RFID technology enables traceability systems that capture detailed data about goods as they move in the supply chain. Securing this data requires evaluating dynamic conditions to authorize business partners that are not known in advance. Furthermore, the system must promote trust and give incentives so that each partner shares its own data.

TrakChain implemented data visibility restriction policies using RDF and SPARQL. These policies can be converted to a standard format, XACML, to reuse existing enforcement infrastructures and tools. The expressiveness of the policies was evaluated against a set of requirements for a pharmaceutical traceability system.

XACML overhead is significant but acceptable.

Chain-of-Trust Assertions (CTA) performance is similar to other approaches – ACLs and Tokens – but it is extensible.

Contributions
- Data sharing policies:
  - Protect privately relevant information
  - But still give access to non-predefined participants

SCAz – Supply Chain Authorization Language

Chain of Trust Assertions

RDF graph for visibility policy
cta:grantsRead predicate

Case study assessment results

Network Pedigree (NeP)
Document Pedigree (DeP)
Point-of-Dispensing (PoD)

Future work
- Connect authorization with business systems
- Integrate with ERP and SCM to derive data sharing assertions
- Reduce administrative burden
- Improve performance XACML
- Find best formulations for the proposed assertion extensions