



EU Blockchain *meetup*

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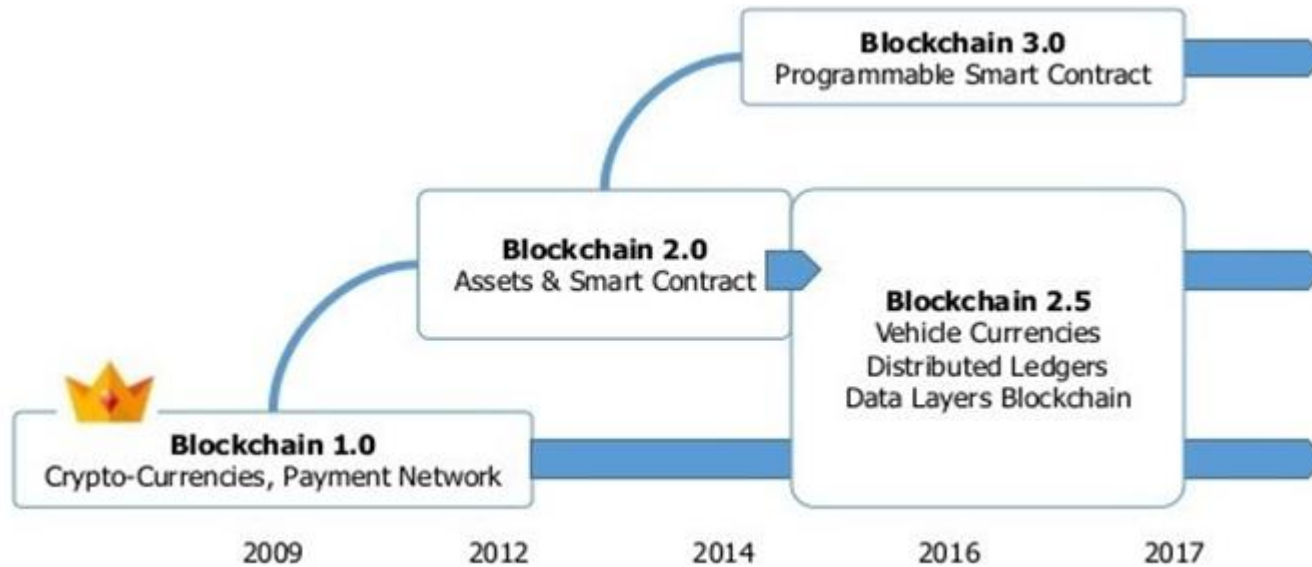
Blockchain (blockchain inspired technologies)

- A breakthrough persuasive technology with potential to underpin countless applications in various areas
- Enabling multiple parties to co-create and share a database in a distributed, safe and secure way
- Guaranteeing the execution of exchanges between groups of users without the need for intermediaries
- Exchanges can be:
 - **Transfer of assets:** e.g. crypto currencies, but not only, securities, votes, shares, bonds, tokens etc
 - **Records /data /registers:** e.g. for traceability of products
 - **Smart contracts:** Stand-alone programs that automatically execute a task according to terms and conditions fixed in advance

It 's all about trust!

Evolution of blockchain

(e.g. the DAO)



Source: blog.knoldus.com

Still evolving and still in early stage....

Blockchain



Need to distinguish:

- Blockchain at **infrastructure/protocol level** (eg Bitcoin blockchain, Ethereum, Hyperledger, ...)
- Blockchain at **application level** (countless applications...)
- Different types of blockchain

Public: permissionless



Public: permissioned



Private: permissioned



Interesting features: new decentralised models for transparency, trust, efficiency and control

- ✓ *Transactions automated, recorded and cleared by peers -> guarantee of execution, immutability of records*
- ✓ *Desintermediated (or not fully)*
- ✓ *Decentralised and shared*
- ✓ *Tokenisation (valorisation of project, possible exchange and reward enabling users engagement etc.) -> ICOs*
- ✓ *Combining encryption / security features*
- ✓ *Governed by the code or a set of rules (permission-less / permissioned)*

Blockchain



Countless opportunities in various sectors, and still un-envisaged ones

	Industry	Use cases	Start-ups
	Energy, utilities & mining	<ul style="list-style-type: none"> Smart utility metering system Decentralised energy data platform 	Bankymoon AutoGrid
	Entertainment & media	<ul style="list-style-type: none"> Control of ownership rights of digital media Disintermediation of record labels 	Ascribe Mycelia
	Financial services	<ul style="list-style-type: none"> International P2P transactions Anti-money laundering 	Bitcoin Coinfirm
	Government & public services	<ul style="list-style-type: none"> Land ownership records Tamper-proof voting records Digital identity of citizens 	Factom Follow My Vote Tradle
	Healthcare	<ul style="list-style-type: none"> Storage of healthcare records Population health and clinical studies 	HealthNautica Tierion
	Hospitality & leisure	<ul style="list-style-type: none"> Loyalty programmes 	Loyyal
	Insurance	<ul style="list-style-type: none"> Peer-to-peer flight insurance policies Micro-insurance 	InsurETH Stratumn
	Transportation & logistics (freight transport)	<ul style="list-style-type: none"> Trade documentation (e.g. Bill of Lading) Trade finance Supply chain transparency 	Wave Skuchain Provenance
	Transportation & logistics (aviation)	<ul style="list-style-type: none"> Distribution of tickets and ancillary services Loyalty programmes (cf. H&L) Passenger identity management 	Loyyal

Courtesy: PwC

Developments in different contexts

- ✓ *Capturing simple/complex transactions (smart contracts); different volumes, different rates (still technical boundaries)*
- ✓ *Pioneering/leading initiatives or consortia (PoC, how to scale-up?)*
- ✓ *Proprietary and open approaches (different governances)*
- ✓ *Disintermediation/disruption or new types of intermediation (integration with legacy)*
- ✓ *Improving efficiency or solving pain-points in structured environments (eg for easier shared creation of databases, recording multiple actions and involving multiple operators)*
- ✓ *New solutions in less constrained environments (eg role of tokenisation)*

Challenges (1)



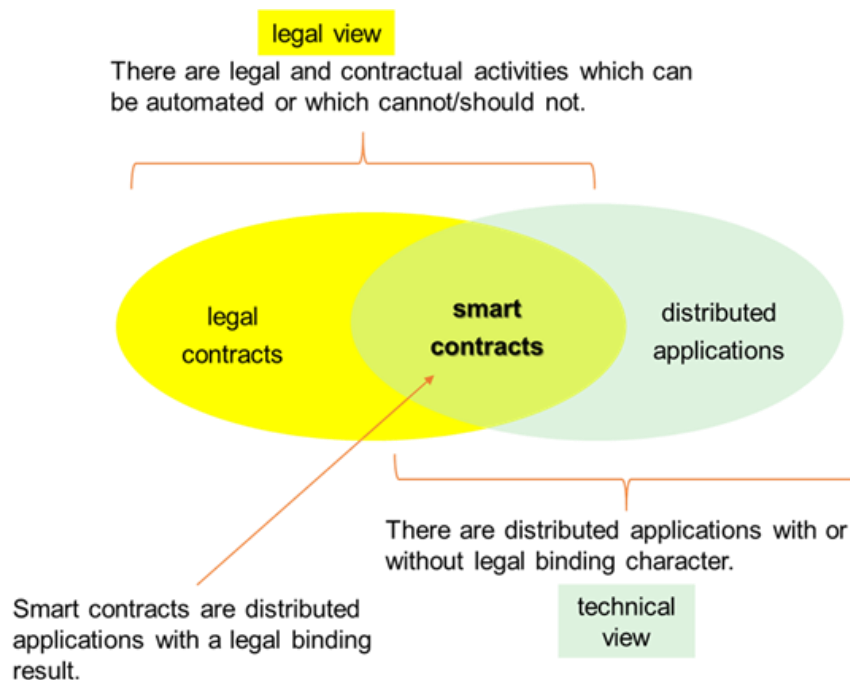
- Scalability, interoperability, technical standards, technical developments, governance ...
- Legal and Regulatory challenges: (often in gray areas of laws)
 - **Compliance with EU and national rules:**
even if there is no blockchain-specific regulation, blockchain-based applications are subject to existing laws and regulations
 - **Development of technically neutral, friendly, future –proof legislation or agile enabling regulatory framework (sandboxing?)**
- Different types of regulation in different context
 - **Borderless technology, harmonized rules? which jurisdiction?**
 - **Data protection, privacy, "Right to be forgotten"**
 - **Reduced anonymity (KYC, AML ...)**
 - **Legal validity (of immutable tampered source of proof), enforcement by a court,**
 - **Initial Coin Offerings (ICOs) / Tokens**
 - **Status of cryptocurrencies**
 - **Smart contract**

Challenges (2)



Legal Challenges for smart contracts:

- How to include elements of 'traditional' contracts ?
- Degree of subjectivity or judgement on a case-by-case basis?
- Circumstances and conditions, e.g. force majeure
- What about transactions needed to be in writing form, e.g. tranform of land?



Actions at EU level



EU Observatory and Forum Starting early 2018 - observe trends, developments and debate on challenges

Engaging with MS initiatives, startups ecosystems and industry

Regulatory and legal issues: towards more legal certainty

Interoperability and Standardisation (eg ISO)

Governance and trust

Supporting pilot actions upscaling PoC, industry and ecosystems

Preparing for (EU) public services on blockchain

Assessing needs for a (trusted) EU blockchain infrastructure

...



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Thank you