UNDERSTANDING DIGITAL ASSETS FOR THE FINANCIAL PROFESSIONAL :

THE STORY OF THE BLOCKCHAIN

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IBM BLOCKCHAIN ESSENTIALS V1 AND V2

PANELIST ON "THE BLOCKCHAIN WEALTHCAST"

HOSTED BY ARROWROOT FAMILY OFFICE

FEATURED ON KITCO NEWS

ISREAL 360 INNOVATION EXPERIENCE PARTICIPANT FALL 2023

WHAT IS OUR GOAL TODAY?

- What is a bitcoin?
  - Provide you with a fundamental understanding of what a blockchain is and how it works.
- What is it good for?
  - Provide you with a basis to begin to learn about the industry and the ways it will overlap and supplement other industries.
- What is happening now/next?
  - Share with you developments in the industry and how it is currently being implemented.

Bitcoin: A Peer-to-Peer Electronic Cash System

Satoshi Nakamoto
satoshin@gmx.com
www.bitcoin.org

Abstract. A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone.

WHAT IS A BITCOIN AND WHERE DID IT COME FROM? A SOLUTION TO THE DOUBLE SPEND PROBLEM.

WHAT IS A BLOCKCHAIN AND WHAT IT IS USED FOR?

- ➤ What is a blockchain:
  - ➤ A blockchain is a database. Databases have some common problems that Blockchains can address.

- ➤ Problems in databases – and how the blockchain solves them

  - ➤ Dirty data – Blockchains are Pre-validated by miners or nodes
  - ➤ Changing data – Blockchains are immutable – "feature not a bug"
  - ➤ Bad actors – Bad Actors are disincentivized on blockchains
  - ➤ Siloed information – Blockchains can be decentralized

- Scarcity - There will only be ever 21 million bitcoin.
- Autonomy – Bitcoin is Psuedo-anonomous
- Excellent for large transactions
- Easy to pass down and store – More on this later.
- The final Bitcoin will be mined in 2140 – What happens then?
- The story is really about the blockchain.

IS BITCOIN A FAD?
WHO KNOWS, HERE ARE SOME FACTS.

White Collar Crime   Data Privacy

U.S. seizes $2.3 mln in bitcoin paid to Colonial Pipeline hackers

By Christopher Bing, Joseph Menn and Sarah N. Lynch

▥ Companies

Colonial Pipeline Co   Follow

WASHINGTON, June 7 (Reuters) - The Justice Department on Monday recovered some $2.3 million in cryptocurrency ransom paid by Colonial Pipeline Co, cracking down on hackers who launched the most disruptive U.S. cyberattack on record.
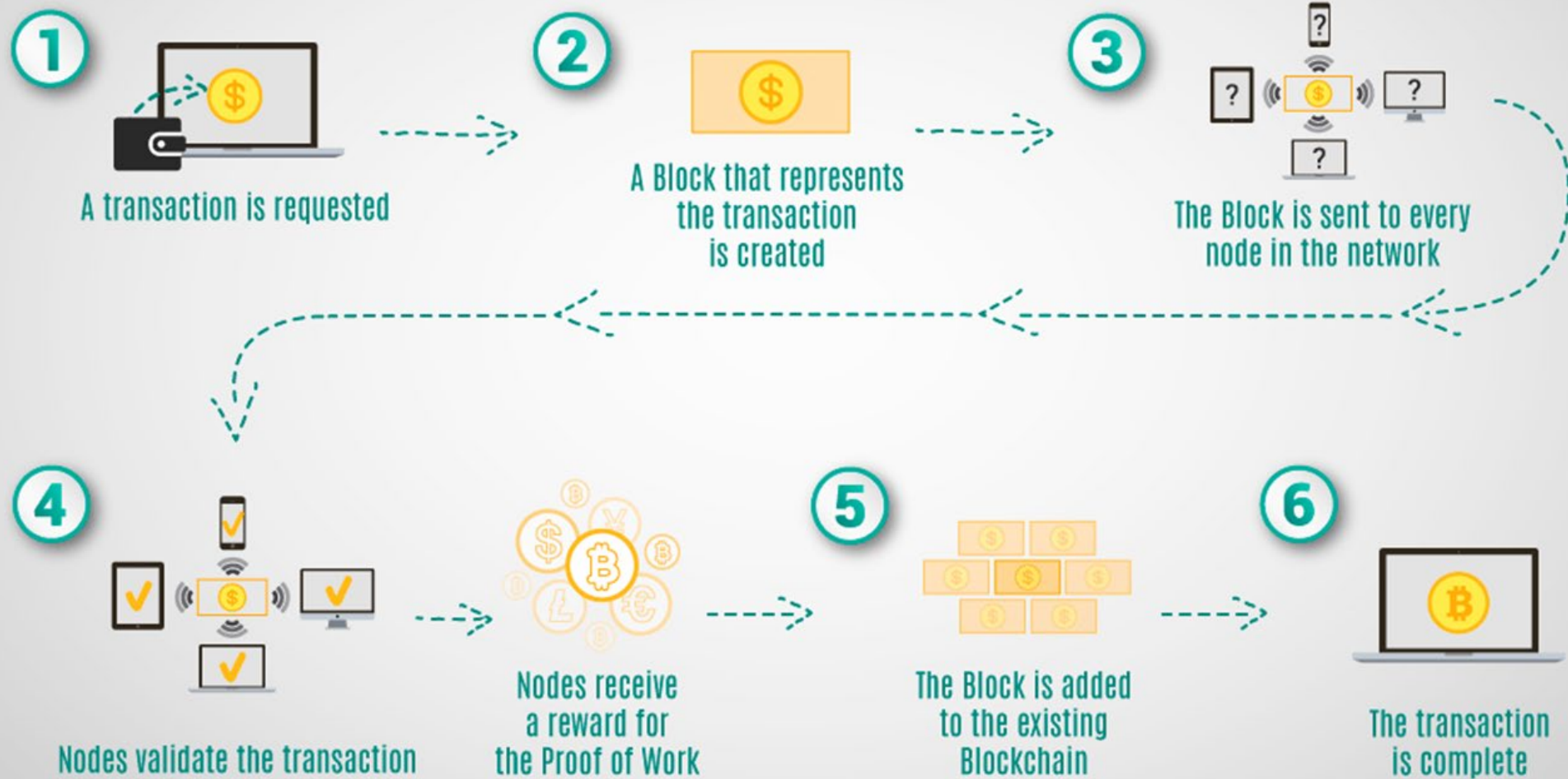
Deputy Attorney General Lisa Monaco said investigators had seized 63.7 bitcoins, now valued at about $2.3 million, paid by Colonial (COLPI.UL) after last month's hack of its systems that led to massive shortages at U.S. East Coast gas stations.

2020	6.25
2024	3.13
2028	1.56
2032	.78
2036	.39
2040	.20
2044	.10
2048	.05
2052	.025

BITCOIN MINING SCHEDULE:
HOW LONG WILL IT BE WORTH IT…

HOW BLOCKCHAIN WORKS

1 A transaction is requested

2 A Block that represents the transaction is created

3 The Block is sent to every node in the network

4 Nodes validate the transaction

5 Nodes receive a reward for the Proof of Work

6 The Block is added to the existing Blockchain
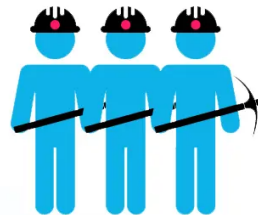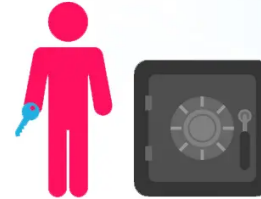
The transaction is complete

TYPES OF BLOCKCHAINS

Bitcoin – Proof of work

Ethereum – Proof of work with smart contracts to now Proof of stake

Ripple Federated Byzantine Agreement

Binance Smart Chain Proof of Stake

Uniswap Proof of Stake

Polkadot Proof of Stake

Avalance Proof of Stake

Solana Proof of Stake

Cardano Proof of Stake

Polygon Proof of Stake

Chainlink - Proof of Stake

IBM logistics Blockchain (Tradelens) - many different models Lets Explore

Public vs. Private vs. Permissioned Blockchains

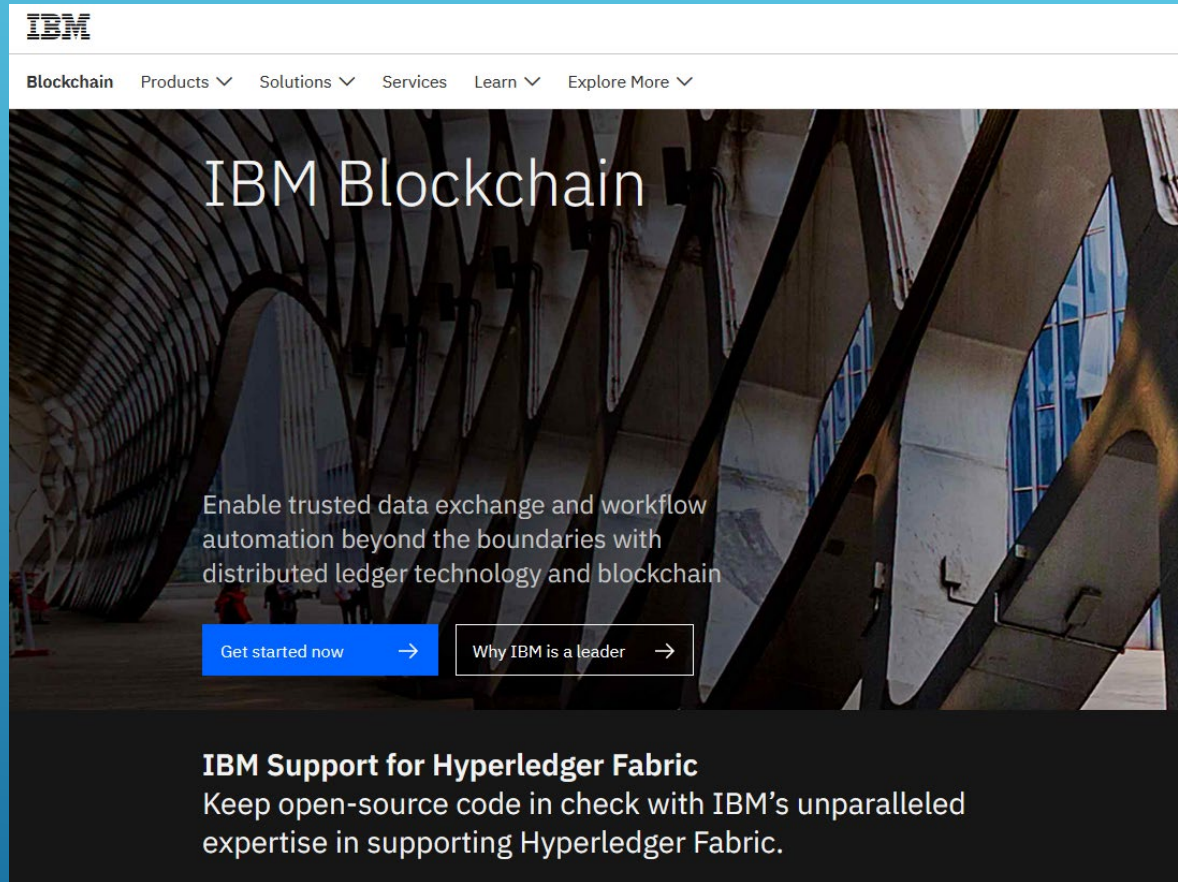The list continues…But why so many…

BLOCKCHAIN 1.0 TO NOW…

B2B BLOCKCHAIN

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- Bonus round : Alphabet soup
  - SBF, FTX, SGB, SB …and more to come…

IBM LOGISTICS BLOCKCHAIN

- Uses the Hyperledger Fabric Blockchain which is a Crash Fault Tolerant system.

- CFT is the consensus mechanism

- All blockchains must find a way to arrive at consensus

- This is a permissioned blockchain not a public blockchain meaning that all actors must be authorized.

At the heart of the platform is a sophisticated permissions-based system that allows parties to view, edit and use data.

Strict and secure

A strict and highly secure permissions structure is in place that ensures only the necessary parties are able to see specific types of information related to a shipment.

Permission matrix

TradeLens permissions are determined through a combination of the organization's role and the data type. The TradeLens platform then permits access to data according to a unified permission matrix.

Data sharing specification

View the complete TradeLens data sharing specification here.
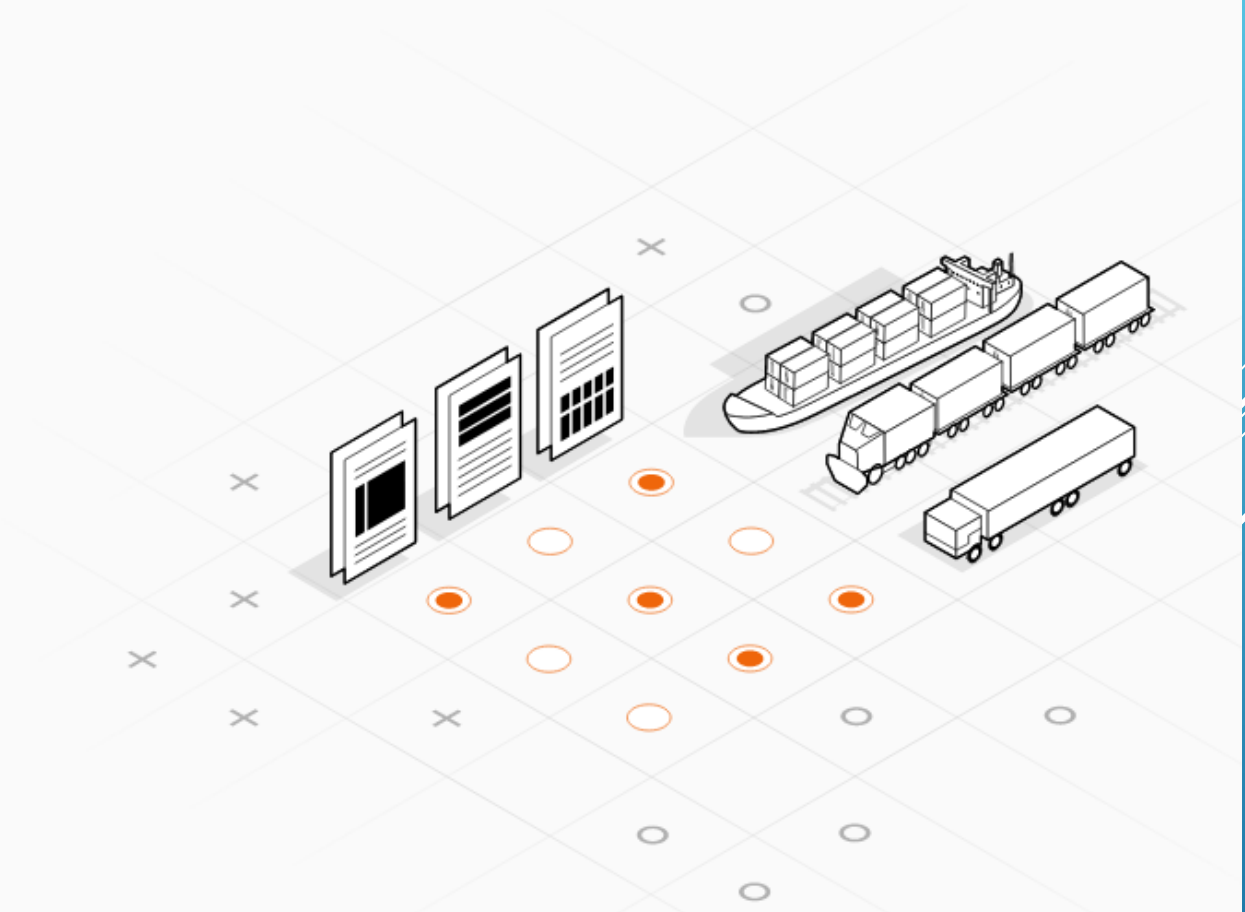
WHAT DOES THE WHITE HOUSE SAY.

BRIEFING ROOM

FACT SHEET: White House Releases First-Ever Comprehensive Framework for Responsible Development of Digital Assets

SEPTEMBER 16, 2022 • STATEMENTS AND RELEASES

Following the President's Executive Order, New Reports Outline Recommendations to Protect Consumers, Investors, Businesses, Financial Stability, National Security, and the Environment

The digital assets market has grown significantly in recent years. Millions of people globally, including 16% of adult Americans, have purchased digital assets—which reached a market capitalization of $3 trillion ↗ globally last November. Digital assets present potential opportunities to reinforce U.S. leadership in the global financial system and remain at the technological frontier. But they also pose real risks as evidenced by recent events in crypto markets. The May crash of a so-called stablecoin and the subsequent wave of insolvencies wiped out over $600 billion of investor and consumer funds.

- ▸ Bitcoin policy conference 4/26 at the White House Press club Ballroom.

- ▸ There are 100+ countries working on central bank digital currencies(CBDCs)

- ▸ The Bank of International Settlements (BIS) has advised that CBDCs should be explored.

- ▸ Central bank digital currencies are coming soon!

- Smart contracts
  - Real estate closing
  - Titles
  - Voting
- Logistics
- Identity
- Finance
  - Stablecoins
  - Tokenization
- Healthcare records
- Telecom
- Accounting

- When might a blockchain be useful?
  - Stable data
  - Historical events are important
  - Security is critical
  - Many middlemen
  - Inventory management

DO WE WANT CBDC?
WHAT CAN IT DO FOR US?

SECURITY, PLATFORM, AND UTILITY TOKENS

Security tokens - are tokens issued with the intent of behaving like and being regulated under standing securities laws. An important point of a security token is that it is evidence of ownership and equity in an ongoing enterprise. They must be registered with the SEC Why is this controversial? Ripple…
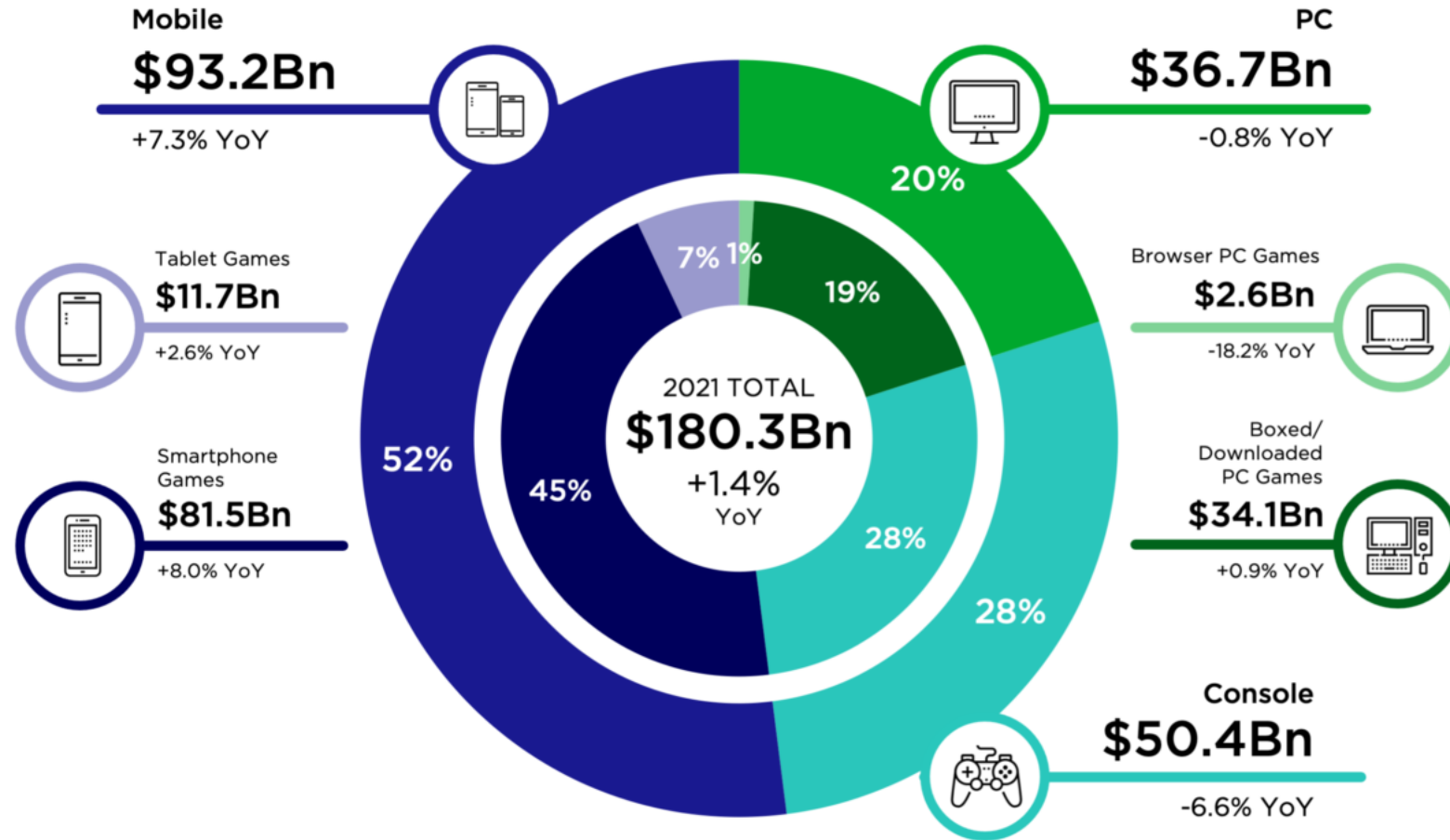
Utility tokens – a utility token has a usefulness that gives it value or makes it desirable. ETH is an example of this. The real reason people use ETH is because they need it to navigate on the ETH blockchain which has applications they want to use. Because ETH is useful, it is a utility token. Very closely related to a Platform token.

Platform tokens -are tokens that are designed to be used by a person or entity on a platform. For example, if you are in a metaverse that has a dedicated gaming token, then in order to play games in that metaverse you will have to purchase the token with "real" money. Gaming is a 180 Billion industry

2021 Global Games Market

Per Device & Segment With Year-on-Year Growth Rates

newzoo

Mobile
$93.2Bn
+7.3% YoY

Tablet Games
$11.7Bn
+2.6% YoY

Smartphone Games
$81.5Bn
+8.0% YoY

PC
$36.7Bn
-0.8% YoY

Browser PC Games
$2.6Bn
-18.2% YoY

Boxed/ Downloaded PC Games
$34.1Bn
+0.9% YoY

Console
$50.4Bn
-6.6% YoY

20%
19%
7% 1%
52%
45%
28%
28%

2021 TOTAL
$180.3Bn
+1.4% YoY

$93.2Bn

Mobile game revenues in 2021 will account for 52% of the global market

Our revenues encompass consumer spending on games: physical and digital full-game copies, in-game spending, and subscription services like Xbox Game Pass. Mobile revenues exclude advertising. Our estimates exclude taxes, secondhand trade or secondary markets, advertising revenues earned in and around games, console and peripheral hardware, B2B services, and the online gambling and betting industry.

OK, I AM A BELIEVER, WHAT NEXT?

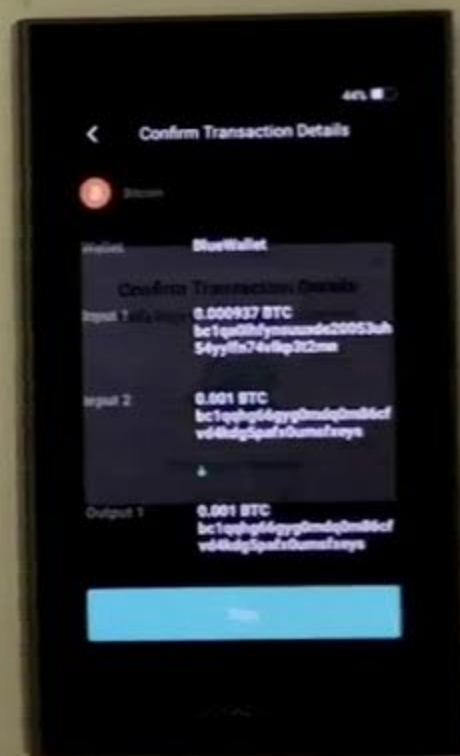**As a duty, how do I secure my clients digital assets?**

How do I investigate them inside of an estate?

How do I value them?

How do I handle them in a divorce proceeding?

Is there more regulation coming?

wallet

Send

3 of 4

Previous   Stop   Next

Scan Signed Transaction

Open Signed Transaction

Export to file

Confirm Transaction Details

Bitcoin

BlueWallet

Confirm Transaction Details

Input 1   0.000937 BTC
bc1qa0hfynsuxde20053uh
54yylfn74v8q2t2mn

Output 2   0.001 BTC
bc1qqhgt46gyrg0mdq0m86cf
vd4bdg5pafn0umsf2xoys

Output 1   0.001 BTC
bc1qqhgt46gyrg0mdq0m86cf
vd4bdg5pafn0umsf2xoys

Wallet addresses- Different blockchains have different address naming conventions
BTC wallet addresses begin with a 1 or a 3
ETH wallet addresses begin with "0x…"
Ripple wallet addresses begin with an Upper case "X"

Seed Phrase – 12-24 word phrase of random words usually 4 letters each. This is the
Wallet passcode. This is the "KEY". An important phrase in the digital asset industry
Is "not your keys, not your crypto".

NOT YOUR KEYS NOT YOUR CRYPTO
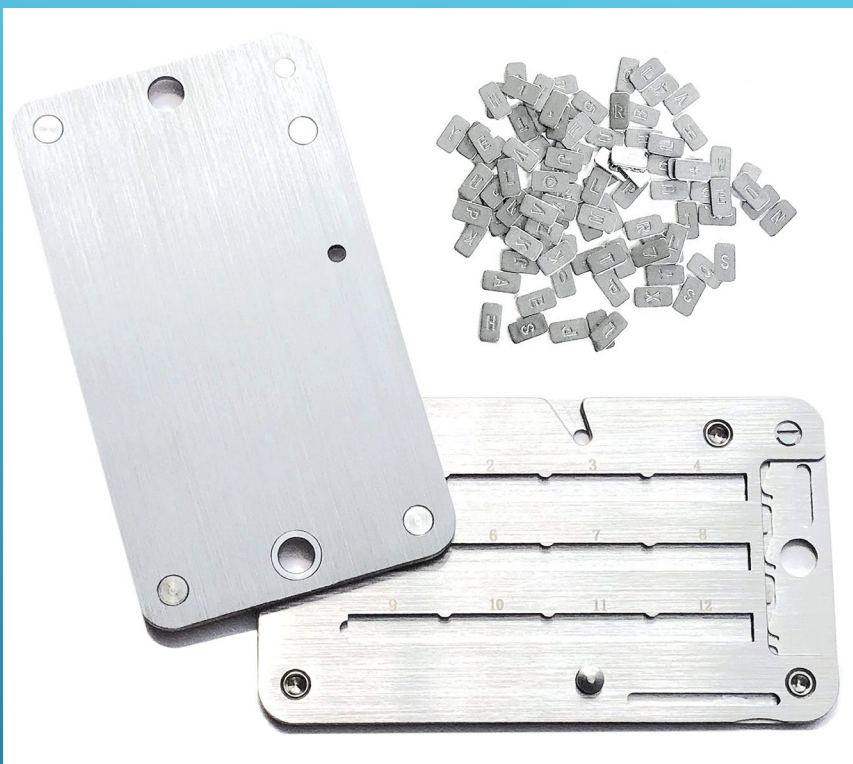
HOW DO I SECURE MY BITCOIN

HOW DO I SECURE MY BITCOIN

№1 Gold   №2 Silver   №3 Bronze

Ledger Nano X   Trezor Model T   Ellipal Titan

DO THE SHAKE WITH THE BC VAULT.

MAYBE THE MOST INNOVATIVE CODE CREATION SYSTEM I HAVE SEEN

"UNHACKABLE" VS CREATIVE CRIMINALS

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- A Blockchain is a database that cannot be changed once completed.

- The information is verified by the network of miners or nodes.

- It is being utilized by large organizations as they explore the possibilities.

- The possibilities are endless.

QUESTIONS?