



Artificial Intelligence for Good

Challenges in Meeting the UN Sustainable Development Goals
www.project-sherpa.eu

Prof. Bernd Carsten STAHL, University of Nottingham, UK
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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 786641

University of Nottingham
 UK • CHINA • MALAYSIA

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Recommendations



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Challenge 1: agreement on the ethics and human rights implications of SIS

Analyse, represent and visualise the issues

- 10 case studies of current SIS
- 5 scenarios of future SIS
- Analysis of cyberthreats
- Analysis of ethical impacts and social tensions
- Review of relevant human rights framework



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Case Studies

IoT 	Government 	Agriculture
Sustainability - Smart Cities 	Science 	

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Case Studies

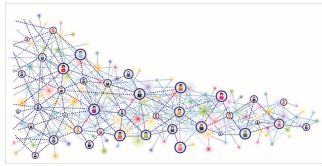
Insurance



Energy and Utilities



Communication, Media



Retail and Trade



Manufacturing



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Scenarios



Predictive Policing



Warfare



Mimicking Technologies

<https://www.project-sherpa.eu/future-scenarios/>



Education



Self-Driving Cars



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Challenge 2: Social perceptions of competing rights and interests

Consult stakeholders

- Stakeholder board
- 45+ interviews with experts and stakeholders.
- Online survey
- Delphi study with 60+ experts



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Challenge 3: Options for ethics and human rights in SIS

Collect and propose solutions

- Guidelines for research and innovation of SIS
- Regulatory options
- Assessment of standardisation potential
- Technical options and interventions
- TOR for regulator



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Challenge 4: Testing and validating possible solutions

Test range of options through stakeholder consultation

- Evaluation strategy
- Stakeholder evaluation and validation
- 6 Focus groups with stakeholders
- Prioritisation and finalisation of recommendations



Challenge 5: Implementation

Disseminate, exploit and advocate outcomes

- Dissemination
 - Communication
 - Online Presence
 - Artistic representation
 - Exploitation
 - **Advocacy**
- (<https://www.sherpapièces.eu/overview/>)



AI Definitions

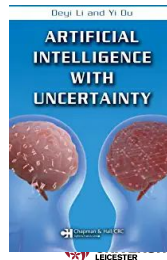
- AI is a collection of technologies that combine data, algorithms and computing power. (European Commission, White Paper)
- AI combines a variety of intelligent behaviors and various kinds of mental labor, known as mental activities, ... [to] include perception, memory, emotion, judgement, reasoning, proving, identification, understanding, communication, designing, thinking and learning, etc. (Li and Du 2007)



Brussels, 19.2.2020
COM(2020) 65 final

WHITE PAPER

On Artificial Intelligence - A European approach to excellence and trust

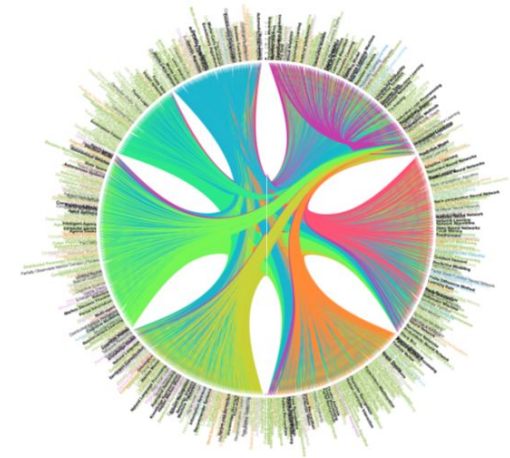


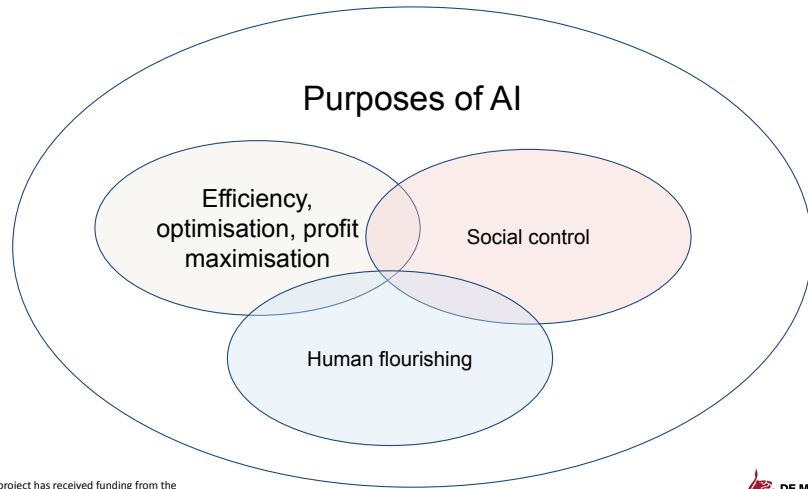
Artificial Intelligence



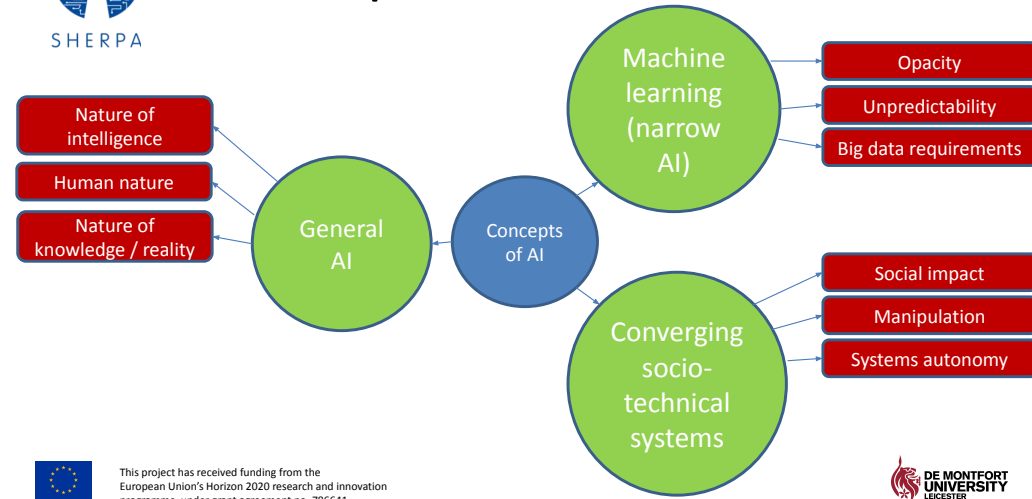
Artificial Intelligence:
How knowledge is created,
transferred, and used
Thanks to China, Europe,
and the United States.

<https://www.elsevier.com/?a=827872>

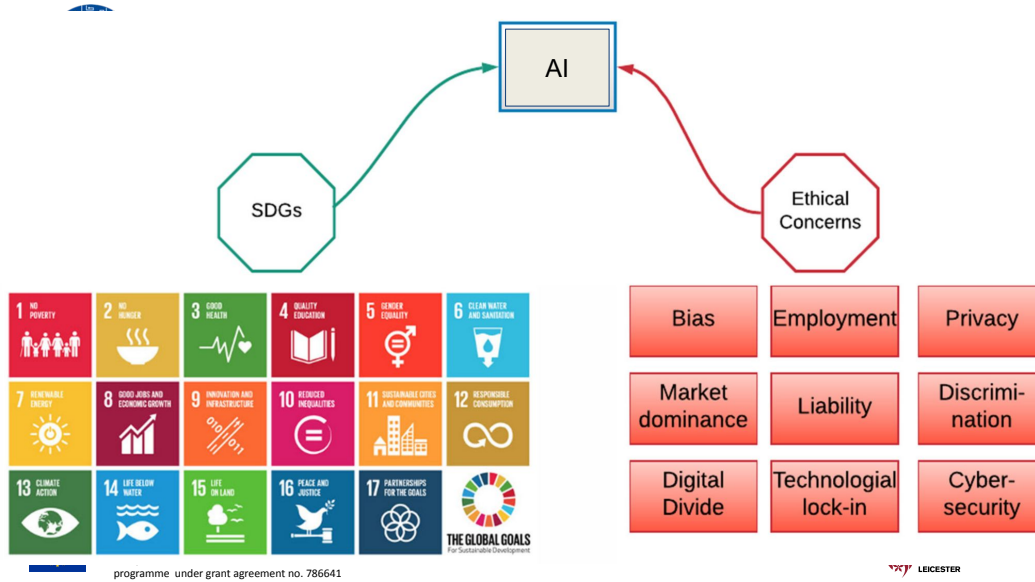
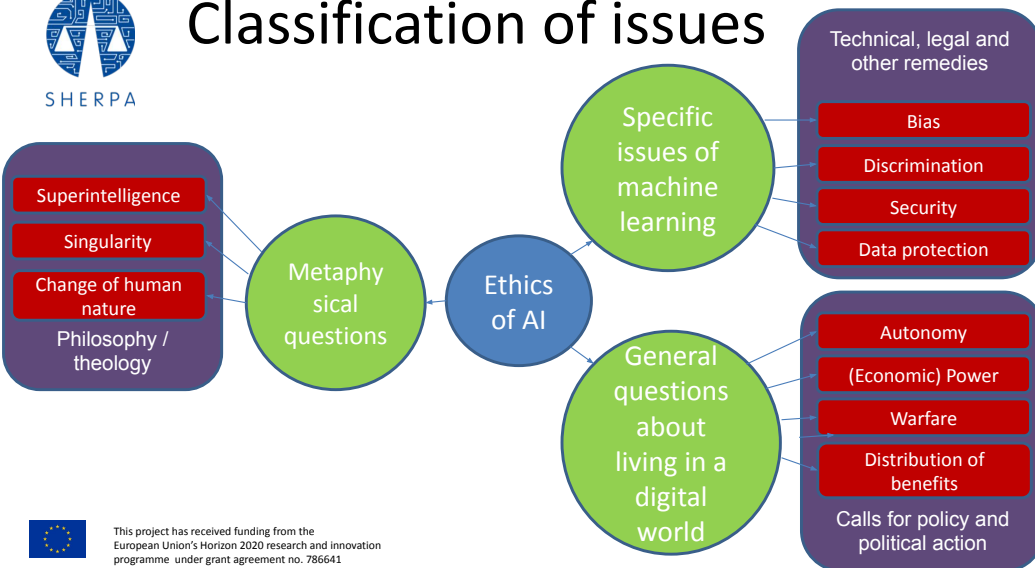


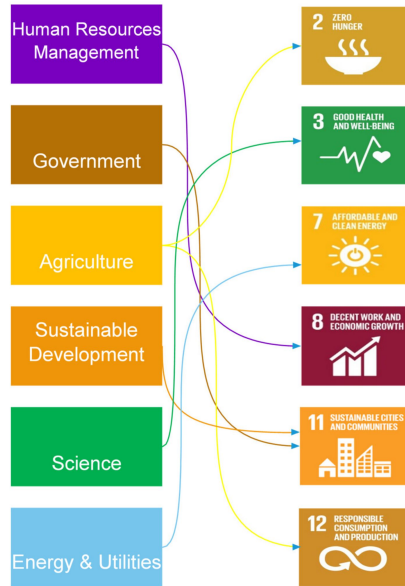


Concepts of AI in use

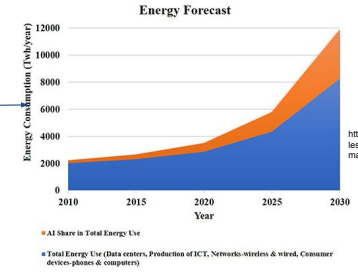


Classification of issues





Challenges for AI and SDGs



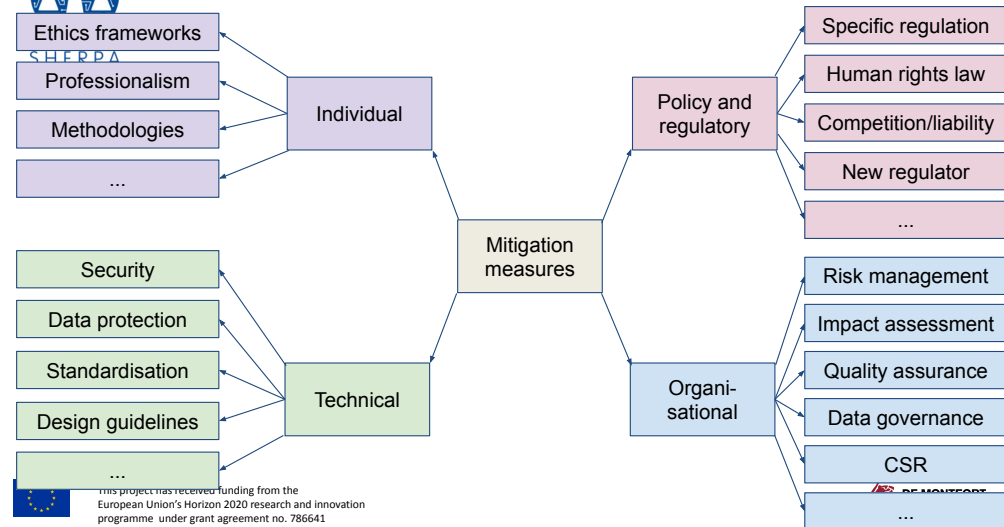
https://www.frontiersin.org/files/Articles/463678/frns-13-00666-HTML/image_m/frns-13-00666-g001.jpg

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Problem: helicopter research



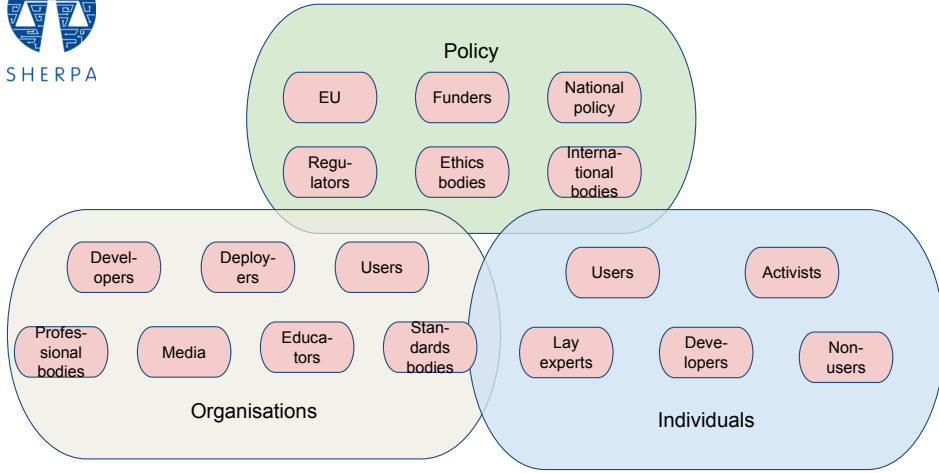
https://www.frontiersin.org/files/Articles/463678/frns-13-00666-HTML/image_m/frns-13-00666-g001.jpg



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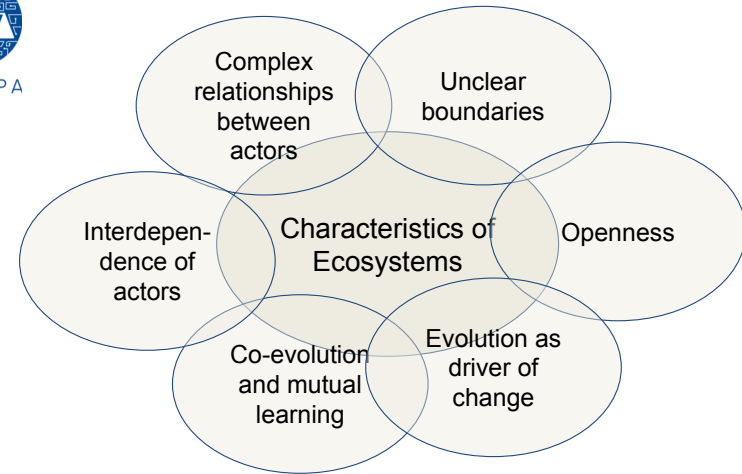


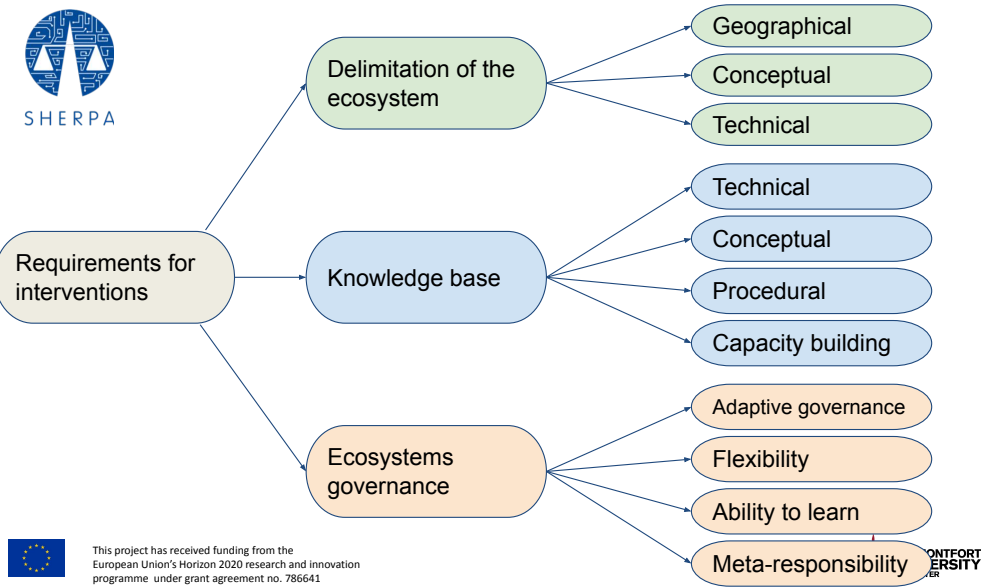
Insights so far

- There is no magic bullet
 - epistemic complexity
 - distribution of responsibility
 - technical progress
- What is required is an intelligent mix of options
- The metaphor of an ecosystem is appropriate.



Towards an Ecosystem of Artificial Intelligence for Human Flourishing





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Recommendations

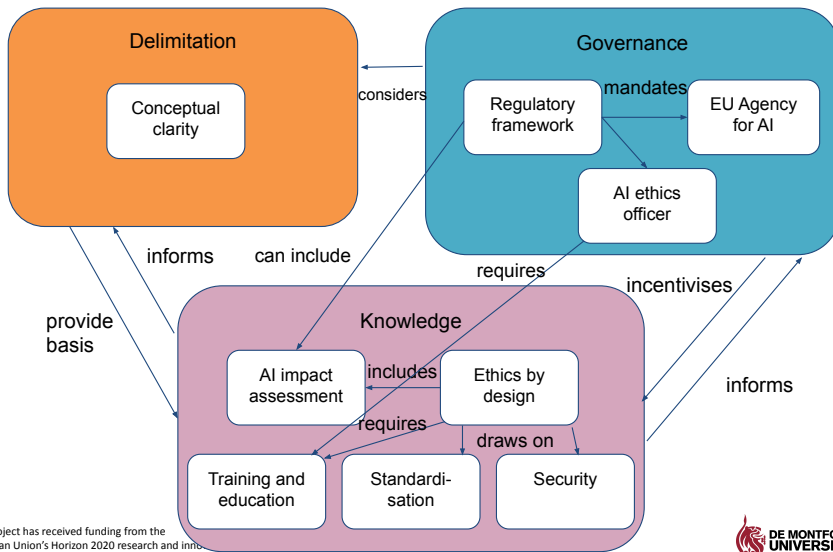
Measures to support AI ecosystems to promote human flourishing

Vision: Ethics as integral to excellence in AI

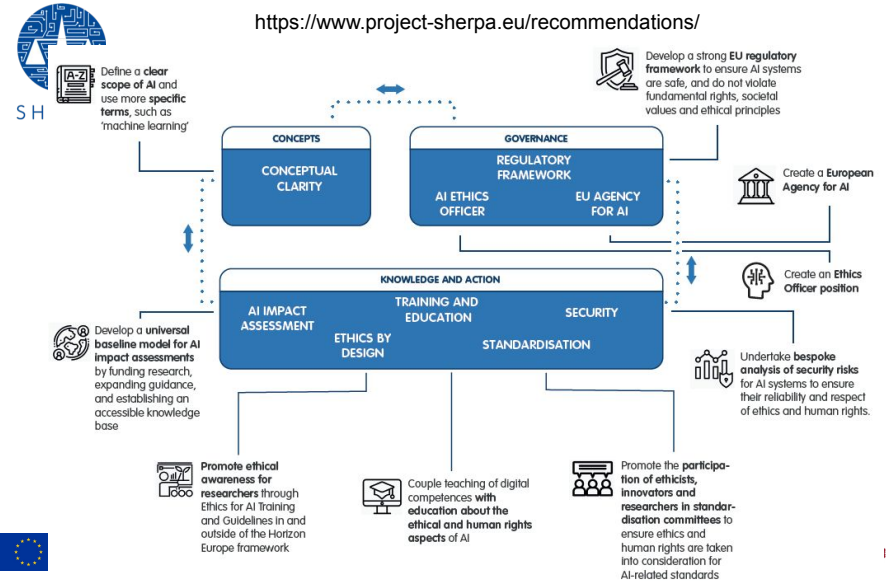
A world where excellent AI and smart information systems support human flourishing by

- integrating ethical concerns by design and
- safeguarding human rights

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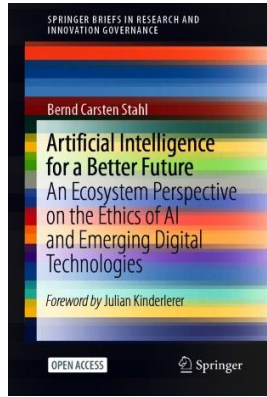


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<https://link.springer.com/book/10.1007%2F978-3-030-69978-9>



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Thank you



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Further references

- https://link.springer.com/chapter/10.1007/978-3-031-17040-9_8
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- <https://www.mdpi.com/2071-1050/12/12/4826>
- <https://ieeexplore.ieee.org/abstract/document/9060307/>
- <https://www.nature.com/articles/s41598-023-34622-w>



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