Motivation

- Distributed Ledger Technology (DLT) designs have trade-offs between different DLT characteristics which inhibit a "one-size-fits-all" DLT design
- The replacement of an unsuitable distributed ledger is hardly possible after the application was put in operation
- The choice of an appropriately configured DLT design is crucial for viable applications on distributed ledgers

Research Questions

- Which trade-offs between DLT characteristics cause constraints for applications on DLT?
- Which DLT characteristics are important to configure a DLT design for viable applications?
- How should a DLT configuration tool be designed to allow users to identify an appropriate configuration of a DLT design for viable applications?

Selection of a DLT archetype
- Performance
- Security
- ...

Selection of a DLT concept
- Blockchain
- BlockDAG
- TDAG
- ...

Selection of a DLT design
- Ethereum
- HyperLedger Fabric
- ...

Preconfiguration of DLT characteristics according to the chosen DLT archetype which are determined by the chosen DLT concept and DLT design

Identification of potential constraints for the user's application with respect to the configuration of DLT characteristics

Final DLT design configuration

Research Approach Part 1

1. Analysis of trade-offs between DLT characteristics and identification of resulting, potential constraints for applications

2. Identification of DLT characteristics which are important for practitioners to configure a DLT design for viable applications

Research Approach Part 2

3. Design, prototypical realization and evaluation of a prototypical tool for the configuration of DLT designs that communicates potential constraints for applications

4. Derivation of design principles for the configuration of DLT designs and the communication of resulting, potential constraints for applications

Contributions to Practice

- Support for the configuration of DLT characteristics to meet use case requirements while trading-off potential constraints for the application
- Improvement of DLT design configurations to achieve viable applications on DLT

Contributions to Research

- Design patterns for the development of DLT configuration tools that communicate potential constraints for applications due to chosen DLT design configurations
- Identification of core issues in the context of DLT