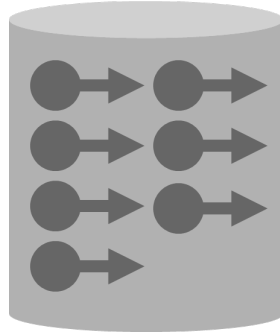


From databases to Blockchain

Technical view of the difference between a central database and a Blockchain

1 Central Database

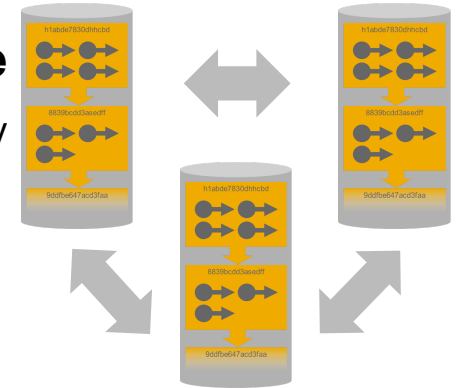
- Transaction-based data only
- Transaction will be digitally signed



3 “Immutable” Distributed Database

- *Distribute* blocks using peer-to-peer technology
- Generate *consensus* of data validity

➔ **Synchronized Distributed Database**

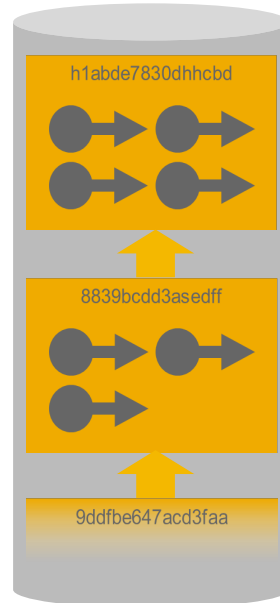


2 “Immutable” Central Database

Immutability of transactions:

- *Hash* a block of transactions
- Generate a *chain of blocks*

➔ **Chain of blocks**

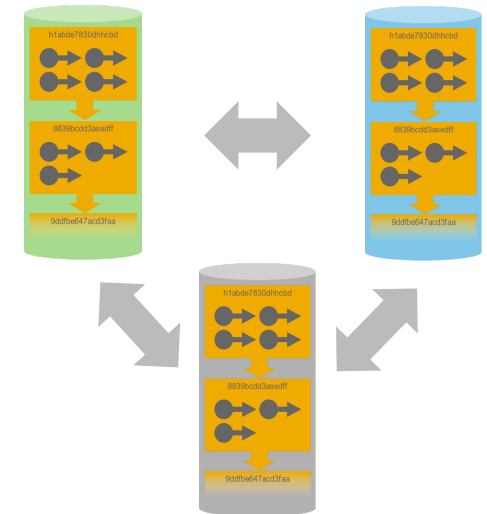


4 Immutable Decentral “Database”

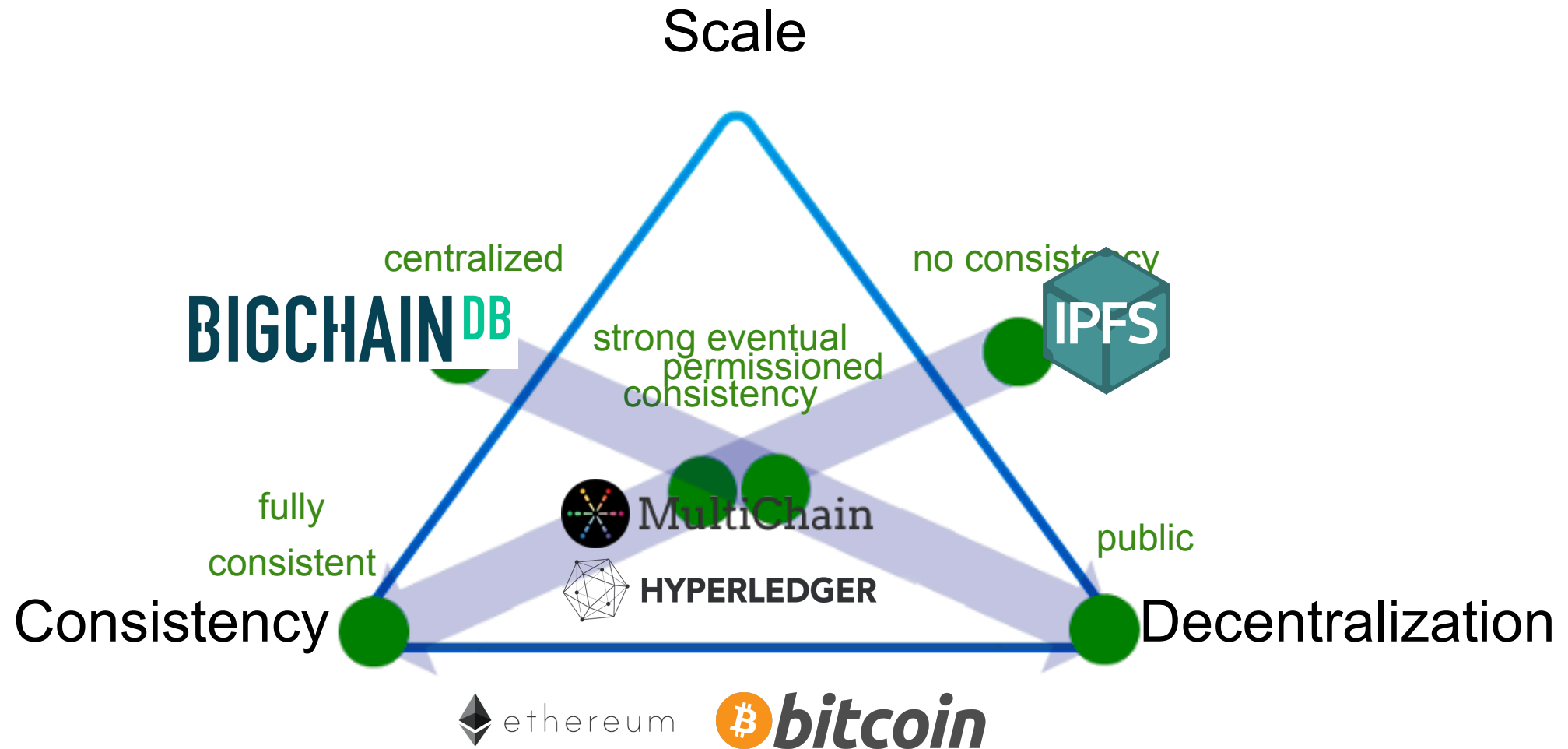
Decentral organization of the network

- Participants *do not fully trust* each other
- Full *transparency* (among participants)
- *Automatic synchronization* with consensus
- No DB Admin

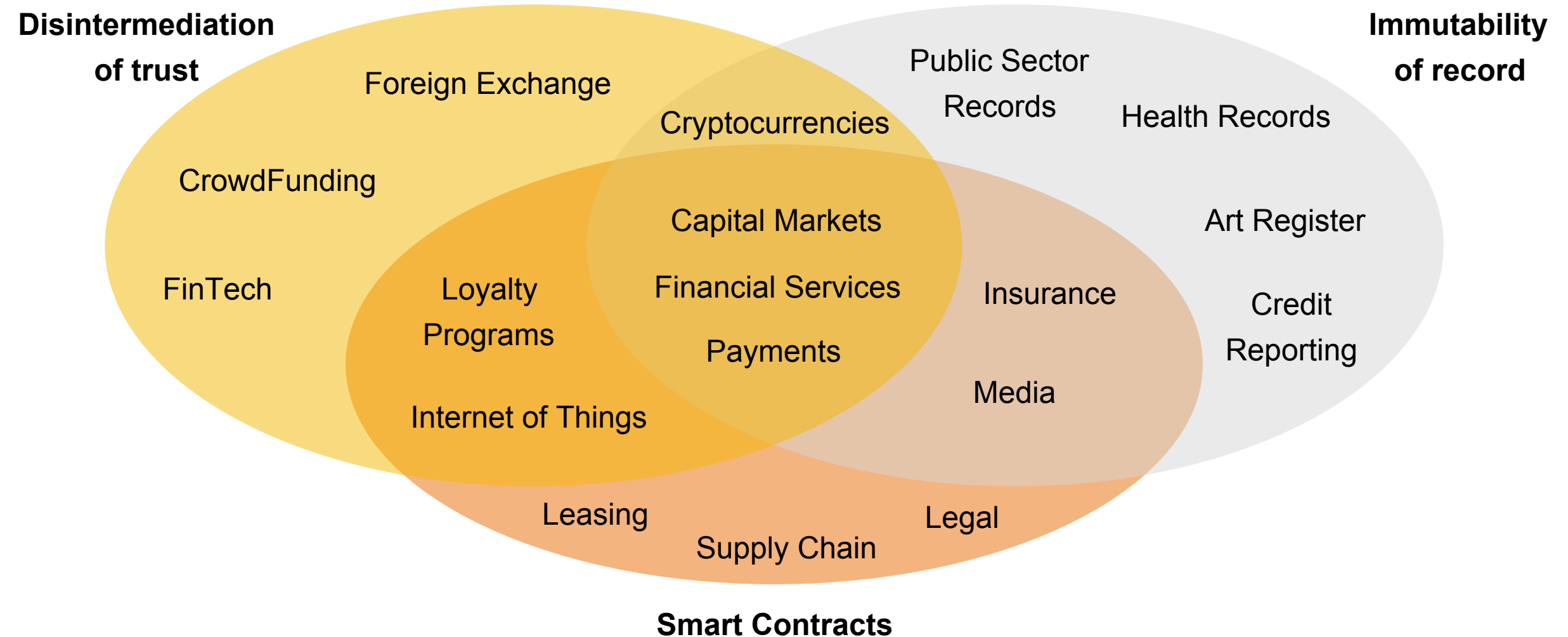
➔ **Blockchain**



Engineering tradeoffs



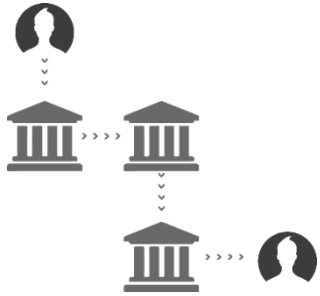
Applications on top of Blockchain platform



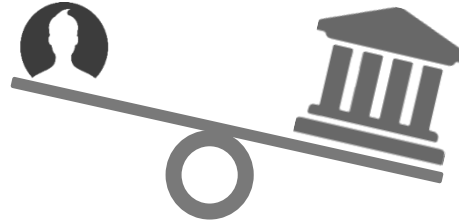
Source: Credit Suisse Research

Blockchain value drivers

MULTI-PARTY COLLABORATION



INFORMATION IMBALANCE



TIME & COST REDUCTION



RISK & FRAUD MINIMIZATION



DIGITAL ASSETS



TRANSPARENCY & AUDITABILITY



Where does Blockchain make sense?

In any use case where ...

- ... many **write transactions** involving **many different parties** occur
- ... a party **does not fully trust** the other party (“trust-less”)
- ... true **immutability of transactions** is required
- ... achieve **disintermediation**.

“If your requirements are fulfilled by today’s relational databases, you’d be insane to use a blockchain.”

Source: “Avoiding the pointless Blockchain project”

www.multichain.com/blog/2015/11/avoiding-pointless-blockchain-project/