FZI Research Center for
Information Technology

Distinguishing Between Truth and Fake – Using Explainable AI to Understand and Combat Online Disinformation

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About the Presenter

- **Name**: Isabel Bezzaoui
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- **Research Interests**:
  - Disinformation detection
  - Critical media literacy
  - Trust in artificial intelligence

Agenda

- Introduction
- Combating Disinformation Using Machine Learning-Based Systems
- Combating Disinformation – Critical Media Literacy
- Fostering Trust in Artificial Intelligence
- Method and First Activities in Design Science Research
- Conclusion and Future Work

Introduction

- Disinformation is defined as false information spread with the intention to deceive

- **DeFaktS** intends to empower actual users **across various platforms** to critically question news and social media posts

- The project team will develop an **(X)AI** for a participation platform that aims to **combat online disinformation campaigns** and **foster critical media literacy** among users by **informing** them about the occurence of fake news in a **transparent** and **trustworthy** way

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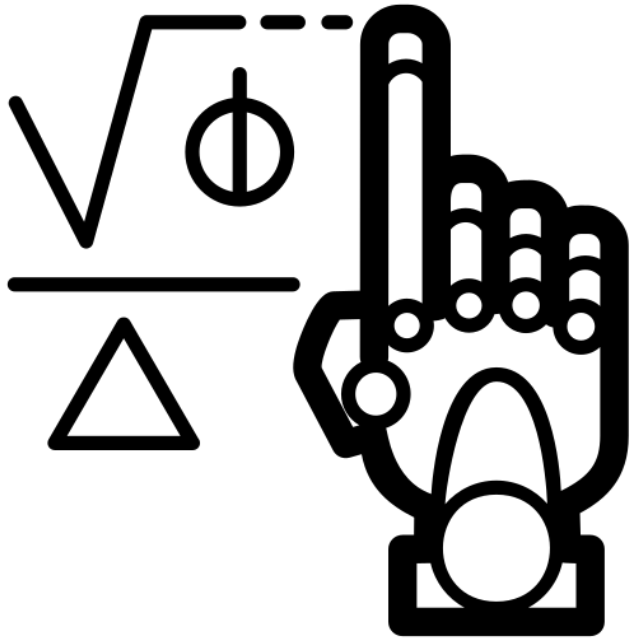
Combating Disinformation Using Machine Learning-Based Systems

- MLS fake news detection is a rapidly expanding field of research

  → Focus is mostly on extracting multiple features, putting them into classification models and selecting the best classifier

- Research gap: empirical evaluations of when classifiers are put into practice with **real users** and of what **benefits and impact** the developed tools may have

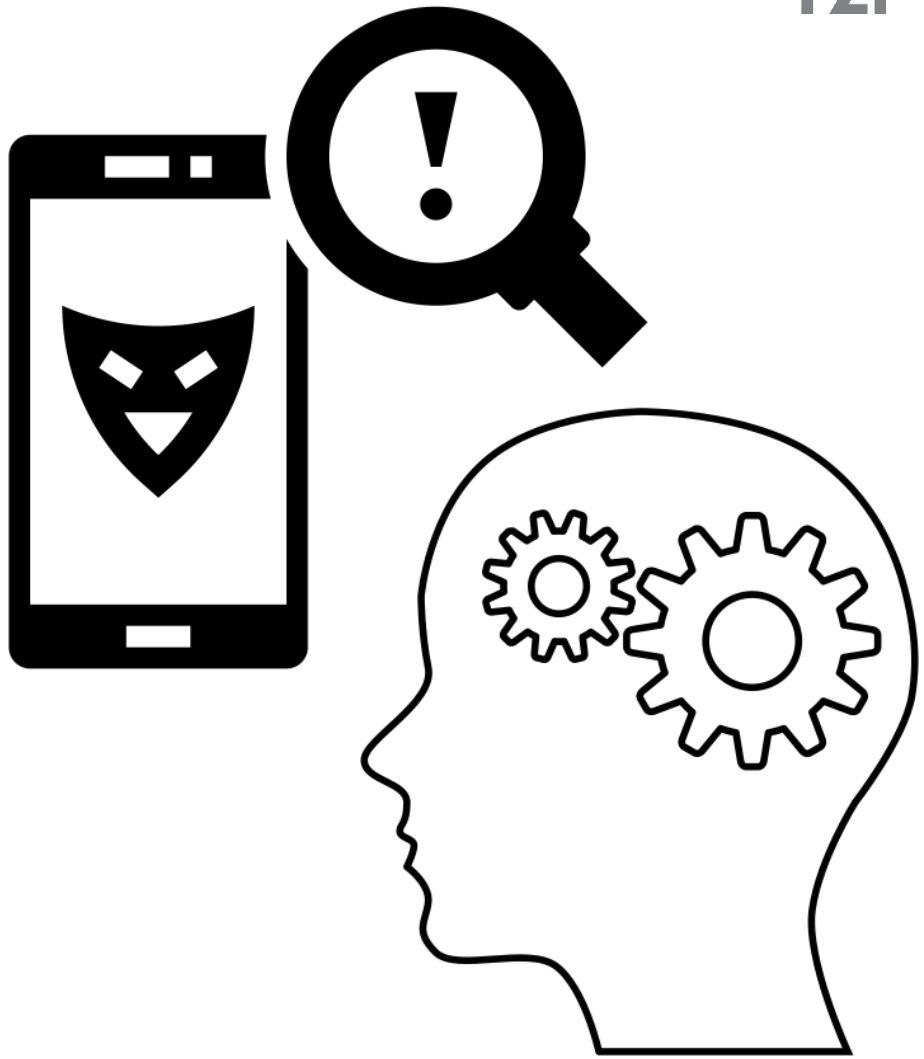


RQ: How to design an artifact for the detection of online disinformation that helps to foster an informed and critically thinking citizenry?

Combating Disinformation – Critical Media Literacy

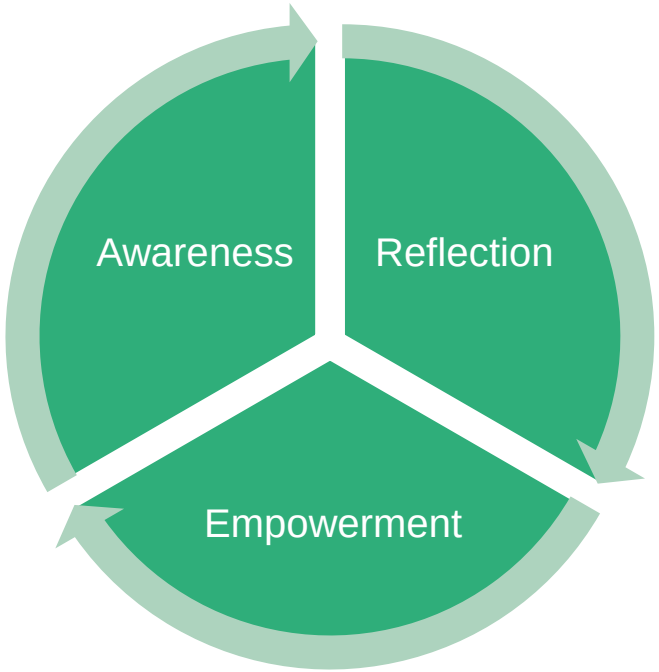
- Promoting critical media literacy (CML) can help people **judge the accuracy** of online content more accurately
- **Susceptibility** to fake news is driven mostly by poor critical thinking
- CML **assists individuals** to use media responsibly, to discern and assess media content, to critically examine media forms, to explore media effects, and to deconstruct alternative media

→ It seems crucial to investigate the **potential of MLS detection tools** for promoting CML among social media users



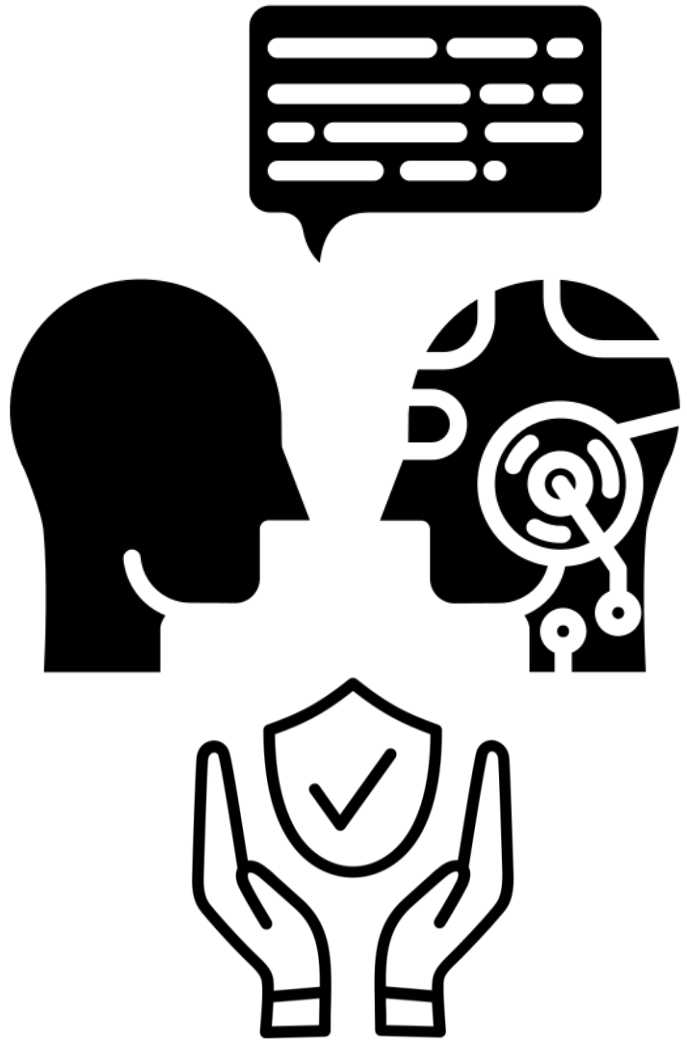
Combating Disinformation – Critical Media Literacy

RQ1.1: (How) Does the tool promote critical media literacy by helping users identify disinformation more accurately?



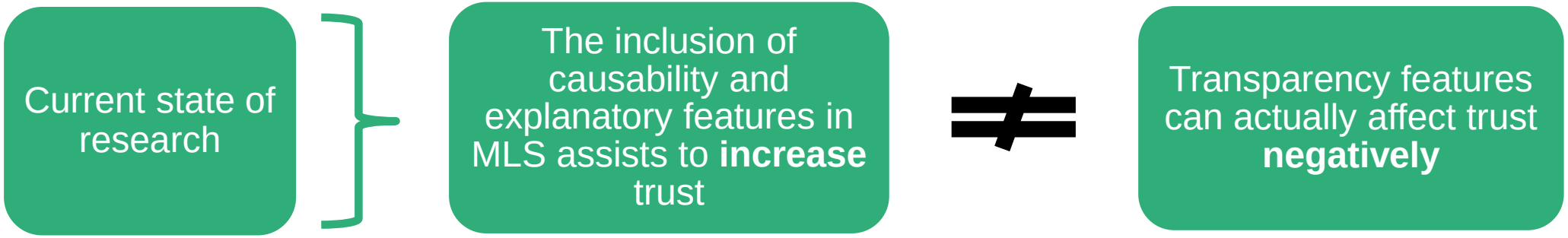
Fostering Trust in Artificial Intelligence

- Previous research has demonstrated the importance of **trust** for the **acceptance** and **perceived usefulness** of ICT tools, and MLS in particular
  - → **Transparency** is an important aspect when it comes to dealing with disinformation
- The implementation of an **XAI-approach** into the development process seeks to make
  - the system‘s internal dynamics more **transparent**
  - the analysis‘ conclusions more **understandable** and hence **trustworthy** to the user
- Need to examine the **effect of XAI elements** on user trust and thus acceptance and perceived usefulness of the final tool



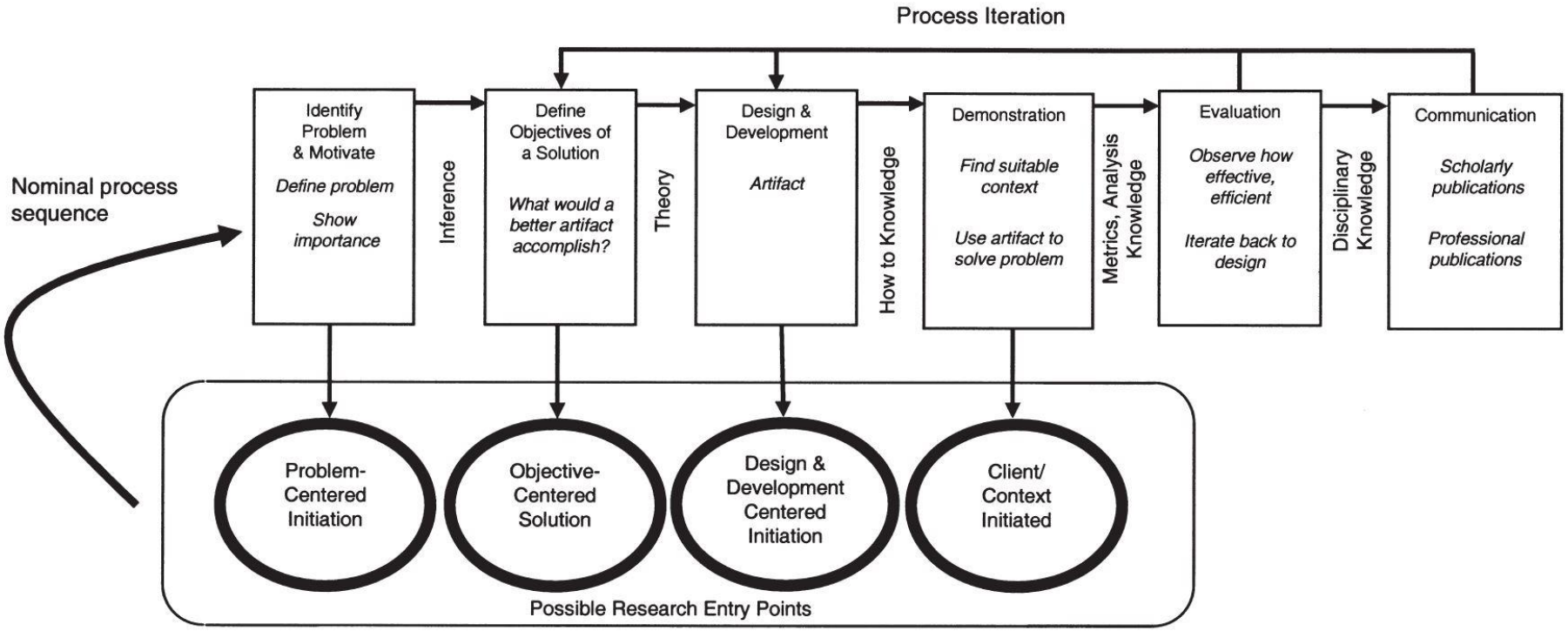
Fostering Trust in Artificial Intelligence

RQ 1.2: (How) Does the tool‘s XAI-component help users trust the algorithm‘s assessment?



- In the DeFaktS project, this controversy will be addressed through the evaluation of **whether, and if so which,** XAI elements increase user trust in the application

Method and First Activities in Design Science Research



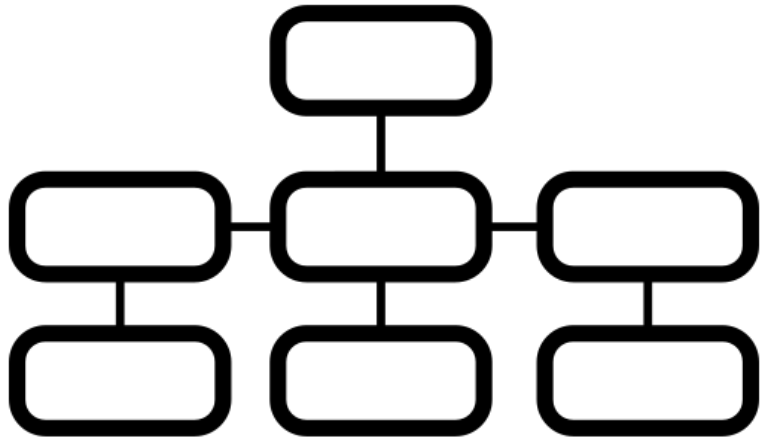
Method and First Activities in Design Science Research

Development of a ‚Fake News Taxonomy‘

- that entails linguistic features and dimensions of disinformation
- to facilitate and ensure the quality of the data labeling process

Goal: **Create a taxonomy of fake news that**

- encompasses broad and event-independent dimensions and characteristics of disinformation
- is still specific enough to precisely identify and label deceiving content



Conclusion and Future Work

- In this research-in-progress, we contribute to the knowledge base of fake news detection using MLS by **developing an XAI-artifact and evaluating its performance** in the context of fostering critical media literacy and trust among social media users

- **Innovative aspects**:
  - Non-expert users shall be enabled to **understand, trust, and utilize** the tool‘s interpretation and explanation of detection results
  - The DeFaktS-tool shall increase **overall critical thinking and awareness** of online disinformation, cultivating an informed citizenry and fostering political participation

- **Aim of the paper**: show initial approaches to researching and combating online disinformation using MLS

Thank you for your attention!

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