



DE TECHNIEK VAN DE CRYPTO ASSETS

Ir. Olivier Rikken

7 december 2023



De containerterm “Crypto”

“Demystifying” de
technologie, de
toepassingen en de
governance van
“crypto”

Olivier Rikken - CV



MSc MBA – PhD cand



Governance challenges of blockchain and decentralized autonomous organizations

[O Rikken](#), [M Janssen](#), [Z Kwee](#) - Information Polity, 2019 - content.iospress.com

The rise of blockchain has resulted in discussions on (new) governance models with multiple actors collaborating. Incidents and problems occurred due to flaws in blockchain protocols, ...

☆ Opslaan Citeren Geciteerd door 75 Verwante artikelen Alle 6 versies

Blockchain in service management and service research—developing a research agenda and managerial implications

..., [KP Jørgensen](#), [R Beck](#), [O Rikken](#)... - Journal of Service ..., 2021 - pure.itu.dk

As blockchain technology is maturing to be confidently used in practice, its applications are becoming evident and, correspondingly, more blockchain research is being published, also ...

☆ Opslaan Citeren Geciteerd door 8 Verwante artikelen Alle 14 versies

[PDF] Legal Aspects of Blockchain

..., [KL Hartog](#), [Y Yamamoto](#), [O Rikken](#)... - Innovations ..., 2019 - academia.edu

A common denominator of Blockchain prototypes developed by governmental organizations is that they will prompt questions from administrative superiors. The primary question upper ...

☆ Opslaan Citeren Geciteerd door 11 Verwante artikelen Alle 4 versies

The Ins and Outs of Decentralized Autonomous Organizations (Daos)

[O Rikken](#), [M Janssen](#), [Z Kwee](#) - Available at SSRN 3989559, 2021 - papers.ssrn.com

Despite the increase in number of blockchain-based Decentralized Autonomous Organizations (DAOs), there is no consensus of what constitutes a DAO. This paper provides an in-...

☆ Opslaan Citeren Geciteerd door 4 Verwante artikelen

Creating Trust in Citizen Participation through Decentralized Autonomous Citizen Participation Organizations (DACPOs)

[O Rikken](#), [M Janssen](#), [Z Kwee](#) - DG. O 2022: The 23rd Annual ..., 2022 - dl.acm.org



[PDF] researchgate.net

[PDF] itu.dk

[PDF] academia.edu

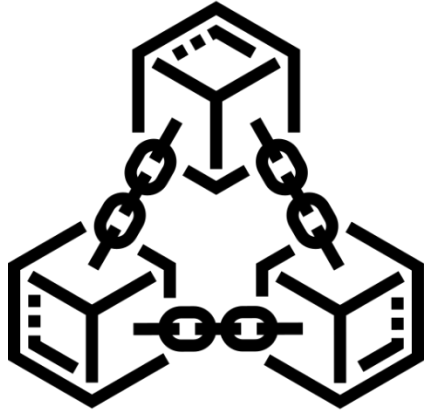
[PDF] acm.org



G360DAO



Blockchain = bitcoin?

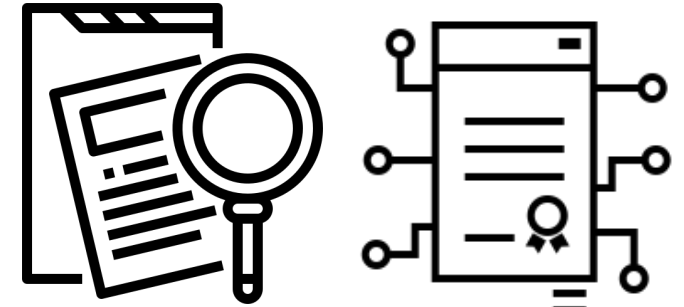
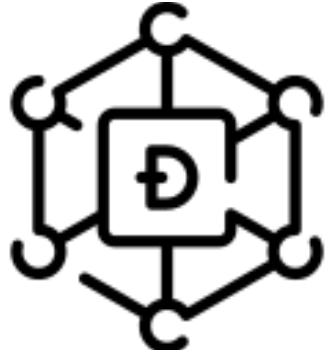
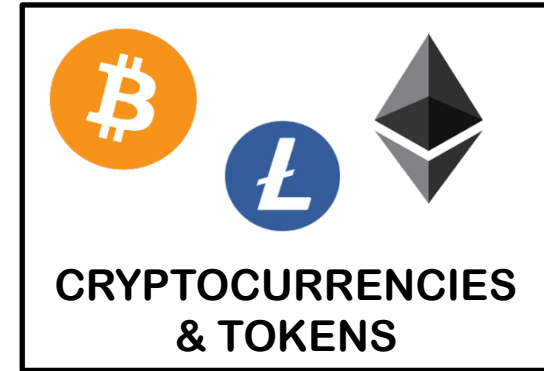
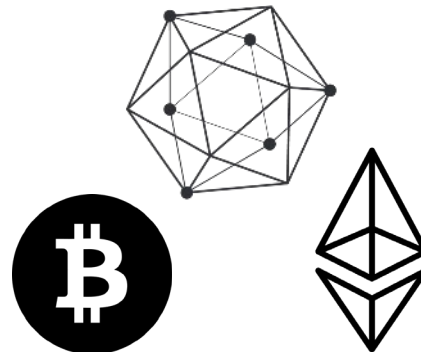


Technology

?

=

Protocol

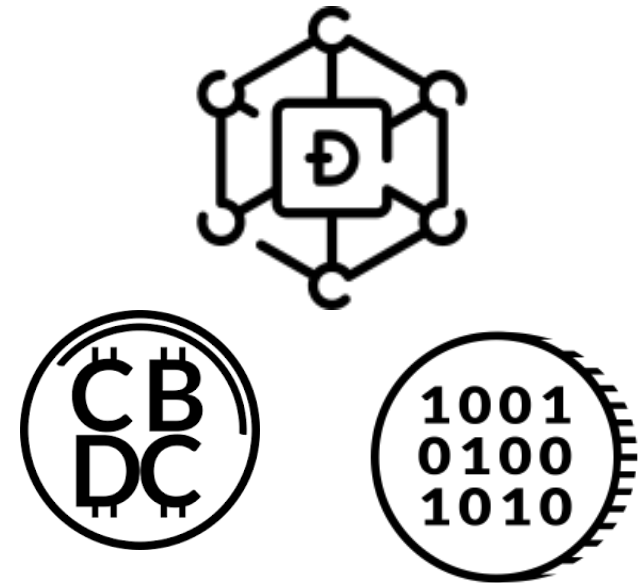
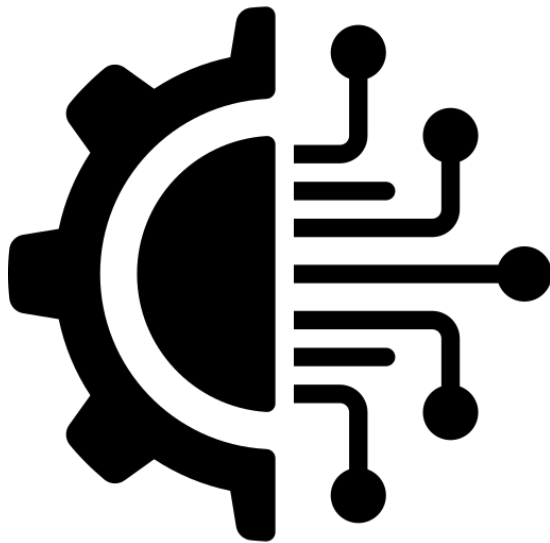


Applications

**EMERGING
HORIZONS**

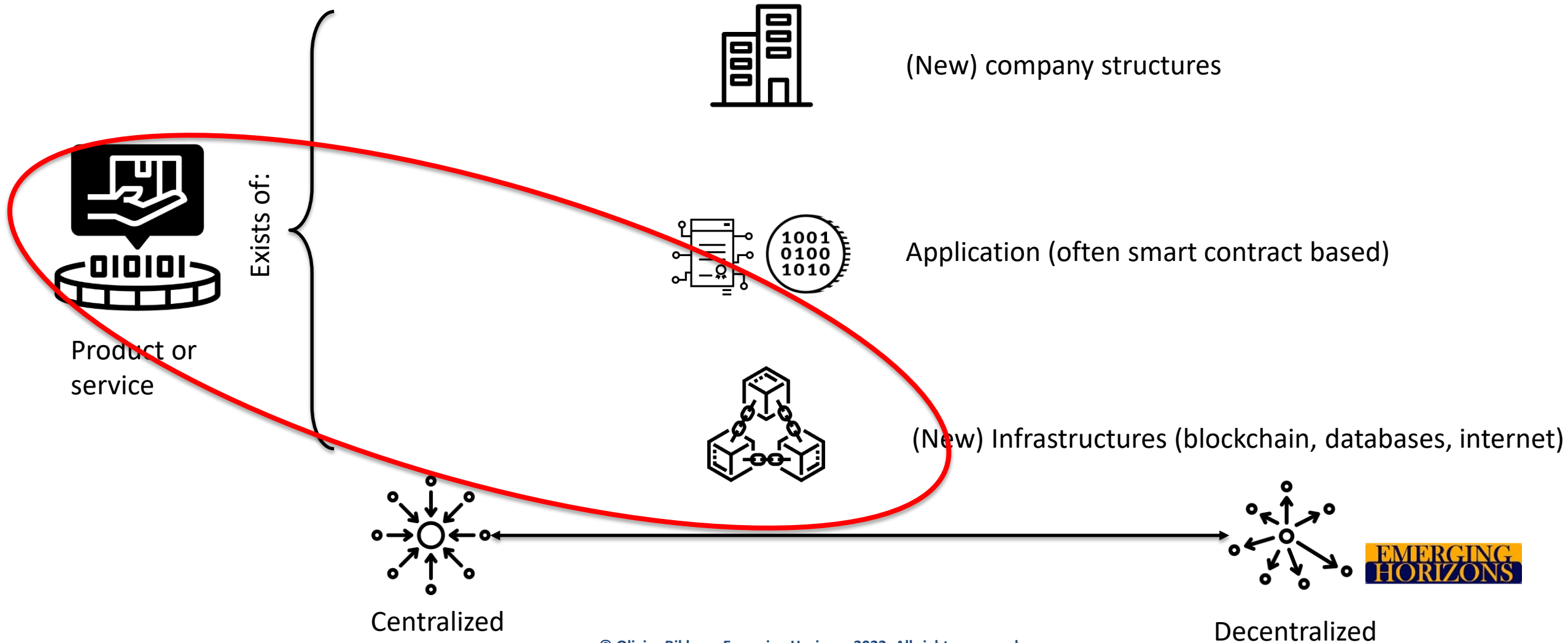
Blockchain, Crypto & Tokenization

a core technology! – game changing NEW products & services?



Multiple layers of BC applications

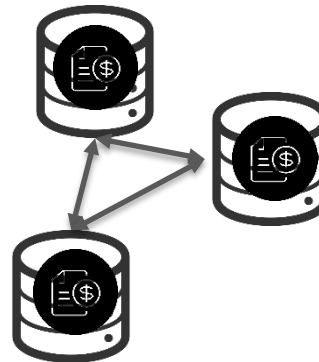
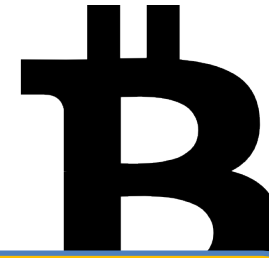
One needs to understand for effective taxation



But what is blockchain?

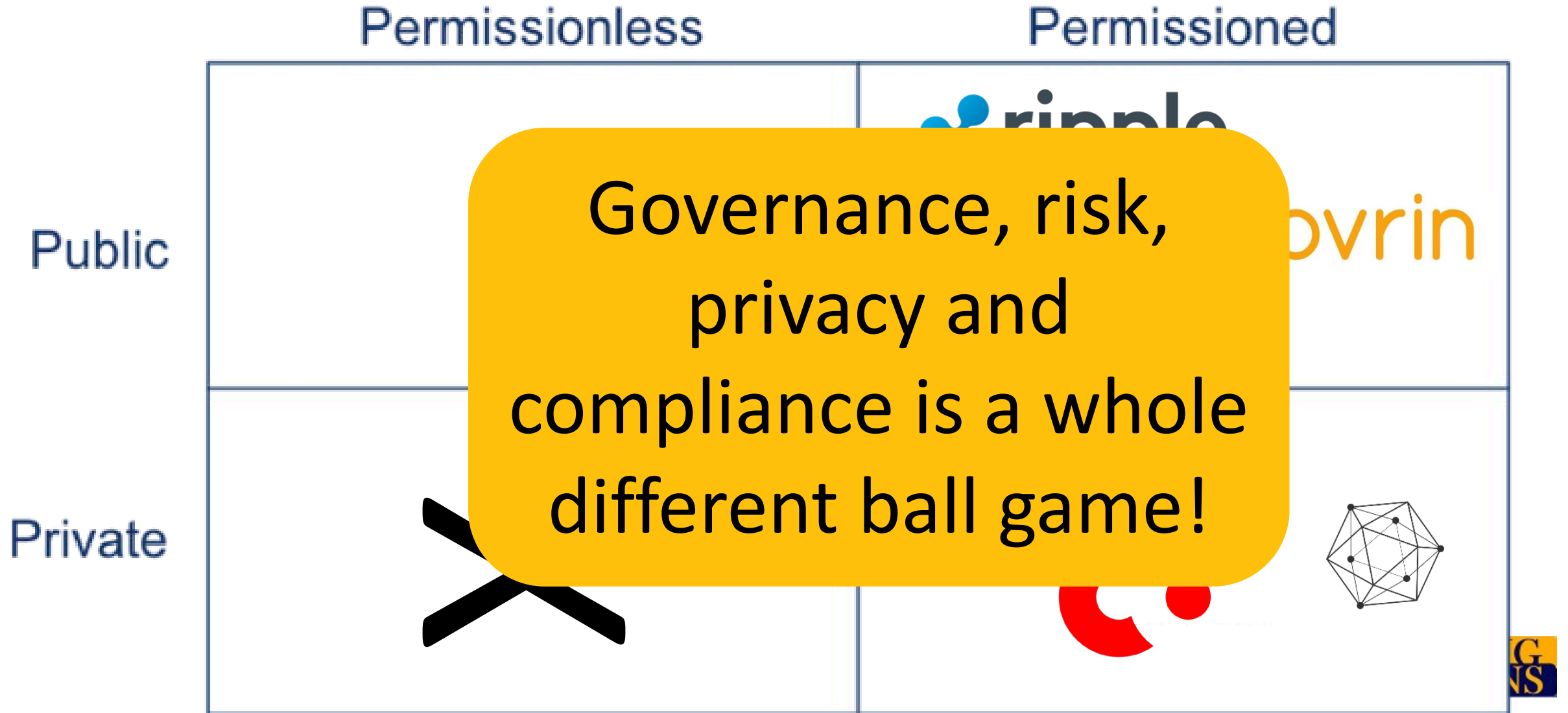


Blockchain in essence a
(very special) database!

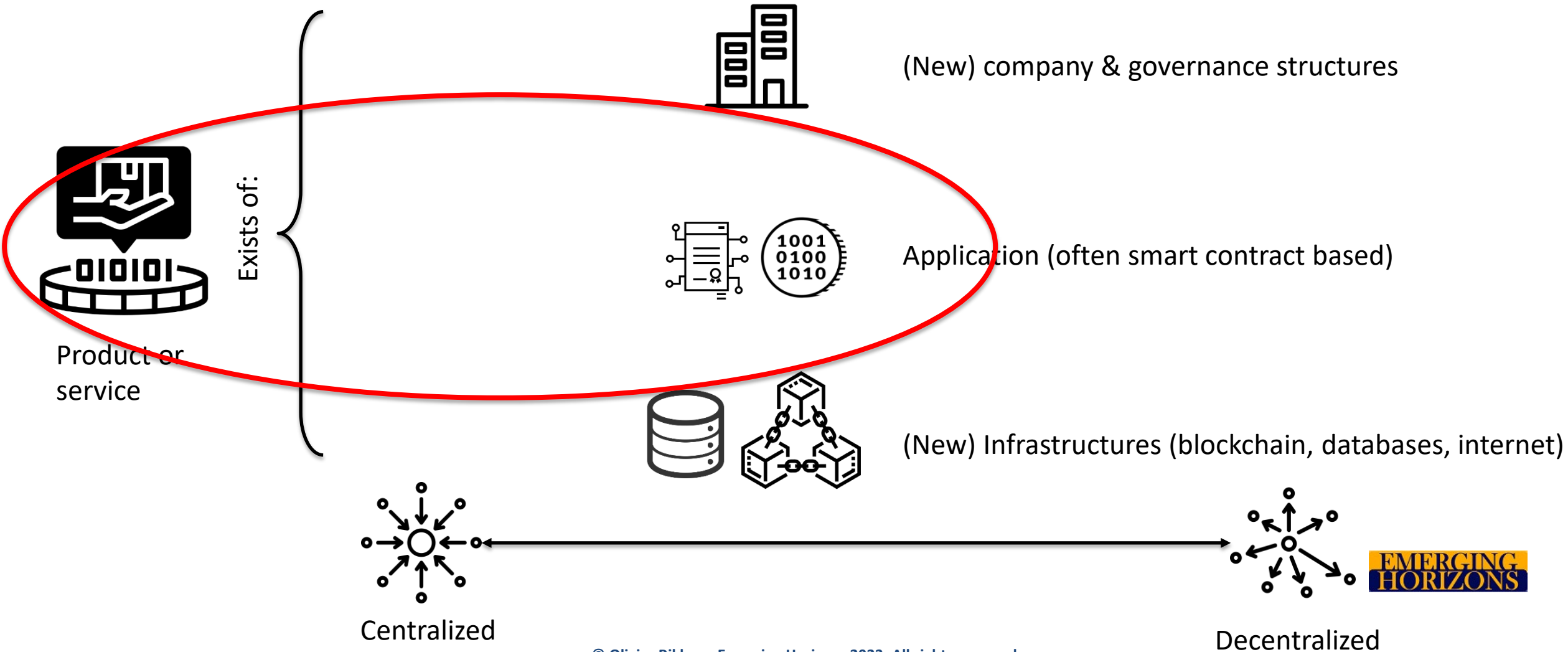


Without a central authority
for integrity guarding

Kind of blockchains



Multiple layers of BC applications



What can we do with blockchain?

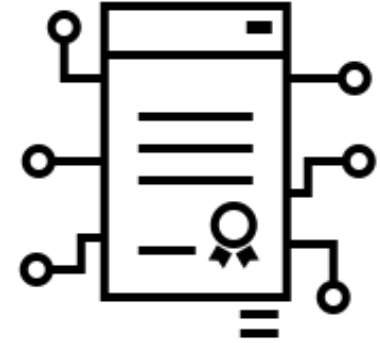
Transaction value



Secure data storage



Logic (Smart Contracts)



P2P transactions

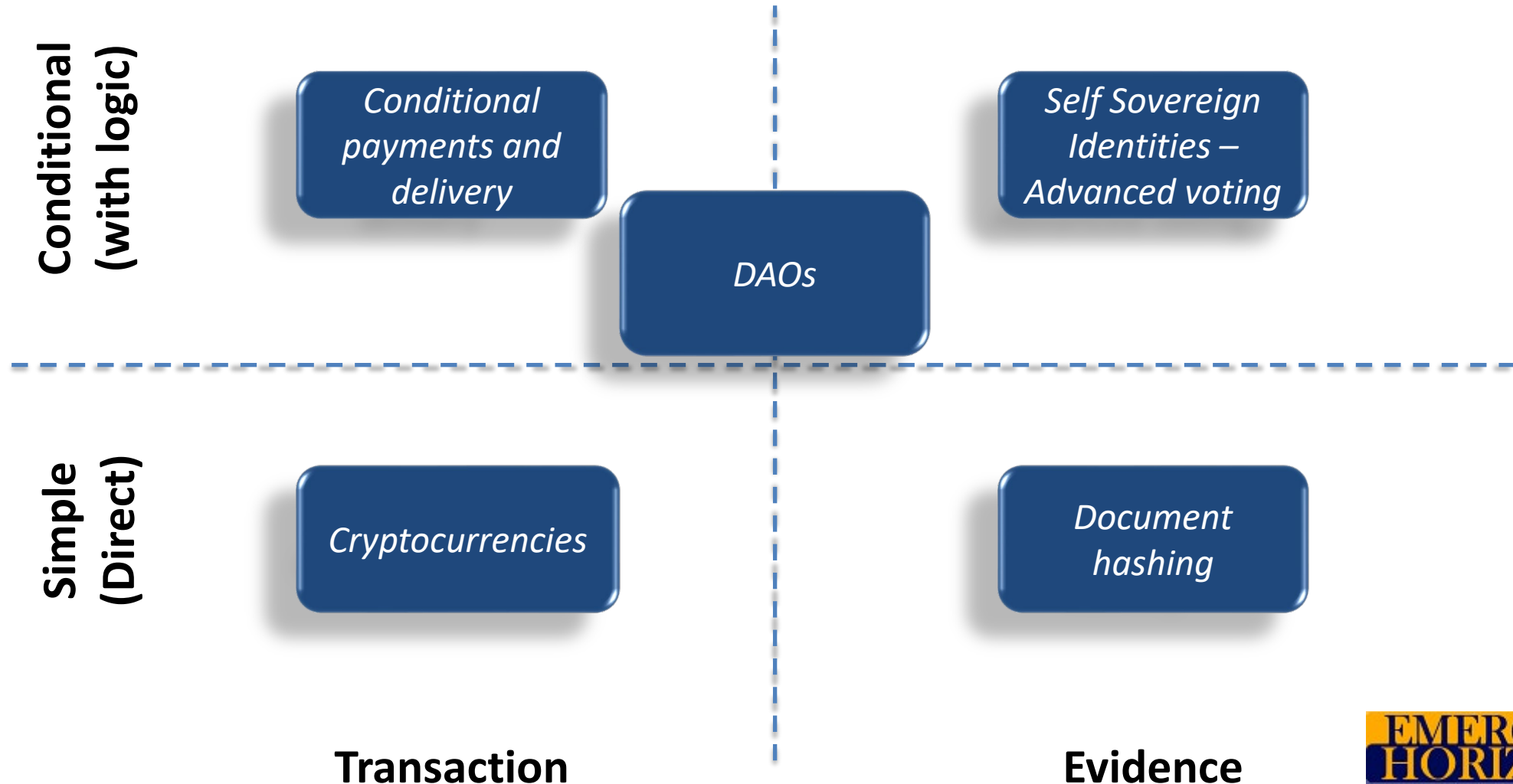


P2P Evidence



With or without logic (simple vs complex)

Some examples



Smart Contracts - confusing definition

```
1 // SPDX-License-Identifier: MIT
2
3 pragma solidity ^0.8.9;
4
5 contract Example {
6     address public owner;
7     bool public switch;
8
9     constructor() {
10         owner = msg.sender;
11         switch = false;
12     }
13
14     function ChangeOwner(address newOwner) public onlyOwner {
15         owner = newOwner;
16     }
17
18     function FlipSwitch() public onlyOwner {
```



or



or



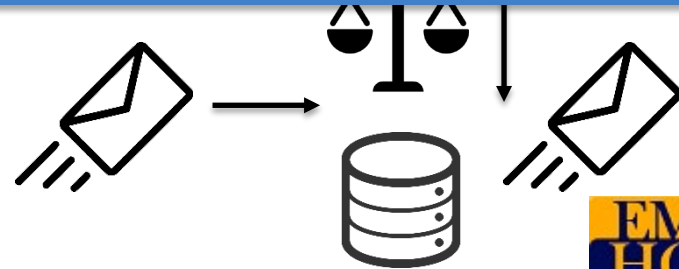
What is a smart contract technically?

Smart contracts in general are programmable accounts

Smart Contracts are the blockchain based building blocks of Decentralized Applications!

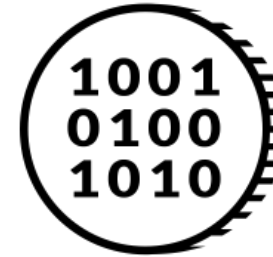


Has a value balance



**EMERGING
HORIZONS**

Transfer of value: Cryptocurrency vs Token



Crypto /M



Pricing
Transaction

Creating a token – 2 minutes -
immediately usable for whole
ecosystem – including BC security

Regulation: depends on the goal/purpose

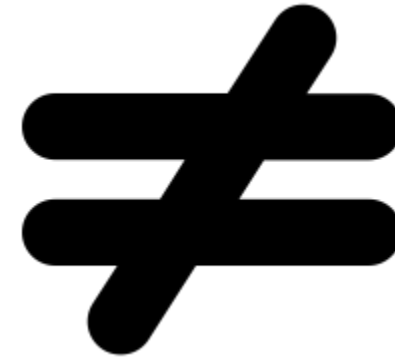
“Normal token” vs NFT

Normal token



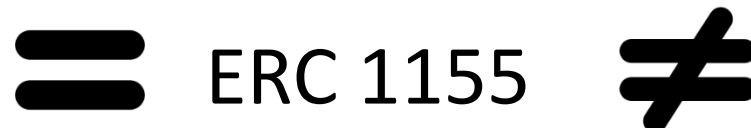
ERC20 (fungible) token SC
“tokens are equal” – e.g. shares

Non Fungible Token



ERC721 (non fungible) SC
“tokens are unique” – e.g. Cryptokitties

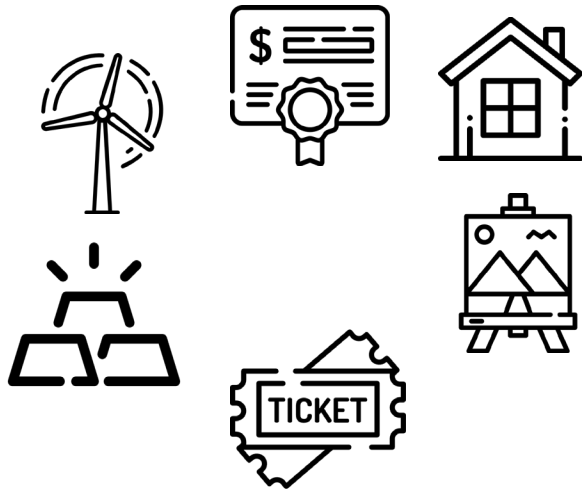
Both can create multiple tokens with 1 smart contract!



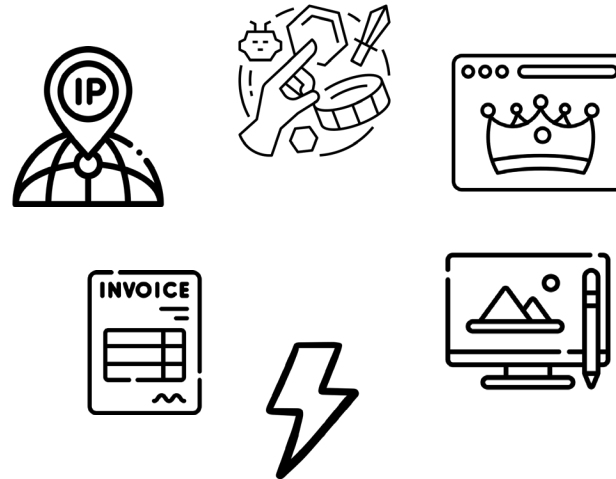
What can we use tokens and CC for?



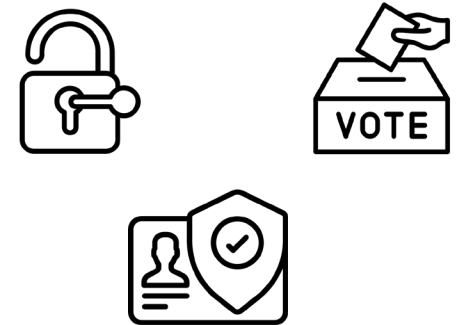
Real world / tangible assets
ownership



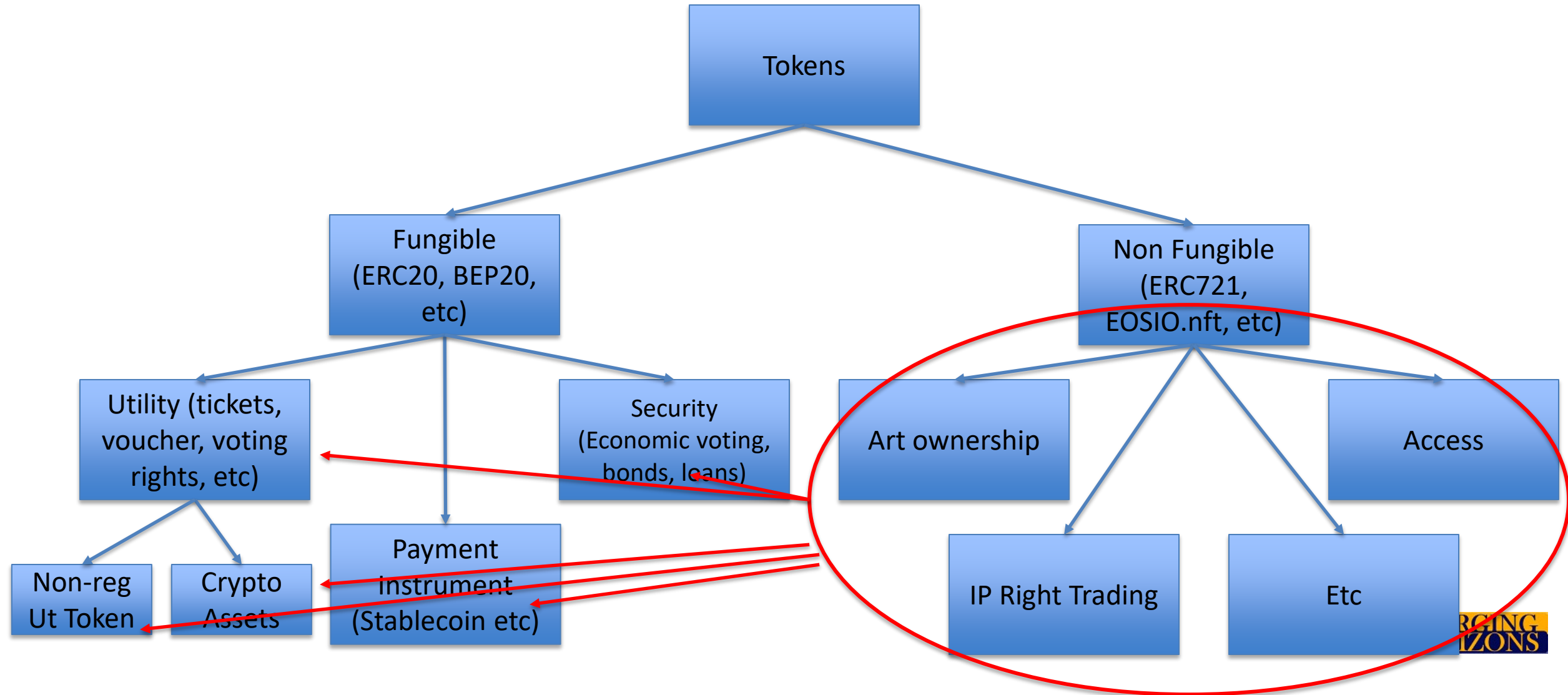
Virtual /intangible assets (?)
ownership



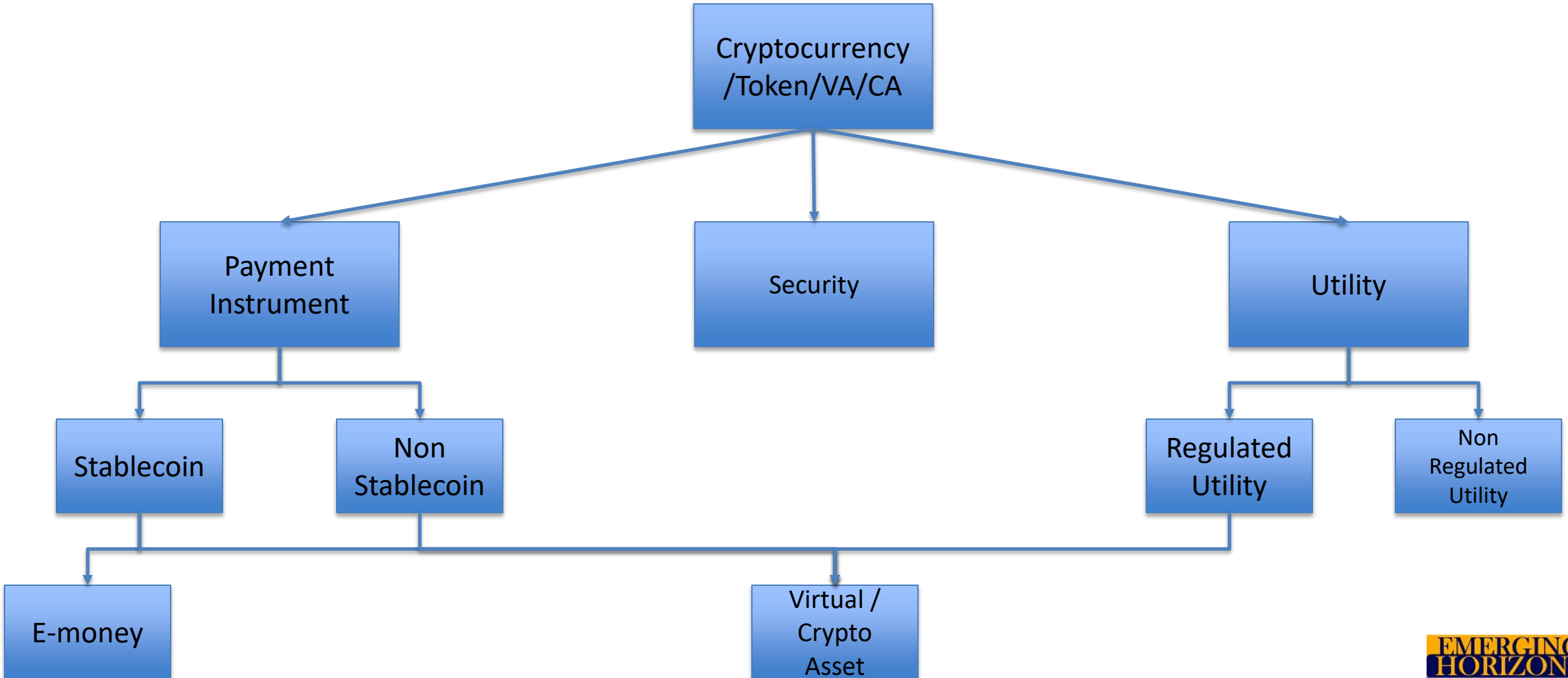
Non asset ownership
related



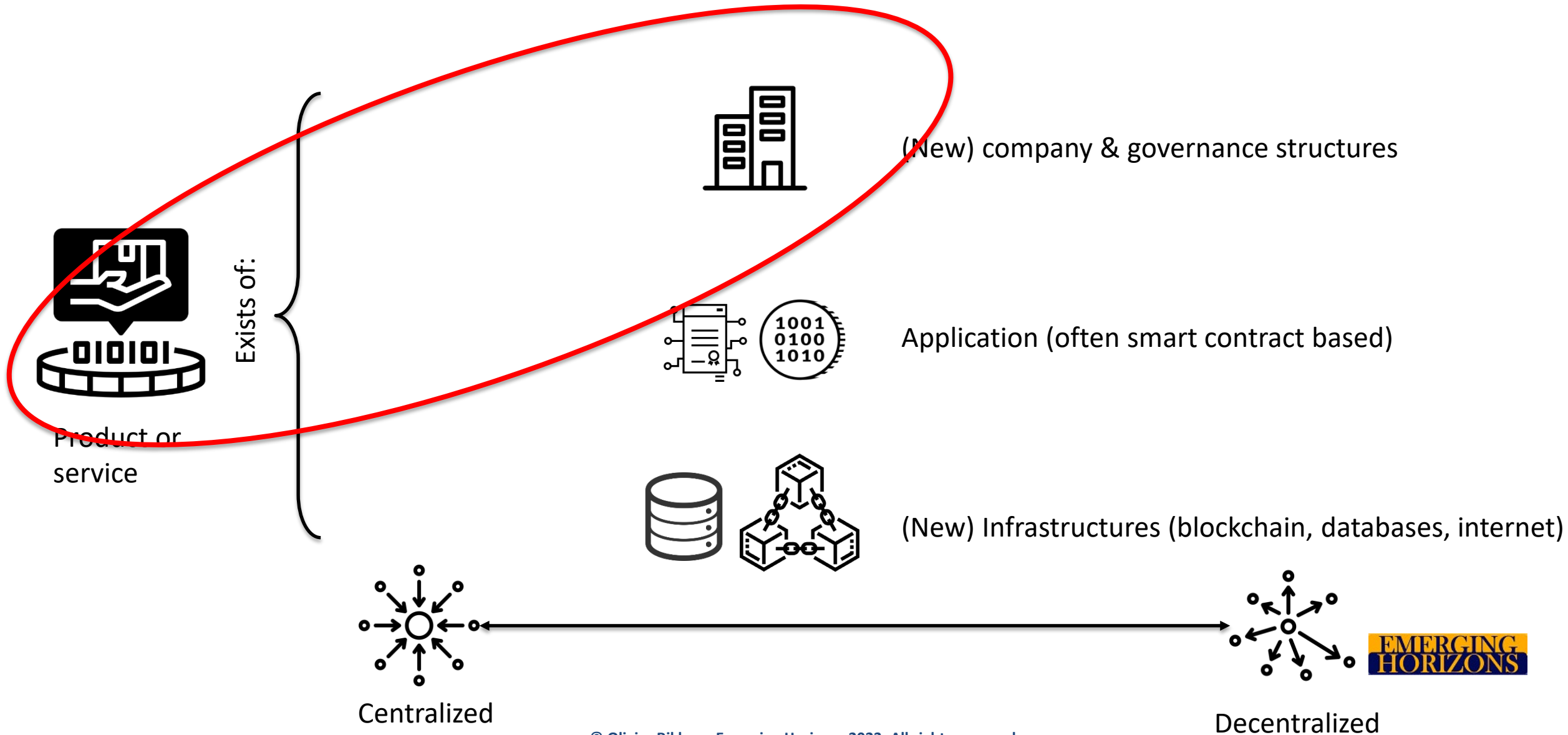
General Usages Tokens & NFTs



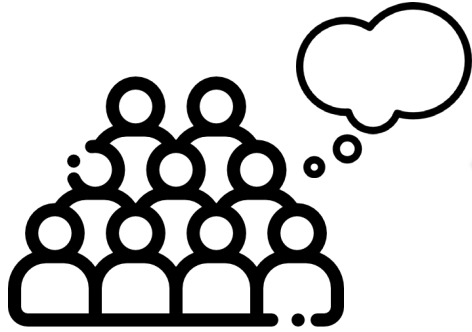
Token types MiCAR



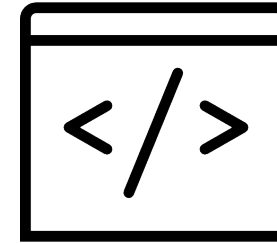
Multiple layers of BC applications



What is a token?



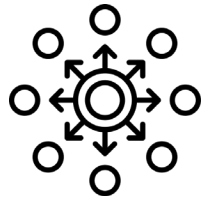
Perception Audience



Technical Implementation



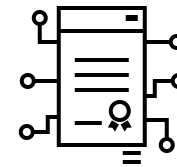
Token in wallet



Decentralized



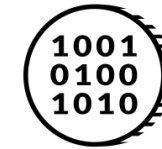
Has value



Smart Contract



Multiple
functional
possibilities



Administrates
Tokens



The ERC20 Contract – not 1 standard



ERC20



“Normal Token”- “tokens are equal” – e.g. shares

Normal token

“Mandatory”



- Basic Information:
 - Name
 - Symbol
- Supply (premint)
- Functionality: transfer from to

Optional standard - common



Mintable –
print new



Burnable –
delete existing



Pausable – pause
transactions

Optional standard - rare

Permit – gasless
transactions

Flash Minting – mint and
burn in 1 transaction

Votes – weighted
voting with token

Snapshot – snapshot of
token amount to be
access later

Optional non-standard

ForceTransfer

Selfdestruct

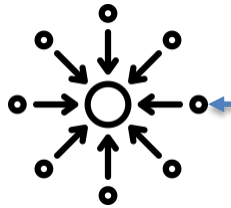
Access Standard

Access Control: Ownable
& Roles

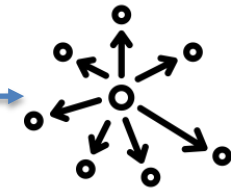
Upgradeability:
Transparent & UUPS



Governance / Organization - Org



Centralized



Decentralized



Multiple Market
Entities



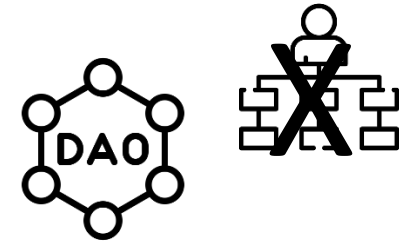
Public Private
Partnerships



Central Bank -
Government



Single Market
Entity



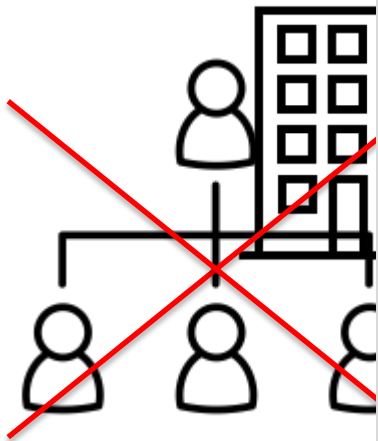
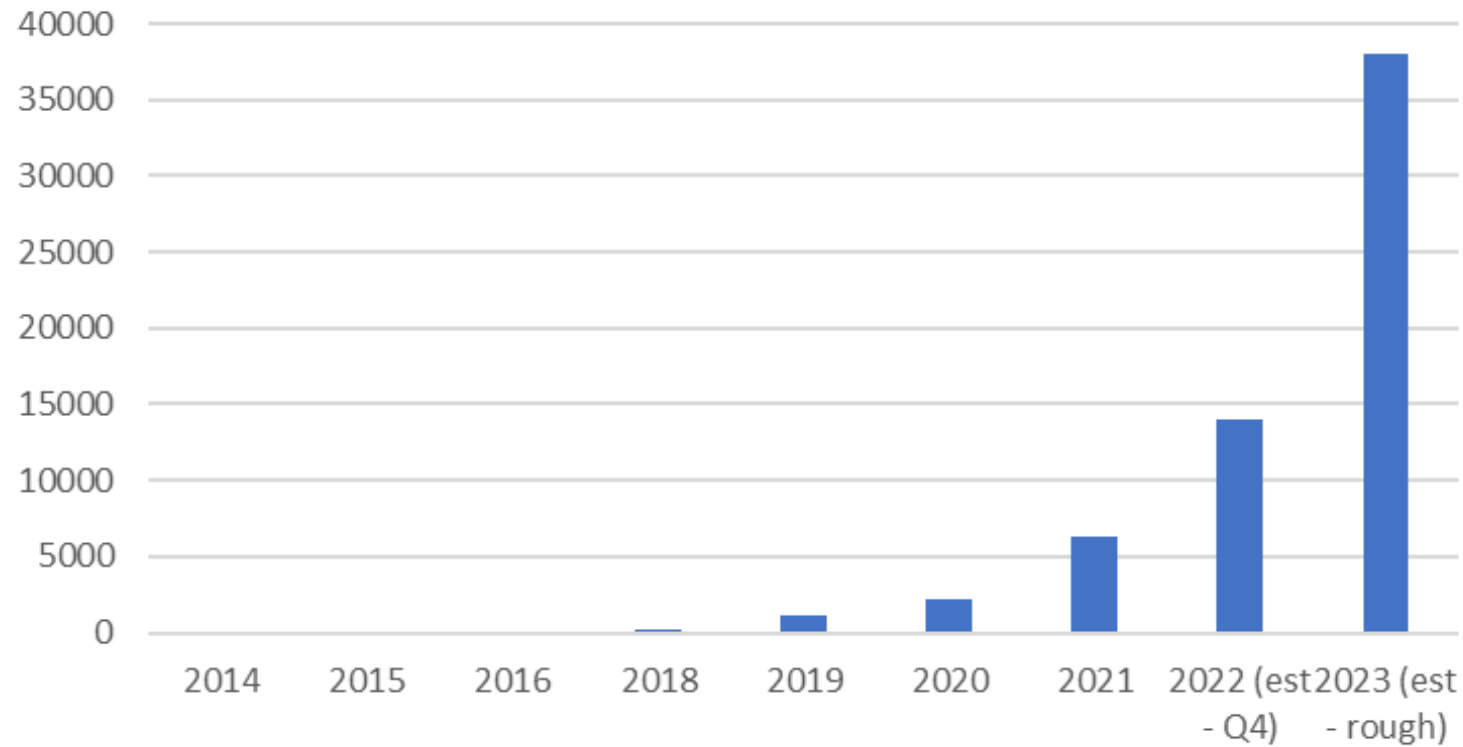
DAO or no formal
organization

Decentralized Autonomous Organizations

```
1 contract SeedBalance {  
2   mapping (address => uint) userBalances;  
3   bool withdrawn = false;  
4   function getBalance(address u) constant returns(uint){  
5     return userBalances[u];  
6   }  
7   function addToBalance() {  
8     userBalances[msg.sender] += msg.value;  
9   }  
10  function withdrawBalance(){  
11    if (msg.sender == this) {
```

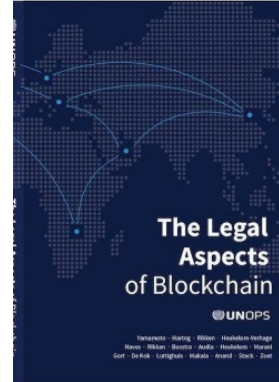
Cumulative DAOs

Olivier Rikken 2023

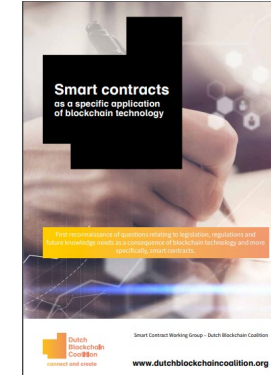


**EMERGING
HORIZONS**

Questions



Rikken, O., M. Janssen, and Z. Kwee, *Creating Trust in Citizen Participation through Decentralized Autonomous Citizen Participation Organizations (DACPOs)*. DG. O 2022: The 23rd Annual International Conference on Digital Government Research. 2022.



Rikken, O., M. Janssen, and Z. Kwee, *Governance Challenges of Blockchain and Decentralized Autonomous Organizations*. Information Polity, 2019. **24**(4).

Rikken, O., M. Janssen, and Z. Kwee, *The Ins and Outs of Decentralized Autonomous Organizations (DAOs)*. 2023, Blockchain: Research and Application.

Rikken, O., M. Janssen, and Z. Kwee, *Governance impacts of blockchain-based decentralized autonomous organizations: an empirical analysis*. 2023, Policy Design and Practice.

Olivier Rikken MSc MBA

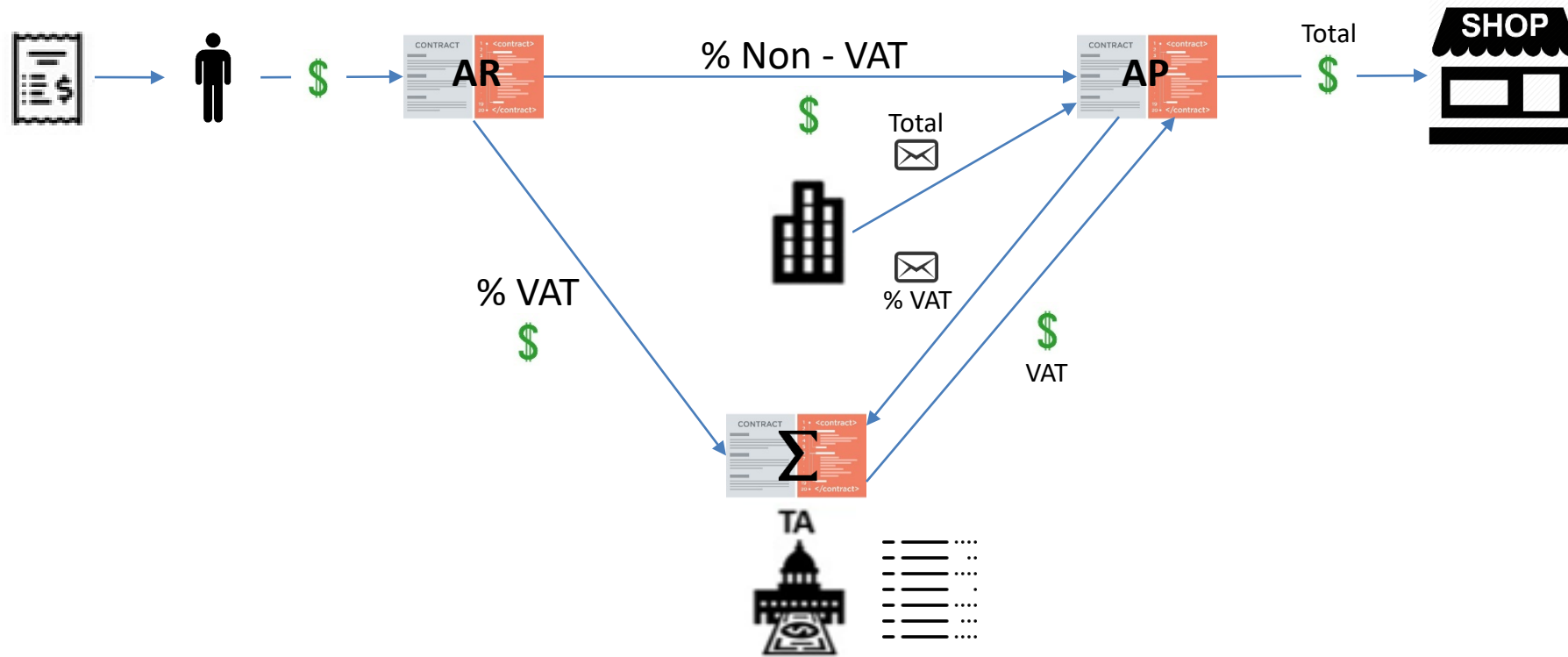
Founder & Partner

+31 611 394 292

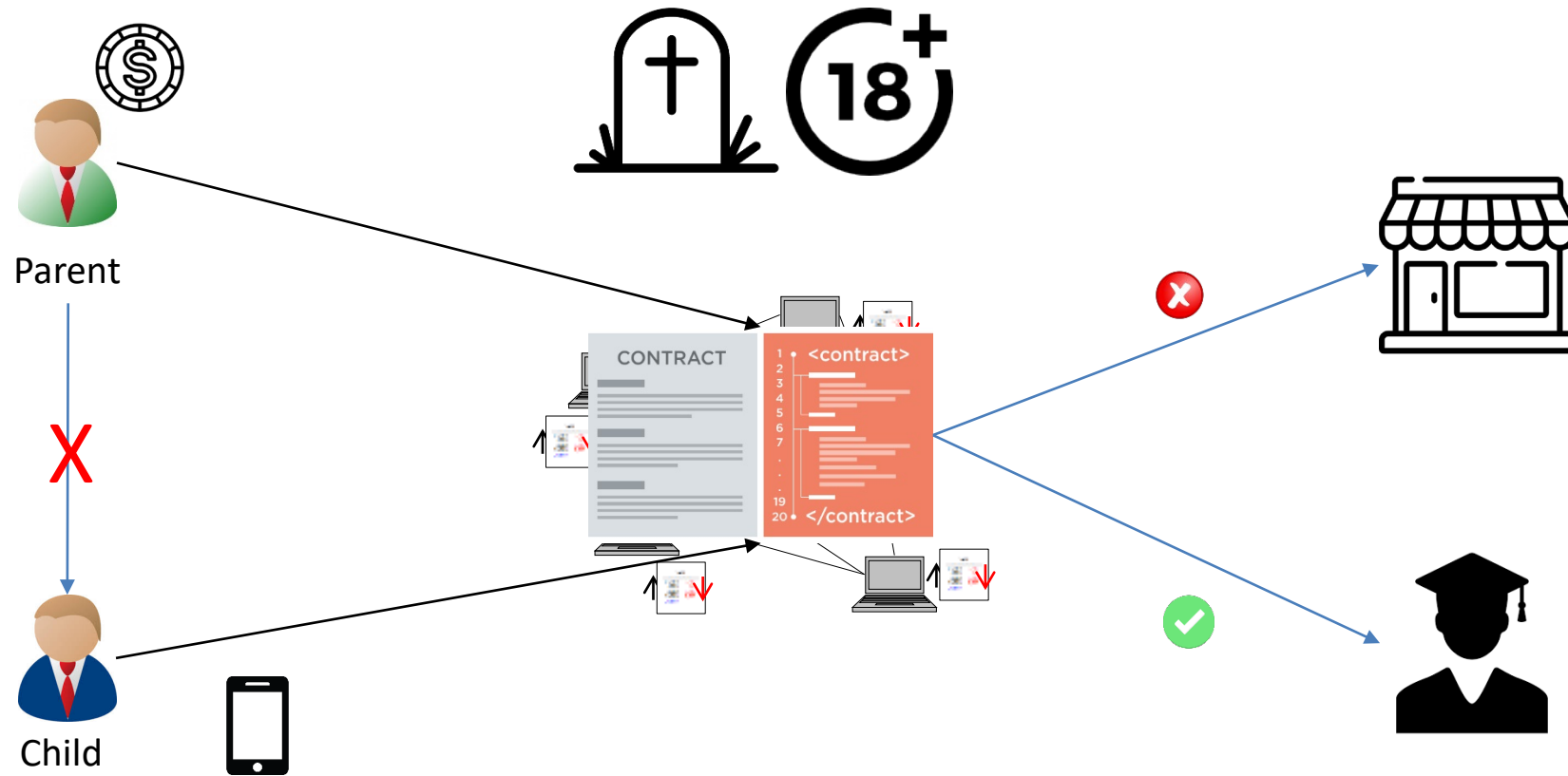
o.k.rikken@gmail.com | www.emerginghorizons.nl



Blockchain/Smart Contract Real Time VAT



Allowance smart contract example



All kind of rules – Other purposes
Early termination etc.

STELLINGEN

- **STELLING 1**
VOOR HET BEPALEN VAN DE FISCALE IMPLICATIES VAN EEN CRYPTO PRODUCT IS PRIMAIR DE FUNCTIONELE TOEPASSING VAN BELANG.
- **STELLING 2**
CRYPTO IS VOORNAMELIJK EEN FINANCIËLE TOEPASSING.