



Bachelorarbeit / Masterarbeit

An Evaluation Framework for Portable Identity Management Solutions

Portable or Self-Sovereign Identity (SSI) management solutions promise to allow a convenient user experience for authentication in the digital world, while still giving the user full control over their data. They are, therefore, a promising alternative to today's password-based, inefficient and insecure identity management or to the aggregation of private data and, consequently, political and market power of federated identity providers such as Facebook or Google. The recent Twitter Hack (Bitcoin scamming) and scandals such as Equifax and Cambridge Analytica in the past demonstrate that another way of identity management is desperately needed. Currently, a lot of engagement in the public and private sector regarding portable/self-sovereign identity management are very promising that this might work this time.

While a lot of implementation and prototyping work is ongoing, it has been realized that this new paradigm needs strong governance since - as opposed to the conventional system with identity providers - there is not a small number of distinguished profiteers from the new system: In SSI, user data is supposed to be located in the user's electronic wallet, e.g., on their smartphones and/or laptops, and business models based on SSI hence cannot benefit from data silos and lock-in effects as before. Consequently, the whole SSI ecosystem needs guidance from foundations and public institutions in how to succeed. One of these foundations is the Trust over IP (ToIP) foundation, which mainly originated from prior work of Evernym and the Sovrin foundation. It comprises some of the major drivers behind the first viable implementations of SSI that is currently tested by various enterprises and public institutions. ToIP aims to give guidance on how to establish a worldwide SSI solution, and therefore needs to be technology-agnostic since innovation should not be impeded by rigid and premature standardization. Although currently there is likely only one major technical framework for SSI, ToIP aims to create a framework by which future implementations of SSI can be evaluated regarding their relationship to the core principles of SSI.

In a previous Bachelors's thesis (which was among the winners of the Fujitsu NEXT award in 2020), a Bachelor's student from the University of Bayreuth already conducted research on what the core principles of SSI and ecosystems that aim to deliver SSI to everyone should look like, and these principles have been presented in a Sovrin working group and are currently being integrated into the standard that is developed by ToIP. While this research has mostly focused on the core design principles of SSI, a scientifically justified evaluation framework that allows us to check whether an implementation of digital identity management complies with these core values is still missing so far. The goal of the thesis is, hence, to create such a framework through extending the literature review that has been conducted for the collection of design principles, and interviews with researchers and practitioners on the field of SSI, not only, but potentially also within the Sovrin and ToIP community.

Empfohlene Einstiegsliteratur: Nach Rücksprache mit dem Betreuer

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