Universität zu Köln

# Historical Artefacts as Tokens

## A case study using Blockchain technologies

Slavina Stoyanova |

# Agenda

- Potential use cases
- Tokens
  - Tokens in Digital Cultural Heritage
  - Tokens in Blockchain technologies
    - Smart Contracts
- The restitution committee case study
- Discussion
  - Documenting provenance within smart contracts
  - Physical vs. Digital Artefacts

# Can blockchain technologies aid us in…

- … the creation of a chronological and immutable provenance of knowledge / chain of provenance?

- … the documentation of a chronological and immutable information ledger, storing snapshots of interpretations of reality?

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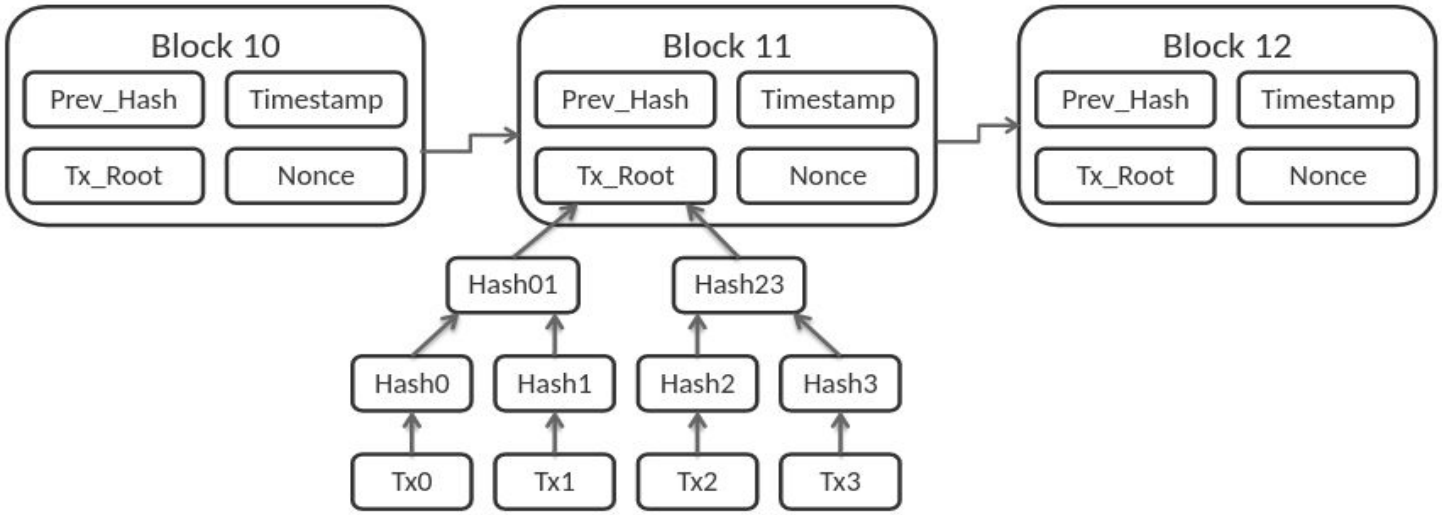
# Tokens in Digital Cultural Heritage

- *Information System - collecting, storing and processing of data*
- *Historical Information System - "...historical data processing must keep the source asclosely to the original as possible" (Thaller 2017i [1993], 261)*
  - Can there be uninterpreted items within information systems?
  - Tokens in their interpretative context - considering the contextual frame of the information presented

# Blockchain technologies

- Type of *distributed information systems* requiring a consensus to execute tasks - *create new data*
- Currently many consensus mechanisms
- Provide immutable and historical recording of events within *a blockchain*

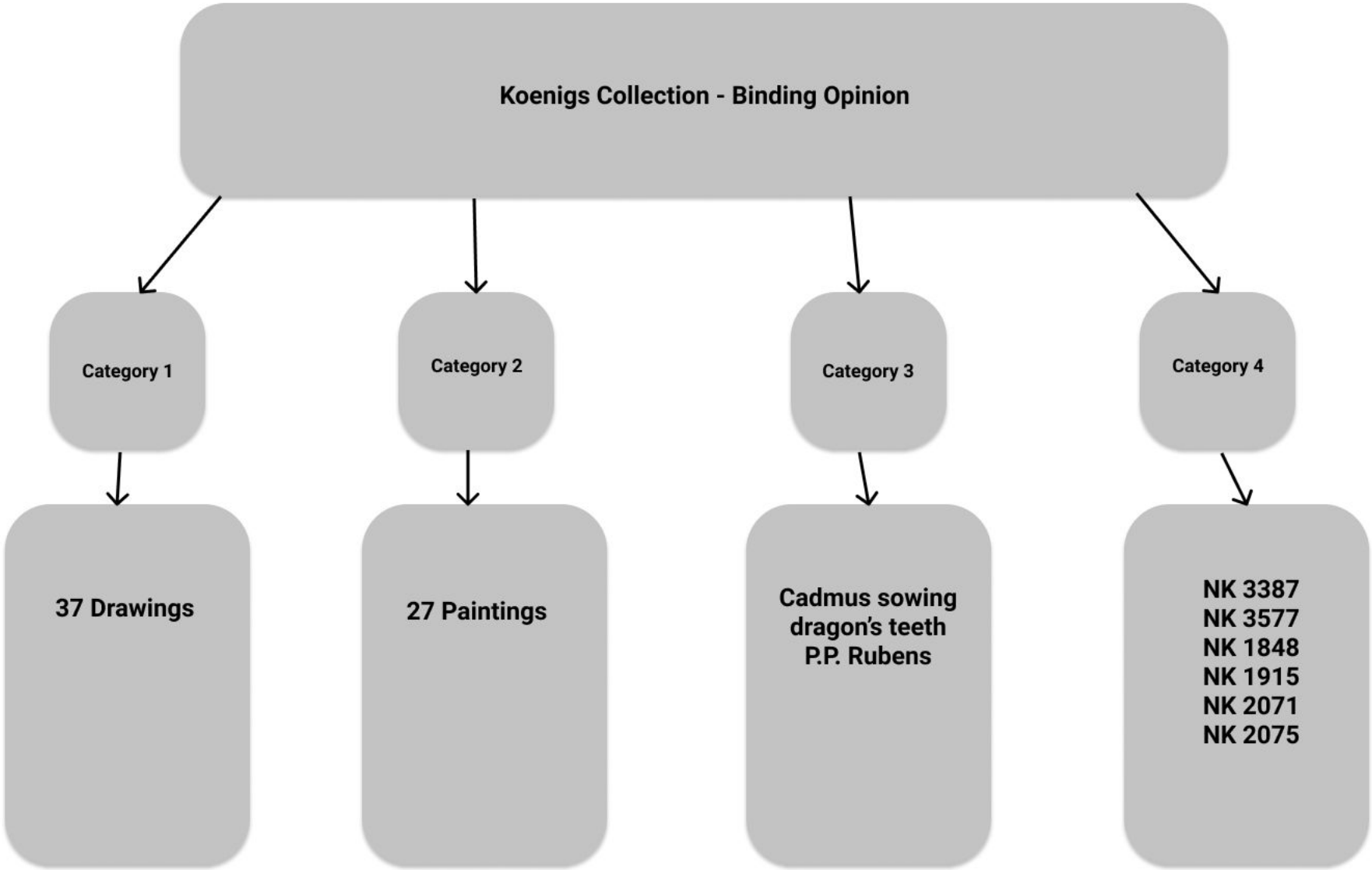


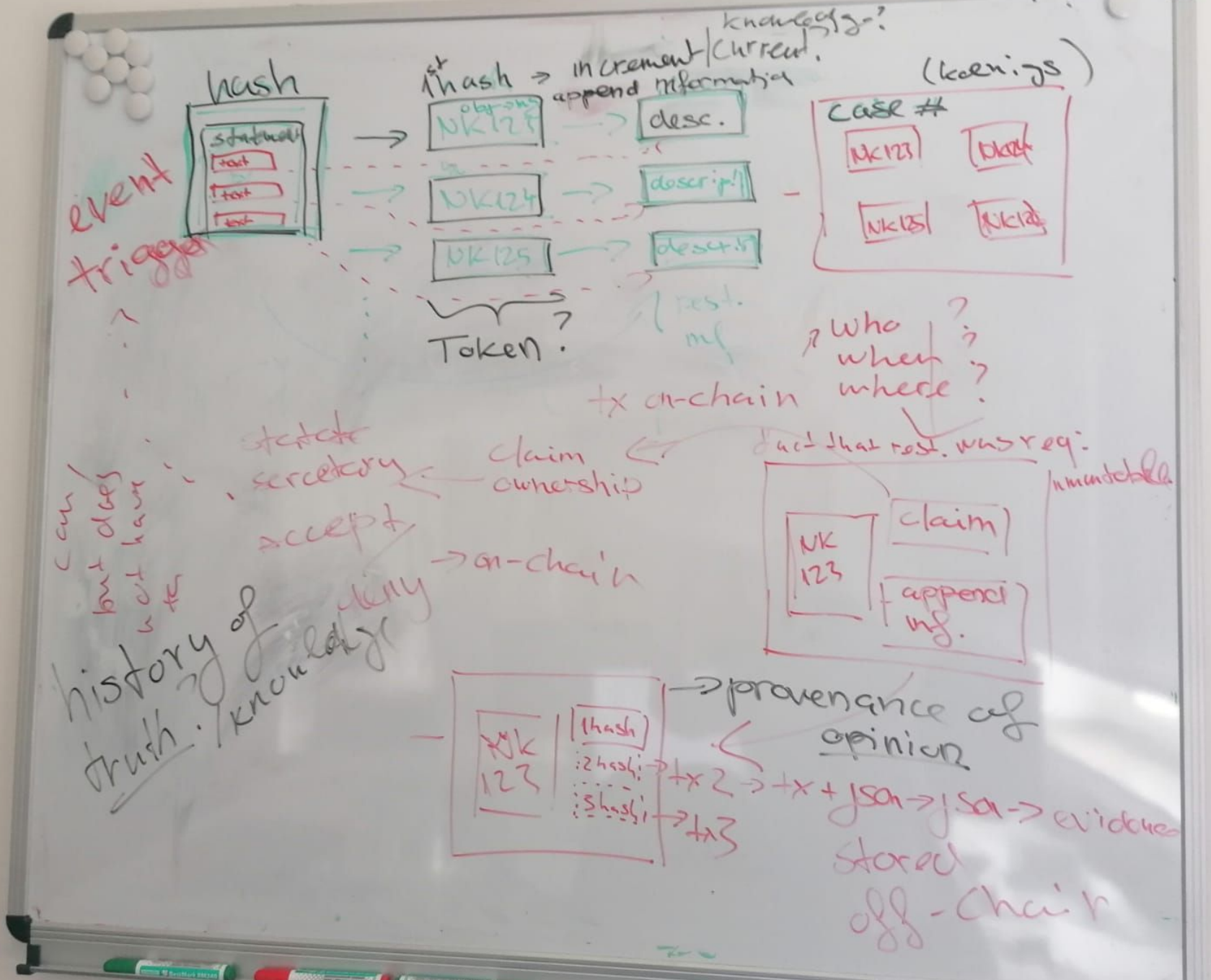
# Tokens in Blockchain technologies

- Are used as a means to exchange digital Value
- Fungible tokens
  - Value exchange 1 to 1
- Non-fungible tokens
  - Each token is unique, no 1 to 1 exchange
  - Currently used for digital art, but use cases are growing
- Implemented via *Smart Contracts*
  - Self executable programs once the engaging parties agree to the terms described within the program
  - *Agreeing on a new state of truth*

# The Restitution Committee Case study

- Currently established restitution committees are established in Germany, France, UK, Austria and Holland
- Procedure for restitution is described within official decree, which *can* be changed
  - Changed made in 2001, 2008, 2012 and 2021
- Case study focuses on the Christine Koenigs Case


Koenigs Collection - Binding Opinion
Category 1
Category 2
Category 3
Category 4
37 Drawings
27 Paintings
Cadmus sowing dragon's teeth P.P. Rubens
NK 3387
NK 3577
NK 1848
NK 1915
NK 2071
NK 2075


hash
event triggers
1st hash → increment/current. knowledge?
append information
(keeri.js)
case #
Token?
rest. mf
Who ? when ? where ?
+x on-chain
fact that rest. was req.
claim ownership
accept
→ on-chain
history of truth/knowledge
claim
append info.
provenance of opinion
+x 2 → +x + json → json → evidence
stored off-chain

# Possibilities

- As additional layer for provenance tracking, enriching existing systems
- Tracking provenance of illicitly traded goods
- Fractionalised art as a means to document shared custodianship on displaced artifacts
  - E. g stolen or displaced artefacts

# Discussion

- Documenting provenance within smart contracts
  - Possibilities for creating a provenance of knowledge
- Physical vs. Digital Artefacts
  - Can we vouch for the origin of an object present in the physical world *digitally?*
- We have content management systems in cultural heritage institutions, does that mean that blockchain / smart contracts are not necessary?
  - or: in which cases could they be useful?