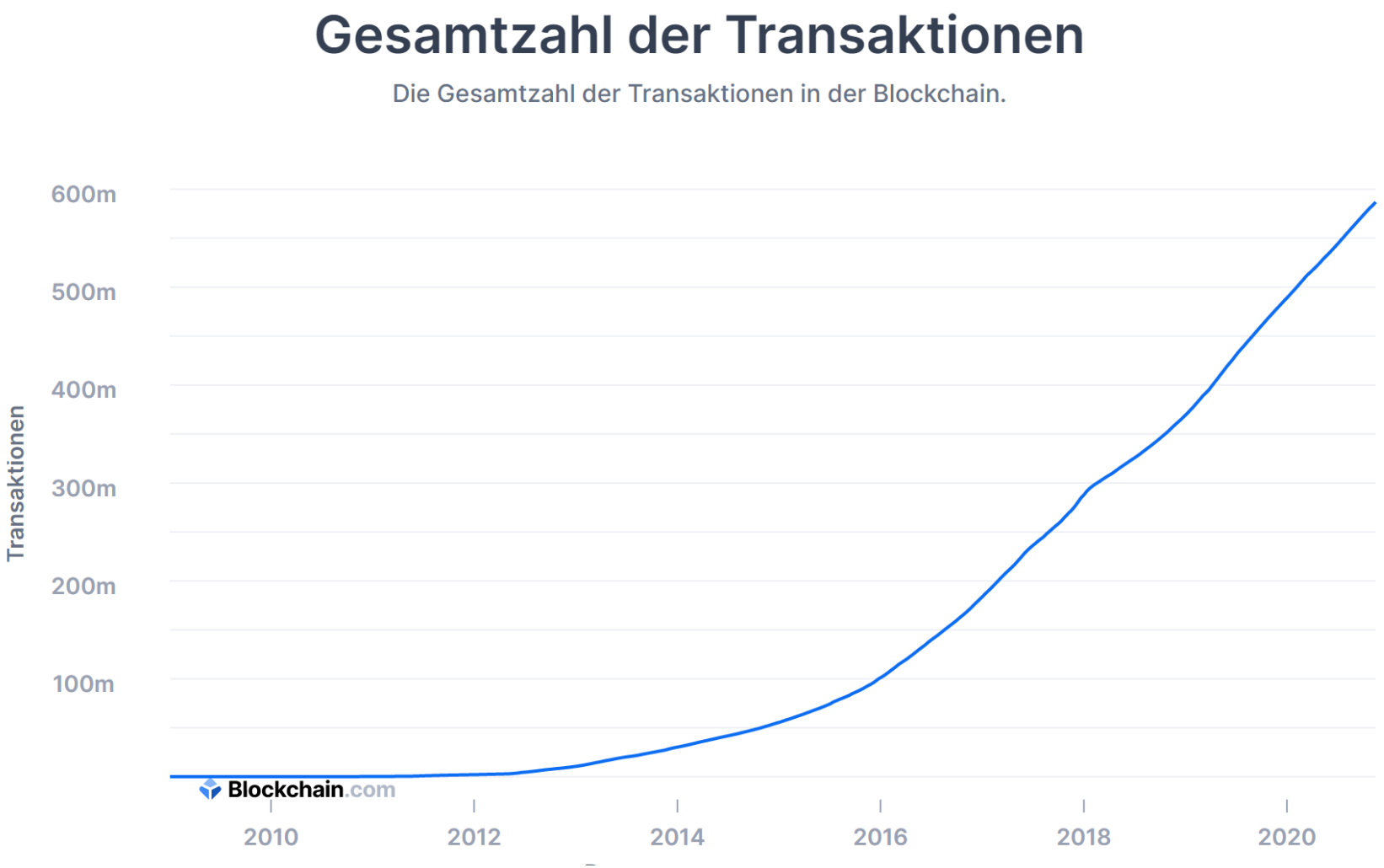
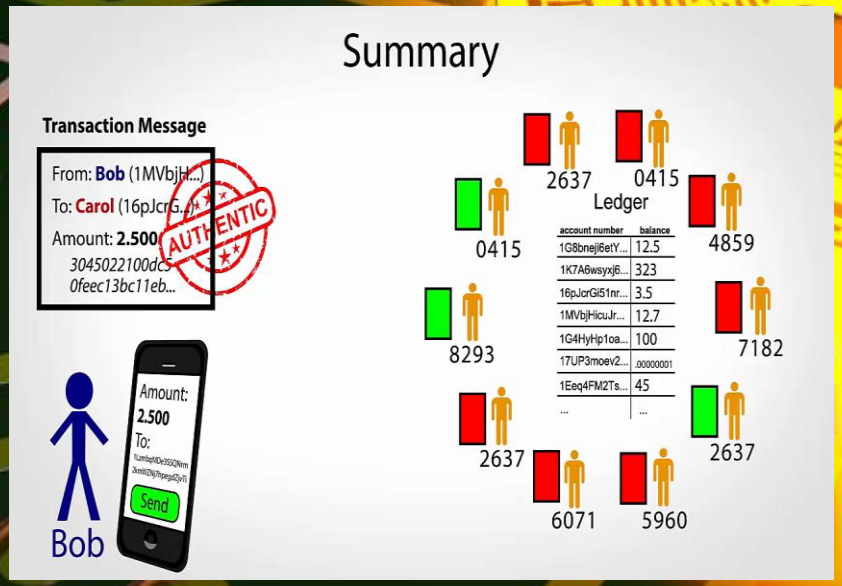
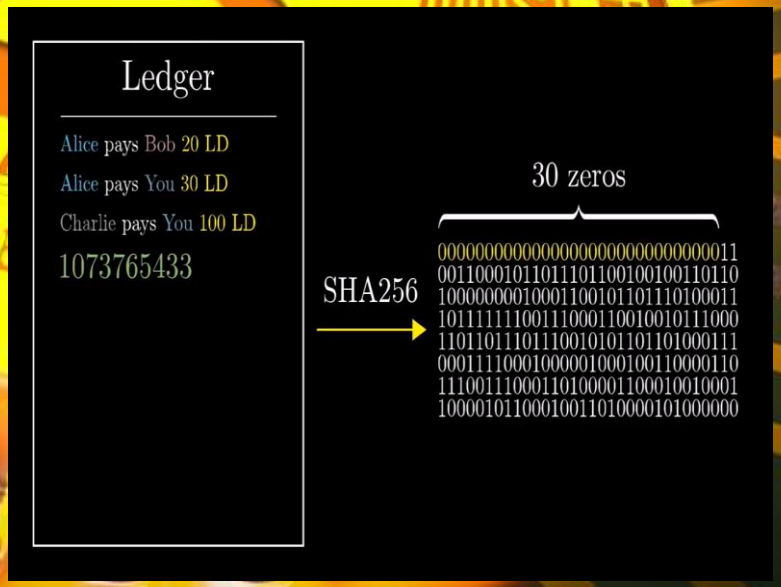
Wie viele Bitcoin-Transaktionen gab es?



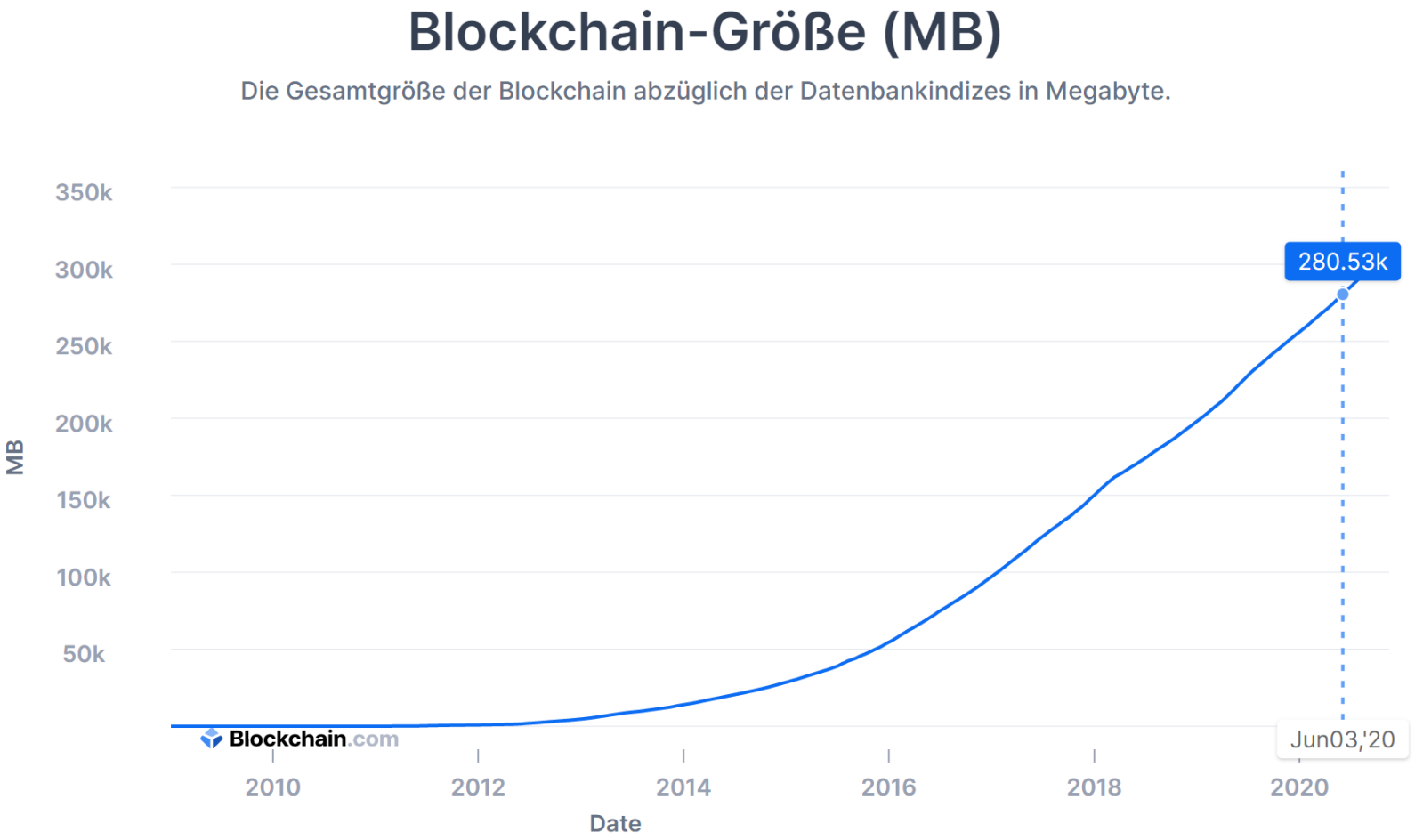
www.blockchain.com/charts/n-transactions-total

3 Protect Data
- Protecting the Security & Integrity of Data
(4) **Blockchain Technology**





Wie groß ist die Bitcoin-Blockchain?



www.blockchain.com/charts/blocks-size

3 Protect Data
- Protecting the Security & Integrity of Data

Content:

1. **Motivation**
2. **Data Integrity**
3. **Bitcoin** Crypto Currency
4. **Blockchain** Technology
5. Bitcoin **Miner**
6. **Smart Contracts**
7. **IOTA**
8. **Crypto Currency Opinions**
9. **Summary**

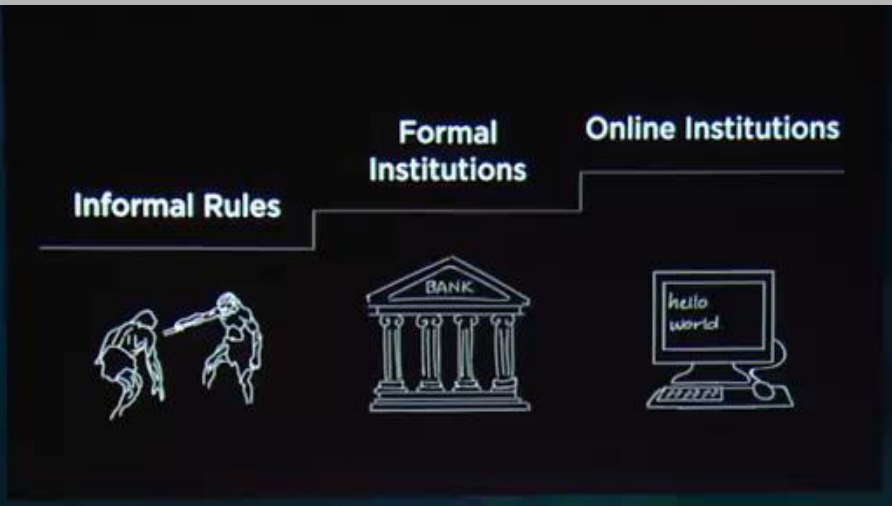
Don Tapscott, 2016: How blockchain is changing …

So to understand what a **radical change** this is going to bring, let's look at one **industry**, **financial services**. Recognize this? **Rube Goldberg machine**. It's a **ridiculously complicated machine** that does something really **simple**, like crack an egg or shut a door. Well, it kind of reminds me of the **financial services industry**, honestly. I mean, you **tap your card** in the corner store, and a **bitstream** goes **through a dozen companies**, each with their **own computer system**, some of them being 1970s **mainframes** older than many of the people in this room, and **three days later**, a **settlement occurs**. Well, with a **blockchain financial industry**, there would be **no settlement**, because the **payment** and the **settlement** is the **same activity**, it's just a **change** in the **ledger**.

Eine **Rube-Goldberg-Maschine** ist eine **Nonsens-Maschine**, die eine Aufgabe in **zahlreiche unnötige** und **komplizierte** Einzelschritte zerlegt. (Wikipedia)

Tapscott 2016, Blockchain Revolution:
„**Financial transactions** are comparable to **rube goldberg machines** – **deliberately over-engineered** but **performing just a simple task**.“

Bettina Warburg: Trust in Technology



As Douglass North saw it, **institutions** are a tool to **lower uncertainty** so that we can **connect** and **exchange all kinds of value in society**. And I believe we are now entering a further and **radical evolution** of how **we interact and trade**, because for the first time, we can **lower uncertainty** not just with **political and economic institutions**, like our **banks**, our **corporations**, our **governments**, but we can do it **with technology alone**.

Bettina Warburg, TED2016: **How blockchain will transform economy …**

Smart Dubai - Dubai Blockchain Strategy

"DUBAI WILL BE THE FIRST CITY FULLY POWERED BY BLOCKCHAIN BY 2020"

His Highness Sheikh Hamdan Bin Mohammed Al Maktoum
On the launch of the Dubai Blockchain Strategy, October 5 2016

About Us News Room Contact Us العربية

HOME INITIATIVES APPS & SERVICES DATA

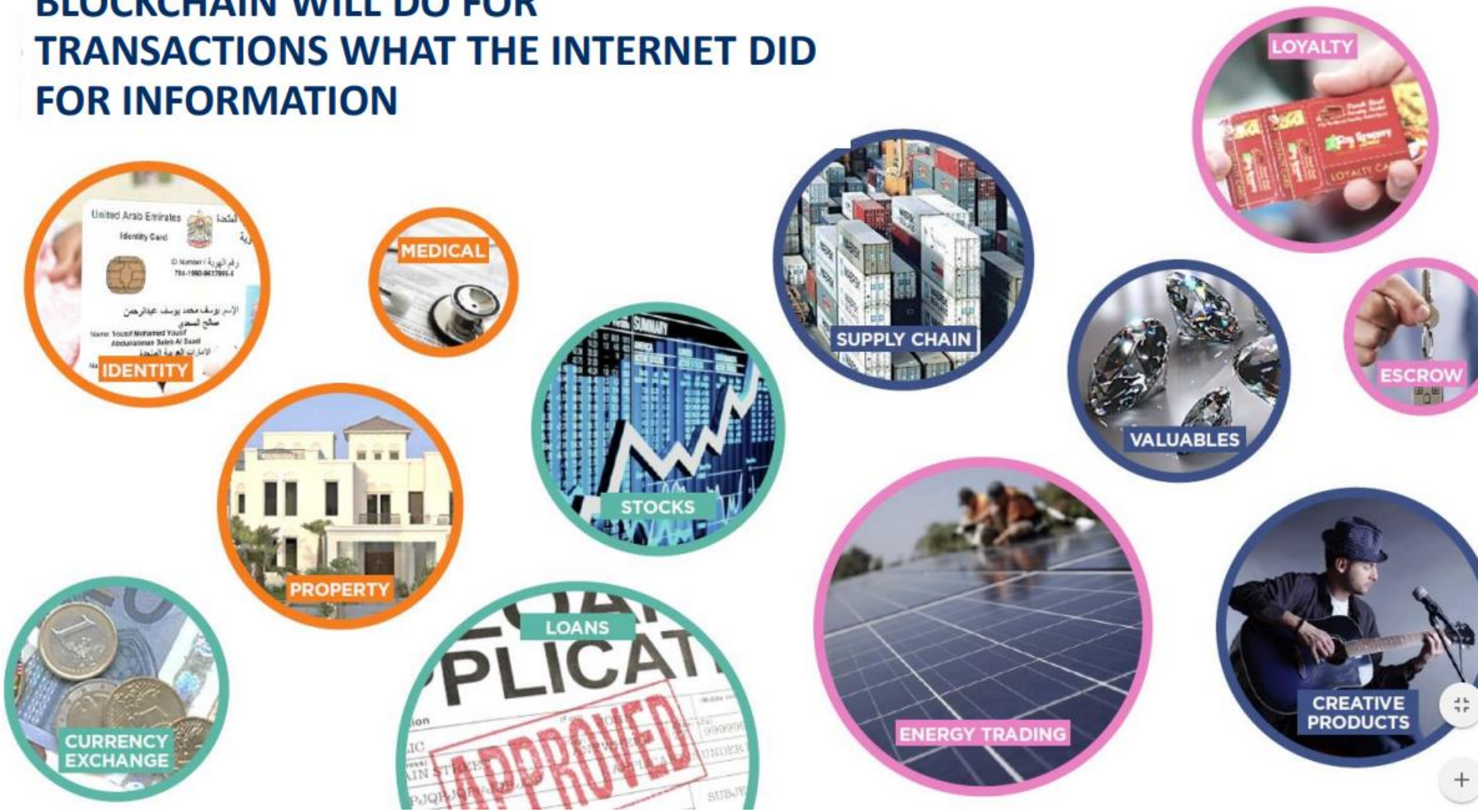
OUR VISION IS TO MAKE DUBAI THE HAPPIEST CITY ON EARTH

The Smart Dubai initiative was founded following the vision of His Highness Sheikh Mohammad bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, to make Dubai the happiest city on earth. Participation from all city stakeholders — residents, visitors, business owners, parents and families — is a cornerstone of our strategy.

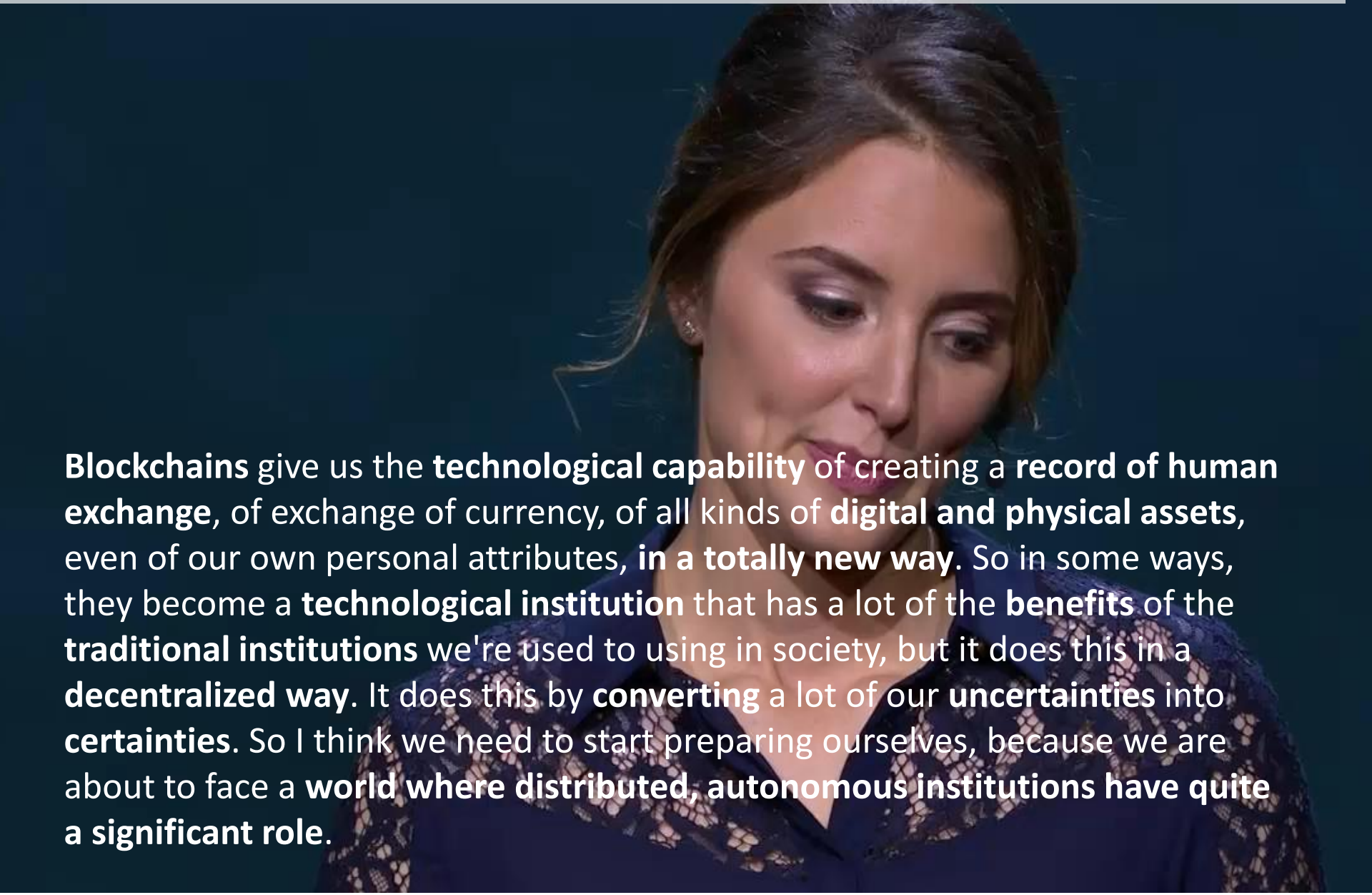
LEARN MORE

https://smartdubai.ae/

Smart Dubai - Dubai Blockchain Strategy



Bettina Warburg: Role of Autonomous Institutions?



Blockchains give us the **technological capability** of creating a **record of human exchange**, of exchange of currency, of all kinds of **digital and physical assets**, even of our own personal attributes, **in a totally new way**. So in some ways, they become a **technological institution** that has a lot of the **benefits** of the **traditional institutions** we're used to using in society, but it does this in a **decentralized way**. It does this by **converting** a lot of our **uncertainties** into **certainties**. So I think we need to start preparing ourselves, because we are about to face a **world where distributed, autonomous institutions have quite a significant role**.

Bettina Warburg, TED2016: **How blockchain will transform economy …**

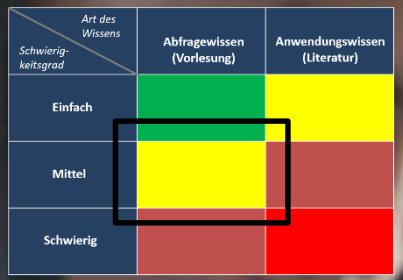
3 Protect Data
- Protecting the Security & Integrity of Data

Content:

1. **Motivation**
2. **Data Integrity**
3. **Bitcoin** Crypto Currency
4. **Blockchain** Technology
5. Bitcoin **Miner**
6. **Smart Contracts**
7. **IOTA**
8. **Crypto Currency Discussions**
9. **Summary**

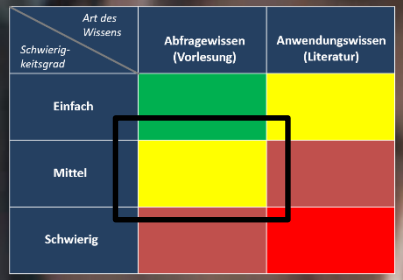
- **Data** is the new **Gold**.
- **Encryption** is **key** to **Data Integrity.**
- **Blockchain** helps in **applications** with **no trust** in **networks**.
- **Crypto Currencies** are on the rise.

According to the "Bitcoin Whitepaper", what is not an element of the Bitcoin transaction system?



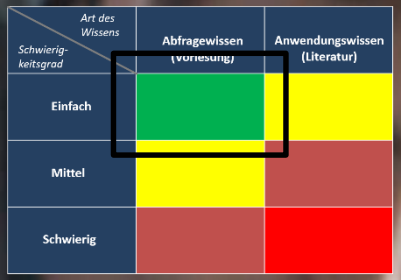
a) Digital signature
b) Timestamps
c) Hash function
d) Proof-of-Stake
e) Blockchain

The ledger consists of a _____ , each of which can store around 2,500 ___ per block.



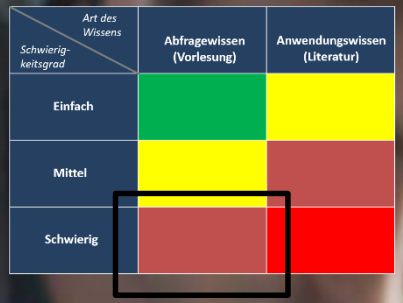
a) blockchain | transactions
b) transaction | blockchains
c) blockchain | bitcoins
d) transaction | cryptocurrencies
e) blockchain | cryptocurrencies

What is an advantage of blockchain technology?



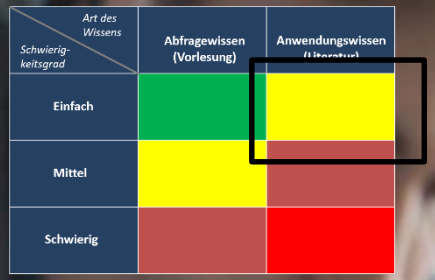
a) Accessibility
b) Easy to tack transactions
c) Faster transactions
d) High level of security
e) All

What is not true about IOTA?



a) It uses blockchain as baseline technology.
b) It is an open-source distributed ledger and cryptocurrency.
c) It uses a directed acyclic graph technology.
d) It focuses on providing secure communications and payments between machines (Internet of Things).
e) IOAT's transactions are free and confirmation times are fast.

What technology is used in libelium – smart parking?

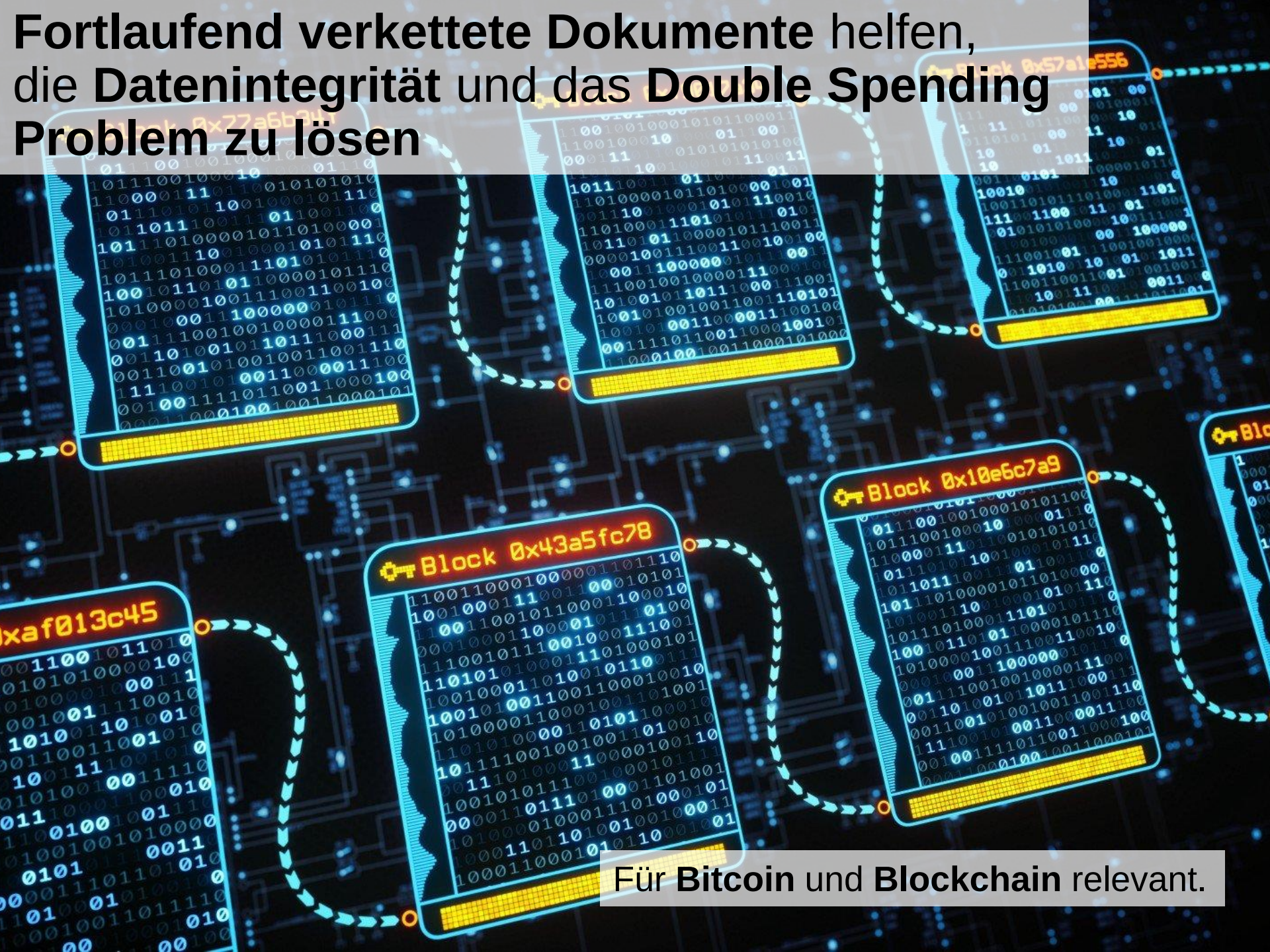


a) Blockchain
b) Smart contract
c) Radar sensor
d) Digital signature
e) Biometrics

Homework

1. How big is the **Bitcoin Blockchain?**

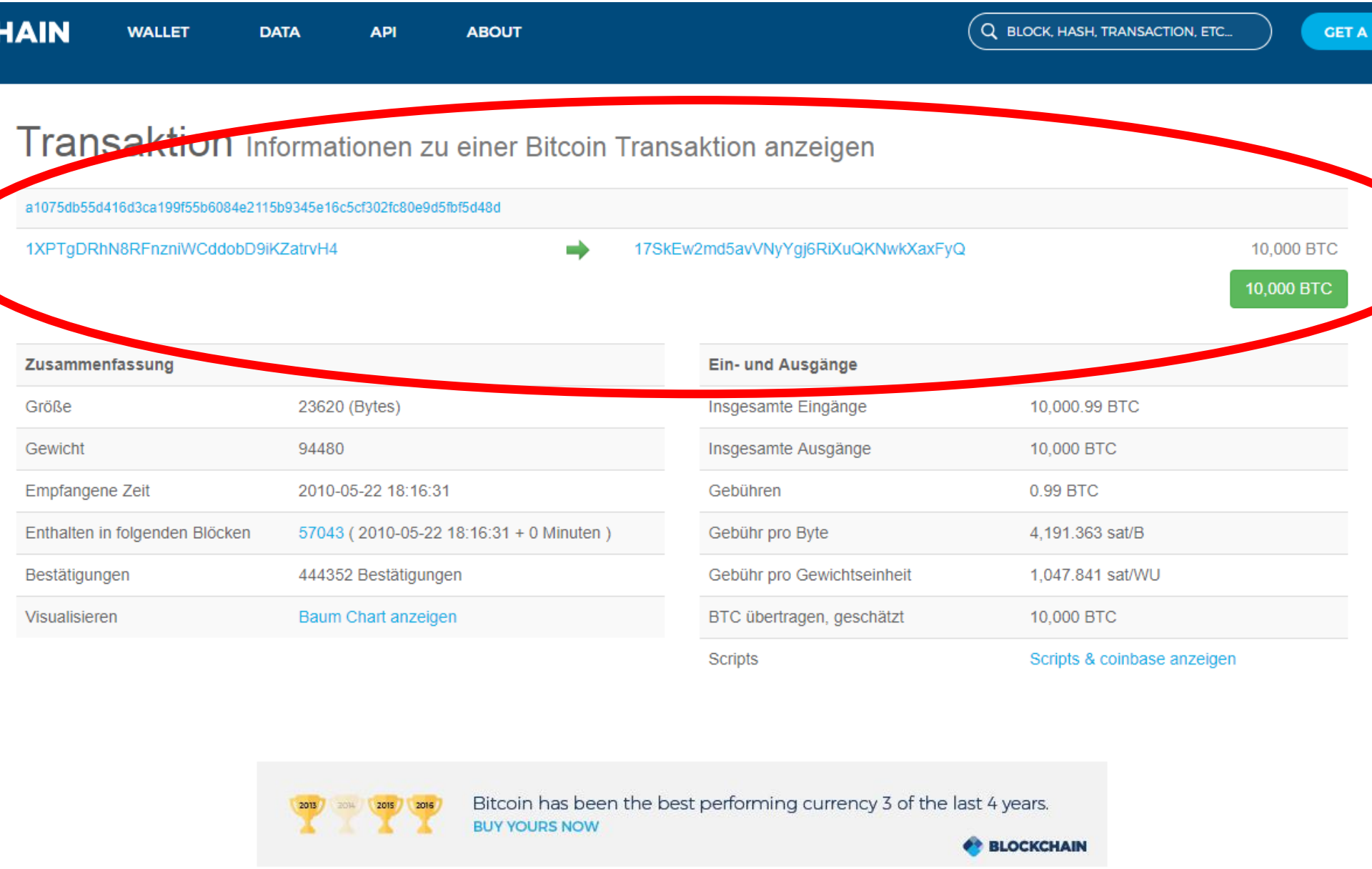
2. How many **Bitcoin Transactions** have there been?


Fortlaufend verkettete Dokumente helfen, die Datenintegrität und das Double Spending Problem zu lösen
Block 0x43a5fc78
Block 0x10e6c7a9
Für Bitcoin und Blockchain relevant.

Michael Amberg

Todays Content:

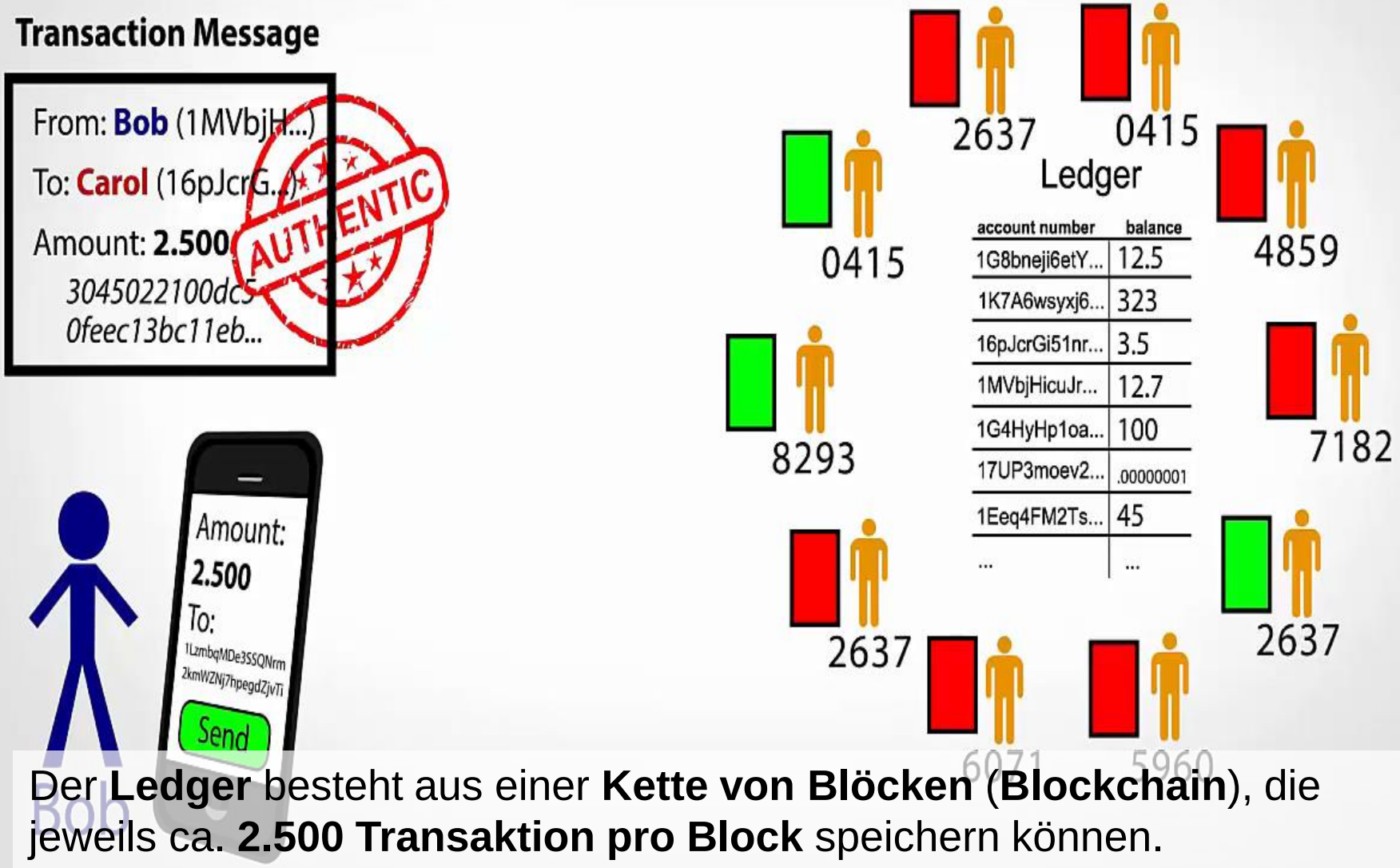
1. **Motivation**
2. **Data Integrity**
3. **Bitcoin** Cryptocurrency
4. **Blockchain** Technology
5. Bitcoin **Miner**
6. **Smart Contracts**
7. **IOTA**
8. **Crypto Currency Discussions**
9. **Summary**



Eine **“berühmte” Bitcoin-Transaktion …** (blockchain.info)

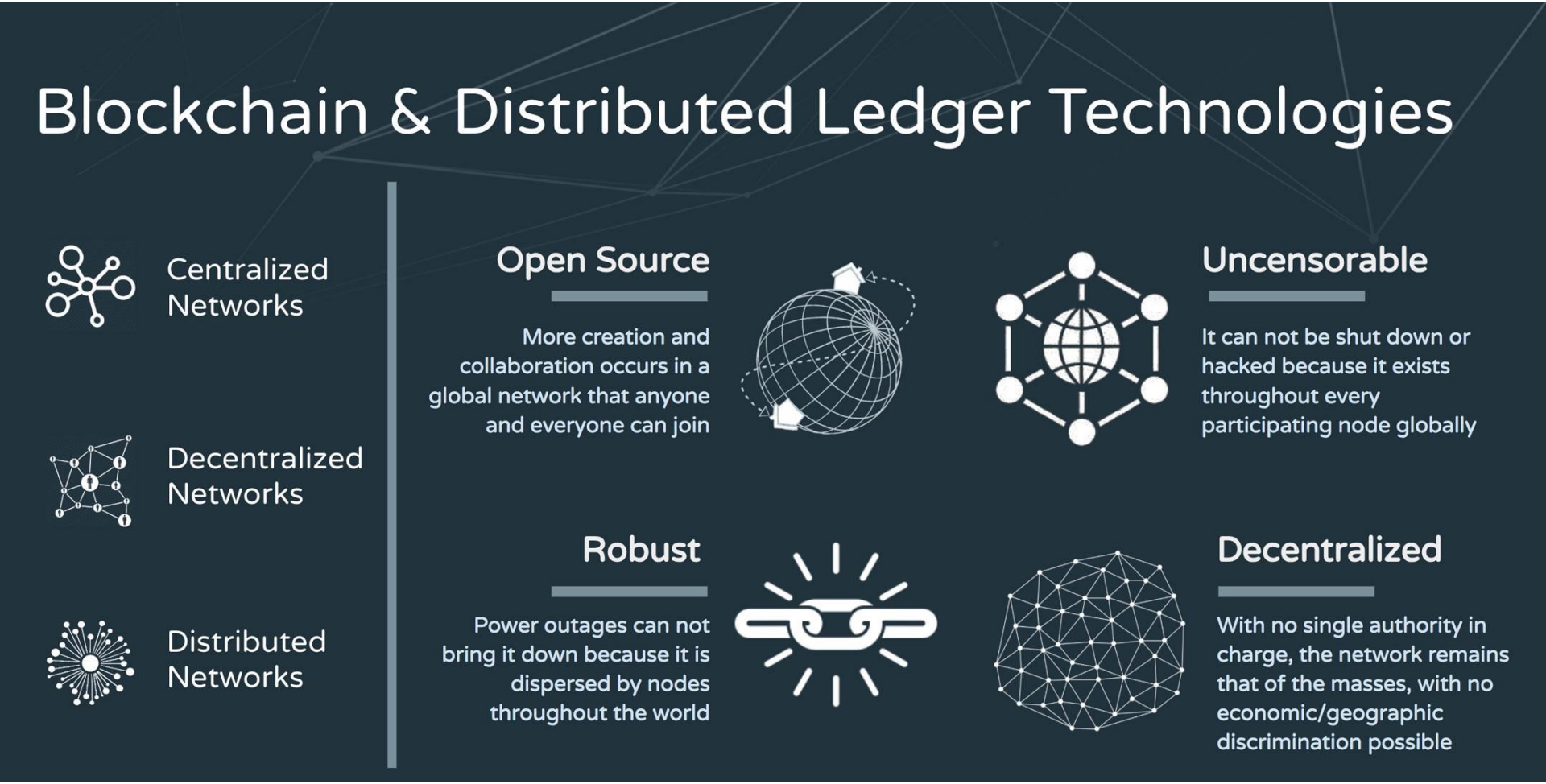
4. Blockchain
The Technology Behind Bitcoin

Summary



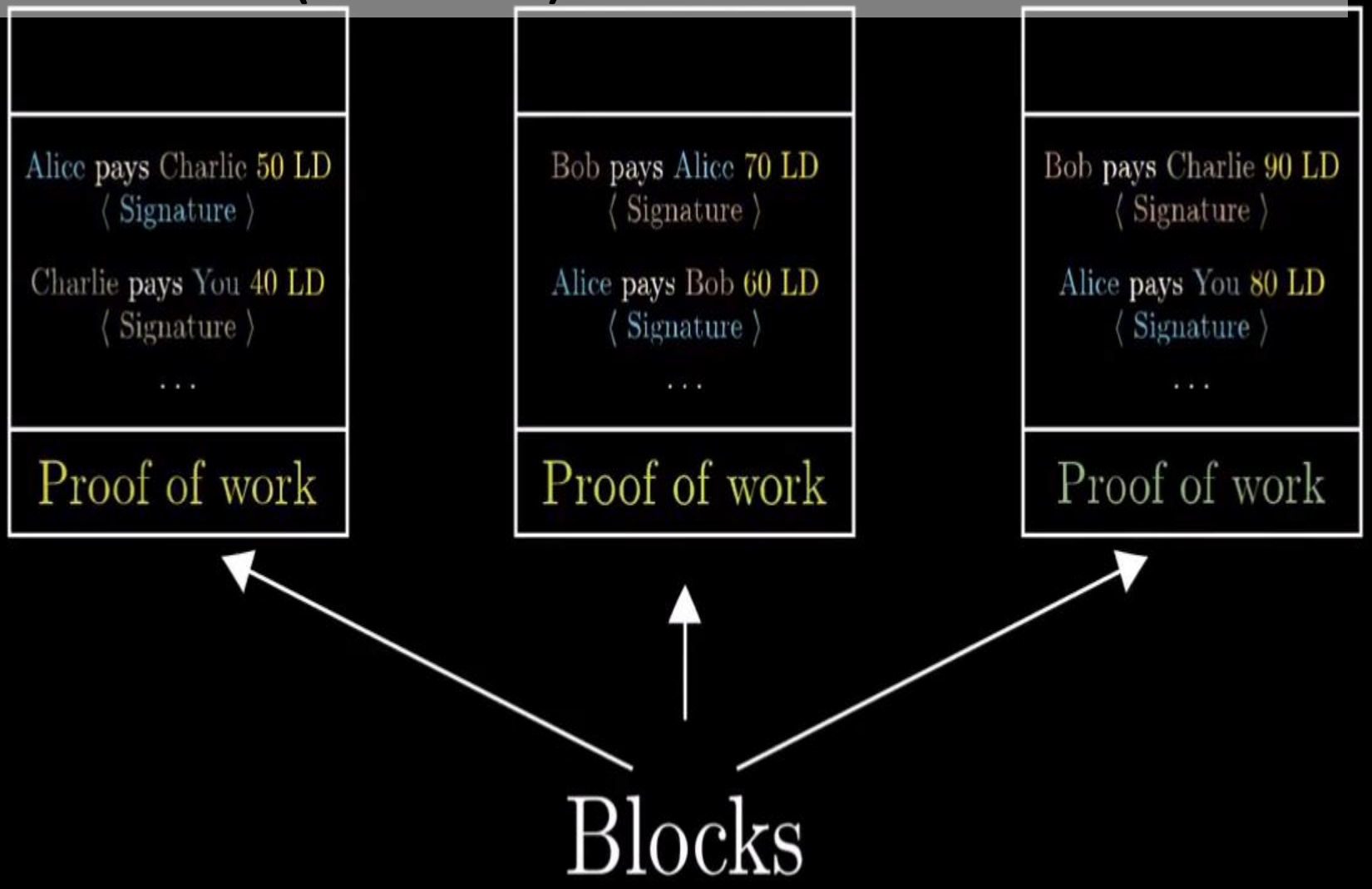
Der **Ledger** besteht aus einer **Kette von Blöcken** (**Blockchain**), die jeweils ca. **2.500 Transaktion pro Block** speichern können.

Benefits of a **Distributed Ledger Technology**

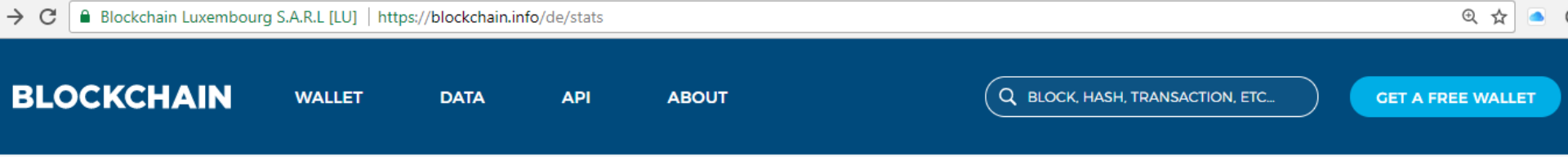


medium.com/@kalyanicynixit/blockchain-v-s-distributed-ledger-technology-what-is...

A Chain of Blocks (Blockchain) is harder to hack



Ever wonder how **Bitcoin** (and other cryptocurrencies) **actually work?**



Währungs Statistik

Summary of bitcoin statistics for the previous 24 hour period.

BLOCK SUMMARY

Blöcke gefunden	155
Zeit zwischen den Blöcken	8.69 Minuten
Bitcoins gefunden	1,937.50000000 BTC

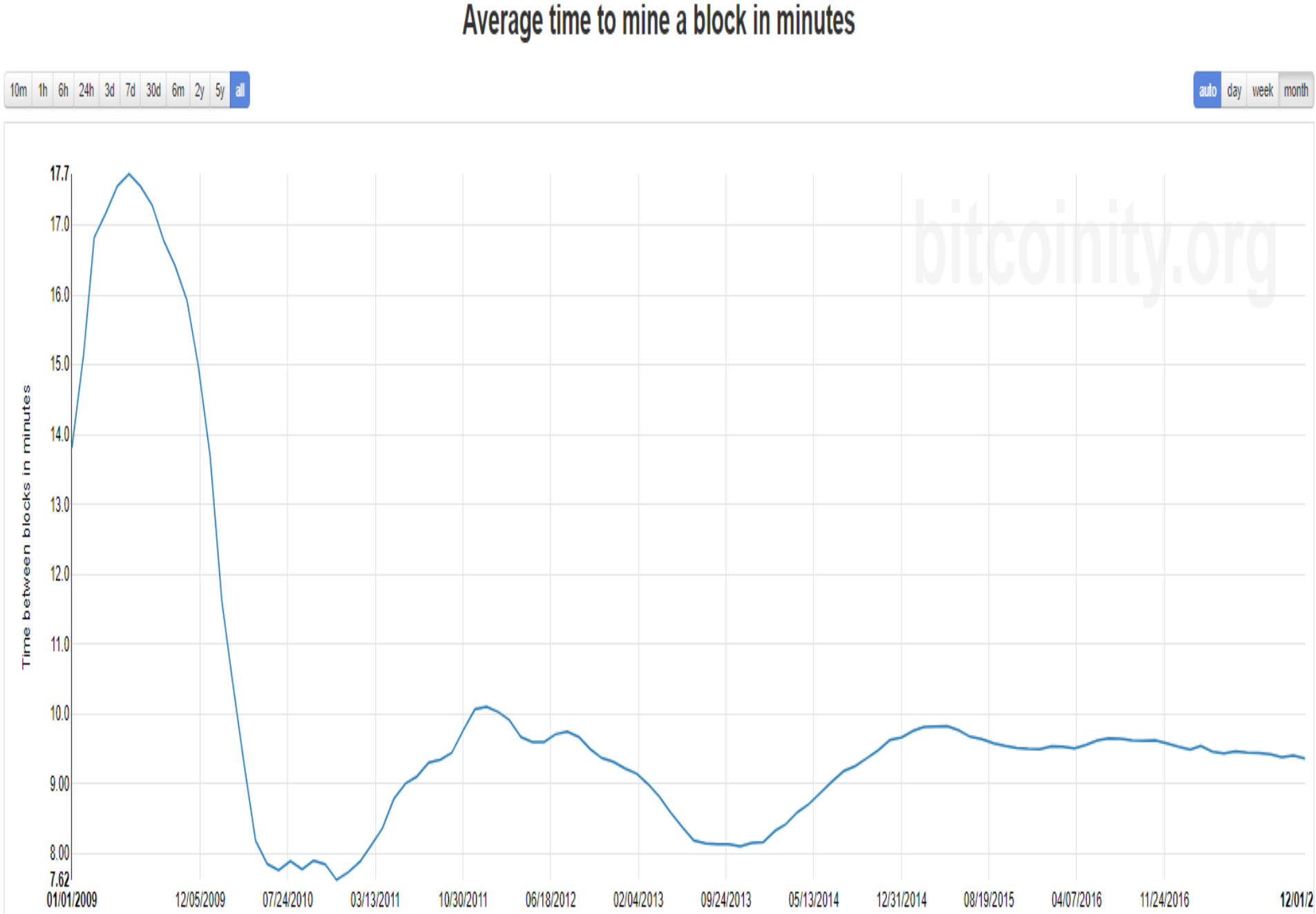
MARKTÜBERSICHT

Marktpreis	$14,841.45	Diagramm anzeigen
Handelsvolumen	$1,287,568,036.15	
Handelsvolumen	84,515.71000000 BTC	

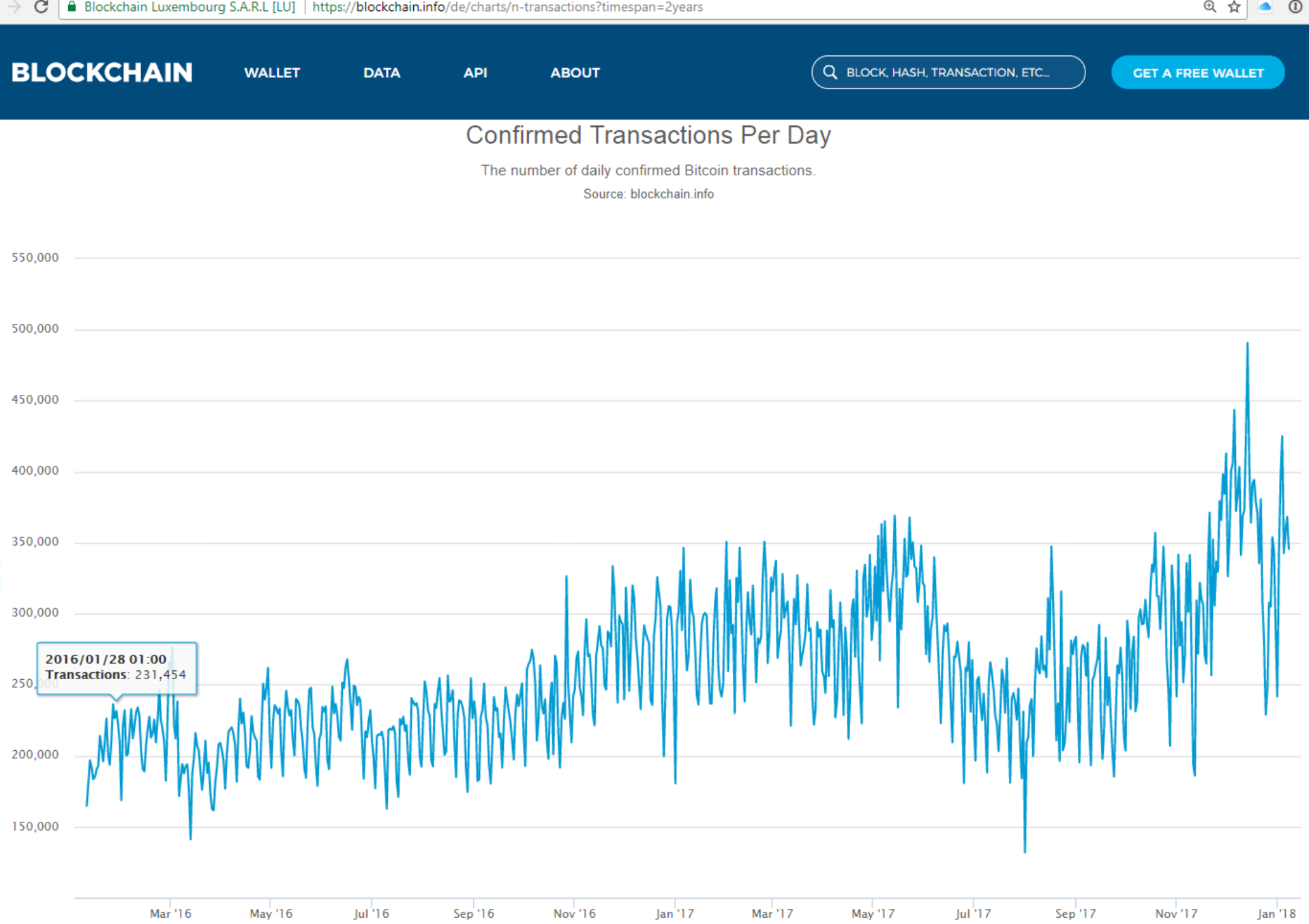
TRANSACTION SUMMARY

Gesamte Transaktions-Kosten (BTC)	709.38512803 BTC	Diagramm anzeigen
Anzahl der Transaktionen	337,427	Diagramm anzeigen
Total Output Volume (BTC)	2,070,244.34016876 BTC	Diagramm anzeigen
Geschätztes Transaktions Volumen (BTC)	244,720.83521011 BTC	Diagramm anzeigen
Geschätztes Transaktions Volumen (USD)	$3,728,238,311.47	Diagramm anzeigen

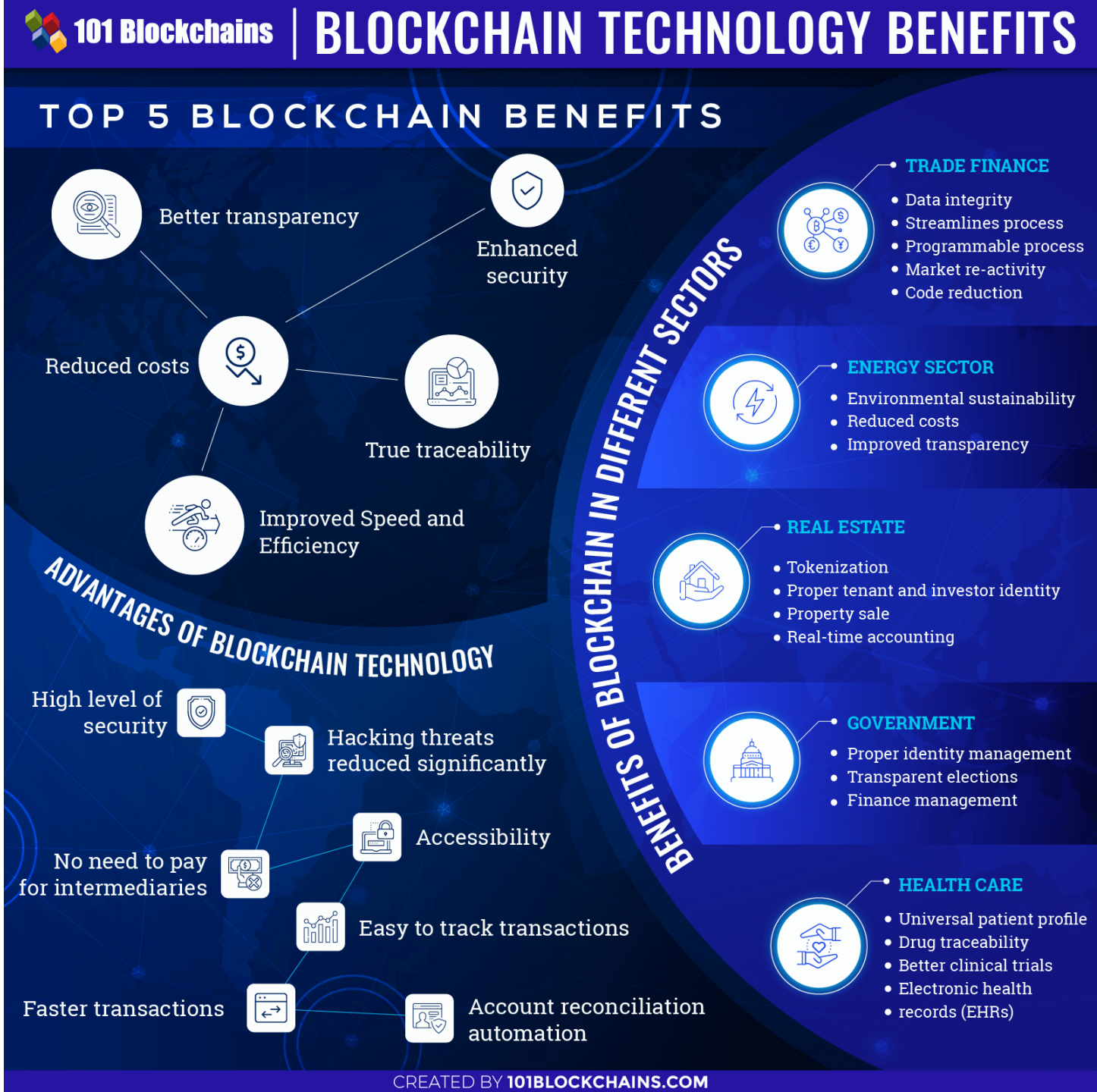
Statistiken zu Bitcoin (blockchain.info)



Statistiken zu Bitcoin (blockchain.info)



Anzahl erfolgreicher **Bitcoin-Transaktionen** pro Tag (blockchain.info)



101blockchains.com/benefits-of-blockchain-technology

Smart Contract Explained

1

- A contract is created between two parties
- Both parties remain anonymous
- The contract is stored on a public ledger

2

- Some triggering events are set i.e. deadlines
- The contract self-executes as per written codes

3

- Regulators and users can analyze all the activities.
- Predict market uncertainties and trends

101blockchains.com/smart-contracts/

IOTA
(Acronym of **Internet of Things** & **Tangle**)

IOTA is an open-source **distributed ledger** (**cryptocurrency**) focused on providing **secure communications** and **payments between machines** (**Internet of Things**).

IOTA uses **Directed Acyclic Graph (DAG / Tangle)** technology instead of the traditional **blockchain**.

IOTA's **transactions** are **free**, **confirmation times** are **fast**, the **number of transactions** the system can handle simultaneously is **unlimited**, and the **system** can **easily scale**.

en.wikipedia.org/wiki/IOTA_(technology)

IOTA	
 IOTA logo	
Denominations	
Superunit	
10^3	Kilolota (Ki)
10^6	Megalota (Mi)
10^9	Gigalota (Gi)
10^{12}	Teralota (Ti)
10^{15}	Petalota (Pi)
Symbol	IOTA, MIOTA[1]
Demographics	
Date of introduction	11 June 2016
Source	Initial Coin Offering
User(s)	Worldwide
Valuation	
Supply growth	Fixed supply of 2,779,530,283,277,761 Iota