

# Abstract

Blockchain has already promoted itself to solving business issues within every major domain, from supply chain to financial institutions to the healthcare industry. This is marked as the transition to Blockchain 2.0. However, this mass migration of industries can not yet be a reality due to the limitations in standards and expertise of smart contracts within the various domains and the concern of the legal validity of smart contracts.

Therefore, it is necessary to standardize concepts of smart contracts within blockchain frameworks in relation to legal agreements and to provide a direct mapping of agreements to code. This would allow for standardisation and re-use of smart contracts across domains and make them legally-enforceable.

We target the R3 Corda blockchain framework and propose a novel Ontology, CordaO, that can be used to model Corda Smart Contracts (CorDapps). We also develop a tool, CordaOntoG, that auto-generates the relevant state, contract and flow code in Java that can be deployed and run on a Corda network. The ontology and code generator is then evaluated with elementary domain-specific agreements like clinical trial patient registration, car rental and invoices.