We are pleased to present the *Moral-IT* and *Legal-IT* decks.

These physical cards are a responsible research and innovation tool created to enable structured reflection on legal, ethical, technical and social implications of new information technologies.

They are the latest development in our research at the Horizon Digital Economy Research Institute into the role of physical card-based tools in translating law and ethical principles into more accessible forms for design teams. Inspired by legislative changes, such as the new General Data Protection Regulation, we recognise the need to build *legal compliance* into technologies by design and default. High profile scandals of data misuse have increased calls for technologies to be developed in more *ethically* sound ways too. We feel that practical tools for actually doing this and bringing wider values into IT design are lacking. These cards seek to address this gap, by supporting engagement with legal and ethical concepts through a process of translation into a more accessible form.

Our Moral-IT deck poses a wide range of critical ethical questions designers need to ask of their new technology. These are thematically clustered around four themes (privacy, ethics, law and security) and below are some examples.

Our Legal-IT deck translates five complex European legal frameworks that aim to ensure data protection and cybersecurity for data driven technologies. We present the relevant rights, principles, definitions and responsibilities within the: **EU General Data Protection Regulation 2016; EU Draft e-Privacy Regulation 2017; EU Network and Information Security Directive 2016; Cybercrime Convention 2001; and Attacks Against Information Systems Directive 2013**.

The beauty of cards is they can be used in a wide variety of ways. One approach is as part of our streamlined impact assessment process to unpack risks, likelihood of occurrence, safeguards and challenges of implementation. This proves particularly useful for a team at the early stages of the design of a new application or technology. A board guiding you through this process is downloadable below. They can also be sorted by relevance, clustered thematically and ranked in terms of importance by designers. We have been testing these in a variety of contexts, most recently with research teams as part of the Horizon Services Campaign.

The cards are publicly available as downloadable PDFs which you can print off or send to a professional printer. We would really like to build up dialogue on **who** you are, **how** you are using the cards, **why** and any feedback you have on the tool/process. Please send these on to lachlan.urquhart@gmail.com.

To widen access to these decks and associated tools (e.g. process board) are released under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International license (CC BY-NC-SA). These decks have been designed by Dr Lachlan Urquhart and Dr Peter Craigon at the Horizon Digital Economy Research Institute. The photos used in the Moral-IT deck are all royalty and attribution free, sourced on Pixabay. Some of the graphics used in the Legal-IT deck are purchased via a Noun Project subscription.

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The Moral-IT Deck



Privacy

The Moral-IT Deck



Ethics

The Moral-IT Deck



Law

The Moral-IT Deck



Security

The Moral-IT Deck



Narrative

Identities Management

2



Does your technology enable citizens to hold & manage multiple identities?

2

Obfuscation

3



How does your technology protect people's identities? Does it use anonymisation or pseudonymisation techniques?

3

Secrecy

4



Does your technology
keep secrets?
From whom?
Why?
Should it?

4

Trustworthiness

5



How does your technology create trustworthy, secure relationships with users?

5

Confidentiality

6



How does confidentiality feature in your technology? Does it use methods such as encryption, by default?

6



Usable Security

7



Are the security mechanisms in your technology intuitive to use & easy to understand? How & for whom?

7



Resilience & Low Redundancy

8



Is your technology robust to unforeseen vulnerabilities? Can it maintain optimal service when challenged?

8

Data Breach Management

9



How does your technology manage security breaches? Can it notify users & regulators within 72 hours?

9

Physical Safety

10



How does your technology affect the physical safety of users?

10

Attribution & Responsibility



Can all the harmful effects of your technology be clearly attributed to it? Should they be?

Secure for Whom



Is security equally available to all people impacted by your technology? How?

Integrity



Is your technology honest?
Can people
rely on it?



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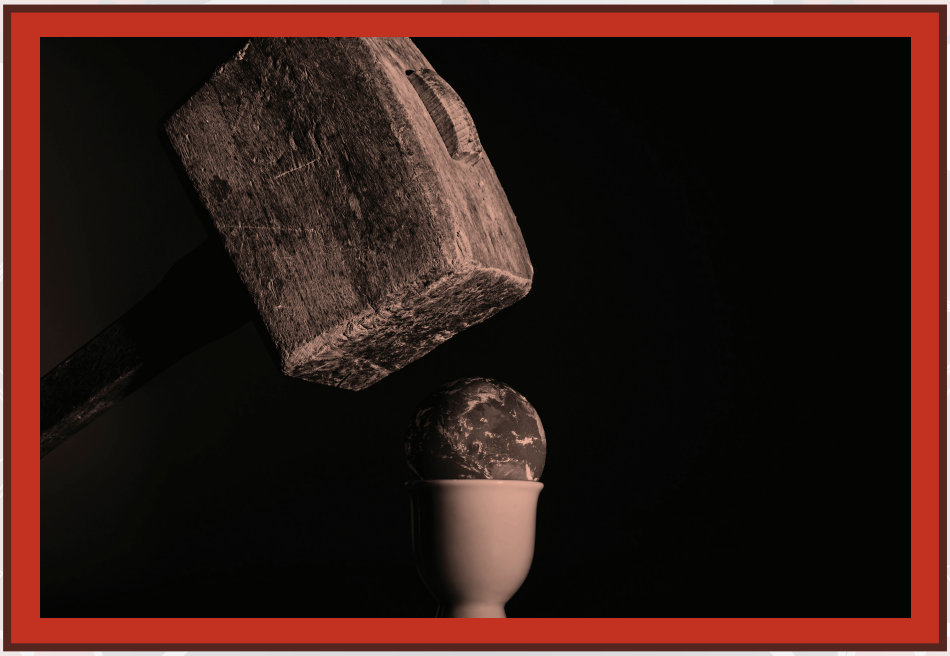
Environmental Protection

2



Is your technology environmentally sustainable now & in the future? Can you explain how?

2

Accessibility



Can your technology be reasonably adjusted to ensure it can be used by as many people as possible? How?

Consumer Protection

4



Does your technology protect people from unfair commercial behaviours causing harm or discrimination ?

How could it?

4

Rule of Law



Is everyone subject to the same rules when using your technology? Are they aware of these?

Due Process

6



How does your technology avoid enabling arbitrary decisions? Does it follow a clear, justifiable decision making process?

6

Risk Minimisation

7



What steps have you taken to address the biggest risks arising from your technology?

7

Liability

8



What are the foreseeable harmful effects created by your technology? Who is responsible for these?

8

Proportionality

9



Are your responses
to risks appropriate?
Do they go too
far or not
far enough?

9

10

Precautionary Principle



Appraising future risks of your technology, should you still proceed i.e. "Just because you can, should you?"

10

Duty of Care



Does your technology provide reasonable care for the wellbeing of citizens? How?

Criminality



How does your technology manage use in undesirable, socially unacceptable or criminal applications?

Intellectual Property



Does your technology respect or challenge IP interests of others, incl.trademarks, copyrights, patents & design rights? How?



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Legibility & Comprehension



Can everybody understand what your system does? How?

User Empowerment & Negotiability

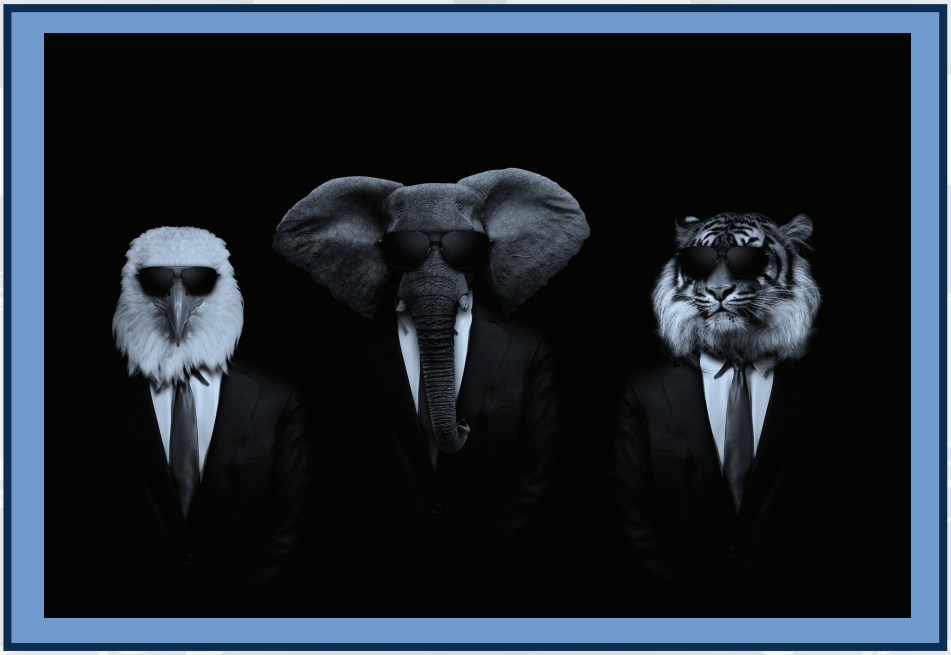
3



How do you ensure people can exercise ongoing choice about using your system?

3

Overt Bias & Prejudice



Does your technology overtly treat one group of people differently? Why?

Autonomy & Agency

5



What are the consequences of your technology for the freedom of choice of users? Does it unreasonably limit it? How?

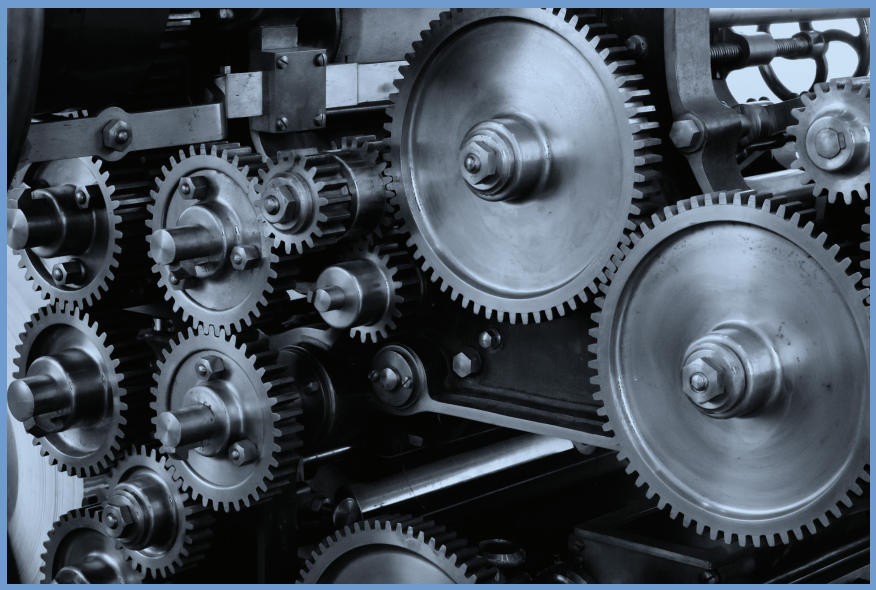
5

Trust



How do you ensure and maintain citizens' trust?

Meaningful Transparency



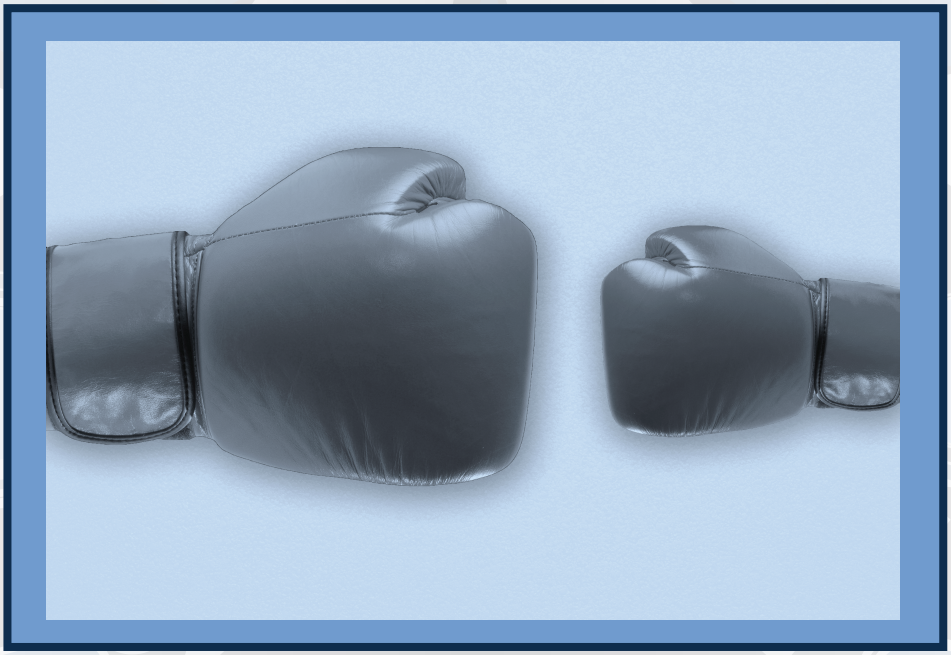
Do you know why your technology acts the way it does? Can you explain that to people?

Sustainability & E-Waste



What effects does your technology have on the environment, from creation to destruction?

Power Asymmetry



Where does power reside in your technology?

Is it balanced?

Fairness & Justice

10



How do you ensure your technology acts in a fair manner & does not cause injustice to users?

10

Temporality



How long does your technology last? How does it manage its impacts from creation to destruction?

Participation



Can citizens participate in decisions about your technology?

How?

Wellbeing



Does your technology improve the lives of its users?

How?



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Limited Data Collection

2



Does your technology collect the minimal data necessary, for a specific purpose? Is it stored for a limited time?

2

3

International Data Transfer



How does your technology protect data sent overseas?

3



4

Spectrum of Control Rights



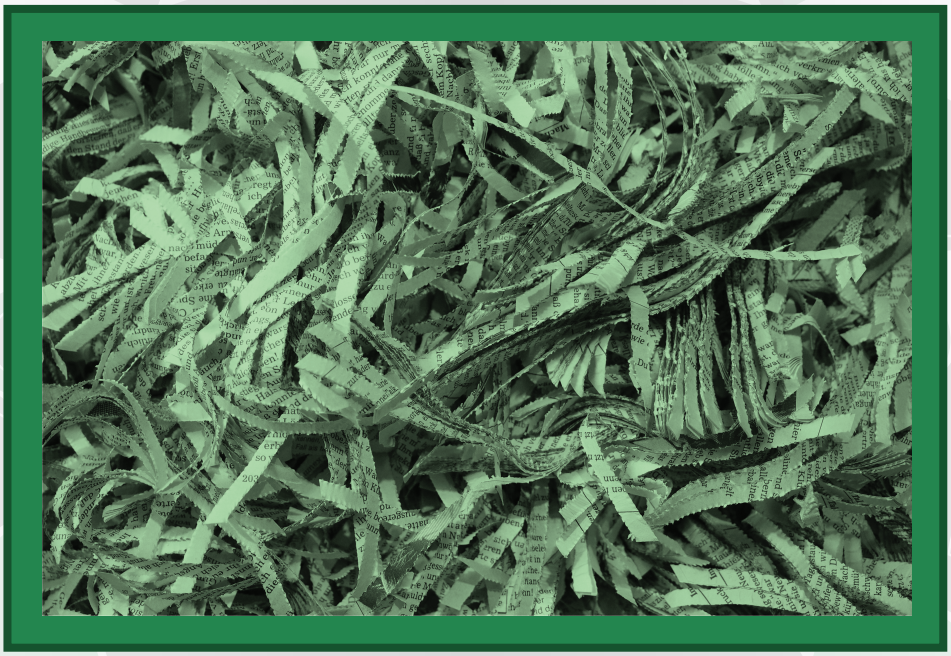
How does your technology accommodate users seeking greater control over their personal data?

4



Transparency Rights

5



Do you provide sufficient, clear information about how your technology uses personal data? How?

5

6

Lawful Processing



Does your technology process personal data lawfully? Specifically, how do you obtain consent?

6



7

Data Security



Does your technology protect data from unanticipated disclosures? How? Can you notify users of a breach quickly?

7



Taking Responsibilities



Have you systematically assessed privacy impacts of your technology? What technical & organisational safeguards should you implement?

Privacy in Public

9



Does your technology use information collected in a public space? How do you protect privacy rights of those involved?

9



10

Location Privacy



Does your technology collect the location of users?
Why?
Does it need to?

10



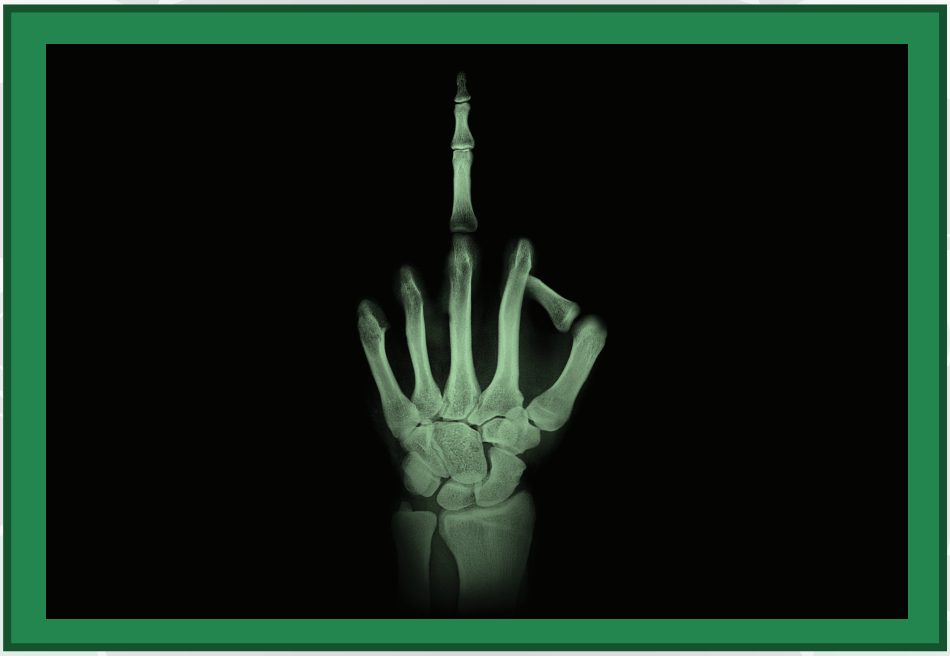
Compliance & Accountability



What measures have you used to comply with EU Data Protection Laws? How do you demonstrate these to users?

Privacy Virtues

K



Does your technology shape the autonomy, dignity and identity formation of users? How?

K

Special Categories of Data



How does your technology obtain explicit user consent for processing sensitive info incl. health, religious, political, ethnic origin & sexuality?



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Stakeholders

List three direct
or indirect
stakeholders impacted
by your technology.

Stakeholders

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Use Case

Reflect on two contexts of use for your technology. Describe them below.

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Reflect on two contexts of use for your technology. Describe them below.

State of the Art

Are there any new technical approaches underpinning your technology? Consider these, if they are riskier than current approaches and list two reasons why.

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Surfacing Risks

List the three biggest risks your technology poses.

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List the three biggest risks your technology poses.

The Technology

Briefly describe what your technology is and how it works.

The Technology

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Safeguards

List two safeguards that address the risks posed by your technology. Also provide two practical constraints to implementing these.

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List two safeguards that address the risks posed by your technology. Also provide two practical constraints to implementing these.