Blockchain

Selected tax and regulatory aspects

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Contents

- **What is "blockchain"?**
- Selected regulatory aspects
- Selected tax aspects
- Q&A

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blockchains = a subset of databases in general

F. Glatz:

A blockchain can be defined as…

- An immutable, append-only database
- Recording some information about the world
- Shared within a network of stakeholders
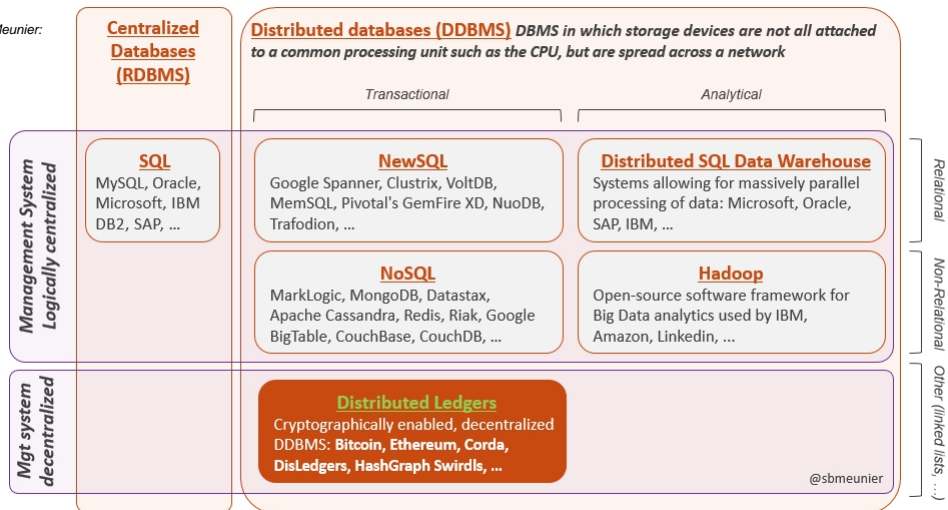- Who agree that what is recorded in the database is true

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blockchain = a distributed database of a special kind

S. Meunier:

	Centralized Databases (RDBMS)	Distributed databases (DDBMS) *DBMS in which storage devices are not all attached to a common processing unit such as the CPU, but are spread across a network*		
		Transactional	*Analytical*	
Management System Logically centralized	**SQL** MySQL, Oracle, Microsoft, IBM DB2, SAP, …	**NewSQL** Google Spanner, Clustrix, VoltDB, MemSQL, Pivotal's GemFire XD, NuoDB, Trafodion, …	**Distributed SQL Data Warehouse** Systems allowing for massively parallel processing of data: Microsoft, Oracle, SAP, IBM, …	*Relational*
		NoSQL MarkLogic, MongoDB, Datastax, Apache Cassandra, Redis, Riak, Google BigTable, CouchBase, CouchDB, …	**Hadoop** Open-source software framework for Big Data analytics used by IBM, Amazon, Linkedin, …	*Non-Relational*
Mgt system decentralized		**Distributed Ledgers** Cryptographically enabled, decentralized DDBMS: Bitcoin, Ethereum, Corda, DisLedgers, HashGraph Swirdls, … @sbmeunier		*Other (linked lists, …)*

Further distinction: permissionless vs. permissioned blockchains

Permissionless (public r+w)
E.g. Bitcoin

- No previous relation required to participate / validate
- Open platform, anyone can "vote" on the validity
- Weight of the vote determined according to Proof-of-work / Proof-of-stake / …

Permissioned (private w, public or private r)
E.g. R3, Bolero-KBC, HSBC …

- Only authorised participants can validate transactions
- Specific validation rules per platform

Q: *Is a permissioned blockchain without tokens really more efficient than a centralized system?*

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Regulatory points of attention common to all databases

- Privacy (GDPR!)
- Risk & liability management
- Integrity
- Security
- + sector-specific concerns:
  - E.g. healthcare (patient data)

Blockchains in the post-trading sector: Euroclear example

- Specific regulations applying to International Central Securities Depository (ICSD)
- Euroclear blockchain papers
- European Central Bank – Occasional Paper Series "Distributed ledger technologies in securities post-trading" (04/2016)

Permissionless blockchains: specific points of attention

- Tokens without real value or where value is secondary ("colored coins")
  - -> open source DB licences
- Token issuer liability in general
- When does a token become a regulated financial instrument?
  - Bitcoin ≠ (e-)money ≠ MiFID financial instrument
  - quid Initial Coin Offerings (ICOs)?
    - Not all ICOs are equal…
    - Case-by-case

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Enforcement perspective: blockchains with public read rights

Full transparency : are we ready ?

- <-> privacy and GDPR ?
- proportionality ?
- fungibility and efficiency ?

Het gerecht en de fiscus moeten toegang krijgen tot een databank die in realtime bijhoudt wie welke bankrekeningen heeft in ons land. Dat zijn de meerderheidspartijen overeengekomen in een gezamelijke tekst voor het eindverslag van de bijzondere Kamercommissie-Panama Papers. >

Substantive tax law

Nil novi sub sole …

- Substantive tax law turns out to be quite resilient & future-proof
- Taxable or exempt income = determined under common, regular rules, no separate regime for blockchains
- E.g.:

IRS Virtual Currency Guidance : Virtual Currency Is Treated as Property for U.S. Federal Tax Purposes; General Rules for Property Transactions Apply