Smart properties
Vehicle ownership & transfer

Hello!

We are group of interdisciplinary Ph.d and Master's students revolutionizing car registration and ownership transfer.
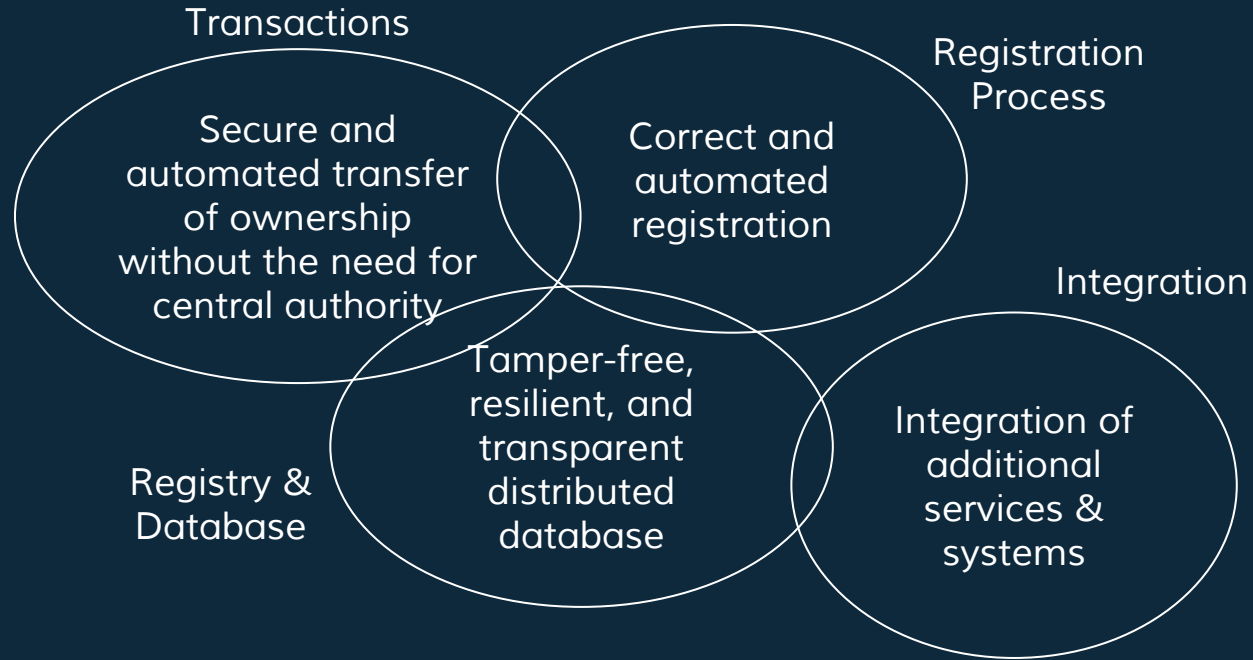
Challenges for SKAT

- Imbalance of trust between buyer and seller

  E.g. Seller must trust that buyer will re-register the vehicle

- Authenticity of Registration Certificate
- Excessively rebuilt or stolen vehicle being sold
- History of the vehicle

Requirements Analysis

Transactions

Registration Process

Integration

Registry & Database

Secure and automated transfer of ownership without the need for central authority

Correct and automated registration

Tamper-free, resilient, and transparent distributed database

Integration of additional services & systems

Blockchain enables the autonomous transaction of cars and provides a valid and resilient database.

General Assumptions

- The car is imported and all duties, levies, taxes, etc. are paid and in good current standing
- Accurate representation of the vehicle at the time of initial registration
- All data is stored on the blockchain
- All vehicle-owners have a wallet

Meeting the challenges

Registration

Ownership History

Automated re-registration

Automated and secure transaction processing using blockchain technology

Transaction Process

Public key

	Seller		Buyer		
Real world	Seller	→ ←	Buyer		

NemID   CorporateID

Blockchain	Initiate offer	→	Acceptance

	Seller		Buyer	Possibility to attach the car key to the blockchain
Real world	Seller	🚗 →	Buyer	

	Seller		Buyer	Payment in Danish Kroner Token Automatic re-registration of the new owner
Blockchain	Seller	→ ←	Buyer	

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System Structure

SC: Tradeable

transfer()
sell()
cancel()

SC: Market

makeOffer()
revokeOffer()
acceptOffer()
completeTx()
abortTx()

SC: Car

transfer()

VIN vehicle ID
Owner currentOwner

SC: DMR

issueNewCar()
changeOfOwners
hip()
deRegistration()
MudTest()

Mapping
vehicle-->Person

SC: Other

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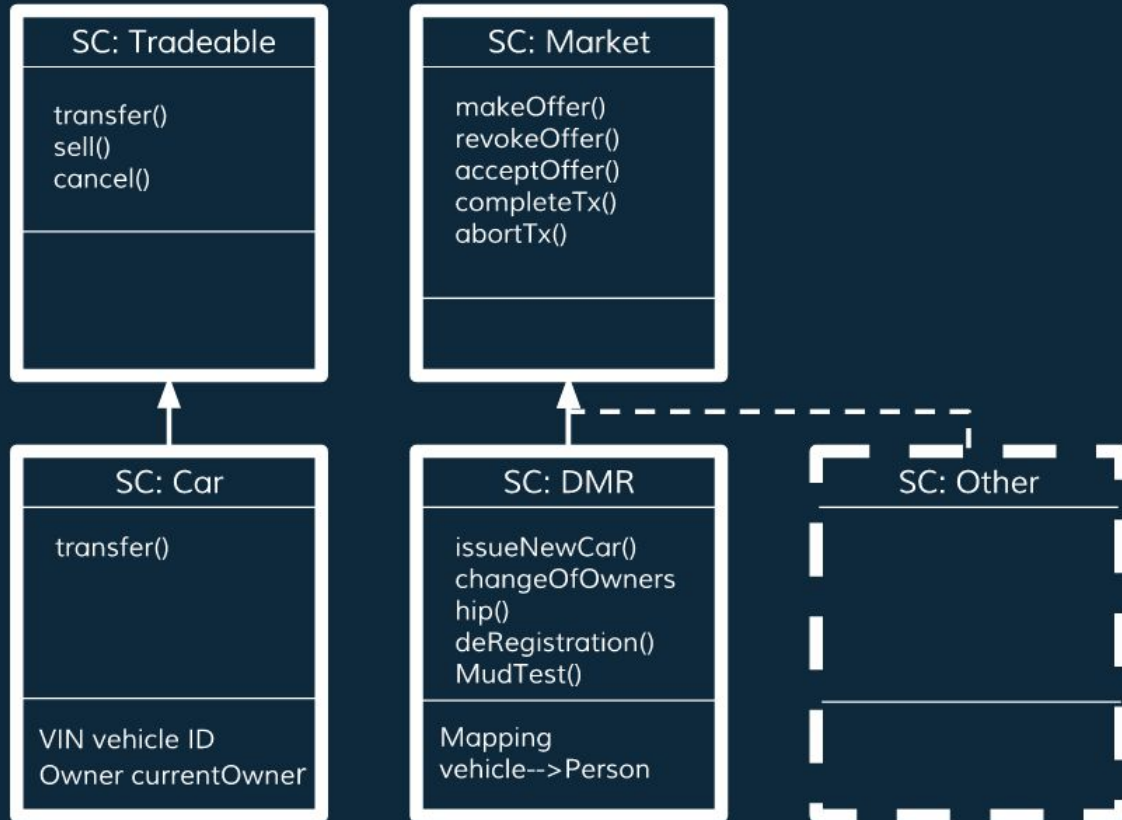
Embedding in the Blockchain

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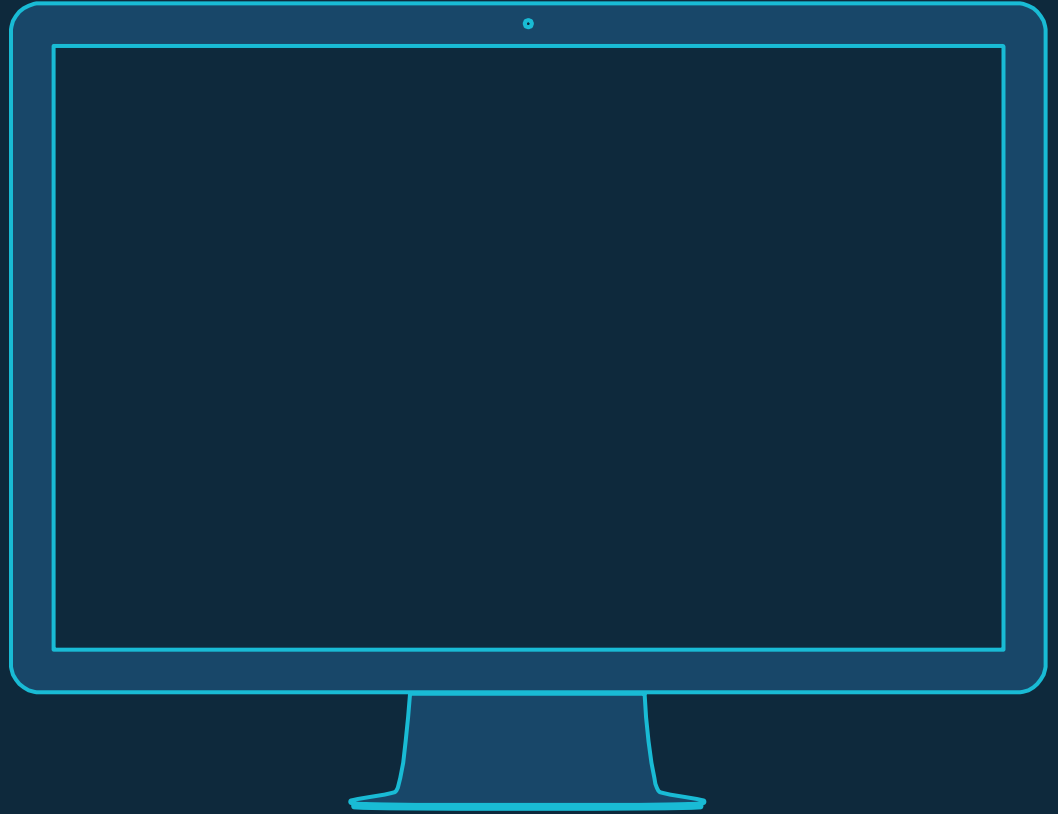acceptOffer()

IoT

Token

KR
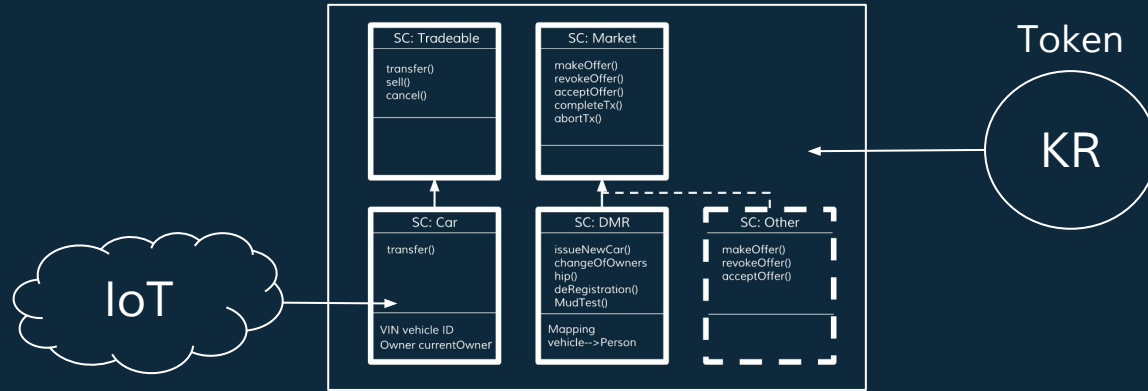
Record of ownership is inherently provided
by the Blockchain.

Demo

The decentralized
transfer-of-ownership
process

Outlook

- Marketplace can be used for other property rights like houses, etc.
- IOT integration possibilities
- Additional cases like leasing
- Smart Keys
- One Wallet
- Tax Support

Thanks!

Thanks to the ITU Blockchain Summer School and SKAT.

Team

Arun Shanmugam
Benedikt Notheisen
Felix Albert
Jacob Cholewa
Martin Dybdal

Questions?