Transforming Data Economy to Human-aware Digital Economy

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Institute for Information Systems and New Media Vienna University of Economics and Business (WU WIEN), Vienna, Austria, Europe, Planet Earth, Solar System, Local Interstellar Cloud, Local Bubble, Orion–Cygnus Arm, Milky Way, Local Group, Virgo Cluster, Laniakea Supercluster, Observable Universe

- 14.06.2022

About me

- **Associate Faculty Member** at the **Vienna University of Economics and Business** (WU Wien)
- **Director**, Sustainable Computing Lab
  - **http://www.sustainablecomputing.eu**
- **Lecturer** at the Department of Philosophy, **University of Vienna**

- Diverse background:
  - **Computer Science** and **Artificial Intelligence**
  - **Cognitive Science**
  - **[History and Philosophy of Science (HPS)**
  - **Science-Technology-Society (STS)]**

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Our research

https://www.sustainablecomputing.eu/research-groups/
https://nm.wu.ac.at

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Some of our recent projects

- **Human—Digital:Crisis**
  - **Full title:** Human-centric and Value-preserving Digital Public Health and Crisis Management in Vienna
- **EXPEDiTE**
  - **Full title:** EXPloring opportunities and challenges for Emerging personal DaTa Ecosystems: Empowering humans in the age of the GDPR - A Roadmap for Austria
- **ACCOUNTABLE-MOBILITY**
  - **Full title:** Towards Realization of Accountable Multi-modal Smart Mobility in Vienna: Do Smartphone Apps Influence Mode Choice Behavior among Viennese Citizens?
- **RESPECTeD (and RESPECTeD-IoT)**
  - **Full title:** Really Enforceable Solution to Protect End-users Consent & Tracking Decisions
- **EMERGiNG**
  - **Full title:** The Emerging Application of Blockchain-based Traceability Technologies in Online Shopping: A Human-centric Evaluation
- …

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Digitization
vs.
Digital Transformation

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[How] Can WE Contribute to the Co-production of a Sustainable Human-aware Digital Transformation?

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Data
vs.
Digital

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[How] Can WE Contribute Towards a Human-aware Digital Economy?

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[How] Can WE Contribute Towards the transformation of Data Economy to a Human-aware Digital Economy?

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A Case-based Approach!!

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Personal Data Processing on Internet

- **Current State:**
  - More personal data is being produced than ever
  - The business models (data models):
    - Personal data as siloed commodity owned and controlled by data controller
    - **MORE AND MORE PERSONAL DATA ARE COLLECTED!**

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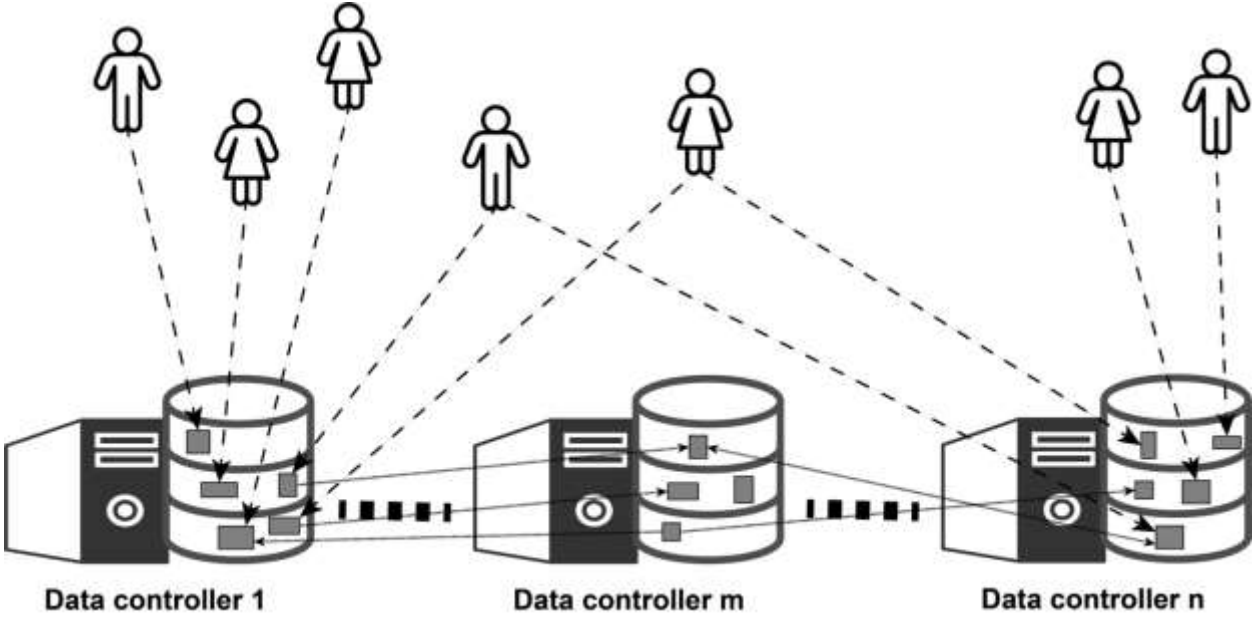
Personal Data Processing on Internet

- **Current State:**
  - Personal Data Ecosystems (PDEs)



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Google

Google to shut down Google+ after failing to disclose user data leak

Company didn't disclose leak for months to avoid a public relations headache and potential regulatory enforcement

Julia Carrie Wong *and* **Olivia Solon** *in San Francisco*

Sat 13 Oct 2018 00.39 BST

9,005

▲ Google announced it is shutting down the consumer version of its online social network after fixing a bug exposing private data in as many as 500,000 accounts. Photograph: Josh Edelson/AFP/Getty Images

most

Facebook

Facebook says nearly 50m users compromised in huge security breach

Attack gave hackers ability to take over accounts in what is believed to be largest breach in Facebook's history

Julia Carrie Wong *in San Francisco*

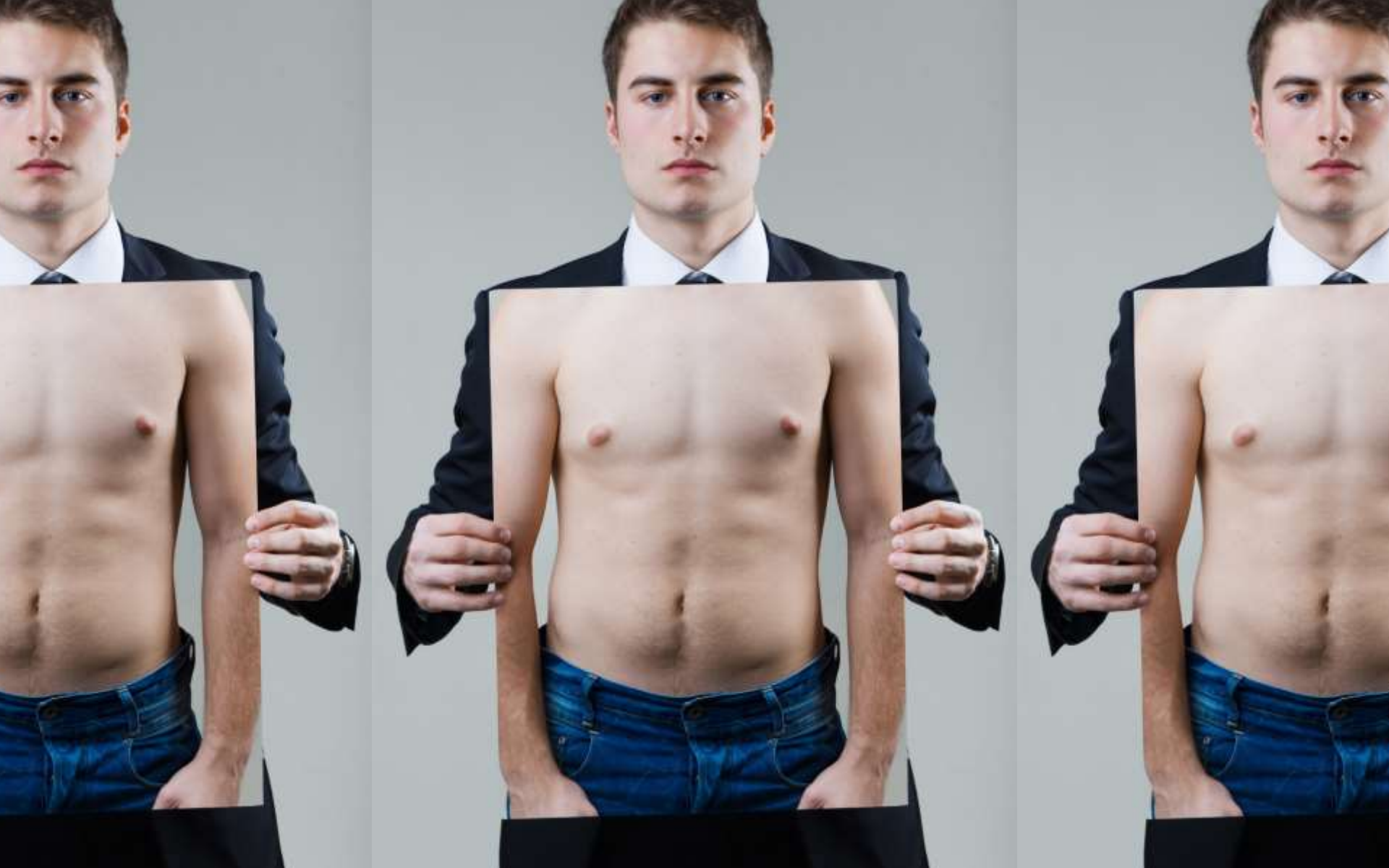
@juliacarriew Email

Sat 29 Sep 2018 01.19 BST

15,474

▲ Mark Zuckerberg: 'I think this underscores the attacks that our community and our services face.' Photograph: Marcio Jose Sanchez/AP

mos



TRUMP
PENCE
Text TRUMP to 88022

Not only a matter of GAFAM!

Also YOUR “?” Platform!

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GDPR

25.05.2018

Be
in

GDPR

25.05.2018

GDPR: Lawful consents…

valid, freely given, informed, specific, clear and active

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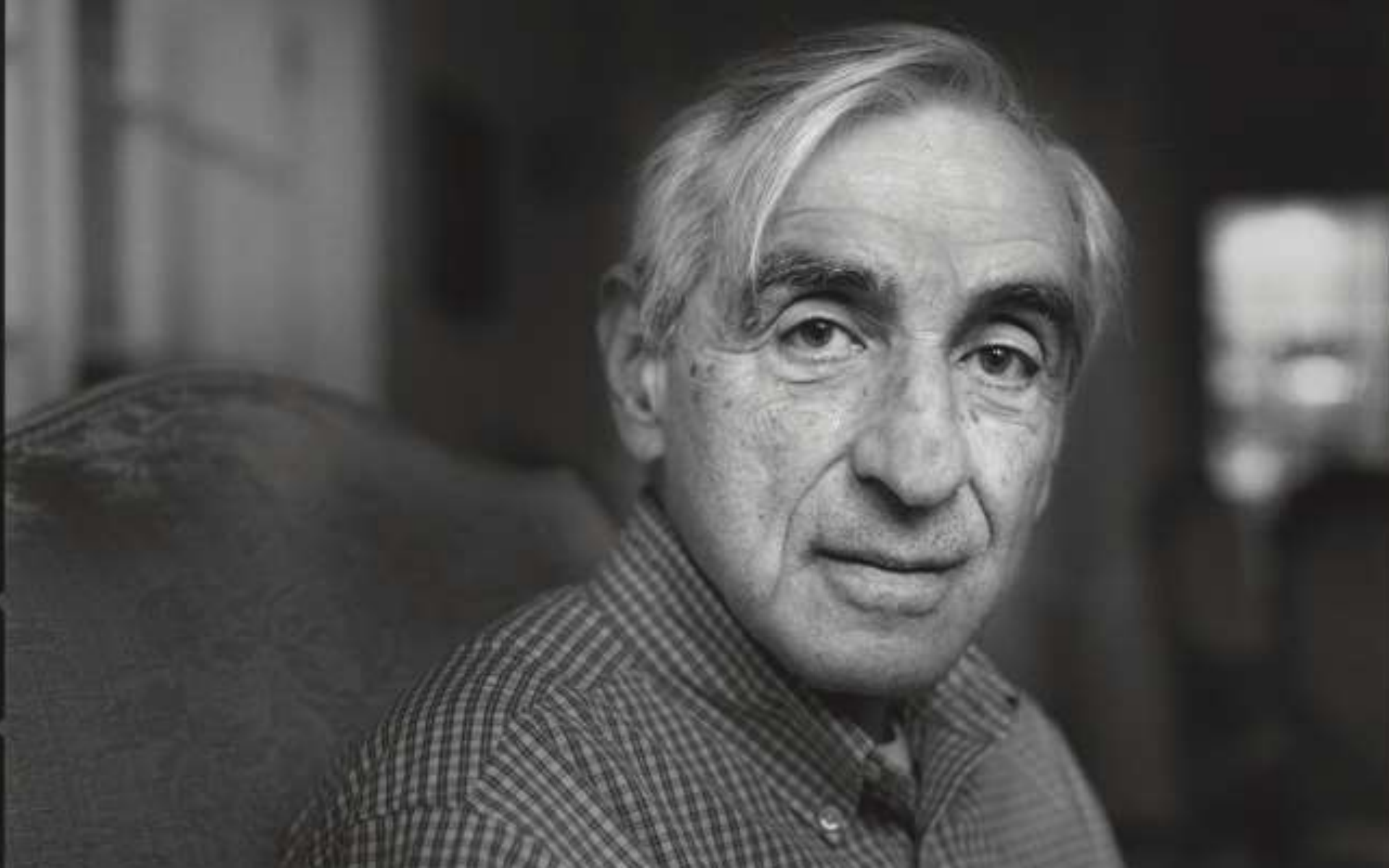

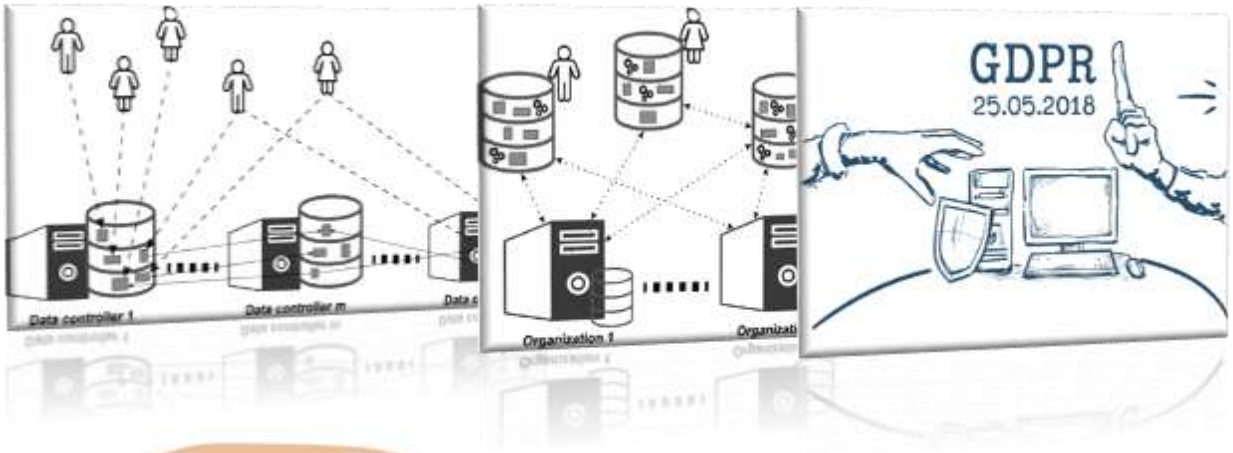
Data controller 1
Data controller m
Organization 1
GDPR
25.05.2018

What can be done?

- **Policy and Regulations**
- **Public awareness, or Public Engagement**
  - NGOs
  - Scientists and Engineers
- **Novel solutions**

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[How] Can We Contribute Towards Human Empowerment in the Digital Economy?

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Change your perspective!

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Enacting Consent: ***Consenting*** as a Sociocognitive Action

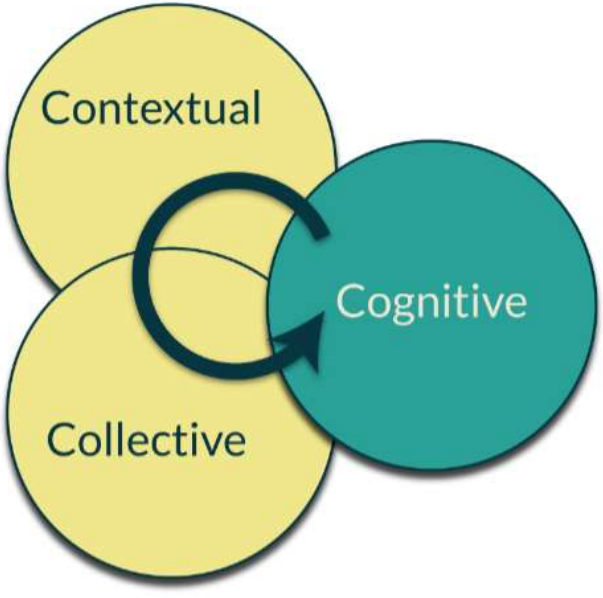

Figure 1: A simple visualization of sociocognitive dimensions of *consenting*; The social dimensions are colored in Khaki.

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Human-centric Evaluation of the existing systems

Table 1: Consent mechanism evaluation: key results

Company	Consent Information	Targeted Ads Opt-Out	Asymmetry	Covert	Deceptive	Information Hiding	Restrictive Design
Amazon	Explicit	Third-Party	Yes	Yes	Yes	Yes	Yes
Apple	Implicit	No	Yes	No	Yes	Yes	Yes
Facebook	Explicit	Third-Party	Yes	No	Yes	Yes	Yes
Google	Explicit	Yes	Yes	Yes	Yes	Yes	No
Microsoft	Explicit	Yes	Yes	No	Yes	Yes	No

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Facebook	Explicit	Third-Party	Yes	No	Yes	Yes	Yes
Google	Explicit	Yes	Yes	Yes	Yes	Yes	No
Microsoft	Explicit	Yes	Yes	No	Yes	Yes	No

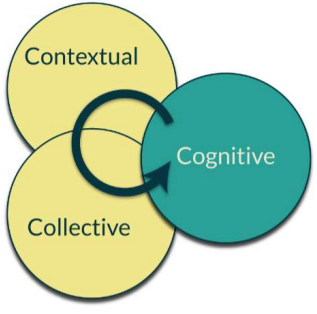

Figure 1: A simple visualization of sociocognitive dimensions of *consenting*; The social dimensions are colored in Khaki.

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Human-centric Privacy Management

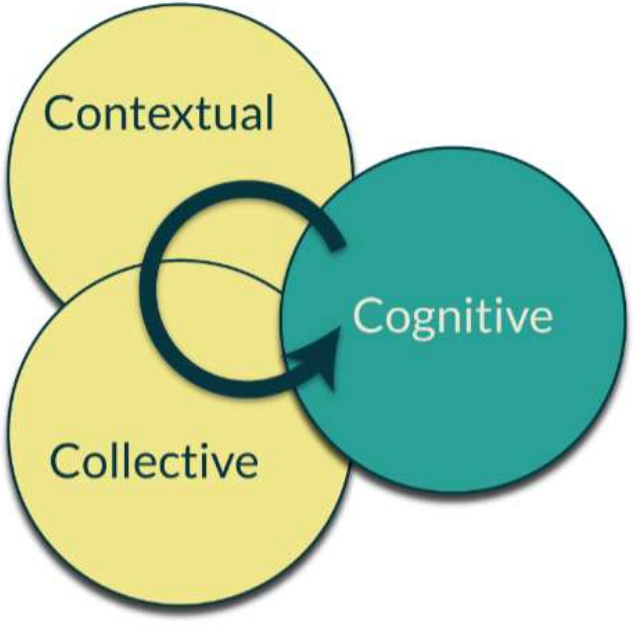

Figure 1: A simple visualization of sociocognitive dimensions of *consenting*; The social dimensions are colored in Khaki.

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Power <> Control

Data, Procedures, UIs

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Systemic Changes!

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Fundamental Shifts, e.g. ADPC

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Conceptualization
<>
Evaluation
<>
Solution!

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The Nature of Human Need Satisfaction and Value Fulfilment

T f H d Sa nd Va ent

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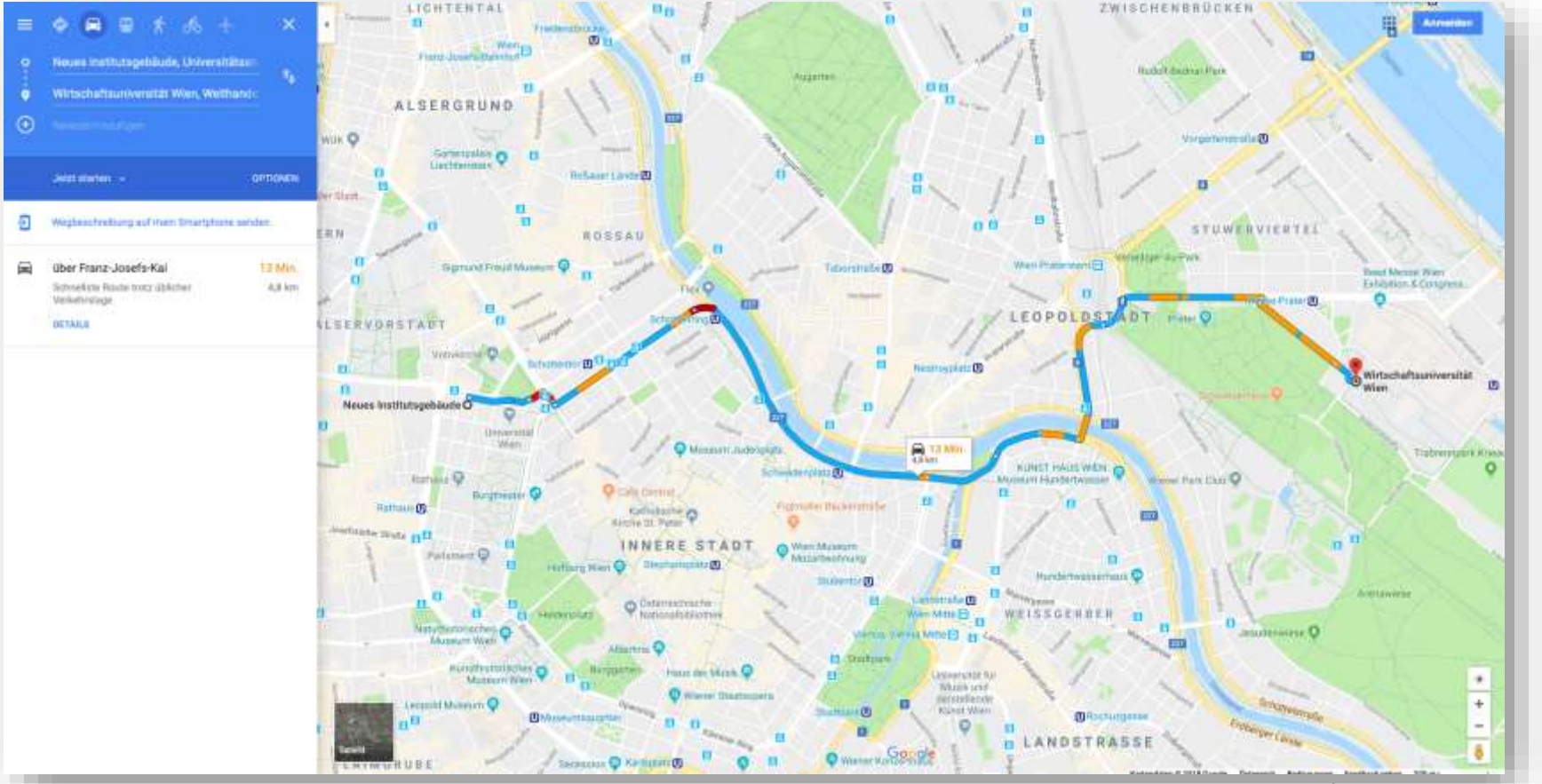
Contributing authors: rwatkins@gwu.edu;

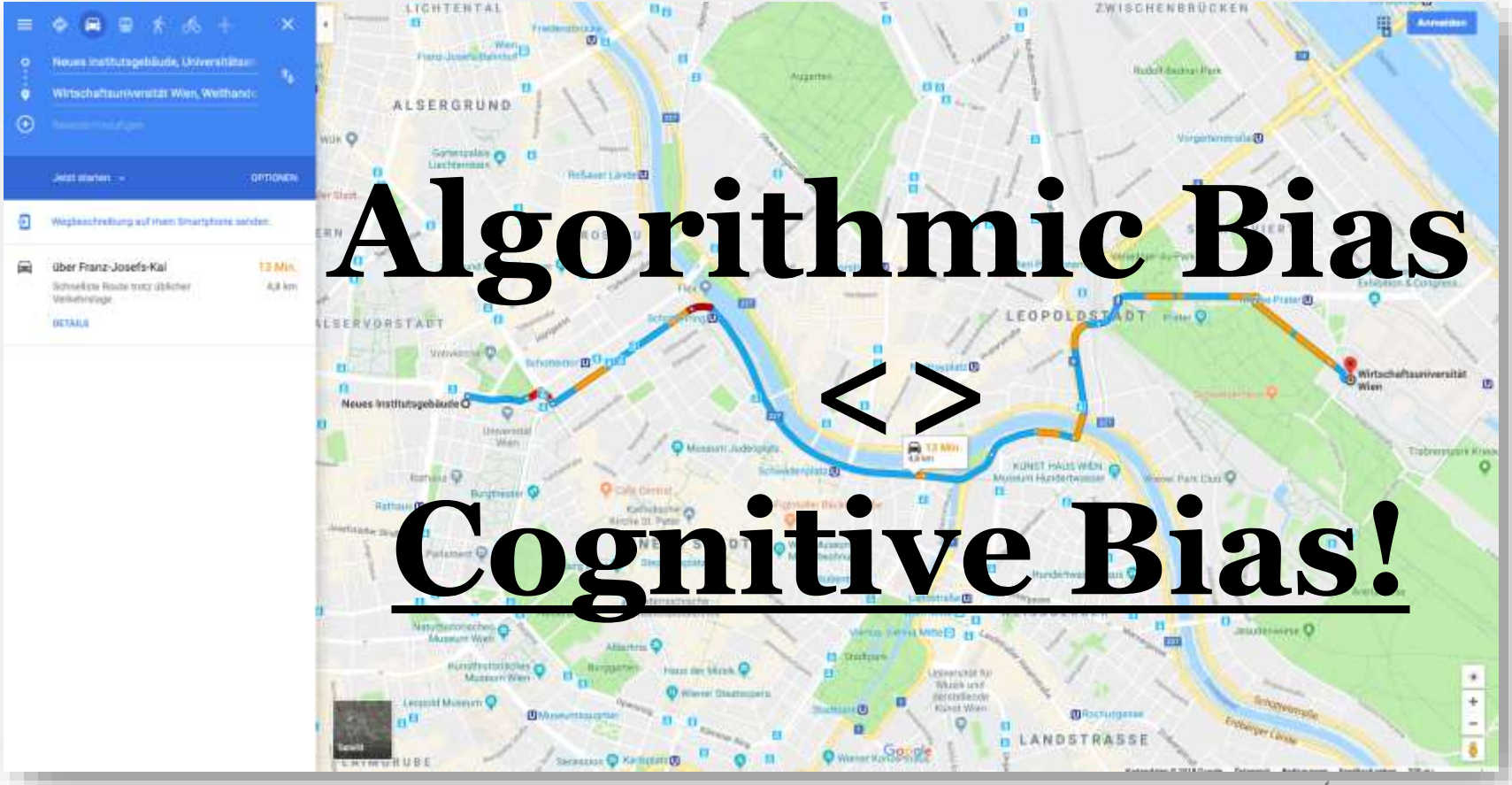
Abstract

Throughout our history, Homo sapiens have used technologies to better satisfy our *needs*. The relation between *needs* and *technology* is so fundamental that the US National Research Council defines the distinguishing characteristic of technology as its goal "to make modifications in the world [in order] to meet human needs" [1]. Artificial intelligence (AI) is one of the most promising emerging technologies of our time. Similar to other technologies, AI is expected by many "to meet [human] needs". In this article, we reflect on the relationship between *needs* and AI, and call for the realization of *needs-aware* AI systems. We argue that re-thinking *needs for*, *through*, and *by AI* can be a very useful means towards the development of realistic approaches for sustainable *H*uman-centric, *A*ccountable, *L*awful, and *E*thical (HALE) AI systems.

Algorithmic Accountability



Algorithmic Accountability



Algorithmic Accountability

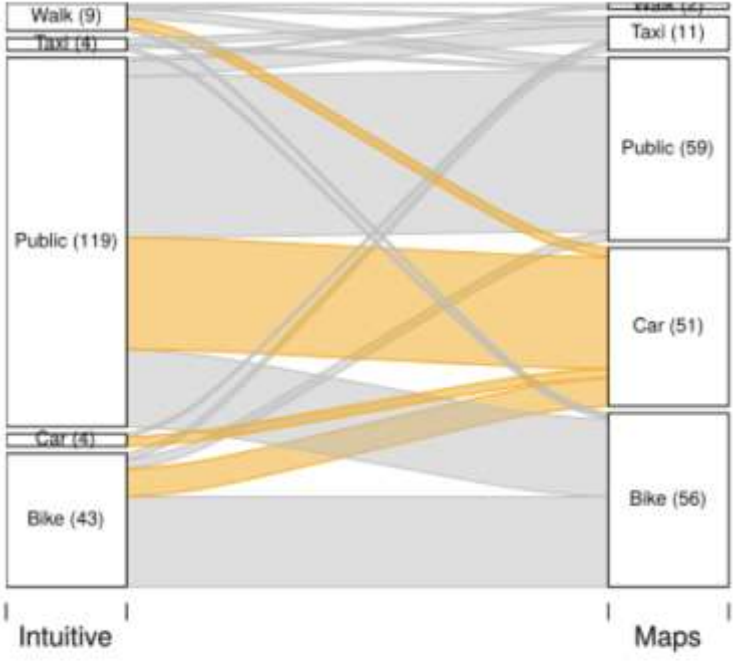
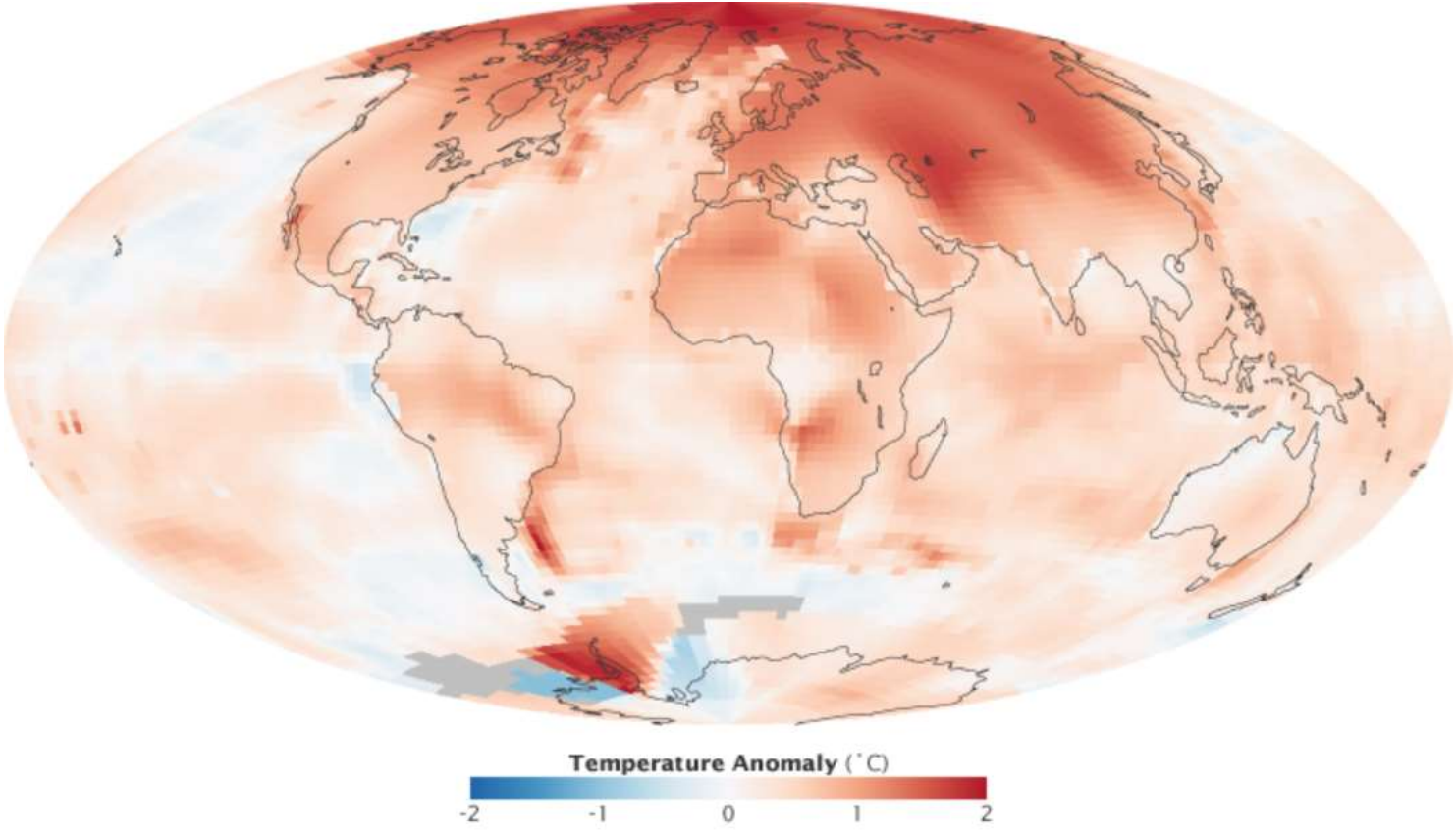


Figure 5. Overview of changes in user decision making for route 1 before and after using Google Maps

Global Warming



Ihr Kommentar...

1 bis 25 Alle Postings (75) neueste

Passt scho. 1 vor 4 Minuten 0 1

"Auch eine hochrangig besetzte Verhandlungsrunde mit Kanzler Sebastian Kurz, Vizekanzler Heinz-Christian Strache, den beiden Regierungskoordinatoren Gernot Blümel und Norbert Hofer sowie Sozialministerin Beate Hartinger-Klein und Innenminister Herbert Kickl"

"Hochrangig"

- kurz
- strache
- blümel
- hofer
- hartinger-klein
- kickl

da weiß man wirklich nicht, ob man lachen oder weinen soll...

antworten

Idiotbuster 4 vor 4 Minuten 0 1

Haha Enteignung nur bei Armen, die Banken dürften wir aber damals nicht verstaatlichen.... Da hätten wir das Budget schon saniert ohne diesen ganzen asozialen Kram den die da aufführen .

Gewinne Privatisieren Schulden verstaatlichen.
Kapitalkommunismus oder so....

antworten

Fere Perfidelis 3 vor 5 Minuten 0 1

Die ÖVP ist echt

LOHNSCHERE
SPÖ drängt auf Arbeitsmarktpaket für Frauen [165]

Rendi-Wagner und Heinisch-Hosek wollen Teilzeitnachteile und Altersarmut damit abfedern

NEUREGELUNG
Strache: Kein Zugriff auf Vermögen bei Notstandshilfe [647]

Dem Vizekanzler zufolge soll die Notstandshilfe eine Versicherungsleistung bleiben

BUDGETKÜRZUNG
Sozialunternehmen in Oberösterreich warnen vor Qualitätseinbruch [56]
Das Sparprogramm des Landes zwingt die Einrichtungen zu Einschränkungen. Es gibt weniger Angebote für Betroffene

ARBEITSZEITGESETZ
SPÖ droht der Regierung mit der Gewerkschaft [505]

Parteichefin Pamela Rendi-Wagner beantragt eine Sondersitzung zum Arbeitszeitgesetz. Die Gewerkschaften würden bei den Lohnverhandlungen Druck machen

ARBEITSMARKT
Wer die Gewinner und wer die Verlierer des Endes der Notstandshilfe wären [1330]

Ein "Modellvorschlag" des Sozialministeriums zeigt, in welche Richtung es bei der Reform des Arbeitslosengeldes gehen dürfte

JUBILÄUM
100 Jahre Sozialministerium: Festakt trifft auf Demo [39]

Die Republik feiert soziale Errungenschaften, die Gewerkschaft warnt vor dem Verlust ebendieser und kampagnisiert auch mit Ständestaat-Vergleichen

NEWS
FAKE

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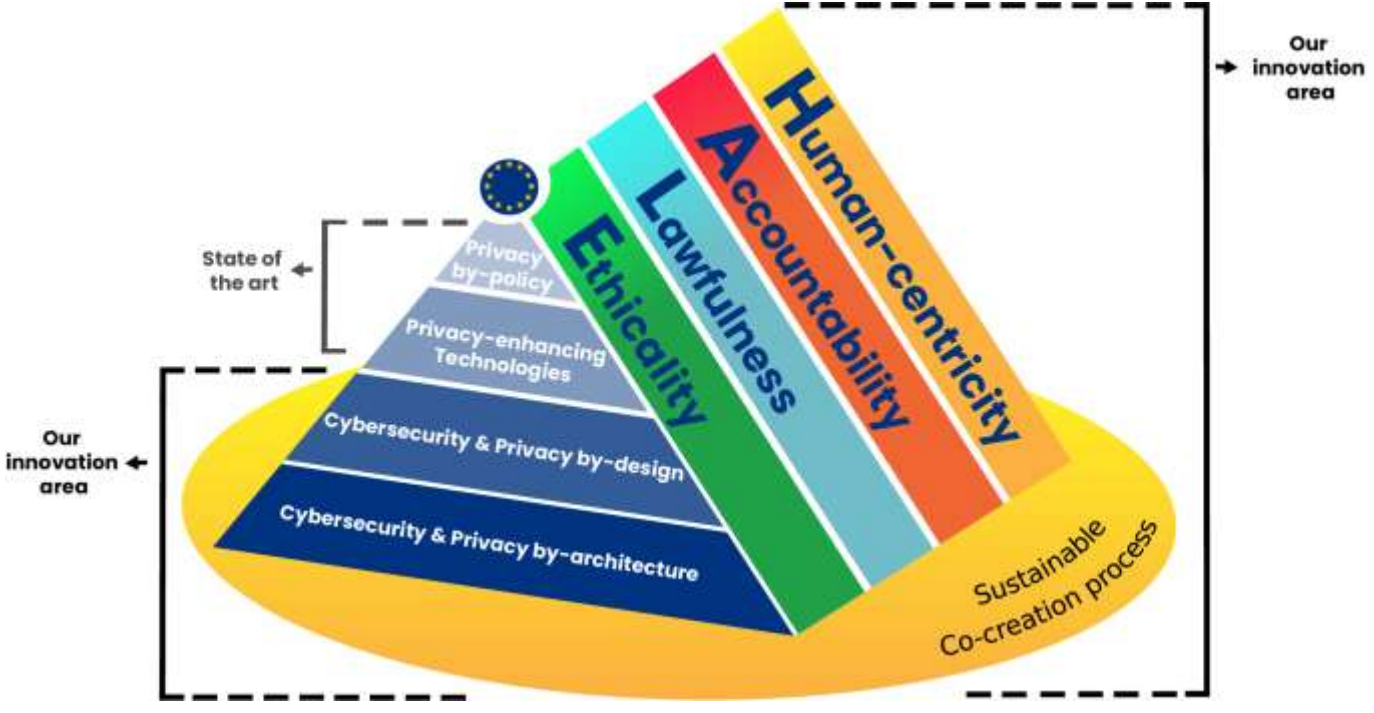
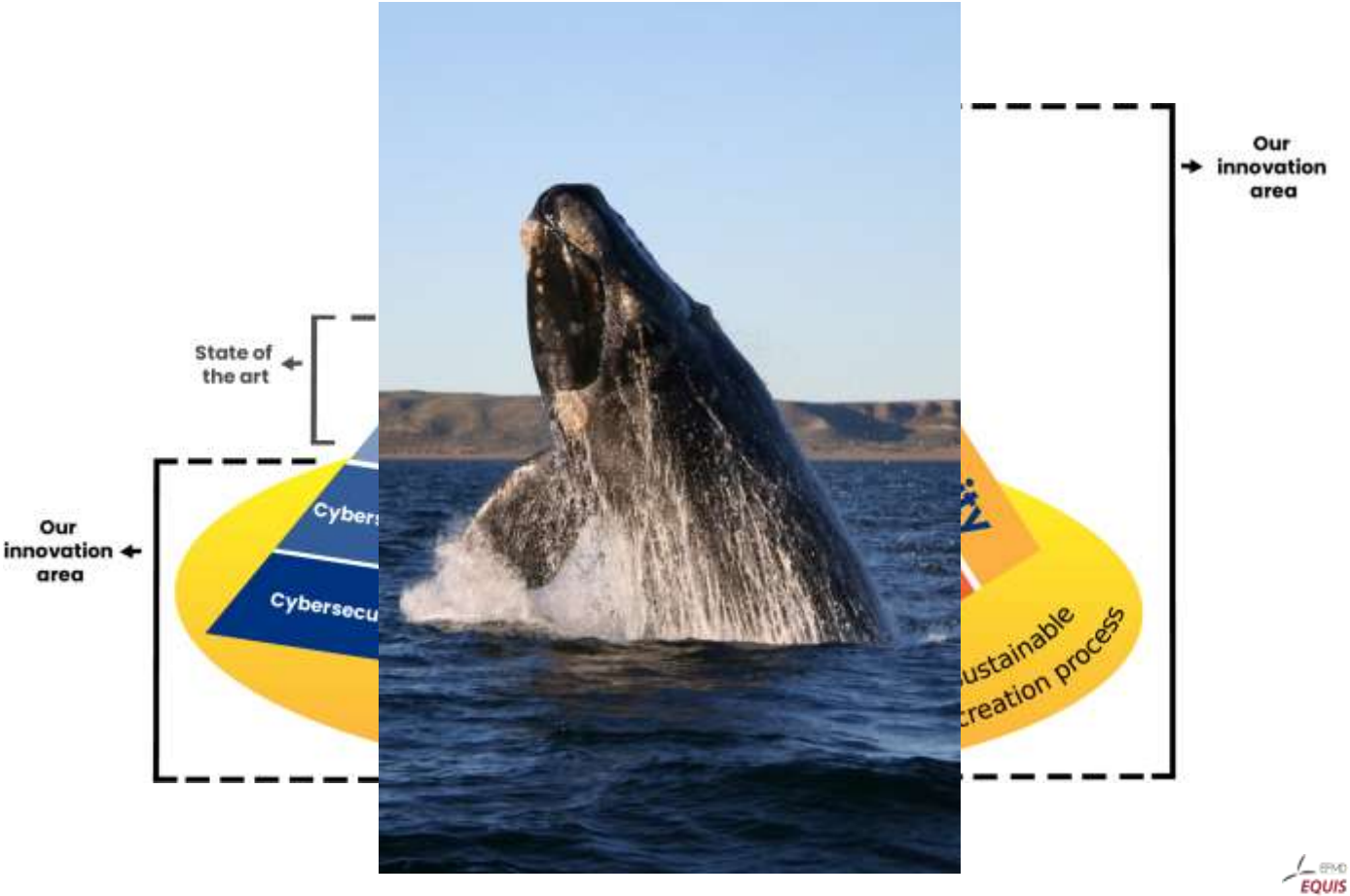
THE HALE *XYZ*


Our innovation area
State of the art
Privacy by-policy
Privacy-enhancing Technologies
Cybersecurity & Privacy by-design
Cybersecurity & Privacy by-architecture
Our innovation area
Ethicality
Lawfulness
Accountability
Human-centricity
Sustainable Co-creation process

THE HALE **WHALE**



SUSTAINABLE COMPUTING lab

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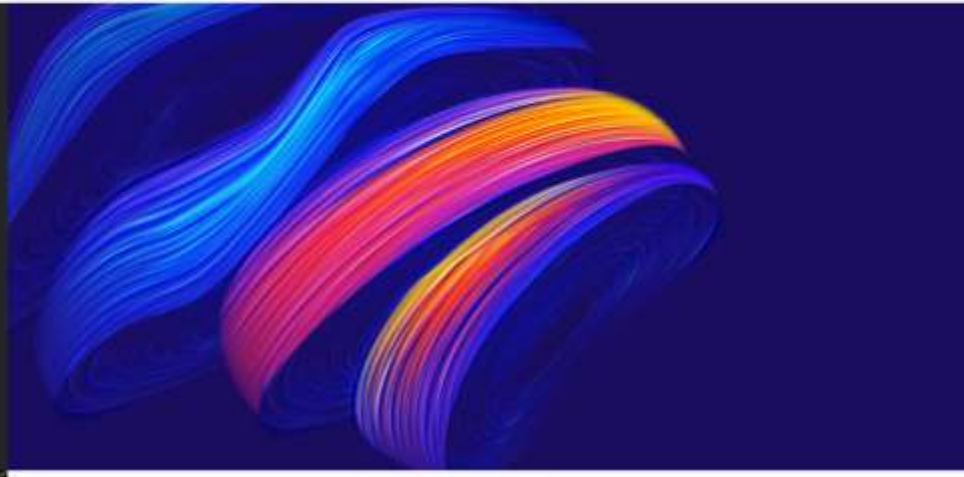
Working for
a humane digital world.



An interdisciplinary lab,
an enabling space,
engaged scientists, engaged
experts, engaged citizens!

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