
WhatNext Tech 1.0

Blockchain as a Service

Tavolo 4

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The problem: improving efficiency, security, transparency and cost-effectiveness of digital workflows

- In particular, workflows involving many independent actors, possibly not trusting each other, can bring to the creation of data silos -> inefficiencies in sharing data stored in different databases, low trust on data quality
- Example of a use case relevant to INFN:
 - research product quality evaluation, peer reviewing, bibliometrics
 - Possible integration with digital asset management systems
- [\[1\]https://www.eublockchainforum.eu/sites/default/files/reports/eu_observatory_blockchain_in_government_services_v1_2018-12-07.pdf](https://www.eublockchainforum.eu/sites/default/files/reports/eu_observatory_blockchain_in_government_services_v1_2018-12-07.pdf)

Research product quality evaluation, peer reviewing, bibliometrics

- USE CASE description: research products management (e.g. publications) through block chain in every stage of the product life cycle
- Include every stakeholder/actor responsible for every phase (authors, referee, institutions, companies...) to create value around the product with differentiated/weighted contribution
- ...that could be objectively assessed in a subsequent evaluation process
- ...and used for other purposes e.g. in tech transfer (cfr. Smart Contracts), intellectual property & knowledge management...

Blockchain as a Service @ INFN-CC

- Blockchain is a distributed system technology based on well established concepts like:
 - Consensus algorithms
 - Cryptography
 - Game theory
- Blockchain as a Service could enable any INFN-CC user to instantiate a blockchain infrastructure to be used to address a particular use case
 - Some customization options could be offered
 - Permissioned vs permissionless
 - PoW vs PoS
 - Different consensus algorithms
- Value created: ability to implement automatic, transparent and secure workflows
- Buyer (INFN) could exploit BC-based services to improve efficiency, transparency and trust of its digital workflows
- Consumers (INFN personnel) could exploit BCaaS to perform research in the Blockchain field.
- Blockchain technologies promise to bring unprecedented transparency, trust and efficiency in existing workflows

Market description

- Buyer: INFN
- Consumer: INFN personnel
- Transparency and lightness in bureaucratic processes is an evergreen need.
- **Where and when do buyers buy it?**
 - Online, BCaaS platforms, main focus: business workflow improvement, food traceability
- **Competitors? Price comparison of comparable products?**
 - Amazon AWS Quantum Ledger DB and Amazon Managed Blockchain
 - IBM Food Trust

Concept validation from key stakeholders

- Have you validated / gotten confirmation about the proposed concept with input from key stakeholders? (i *nostri* stakeholders all'interno dell'INFN ma pensiamo anche a “competitors” che offrono prodotti o servizi simili). Examples:
 - Input from customers? Buyers?
 - Wall Mart
 - Input from owners / producers of similar products/services?
 - Amazon AWS, IBM first product offer
 - Input from technical experts?
 - <https://www.eublockchainforum.eu/>
 - <https://www.agendadigitale.eu/cittadinanza-digitale/blockchain-nella-pubblica-amministrazione-ecco-le-condizioni-di-utilizzo/>

What do you need to refine the concept?

- (Buyer INFN) Investigate main Blockchain platform
 - Hyperledger, Ethereum
- (Buyer INFN) Understand if and how a BCaaS can be put in INFN-CC
- (Users) Understand use case requirements
- (Users) Investigate Blockchain options for the particular use case
 - Consensus algorithms
 - PoW vs PoS vs PoSomethingElse
 - Criptography algorithm