

## ICT23-051 - Decentralized Trust in Digital Societies

### Abstract

The ubiquity of computing devices has transformed modern society's communication and interactions, raising concerns about trust in digital media. Issues such as AI-generated content challenge the authenticity of contributions, while the proliferation of online aliases complicates attribution. Proposed solutions often advocate for digital identities grounded in strong cryptography, exemplified by the European Digital Identity Wallet (EUDIW). However, trust remains a multifaceted concept, variably understood in social and technical contexts, hindering a unified discourse.

This research explores trust in digital identity systems. Thereby, we investigate trust establishment and revocation, and the social implications of different technological design decisions, including best- and worst case scenarios. We also examine decentralized trust patterns, enabled by distributed IT architectures, and contrast them to classic centralized approaches analyzing the potential to surpass limitations while enhancing disintermediation.

Our interdisciplinary study investigates the mapping between requirements and social-technological implementation approaches. It assesses the impact of decentralized identity systems on power dynamics, social relationships, inclusion, equity, and social justice. The research aims to foster a trustworthy digital society and informs future digital identity system designs, including the EUDIW, for societal benefit and resilience against potential dystopian scenarios.

Scientific disciplines:

Distributed systems (60%) | Philosophy of technology (40%)

Keywords:

Distributed systems; Decentralized Identity; Self-sovereign identity; Digital trust; Information systems security; Decentralized trust; Social trust; Trust dynamics; Information system privacy

---

Principal Investigator: Walid Fdhila  
Institution: University of Vienna  
Co-Principal Investigator(s): Eugenia Stamboliev (University of Vienna)



---

Status: Ongoing (01.10.2024 - 31.03.2027)

GrantID: 10.47379/ICT23051

---

Further links to the persons involved and to the project can be found under  
<https://www.wwf.at/funding/programmes/ict/ICT23-051/>