Trust and FAIR principles as core elements of AI ethics, data visitation, Open Science

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Digitalization, AI and Open Science

- The enormous radical innovation and diffusion capacity of digitalization is empowered by artificial intelligence (AI).
- As more data is digitalized and provided to AI for machine learning and deep learning purposes, its capacity to initiate and urge a set of interconnected radical innovations that affect all levels of society, and individual life, business and governance enhance.
- Open Science amplifies this innovation capacity by enhancing the accessibility of knowledge.

As digitalization increases more personal data will be transferred to the system

Users (researchers, institutions, and agencies) should be aware of the fact that

- *They are sharing private data (subjects data) with theAI system*
- *The AI system is generating private data by profiling/ processing the avaliable data*
- *The AI system is using/ making this private data avaliable to third parties*
- *The third parties may/ may not be using this data for their own ends*
- *These ends may be various and not defined at the time data is collected or generated*
- *The risks about AI & big data exceeds the contend and context of GDPR*
- *That's why we need Trust.*

Moral Issues

- The (im)possibility of full anonymization: Harming the dignity and honor of individuals by disrespecting the confidentiality or privacy
- Informed consent: Overlooking the autonomy of the users by degrading them mere data provider tools
- Discrimination
- Stigmatization
- Exploitation: Deceiving the users by using their own data as a commercial value without their consent and selling it back to the users
- The competence of the people who will use or have access to data?
- For what ends the data and results will be used

The users (or data providers- individuals, scientists, institutions, agencies) may not aware of the exact ways how their own data is used or processed.

They must ***trust*** to give their data.

Trust

- We choose to trust in the absence of certainty or immediate personal access to truth
- Trust is mainly an interpersonal value
- The essence of this trust is that the trusted person
  - will not harm us intentionally
  - will not cause harm for their interests like gaining benefits
  - will not lie to us
  - will be faithful
  - will provide benefit to us when possible
- Trust authorities
  - will do their job accurately
  - will be fair, just, indiscriminative, sustainable
  - will prioritize the benefit and interest of the society and citizens

The two bases of TRUST

The trustee is inherently good and has an inherent desire to do good to the truster.

The trustee has the integrity to adhere to acceptable relevant ethical principles and values.

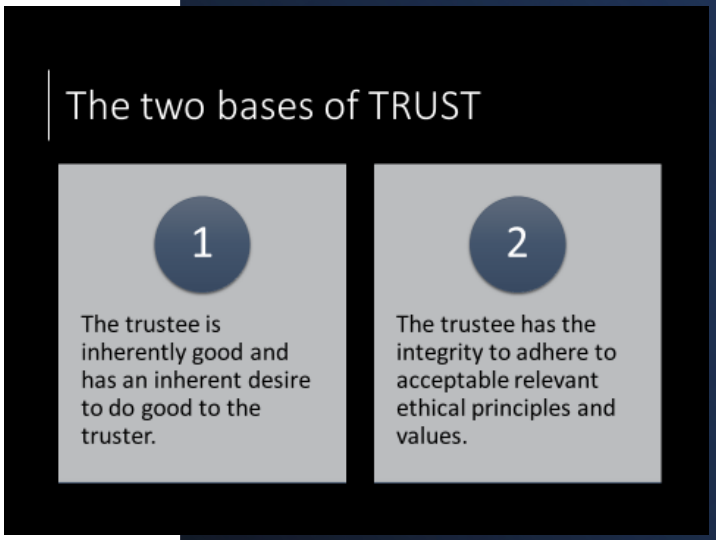
What does trusting a particular AI technology mean?

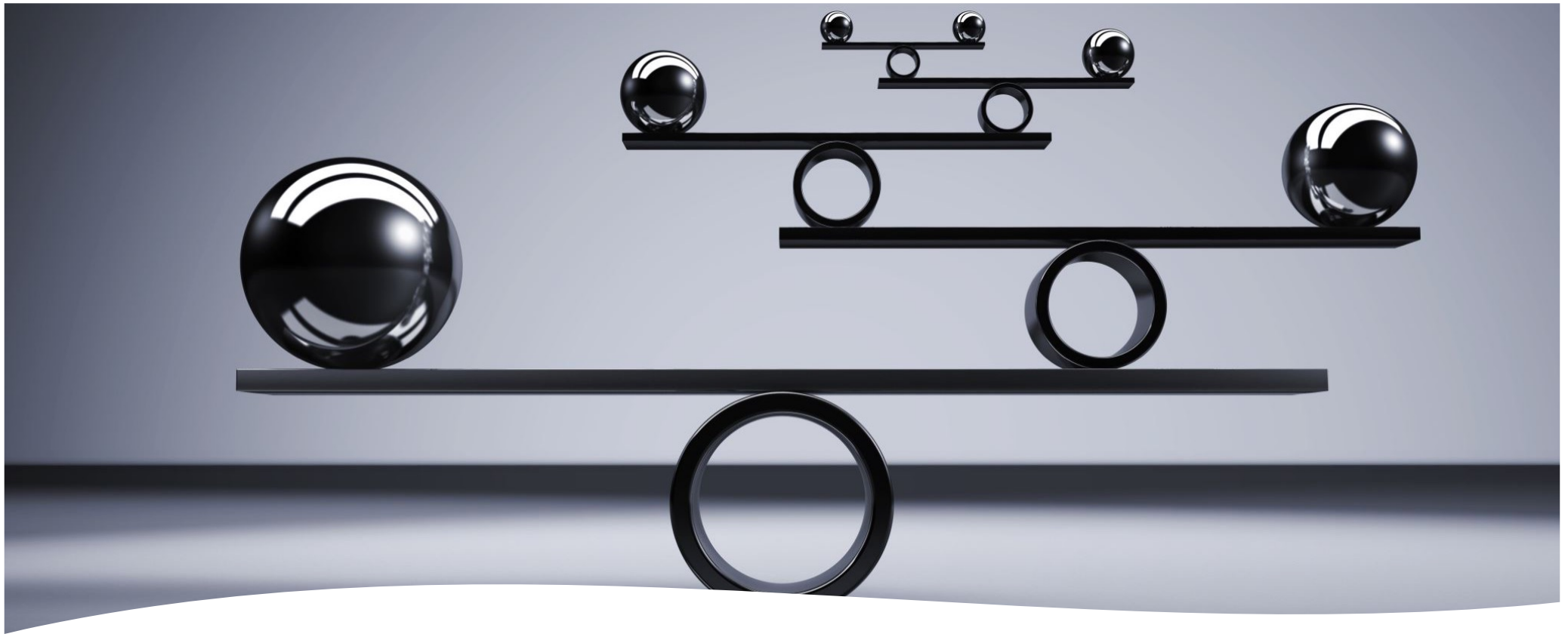
1. Trusting an agent (real or legal person) who may be held responsible in case of an ethical violation occurs.

- **This line of thinking is related to the first base of trust.**
- **For example, when people trust an institution, they hold the belief that that institution is inherently good and has the desire to do good for its clients.**

2. Anthropomorphizing AI and, directing trust to personified AI.

- Anthropomorphizing can be considered more appropriate for addressing issues about AI that can make autonomous decisions and act accordingly without the help or supervision of human beings. This line of thinking is grounded on both bases of trust.



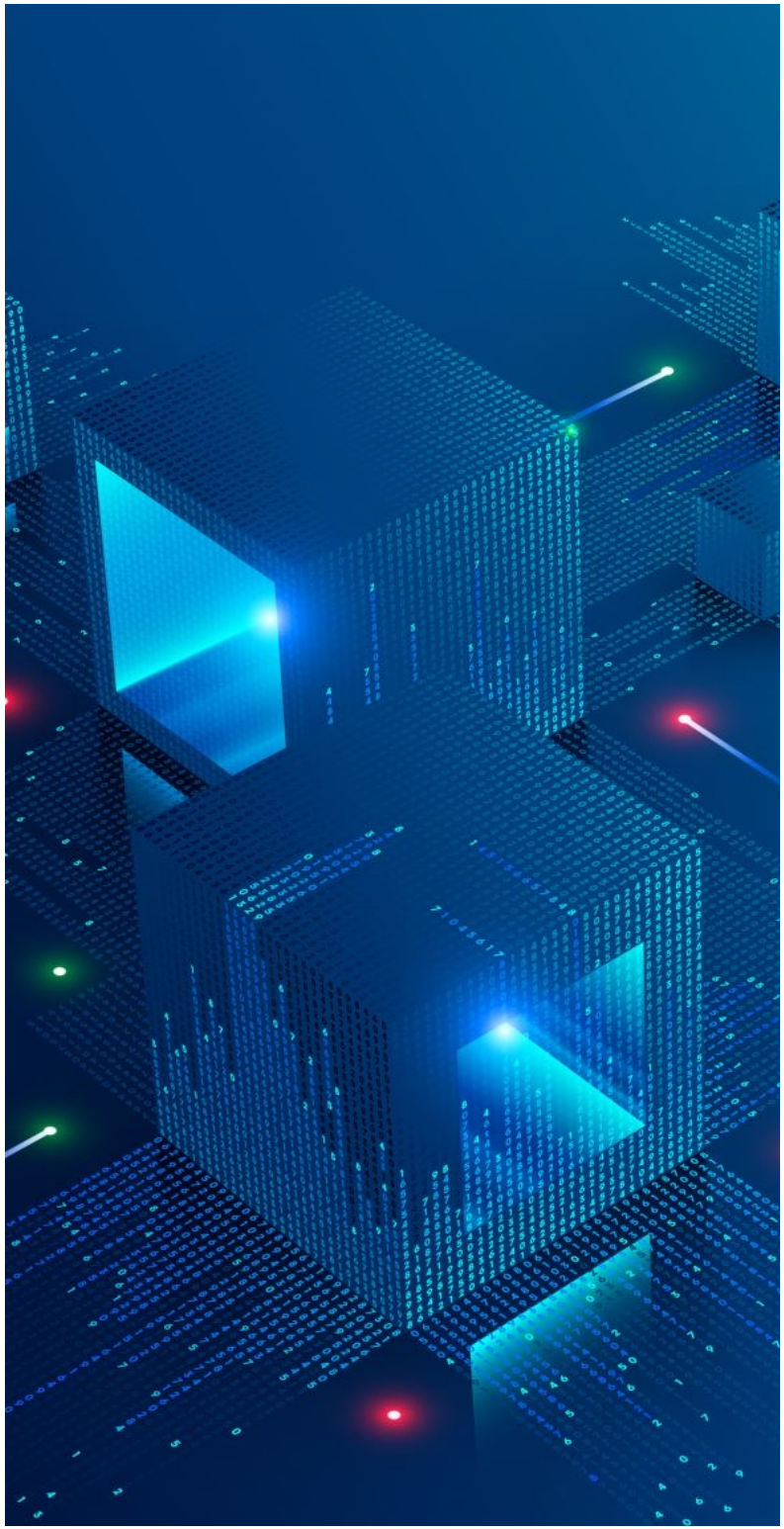


The context of trust in AI and Open Science

- Trust is typically built up gradually via ongoing interactions- Continuous trust
- However, sometimes a trustor can decide whether to trust before any beforehand experience or knowledge-Initial trust
- Adhering to FAIR principles promotes initial and continuous trust in Open Science and AI by researchers.

Trust as an element of AI Ethics

- Ethics of profession: The designer or developer of the technology complies with professional codes of conduct.
- Ethics in design: A value-sensitive design that accounts for values such as privacy, transparency or accuracy in design and development.
- Ethics of user (or usage): The user will comply with basic moral duties to respect human dignity and human rights. (Note that the user can be individuals as well as governments or private corporations.)
- Ethics of design: Investigates the possible impact of technology on existing values to understand if the AI technology is promoting or demoting existing values.



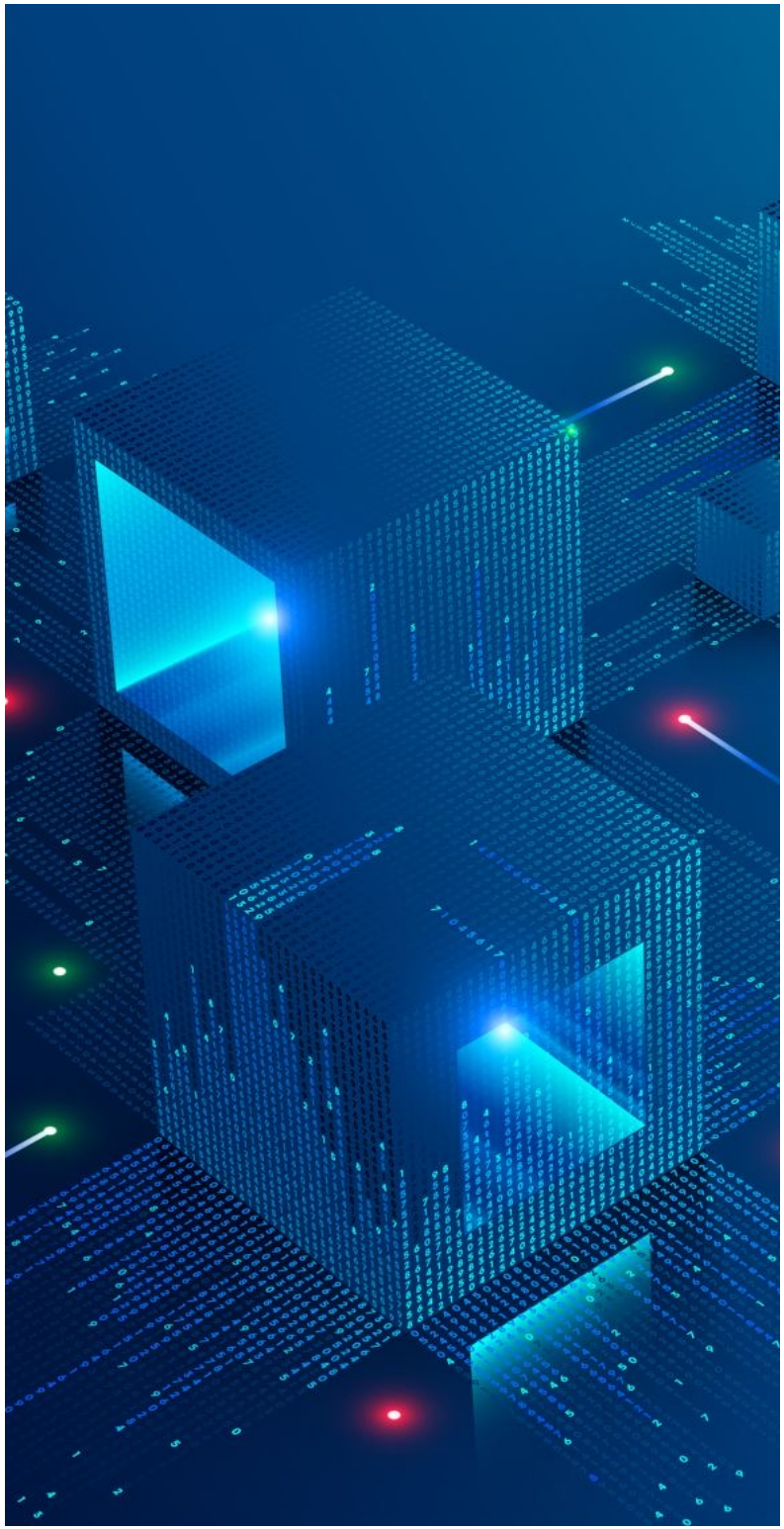
The trustworthiness/ the willingness to rely on AI technology

Reliability depends on the belief that the AI will follow an accurate algorithm pattern to produce the expected results

- Accuracy
- Precision
- Sustainability
- Cost-effectiveness
- Fair access

A strong expectation that AI and the developers and users of AI meet the benevolence-based and integrity-based criteria of trust

- Doing good
- Not violating fundamental rights and values
- Respecting autonomy- consent
- Complying with ethical safe-guards and regulations

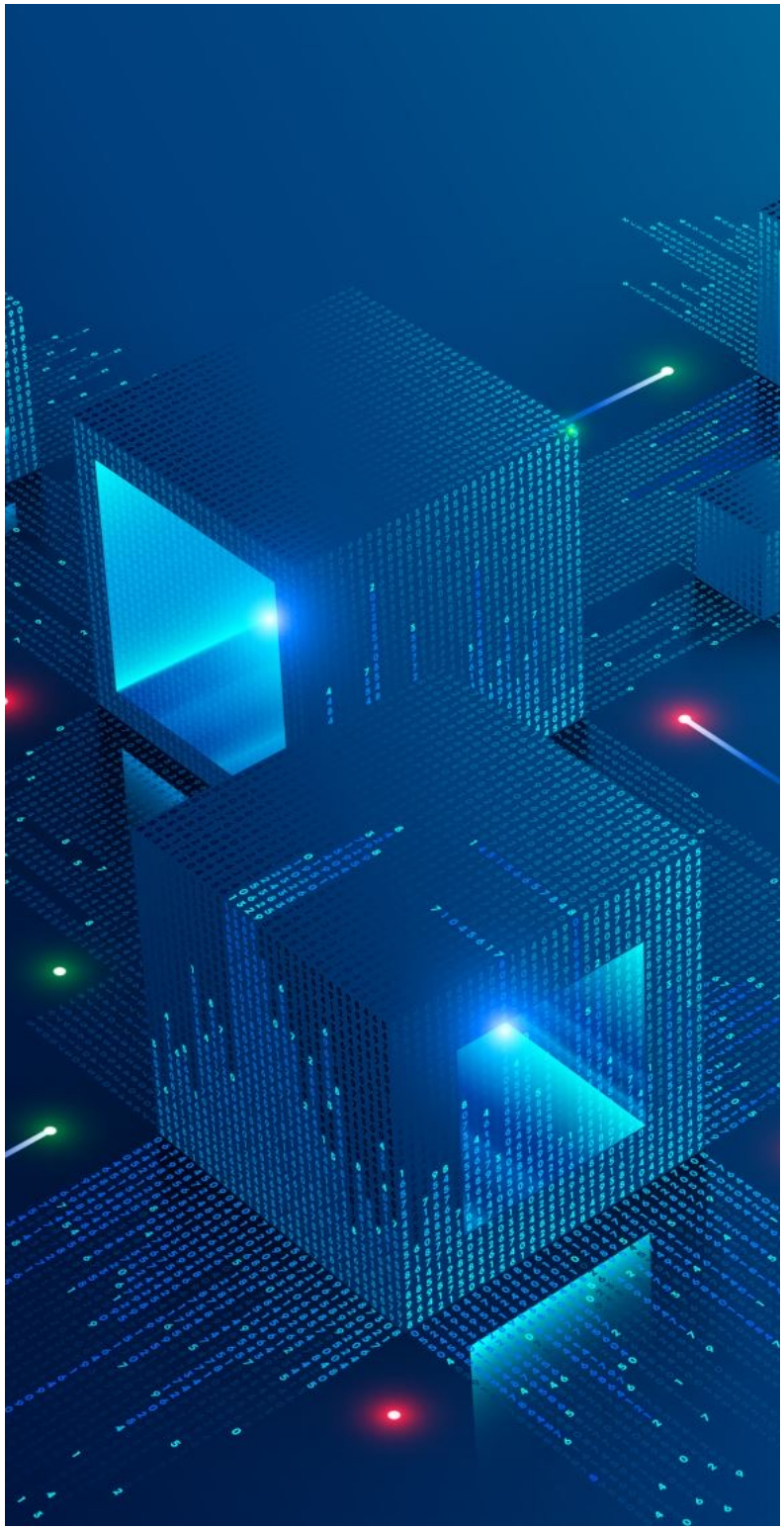


Different dimensions of re-building trust

1. Performance: AI has operational safety, accuracy, confidentiality and data safety

2. Process: Explainability Black Box Problem

3. Purpose: the AI is not intending to cause harm or risk of harm by default.



Domain-specific approach

- The values, virtues and dimensions of trust expected from the trustee changes in weight and content in terms of domains or sectors.
- In an AI system designed to assist the OS and DV in pandemics, performance and purpose dimensions are the most dominant dimensions.
- Respecting FAIR principles may enhance both dimensions that promote trust and enhance OS practices among the scientific community.

Rethinking trust as an element of a moral stance in AI life cycle and Open Science

- What is the ultimate goal of Open Science and DV?
- Consider the consequences of the Open Science and DV in terms of ethical compliance with FAIR data sharing principles
- Refrain from positioning ethics as a compliance list, consider it as a günde all life cycle of AI, OS.
- Consider if Open Science and DV practice promotes or demotes fundamental human values such as privacy, confidentiality, human integrity, or autonomy
- Request/ depend on ethics consultancy in the whole life-cycle of AI and Open science.
- Creating awareness in all stakeholders about ethical implications of

Ethics, alone, does not motivate people to do the right thing
Ethical stance should be backed up with legal regulations
Ethical choice should be made the easiest choice for all stakeholders

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