

Anticipating and Evaluating Privacy Issues in Emerging Technologies

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1. Introduction

How can we have a reliable method for recognizing and assessing privacy issues in emerging technologies?

Two ingredients:

- 1. *An operationalized theory of privacy* that allows for identification of potential threats to privacy in concrete situation**
- 2. *A methodology for the ethical assessment* of emerging technologies**

**Ad 1: The Differentiated Restricted Access
Theory of Privacy (Brey, 2006)**

**Ad 2: Anticipatory Technology Ethics
(Brey 2011, 2012)**

2. The Differentiated Restricted Access Theory of Privacy

Working definition of privacy:

Privacy is limited access to personal affairs

The right to privacy is the right to control access to one's personal affairs

This follows Warren & Brandeis (1890):

“ Privacy is the right to be let alone.”

and Schoeman (1984):

“ A person has privacy to the extent that others have limited access to information about him, the intimacies of his life, or his thoughts or his body.”

Towards an operationalized notion of privacy

This requires making fine distinctions between:

- **Types of access to personal affairs**
- **Corresponding types of privacy intrusions resulting from unauthorized access**
- **Types of personal affairs**

Types of access to personal affairs and resulting privacy intrusions:

***(1) Cognitive access:* Access to information about private affairs of a person**

Privacy violations:

- snooping (collecting info)**
- exposure (disseminating info)**

This can occur through

- direct observation (and resulting gossip)**
- the collection or dissemination of text, images, or other representations containing information about private affairs**

(2) *Physical access:* direct interventions into private affairs that create a disturbance in them

Privacy violations:

- disturbances

(e.g., interrupting private discussions, intruding on personal space, touching private parts)

This need not involve collection or dissemination of information

***(3) Access-enabled control:* exercising control over a person through knowledge of his or her private affairs or physical access to their private affairs**

Privacy violations:

- control over private affairs or broader dimensions of a person's life

(e.g., a landlord using camera surveillance to coerce or blackmail tenants)

Types of private affairs

- 1. The human body**
- 2. Personal spaces and objects**
- 3. Bearers of personal information**
- 4. Individual conduct**
- 5. Social conduct**

Why are these things private

Culture-specific constructed rules:

**X (thing, action or event) counts as Y (private)
in C (culture, society, situation) (Searle)**

**This means that persons expect to be sheltered
from interference by others w.r.t. these
affairs.**

**People need such zones of limited interference
to function and to flourish.**

Ad 1 The human body

Many aspects of the body are privacy-sensitive, including body parts usually hidden by clothing, medical conditions of the body, and bibliometric features.

This is conditioned by culture, religion and gender

***Cognitive intrusions:* observations of the body (naked eye, camera surveillance, body scans), medical tests, genetic tests, drug tests, biometric registration**

***Physical intrusions:* invasion of body space, unwanted touch and sexual assault, unwanted examinations, unwanted biometric registration, body searches**

***Access-enabled control:* control based on cognitive or physical access**

Ad 2 Personal spaces and objects

Personal spaces such as the home, one's car, other owned or rented places.

Personal objects like purses, teddy bears, etc.

***Cognitive intrusions:* observations, examinations and registrations of these spaces and objects**

***Physical intrusions:* break-ins, seizures**

***Access-enabled control:* control based on cognitive or physical access**

Ad 3 Bearers of personal information

Media that contain information about private affairs: files, paper records, personal notes, pictures, diaries, electronic records, video tapes, etc.

***Cognitive intrusions:* unauthorized access to and use of such information**

***Physical intrusions:* same as cognitive intrusions**

***Access-enabled control:* control based on access to these records**

Ad 4 Individual conduct

Nonsocial individual conduct: individual behavior that does not (centrally) include interactions with others. Especially solitary behavior: behavior that one performs when one is by oneself.

E.g. behavior at home, intimate individual behaviors, private hobbies, online behavior, travel locations, etc.

***Cognitive intrusions:* monitoring and registration of such behavior**

***Physical intrusions:* physical disturbance of such behavior**

***Access-enabled control:* control based on cognitive or physical access**

Ad 5 Social conduct

Interactions with other humans that have a private character.

E.g. interactions at home, intimate interactions with others, private conversations, private organizations

***Cognitive intrusions:* monitoring and registering of such interactions**

***Physical intrusions:* physical disturbance of such behavior**

***Access-enabled control:* control based on cognitive or physical access**

This operationalized notion helps in recognizing and distinguishing many different types of privacy violations

For any *action*, ask:

- does it result in access to one of the five type of private affairs?**
- Does this access qualify as a cognitive intrusion, physical intrusion or access-enabled control?**

For any *technological artifact*, ask:

- Does it support, enable or even require actions of this type in which privacy violations occur?**

E.g., A browser that involuntarily places cookies allows cognitive intrusions into bearers of personal information (+ possible access-based control)

E.g., A camera in a bathroom allows cognitive intrusions into the human body (+ possible access-based control)

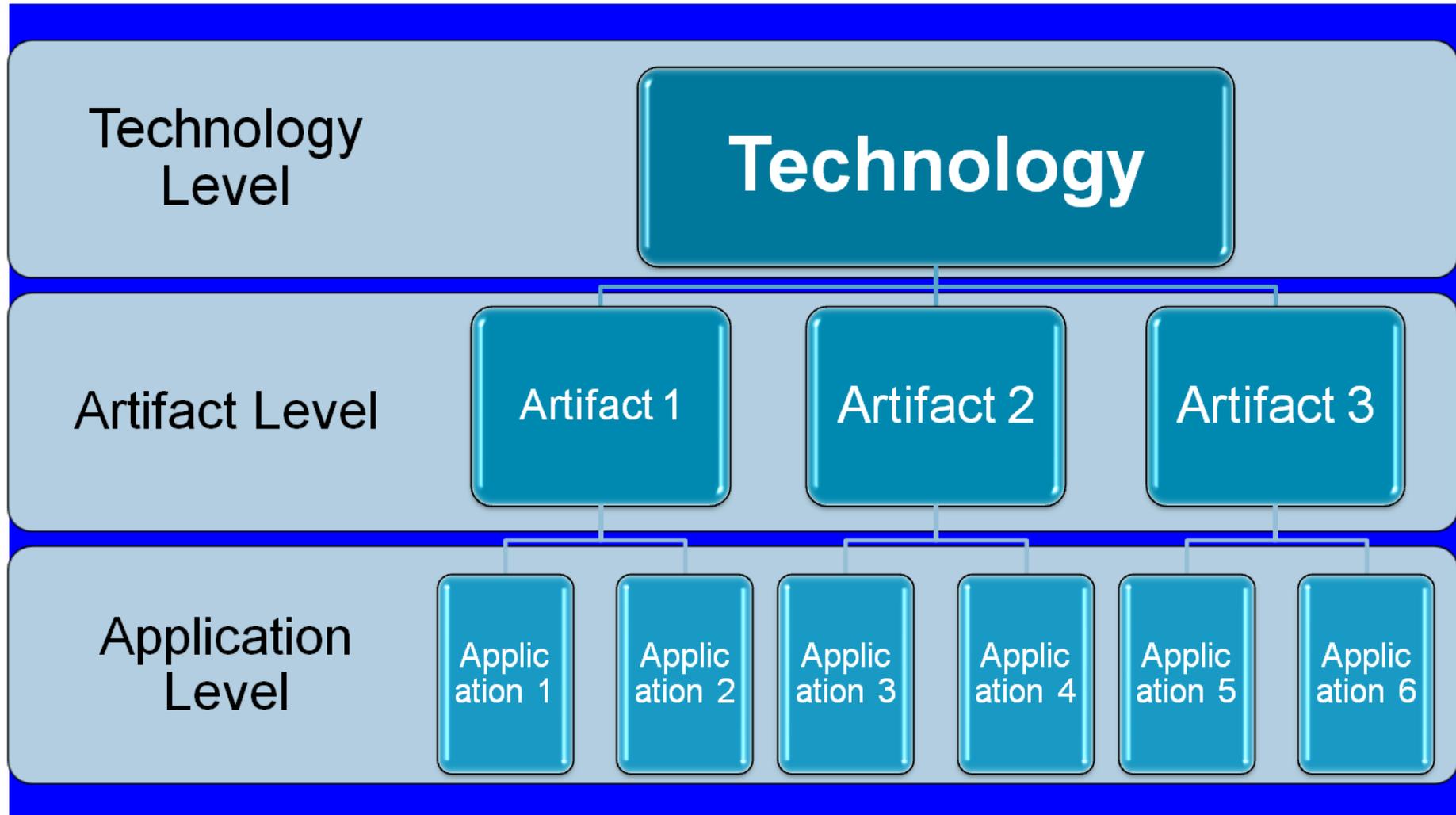
3. Anticipatory Technology Ethics

The aim of ATE is to do broad ethical assessment of emerging technologies

Such assessments *anticipate plausible future artifacts and applications* and *identify and evaluate significant ethical issues* regarding them and the technology at large

Assessments can be *comprehensive* or *partial* (i.e., focusing, only one or a few moral values, technological artifacts, applications or domains)

Assessment takes place at three levels



The technology level

Considers the technology as a whole and subfields and techniques within research

Ask how these can raise privacy issues.

E.g., *genomics* involves genetic mapping. This involves cognitive access to normally private information about the body. Therefore there are potential privacy issues in genomics.

E.g., *cloud computing* involves storage of one agent's information by another agent. This information may be private, and cognitive access by the other agent is possible. Therefore there is a potential privacy issue.

The artifact level

Considers specific types of artifacts.

Ask how these can raise privacy issues.

E.g., *browsers* store cookies. This can allow for cognitive intrusions of one's personal information.

E.g., *infrared cameras* may allow one to see through walls. This can allow for cognitive intrusions into private spaces and objects.

The application level

Considers particular ways of using or configuring artifacts, by specific types of users, for particular purposes or in particular contexts.

Ask how these can raise privacy issues.

E.g., *using Wi-Fi without encryption* allows for cognitive or physical access to one's computer

E.g., *using RFID tags on clothing* may allow for the tracking of persons (cognitive access to individual behavior)

To sum up:

- **Privacy as the right to control access to personal affairs**
- **Three types of unauthorized access**
- **Five types of private affairs**
- **Technologies may enable or require unauthorized access**
- **Three levels of technology at which this can be assessed**

This approach allows us to systematically identify privacy issues in emerging technologies that may then be (morally) evaluated and balanced against other values and interests.

THE END

