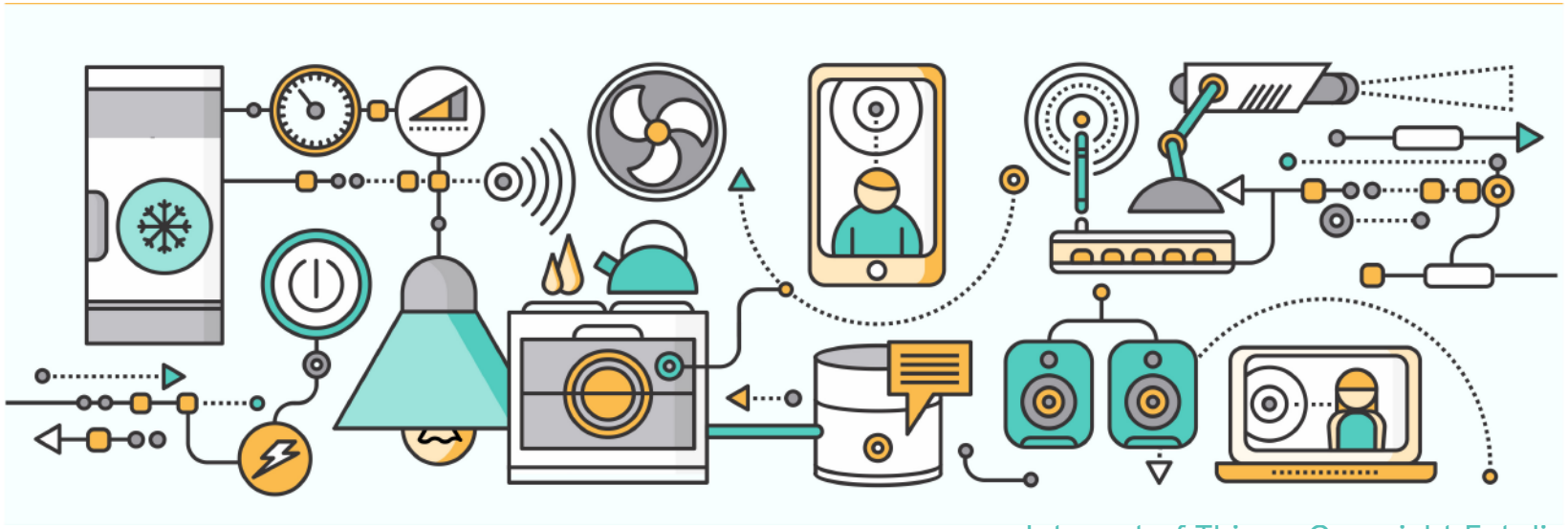
Faculty of Design

2016

Design Ethics in socio-technical systems: Addressing the ethics of connected appliances

Fiore, Eleonora



Internet of Things. Copyright Fotolia

Ethical challenges of the Internet of Things in the household environment

POLITECNICO DI TORINO

Eleonora Fiore

Politecnico di Torino, Torino, Italy

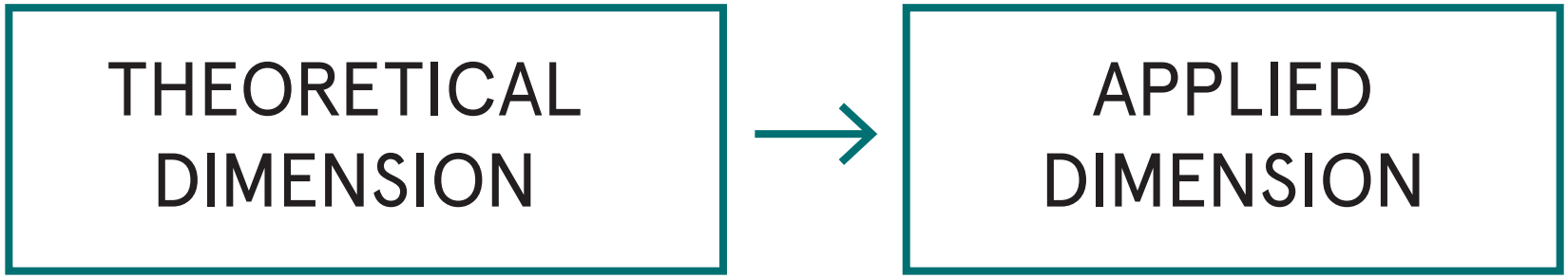
Department of Architecture and Design

eleonora.fiore@polito.it

Relating Systems Thinking and Design (RSD5) Symposium

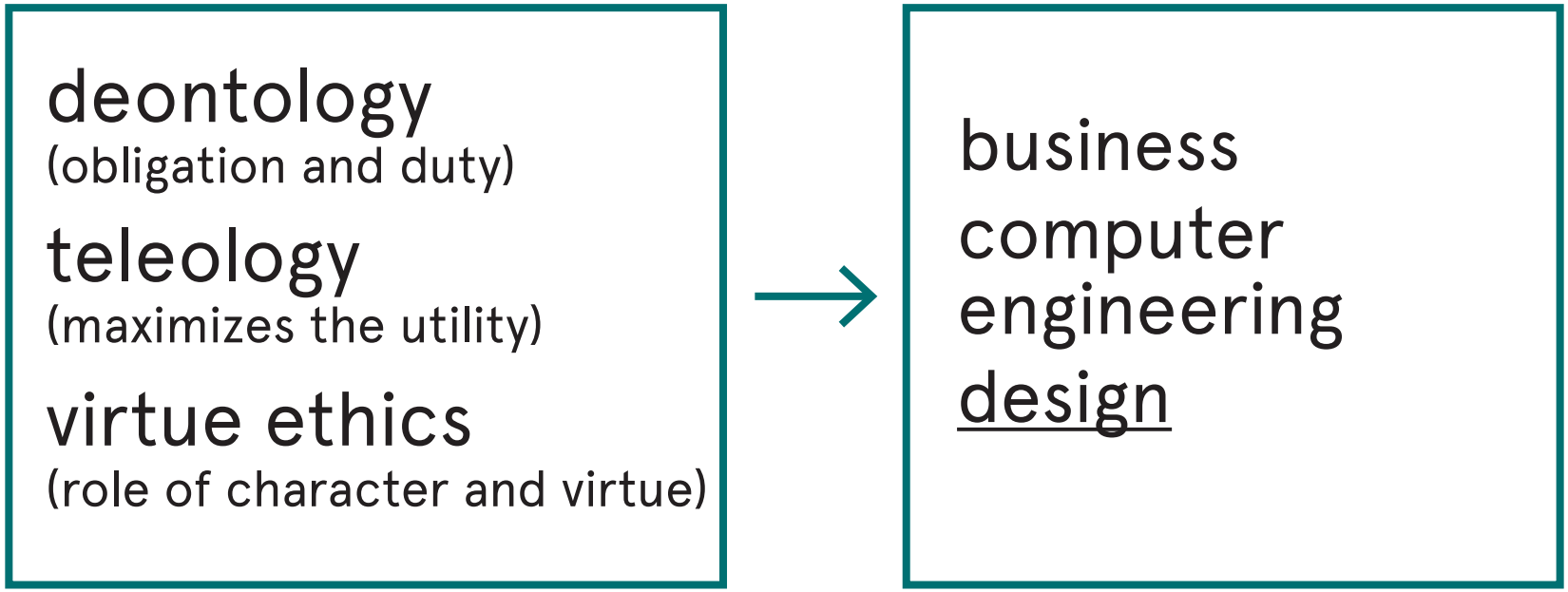
Ethics

- applied to systemic design



Ethics

- applied to systemic design



Methodology

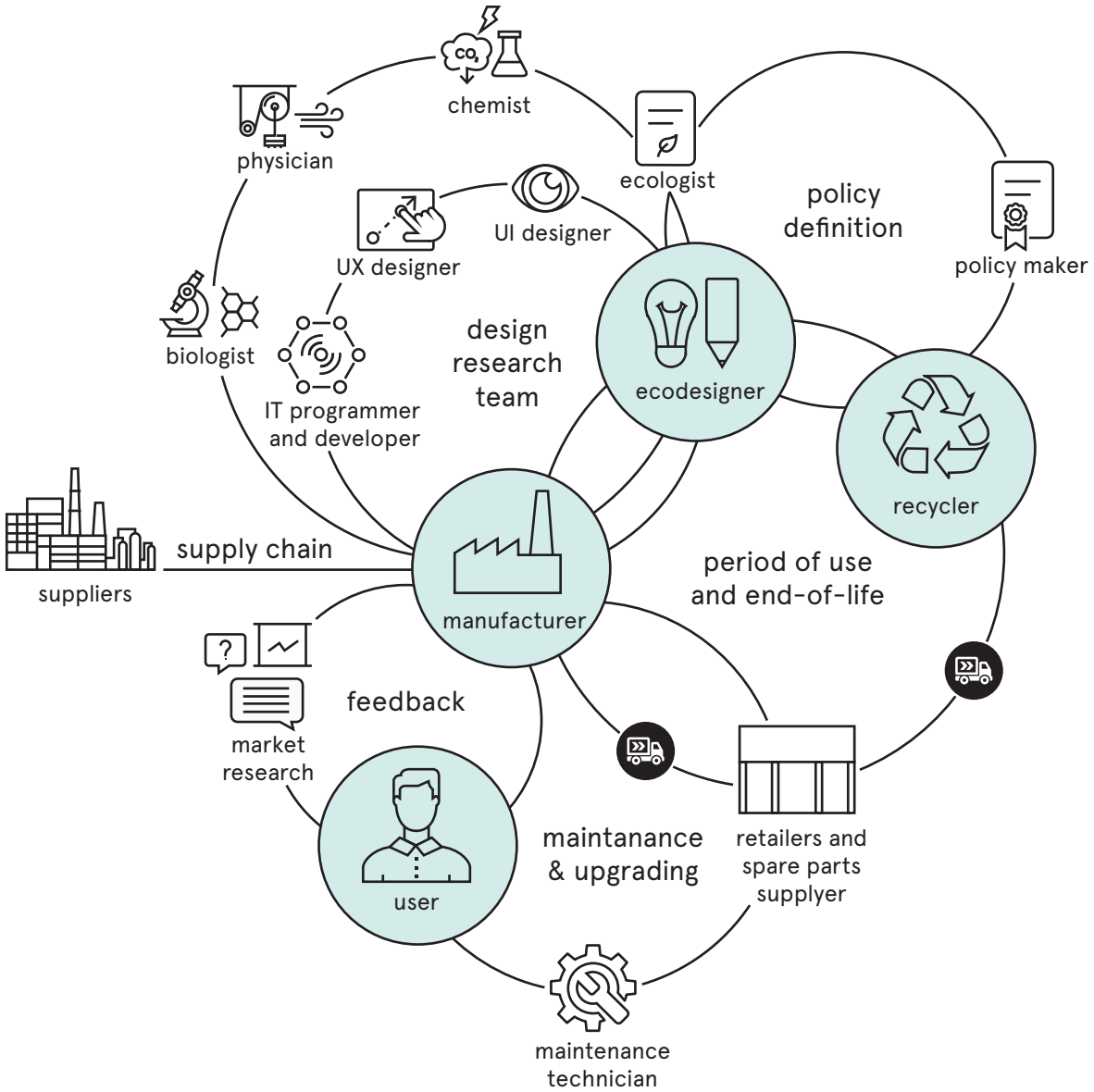
Social Ethics → Socio-technical systems

considers the social arrangements for making decision in an iterative design process.
Richard Devon

Value-sensitive design approach (VSD)

bridges the gap between techical design considerations and ethical concerns expressed through human values.
Mary L. Cumming

Decision making



development of connected devices

EXPLICIT DECISIONS

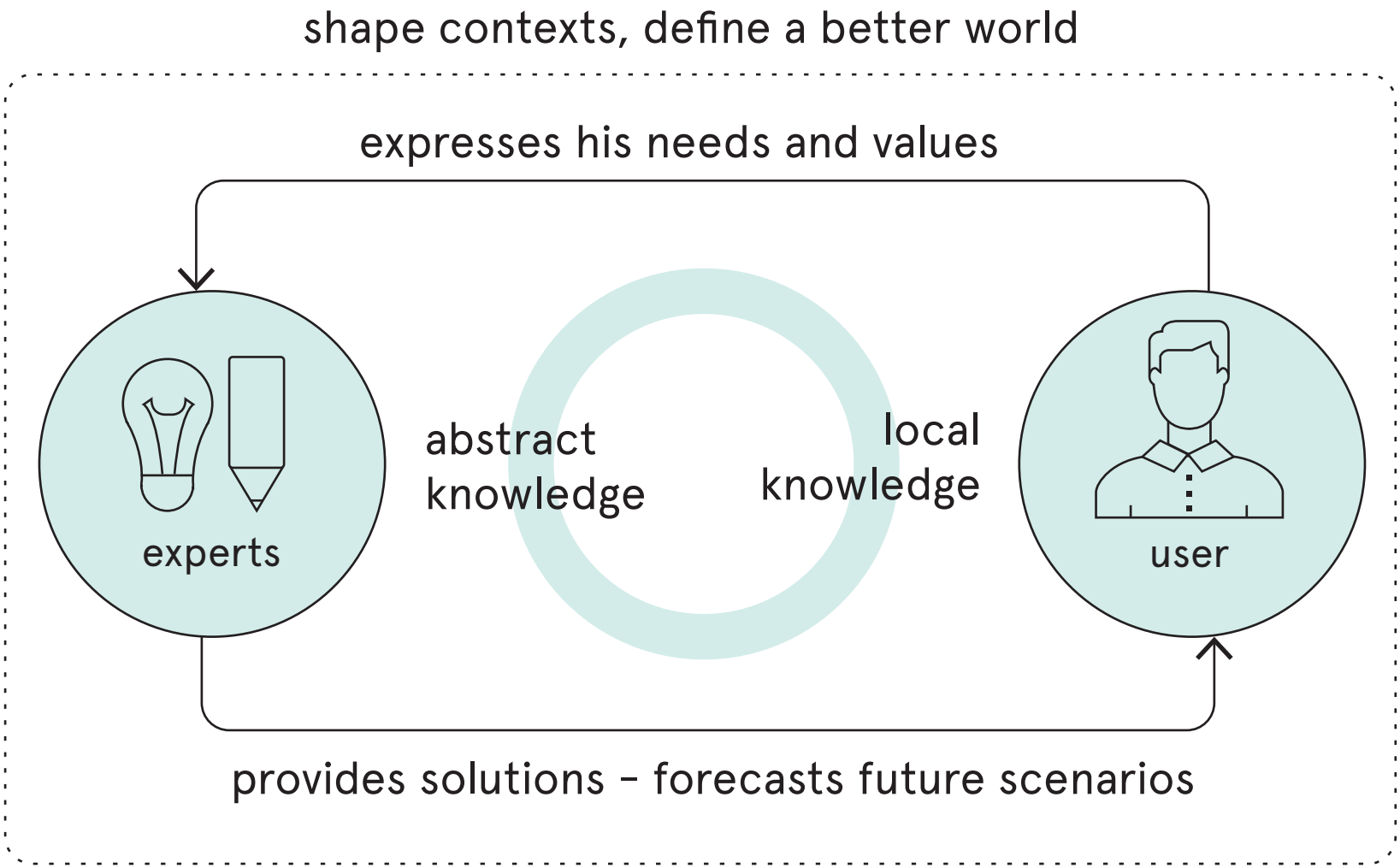
wide network of stakeholders

Decision making

IMPLICIT DECISIONS

should be structured with different decision support methods and tools

Value-sensitive-design



Case study

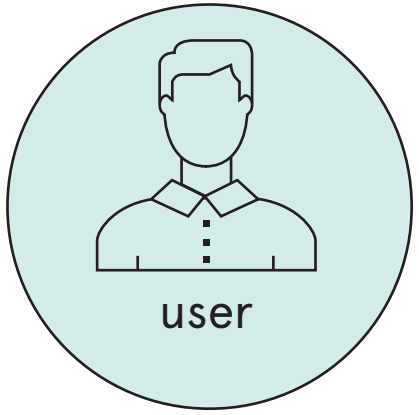
- connected devices (e.g. appliances)

Internet of Things

Global network infrastructure of Internet-connected devices or gadgets [1] able to collect, store, process and communicate information about themselves and their physical environment [2]

[1] Wasser, L. A., Hill, R., Koczerginski, M. (2016) Cybersecurity and the Internet of Things. McMillan LLP - Cybersecurity Bulletin. Retrieved from: http://www.mcmillan.ca/
[2] Ziegeldorf, J.E., Garcia Morchon, O., Wehrle, K., (2014) Privacy in the Internet of Things: Threats and Challenges. Security and Communication Networks 7.12: 2728-2742

Concerns



What?
When?
Who?
How long?
Why?

need for transparency

Concerns = challanges for a designer

The learning machine

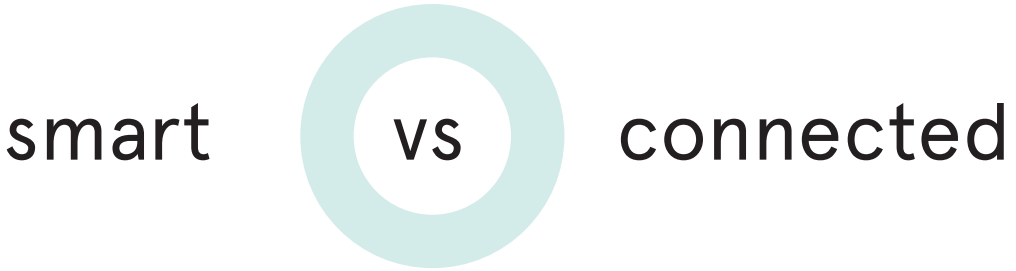
- automation in design

  A machine that is not able to recognise shifts in context, that cannot evolve or self-improve, should be considered unethical.

  Nicholas Negroponte

The learning machine

- learning and understanding contexts by interacting with them



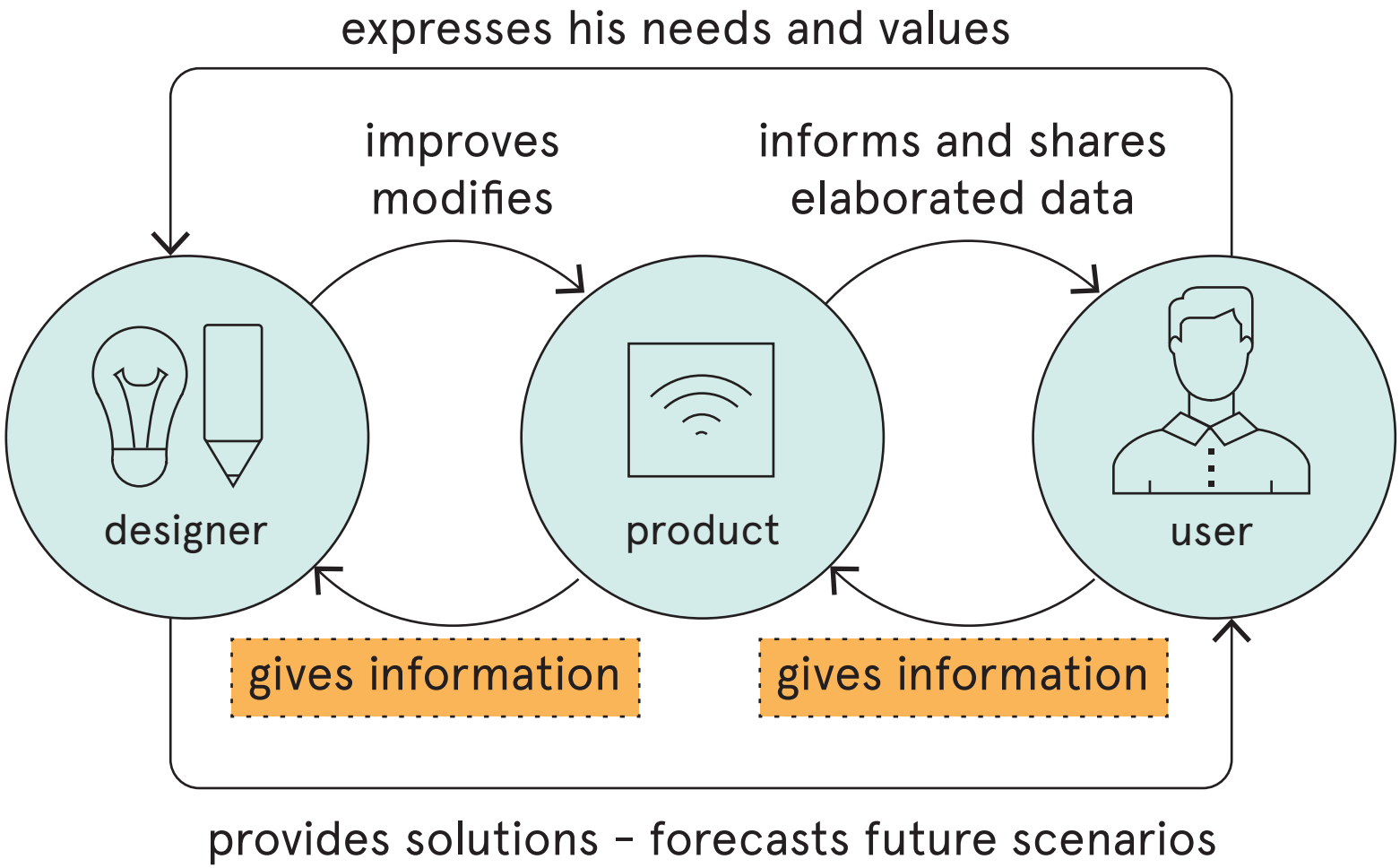
The gap of missing information

- missing information (unavailable, undeterminable)

research in the preliminary design stages

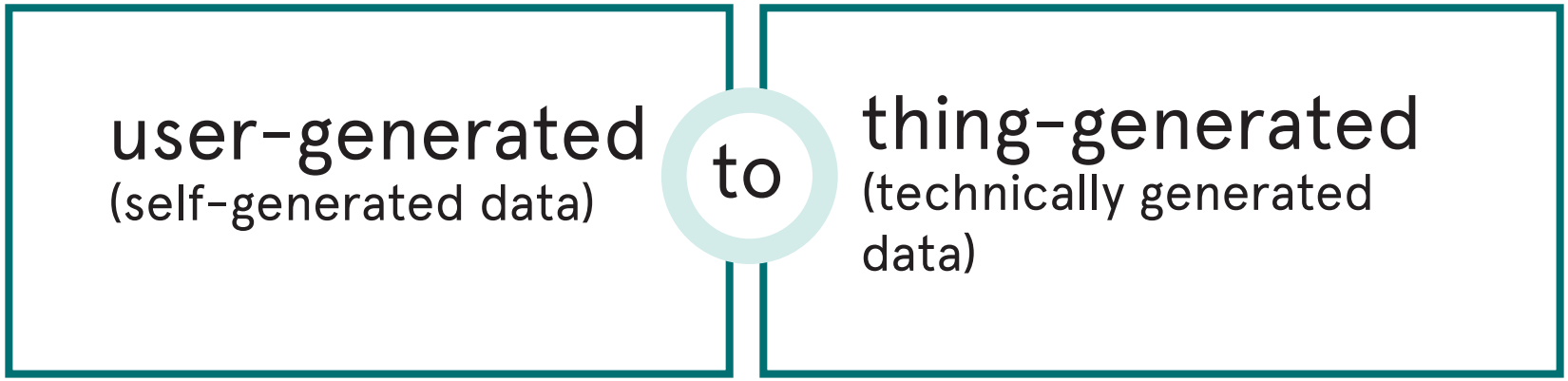
user specific related to experience

The gap of missing information



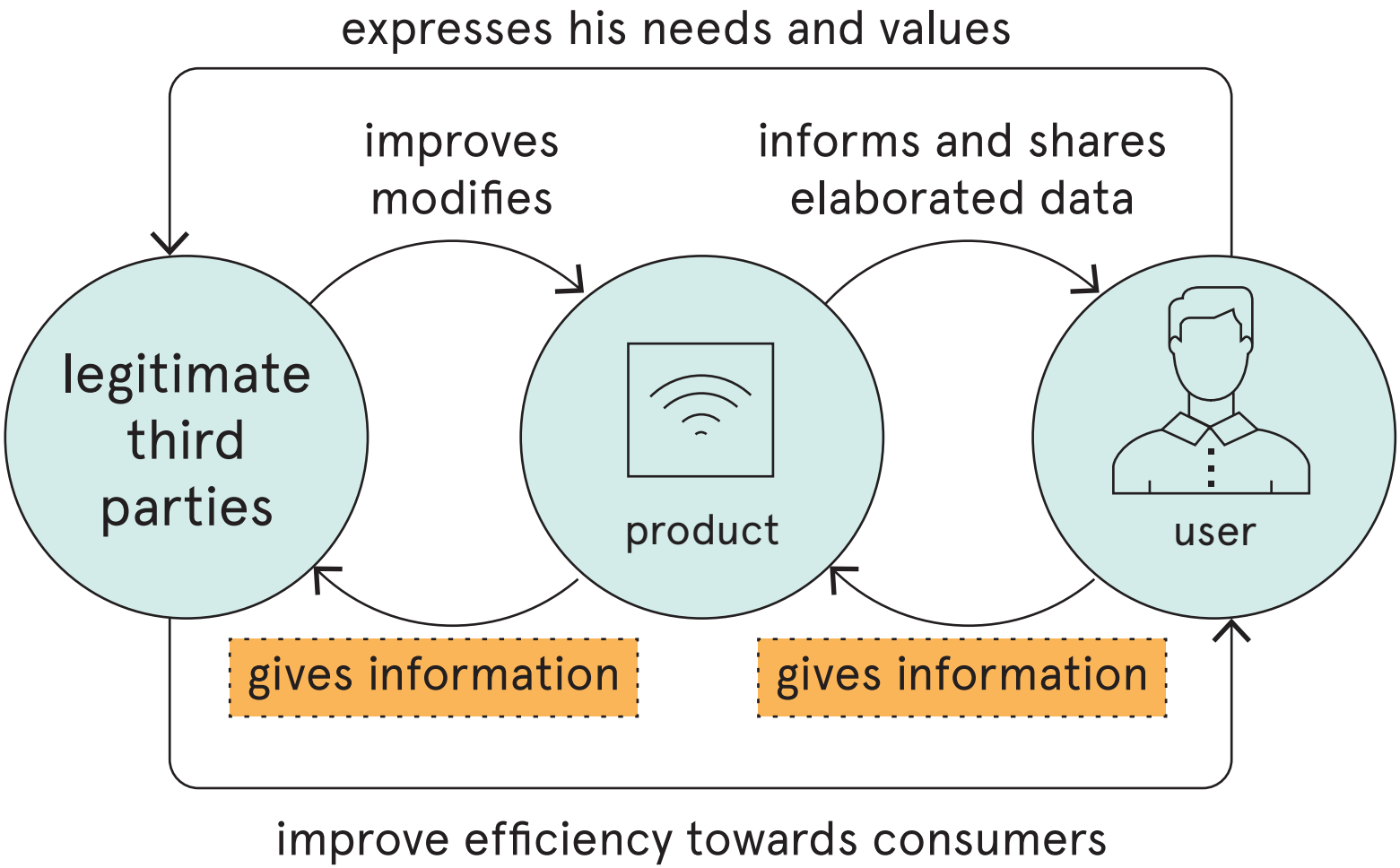
Type of information

- switching from internet of

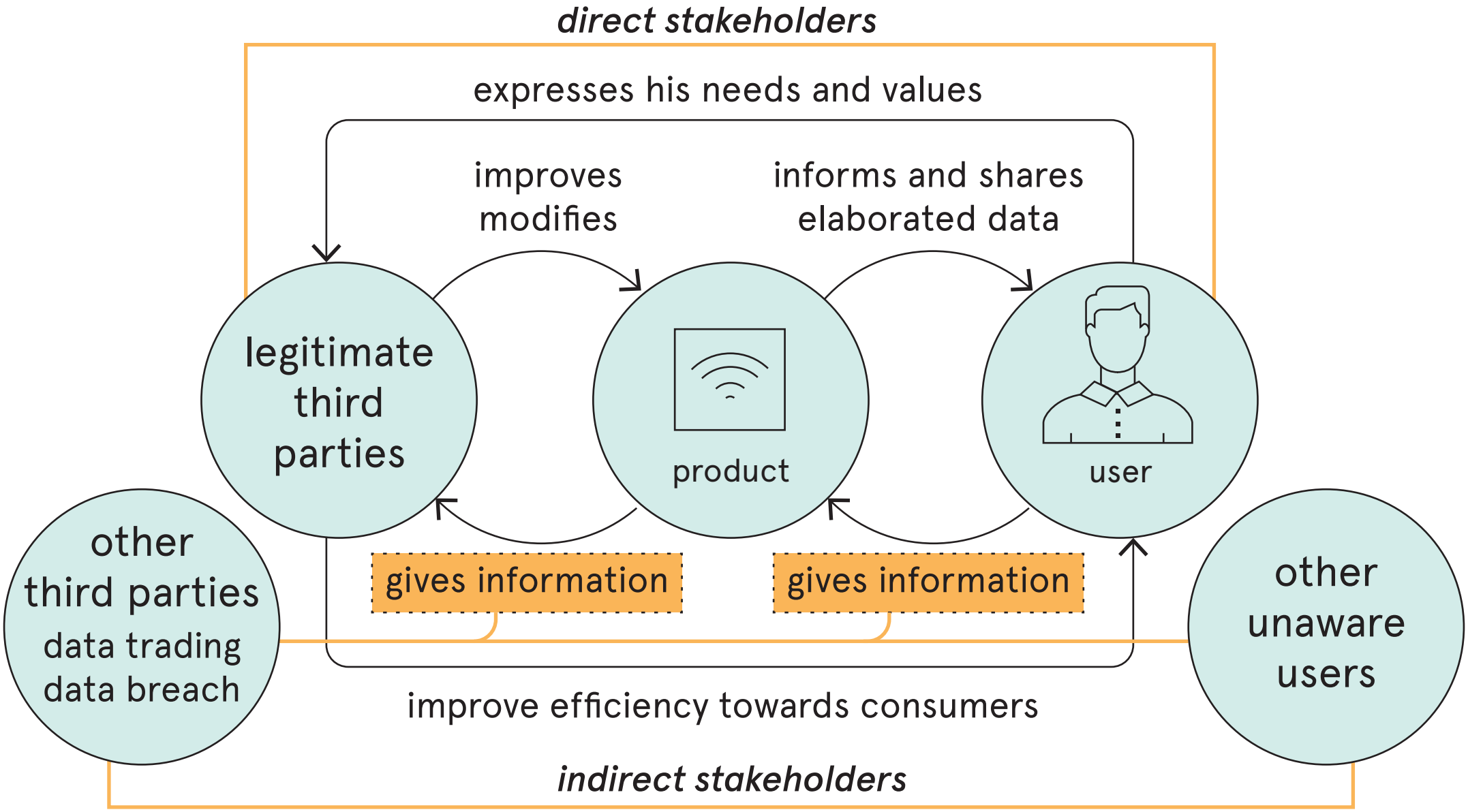


- IoT brings new quantity and quality of data, unprecedented opportunities but also challenges and problems.

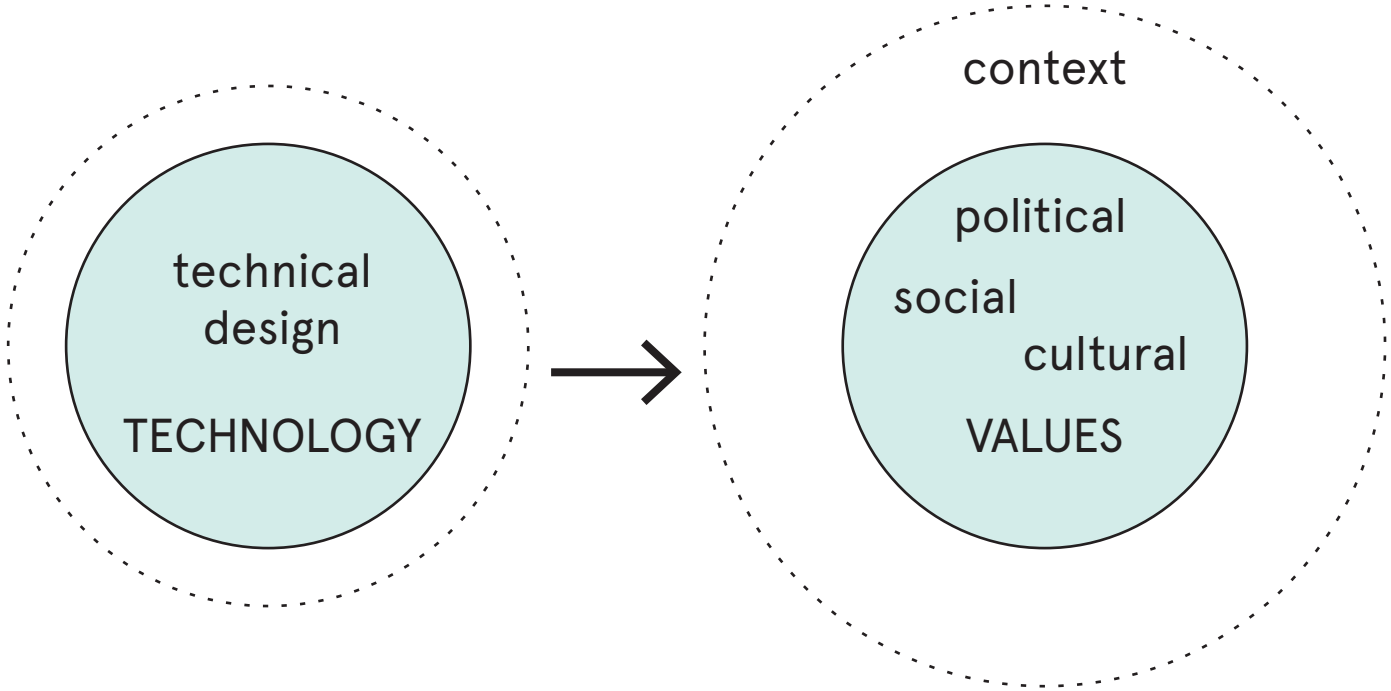
Privacy&security concerns



Privacy&security concerns

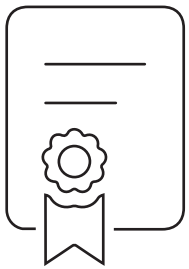


Frame a design

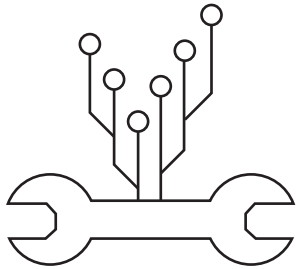


- understand the context
- define the socio-technical system
- explore future possibilities

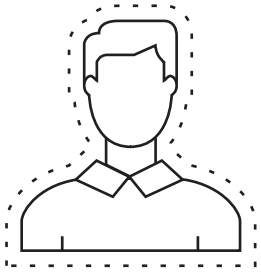
Frame a design



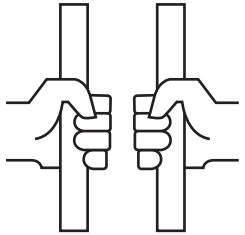
lack of lagislation and policies



improper uses

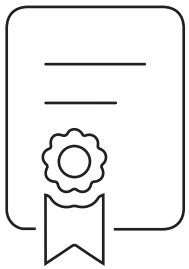


user profiling



affecting user freedom

Frame a design



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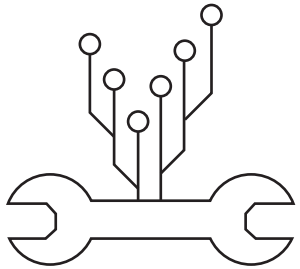

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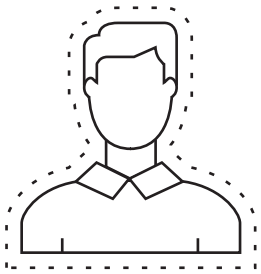

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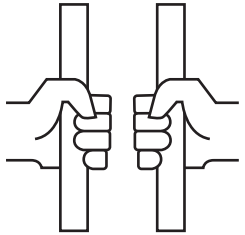

affecting user freedom

these issues should be included in the design process

Designer

- Forecasts future issues
- Involves the user in the design process
- Changes existing situation into preferred one
- Is responsible for the production of material environments

Designer

- The behavior of the agents within the system is generally unpredictable, there may be no single vantage point from which complex systems can be designed and controlled [3]

- Designing in an ethically responsible manner is an evolutionary process

[3] Kroes, P., Light, A., Moore, S. A., and Vermaas, P. E. (2008), Design in engineering and architecture: towards an integrated philosophical understanding

QUESTIONS?

POLITECNICO
DI TORINO

Eleonora Fiore
Politecnico di Torino, Torino, Italy
Department of Architecture and Design
eleonora.fiore@polito.it