Sec lend ing Chain

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2020 EBA Policy Research Workshop
Agenda

1. Blockchain – The value of Trust
2. The road to Seclending Chain
3. The Experimentation
4. Achievements
Blockchain – The Value of Trust

Centralized

Decentralized

Distributed
Ledger Technology
DLT (Distributed Ledger Technology)

- **Technology** that allows share, replicate and synchronize information from a **ledger** in a **distributed** way
- **Ledger** (data) is **managed** by the **network**. Not by a centralized entity.
  - The **network** is composed by **nodes**

Blockchain

- **DLT** specific type of implementation
- The information is organized in a **“Sequence of Blocks”**.
- **Blocks’** content and its **order** is **decided** by the **network** in **consensus**
Blockchain – The Value of Trust

Trust

(Less)

Distributed

Consensus

Provenance

Smart Contract

Integrity

Immutability

Blockchain

–

The Value of Trust

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Blockchain technology is **Trustless** as it allows transactions *peer-to-peer* between entities, without them having to trust each other or in a agreed *centralized agent*.

![Diagram showing the concept of Trustless transactions in blockchain](https://example.com/blockchain-diagram.png)
Blockchain technology is **Trustless** as it allows transactions *peer-to-peer* between entities, without them having to trust each other or in a agreed *centralized agent*.
Blockchain – The Value of Trust

Where is the Trust?

• Trust does not disappear!

• It was simply shifted from a centralized to a decentralized model who “grants trust” to each party based on mathematical guarantees such as consensus, smart contracts, etc.

• By removing each and every physical middleman, completely new business models may emerge!

• NCBs, as regulators, must be able to keep up with the technology behind those new business models as there is a risk for not being able to understand the impact of the changes and update the regulation accordingly.
The road to Seclending Chain
The Road to Seclending Chain

- **Eurochain**
  - BdP joined Eurochain ECB Group in 2018

- **ESCB Hackathon**
  - Proposal and first Seclending Chain Use Case Draft

- **Internal Experimentation**
  - Business Model Definition
  - Chaincode and Integration Development
  - Infrastructure configuration

- **Network Extension**
  - Call to action and network extension with DNB and OeNB

**Paper Production**
The Road to Seclending Chain

**WHY**

- Better understand the risks, capabilities and implications of this novel technology
- Explore how could this technology be used from a NCB point of view
- Explore why and how is this technology helping the disruption of current business models

**WHAT**

- Identify one, low risk-based business function that could benefit from adopting blockchain technology and promote it as a candidate use case
- Collaborative work with business, ESCB and external providers

**HOW**

- Build a DLT experimentation leveraging on an ESCB use case
- Explore the development and deployment of smart contracts for the chosen use case
- Extend the experimentation network with NCBs
Experimentation
Experimentation

**Use Case**
1. Securities Lending

**Business Design**
2. Business Design

**Development**
3. Chaincode (SmartContract) Development

**Integration**
4. Interfaces development

**Infrastructure**
5. Infrastructure configuration

**Network Extension**
6. Replication and extension of the network between NCB
Experimentation

Use Case

1. Securities Lending

Integration

4. Interfaces development

Business Design

2. Business Design

Infrastructure

5. Infrastructure configuration

Development

3. Chaincode (SmartContract) Development

Network Extension

6. Replication and extension of the network between NCB
What is it?

“Securities lending involves the owner of shares or bonds transferring them temporarily to a borrower. In return, the borrower transfers other shares, bonds or cash to the lender as collateral and pays a borrowing fee.”*

Why is it important?

“The aim of our securities lending is to help the financial markets keep functioning smoothly. This is particularly important during our expanded Asset Purchase Programe (APP)”*

*Quotes from ECB
Experimentation: Use Case - Securities Lending

Process A: Looking for a Security

As-Is

Financial Institution

ECB

NCB

To-Be: Seclending Chain

Financial Institution

Distributed Ledger

ECB

NCB
Experimentation: Use Case - Securities Lending

Process B: Lending a Security

As-Is

To-Be: Seclending Chain

Periodical Reports

Lending Player

NCB

Financial institution

Lending

Lending

Distributed Ledger

ECB

NCB

Lending Player

Financial institution

Lending
Main Points

Experimentation: Use Case - Securities Lending

Status Quo

- Each Financial Institution has to search on multiple list to find a given Security
- Each NCB and the ECB decide which information is included on its own list and its format
- Lists are updated on a weekly basis
- The lending transaction may be processed by a third party – Lending Party

What is intended

- A single list with all the Securities available for lending
- List updated in real-time
- Lending operations being also registered on the ledger
- Increase the efficiency of the operations

- Reduce costs
- Improve User Experience for the end user
- Increase security, transparency and efficiency
Experimentation

Use Case
1 Securities Lending
Integration
4 Interfaces development

Business Design
2 Business Design
Infrastructure
5 Infrastructure configuration

Development
3 Chaincode (SmartContract) Development
Network Extension
6 Replication and extension of the network between NCB
Experimentation: Business Design & Development

Use Case 1: Securities Lending

Integration 4: Interfaces development

Business Design 2: Chaincode (SmartContract) Development

Infrastructure 5: Infrastructure configuration

Development 3: Replication and extension of the network between NCB

Network Extension 6:
Experimentation: Business Design & Development
Experimentation

Use Case 1
Securities Lending

Business Design 2
Business Design

Development 3
Chaincode (SmartContract)
Development

Integration 4
Interfaces development

Infrastructure 5
Infrastructure configuration

Network Extension 6
Replication and extension of
the network between NCB
Interfaces development

- CLI
- API REST (Swagger)
- Front end (low code)
Experimentation

Use Case
1
Securities Lending

Business Design
2
Business Design

Development
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Chaincode (SmartContract) Development

Integration
4
Interfaces development

Infrastructure
5
Infrastructure configuration

Network Extension
6
Replication and extension of the network between NCB
Experimentation

Use Case

1
Securities Lending

Business Design

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Infrastructure configuration

Network Extension

6
Replication and extension of the network between NCB
Experimentation: BdP DLT Infrastructure

Ubuntu 18.04 LTS
Hyperledger Fabric 1.3

Install Environment
Start Network
Deploy Chaincode
.....
Experimentation

- **Use Case**: Securities Lending
- **Business Design**: Business Design
- **Development**: Chaincode (SmartContract) Development
- **Integration**: Interfaces development
- **Infrastructure**: Infrastructure configuration
- **Network Extension**: Replication and extension of the network between NCB
Experimentation

Use Case
1
Securities Lending

Integration
4
Interfaces development

Business Design
2
Business Design

Infrastructure
5
Infrastructure configuration

Development
3
Chaincode (SmartContract) Development

Network Extension
6
Replication and extension of the network between NCB
Experimentation: ESCB Network Extension
Achievements
Achievements

**WHY**

- Better understand the risks, capabilities and implications of this novel technology
- Explore how could this technology be used from a NCB point of view
- Explore why and how is this technology helping the disruption of current business models

**Achievements**

- Identification of blockchain intrinsic capabilities:
  - Trustless
  - Distributed
  - Tamper-proof
  - ....

- And also its specific risks and limitations:
  - Performance
  - Complexity
  - GDPR compliance
  - 51% attack
  - ....
Achievements

WHY

• Better understand the risks, capabilities and implications of this novel technology

• Explore how could this technology be used from a NCB point of view

• Explore why and how is this technology helping the disruption of current business models

Achievements

• Improvement of BdP’s knowledge on distributed technology (DLT) with a Real Use Case scenario for Operational Efficiency leveraging on a private model (trustless++)

• Identification of candidates use cases for the identified intrinsic characteristics:
  • PSD2 / Digital Identity
  • CBDC
  • …

• The importance of having a Blockchain Framework for use case decision (One Size does NOT Fit all)
Achievements

• Better understand the risks, capabilities and implications of this novel technology
• Explore how could this technology be used from a NCB point of view
• Explore why and how is this technology helping the disruption of current business models

WHY

Achievements

• Transferring the control and ownership of the information to the user by removing it from the middle man organizations.
  • Peer to Peer Transactions,
  • End user controls the information lifecycle
Thank You

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