



From insight to impact: practical tools for reflective feedback and AI competence development



Jörn Allmang & Ulf-Daniel Ehlers | DHBW Karlsruhe | 13.02.2026 | 2026 European Learning & Teaching Forum

NEXT EDUCATION



Starting with critical reflection

What is the insight?

and

What is the (desired) impact?



**ERST KOMPETENZ, DANN DELEGATION – WARUM
WIR DIE REIHENFOLGE DRINGEND KLÄREN MÜSSEN**

NEXT

EDUCATION

The Future Skills Research Group



DHBW

Duale Hochschule
Baden-Württemberg
Karlsruhe



Agenda

1. Welcome & Icebreaker

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2. Introduction AIComp(etence) Model

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3. Co-Design Sprint: Which AI Competences Matter?

4. Co-Creative Scenario Building

5. Sharing and Conclusion

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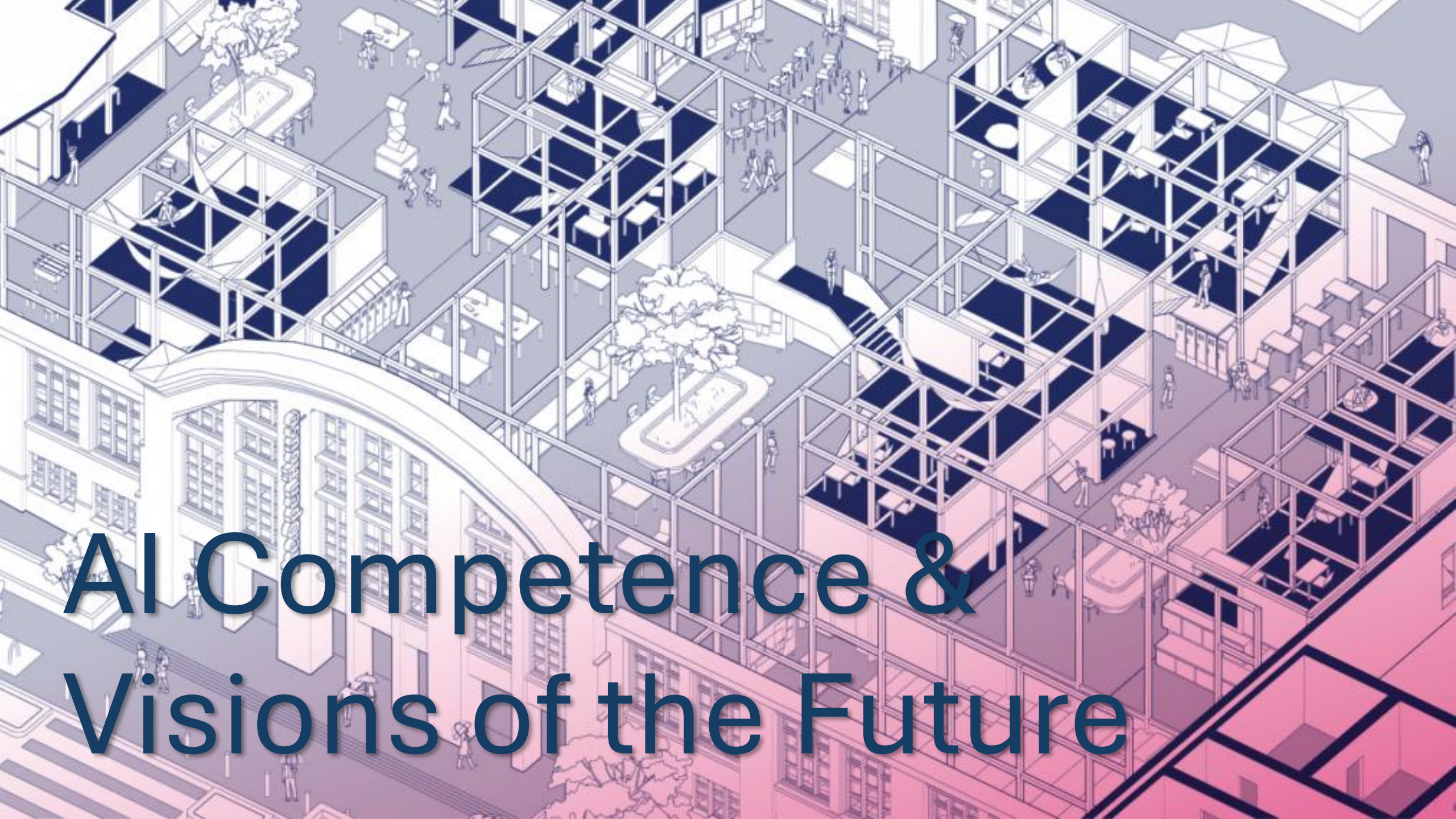
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Icebreaker: AI in Everyday Life



Raise your hand based on the questions I'll ask:

- 1. In a normal working day: How often do you use AI for work related tasks ?**
- 2. How AI-mature would you rate your institution?**



AI Competence & Visions of the Future



“Future Skills are competences that allow individuals to solve complex problems in **highly emergent** contexts of action in a self-organised way and enable them to act (successfully).”

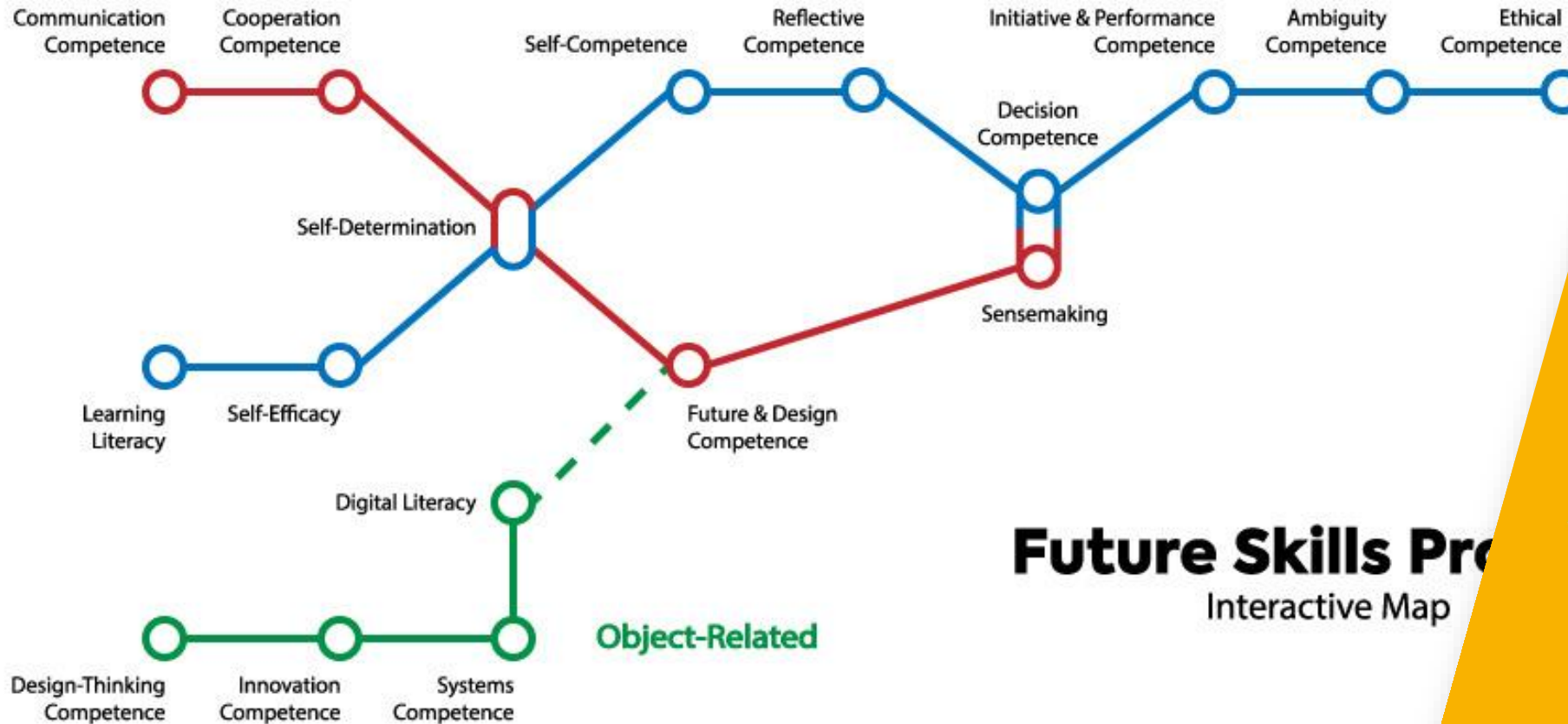
(Ehlers, 2020)

Future Skills Profiles

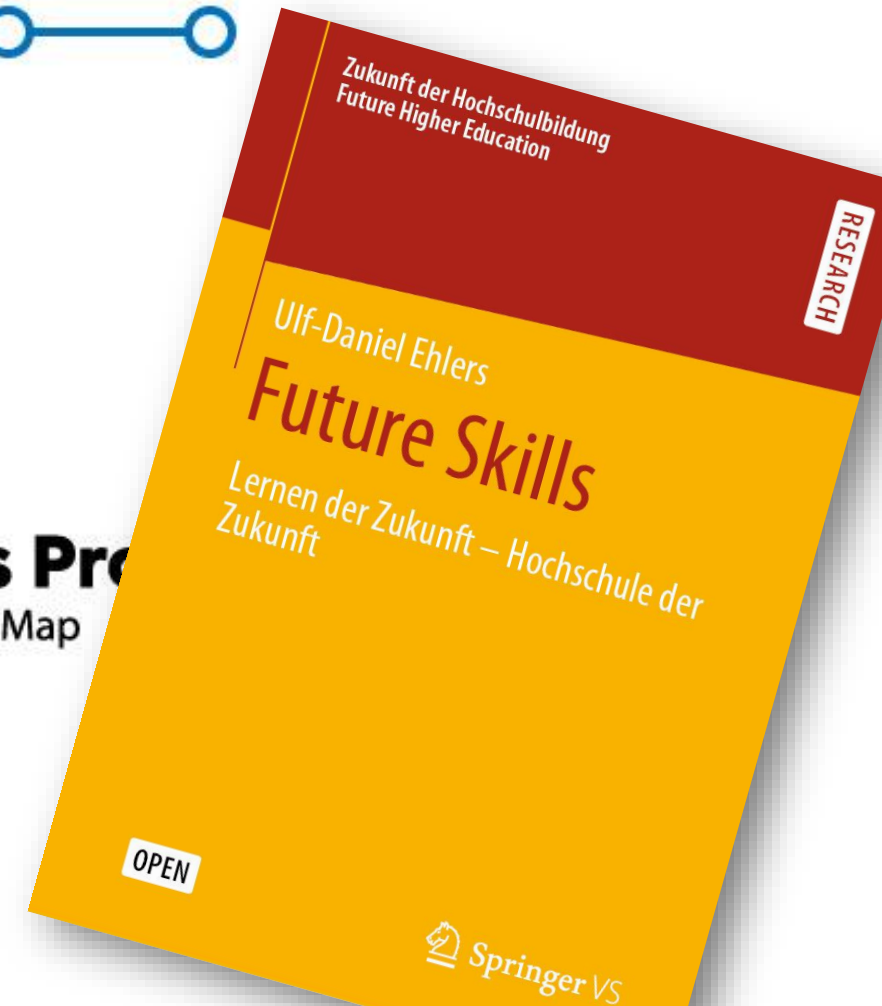
Interactive Map

Organisation-Related

Subject Development-Related



Future Skills Profiles
Interactive Map





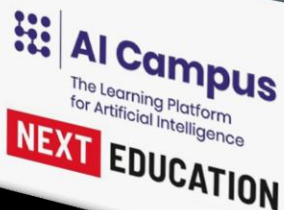


AIComp

Future skills for a living and working world shaped by AI

Research Report 1: Theory, methodological design, and results of the AI Competence Study 2024

Ulf-Daniel Ehlers, Martin Lindner, Emily Rauch



AIComp

Future skills for a living and working world shaped by AI

Research report 2: Empirical construction & description of the competence model AIComp

Ulf-Daniel Ehlers, Martin Lindner, Emily Rauch

www.ai-comp.org

4. Future skills for a living and working world permeated by AI

TABLE 1: OVERVIEW OF AICOMP FUTURE SKILLS

1	Activity and implementation competence "AI in professional activities": Taking the initiative	Activity and implementation competence for AI in professional activities is the disposition to act proactively in the field of artificial intelligence (AI) and to integrate innovations in this field into one's own work context. The competence has a fundamental character and includes the knowledge, skills and inner attitude to have orientation with regard to the growing importance of AI in professional and private contexts, to approach the topic with openness and critical awareness and to internalize the importance of continuous personal initiative for further training in this area.
2	System design expertise: designing AI systems	System design competence is the ability to plan and integrate both conceptual and technical AI systems in a professional context and to implement them in specialized fields of activity. System design competence comprises the knowledge, skills and inner attitude to analyse existing systems (both technical systems and organizations) and to assess the potential and limits of the use of AI systems for these, to actively help shape and implement them.
3	Creative problem-solving skills (creativity): Solving problems creatively with AI	Creative problem-solving competence is the disposition to use AI systems for creative problem-solving, idea generation and vision development. It encompasses knowledge, skills and inner attitudes that make it possible to solve complex problems by combining technical and human systems.
4	Critical digital competence: being able to assess the benefits and challenges of technical applications	Critical digital competence is the ability to understand, analyse and critically evaluate the inherent logic of AI systems with regard to their use of data and their impact on organizations and society. It includes the necessary knowledge, skills and inner attitudes to be able to assess AI systems in a critical and differentiated manner in relation to a given value or application context. (Example: being able to assess and analyze the influence of AI technologies on the handling of data).
5	Decision-making skills: using AI in decision-making processes	Decision-making competence is the disposition to use AI applications and systems to weigh up alternative choices and make decisions. The competence includes the necessary knowledge, skills and inner attitudes to consciously take responsibility for the decision supported and/or made by AI.
6	Self-efficacy: Conviction that you can overcome AI-related challenges with your own abilities	Self-efficacy as a competence is the disposition to master the challenges associated with AI that arise in one's own context of action through one's own actions with conviction, courage and confidence. It encompasses the necessary knowledge, skills and inner attitudes to overcome AI-related challenges and to use AI systems in an appropriate way for one's own questions and tasks.
7	Critical thinking: questioning how AI influences actions and decisions	Critical thinking as a competence is the disposition to reflect on the underlying ways of thinking, value systems and behaviors in AI-influenced action spaces and to be able to evaluate how they influence actions and decisions. It encompasses the necessary knowledge, skills and inner attitudes to analytically and critically assess AI-related circumstances, systems and applications as well as their effects.
8	Active controllability (self-control and self-management): Using AI systems specifically for me	Active control ability is the disposition to personalize AI applications, systems and associated processes for one's own personal and professional development and to be able to shape them confidently and largely independently of external influences. This includes the knowledge, skills and inner attitudes for independent motivation and planning, cognitive load management and a high level of personal responsibility.
9	Self-determination (autonomy): Self-determined handling of	Self-determination as a competence is the disposition to deal autonomously and confidently with AI applications without allowing oneself to be patronized. It requires the knowledge, skills and inner attitudes to develop a critical awareness of one's own person

4.1 Activity and implementation Competence: AI in professional action - Taking initiative

Activity and implementation Competence
AI in professional action:
Taking initiative

"In my opinion, it will be important for professional success in the future to take the initiative with regard to the use of AI."



FIGURE 5: ACTIVITY AND IMPLEMENTATION COMPETENCE: AI IN PROFESSIONAL TAKING INITIATIVE

4.1.1 Definition

Activity and implementation Competence for AI in professional activities is the disposition to act proactively in artificial intelligence (AI) and integrate innovations in this field into one's own work context. The Competence is fundamental and encompasses the knowledge, skills, and inner attitude to approach the topic with openness and critical awareness, and to internalize the importance of continuous self-initiative for further training in this area. The Competence also includes an ability to assess the potential and limits of the use of AI systems for these, to actively help shape and implement them. It also includes communicating and collaborating with colleagues on AI-related topics.

A short version of the definition: Activity and implementation competence for AI in professional action is expressed in the motivation to take the initiative to make AI usable for one's own action.

4.1.2 Description

During the ongoing integration of artificial intelligence (AI) into the professional environment, specific key competences are crystallizing and are central to professional success. "Activity and implementation competence 'AI in professional action': Becoming proactive" forms a focus of activity and initiative in dealing with AI-related challenges.

Initiative competence (0.73) is at the top of these skills and emphasizes the importance of being active and taking responsibility for integrating and using AI technologies. Cooperation (0.73) is closely related to this and describes the ability to work effectively and proactively.

4.2 System-design Competence: Design AI-Systems

System-design Competence
Design AI-Systems

"I feel comfortable helping to shape the future use of AI technologies in my professional environment."



FIGURE 6: SYSTEM DESIGN COMPETENCE: DESIGNING AI SYSTEMS

4.2.1 Definition

System-design Competence is the ability to plan and integrate both conceptual and technical AI systems in a professional context and to implement them in specialized fields of activity. System-design Competence includes the knowledge, skills and inner attitude to analyse existing systems (both technical systems and organizations) and to assess the potential and limits of the use of AI systems for these, to actively help shape and implement them. System-design Competence also includes an instrumental ability to understand and further develop AI applications systematically.

Short version of the definition: System design competence is the ability to develop concepts and implement them in one's own professional context.

4.2.2 Description

The Principal Component Analysis (PCA) focuses on system design competence and integrating it into professional contexts. The factor on which the items load appears to represent a dimension that captures individuals' willingness and ability to integrate and actively shape AI technologies in their work environment.

The item "I feel comfortable helping to shape the future use of AI technologies in my professional environment" has the highest loading. (S8 - system design competence) (0.73). This indicates that feeling comfortable helping to shape the use of AI technologies is a central element of system design competence. It reflects a proactive attitude encompassing the acceptance of new technologies and the desire and confidence to drive and influence these developments.

The next item, "I have already imagined how I could use AI systems for my field of activity in the future." (E8 - System design competence) (0.72), shows a strong charge and emphasizes the importance of vision and imagination. This ability to anticipate and conceptualize potential applications



The TOOL Corner



3 Tool we brought along

1. AI-Competence Matrix

2. AI-Competence Scan

3. ALLEX / AI-Chatbot



WELCOME!

The Future Skills Compass offers a targeted opportunity to deal with Future Skills ([more about Future Skills](#)). The online tool is based on the Future Skills model developed in the NextSkills study by the [next.education working group](#) at the [DHBW Karlsruhe](#).



THE FUTURE SKILLS COMPASS

In the Future Skills Compass, you can take targeted steps in developing your Future Skills. The online tool is based on the NextSkills framework, which includes 17 scientifically developed Future Skills profiles. Just like with any good compass, you can determine your current position here. The tool also helps you to actively pursue your personal Future Skills development.

01 FUTURE SKILLS SCANS

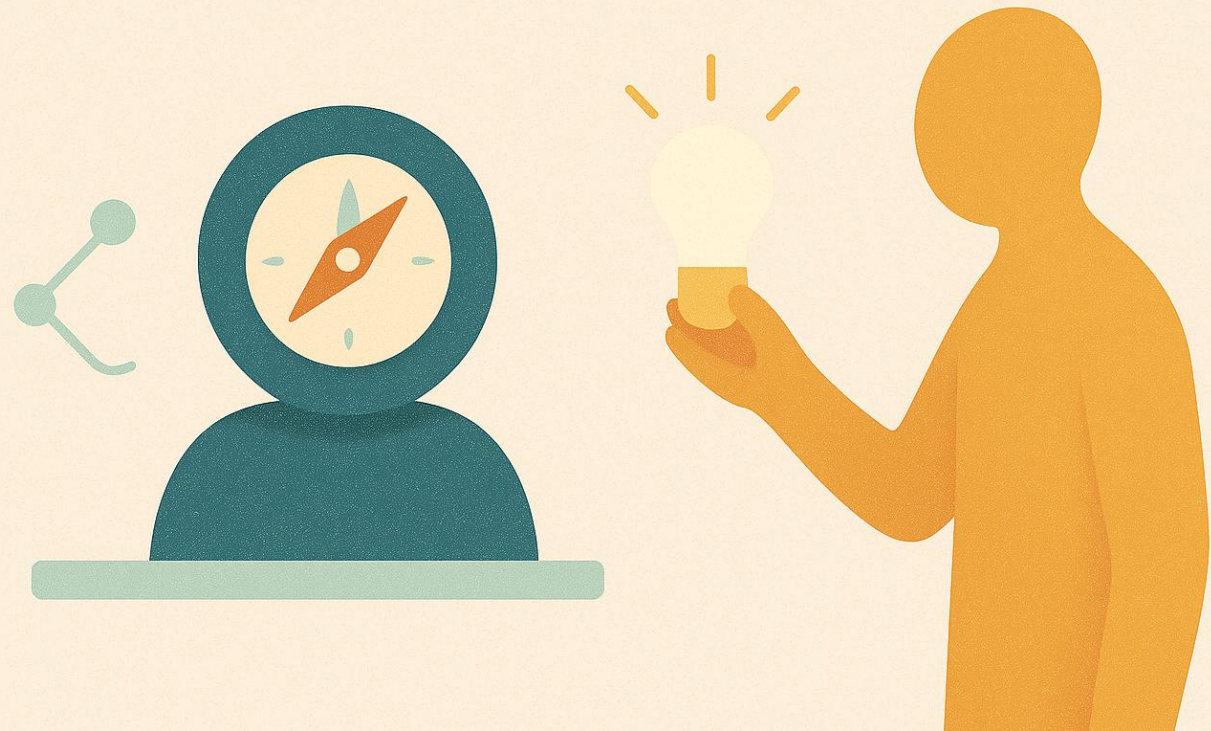
02 FUTURE SKILLS TEST CENTER

03 ALLEX - AI FUTURE SKILLS
DIARY

04 FUTURE SKILLS ACTION LAB

AI Competence Scan: self-assessment of your own competence profile

- Reflection-based, self-directed competence learning
- Self-assessment of personal AI-related competencies via action/behavioral scenarios
- Identification of development needs
- Deliberate reflection on individual experiences
- Basis: Situational Interest Test (SIT)



01 ACTION AND IMPLEMENTATION COMPETENCE

01

3/4 In a volunteer association there is discussion about using AI tools for event planning, e.g., coordinating dates or automating registrations. Only limited financial and human resources are available. In addition, some members voice concerns about data protection and onboarding to new tools. Your task is to assess whether and how an AI-supported solution can realistically be implemented that meets the association's requirements. How confident do you feel taking on this task, identifying existing offerings, weighing their pros and cons, and supporting the team with training as needed?



per skill min. 2 situations: ○ ○ ○ ○

PREVIOUS

SWAP

NEXT

confident/experienced

This comes easily to me.

self-confident/comfortable

I can handle the situation well.

challenged

This is a challenge for me; I don't know how to proceed.

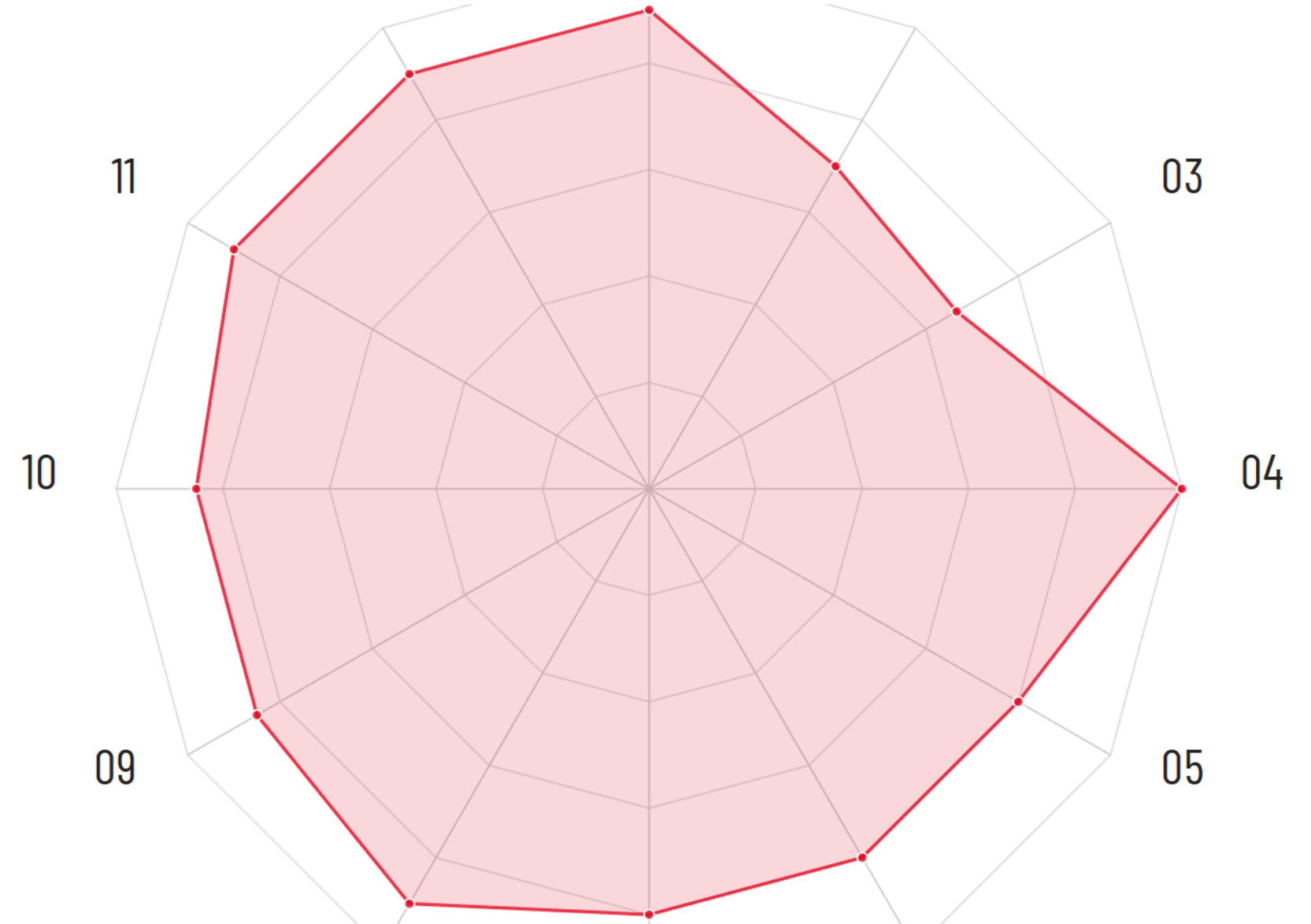
unsure/insecure

I don't know whether I can manage this at all.

overwhelmed

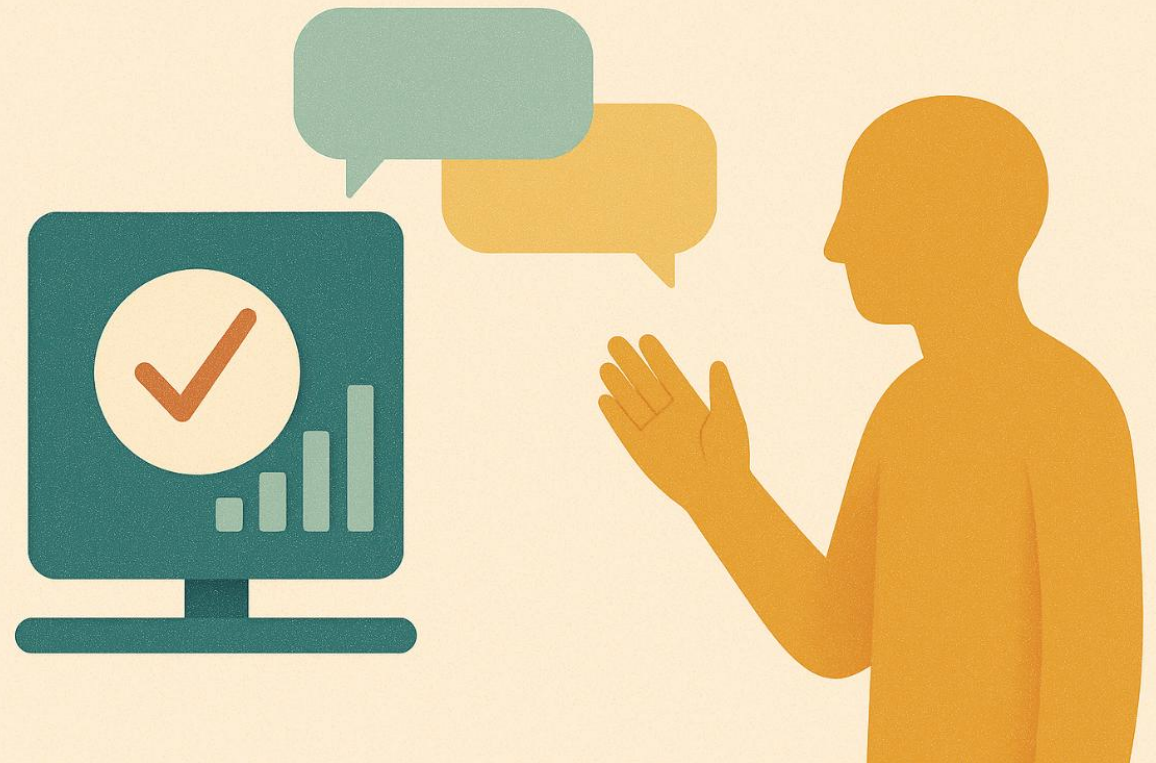
This situation overwhelms me; I can't handle it.

- FUTURE S**
- 01 Action a**
- 02 System**
- 03 Creativ**
- 04 Critical**
03 (confident/
or computer v
this system, p
phase. How co
- 04** (confident/
recommendati
data-protectio
a pilot phase.
- 05 Decisio**
- 06 Self-Eff**
- 07 Critical**



AI Competence Development in Dialogue

- **AI dialogue system:** supports learners in competence development and self-reflection
- **Structured reflection** on personal learning situations using problem-based guiding questions
- **Assessment & feedback:** AI identifies competences in learners' narratives and provides feedback
- **Dialogic deepening:** targeted follow-up questions to further differentiate and unpack the learning experience (STAR)
- **Dialogic deepening:** targeted follow-up questions to further differentiate the learning experience



THE LEARNING BUDDY



ALLEX @ 11.02.2026 - 22:40:02

Hello, I am your Future Skills Reflection Buddy and I will help you reflect on your Future Skills experiences. To get started, tell me about a meaningful learning experience.

Please address the following aspects:

Situation:

Describe a specific incident that was challenging for you or in which you developed your skills. It should be something that you were not able to solve immediately.

Task:

What was your task and under what conditions did you have to complete it (e.g. teamwork, clear deadlines, etc.)? Explain your goal as precisely as possible.



ALLEX @ 11.02.2026 - 12:39:35

1. Competence Analysis

Self-efficacy:

Scale:

1. Minimal: Awareness of own competencies is uneven or missing.
2. Satisfactory: Recognizes own abilities but struggles with application under stress or uncertainty.
3. Good: Uses skills effectively in familiar situations and starts to manage less predictable conditions confidently.
4. Excellent: Demonstrates high confidence in abilities across a range of challenging and diverse situations; leads others through crisis.

Rating: Level 4 - Excellent

In this challenging situation, you demonstrated exceptional self-efficacy by handling a high-stress conflict without physical intervention, despite feeling unprepared and overwhelmed. Your action of firmly and calmly directing the individuals involved reflects a high level of confidence and competence in crisis situations. Your ability to remain calm and execute a de-escalation strategy effectively, even under pressure, exemplifies an excellent level of development in self-efficacy, as you not only managed the situation confidently but also guided others safely.

2. Missing but relevant competences

Communication Skills:

Although you mentioned using direct communication during the incident, enhancing and highlighting advanced communication skills such as active listening and verbal persuasion could further strengthen your approach. Effective communication is pivotal in conflict resolution and can significantly influence the outcomes by de-escalating tension and ensuring all parties feel heard.

Decision-making skills:

Your narrative implies decision-making under stress; however, explicitly developing and referencing your decision-making processes could provide clearer insights into how you evaluate and choose your actions in critical situations. This would also enhance your ability to handle similar crises in the future by establishing a more systematic approach to rapid decision-making.



3. Miniworkshop: Co-Design Sprint: Which AI Competences Matter?





4. Future skills for a living and working world permeated by AI

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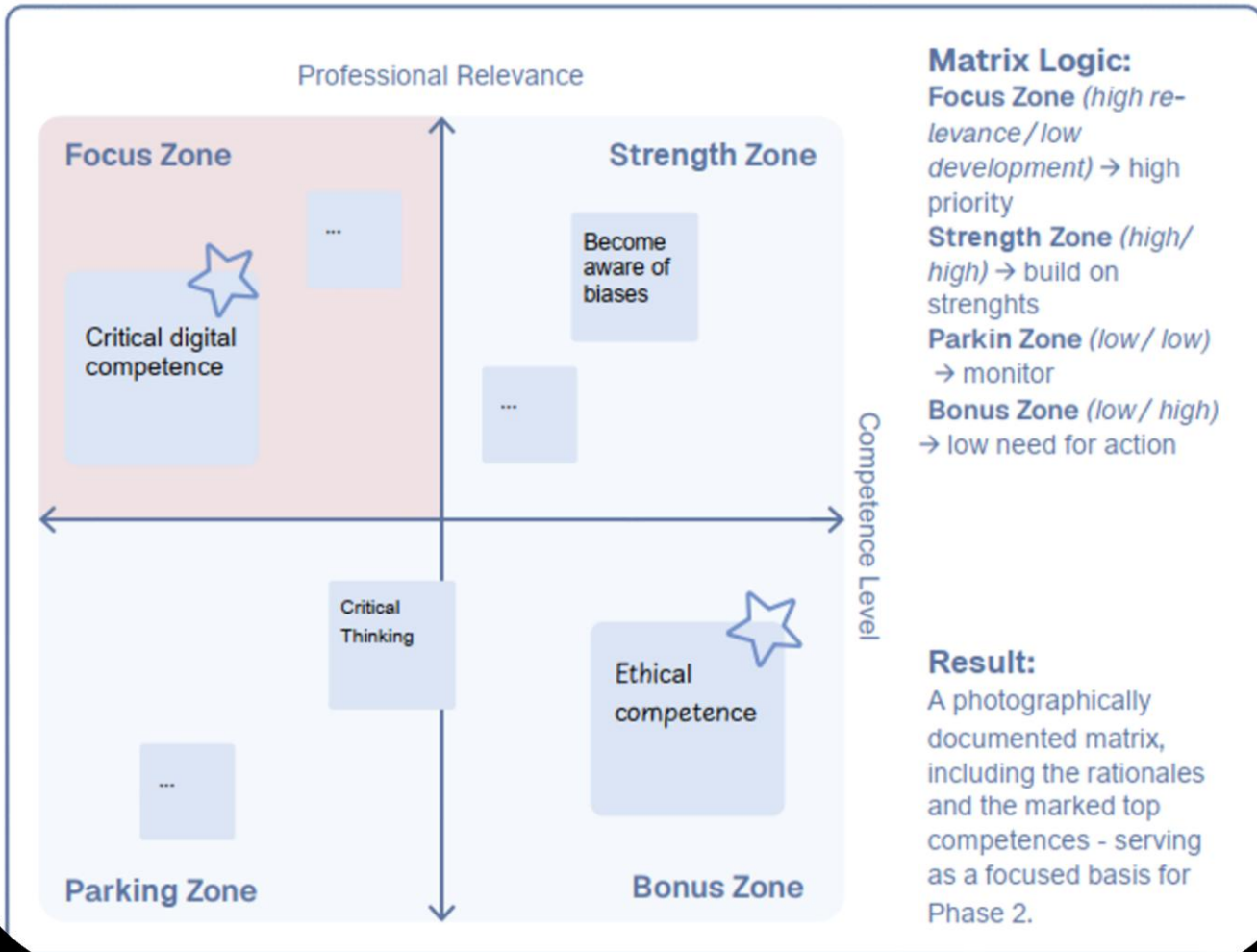
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Scenario: You are a faculty dev group (30 min)



Competence Matrix (with sample context)

Note: Transfer this template to a flip chart to work on it together.



Task: Find a set of 3-4 AI Competence for your program

Instructions for using the matrix



1 Transfer

Everybody selects 1-2 relevant competences



2 Assess

Discuss how high the subject-specific relevance of each competency is (Y-axis) and how strongly it is currently developed among your students (X-axis).



3 Place

Place each card together in the appropriate quadrant.



4 Prioritize

Then mark 3-5 competences that you will pursue further in Phase 2.

Short Debrief

Planning Process for Agile Degree-Program Development for AI Competences

The planning process is divided into four phases:

PHASE 1

Clarify AI competence needs



Step 1

Scoping & clarify initial situation

Step 2

Collect & cluster competences

Step 3

Position & prioritize competences

Step 4

Subject-specific contextualization & documentation

PHASE 2

Define learning objectives and formats



Step 1

Derive & document learning objectives

Step 2

Develop & connect teaching formats

PHASE 3

Build the curriculum



PHASE 4

90-Day Implementation plan



www.ai-comp.org/agil

Position & Prioritize Competences

Together, clarify which AI competences are particularly relevant for the degree program. In the discussion, reflect on significance, learning needs, and evidence (e.g., evaluations, practical experience, instructor feedback).

The cards are positioned in a 2x2 matrix:

Y-axis: subject-specific relevance

X-axis: students' current competence level

This creates a shared situational picture - and a prioritized selection of the most important 3-5 competences.

Instructions for using the matrix



1 Transfer

Agree on approximately 10 competence cards from Step 2 that you want to continue working with.



2 Assess

Discuss how high the subject-specific relevance of each competency is (Y-axis) and how strongly it is currently developed among your students (X-axis).



3 Place

Place each card together in the appropriate quadrant.



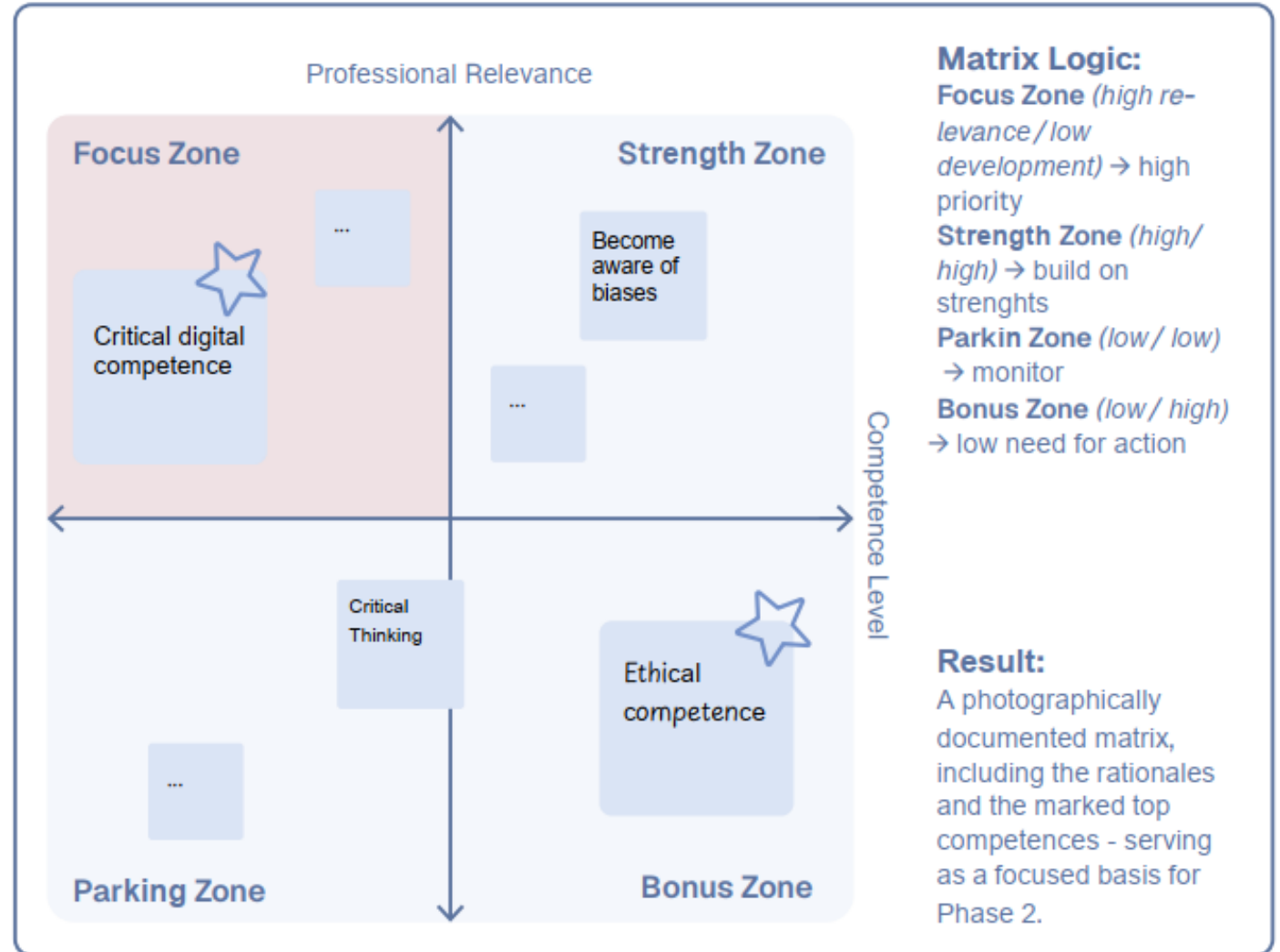
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Competence Matrix (with sample context)

Note: Transfer this template to a flip chart to work on it together.





4. Co-creative Scenario Building



Co-Creation of a Learning Pathway (20 Min)

Stay in your groups, you have **20 Minutes**.

Your Goal: Design 1-2 ideas for teaching / learning formats for your programm

Be creative!

Learning formats, inputs, activities, assessments, recognitions?



5. Sharing and Conclusion

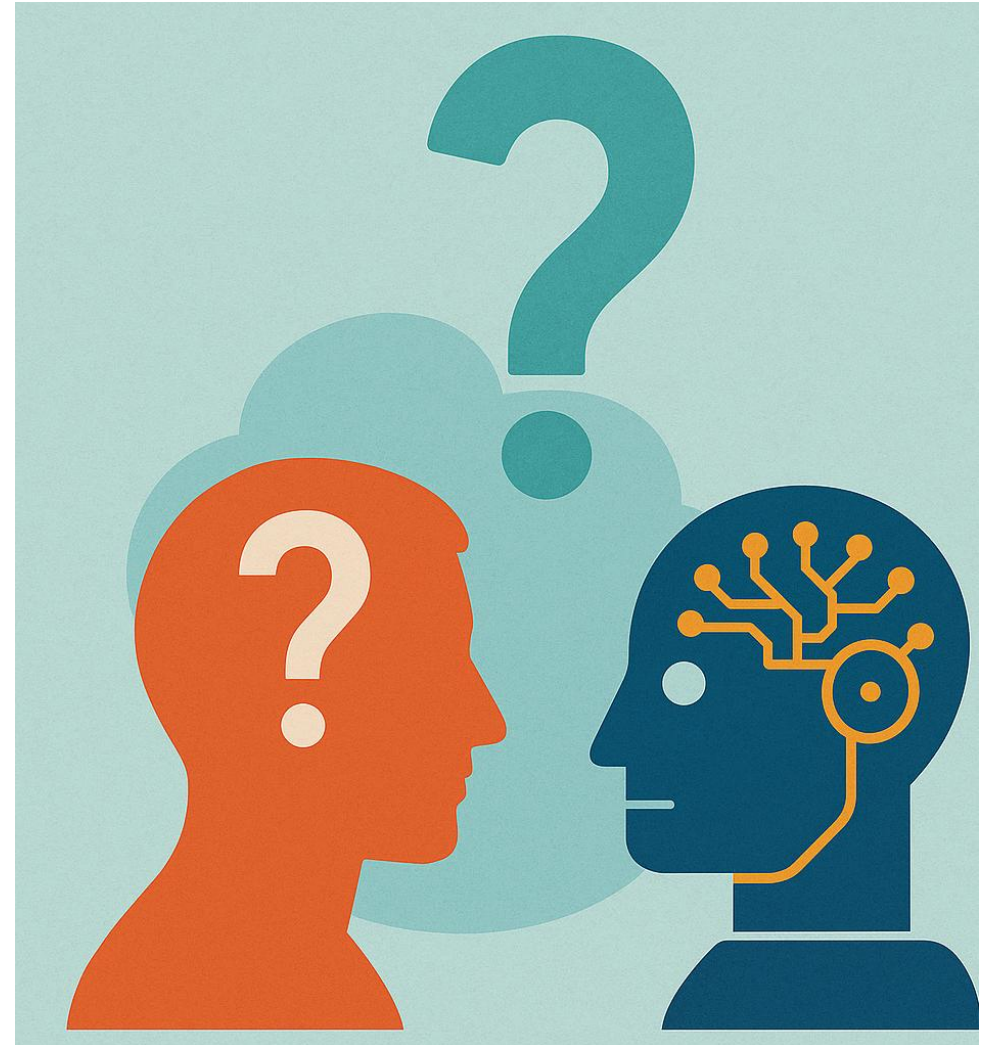


Sharing back: Lightning reports from groups

- What is your small “starter kit” for the own institution?

To discuss:

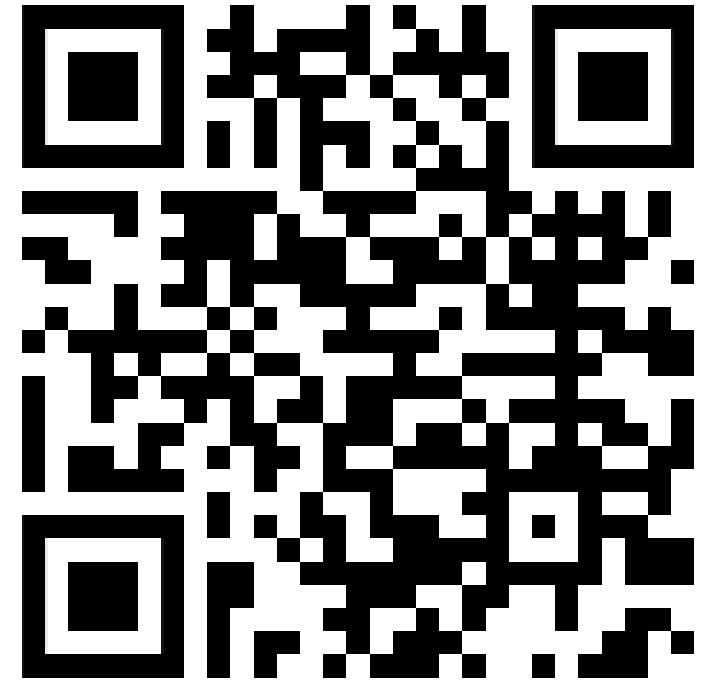
- How to ensure the transferability of these strategies across diverse higher education contexts?!
- How do we certify these competences credibly?
- How should HEIs adapt programs to anticipate needs?



Would you like to try the compass tool?

- Go to: <https://www.future-skills-kompass.org/>
- Create a TAN for yourself using the specified format and click Save TAN.

- For the **chatbot**: Select **03 Alex – AI Future Skills Diary**
- For the self-assessment of your competences:
Click **01 Future Skills Scan** and then **AI Competence Scan**.



NEXT

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Do you have any questions, comments or would you like to exchange ideas? Feel free to contact us at any time!

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