Decentralized Applications on Blockchain

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Outline

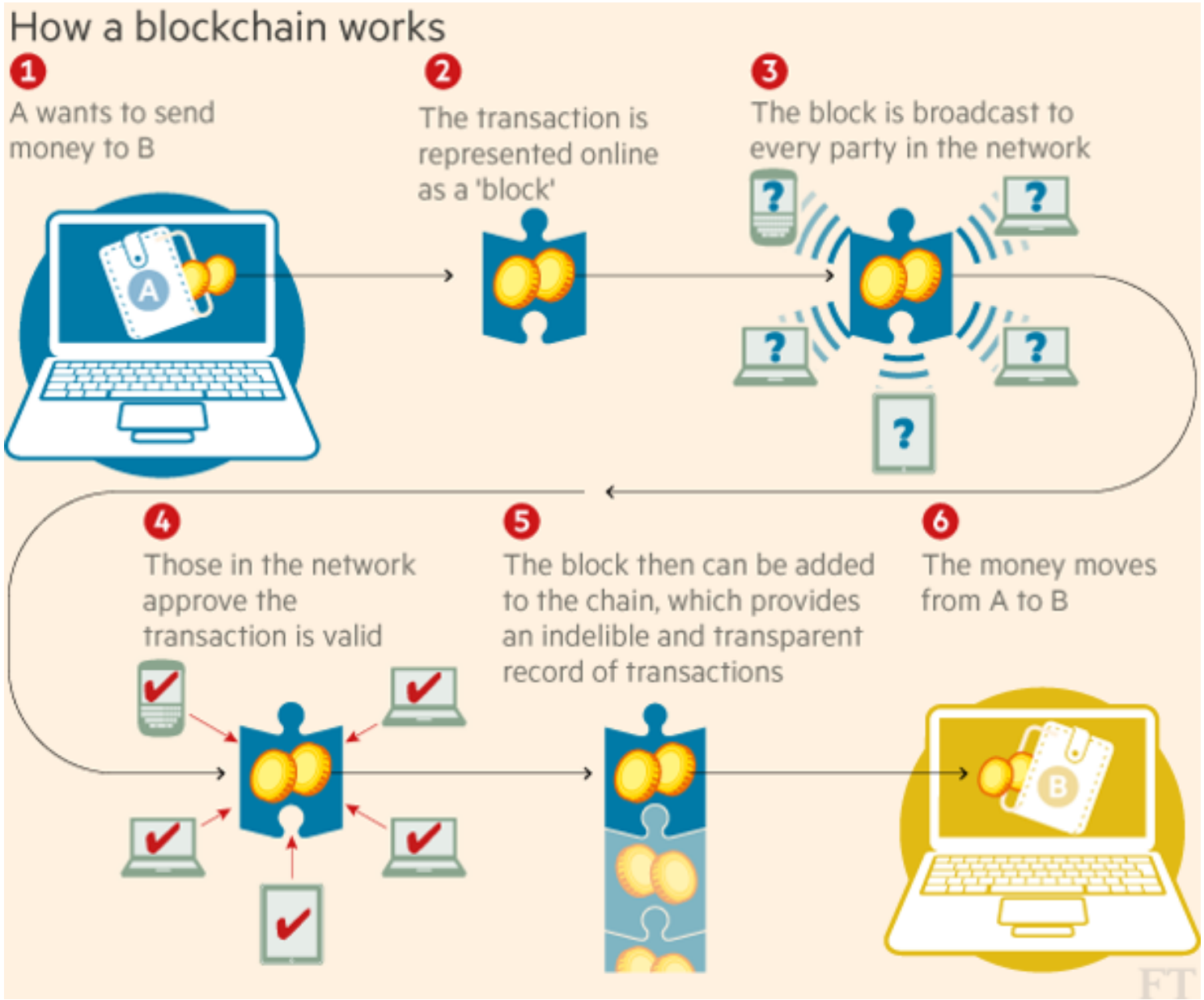
Introduction

- Blockchain is a specific form or subset of **distributed ledger technologies** , which constructs a chronological chain of blocks, hence the name 'block-chain'.
- A blockchain is a **write-only data structure**, where new entries get appended onto the end of the ledger. Every new block gets appended to the block chain by linking to the previous block's 'hash'. There are no administrator permissions within a blockchain that allow editing or deleting of data.
- Blockchian is a cryptographed, secure, decentralized database. Shared, trusted, public ledger of transactions, that everyone can inspect but which **no single user controls** or can change. Once you put something into it, it will stay there forever.
- **Applications of Blockchain**: Smart Contracts, Government body, Cryptocurrency, Digital Identity, Registry, IoT, compliance, Financial Service, Health care, Insurtech

Blockchain

- A **block** refers to a **set of transactions that are bundled together** and added to the chain at the same time. In the Bitcoin blockchain, the miner nodes bundle unconfirmed and valid transactions into a block. Each block contains a given number of transactions.
- A blockchain can be both **permissionless or public** (like Bitcoin or Ethereum) and **permissioned or private** (like the different Hyperledger blockchain frameworks).
- In the Bitcoin network, **miners** must solve a cryptographic challenge to propose the next block. This process is known as **'proof of work'**, and requires significant computing power.
- These **smart contracts** are a piece of code running on top of a blockchain network, where digital assets are controlled by that piece of code implementing arbitrary rules.

How Blockchain Transaction Works

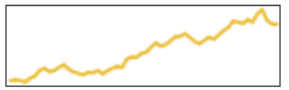
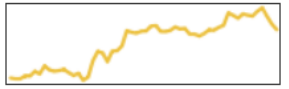
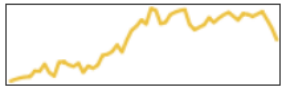
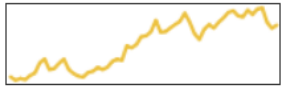


Blockchain Technology

- `https://anders.com/blockchain/blockchain.html` - Blockchain Demo

Top cryptocurrency

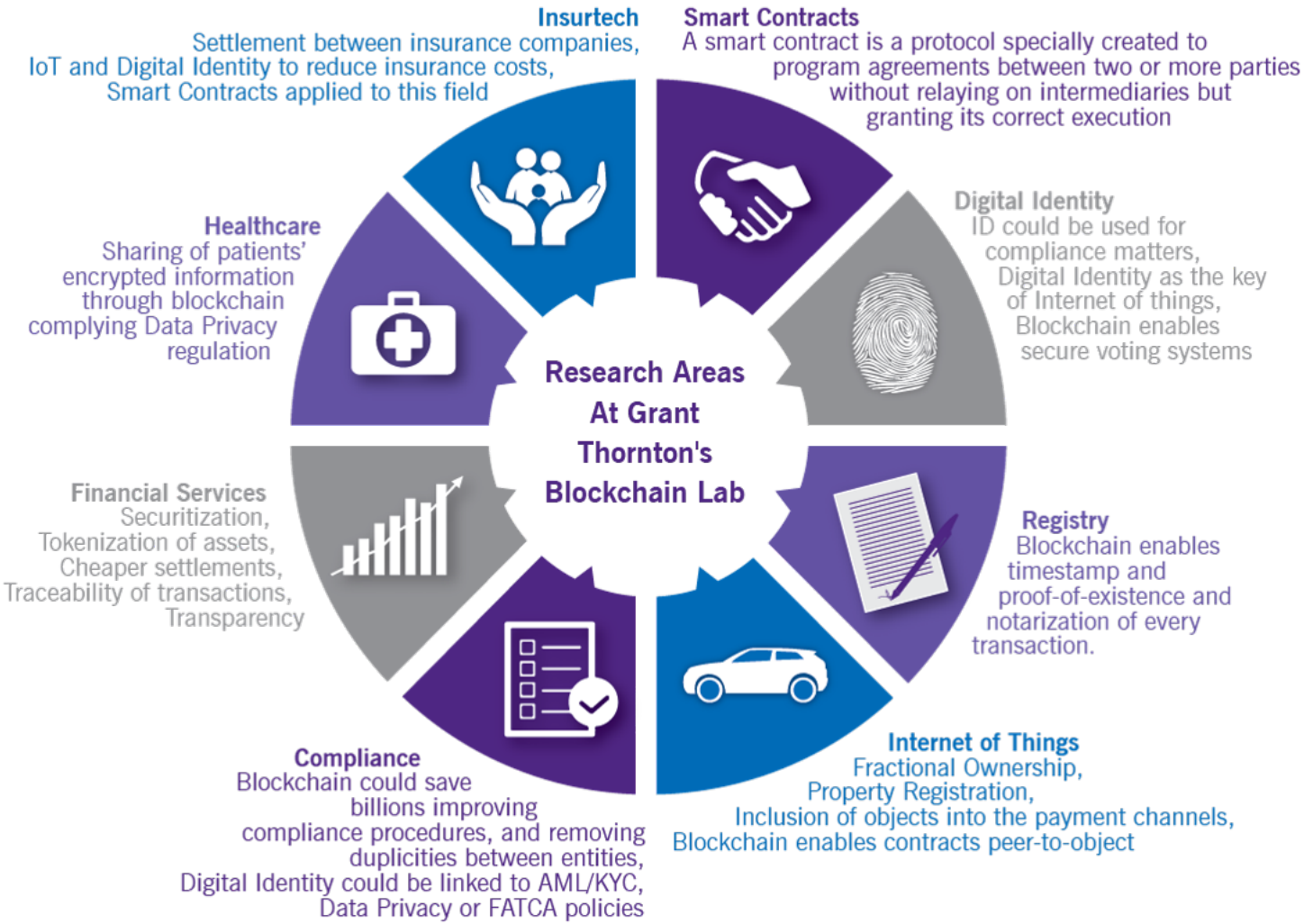
All ▾ | Coins ▾ | Tokens ▾ | USD ▾ | Next 100 → | View All

#	Name	Market Cap	Price	Volume (24h)	Circulating Supply	Change (24h)	Price Graph (7d)
1	Bitcoin	$179,499,786,772	$10,638.90	$9,239,760,000	16,872,025 BTC	-1.59%	
2	Ethereum	$91,295,321,822	$934.54	$2,713,520,000	97,690,221 ETH	-3.19%	
3	Ripple	$44,132,686,246	$1.13	$1,585,400,000	39,009,215,838 XRP *	-1.63%	
4	Bitcoin Cash	$25,916,773,015	$1,526.84	$893,986,000	16,974,125 BCH	-0.85%	
5	Litecoin	$12,149,280,620	$219.81	$886,690,000	55,270,983 LTC	-3.49%	
6	Cardano	$10,112,853,863	$0.390050	$394,117,000	25,927,070,538 ADA *	-4.44%	
7	Stellar	$8,394,146,468	$0.454535	$88,418,200	18,467,546,983 XLM *	-3.52%	
8	NEO	$8,382,270,000	$128.96	$221,505,000	65,000,000 NEO *	-4.25%	
9	EOS	$6,518,958,602	$9.63	$374,163,000	676,984,218 EOS *	-3.61%	
10	IOTA	$5,764,301,082	$2.07	$43,502,300	2,779,530,283 MIOTA *	-4.23%	

Blockchain Technology Comparison

	Bitcoin	Ethereum	Hyperledger
Cryptocurrency based	Yes	Yes	No
Permissioned	No	No	Yes
Pseudo-anonymous	Yes	No	No
Auditable	Yes	Yes	Yes
Immutable ledger	Yes	Yes	Yes
Modularity	No	No	Yes
Smart contracts	No	Yes	Yes
Consensus protocol	POW	POW	Various

Blockchain For Business



ICO - Crowd Funding

- ICOs are a type of crowd funding or crowd investing tool conducted entirely on the blockchain. Originally, the main idea of an ICO was to fund new projects by pre-selling coins/tokens to investors interested in the project.

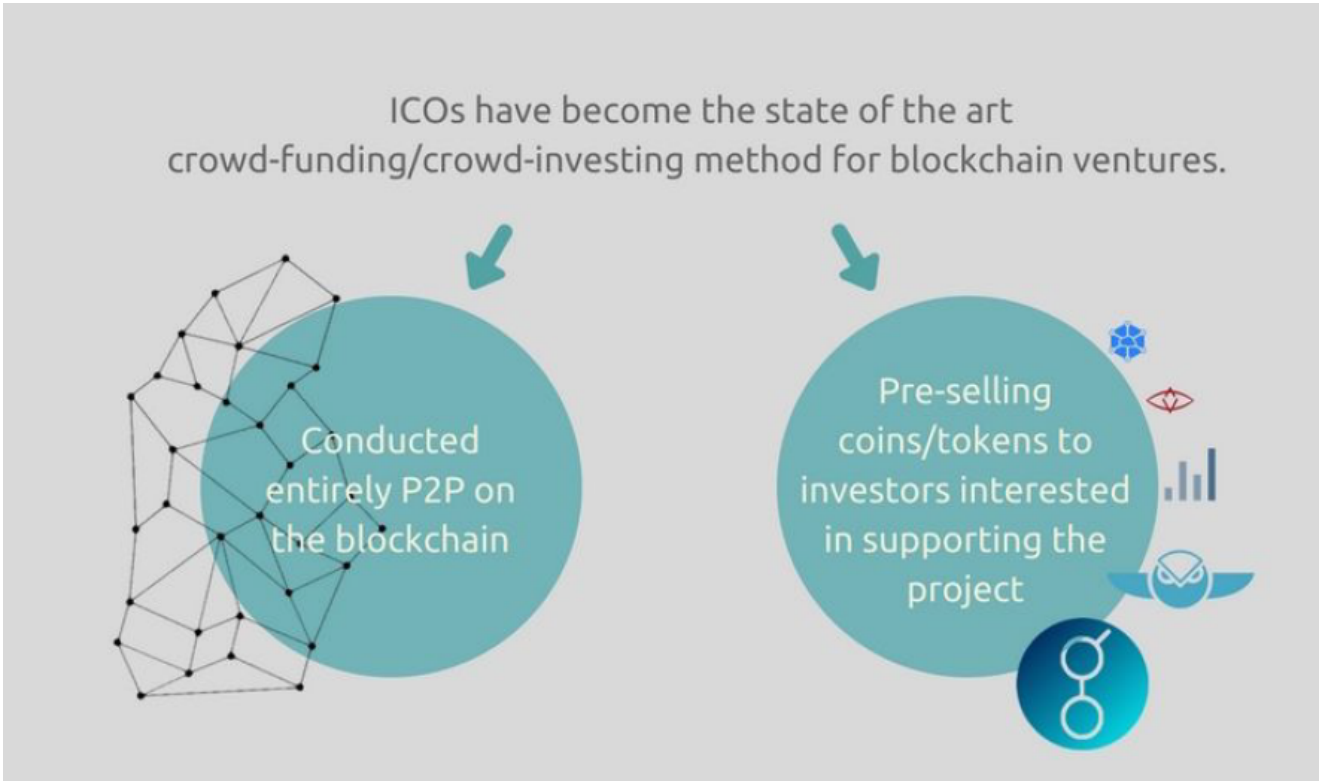


Figure: Initial Coin Offering

XinFin (XDC01 Protocol)

- XinFin will ensure users on the XDC blockchain not to accidentally send their tokens to an incompatible ERC20 based blockchain or to wrong address which doesnt exist within network. This is one of the major issues XDC01 Protocol will be addressing.
- Likewise, XDC01 will also be built on top of the ERC20 standard, the hybrid nature of the XDC blockchain extends to interoperability with public blockchains like Ethereum and Bitcoin. The XDC01 protocol seeks to create a truly decentralized cryptocurrency space through interoperability.
- Customer-centric XinFin blockchain is focused on solving real-world problems and improving efficiency. Utility for XinFin blockchain platform is currently working on several in-house pilot projects in Solar, Travel, Aviation, and Fintech sectors.

Key words of Blockchain and Cryptocurrency

- Blockchain, Blockchain Node
- P2P Network
- Smart Contracts
- Tokens
- Ledger
- ICOs
- Mining
- Paper wallet, HD wallet
- PKI
- Genesis Block
- Double spending
- Private, Public and Hybrid Blockchain
- Proof of Work, Proof of Stake
- Web-3, The Decentralized Web
- DAPPs
- Solidity, GO, Geth, Mist, Hyperledger, Ethereum

Work Description

- Week-1: Team building, Discuss about blockchain, cryptocurrency, Bitcoin, Ethereum, Dash and SHA256.
- Week-2: Deep research on Blockchian technology. Discuss different aspects of Blockchian technology. Familiar with key words of Blockchain and Crypto economics.
- Week-3: Power point presentation on blockchain technology. Find new use cases of Blockchian technology. Start to learn Node.js, MongoDB. Explore different algorithms of Blockchian.
- Week-4: Made REST full API on node.js. Make small blog application to understand how blockchain technology works. Explore IBM hyperledger technology (hyperledger febric).
- Week-5: Start to learn smart contracts, token generation transfer, solidity coding on ethereum's blockchian.

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Thank You.