

BLOCKCHAIN & LAW

THE BRIEF OVERVIEWS

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- Development Team Lead - Digix
 - Design and implement decentralised applications
 - DGX - the blockchain Gold Token
 - DigixDAO - a Decentralised Autonomous Organisation

BLOCKCHAIN & LAW

THE BRIEF OVERVIEWS

ROADMAP

- A brief overview of **Blockchain technology**
- A brief overview of **Decentralised applications**
- A brief overview of **Blockchain applications for the legal industry**
- A brief workshop on **Developing smart contracts for legal use cases**

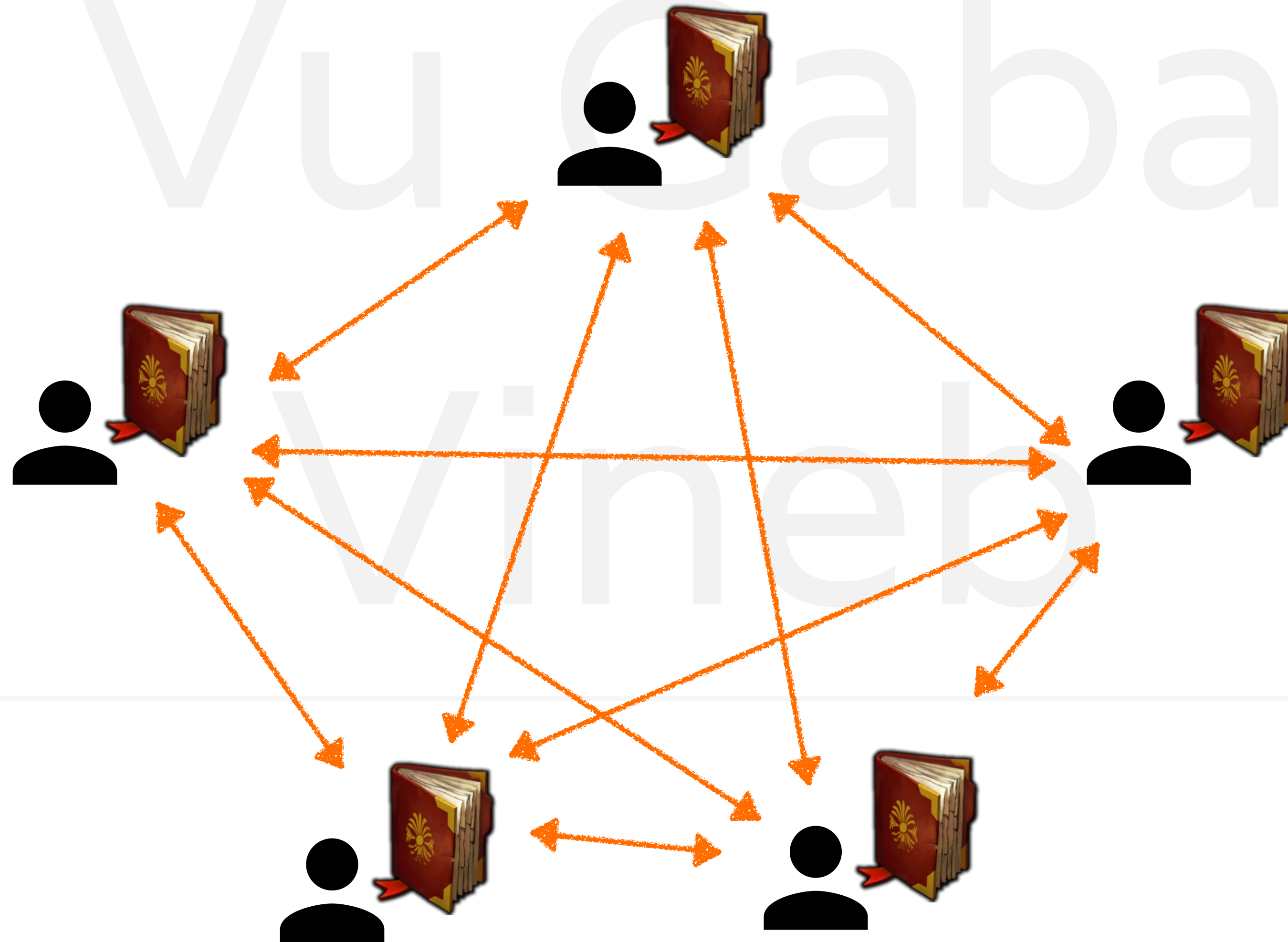
ROADMAP

- A brief overview of Blockchain technology
- A brief overview of Decentralised applications
- A brief overview of Blockchain applications for the legal industry
- A brief workshop on Developing smart contracts for legal use cases

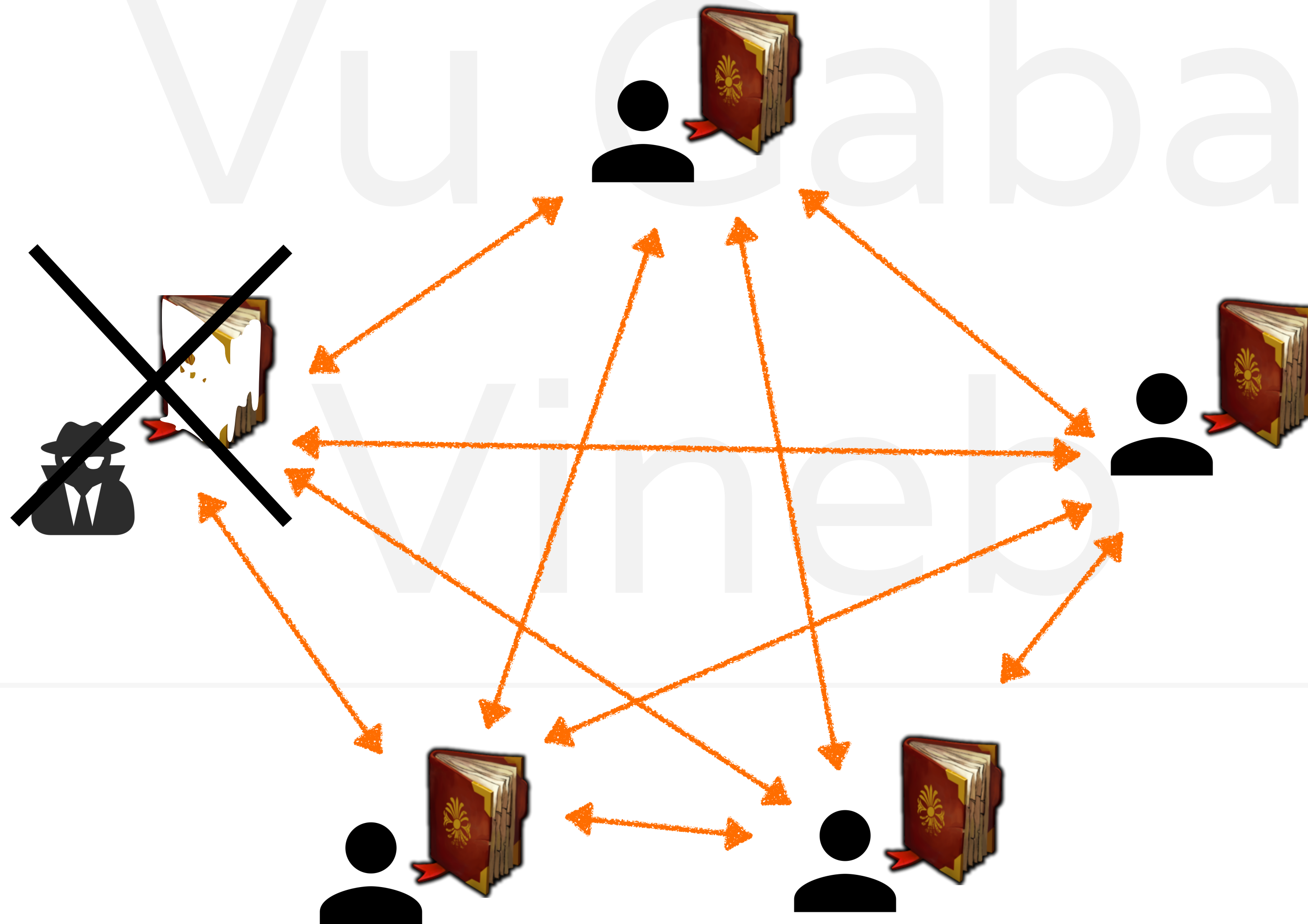
What is a **blockchain**?



What is a **blockchain**?



What is a **blockchain**?



What is a **blockchain**?

- A magic book of immutable records, collectively stored by many people

Math magic

- What's in the book?

Bitcoin's magic book

Start: Alice has 1000 coins

1. Alice sends Bob 2 coins
2. Bob sends Carol 1 coin
3. ...

What is a **blockchain**?

- What if we can put more stuff on the magic book, like... a vending machine?



Ethereum's magic book



1. Bob creates a vending machine
2. Alice puts in 2 coins and gets 2 random numbers
3.

What are these ~~vending machines~~?

Smart contracts

- Something you can interact with in a well-defined way
 - You put in some inputs
 - -> It will do some actions (that was pre-programmed)
 - -> You might get something out

What are these ~~vending machines~~?

Smart contracts

Immutable pieces of logic on the blockchain
that are always there,
and you can interact with it in exactly the same way that it was defined.

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What are Decentralised applications (Dapps) ?

- Applications that do not depend on any single point of failure
- Are enabled by blockchain and smart contracts
- Allows for trustless interaction with other people

!

You don't have to trust anyone to be able to use it

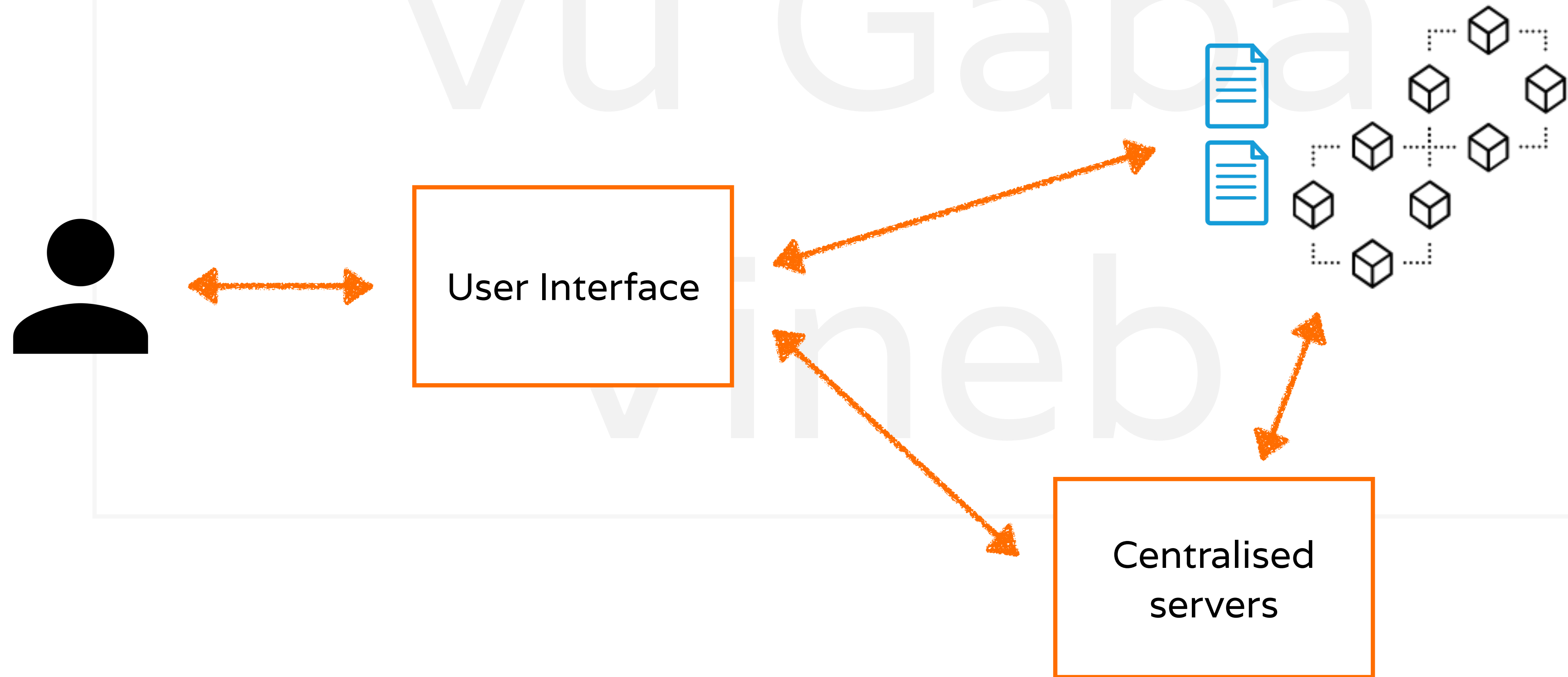
What are Decentralised applications (Dapps) ?

Smart contracts

+

a User Interface to interact with the smart contracts

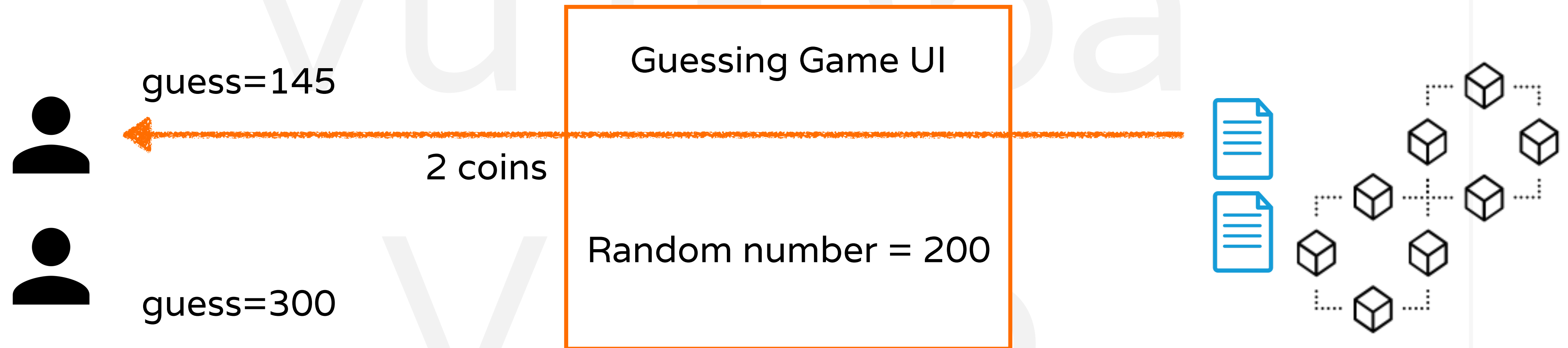
Components of a Decentralised applications (Dapps)



The Guessing Game



The Guessing Game



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A brief overview of Blockchain applications for the legal industry

- Ensure availability and immutability of records
- Automate (simple) parts of legal agreements
- Automate (simple) parts of a country's legal system
- Incorporation of companies

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Ensure availability and immutability of records

- Notary public

- Easily verifiable
- Preserving privacy



Hash - A gibberish string

- Academic certificates

- 18 educational institutions in Singapore
- No more fake certs
- Efficiency, security and economy



Ensure availability and immutability of records

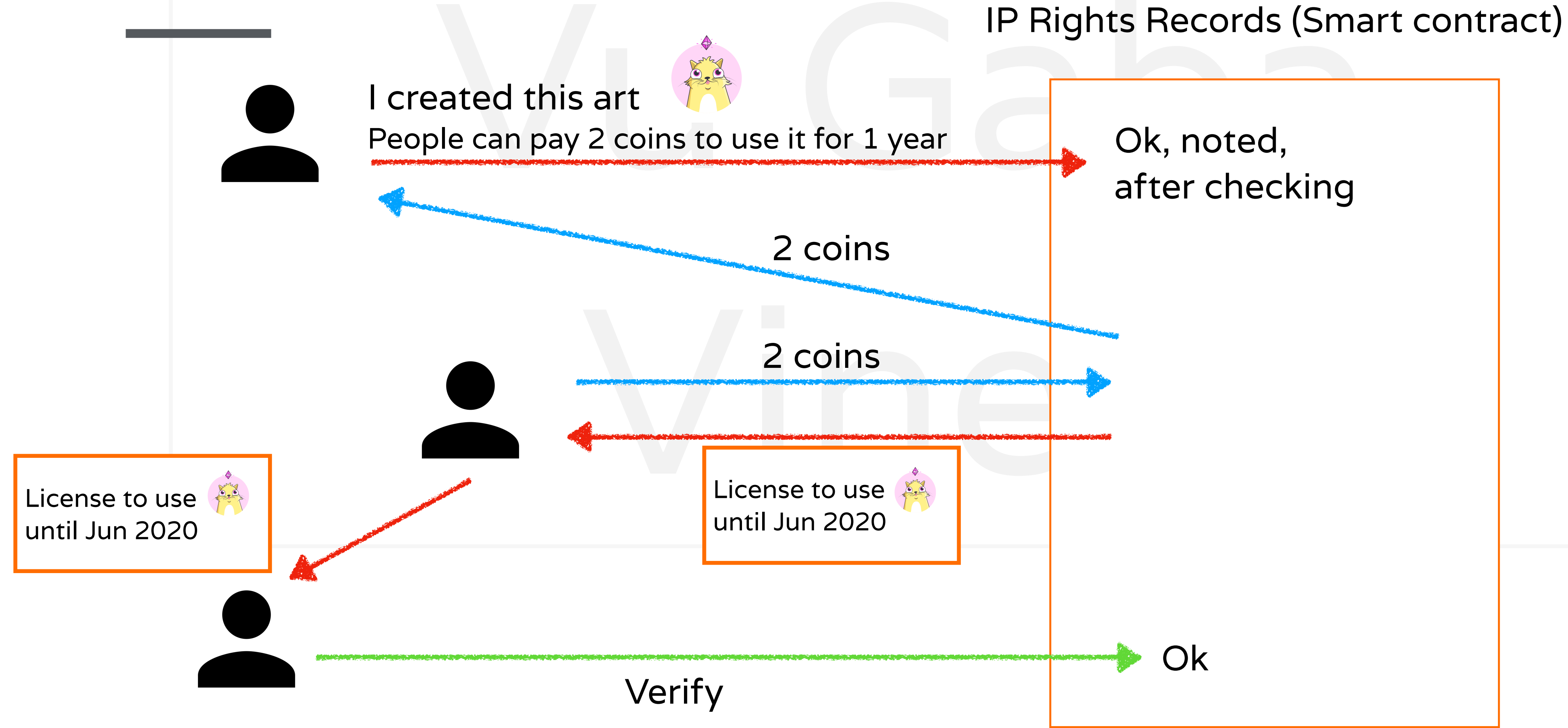
- Land registry

- Badly kept, mismanaged or distorted
- Estonia and Dubai

- Intellectual property

- Copyright records
 - High-value fashion items (designer bags),...
- Purchase and verification of IP rights to printing/photos/videos..

IP Rights on the blockchain



A brief overview of Blockchain applications for the legal industry

- Ensure availability and immutability of records
- **Automate (simple) parts of legal agreements**
- Automate (simple) parts of legal systems
- Incorporation of companies

Automate (simple) parts of legal agreements

- Payroll

- Inheritance

- Pass down blockchain-based funds to specific address after “proof of death”
 - An authority's confirmation
 - Being inactive for x months means death

- Prenups

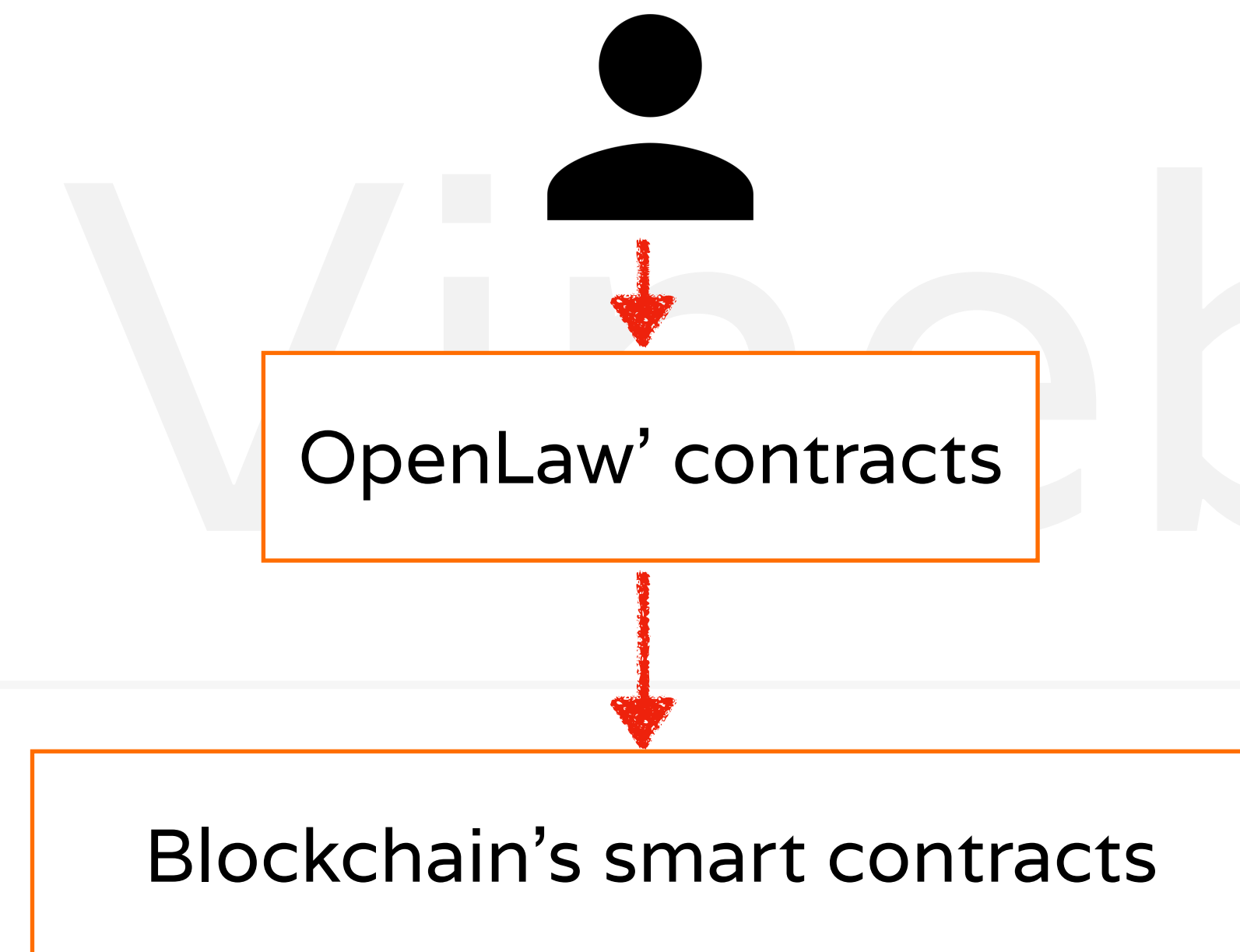
- Split blockchain-based assets in predefined manner
- Triggered by a proof of divorce or other events.

Automate (simple) parts of legal agreements

- Rental agreements
- Loan agreements
 - Collateralize blockchain assets
 - Dharma, Maker, Compound
- Supply chain management related agreements
 - Some events can happen (funds transfers) when goods reach from point A to point B

OpenLaw - Markup language for legal agreements

Convenient **framework** for writing (real) **contract templates** to **collect fields** to be **fed** into a **blockchain smart contract**



OpenLaw - Markup language for legal agreements

OpenLaw contract

Both [player1Name] and [player2Name] will choose a random number and commits 1 coin into a guessing game.

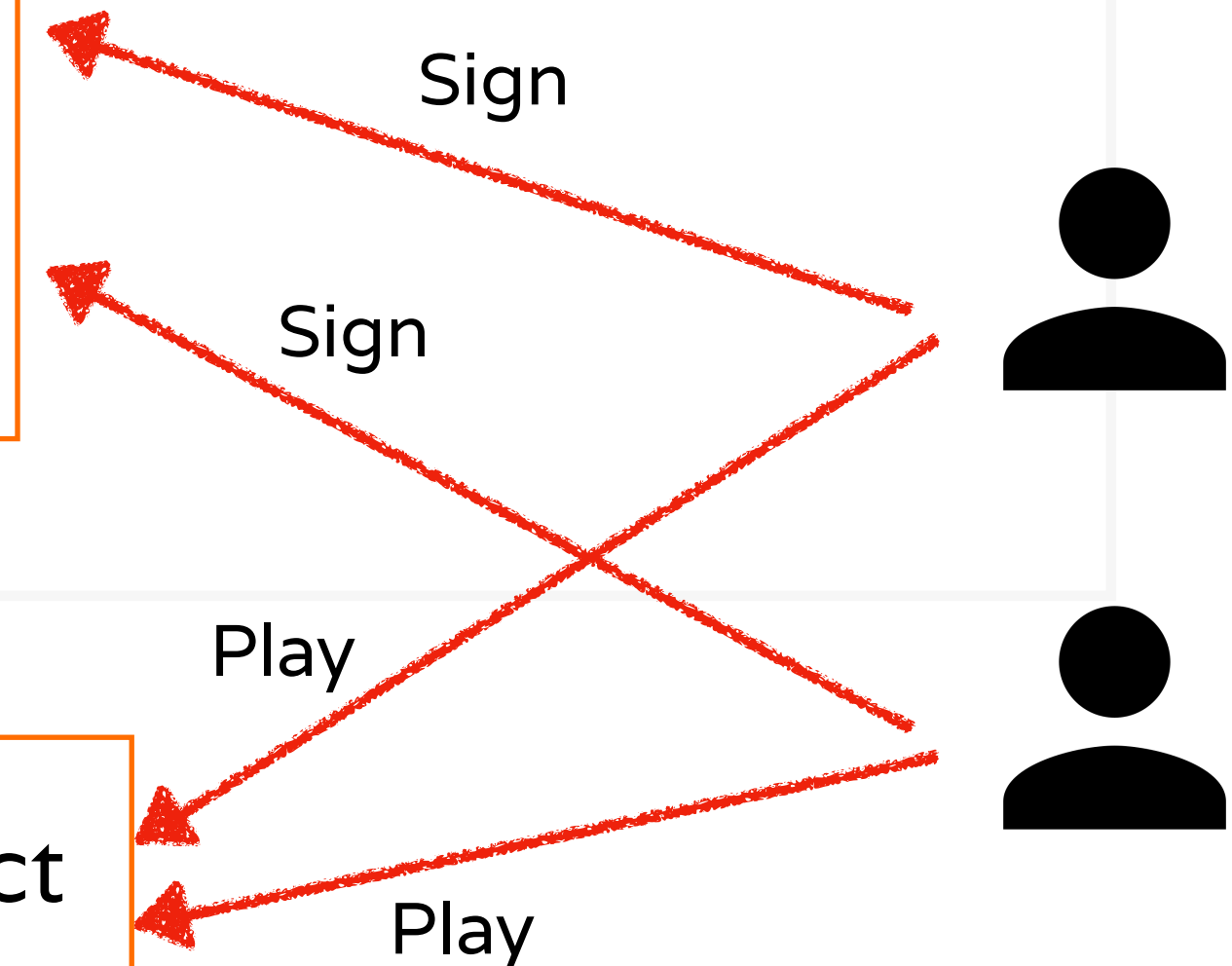
[player1Name] will go first and [player2Name] will go second

Both Alice and Bob will choose a random number and commits 1 coin into a guessing game.

Alice will go first and Bob will go second

CreateGame

GuessingGame Smart contract



A brief overview of Blockchain applications for the legal industry

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Automate (simple) parts of a country's legal system

- Identity

- Base layer for powerful applications on top
- Encryption to preserve privacy
- World Food Program
 - Retinal-scan based identity, recorded on a blockchain
 - Cut payment costs, protect data, counter frauds

- Voting

- Immutable, verifiable, secure, efficient and having zero frauds

Automate (simple) parts of legal systems

- Judicial processes

- Automate procedures
- Keep records and documents
- Integrate into other smart-contract based agreements
 - Child custody is granted in a smart contract by the court

Automate (simple) parts of legal systems

- Tax returns

- Automatic, efficient,...

- Land registry

- Documents and records

- Birth/marriage certificates
 - Health records
 - Encrypted and stored in private blockchains

Automate (simple) parts of legal systems - Estonia

- E-stonia

- Moved government records, public services and voting to the blockchain
- Includes legislation, voting, education, justice, health care, banking, taxes, policing
- Includes all members of the government
- No-one (even administrators) can manipulate data

- E-law

- An online database for the Estonian Ministry of Justice
- Every draft law submitted since Feb 2003
- Who submitted, current status, changes made

A brief overview of Blockchain applications for the legal industry

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Incorporation of companies

- Payroll
- Shares
- Voting
- Employment contracts
- Employment Stock Option Plan
- Interact with other entities via smart contracts
 - Agreements with other companies
 - Government's regulators (tax filing, accounting,...)
 - Judicial system for settling disputes in smart contracts

Incorporation of companies - current solutions

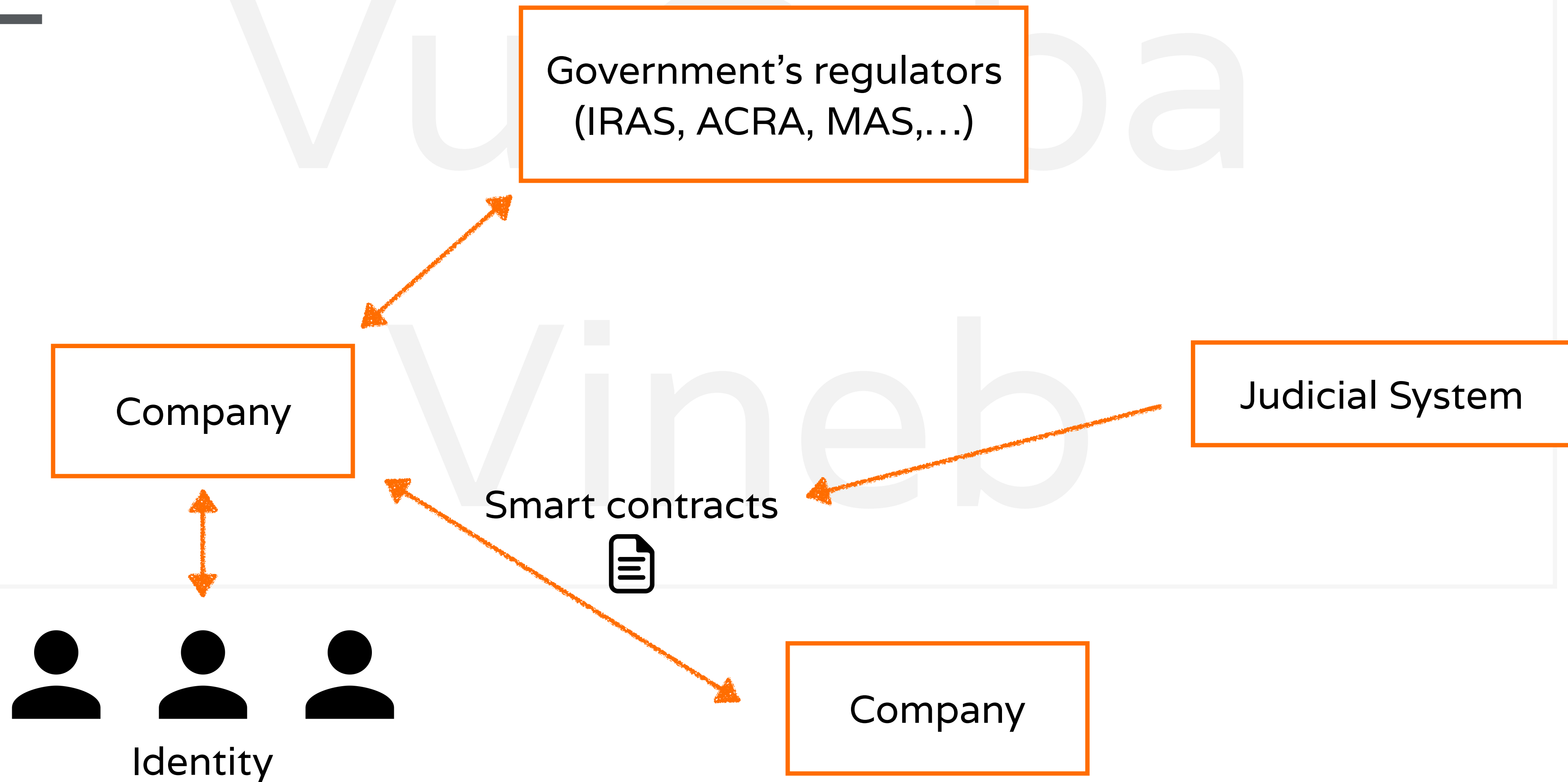
- Otonomous

- Lets you spin-up a company in all major jurisdictions
- Manage your shareholdings and vote on the blockchain
- Legal validity of all your on-chain transactions in the real world.
- Run on private blockchain

- AragonDAO

- Creates an organisation on the blockchain
- Issue tokens, vote on the blockchain
- Only exists on-chain by default
- Runs on Ethereum

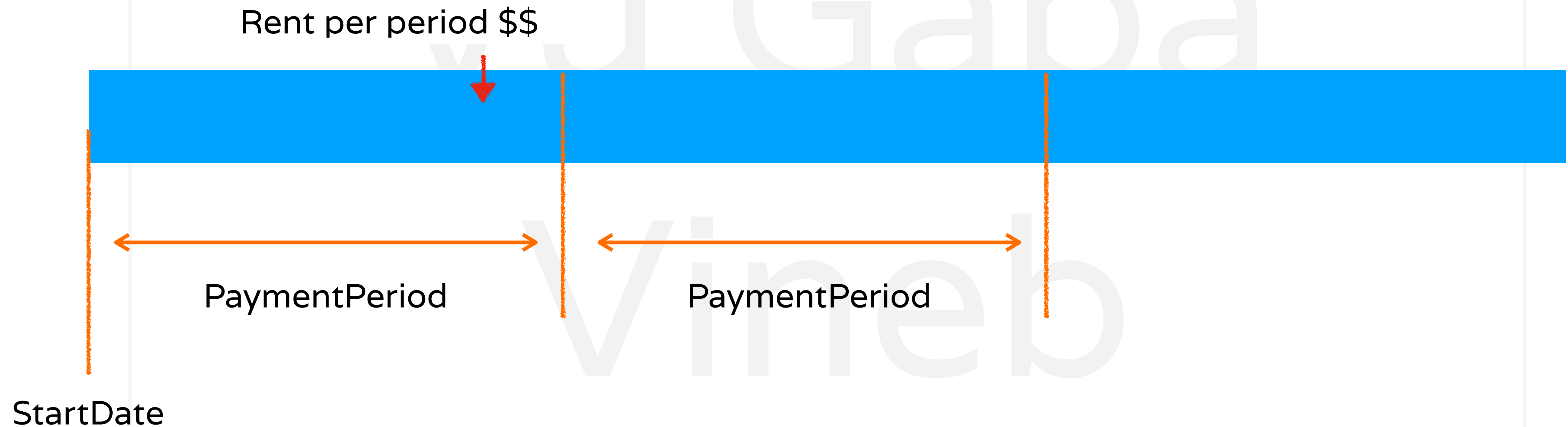
Blockchain systems for the legal industry



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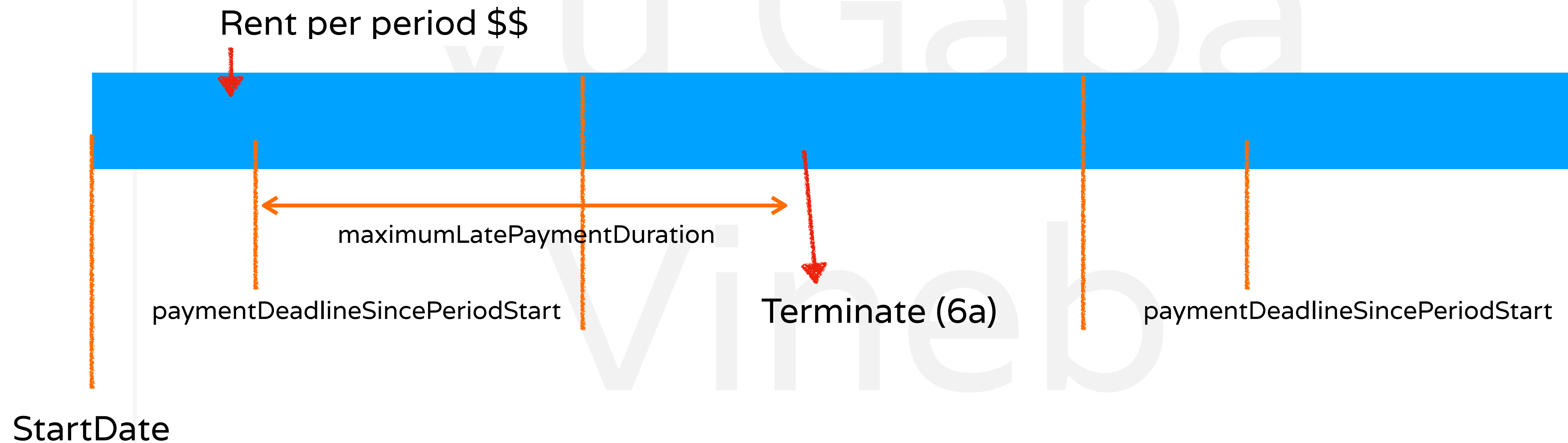
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Workshop: coding a rental contract

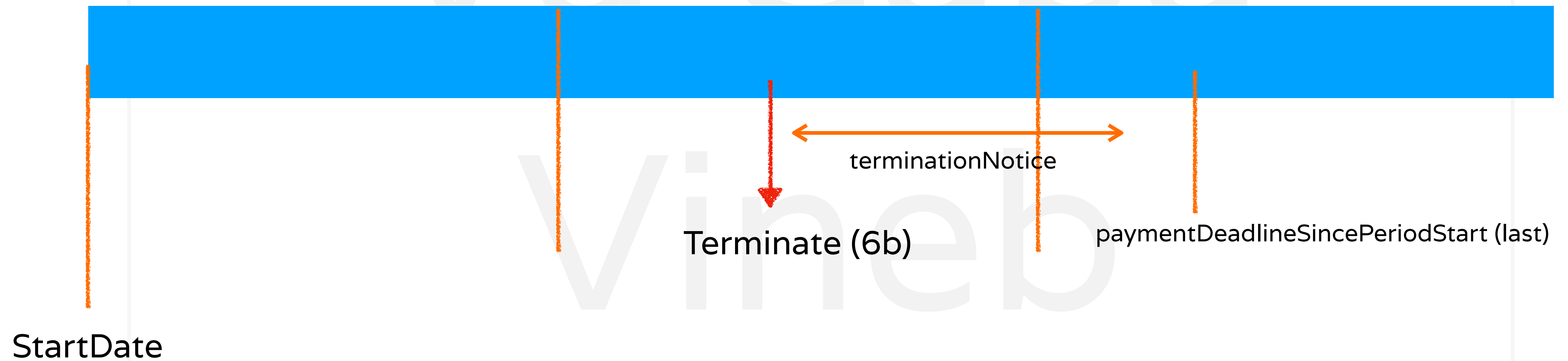


tinyurl.com/legalhacking

Workshop: coding a rental contract



Workshop: coding a rental contract



Thank you !

twitter.com/gabavineb