UNIVERSITÀ DI CAMERINO

ChorSSI: A Model-Driven Framework for Self-Sovereign Identity on Blockchain

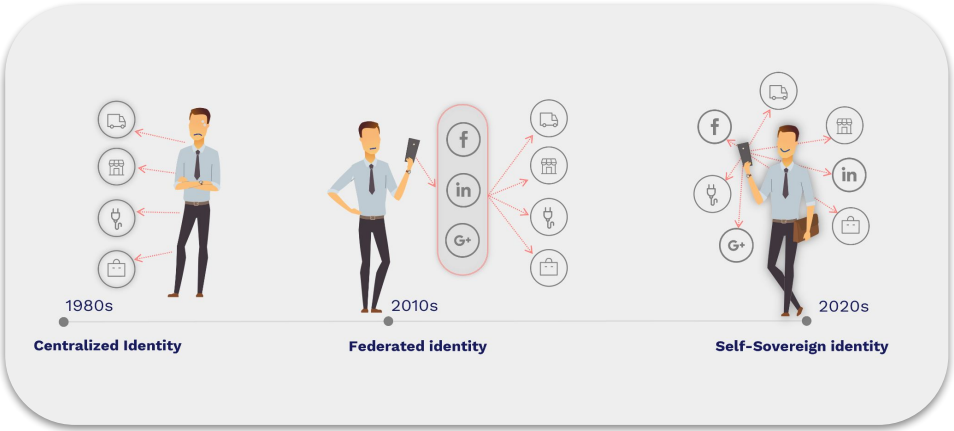
Tommaso Cippitelli, Alessandro Marcelletti, Andrea Morichetta
University of Camerino

5th Distributed Ledger Technology Workshop (DLT 2023)

Motivation

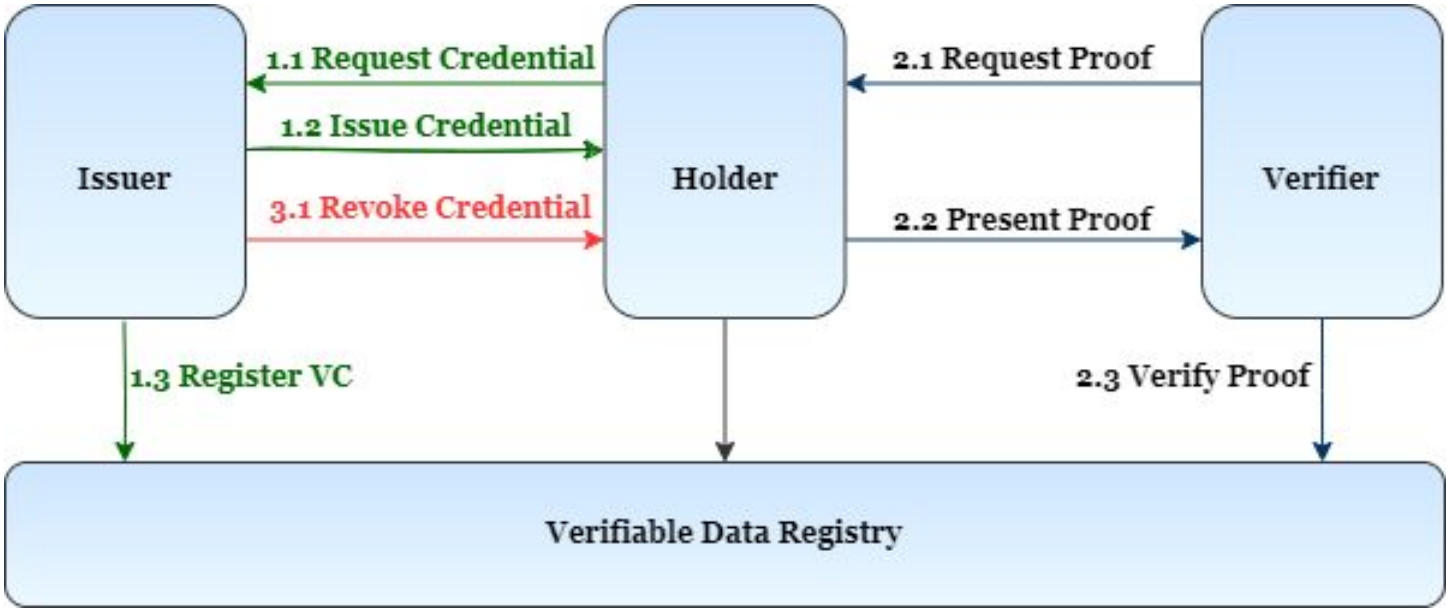
Identity management systems manage digital identities and their interconnection, permitting to identity people in digital activities. However:

- Centralized systems -> security **vulnerabilities**
- Need to rely on a **trusted third party**
- Lack of adequate **data ownership** and **control**



Self Sovereign Identity is a decentralised identity model that provides **individuals control over their personal data** and allows them to share this data securely without having to rely on a single central authority

SSI Concepts



Main Objective

PROBLEM

Complexity in the development of self-sovereign identity system represents a barrier to its adoption[1]

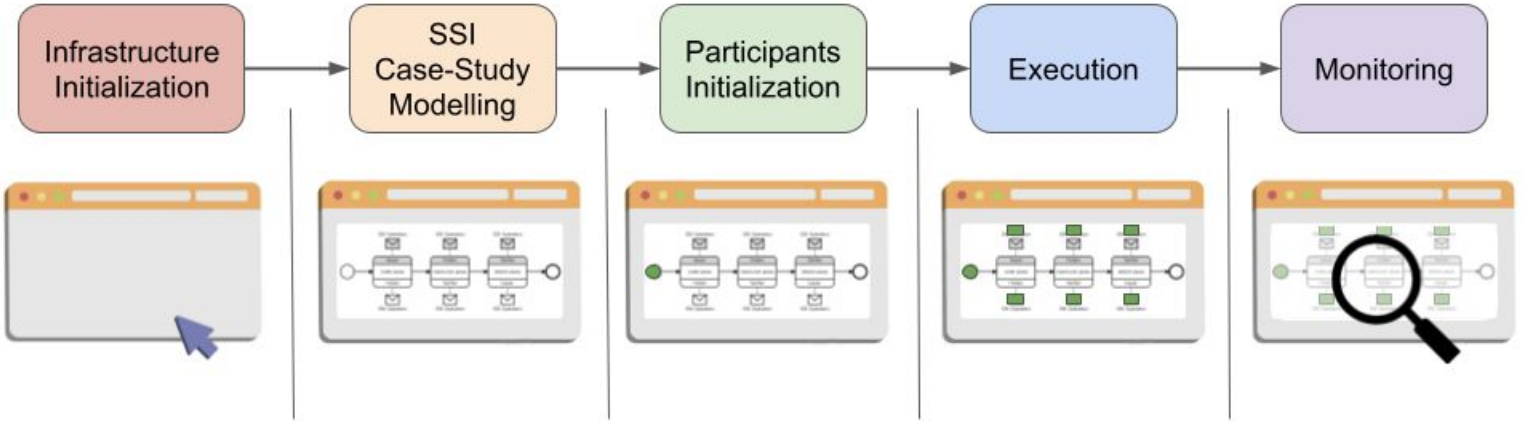
PROPOSED SOLUTION

Create **support** for technological development

Model-driven approach for automatic software development

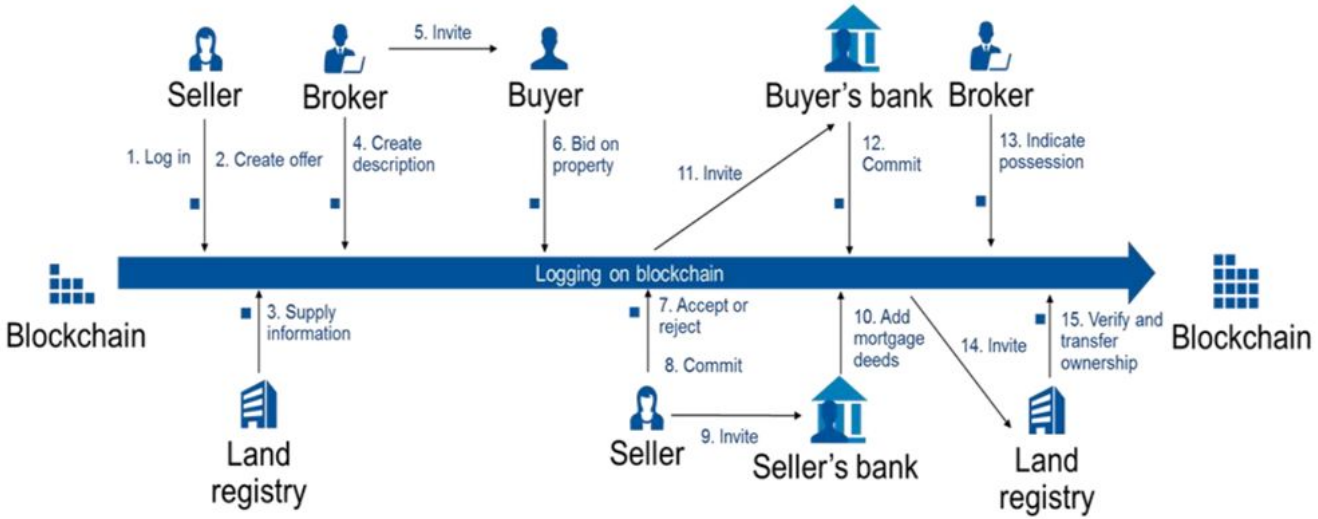
1. *Sarah Manski. "Distributed ledger technologies, value accounting, and the self sovereign identity", 2020.*

ChorSSI Methodology

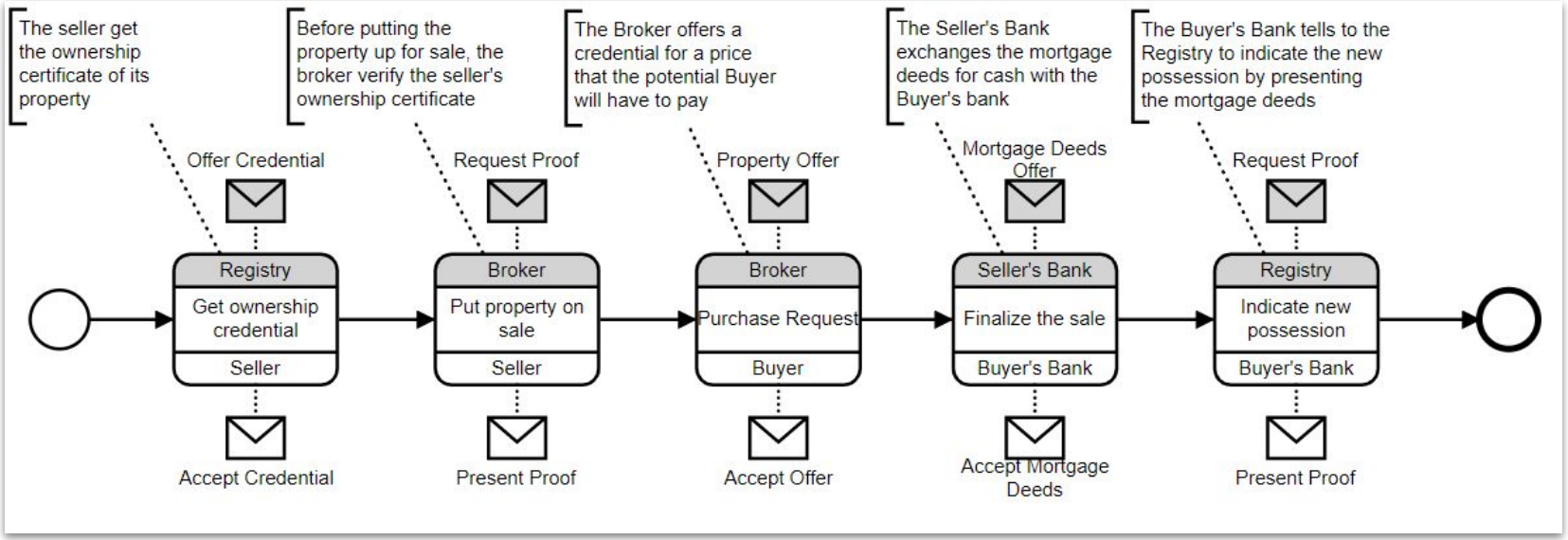


Use Case

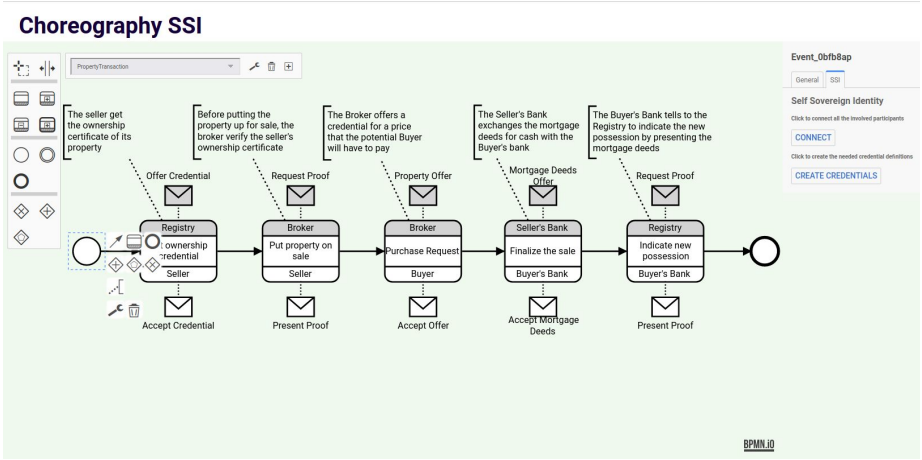
Chromaway property transactions – Sweden

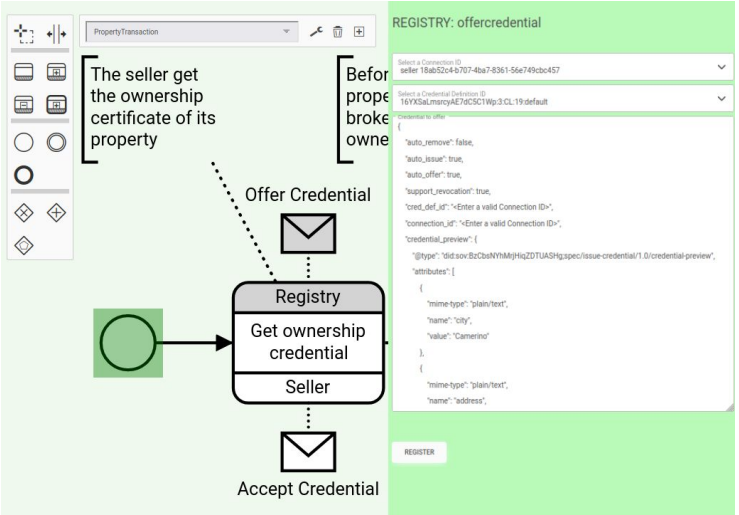


Chromaway BPMN model



ChorSSI implementation





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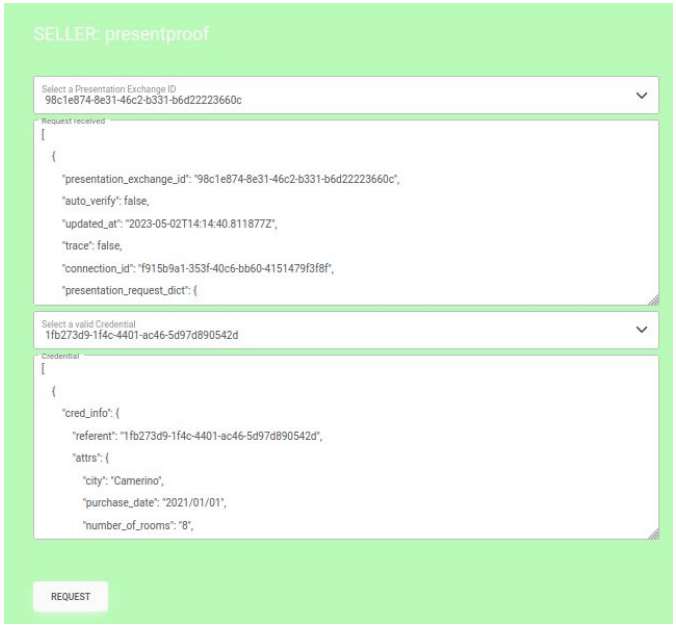

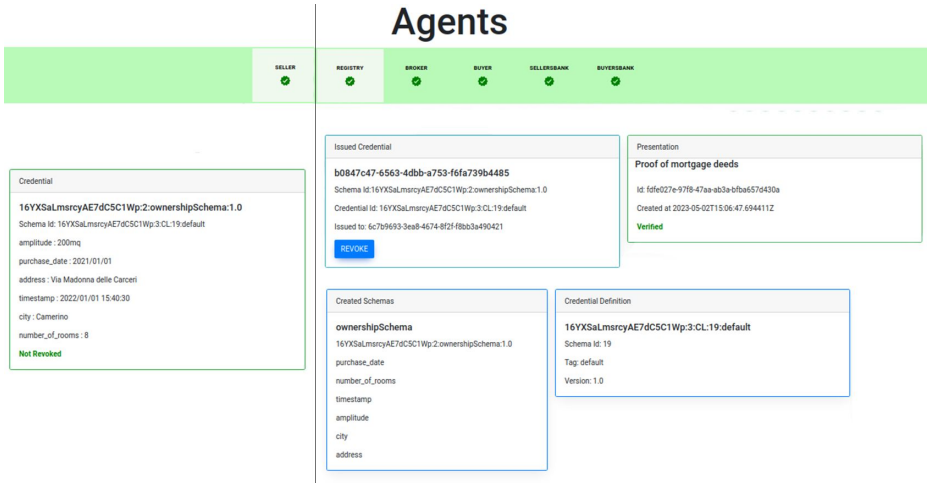

To resume

Conclusion

- We presented a model-driven **methodology** allowing to overcome the SSI complexity problem, making SSI accessible to a wider audience
- We proposed a model-driven **framework** that automatically perform SSI operations from models
- We developed a specific **use case** that demonstrates the functionality and usability of the framework

Future Works

- **ChorSSI access management**
- Introduce **multi-tenancy**
- **Enrich** expressiveness of the model

Thanks for the attention!

andrea.morichetta@unicam.it