



ICT ethics: European Commission's approach



Gérald Santucci
EC - Knowledge Sharing
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Ethics in H2020

- All projects in H2020 must comply with ethical rules

- Systemic approach: Ethics Appraisal procedure
 - Proposal (self-assessment)
 - Evaluation (ethics screening for identified issues; further ethics review for complex ethics issues)
 - Contracts (ethical requirements in grant agreement)
 - Ethics checks and audits





Ethics appraisal areas

Main areas addressed during H2020 Ethics Appraisal:

1. Human protection (incl. study participants and researchers)
2. Animal protection and welfare
3. Data protection and privacy
4. Environment protection
5. Participation of non-EU countries
6. Dual use
7. Misuse/malevolent use of research results





More than ethical compliance

Beyond "ticking the box" in individual projects: systemic perspective

- exploring **societal impacts**
- **reframing and updating** concepts

By:

- involving experts from **social sciences and humanities (SSH)**
- involving society: **Responsible Research and Innovation (RRI)**

- engaging society in R&I
- open access to scientific results
- gender equality in research process/content
- ethics
- science education



Ethics and ICT



Emerging ICTs

1. Future Internet
2. Internet of Things / *Everything*
3. Ambient Intelligence
4. RFID, NFC
5. Affective Computing
6. Cloud Computing
7. Bioelectronics
8. Neuro-electronics
9. Artificial Intelligence
10. Human Computer Symbiosis





Big Data proliferation

1. Data about Persons

- Biometrics, personal data

2. Data about Objects

- Internet of Things

3. Mesh of Person and Object networks





***Sousveillance* features**

1. Killing tags and sensors
2. Making visible, reversible invisibility
3. Putting to sleep, inactivation
4. Limiting range of antennae
5. Blocking, jamming exchange
6. Information Architecture, governance, protocols, standards
7. Conditions on reconfiguration and function assignment



Nano Panopticism



Bentham and the "Panopticon"





Moral arguments with IoT

1. Argument from utility, well-being

e.g. sustainability, health, safety, security

2. Argument from Epistemic Responsibility

Those who bear responsibility for policies and interventions in complex systems have a (higher order) responsibility for creating the conditions (epistemic and physical) which allow them to do the best they can





Moral problems with IoT

1. Privacy, Data Protection
2. Social justice: equal access to the benefits of IoT
3. Safety, harm and precaution (application of Precautionary principle)
4. Security and dual-use problems
5. Reliability and epistemic confidence
6. Trust and moral acceptance
7. Responsibility and liability for design, governance and shaping of society through IoT





Privacy: Data Protection for moral reasons

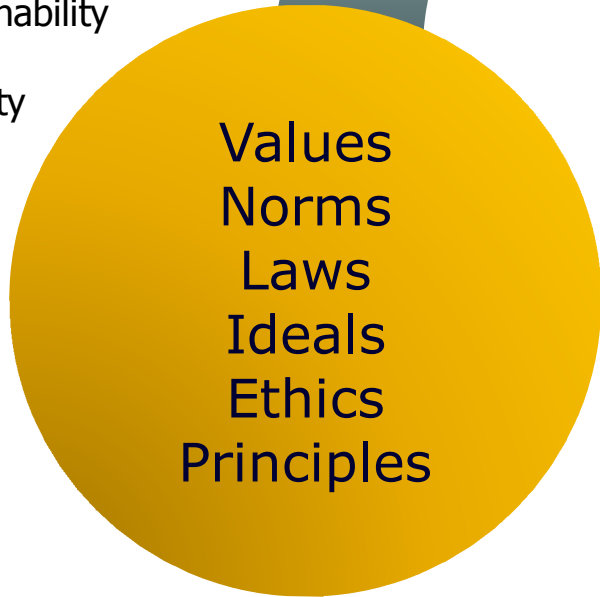
1. Preventing Harm
2. Fairness in markets for personal data
3. Separate spheres of life, contextual integrity
4. Moral autonomy and self-presentation (informational self-determination)





European
Commission

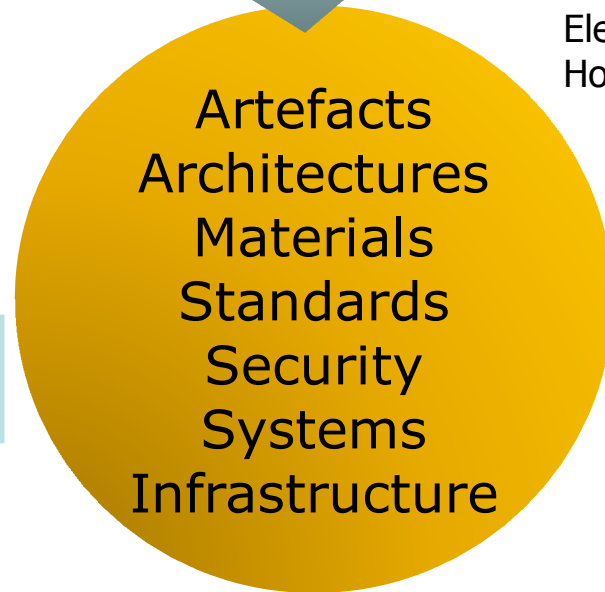
Responsibility
Privacy
Accountability
Agency
Autonomy
Sustainability
Safety
Security



Values
Norms
Laws
Ideals
Ethics
Principles

Express
Implement

Computers
Oil tankers
Airplanes
Reactors
Roads
Internet
Electricity Grids
Hospitals



Artefacts
Architectures
Materials
Standards
Security
Systems
Infrastructure

Justify
Audit

Key Problem 21st Century: Value Sensitive Design



Opinion of the European Group on Ethics in Sciences and New Technologies



Opinion No. 26
Ethics of Information
and Communication Technologies

Brussels, 22 February 2012

Ethical Questions :

- ✓ Challenging concept of identity
- ✓ Respect of private life

Implications in society, culture, education and environmental protection

- ✓ Social inclusion
- ✓ E-government
- ✓ Education
- ✓ E-health
- ✓ Environment
- ✓ Political dimension
- ✓ E-commerce

<http://bookshop.europa.eu/en/ethical-aspects-of-information-and-communication-technologies-pbNJ3111428/>



Ethical issues in emerging ICTs (ETICA project)

- ICTs are increasingly **invisible, ubiquitous**, re-purposed
- complex, learning, **unpredictable**
- record behavioural data -> invasion of **privacy**
- transformation of **human** performance

Dilemmas:

- **value conflicts** – progress, convenience vs. surveillance
- robots/autonomous systems - liability
- is informed **consent** possible?
- what is to be **human**?





***Onlife* Manifesto: Being Human in a Hyperconnected Era**

DG CONNECT gathered philosophers and social scientists to explore if digital transition requires ***reengineering of concepts*** on which we build policies.

Transformations:

- blurring of distinction between reality and virtuality
- blurring of distinctions between human, machine and nature
- from information scarcity to information abundance
- shift from primacy of entities to primacy of interactions

The ***Onlife Manifesto*** (2012):

<https://ec.europa.eu/digital-agenda/en/onlife-manifesto>





RRI-SSH in ICT-related WP16-17

DG CONNECT: ambitious approach to go beyond H2020 requirements, experiment how best to include RRI/SSH in ICT projects.

1. Cross-cutting RRI-SSH LEIT topic (until 12 April 2016):

Enabling responsible ICT-related research and innovation (ICT-35-2016)

(i) 2 topics:

How can we avoid ICTs ending up isolating humans behind their screen, or harnessing them in a passive role?

What are the conditions for ICT-enabled innovations to generate interesting and rewarding jobs, and reduce the risk of excluding people from the labour market? What economic models can ensure a fair sharing of the created added value?

(ii) NEW: opportunity for SH experts to challenge the framing/narrative of ICT research agenda





RRI-SSH in ICT-related WP16-17

2. Three Coordination and Support Actions (CSA) to focus on societal aspects (until 12 April 2016):

Big Data PPP: privacy-preserving technologies (ICT-18-2016 b)

Internet of Things (IoT-02-2016 b)

Trustworthy and secure ICT systems (DS-01-2016 c)

3. Knowledge hub (CSA) (REV-INEQUAL-09-2017 – to open Oct 2016)

4. RRI/SSH within projects under various ICT topics

Also: "Science with and for Society" WP 16-17: The ethical dimensions of IT technologies: a European perspective focusing on security and human rights aspects ([SwafS-22-2017](#))





IoT and Privacy

The RFID Model

- EC Recommendation of 12 May 2009 (2009/387/EC):
http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2009.122.01.0047.01.ENG
- Privacy Impact Assessment: CEN EN 16571 "Information technology – RFID privacy impact assessment process"
- The RFID PIA Software: <http://rfid-pia-en16571.eu/>
- The GS1/EPC RFID PIA Tool (updated July 2015):
<http://www.gs1.org/pia>





The RFID PIA Signing Ceremony

6/04/2011



IoT and Privacy

Art. 29 Data Protection WP (16/09/2014):

- Opinion 8/2014: http://ec.europa.eu/justice/data-protection/article-29/documentation/opinion-recommendation/files/2014/wp223_en.pdf
- Wearable Computing
- Quantified Self
- Home Automation





IoT and Privacy

Mauritius Declaration (14/10/2014):

- International Data Protection and Privacy Commissioners
- <http://www.privacyconference2014.org/media/16596/Mauritius-Declaration.pdf>
- Self-determination is an inalienable right for all human beings
- IoT sensor data "should be regarded as personal data"
- Data protection is "a joint responsibility of all actors in society"
- Privacy by design: "a key selling point of innovative technologies"
- End-to-end encryption



IoT and Privacy

EU Data Protection Regulation

- *Right to be Forgotten (Art. 17)*
- *Data protection by Design and by default (Art. 23)*
- *Data Protection Impact Assessment (Art. 33)*

U.S. Federal Trade Commission

- *Staff Report:*
<https://www.ftc.gov/system/files/documents/reports/federal-trade-commission-staff-report-november-2013-workshop-entitled-internet-things-privacy/150127iotrpt.pdf>
- *Non-legislative policy options: voluntary transparency; FTC best practices; liability lawsuits; market competition*
- *Legislative policy options: mandatory certification; mandatory data minimization; opt-in consent; federal standards; give customers the right to sue*





Contact Us

Gérald Santucci

Head of Unit

European Commission

DG CONNECT 02

BU25 06/118

Brussels, Belgium, 1049

Phone +32(0)2 296 89 63

gerald.santucci@ec.europa.eu

@GeraldSantucci