
- Supporting decision-making with AI-assisted insights.
- The identified gaps are tightly aligned with practical business demands:
- Operational Efficiency: Companies integrating AI for marketing, customer service, and data processing need employees who can understand and leverage these tools (Italy, Interview 1; Poland, Interview 2).

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- Role-Specific Applications: SMEs need contextual AI understanding tailored to roles – e.g., legal professionals needing tools for document summarization or analysis (Italy, Interview 2).
- Scalability & Competitiveness: Many SMEs view AI not just as a tool, but as a strategic enabler of scale and market agility, which depends heavily on internal AI fluency (Belgium, Interview 4; Portugal, Interview 5).
- Compliance and Regulation Readiness: As regulations like the AI Act evolve, businesses require awareness and training to ensure compliance, which non-technical staff currently lack (Portugal, Interview 3; Germany, Interview 5).

However, several businesses pointed out that lack of AI understanding among staff limits the broader adoption of these tools. As such, there is a clear alignment: to capitalize on AI, companies need to equip employees – especially non-technical ones – with foundational AI literacy and confidence in usage.

The quotations from Interviews:

Figure 11: Quotations from interviews regarding alignment of skill gaps and business needs

Barriers and Challenges in AI Adoption

Several common barriers emerged across all five countries:

- Lack of structured AI training programs - leaving employees to self-educate through trial and error. Few companies reported structured or ongoing AI training, especially for non-technical employees (Belgium, Interview 1; Poland, Interview 3; Portugal, Interview 4).

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- Technological Misunderstanding and Fear: Many employees show hesitation, fear of being replaced, or resistance to changing workflows (Germany, Interview 2; Italy, Interview 3).
- Regulatory Ambiguity: A widespread issue is unclear internal or national AI governance, with many SMEs uncertain about ethical use and data protection obligations (Portugal, Interview 4; Belgium, Interview 4).
- Cost and Resource Constraints: Especially for smaller companies, investing in AI tools and training remains financially challenging (Italy, Interview 5; Poland, Interview 6).
- Overreliance on External Expertise: Many SMEs depend on consultants or external vendors due to lack of in-house AI capabilities, slowing internal competency development (Portugal, Interview 1; Germany, Interview 3).
- Interviewees also identified a mix of organizational, psychological, and infrastructural challenges, including:
    - Resistance to change, particularly from older employees or those skeptical of AI's reliability or relevance.
    - Data privacy and regulatory concerns, especially when using cloud-based tools.
    - Limited managerial strategy, where AI initiatives are often fragmented or experimental without broader organizational buy-ins.

Despite enthusiasm in pockets, a common theme is uncertainty—around return on investment, future job impacts, and how best to implement AI at scale. Cultural mindset and lack of time or incentives for upskilling are also recurring barriers.

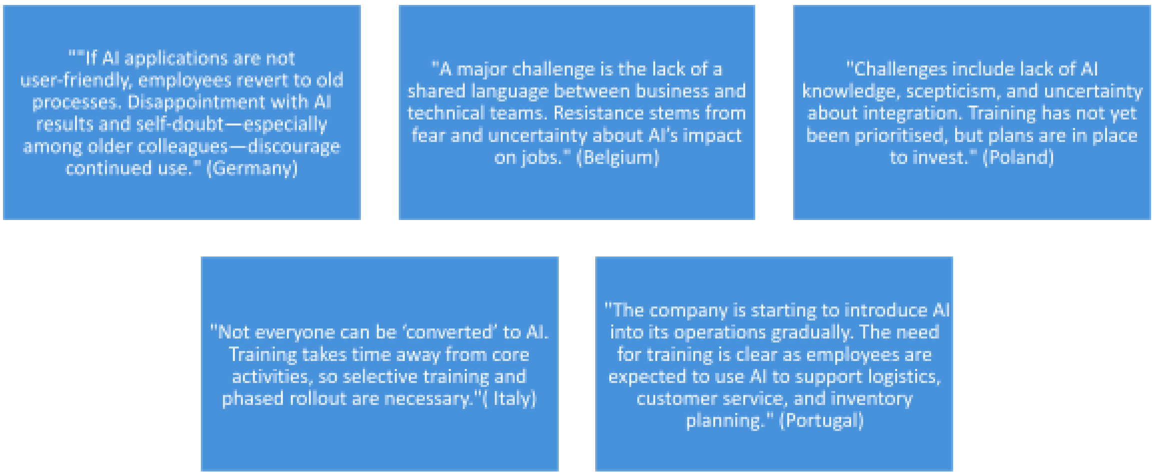

Figure 12: Quotation from interviews regarding barriers and challenges

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In addition to these findings, the open questions yielded additional fruitful information:

- Innovative Approaches: Some companies have launched grassroots initiatives like AI learning circles or experimentation platforms (Belgium, Interview 2; Italy, Interview 3).
- Sectoral Differences: IT-related sectors show more advanced integration and understanding of AI, while tourism, legal, and food industries exhibit lower maturity (Portugal, Interview 2 vs Interview 3).
- Call for Modular Training: Interviewees favor short, role-adapted, and non-technical AI training formats over complex or theoretical programs (Poland, Interview 4; Italy, Interview 6).

The interview results reflect a strong shared experience among SMEs across all five countries: enthusiasm for AI's potential, a recognition of skills gaps at the non-technical level, and a need for strategic and educational support to ensure effective and inclusive adoption (for detailed country reports see appendix).

4.3. Online-survey with non-technical employees

4.3.1. Methodological setting of online-survey

Research question: The aim of the standardized online survey is to find out from the employees' perspective where they encounter AI in their day-to-day work, how they use it, how they perceive their own skills and where they need support.

Sample: 151 employees with non-technical backgrounds from the five partner countries took part in the survey.

Survey instrument: The questionnaire covered the following topics (see appendix for the complete instrument):

- Background and AI usage, e.g. training, frequency of AI use at work, AI-tools used
- Recognizing AI and user understanding, e.g. ability to identify AI systems, knowledge about machine learning, trust in reliability of AI-generated outputs
- Practical AI knowlegde, e.g. experience with AI-generated outputs
- AI principles and ethical understanding, e.g. bias, transparency, privacy concerns
- Technical skills and domain specific AI knowledge, e.g. translate AI insights into business decisions, AI development
- AI training and future learning needs, e.g. AI training for employees, barriers and optimization ideas

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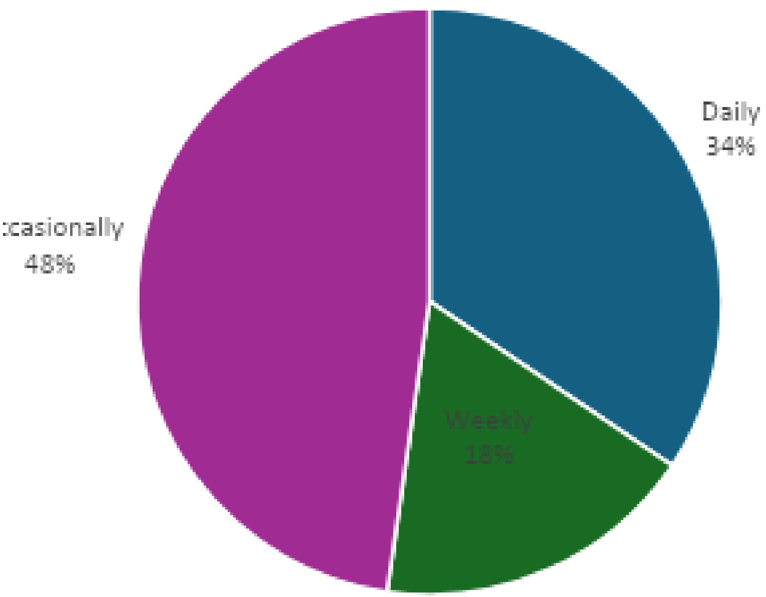
The questionnaire consisted primarily of closed questions, but also used open questions in some places, in particular to gain insight into optimization ideas from the employees' perspective.

4.3.2. Results

The 151 participants from Belgium, Germany, Italy, Poland and Portugal represent a wide variety of industries and positions and range from f. ex. administrative employees to bank officials, beauticians to climate protection manager and estate agent.



All of them use AI powered tools at work. A third use them daily, just under a fifth weekly and around half only occasionally.

This means that AI appears to have found its way into the working reality of employees in the partner countries – even if it is not yet part of the working routine in many cases.

Figure 13: How frequently do you use AI-powered tools at work? (n=151)

Chatbots (e.g. Chat GPT and Microsoft Copilot) are used most frequently, one in four uses AI tools for data analysis (e.g. MS Power BI, Tableau, MS Excel 365, SAP) and one in six uses automation tools (e.g. MS Copilot, Cohere, IBM Watson X Assistant).

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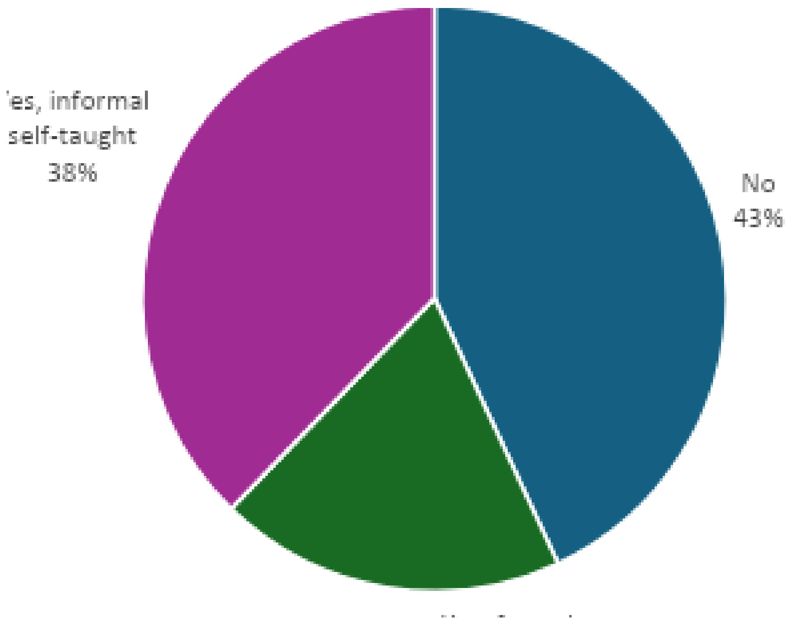

The striking thing is only 19% of respondents have taken part in formal training (e.g. a course or workshop). 38% state that they have completed informal, self-organized training or have taught themselves the knowledge. Over 40% have received neither formal nor informal training.

Figure 14: "Have you received any formal or informal training in AI tools or systems? (n=151)

More than half of the participants believe that AI improves their daily workflow (confident/very confident). However, around one in five are (not at all) confident with the effectiveness.

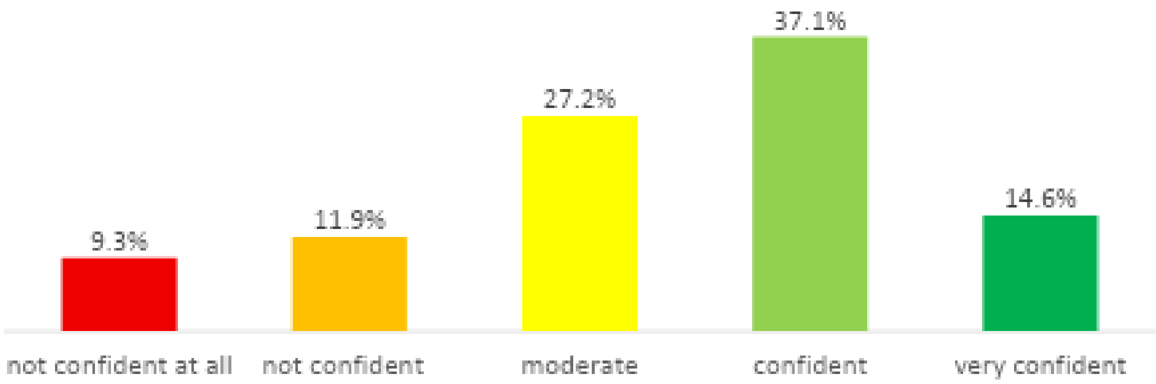

Figure 15: How confident are you in using AI tools to improve your daily workflow? (n=151)

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A more detailed look reveals the added value of formal training: While only 35% of those who have not received any training are (very) satisfied with the impact of AI on their daily workflow, the proportion of (very) satisfied participants among those who have received formal AI training is twice as high. Competent handling of AI thus visibly increases its positive effects.

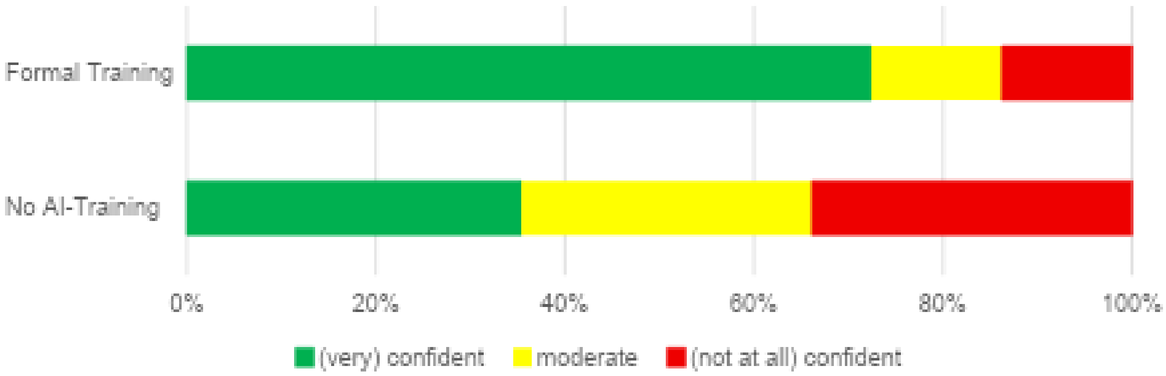

Figure 16: Satisfaction with positive effects of AI on workflow depending on formal training (n=94)

The survey in the five partner countries also shows that many employees without a technical background are very uncertain about how to deal with AI. This starts with perceived gaps in knowledge: Only half believe they can confidently distinguish between AI-driven and traditional software. Less than 20% say they don't understand the concept of machine learning and how AI systems analyze data and produce results.

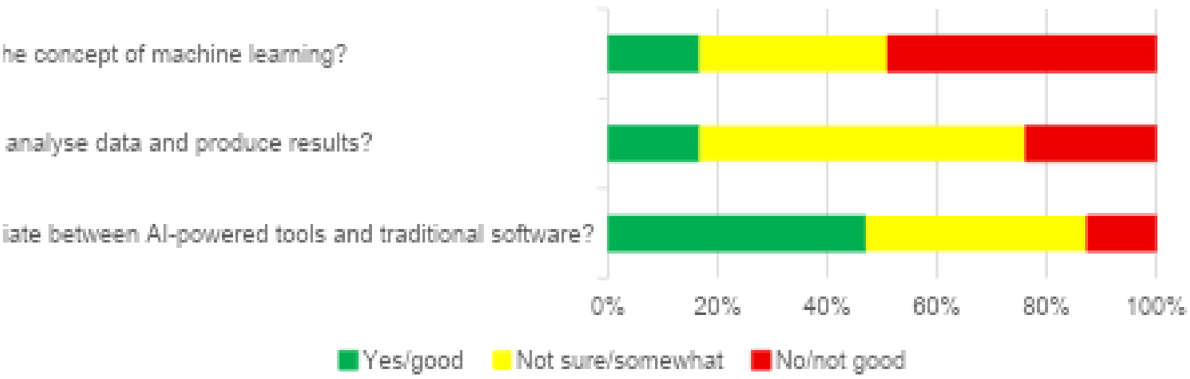

Figure 17: Self-assessment of knowledge about AI (n=151)

The fact that three quarters of respondents answered the knowledge questions on AI correctly shows that partial knowledge is available. However, this does not lead to employees being confident in their actions.

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Another result confirms this assumption: although almost 90% of respondents state that AI tools have already provided them with incorrect or misleading results, only 60% have given the system feedback for optimization or adjusted the AI settings.

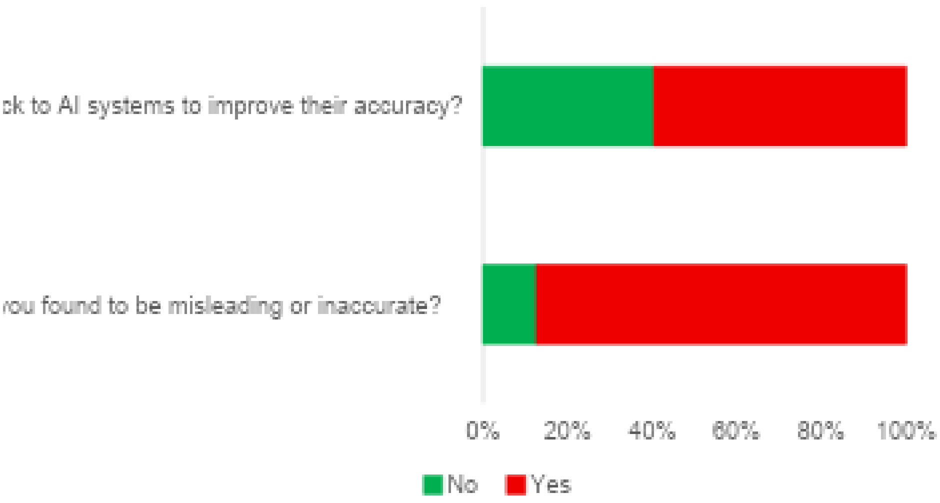

Figure 18: Dealing with errors in AI output, n=151

It appears to be potential for optimization in the communicative dimension of AI competence, which makes it easier for employees to enter into an exchange with the application, the developers and other users in order to learn from failures in use.

The respondents see many risks - quite realistic ones - associated with AI: They are most concerned about data security (112 out of 150 respondents), followed by fear of misinformation and manipulation (106 out of 150). Almost 60% of respondents (89 out of 150) are concerned about the distorting, discriminatory effects of AI-generated solutions (e.g. bias).

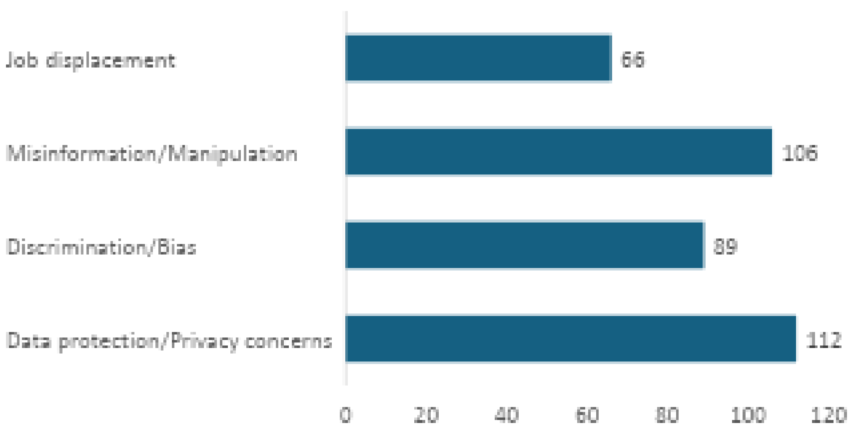

Figure 19: Ethical concerns, n=150, multiple answers possible

These concerns appear to be less the result of an informed assessment and more the result of a diffuse fear. After all, when asked “How well do you understand AI principles such as bias (systematic inequalities), transparency (decision traceability), and fairness (avoiding unjust discrimination) in AI decision-making?”, only 24 of the 150 respondents gave a clearly positive answer.

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Most respondents are convinced that AI is important or very important for the future of their company/industry. They think the greatest benefit of AI for their company/branch is the optimization of efficiency and automation (122 out of 150 respondents). Many also consider AI assistance in the evaluation of data to be promising (97 out of 150).

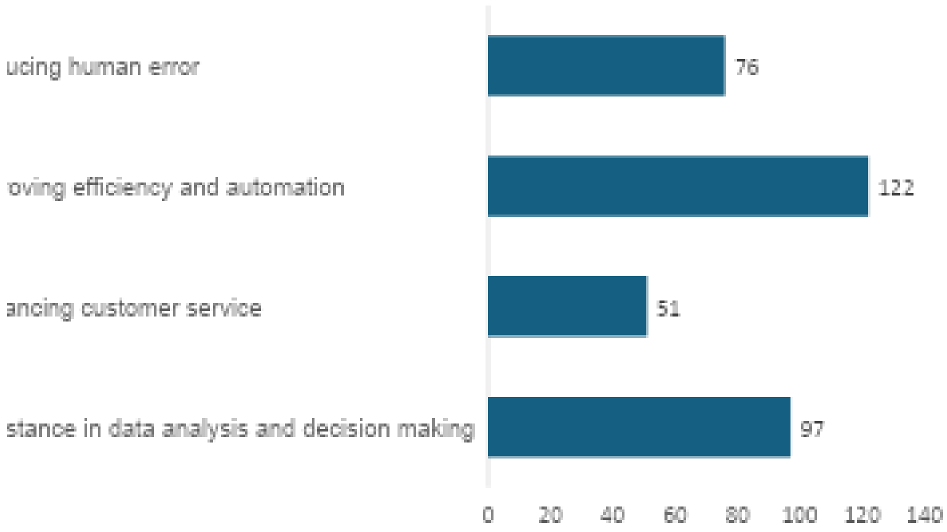

Figure 20: biggest potential benefits of AI, n=150 multiple answers possible

The interest in participating in AI training is very high: Around 90% would participate in an AI training program at their company. However, this interest is met with an inadequate offer: Less than 20% of respondents perceive their company's own AI-trainings offering as sufficient.

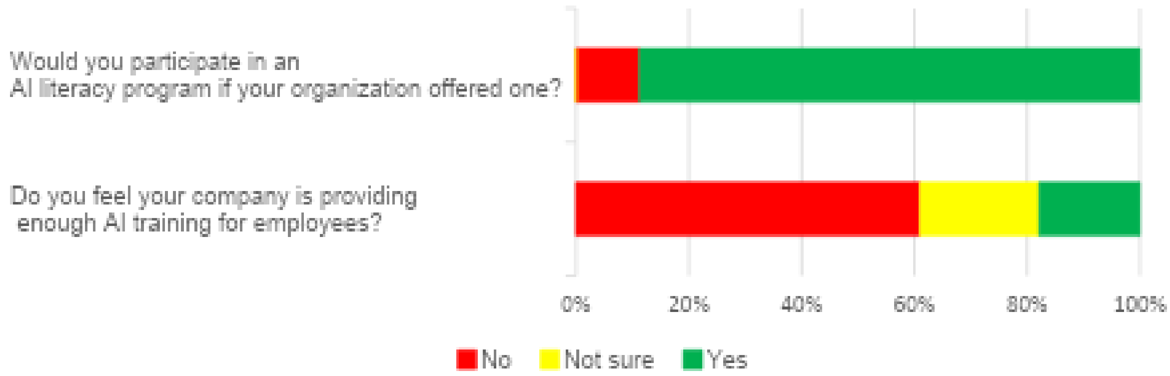

Figure 21: AI training in company, n=150

The motivation to participate in AI training is strongly intrinsic (see figure 22): Nearly 90% state that they want to undergo further training out of curiosity about the topic. For two-thirds of respondents, AI expertise is a prerequisite for advancing their own career.

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More than a third of respondents are driven by the fear of being left behind.

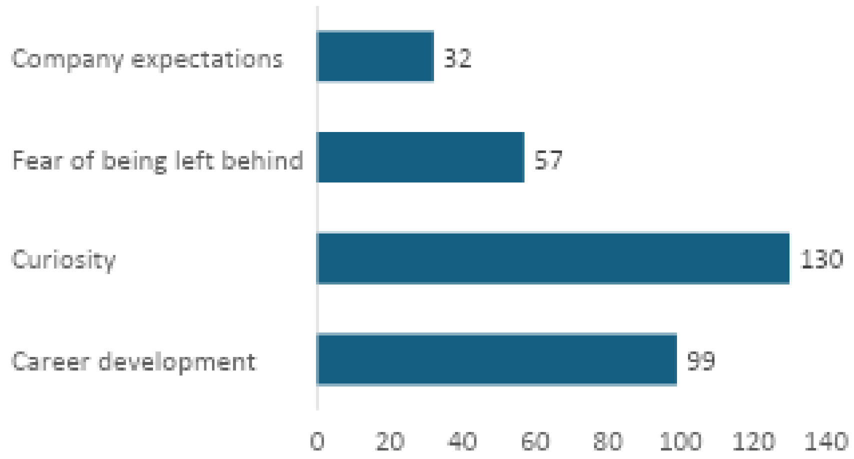

Figure 22: Motivation for AI training, n=150, multiple responses possible

The main barrier preventing employees from participating in AI training is a lack of time, closely followed by a perceived lack of training programs. Almost half of the respondents state that the complexity of the topic of AI is a barrier to participating in training. A detailed look shows: This fear is particularly widespread among those who say they do not have a firm basic knowledge of how AI works. This also shows that ignorance fuels reservations.

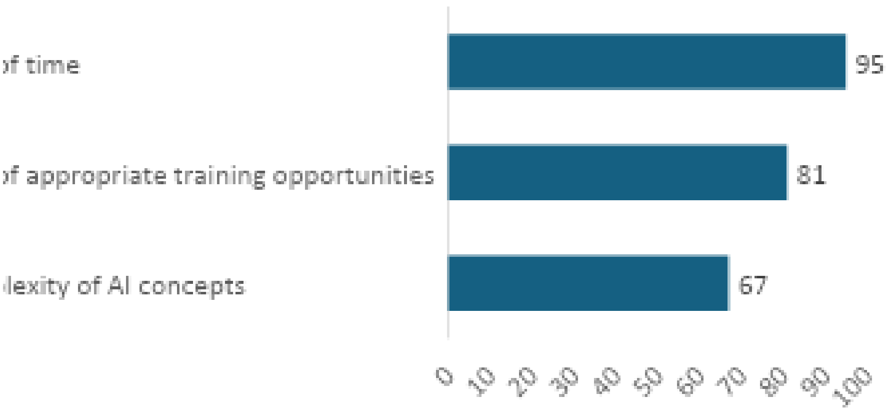

Figure 23: Barriers to participation in training courses, n=150, multiple responses possible

When asked what organizations should do to optimize AI skills among non-technical employees, the answer from the 150 respondents was unanimous: training.

The following quotes provide a good insight into the expectations and expectations of employees.

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4.4. Focus Groups with experts

4.4.1. Methodological setting of focus groups

Research question: The aim of the focus groups is to identify relevant AI skills in the professional context, to gather findings on organizational framework conditions in companies, to discuss topics and didactic formats for teaching AI skills in in-company training and to shed light on the idea of the AI Skills Scanner.

Sample: The focus groups were conducted in all five partner countries (Belgium, Italy, Germany, Poland and Portugal). They consisted of five to seven experts who deal intensively with AI in a professional context. Depending on their function, they looked at the topic from very different perspectives, e.g. from the perspective of the company manager, the head of the HR department, as an expert in training and development or as an expert in digital transformation. Where possible, the focus groups were conducted face-to-face. They were led by teams of two moderators. Interactive elements were used to achieve a high level of activation among the participants.

Survey instrument: The qualitative guideline covered the following topics (see appendix for the complete instrument):

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- Important AI-Literacy Gaps in the four AI-Literacy dimensions Mental State, AI Knowledge, AI Practice, AI Reflection
- Organizational frame: How can organizations/companies support non-technical employees in acquiring AI skills? (Corporate Culture, Change Management, resources, qualification)
- Collection and discussion of formats and methods for teaching AI skills in vocational training (training topics, didactic, formats, conditions)
- Discussion of the idea of an AI Skill Scanner, a digital tool to assess one's own AI Literacy proficiency level, aligning with the identified skills and competencies and linked with the learning material that will be created in this project

4.4.2. Results of focus groups

Across all 5 countries, participants represented a diverse mix of roles—including CEOs, CTOs, managers, technical experts, consultants, educators, and graphic designers—working in sectors such as IT, marketing, HR, tourism, logistics, education, software, and accounting. Most companies were SMEs, with sizes ranging from micro-enterprises (1–10 employees) to mid-sized firms (up to 400 employees). Geographic representation covered urban and regional areas, with an emphasis on industry diversity and applied AI experience.

Summary of Key Findings

<u>AI-Related Competency Gaps and Mindset Barriers</u>

Participants across all countries recognised the relevance of the identified AI competence dimensions (Mental State, Understanding, Behaviour, Reflection). A significant shared concern was the presence of mental barriers, including fear, resistance, and anxiety—especially among less tech-savvy employees. Belgium and Germany highlighted the need for confidence building and resilience towards change, while Italy and Poland emphasised overcoming fear of job displacement and shifting organisational cultures.

The notion of fostering a growth mindset, characterised by curiosity, openness, and future-orientation, was widely supported. In Germany and Portugal, developing resilience, trust, and a constructive attitude towards AI was viewed as fundamental to enabling uptake and innovation.

<u>Foundational Knowledge and Misconceptions</u>

The need for foundational AI literacy—understanding how AI works, recognising data limitations, bias, and basic technical concepts—was echoed in all reports. Germany and Poland stressed the importance of contextualising AI outputs, and understanding how human cognition interacts with AI-generated insights. Participants warned against over-reliance on AI tools without knowing their constraints.

In Belgium, Italy, and Portugal, clarifying misconceptions (e.g., about data usage and AI licensing) and providing clear, accurate information were seen as essential first steps in any training journey.

Training Approaches: Hands-On, Relevant, and Ongoing

Participants strongly favoured pragmatic, workplace-integrated learning, with a clear consensus across all countries on the importance of learning-by-doing. Hands-on training, microlearning, peer mentoring, and the creation of safe, exploratory environments were highlighted as effective methods. Both Belgium and Germany underlined the value of mentorship and gradual onboarding.

There was wide agreement that training should reflect real use cases, be tailored to organisational context, and involve ongoing support. In Italy and Poland, microcredentials and flexible formats were preferred to address time constraints and workload.

Organisational Readiness and Culture

Several groups stressed that individual learning must be matched by organisational readiness. Cultural resistance, lack of leadership awareness, and absence of strategic AI integration were cited as major barriers. Participants from Portugal and Poland highlighted the importance of embedding AI into company culture, encouraging leadership to lead by example, and facilitating team discussions about AI usage and ethics.

Supportive infrastructures—including IT systems, governance policies, and forums for reflection—were considered necessary for sustainable adoption.

AI Skill Scanner: Perceptions and Suggestions

The AI Skill Scanner tool was widely seen as a valuable and innovative concept, useful for assessing baseline AI literacy and guiding training. However, concerns were raised (especially in Italy and Portugal) about the feasibility of a one-size-fits-all approach, due to the varied nature of AI use across roles and sectors.

Participants suggested improvements such as gamification, accessibility features, customisability, and alignment with real-world tasks. Credibility was also important—Polish participants recommended university endorsement to build trust.

Selected Participant Quotes

- “More than one concrete training, it is needed a long-term partnership.” (Belgium)
- “Companies must make it possible for their employees to simply try things out. Just do it!” (Germany)
- “Used wisely, AI becomes a partner in our upskilling journey, not a threat to it.” (Italy)

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- "For the young generations AI is a native environment and the rest will adopt AI like we did smartphones." (Poland)
- "Managers of SMEs should lead by example. Leaders must be a source of inspiration." (Portugal)

Recommendations

- Adopt a pragmatic, positive approach: Encourage confidence in AI adoption, clarify common misconceptions, and support a mindset shift from fear to curiosity. (*Belgium, Italy, Germany, Portugal)*
- Develop contextual and hands-on training: Focus on realistic use cases, learning-by-doing, microlearning formats, and ongoing support. Avoid overly theoretical content. (*Germany, Belgium, Italy, Poland, Portugal)*
- Embed AI in organisational culture: Promote openness to change, involve staff in experimentation, and build a culture of innovation where AI is seen as a normal tool. (*Poland, Italy, Portugal)*
- Promote leadership engagement: Train managers first so they can lead by example and inspire staff. Leadership buy-in is essential for culture shift and AI integration. (*Portugal, Poland, Italy)*
- Support learning with appropriate infrastructure: Provide safe environments, platforms for discussion, knowledge sharing spaces, and technical frameworks (e.g. secure test environments, governance policies). (*Germany, Portugal, Poland)*
- Encourage peer mentoring and collaborative learning: Leverage internal expertise to support staff, foster informal learning, and provide incentives for internal mentors. (*Poland, Belgium)*
- Design flexible and engaging tools: Ensure the AI Skill Scanner is adaptable to various contexts, uses accessible language, includes gamification and multimedia elements, and has credibility (e.g. university backing). (*Portugal, Italy, Poland)*
- Tailor training formats to time constraints: Use short, focused, and modular learning units (e.g. microcredentials) to fit into busy work schedules. (*Italy, Germany)*

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4.5. Summary

Work Package two focused on identifying the essential needs and requirements for AI skills in vocational education and training within a business context.

As part of the study, multiple data sources were analyzed to develop a comprehensive understanding of the competency requirements for working with AI in the workplace.

The literature review and country reports identified numerous aspects of AI competence at work, including basic AI understanding, technical skills, critical thinking, ethical reflection, as well as organizational factors such as support structures, training opportunities, regulatory requirements, and an innovation-friendly corporate culture.

Expert interviews particularly highlighted the importance of technology acceptance and self-confidence, a common language around AI, and the need for phased training and implementation measures.

Survey results emphasized among others the demand for clear, practical, and job-specific AI training, complemented by transparent communication, safe learning environments, opportunities to experiment (sandbox approaches), and continuous learning through peer exchange.

Focus group discussions addressed existing AI literacy gaps, organizational support measures for non-technical employees, suitable formats and methods for AI training, and the development of an AI Skill Scanner to enable self-assessment and linkage to relevant learning materials.

5. AI Literacy Skills Framework

Based on the theoretical and empirical insights in the next step an AI Literacy Skills Framework will be built. It integrates relevant AI literacy skills within the working context, particularly for nontechnical staff. It will define key skills and know-how essential for integrating new technologies into professional practice responsibly. And it is the foundation for the AI Sill Scanner, a diagnostic tool, that helps non-technical employees to assess their AI literacy levels. It is aligned with the identified competencies and linked to the learning materials developed in Work Package 3.

Since the findings on AI competence encompass both individual and organizational aspects, the model proposed by Wienrich (Wienrich et al. 2024) was adopted as a foundation. This model differentiates between the micro level (individual competencies), the meso level (organizational structures), and the macro level (societal conditions), enabling a systematic classification of insights into four individual competence dimensions: Mental State, Understanding, Behavior, and Reflection (for a detailed description, see chapter 2.3).

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Figure 25:Adapted Holistic Modell of AI Literacy (according to Wienrich et al., 2024)

The adapted holistic model of AI Literacy, which builds upon the Competence Behavioral Model of AI Literacy (CBM-AIL) by Wienrich et al. (2022) and integrates the theoretical and empirical findings of the "Am I fit?" project. The model conceptualizes AI Literacy as a multidimensional construct that encompasses both individual competencies and contextual, organizational influences.

On the individual level, four core dimensions structure the understanding of AI Literacy:

- Mental State – comprising motivation, emotional disposition, self-efficacy, and general attitudes towards AI.
- Understanding – including knowledge of AI principles, data literacy, psychological and technical competencies.
- Behavior – referring to the actual or intended application, implementation, development, communication, and explanation of AI systems.
- Reflection – capturing ethical, legal, and societal awareness as well as the individual's capacity for critical metacognition regarding AI technologies.

Each of these dimensions is characterized by further subdimensions, allowing for a nuanced diagnosis of skill levels and learning needs. Importantly, the model also considers the meso (organizational) and macro (societal-political) levels, recognizing that individual AI competence is embedded in broader structural conditions. Organizational culture, resource availability, and regulatory frameworks are thus integral components that shape the development and application of AI Literacy.

The adapted model serves as both an analytical framework and a practical foundation for the design of targeted training interventions and diagnostic tools, such as the AI Skill Scanner. Its multidimensional structure enables a differentiated approach to capacity-building in SMEs by aligning educational content with individual learning needs and institutional requirements.

To ensure the model is suitable for the subsequent design of the Skill Scanner, the four individual AI literacy dimensions (Mental State, Understanding, Behavior, and Reflection) were further differentiated and specified based on the research findings. In this way, starting points for the development of the Skill Scanner were established.

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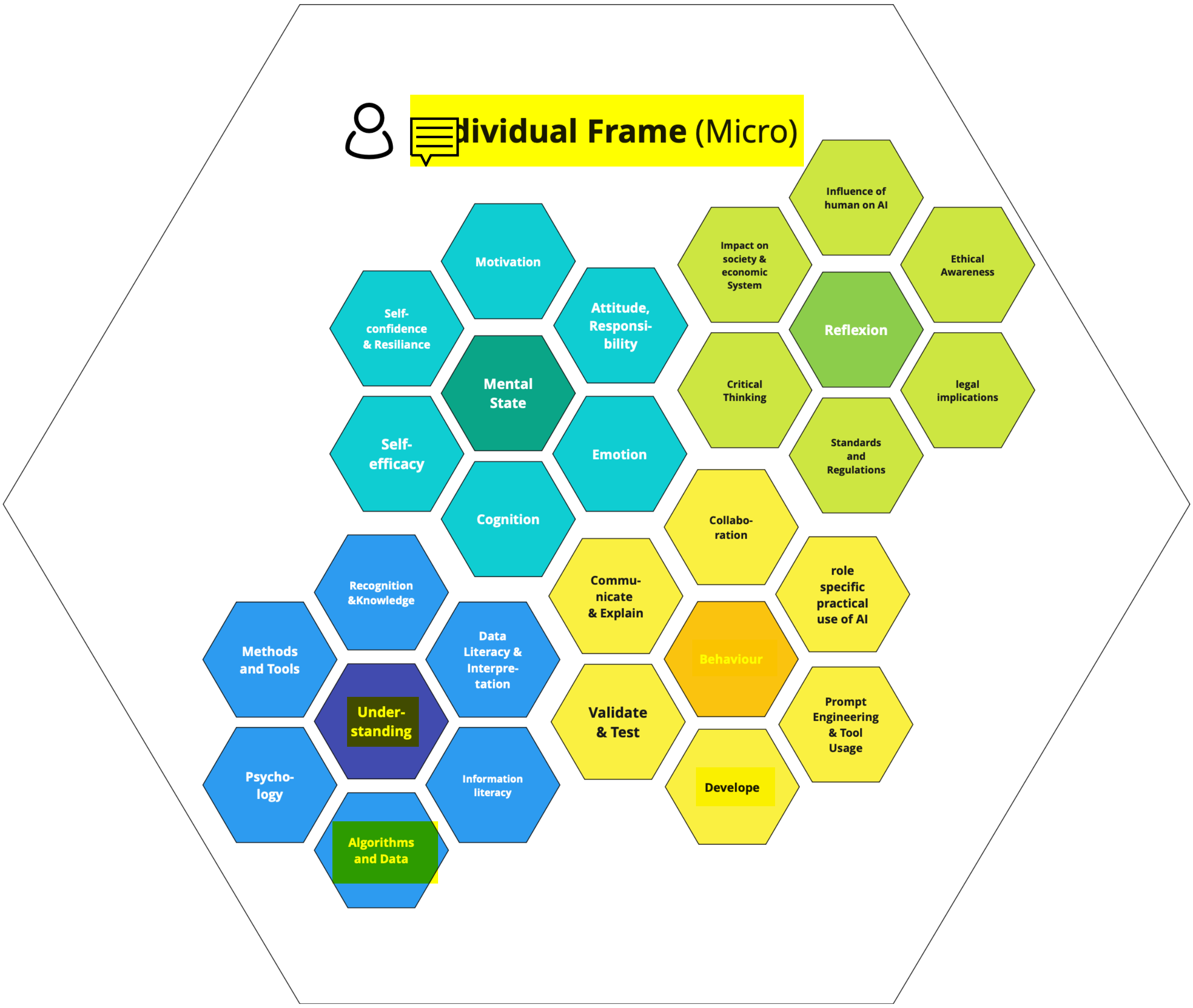

Figure 26: Individual Aspects of AI Literacy in the Dimensions Mental State, Understanding, Behavior, and Reflection

The differentiated view of the four individual dimensions of AI Literacy, as conceptualized in the adapted holistic model (Figure 25) translates the abstract framework into concrete, observable aspects relevant to the vocational context of non-technical employees, thereby operationalizing AI Literacy for application in training and assessment.

- Mental State includes dispositions such as intrinsic motivation, openness toward AI-driven change, and emotional responses like fear or curiosity. These factors influence the willingness to engage with AI and the persistence in acquiring new skills, especially when faced with uncertainty or low initial competence.
- Understanding refers to the knowledge base necessary to make informed use of AI. This includes recognizing where AI is used, understanding basic principles such as

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machine learning and data analysis, and being able to distinguish AI-driven tools from traditional systems. Importantly, this dimension extends beyond technical know-how to include data awareness and psychological insight into how AI interacts with human decision-making.

- Behavior captures the practical application of AI Literacy in the workplace. This includes the ability to operate AI tools, integrate them into workflows, adapt systems to specific needs, communicate about AI with various stakeholders, and provide constructive feedback. Behavioral intentions are also considered, acknowledging the gap that may exist between knowing what to do and actually doing it.
- Reflection encompasses ethical and legal awareness, as well as the ability to critically assess the implications of AI technologies. This includes understanding concepts such as bias, fairness, and transparency, as well as recognizing the individual's role in shaping AI use within organizational and societal frameworks.

Together, the four dimensions provide a comprehensive and actionable profile of AI Literacy at the individual level. Figure 26 thus lays the groundwork for designing role-specific training paths and diagnostic tools such as the AI Skill Scanner, ensuring alignment with real-world requirements and personal learning trajectories.

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6. Conclusions

Based on the research findings, an AI Literacy Skills Framework could be derived and described in Chapter 4 in its four individual dimensions (mental state, understanding, behavior, and reflection) as well as in terms of organizational requirements.

This framework thus forms the basis for the next steps in WP3 of this project, namely: The AI-Training Curriculum for non-technical workers and the AI Skill Scanner as an assessment tool. Additionally, the Frameworks serves as a foundation of an AI Communication Navigator for SME Management.

6.1. Key Findings & Guidelines for the skill scanner

Based on the AI Literacy Skills Framework, a concept for the "AI Skill Scanner" will be outlined. This diagnostic tool helps non-technical employees assess their AI literacy levels, aligned with the identified competencies and linked to the learning materials developed in Work Package 3.

Research shows that many employees lack awareness of their existing AI-related skills and benefit from a self-assessment tool. Rather than standing alone, the tool will be integrated into the learning process. Repeated use can make learning progress visible and enhance motivation. To deliver immediate value, assessment results will provide targeted recommendations for further learning.

Across all research components, the concept of a practical, user-friendly tool for assessing AI competence and identifying tailored learning opportunities was well received.

The Skill Scanner supports personalized learning pathways and optional progress monitoring. It is structured around the AI Literacy Skills Framework's four dimensions: Mental State, Understanding, Behavior, and Reflection.

Three core principles guide its design: it must be intuitive and adaptable to various organizational contexts; feedback should be clear and motivating; and it should promote ongoing, self-directed learning—fostering sustainable AI readiness across organizations.

This first draft version of the divide scale for the AI-Skill-Scanner developed based on the findings of WP2 to assess the extent of the AI divide among open and distance learners across six key dimensions. Dimensions 1-4 were taken from the AI Skill Framework. Dimensions 5 and 6 assess the perceived accessibility of AI resources and the support of employees by the company regarding the use of AI.

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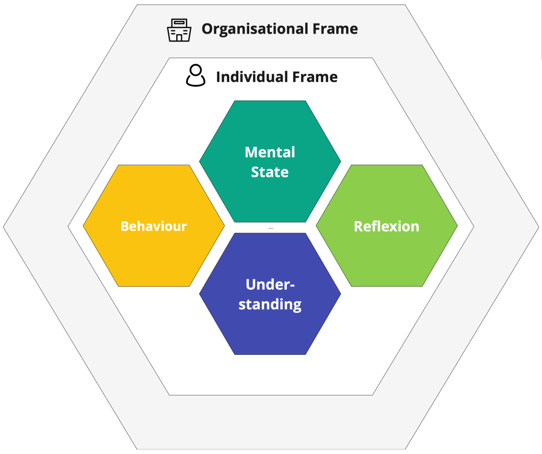
Derivation of AI Literacy Skill Scanner from AI Literacy Skill Framework

Based on the AIL Competence Framework, its four individual and two organizational competence dimensions are used as dimensions for the AIL Skill Scanner:

AI Literacy Skills Framework Dimensions:



AI Literacy Skill Scanner Dimensions:

Dimension	Interpretation
1. Mental state: Confidence & Attitude Toward AI	Generally posit attitudes and motivation
2. Behaviour Practical AI Literacy	Moderate skill i AI tools hands-c
3. AI-Understanding & Awareness	Moderate understanding c works
4. Reflexion Ethical & Critical Reflection	Awareness of ri room for growt
5. Access to AI Tools	Learners mostly the devices or Application the
6. Institutional & Cultural Support	Perceived amou training and su

Figure 28: From AIL Skills Framework to AIL Skill Scanner

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6.2. Key Findings & Guidelines for AI Communication Navigator

Based on the AmIFit project's research across five countries, key barriers to AI integration relate directly to communication gaps:

- Lack of shared language between technical and non-technical teams
- Fear and uncertainty about AI's impact on job security
- Absence of clear information about AI's purpose, benefits, and limitations
- Limited managerial involvement and vague strategic communication
- Cultural resistance and generational gaps in understanding new technologies

The research results empathize that AI implementation is a company-wide change process that goes through typical transformation phases, requires close guidance, and should address the specific needs and concerns of employees.

Digital Transformation and even AI driven Transformation, can be understood as a change-Process like a journey that employees go through, during which their attitudes and willingness to embrace change fluctuate over time. In Richard K. Streich's seven phases of change, an individual's emotional response to change is related to their personal perception of how competent they feel in dealing with the new situation.

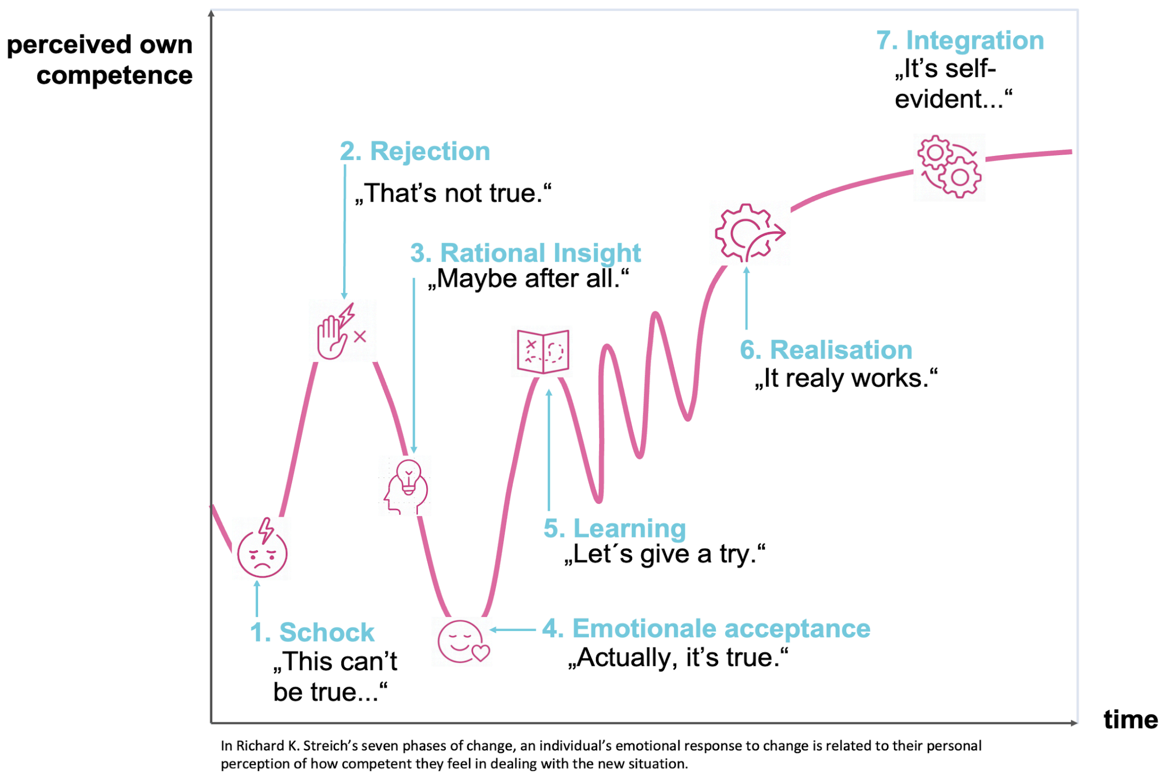

Figure 29: Richard K. Streich's seven phases of change.

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Applied to the introduction of AI in the company, especially in the early stages, fears and reservations must be taken seriously and accompanied by trust-building measures, such as training opportunities, management support, cultural acceptance, leadership encouragement and ensuring data security. Strong technical support and opportunities for hands-on experience for employees play an equally important role, as does fostering an error-tolerant corporate culture.

Engaging Employees, Shaping Change

The AI Communication Navigator is a practical toolbox designed to help organizations integrate artificial intelligence (AI) into their processes, with focus on actively engaging their employees. In addition to fostering individual AI literacy, the Navigator specifically addresses the organizational and cultural challenges associated with AI implementation.

These include key aspects of change management: ensuring transparency, acknowledging fears and barriers, creating a culture open to technology, and offering targeted training and qualification opportunities. The Navigator recommends suitable change management tools to support organizations in successfully navigating digital transformation processes.

Its core aim is to empower employees not just to adapt to change, but to actively shape it, while fostering a collaborative, learning-oriented culture for the responsible and effective use of AI.

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6.3. Key Findings & Guidelines for the AI Training Curriculum

The AI training curriculum will be aligned with the AI Skills Framework in terms of content and structure and also will take into account findings relating to didactics and teaching, as well as the organization of training measures in companies.

The main goal of the training is to empower non-technical employees to use AI responsibly and independently in the workplace, thereby supporting productive AI adoption within the company. To achieve this, practical online trainings (OER), innovative teaching materials, and pedagogical strategies will be used to promote broad acceptance of AI in SMEs and educational institutions.

The main topics of the training will focus on the four skill dimensions mental state, understanding, behavior, and reflection, identified in the research.

Mental state	Understanding	Behavior	Reflection
Attitudes and motivation in terms of digital Change and AI	Moderate understanding of how AI work	Moderate skill in using AI tools and how to communi-cate about it	Awareness of risks but room for growth

Figure 27: Training topics in the Dimensions Mental State, Understanding, Behavior, and Reflection

The research results also emphasize designing flexible AI training programs that are adaptable and compatible with both professional and personal circumstances.

A proven approach is the concept of a learning journey, such as an AI „fitness path“, that employees can complete individually at their own pace. Learning materials are offered in a differentiated manner, both thematically and in terms of level of difficulty.

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Appendix

Additional Documents:

- Communication Navigator
- Set of survey instruments developed in WP2
  - Interview guideline
  - Online Questionary
  - Focus group guideline

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