Business Administration / Information Systems Research
Research area: Digitalization (DIG)
Department of Information Systems
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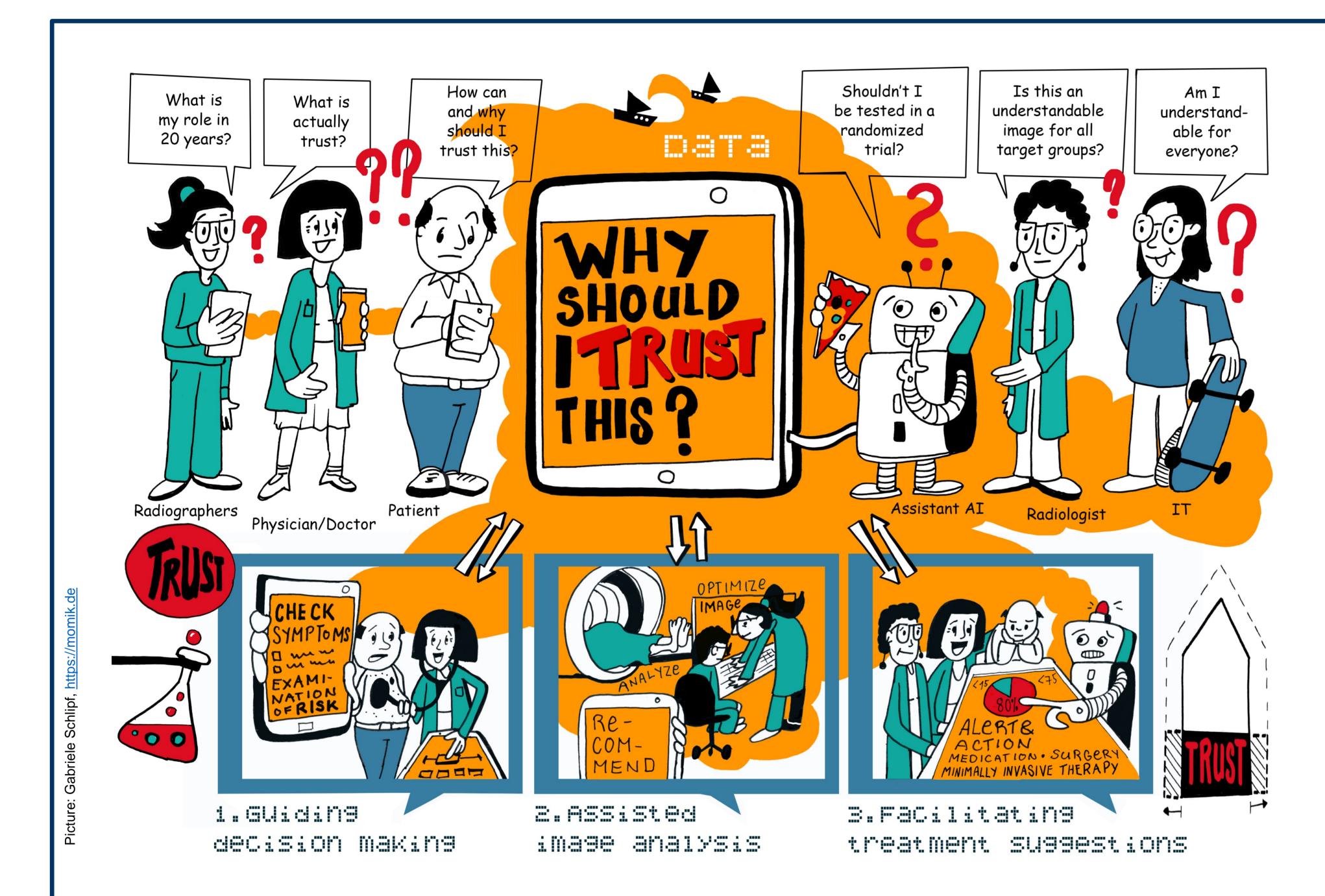Freie Universität Berlin · Humboldt-Universität zu Berlin · Technische Universität Berlin · CHARITÉ

Trust in Artificial Intelligence (AI)

Which factors determine stakeholder trust in AI-assisted medical imaging processes?

Picture: Gabriele Schlipf, https://momik.de

BUA-Excellence Strategy:
Research Forum: New Health
Ethical challenges through digitalization

Initial Point: Delphi-Analysis
„KIRA" (09/2019 – 4/2020)
Künstliche Intelligenz in der Radiologie

Transdisciplinary Design:
Futurium, March 2020
(planned: date and invitation will follow)

Artificial Intelligence (AI)-based imaging tools offer potential benefits for the three-step process of diagnostic decision-making, medical image analysis, and the derivation of treatment suggestions. However, the use of these digital instruments depends not only on their feasibility, but also on the medical staff who use them, as well as on patient perception of the technologies. AI-based instruments are not simply neutral tools that refine or expand human capabilities. Continuously learning algorithms are neither purely biomorphic autonomous and independent of human influence, nor necessarily unbiased in comparison to human choices. AI-assisted imaging tools potentially change patient-doctor-relationships in that they mediate *how* patients, radiologists and referring physicians conceive of themselves *as* patients and medical advisors, in the first place. So how can trust in/with AI-technologies be well founded in everyday medical practice?

The project approaches this topic from the interdisciplinary perspective of the philosophical, social, technical and medical sciences.
The consortium of experts will address several research question via three process steps:

1. **Guided decision-making about medical imaging**:
   AI-assisted decision-making should facilitate performing the most appropriate imaging tests, if any at all, on the appropriate patients at the correct point in time.

2. **Assisted human-image analysis:**
   Human analysis of medical images requires a significant amount of time and specific task-dependent skills that are not available at all centers around the clock. AI-augmented radiologists' image analyses may avoid misperception and interpretation errors when reviewing patients' medical images.

3. **Facilitating treatment suggestions:**
   Several AI tools are available to structure medical-imaging findings and to facilitate treatment suggestions, e.g. by calculating individuals' probabilities of disease after a positive or negative imaging test.

Research Questions (extractions Service Engineering):

- Which support needs do stakeholders have in treatment processes and decision-making situations with predominantly trust characteristics?
- Which factors determine stakeholder trust in AI-assisted medical decision-making support (as a socio-technical system)?
- Which design parameters of the socio-technical system influence the perceived trust of stakeholders in AI-assisted medical decision support?

Research Partners

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