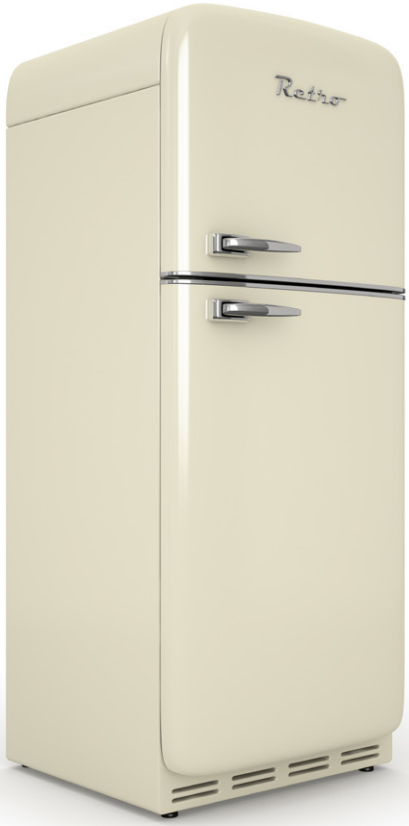
ethix

Innovation Brief #02



Internet of Things

What is it about →

What is the Internet of Things – and what does it have to do with innovation ethics?

Future scenarios & industries →

The Internet of Things in the world of tomorrow.

Ethical risk areas →

Privacy, safety, environment and dependency.

Focus →

Making decisions, taking a stand.

Look ahead →

Chances for the future with the Internet of Things.

ethix resources →

discover opportunities and risks with ethix.

What is it about?

The term “Internet of Things” (IoT) describes an environment in which objects, systems, data and people are interconnected and brought to cooperation via the Internet. It is a potpourri of internet-capable innovations that are usually integrated into existing everyday objects. All these innovations are supposed to contribute to the fact that everyday things such as refrigerators, cars, building services or toilets are permanently connected to the Internet, become partially autonomous and thus can hopefully make our lives more efficient. With the IoT, the boundaries between the real world and the “cyber world” become blurred – especially in private everyday life.

The connected everyday objects can usually be controlled centrally via apps and take on tasks independently. Amazon’s “Alexa” is a prime example of central household control. The device functions as an intelligent loudspeaker that can centrally control other Internet-capable devices – e.g. music systems or washing machines – by voice command and provides information. According to Business Insider forecasts, more than 75 billion objects worldwide will be connected to the IoT by 2020.

Affected industries

Sensors Manufacturers
Robotics Manufacturers
Software developers
MedTech
Care and support
Smarthome and digital power Providers
Household appliances Manufacturers
Real estate sellers and real estate administrators

Future scenarios

Mrs. Hubler is very concerned about her health. That's why she bought some smart household appliances. Her refrigerator measures the fat values of purchases, her toilet constantly monitors her state of health. However, the intelligent household appliances also constantly pass on their data to the insurance company. The insurance company decides that Mrs. Hubler should eat and live more healthily. The insurance company therefore instructs the refrigerator not to reorder fatty sausage products and to remain closed at night from 10 p.m.

How will we weigh the risks of permanent monitoring in everyday life against the resulting security gain in the future?

Will insurance companies one day even be allowed to require us to take security and monitoring measures?

[1] The Atlantic
Internet of Things Ethics

[2] The Guardian
Cloud Pets

[3] CS Online
Mirai Botnet

[4] Medium
Responsible and Trustworthy IoT

Test your risk zones with the ethix survey.

Ethical risk areas

Accountability
Who is accountable in the event of a serious error in an innovation (e.g. a false diagnosis of a smart toilet)? Does the user / manufacturer / supplier have to take care of the security of Internet-enabled devices? [1]

Dependency and isolation
Does innovation aim to make people dependent and socially isolated? Can / should an innovation incorporate measures to prevent isolation or dependency?

Inequality
Is an innovation accessible to broad sections of the population in the medium term?
Can an innovation exacerbate existing social or even intergenerational inequalities or are such problems unaffected?

Privacy & data collection
Who is allowed to resell personal data for advertising or research purposes? How should the provision of data for overriding interests (e.g. basic research) and a right to privacy of data providers be balanced ? [2]

Security & Abuse
How much effort should companies invest in the development of innovations and the use of data in security aspects? How can products be designed so that people perceive them as secure and trustworthy? [3]

Environmental problems
Can an innovation help an everyday activity save more resources? Can IoT equipment be produced and used in a way that saves as much energy and resources as possible, while still making economic sense in the long term?

Removal of the “human” existence
There are concerns that an innovation may alienate humans from “natural”, intrinsically valuable activities. How can an innovator / designer react appropriately to the indisposition of users towards innovations in the IoT? [4]

Decisions

What positions can an organization take with respect to the ethical opportunities and risks of IoT products?

The following four values help evaluate ethical issues related to IoT products:

- autonomy
- accountability
- security
- trust

A detailed evaluation shows which values can be reduced or improved by an innovation.

Focus

Positions that an organization can adopt on the basis of the ethical evaluation of its innovation:

Conservative – distance oneself from the planned innovation

Because, for instance, it would put the safety of future users at too great a risk.

Liberal/Optimistic – Take the chance

Because, for instance, the producers regard future regulations as unlikely for a clearer assumption of responsibility or misuse.

Changing the product

For example, when collecting data from an IoT refrigerator, the users themselves are given the opportunity to adapt the collected data and the resulting functions completely autonomously.

Changing the normative framework

For example, by assuming that greater monitoring of our everyday lives will soon be more widely accepted in favor of a clear gain in safety. In this way, the value of security is given significantly more weight than the value of autonomy.

In many areas, improvements in everyday life are conceivable through the IoT, which are desirable and can simplify people's lives. This offers opportunities for novel and ethically oriented business areas and products.

Look ahead

Autonomy

Even today, intelligent cleaning aids and health monitoring rings make everyday life easier for elderly people. The IoT could further increase this autonomy.

- How does an IoT innovation promote the autonomy of people in everyday life, especially elderly people or people with disabilities?
- How can IoT help defuse emergency situations?

Saving time

The IoT can outsource and automate tedious tasks such as cleaning or shopping. This saves time, which can, among other things, improve the compatibility of work and family life.

- How can an IoT automate and simplify tedious work?
- How can an innovation contribute to saving time and to creating a qualitatively better family and everyday life?

Prevention

Intelligent toilets, blood pressure monitors and health tips could monitor our health parameters carefully thanks to artificial intelligence and detect abnormalities early on. In the case of household accidents, direct help could be requested via the alarm function with digital power.

- How can an innovation improve the prevention of illness of its users in the long term?
- How can an innovation contribute to the general safety of its users?

Using instruments from ethix and other partners, opportunities and risks of autonomous systems can be analyzed and, if necessary, improved during the development phase and the design process.

Resources

ethix Mapping and ethix Canvas

For the first clarification of questions of responsibility and ethical risks of innovations in the area of IoT.

ethix Workshop

For an in-depth discussion of ethical risks and opportunities of an IoT innovation and possible implementation of checklists and other tools in the innovation process.

Internal training

Training and sensitization of employees involved in the innovation process of an IoT object for ethical risks and opportunities.

Labels

E.g. application of an existing label for responsible IoT technology from the Mozilla Foundation. ethix accompanies the implementation of such standards in everyday corporate life.

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