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# BLOCKCHAIN AND CRYPTOCURRENCIES: WHAT THEY ARE

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# OUTLINE

- What blockchain is
- What cryptocurrencies are
  - And why we care
- Central banks: why they care

# WHAT BLOCKCHAIN IS

- We usually save our data on hard drives, flash drives, phones and whatever
- Dropbox and Google drive, and Yandex disk are some examples of distributed data storage
- Blockchain is just another way to store data
  - It is a database!
- This is a distributed ledger that keeps data (effectively) at many servers, usually in different locations, and thus provides additional security

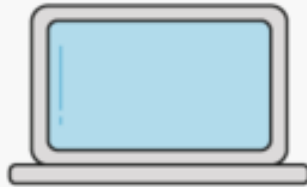
# SO WHAT BLOCKCHAIN IS?

- This is a technology
- It allows transactions to be combined into blocks and to be recorded
- Important difference with Dropbox is that blocks depend from each other
  - Cryptography allows to chain blocks so that it's hard to change the sequence
- The database can be accessed from many (any number of) computers
- The speed of transactions might increase a lot

# TELL ME WHAT BLOCKCHAIN IS!!!

## HOW CHANGES GET MADE ON A BLOCKCHAIN

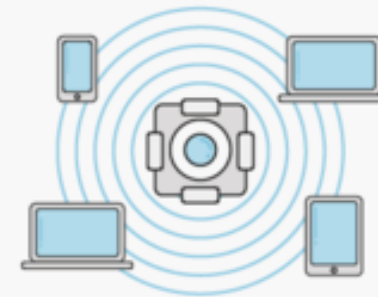
Person A wants to make a **change** to the blockchain.



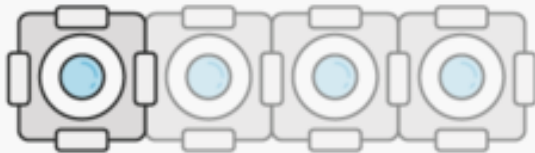
This change will create a new **"block"**.



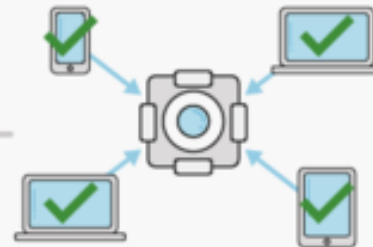
This block is broadcast to every computer on the **distributed network**.



The new block is added to the chain. There is a **permanent record** of the change and it can't be undone.



Those computers **approve** of the change.



# WHAT CRYPTOCURRENCIES ARE

- You may use Blockchain for several purposes
- E.g. it allows
  - Distributed access to the data
  - Consensus among users on the data
  - Transactions
  - Smart contracts (this is like automatic contracts)
- However, the very first application was currency
  - As everything started from Bitcoin

# BITCOIN

- October 2008: Satoshi Nakamoto published [Bitcoin White Paper](#)
- This was the main step towards “independent digital currencies”
  - Now we have more than 2000
- Bitcoin is probably just a token that can be used in payments








# BITCOIN USAGE?

- Recently, using Bitcoins:
  - Ohio allows to pay state taxes
  - American tax payers can get refunds
  - Swiss companies accept as a payment
  - (Not yet in Russia)
- Financial markets
  - Still no ETFs
  - Yet futures are already traded at CBOE and CME























## OTHER CRYPTOCURRENCIES

- 2000 of them?
- There are many business models of companies that issue utility tokens that can be used to buy something from this company

2179	 ROMToken	ROM	\$?	\$0,000286	? *	\$0	3,15%	44,90%	516,41%	...
2180	 TOKOK	TOK	\$?	\$0,006175	? *	\$0	-0,30%	8,49%	25,56%	...
2181	 Gamblica	GMBC	\$?	\$0,001319	? *	\$0	0,00%	0,00%	31,56%	...
2182	 UTEMIS	UTS	\$?	\$0,000241	? *	\$0	0,00%	0,00%	-10,88%	...
2183	 CONUN	CON	\$?	\$0,022203	? *	\$0	-0,45%	3,02%	-4,72%	...
2184	 KEY	KEY	\$?	\$0,003963	? *	\$?	0,00%	-1,98%	6,08%	...
2185	 CarBlock	CAR	\$?	\$0,001387	? *	\$?	0,00%	-2,57%	9,86%	...

# LARGE CRYPTOCURRENCIES

Cryptocurrencies ▾ Exchanges ▾ Watchlist USD ▾ [← Back to Top 100](#)

#	Name	Symbol	Market Cap	Price	Circulating Supply	Volume (24h)	% 1h	% 24h	% 7d	
1	 Bitcoin	BTC	\$137 664 115 016	\$7 772,35	17 712 025	\$23 167 891 967	-1,11%	-2,57%	0,61%	...
2	 Ethereum	ETH	\$26 048 167 753	\$245,39	106 149 071	\$10 598 173 732	-0,92%	-4,16%	23,32%	...
3	 XRP	XRP	\$16 488 651 322	\$0,391345	42 133 310 721 *	\$2 340 082 087	-0,47%	-3,78%	20,01%	...
4	 Bitcoin Cash	BCH	\$7 108 411 132	\$399,51	17 792 650	\$2 944 352 582	-1,22%	-4,35%	4,03%	...
5	 EOS	EOS	\$5 654 443 366	\$6,20	912 411 925 *	\$2 575 699 009	0,11%	-1,90%	10,12%	...
6	 Litecoin	LTC	\$5 557 976 782	\$89,85	61 858 051	\$3 394 820 915	-0,72%	-5,00%	0,45%	...
7	 Binance Coin	BNB	\$4 003 765 604	\$28,36	141 175 490 *	\$440 824 494	-1,14%	-2,31%	19,56%	...
8	 Tether	USDT	\$2 870 508 686	\$1,00	2 865 716 915 *	\$23 508 797 678	-0,04%	-0,45%	-0,46%	...
9	 Stellar	XLM	\$2 541 109 030	\$0,131905	19 264 708 627 *	\$482 142 825	-1,11%	-5,36%	29,94%	...
10	 Cardano	ADA	\$2 177 386 409	\$0,083981	25 927 070 538	\$128 857 805	-1,71%	-1,65%	12,72%	...
11	 TRON	TRX	\$1 863 394 135	\$0,027944	66 682 072 191	\$683 251 043	-0,96%	-3,33%	11,32%	...
12	 Dash	DASH	\$1 469 182 965	\$166,63	8 817 005	\$551 734 533	-1,37%	8,02%	24,68%	...
13	 Monero	XMR	\$1 456 191 546	\$85,70	16 992 360	\$76 729 892	-1,26%	-1,45%	7,47%	...
14	 Bitcoin SV	BSV	\$1 102 719 343	\$61,98	17 790 186	\$143 439 303	-0,37%	-4,38%	3,12%	...
15	 IOTA	MIOTA	\$1 097 073 671	\$0,394698	2 779 530 283 *	\$23 037 638	-1,43%	-5,34%	19,85%	...
16	 Tezos	XTZ	\$1 093 156 514	\$1,65	662 324 105 *	\$7 054 889	-0,66%	-5,14%	23,01%	...
17	 Cosmos	ATOM	\$897 565 860	\$4,71	190 688 439 *	\$71 035 542	0,15%	-5,92%	17,54%	...
18	 Ethereum Classic	ETC	\$806 643 581	\$7,29	110 598 824	\$611 671 863	-0,88%	-4,93%	18,36%	...
19	 NEO	NEO	\$790 358 491	\$12,16	65 000 000 *	\$524 118 580	0,08%	5,47%	22,91%	...
20	 NEM	XEM	\$785 037 324	\$0,087226	8 999 999 999 *	\$30 335 557	-1,01%	-5,56%	47,93%	...

# WHAT CENTRAL BANKS WILL DO?

- Cryptocurrencies will appear more and more in our lives
- In 2018: [G20 communique](#)
- We acknowledge that technological innovation, including that underlying **crypto-assets**, has the potential to improve the efficiency and inclusiveness of the financial system and the economy more broadly. Crypto-assets do, however, raise issues with respect to consumer and investor protection, market integrity, tax evasion, money laundering and terrorist financing. **Crypto-assets lack the key attributes of sovereign currencies.** At some point they could have financial stability implications. We commit to implement the FATF standards as they apply to crypto-assets, look forward to the FATF review of those standards, and call on the FATF to advance global implementation. We call on international standard-setting bodies (SSBs) to continue their monitoring of crypto-assets and their risks, according to their mandates, and assess multilateral responses as needed.

## WHAT CENTRAL BANKS WILL ISSUE?

- Many CBs discuss that, including [BIS](#), [BoC](#), [BoE](#) and [independent researchers](#)
- However, they would issue NEW digital currencies
- This would most certainly be a centralized system
  - «three nodes – in the CB, MinFin and MinEcon»
  - Not a proper blockchain
- Some details are under development (e.g. how one pays interest, or what we do with cash, or how we secure transactions)
- Yet I bet this will be under way in 5 years

# CONCLUSIONS

- Blockchain is just another way to store data
  - Distributed access, maybe better security, payments
- It may increase speed, especially for international transactions
- Cryptocurrencies are just one way to use blockchain database for transactions and payments, and there are several other ways
- Central Banks already play with this technology and might issue digital currencies in the future