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Federated Identity management systems have been researched for over a decade but are still not ubiquitously used. Consequently users continue to be burdened with remembering usernames and passwords for the numerous service providers they access. Part of the reason for the failure of federated identity management systems is that the communications and trust models are fundamentally wrong, in that they place the identity provider at the center of the communications eco-system, rather than the user. Consequently users of today's electronic communications have no way of obtaining certified credentials about themselves, which they can keep under their control and release to service providers when they want to gain access.

This is not the case in the physical world, where we have plastic cards, passports, driving licenses, and so on that we carry around in our wallets and show to whomever we want, whenever we want. Recent advances in block chain technology, smart phones, and attribute based credentials bring the vision of verifiable credentials (VCs), the electronic equivalent of today's physical credentials, closer to realization.

However there are many challenges facing the ubiquitous adoption of VCs. Providing privacy protection when VCs need to be linked and shared remains an unsolved problem. Blockchain is proposed as a mechanism to provide users with identifiers under their control but with more than a hundred alternate blockchains in use today it has many unanswered questions. Many previous security solutions, though technically feasible, have failed due to their inherent lack of usability, so this is obviously a critical factor in the wide spread adoption of VCs. Finally, the business models that will make VCs beneficial for both issuers and service providers still need to be discovered.

The aim of this special issue is to present the latest research in verifiable credentials and self-sovereign identity and to present case studies of initial VC uses.

Potential topics include but are not limited to the following:

- ▶ Privacy issues in VCs and federated identity
- ▶ Advances in blockchain technology for VCs
- ▶ Data minimization and selective attribute disclosure
- ▶ VC use cases and pilot studies
- ▶ Usability of VCs and identity management systems in general
- ▶ Business models for federated identity and VCs
- ▶ Ethical, legal, and societal aspects of VCs

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