

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.



Moral-IT and Legal-IT Decks by [Dr Lachlan Urquhart & Dr Peter Craigon, Horizon Digital Economy Research Institute](#), is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](#).)

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

Data Collection

A selection of cards from the Moral IT deck to prompt your discussion on issues surrounding data collection.

Feel free to also browse the rest of the deck and select other cards for discussion.



Obfuscation

3



How does your technology
protect people's identities?

Does it use anonymisation

3 or pseudonymisation
techniques?





Secrecy



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





Trustworthiness

5



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

5





Confidentiality

6



How does confidentiality
feature in your technology?

6



Does it use methods
such as encryption,
by default?





Integrity



Is your technology honest?
Can people
rely on it?





Environmental Protection



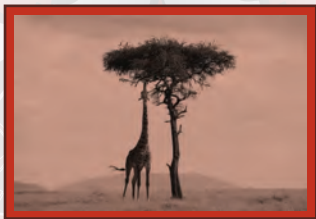
Is your technology
environmentally sustainable
now & in the future?

Can you explain
how?





Accessibility



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





Risk Minimisation



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





Liability



**What are the foreseeable
harmful effects created by
your technology?**



**Who is responsible
for these?**





Proportionality



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





Precautionary Principle

10



Appraising future risks
of your technology,
should you still proceed i.e.

10



“Just because you
can, should you?”





Intellectual Property



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





Criminality



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





Legibility & Comprehension

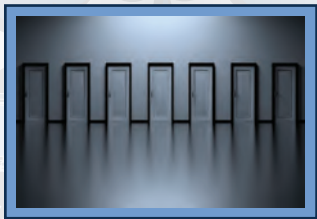


**Can everybody
understand what
your system
does? How?**





User
Empowerment
& Negotiability

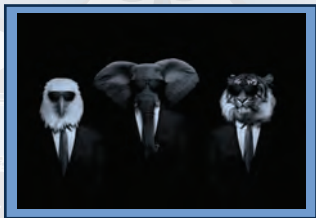


How do you ensure people
can exercise ongoing
choice about using
your system?





Overt Bias & Prejudice



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





Trust



**How do you ensure and
maintain citizens'
trust?**





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?





Limited Data Collection



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





International Data Transfer



How does your technology
protect data sent
overseas?





Spectrum of Control Rights



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





Transparency Rights

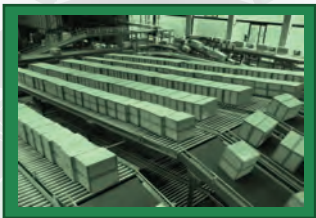


Do you provide sufficient,
clear information about
how your technology
uses personal
data? How?





Lawful Processing



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





Data Security



**Does your technology
protect data from unanticipated
disclosures? How?**



**Can you notify
users of a
breach quickly?**





Taking Responsibilities



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





Privacy in Public



Does your technology
use information collected
in a public space?

9



How do you protect
privacy rights of
those involved?





Location Privacy

10



Does your technology collect
the location of users?

Why?

10

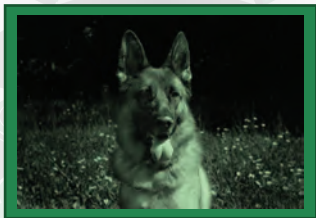


Does it need to?





Compliance & Accountability



**What measures have you
used to comply with EU
Data Protection Laws?**



**How do you
demonstrate
these to users?**





Special Categories of Data



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



Data Management

A selection of cards from the Moral IT deck to prompt your discussion on issues surrounding data management.

Feel free to also browse the rest of the deck and select other cards for discussion.



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

3 or pseudonymisation
techniques?





Secrecy



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





5

Trustworthiness



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

5





Confidentiality

6



How does confidentiality
feature in your technology?

6



Does it use methods
such as encryption,
by default?





Usable Security



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



How &
for whom?





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





Integrity



Is your technology honest?
Can people
rely on it?





Secure for Whom

K



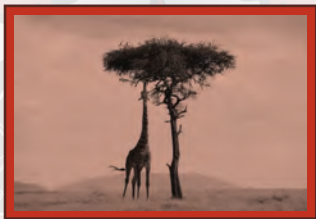
Is security equally available
to all people impacted
by your technology?
How?

K





Accessibility



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





Risk Minimisation



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





Proportionality



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





Legibility & Comprehension

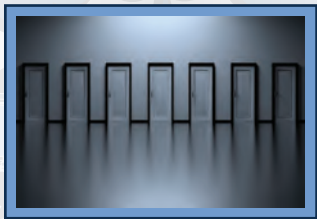


**Can everybody
understand what
your system
does? How?**





User
Empowerment
& Negotiability



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





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?





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?





Limited Data Collection



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





International Data Transfer



How does your technology
protect data sent
overseas?





Spectrum of Control Rights



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





Transparency Rights

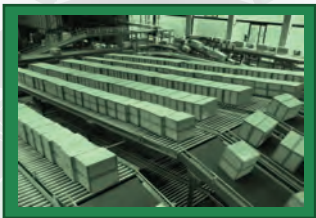


Do you provide sufficient,
clear information about
how your technology
uses personal
data? How?





Lawful Processing



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





Data Security



**Does your technology
protect data from unanticipated
disclosures? How?**



**Can you notify
users of a
breach quickly?**





Taking Responsibilities



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





Privacy in Public



Does your technology
use information collected
in a public space?

9

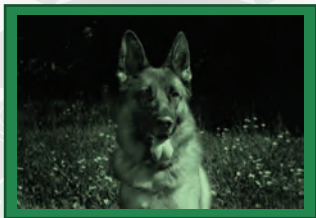


How do you protect
privacy rights of
those involved?





Compliance & Accountability



**What measures have you
used to comply with EU
Data Protection Laws?**



**How do you
demonstrate
these to users?**





Special Categories of Data



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



Data Analysis

A selection of cards from the Moral IT deck to prompt your discussion on issues surrounding data analysis.

Feel free to also browse the rest of the deck and select other cards for discussion.



Obfuscation

3



How does your technology
protect people's identities?

Does it use anonymisation

3 or pseudonymisation
techniques?





Secrecy



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





Trustworthiness

5



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

5





Confidentiality

6



How does confidentiality
feature in your technology?

6



Does it use methods
such as encryption,
by default?





Attribution & Responsibility



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





Integrity



Is your technology honest?
Can people
rely on it?





Secure for Whom

K



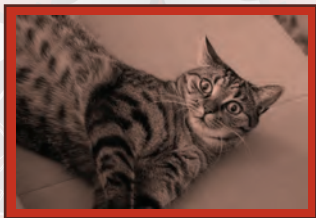
Is security equally available
to all people impacted
by your technology?
How?

K





Rule of Law



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





Due Process



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





Risk Minimisation



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





Liability



**What are the foreseeable
harmful effects created by
your technology?**



**Who is responsible
for these?**





Proportionality



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





Precautionary Principle

10



Appraising future risks
of your technology,
should you still proceed i.e.



“Just because you
can, should you?”





Intellectual Property



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





Criminality



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





**Consider the setting
this technology will
be used in &
why this is
important.**





Legibility & Comprehension

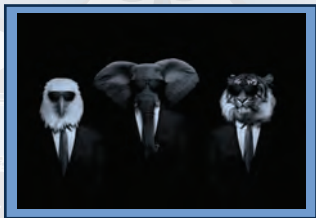


**Can everybody
understand what
your system
does? How?**





Overt Bias & Prejudice



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





Trust



**How do you ensure and
maintain citizens'
trust?**





Meaningful Transparency



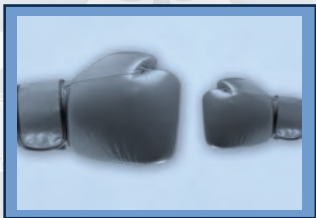
Do you know why your
technology acts the
way it does?

Can you explain
that to people?





Power Asymmetry



Where does power
reside in your
technology?
Is it balanced?





Fairness & Justice



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





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?





International Data Transfer



How does your technology
protect data sent
overseas?





Spectrum of Control Rights



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





Transparency Rights

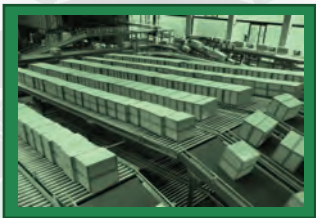


**Do you provide sufficient,
clear information about
how your technology
uses personal
data? How?**





Lawful Processing



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





Taking Responsibilities



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





Privacy in Public



Does your technology
use information collected
in a public space?

9



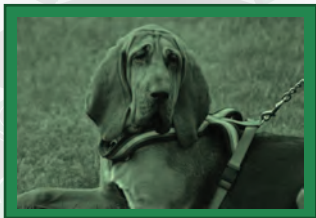
How do you protect
privacy rights of
those involved?





Location Privacy

10



Does your technology collect
the location of users?

Why?

10

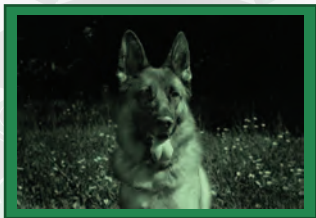


Does it need to?





Compliance & Accountability



**What measures have you
used to comply with EU
Data Protection Laws?**



**How do you
demonstrate
these to users?**





Special Categories of Data



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



Data Sharing

A selection of cards from the Moral IT deck
to prompt your discussion on issues
surrounding data sharing.

Feel free to also browse the rest of
the deck and select other cards for
discussion.



Obfuscation

3



How does your technology
protect people's identities?

Does it use anonymisation

3 or pseudonymisation
techniques?





Secrecy



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





Confidentiality

6



How does confidentiality
feature in your technology?

6



Does it use methods
such as encryption,
by default?





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





Attribution & Responsibility



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





Integrity



Is your technology honest?
Can people
rely on it?





Secure for Whom

K



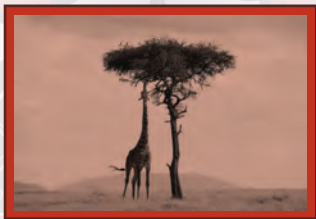
Is security equally available
to all people impacted
by your technology?
How?

K





Accessibility

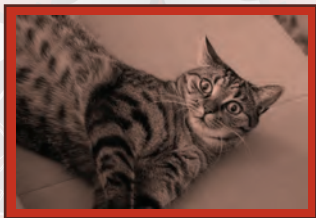


Can your technology be reasonably adjusted to ensure it can be used by as many people as possible? How?





Rule of Law



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





Risk Minimisation



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





Liability



**What are the foreseeable
harmful effects created by
your technology?**



**Who is responsible
for these?**





Proportionality



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





Precautionary Principle



Appraising future risks
of your technology,
should you still proceed i.e.



“Just because you
can, should you?”





Intellectual Property



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





Criminality



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





Legibility & Comprehension

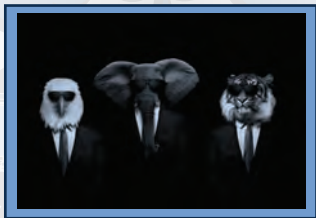


**Can everybody
understand what
your system
does? How?**





Overt Bias & Prejudice



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





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

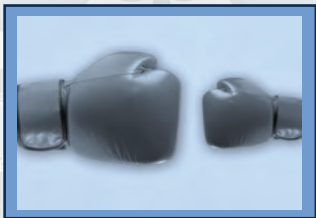


What effects does your
technology have on
the environment,
from creation to
destruction?





Power Asymmetry



Where does power
reside in your
technology?
Is it balanced?





Temporality



How long does your
technology last?

How does it manage its
impacts from creation
to destruction?





Limited Data Collection



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





International Data Transfer



How does your technology
protect data sent
overseas?





Spectrum of Control Rights

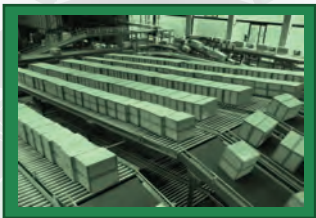


How does your
technology accommodate
users seeking greater
control over their
personal data?





Lawful Processing



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





Data Security



**Does your technology
protect data from unanticipated
disclosures? How?**



**Can you notify
users of a
breach quickly?**





Taking Responsibilities



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





Privacy in Public



Does your technology
use information collected
in a public space?

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How do you protect
privacy rights of
those involved?





Location Privacy

10



Does your technology collect
the location of users?

Why?

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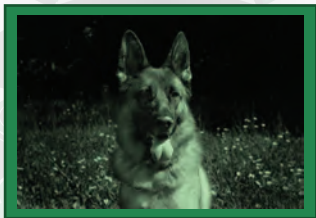


Does it need to?





Compliance & Accountability



**What measures have you
used to comply with EU
Data Protection Laws?**



**How do you
demonstrate
these to users?**





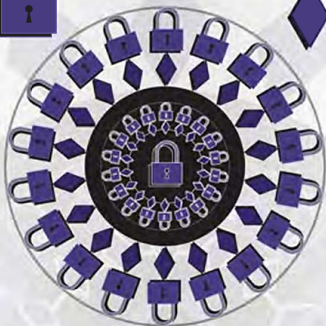
Special Categories of Data



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



Full Deck



**What's the most
embarrassing thing
about your technology?**



**Would you change
it now?
Why?**





Identities Management



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





Obfuscation

3



How does your technology
protect people's identities?

Does it use anonymisation

3 or pseudonymisation
techniques?





Secrecy



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





Trustworthiness

5



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

5





Confidentiality

6



How does confidentiality
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Does it use methods
such as encryption,
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Usable Security



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



How &
for whom?





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?





Integrity



Is your technology honest?
Can people
rely on it?





Secure for Whom



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





Blank Card



B





Blank Card

B



B





**How can your technology
embody human
virtues?**





Environmental Protection

2



Is your technology
environmentally sustainable
now & in the future?

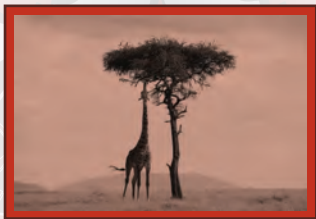
Can you explain
how?

2





Accessibility



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





Consumer Protection



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

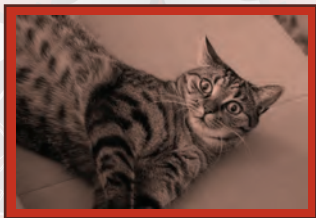


How could it?





Rule of Law



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





Due Process



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





Risk Minimisation



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





Liability



**What are the foreseeable
harmful effects created by
your technology?**



**Who is responsible
for these?**





Proportionality



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





Precautionary Principle

10



Appraising future risks
of your technology,
should you still proceed i.e.



“Just because you
can, should you?”





Duty of Care



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





Intellectual Property



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





Criminality



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





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**Consider the setting
this technology will
be used in &
why this is
important.**





Legibility & Comprehension



**Can everybody
understand what
your system
does? How?**





User
Empowerment
& Negotiability

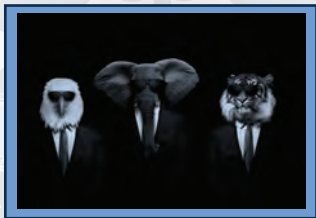


How do you ensure people
can exercise ongoing
choice about using
your system?





Overt Bias & Prejudice



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





Autonomy & Agency



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





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

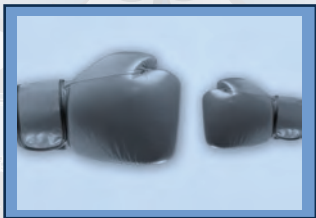


What effects does your
technology have on
the environment,
from creation to
destruction?





Power Asymmetry



Where does power
reside in your
technology?
Is it balanced?





Fairness & Justice



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





Temporality



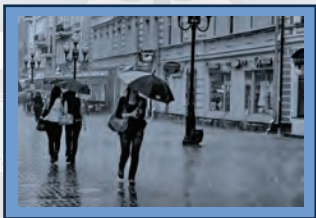
How long does your
technology last?

How does it manage its
impacts from creation
to destruction?





Wellbeing



Does your technology
improve the lives
of its users?

How?





Participation



Can citizens participate in
decisions about your
technology?

How?





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Limited Data Collection



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





International Data Transfer



How does your technology
protect data sent
overseas?





Spectrum of Control Rights



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





Transparency Rights

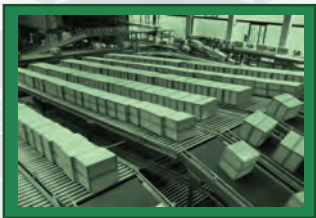


Do you provide sufficient,
clear information about
how your technology
uses personal
data? How?





Lawful Processing

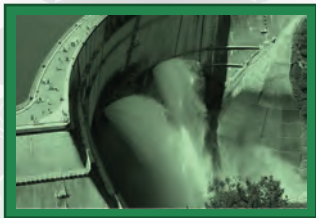


Does your technology
process personal data
lawfully? Specifically,
how do you
obtain
consent?





Data Security



**Does your technology
protect data from unanticipated
disclosures? How?**



**Can you notify
users of a
breach quickly?**





Taking Responsibilities



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





Privacy in Public



Does your technology
use information collected
in a public space?

9



How do you protect
privacy rights of
those involved?





Location Privacy

10



Does your technology collect
the location of users?

Why?

10

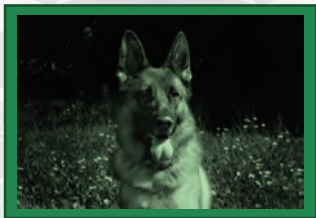


Does it need to?





Compliance & Accountability



**What measures have you
used to comply with EU
Data Protection Laws?**



**How do you
demonstrate
these to users?**





Special Categories of Data



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





Privacy Virtues



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





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B



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Stakeholders

**List three direct
or indirect
stakeholders impacted
by your technology.**





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Use Case

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





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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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The Technology

**Briefly describe what your
technology is and how it works.**





The Technology

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technology is and how it works.**





Safeguards

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





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