Responsible AI usage

Building critical competences

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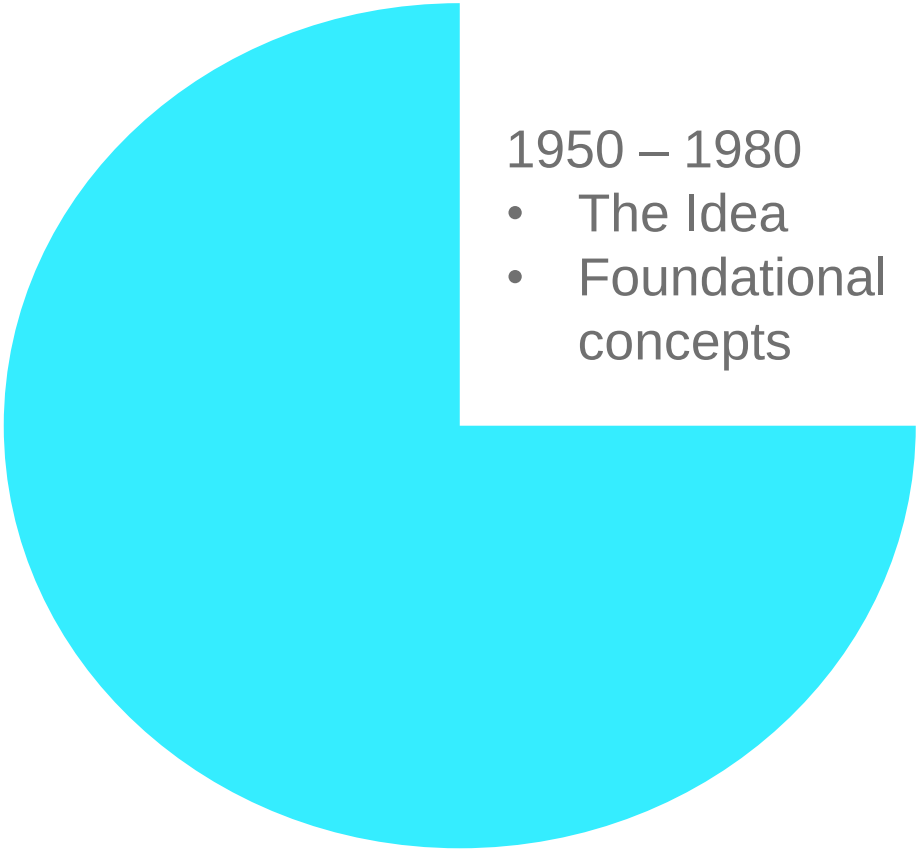
What is AI?

The science of making machines do things that would require intelligence if done by people

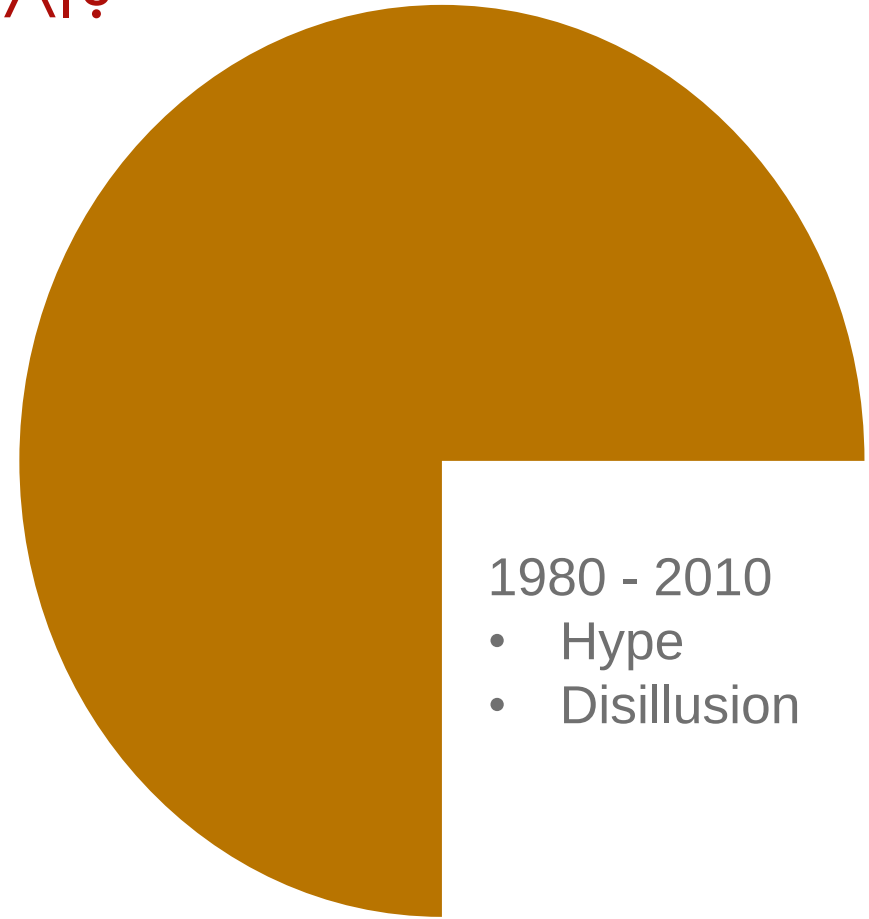
- Marvin Minsky (MIT professor / AI pioneer)

- **Analytical AI**: Analyses data, recognizes patterns and comes to some conclusion without taking action upon those conclusions.
- **Generative AI**: Is capable of creating more than only-text answers to questions. Can be used to generate images, music or video.
- **Agentive AI**: Can take actions, like starting/stopping systems, based on the conclusions it reaches

Evolution of AI?



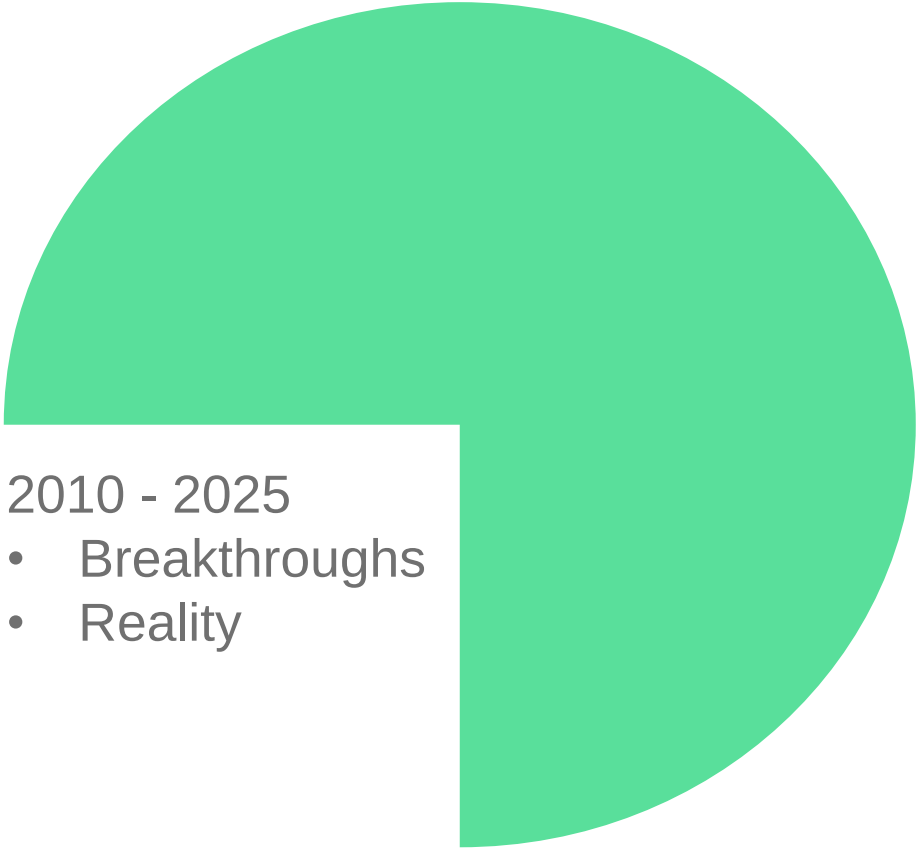
Evolution of AI?



1980 - 2010

- Hype
- Disillusion

Evolution of AI?



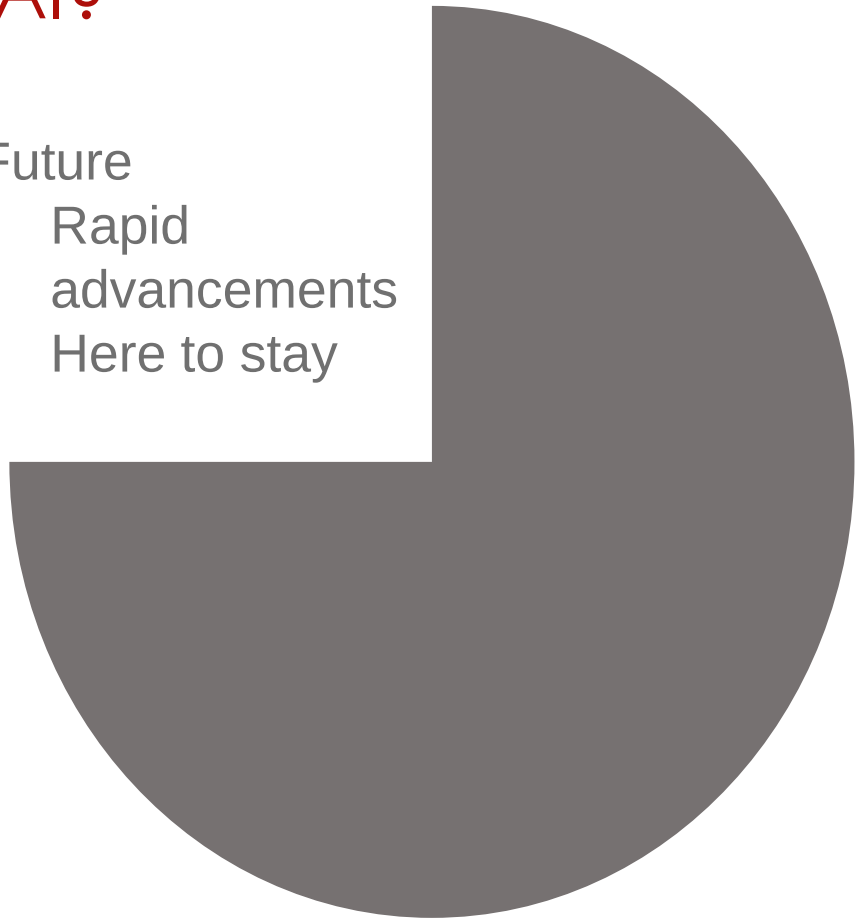
2010 - 2025

- Breakthroughs
- Reality

Evolution of AI?

Future

- Rapid advancements
- Here to stay



Not being able to use AI: consequences

No access to qualitative AI	No adequate skills to use AI responsibly
Digital inequality	Misinformation risk
Limited learning opportunities	Ethical misuse of the technology
Reduced productivity	Bias amplification
Missed innovation chances	Increase in cybersecurity issues
Economic disadvantage	Professional liability
...	...

The conclusions are obvious:

- Students need to have access to qualitative AI
- Students need to learn how to use it responsibly

Otherwise: growing gap between students that can and cannot use AI

Access to AI

- How to guarantee all students have the same chances?
  - Some AI tools are better for specific tasks
  - The most advanced AI tools require paid subscription
- Give students access to the same AI tools
- Responsibility of the institution?

Generated by Copilot

Responsible AI usage

- AI as means/tool to:
  - Support the learning process
  - Stimulate learning autonomy
  - Increase learning efficiency
  - Develop an expert mindset
  - ...
- Responsible AI usage hinges on AI literacy
  - Knowing what AI is/isn't
  - Knowing what AI can/can't do
  - Be aware of pitfalls, dangers and risks
  - Estimate the impact of AI usage (deontological, ethical, ecological)
  - ...

Using AI = mastering prompts

- Most AI systems are language driven
  - You have to formulate a prompt
  - AI models are trained on natural and proficient language input
- Prompts need to be formulated accurately
- Students lacking language proficiency have difficulty formulating good prompts

Using AI = mastering critical reading

- AI output cannot be taken at face-value / trusted blindly
  - It needs to be evaluated critically
  - This starts with good reading comprehension
- Students lacking language proficiency, lack the level of reading comprehension to be able to master critical reading

Pillars for responsible AI usage

AI literacy

- Know the concepts behind AI
- Know limits of AI
- Be able to critically handle AI output
- Be aware of the pitfalls and dangers
- Be informed of the impact of AI in different contexts besides your own

Partnership

- Don’t use AI as hired help to do your work for you
- AI is allowed help you but it should not replace nor slow down the learning process
- Do not fall for the seduction of cogni-tive offloading!

Transparency

- Always indicate where/when/how AI was used in your work
- Always be able to explain/justify the AI output
- Honour the “clear-conscience” principle

Clear conscience principle

- When using AI, you should be able to answer “yes” fully and without hesitation to the question:

Do I use AI in a way that I can openly admit it and in a way that I can defend and justify my usage of AI with a clear conscience?

Consequences of not using AI responsibly

- It undermines / diminishes:
  - creative thinking
  - critical thinking
  - autonomous thinking

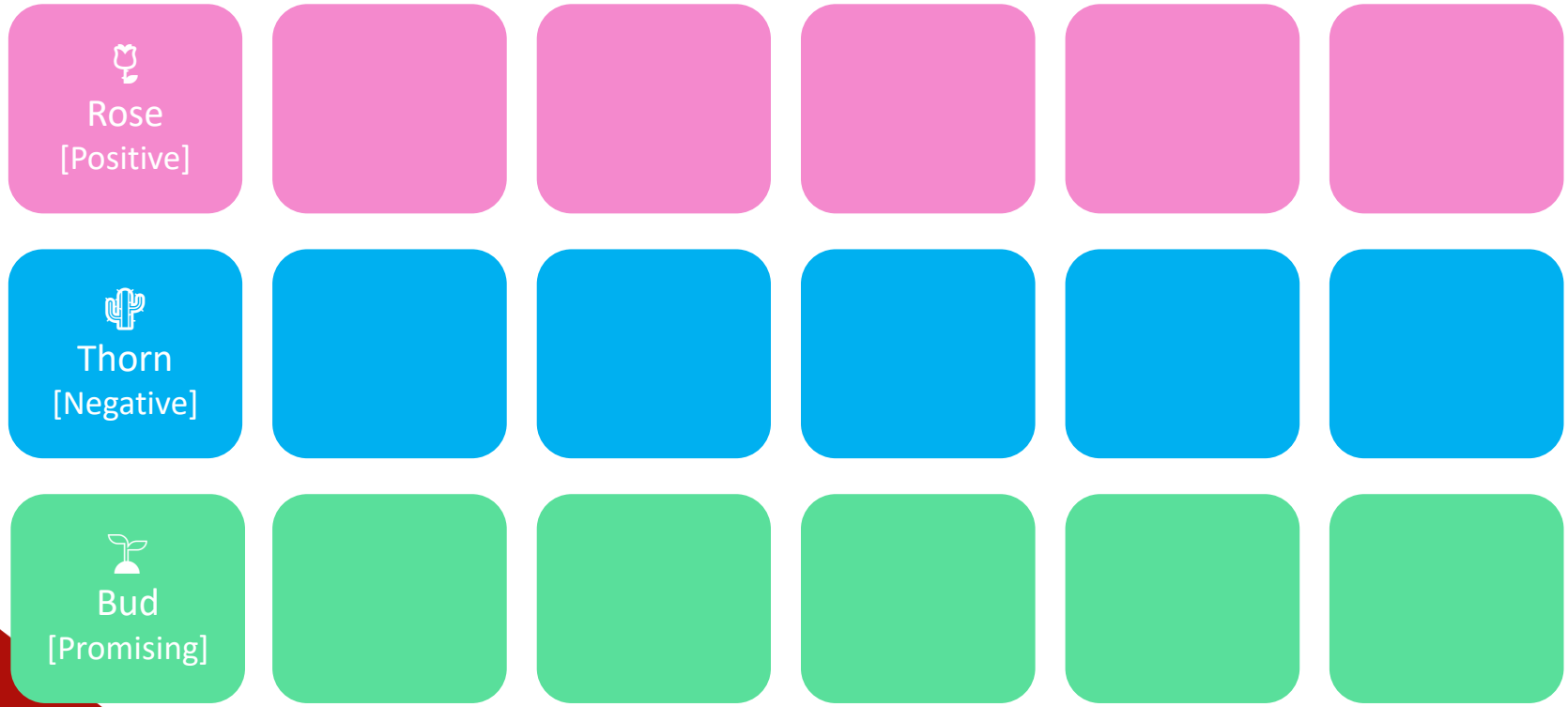
Screenshot from the movie Wall-E

We need to teach responsible AI usage!

- Lead by example
- Screen language proficiency
- Remediate low language proficiency
- Teach AI literacy
- Have an AI action plan
  - Most organizations already have this
  - Is usually too high-level for practical use
    - Students need concrete guidance
  - Translate the high-level directives into practical guardrails
    - Risk: conflicting sets on different organizational levels

Your turn!

1) Reflect on AI-impact in your field



1) Reflect on AI-impact [example: programming]

Rose [Positive]	Students make use of AI to fix bugs and document code more efficiently.
Thorn [Negative]	Students make use of AI generated code without understanding.
Bud [Promising]	We could use AI as a tutor explaining how and why a certain code snippet works.

2) Formulate a focus

- Translate one or more ***roses***, ***thorns*** or ***buds*** into a solution-oriented design question.
- Start every question with “How might we …”

2) Formulate a focus [example]


Thorn
[Negative]

Students make use of AI generated code without understanding.

"Students don't understand AI code" → "**How might we** *use AI to help students learn the logic behind generated code*?

3) Translate into actions

- Translate your “How might we” questions into concrete actions, tools or rules that could strengthen your current policy.
- If this policy were to be in effect tomorrow, what concrete requirements would students and teachers need to implement it?

Field	Question
Policy Goal	Which part of our AI policy does this align with?
Challenge / HMW	“How might we” question.
Who is involved?	Students, lecturers, internship supervisors, policy, etc.
Concrete applications / tools	Guidelines, templates, examples, trainings, rubrics, etc.
Quick first step	What can we already do tomorrow?
Needed from policy	What support, communication, or decision is needed?

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Guardrail toolset categories

Category	Purpose	Examples
Directive	Direct guidance and clear rules	Flowcharts for decision-making, color codes for tasks, checklists
Reflective	Encourage critical thinking and self-awareness	Reflection questions, self-assessment prompts
Informative	Provide knowledge and context	Infographics on AI ethics, FAQs, short videos on AI limitations
Practical tools	Support hands-on use of AI	Prompt templates, examples of correct vs incorrect AI use, transparency guides
Evaluation / feedback	Assess and improve responsible AI use	Rubrics including AI criteria, self-tests, peer feedback formats
Scenario's	Train decision-making in realistic situations	Case studies, ethical dilemmas, simulations of AI outputs

3) Translate into actions [example]

- **Policy Goal:** “Students may use AI to aid in programming, but they must be able to explain what the generated code does and why it works.”
- **How might we:** use AI as a learning coach in programming, instead as an automatic code generator?
- **Who is involved:**
  - Students: Use AI tools like GitHub Copilot, ChatGPT, or Gemini to write code or fix bugs.
  - Teachers: Guide students in learning to understand code and assess their understanding.

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3) Translate into actions [example]

- **Applications / Tools:**

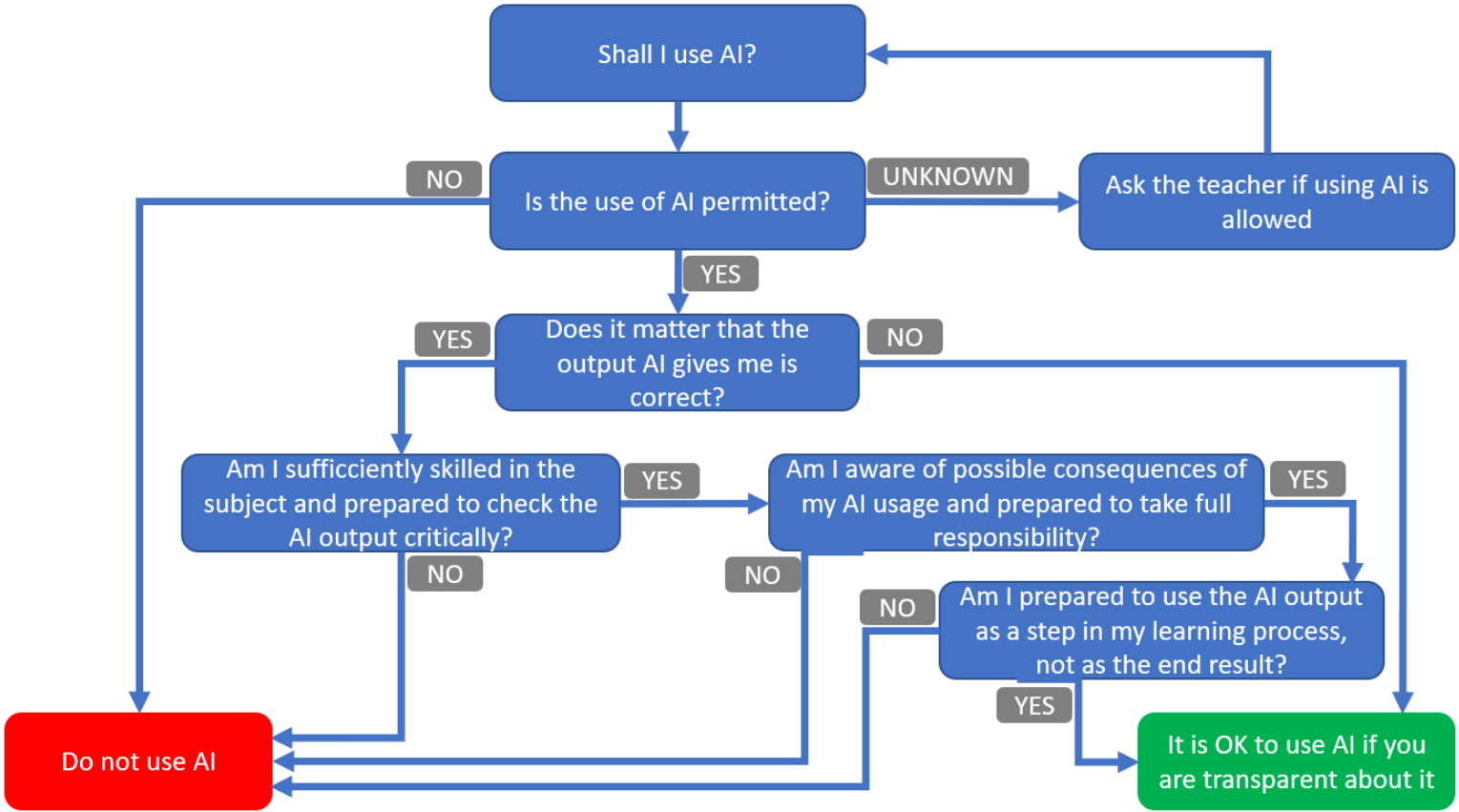
Category	Question	Concrete Applications / Tools
Directive	What agreements are needed?	- AI may assist in writing or improving code, but students must indicate *where* they used AI. - They must be able to explain what the code does, even if part of it came from AI.- - Reflection questions with each exercise: *"What did I learn from what AI suggested?"* and *"What would I do differently?"*- - Students compare their own code with AI-generated code: which is better, and why? - Short lesson or video: *"What does an AI tool actually do when it writes code?"* (explained at a learning-level, no math). - Overview of risks: AI may invent code, use outdated examples, or suggest unsafe practices.
Reflective	How do we encourage critical thinking about AI use?	
Informative	What should students and lecturers know?	

3) Translate into actions [example]

- **Quick first step:** Add one short reflection question to existing assignments: “What have you understood better thanks to AI?”
- **Needed from policy:**
  - Clear, visible agreements about what AI may do in programming subjects.
  - One standard form or section for “AI accountability” in all technical courses.

Practical examples

AI usage guardrail flowchart for students



INTERA – verantwoord je AI gebruik!

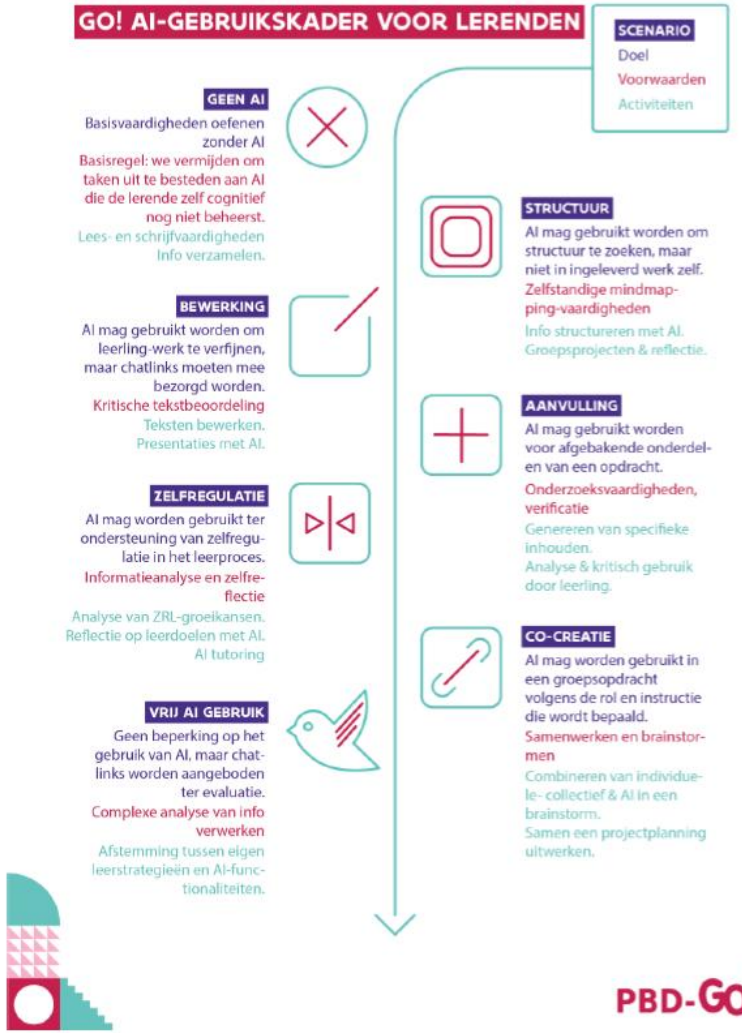
- **I – Intentie** Wat wil ik bereiken met AI? Wil ik het gebruiken als hulpmiddel of als vervanging van eigen (denk)werk? Wil ik mijn leerproces ondersteunen of ondermijnen?
- **N – Naleving** Wat zijn de richtlijnen over AI gebruik in deze context (les, examen, taak, ...)? Is AI gebruik hier toegestaan?
- **T – Transparantie** Ben ik bereid om open te zijn over mijn AI gebruik? Kan ik duidelijk aangeven wat van mij komt, en wat van de AI komt?
- **E – Eigenaarschap** Ben ik bereid verantwoordelijkheid te nemen voor mijn AI gebruik wat betreft eventuele ethische, maatschappelijke, juridische en ecologische gevolgen
- **R – Reflecteren** Begrijp ik datgene wat AI me aanreikt voldoende? Herken ik fouten of onvolledigheden in de output en kan ik doorvragen? Hoe leer ik op lange termijn uit datgene wat AI me aanreikt?
- **A – Alternatieven** Is AI hier echt nodig of kan ik het ook zonder? Zijn er non-AI alternatieven? Is AI gebruiken proportioneel ten opzichte van de opdracht of het doel?

Lesson activities

- Letting students do a SWOT analysis of their AI usage
- Testimonials alumni / workfield on needed AI skills in the field
- Supply metaphores in class activities where AI is being used
  - Fitness metaphore: training for abs
- Color coding learning activities and assignments or using icon sets

Label	Naam	Beschrijving
AI-Open	Volledig gebruik toegestaan	AI mag voor alle onderdelen worden gebruikt, met bronvermelding
AI-Geleid	Beperkt gebruik toegestaan	Alleen voor bepaalde stappen; instructies volgen
AI-Vrij	Geen gebruik toegestaan	AI mag niet worden gebruikt, ook niet ter inspiratie
AI-Verplicht	Gebruik van AI is onderdeel van de opdracht	Bijv. vergelijking AI- versus menselijke output

Icon set example



Testimonial example

- Reflection of a graduating student in his portfolio when asked about his way of using AI

Tot slot heb ik gemerkt dat er binnen het vakgebied geen kant-en-klare antwoorden bestaan. Veel situaties vereisen analyse, logisch redeneren, en soms ook improvisatie. Die realiteit maakt het vak boeiend, maar vraagt ook dat je leert omgaan met onzekerheid en verantwoordelijkheid.

Infographics example

- https://www.vaia.be/files/blogmateriaal/AI-Literacy-in-Your-Organisation-1.pdf

And now?

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Follow-up in the future

- Would you like to be part of a community of best practices?
  - What form of community?
  - Contact us with your ideas or suggestions!

Questions?

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