



INTRO

Responsibility of AI has recently been widely discussed in the scientific community. We see AI taking over at the moment in a quick pace that makes even keeping up with AI developments almost impossible for experts, and even more so for consumers.

Potentials:

- AI has the potential to transform many aspects of human lives, such as working life, consumption and learning. AI can make many mundane tasks easier.
- If used wisely, AI applications hold the power to aid in making better decisions, and navigating complexities of the modern world.
- AI might be able to share some ethical values with humans in the future.
- AI can interact with human intelligence in ways that enrich our capacities.
- AI is learning to create also culture and art, traditionally believed to be exclusive to humans.

Risks:

- AI might reduce need for human workforce in many areas, possibly leading to unemployment.
- If not understood and regulated well enough, AI might also hold the power to steer societal discussions and political realities in directions that might enforce divisions.
- Developments in AI and language generation that leaves invisible the original (human) sources of information hold risks for eradicating trust in society, as facts and fabrications become more difficult to differentiate.
- AI technologies might become so good at interaction that they will be impossible to differentiate from real humans. This might also have implications to how we treat our fellow humans.
- AI might contribute to creating technology-driven bubbles that can lead to increasing amounts of loneliness and isolation.

1: Research

- New capacities for AI are being researched all the time.
- In AI development, this phase includes basic research on technological capabilities and the limits of possibilities of artificial intelligence, increasing computing power and innovating new enabling hardware solutions.

Ecological considerations

- Developing more ecological hardware solutions: Exploring new, ecological materials or recycling solutions.
- Developing efficient software solutions: Developing solutions that require relatively less computing power. Is it possible to move towards use of representative data instead of large data masses?

Societal considerations

- Licensing and open-source: Purposefully balancing between open science and protecting intellectual property rights. Preventing potential misuse of data or technologies should be considered when making these decisions, as well as the use purposes that might require licensing.
- Inclusiveness of research practices: When research groups are diverse in composition, and different citizen groups are engaged in the research project whenever possible, the results are more likely to be usable and beneficial for larger groups of people.

2: Development of concepts and products

- AI develops at an unprecedented pace right now, new innovations and application areas appearing.
- With AI, this phase includes the translation of technological capabilities into concrete AI applications. In this phase, different application areas and opportunities of utilizing AI are considered.

Ecological considerations

- Environmental data for AI: when AI is applied to an area that can have ecological outcomes (e.g. industry), is adequate attention paid in using enough high quality environmental data in the AI modelling, optimizing the outcomes as ecologically as possible?
- AI working in a way that helps make processes more ecological: e.g. environmental modeling, AI aided optimization

Societal considerations

- Future considerations: Often the future implications of technologies that are developed now can seem irrelevant, but the first applications can be important in creating path dependencies that either preserve or harm human values in the future.
- Considering public perceptions of AI technologies: the research should be conducted in a societally acceptable and ethical way, taking into account and mapping public perceptions of AI use. When necessary, the decision to not develop AI applications for certain functions should be taken.
- Privacy: AI applications are often data intensive. When planning the data use, privacy of individuals should be taken seriously, considering the implications using their data in training AI can have.

3: Introduction and early implementation

- New AI applications are introduced to consumers all the time. As they are new and unlike anything before, they can receive high level of public interest on their release. For example, generative AI is discussed widely right now, and the opportunities offered by it are being actively explored by many users. On the other hand, novelty makes new applications hard to understand.
- Research on the application of AI for e.g. autonomous vehicles is right now aiming for commercialization in the coming years.

Ecological considerations

- Monitoring impacts: as new AI applications are taken up, is their environmental impact being monitored? Especially important this might be with environmentally sensitive application areas, e.g. in industry.

Societal considerations

- Target groups: Vulnerable groups, such as children and elderly, should be protected from harmful use of AI. They should have a chance of understanding that they are using AI (as opposed to e.g. chatting with a human) and what that means for them, e.g. through gathering data about them.
- Differentiation of humans and artificial intelligence: New AI applications can resemble human interaction and thought patterns in a believable manner. If we start treating artificial intelligence as we would humans, this can lead to deep issues and have implications to even human rights.
- Preventing biased decision making: AI models trained using data describing the existing society tend to omit human biases. When taking up new AI applications, it is therefore crucial to ensure the data used for training is unbiased or the biases are corrected as much as possible.

4: Scaling-up and fine-tuning established technologies

- As technologies become normalized part of our everyday practices, their basic premises are usually not questioned so much anymore. However, it remains important to stay aware of the ethical, ecological and societal impacts of technologies. For example, the algorithms used by all big social media sites at the moment use AI that shapes our perceptions of the world in a powerful way, even though they are often unnoticeable in everyday use.

Ecological considerations

- Energy use: AI can sometimes be energy intensive as opposed to e.g. using human decision making. The use of AI - compared to other technologies - should be considered, choosing the most efficient and purposeful technology that can be used.

Societal considerations

- Autonomy: AI should be applied in a way that allows users to preserve their autonomy. One part of this is that users can opt out from the use of AI applications that could potentially be harmful for them.
- Explainability: The AI systems that are widely used should be also publicly explained in a manner that allows users to understand their function and implications.
- Human connections: even when the use of AI applications is booming, it should be ensured they don't isolate people in technological bubbles but human connections remain.