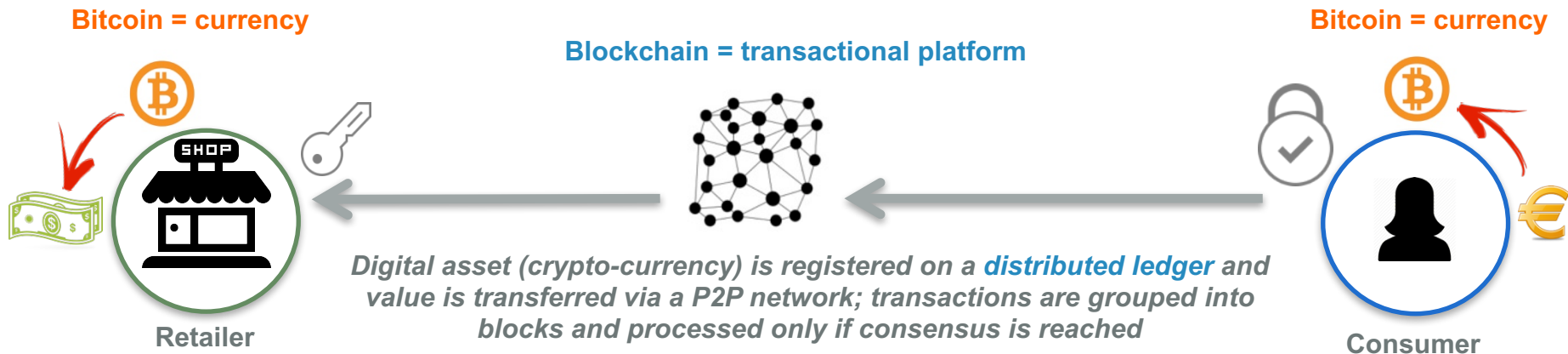


IBM PoV on Blockchain



Luca Comparini
Blockchain Leader, IBM France

 @lucacomparini



Retailers accept bitcoin (Amazon, Expedia, Dell, ..)

Blockchain technology is re-usable:

Risk / Opportunity of Disintermediation

Pseudo-anonymity, decentralised, censorship resistant

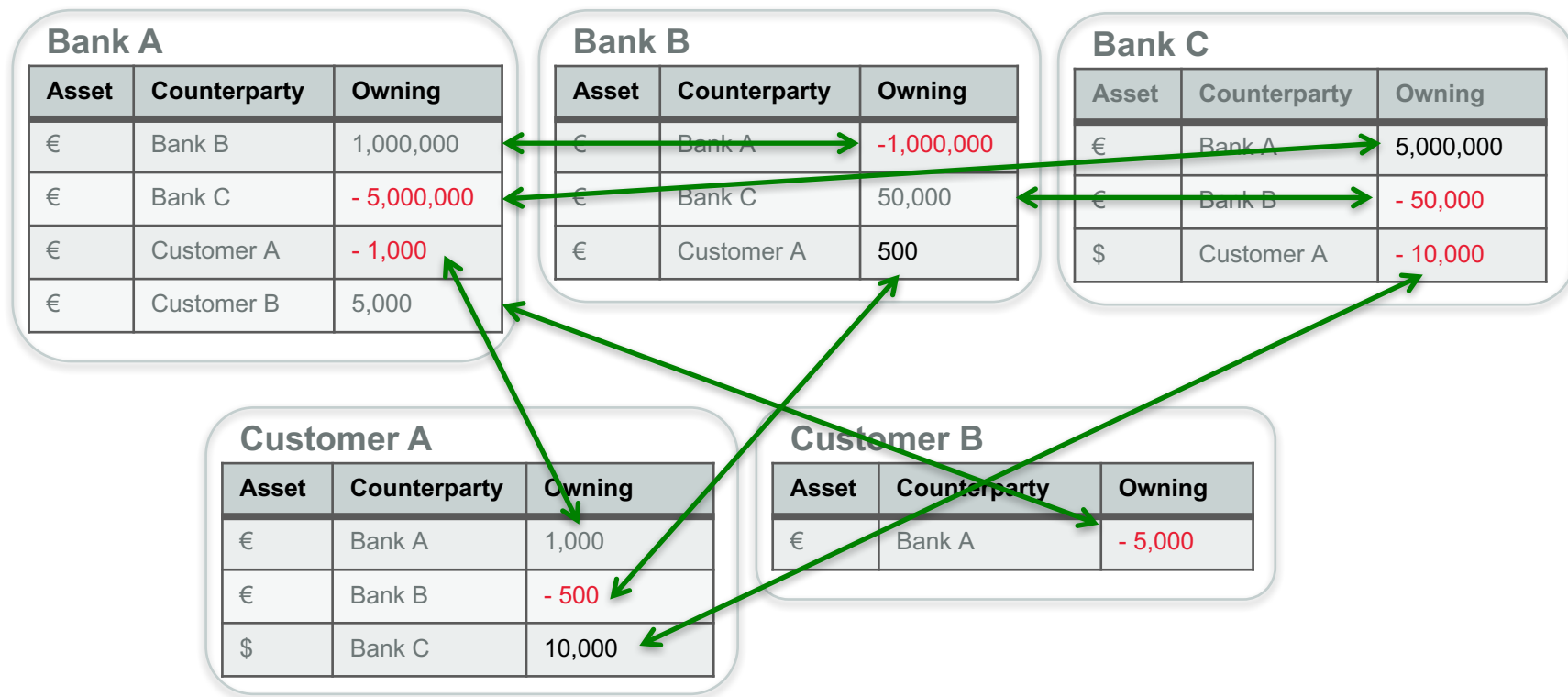
Law and regulation; KYC / AML?

Reputation: for geek, volatile, risky (MtGox scandal)

Ledgers and reconciliation



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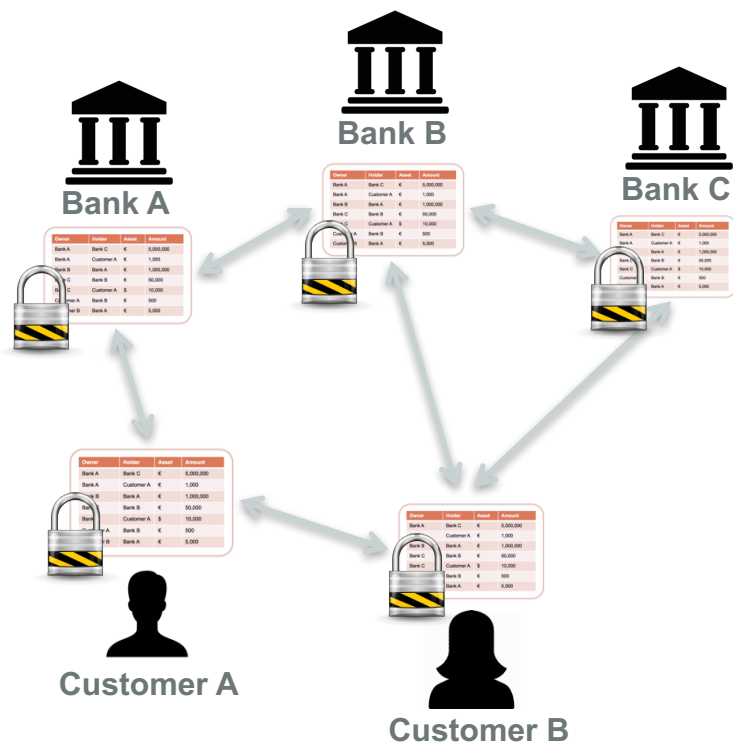


Blockchain

Distributed, shared and replicated ledger



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| Owner | Holder | Asset | Amount |
|------------|------------|-------|-----------|
| Bank A | Bank C | € | 5,000,000 |
| Bank A | Customer A | € | 1,000 |
| Bank B | Bank A | € | 1,000,000 |
| Bank C | Bank B | € | 50,000 |
| Bank C | Customer A | \$ | 10,000 |
| Customer A | Bank B | € | 500 |
| Customer B | Bank A | € | 5,000 |

Ledger is **shared** and **replicated**:

- Single source of truth
- Ledger is public
- Ledger is immutable

Blockchain defined as “**Trust Machine**”



« *Tractatus XI
particularis de
computibus et
scripturis* »
Luca Pacioli (1494)



Transfer of Assets

- Suitable for recording transactions in a business network
- Assets could be tangible or intangible

Ledger & Traceability

- Proof of existence
- Audit and compliance
- Shared decentralised reference.
- Suitable for keeping track a set of information, shared across a business network
- Supply chain
- Reduce costs for certifications

Self-executable contract

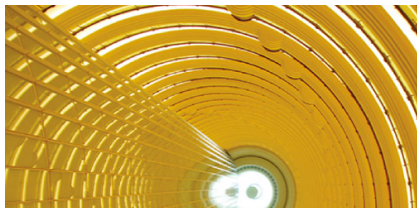
- Process optimization and costs reduction (operational excellence)
- Services automation for simplification and acceleration of time-to-market (new services)

IBM Thought Leadership on Blockchain

IBM Institute for Business Value



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Fast forward

Rethinking enterprises, ecosystems and economies with Blockchain

[Read the report](#)



The Economy of Things

Extracting new value from the Internet of Things

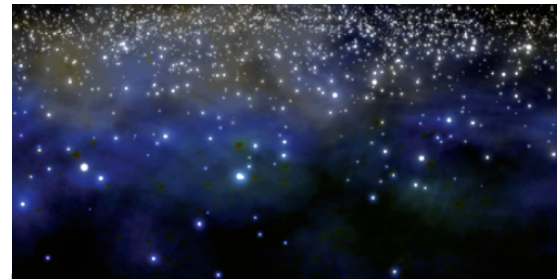
[Read the report](#)



Empowering the edge

Practical insights on a decentralized Internet of Things

[Read the report](#)



Device Democracy

Saving the future of the Internet of Things

[Read the report](#)

Same ingredients...



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Permission-less

Design points:

- Public network with no 3rd parties
- Trustless environment
- “Censorship-Resistance”

Consensus:

- Expensive, slow
- Incentives intrinsic to platform

Permissioned

Design points:

- Private / Semi-private network
- Actors known / knowable
- Regulated Industries

Consensus:

- Protocol assumes known actors
- Incentives extrinsic to platform

IBM focus is here

Based on:

- Swanson, T. (2015). *Consensus as a service: a brief report on the emergence of permissioned, distributed ledger systems.* - Brown, R. G. (2015) *Towards an unified model for replicated, shared ledgers.*

IBM vision on Blockchain

IBM's code was developed through the collaboration of more than 35 global IBM Researchers and software developers dedicated to the **Linux Foundation** project, and more than 100 technical architects focused on making blockchain ready for business. IBM offered its code to the **open source Hyperledger Project**.



Shared Ledger
single source of
truth



Secure
(Cryptography)
tamper proof



Permissioned
Participants Identity



Private
un-linkable identity



Audit-able
prove identity &
ownership



Consensus
Modular protocol



Smart Contracts
business logic



Digital assets
Record depository



Confidential
permission control



Scalable
100+ year
architecture

Black : « standard » properties of Blockchain
Blu : added properties / uniqueness of IBM



WHAT IS THE HYPERLEDGER PROJECT?

The Hyperledger Project is a collaborative effort created to advance blockchain technology by identifying and addressing important features and currently missing requirements, for a cross-industry open standard for distributed ledgers that can transform the way business transactions are conducted globally.

Mission:

Create an **enterprise grade, open source distributed ledger framework and code** base upon which users can build and run robust, industry-specific applications, platforms and hardware systems to support business transactions.

IBM supports the **Linux Foundation Hyperledger open standard, open source, open governance** Blockchain

PREMIER



GENERAL

