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Demystifying Blockchain Technology and Cryptocurrency

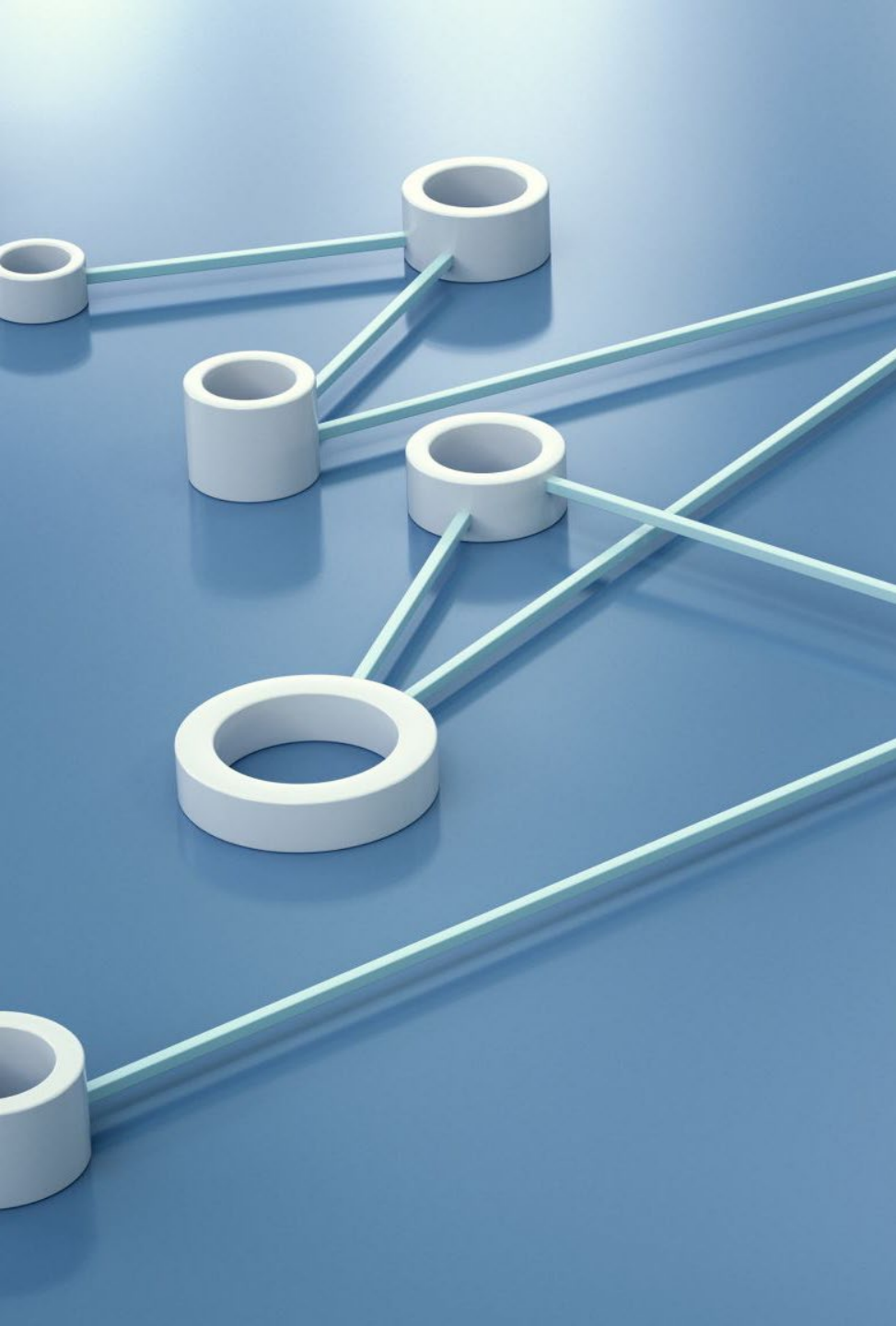
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Goal

The goal of this course is to improve your understanding of Blockchain and Cryptocurrency concepts to enable and empower you to have better conversations with your clients and stakeholders.

We are not:

- Promoting or recommending specific Blockchain solutions
- Offering investment recommendations for Digital Assets
- Providing investment advice
- Associated or affiliated with or receive any sponsorship from any mutual fund, ETF, or ICO



Why Cryptocurrency and Blockchain Matter to Financial Professionals

Evolution of the Internet

Web 1.0	Web 2.0	Web 3.0
<p>Internet of Information</p> <p>Mostly 1-way other than forms and email</p>	<p>Internet of Things</p> <p>2-way, Interconnected Apps and Devices</p> <p>Social Media, Streaming</p>	<p>Internet of Value</p> <p>Decentralized networks</p> <p>Peer to Peer</p> <p>Fewer Intermediaries</p>

What do you notice about the fees?

Transfer Note From 1873

(Form B.)

WESTERN UNION TEL. CO.

TELEGRAPH TRANSFER, No.

RECEIVED of *C. C. Antoine*

to be paid to *Three Hundred*

at *San Francisco*

Dated at *New York*

J. G. Alley Cashier for MANAGER.

New Orleans Aug 25 1873

Amount of Transfer, \$	<i>300 00</i>
* Premium 1 per cent.	<i>3.00</i>
Cost of Telegram,	<i>6.34</i>
TOTAL, \$	<i>309 34</i>

*No Premium will be less than 25 Cents.

WESTERN UNION
TELEGRAPH OFFICE
AUG 25 1873
37 CALIF. DOLLARS,
100

Why Crypto Is Important to Financial Professionals

The number of Americans with \$1MM or more in investable assets was 14.6 million in 2021; up from 13.3 million in 2020; largely attributed to the recent cryptocurrency bull market.*

* Source: Spectrem Group April 28, 2022

Why Crypto Is Important to Financial Professionals

20% of adults in the U.S. have
invested, held, traded, or used
cryptocurrency.*

* Source: CNBC March 31, 2022

Why Crypto Is Important to Financial Professionals

80% of advisors report clients inquiring about advice and exposure to crypto/digital assets. Only 7% of advisors are using digital assets.*

Why Crypto Is Important to Financial Professionals

Staking rewards are like compounding dividends and deliver higher returns than traditional financial products.

Maintaining Trust



Integrity



Competence



Compassion

Market Cap

Total	Market	Market
Total Crypto Market Cap - \$924 Billion	Market Cap of the "Top 10" - \$757,745,348,504 (76%)	Market Cap of the "Top 20"- \$812,029,320,008 (81%)

Data as of October 19, 2022

At the peak of the last bull cycle, total Crypto Market Cap was more than \$3 trillion dollars.

By comparison: Bond Market is \$100 trillion, and Gold is around \$11 trillion

Crypto Market Cycles





What Are the Crypto Cranes?

Institutional Infrastructure Investments

Fidelity to Allow Bitcoin in Certain Retirement Accounts

Coinbase and Blackrock Partnership on Coinbase One

Fidelity, Schwab, Citadel Launch Centralized Exchange

Institutional-grade Defi Solutions Growing

Growing Number of Custody Platforms and Services; Including NASDAQ

Digital Asset Managers/ Trusts, Indexing, SMAs and ETFs

- Indirect Access Is Here
- Direct Access in the Near Future

Mastercard To Offer Trading & Custody Services To Banks

The Cranes in Crypto Winter

Coinbase trading volumes in billions of dollars

Trading volume (\$B)	Q2'20	Q3'20	Q4'20	Q1'21	Q2'21	Q3'21	Q4'21	Q1'22	Q2'22
Retail	11	18	32	120	145	93	177	74	46
Institutional	17	27	57	215	317	234	371	235	171
Total	28	45	89	335	462	327	547	309	217



Understanding The Relationship

Demystifying Blockchain and Cryptocurrency

Blockchain

Blockchain is a distributed, immutable ledger that enables recording of transactions, tracking of assets, and/or exchange of records in a peer-to-peer manner without the use of intermediaries.

Blockchain Core Concepts

Distributed: Across a network of computers; not a single entity

Immutable: Unable to be altered or changed; Unhackable

Intermediaries: Governments, banks, or third parties

Peer-to-Peer: Directly between individuals or businesses

Evolution of Blockchain

Gen 1 - Bitcoin

- Original Distributed Ledger
- Method of Exchange Only
- Store of Value
- Proof of Work

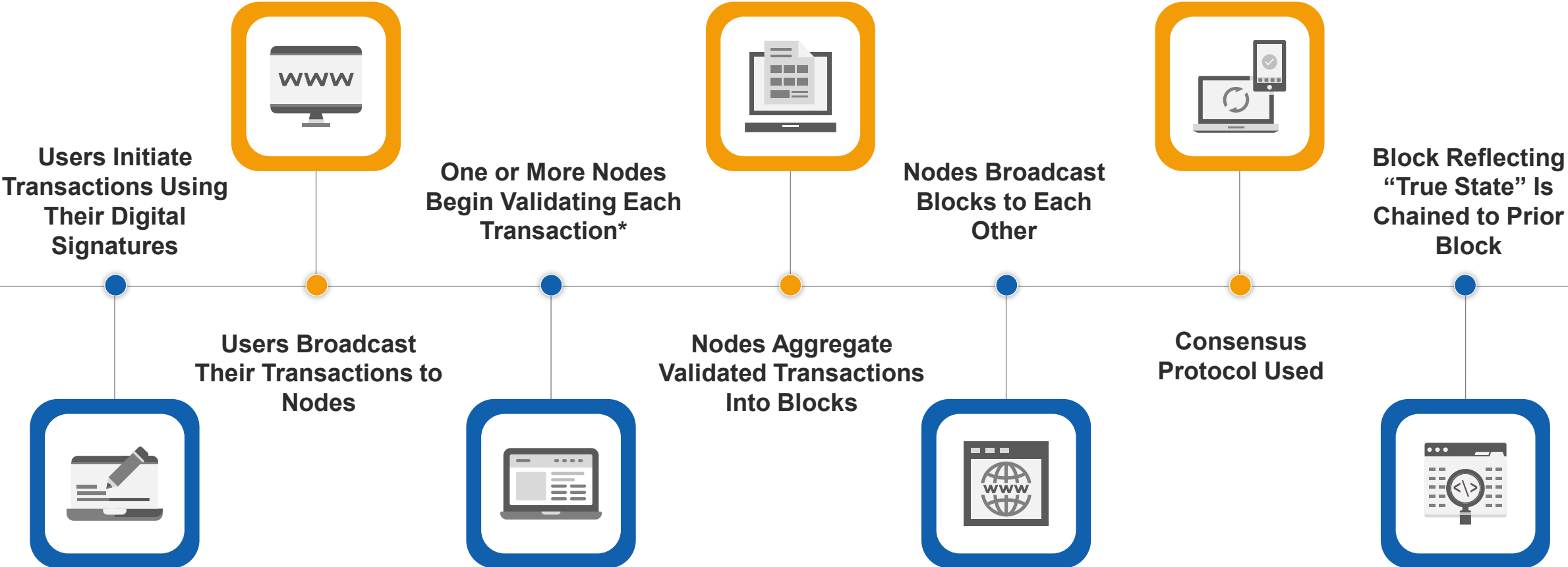
Gen 2 - Ethereum

- Platform
- Programmable
- Smart Contracts*
- Ecosystem
- Decentralized Applications (dApps)
- Transaction and Gas Fees
- Post Merge: Proof of Stake*

Gen 3 - Cardano, Polkadot, Algorand, Solana, etc.

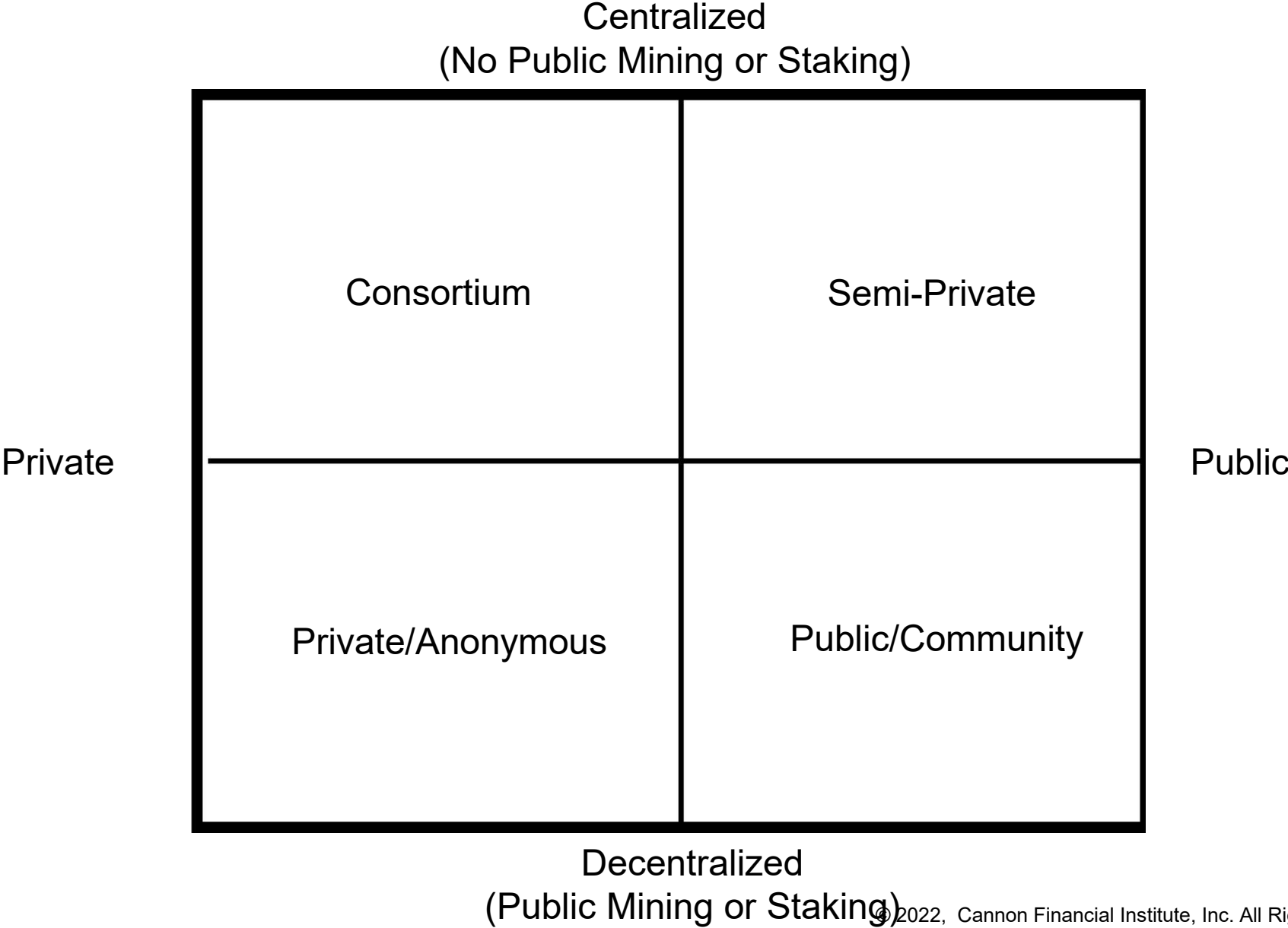
- Platform
- Programmable
- Smart Contracts*
- Ecosystem/dApps
- Proof of Stake
- Energy Efficient
- Web 3
- Reduced Transaction Fees

Working of a Distributed Ledger



* The two most common validation protocols Proof of Work and Proof of Stake

Types of Blockchains



Blockchain and Distributed Ledger Technology

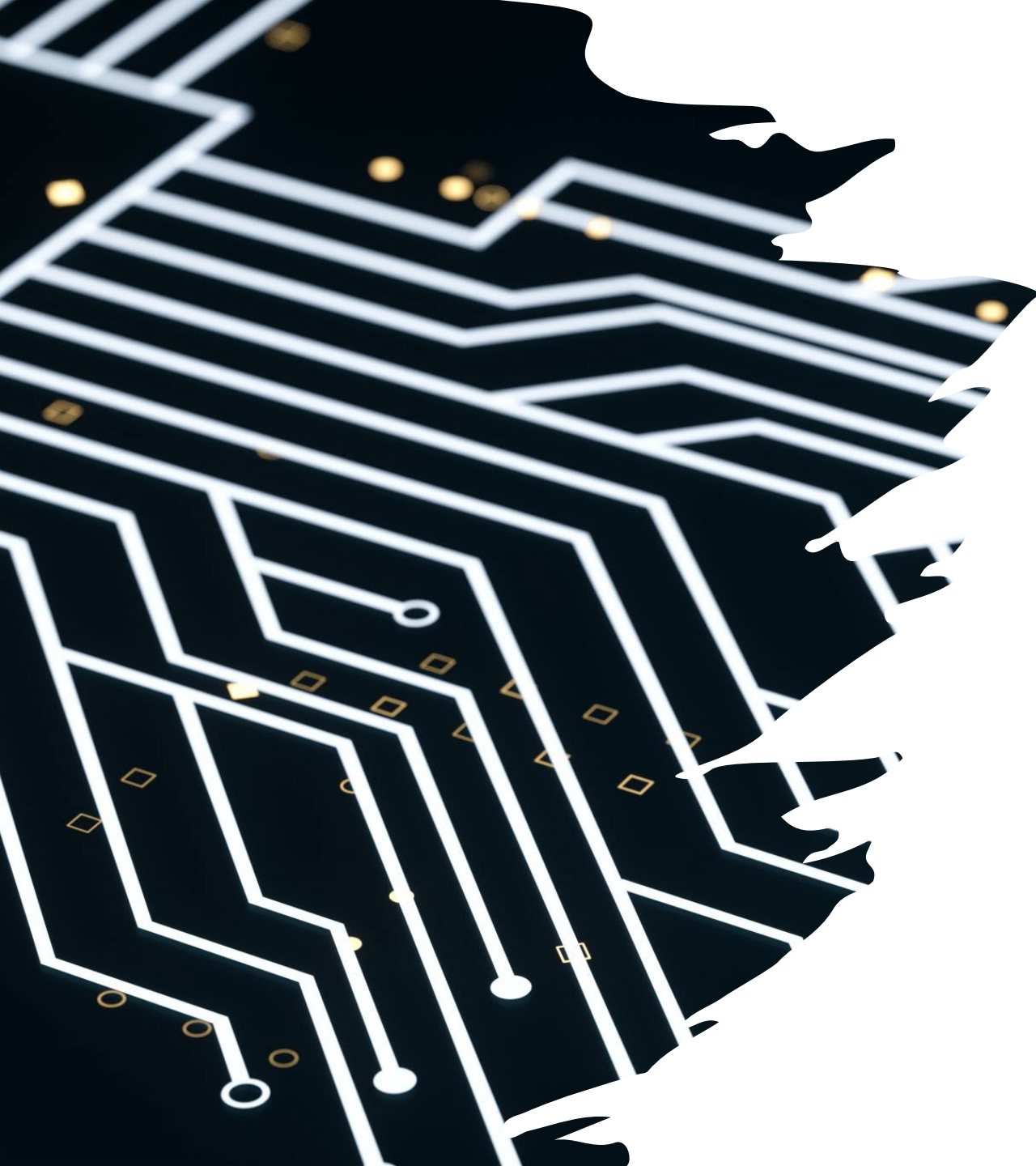
Blockchain transactions are immediately validated and cleared, then settled shortly thereafter, automatically without a Central Authority.

In the financial world, only cash transactions are cleared and settled automatically without a Central Authority.



A close-up photograph of a hand holding a silver pen, writing on a check. The check is partially visible, showing the number '123' and the word 'DOLLARS'. The background is a blurred desk with a pen and a notepad. A semi-transparent dark grey box is overlaid on the center of the image, containing white text.

What's the Settlement
Process When You Send a
\$100 Check to Someone?

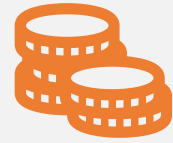


What Is the Incentive?

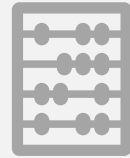
Q: Why would anyone connect their computers to this distributed network to participate in this process? What is the incentive for participating in the validation process?

A: Cryptocurrency

Currency



Store of Value



Unit of Account



Means of Exchange

What Is Cryptocurrency?

“A digital representation of value built upon a decentralized computer network in which transactions are verified and maintained using cryptography to avoid forfeiture and consensus mechanisms in place of centralized authorities.”

Christopher Giancarlo

Former Head of the
Commodities Futures
Trading Commission

What Problems
Does
Cryptocurrency
Solve?

Localism

Exclusivity

Latency

Cost

Blockchain and Cryptocurrency

Blockchain: A shared network on which digital assets are exchanged.

Cryptocurrency: Assets that are transmitted and transferred via Blockchain networks.

The background is a vibrant, abstract digital landscape. It features a dark blue and black base with numerous glowing, multi-colored lines in shades of orange, red, and yellow that create a sense of depth and movement. Scattered throughout are binary digits (0s and 1s) in various colors and sizes, some appearing to float or be part of the data flow. The overall effect is that of a high-tech, data-driven environment.

Digital Assets

Types of Digital Assets

- Cryptocurrencies
- Stablecoins
- Central Bank Digital Currencies
- Governance Tokens
- Utility Tokens
- Non-Fungible Tokens (NFTs)
- Security Tokens
- Meme Coins
- Wrapped

NFT Use Cases

Ownership

- Full
- Fractional

Real Estate and Titles

Access/Tickets

Collectibles

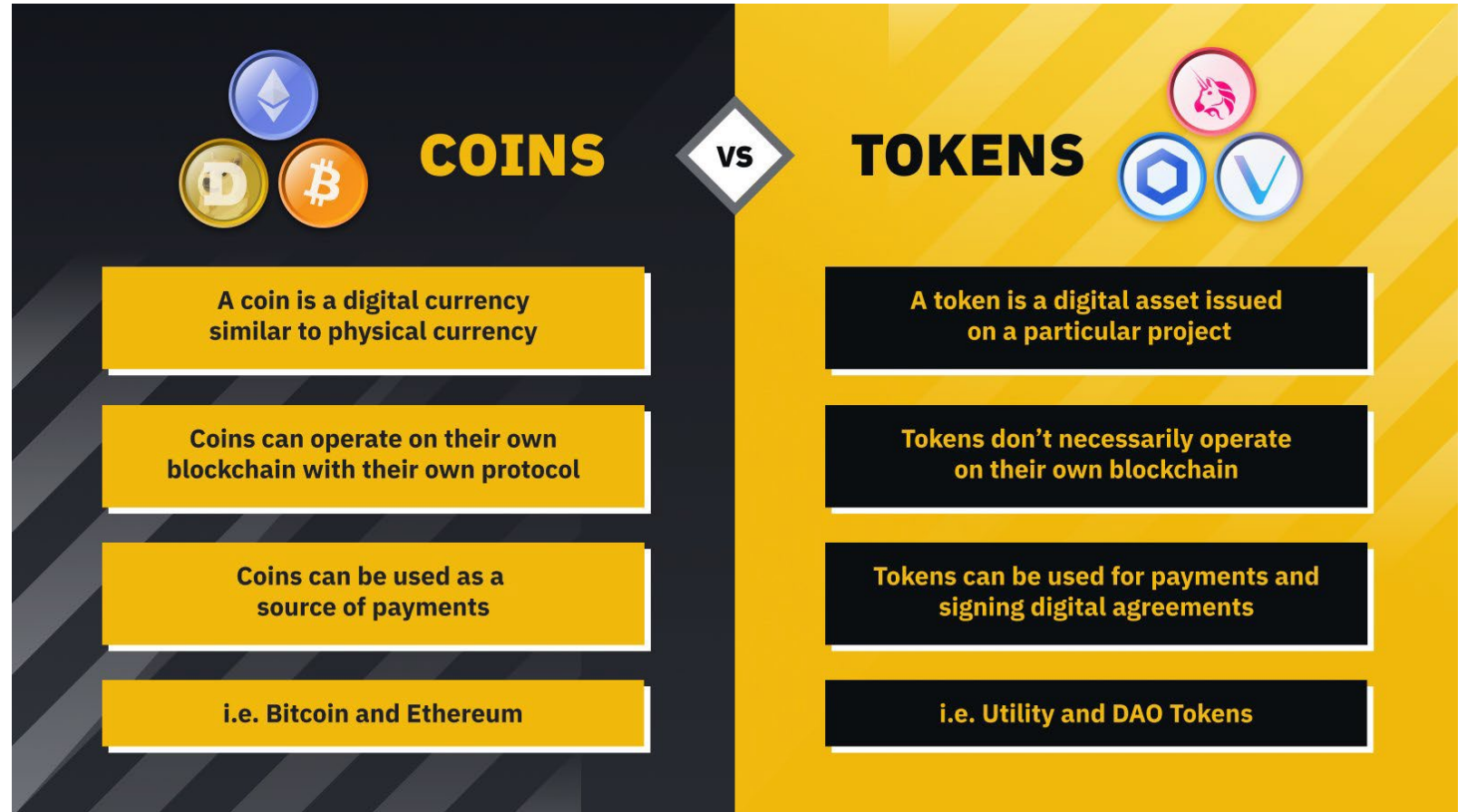
Contracts and Loans

Coupons

Memberships

Gaming (Play to Earn)

Coins vs. Tokens





How Are Digital Assets Stored?

*Digital Assets
are stored in
electronic
“wallets.”*

Types of Wallets

Online Wallets

Offline Wallets

Revisiting the Evolution of Blockchain

Cryptocurrency

- The foundation of blockchain technologies
- Cryptocurrency blockchains
- Peer-to-peer decentralised cryptocurrency transactions
- Proof-of-work (PoW) protocol

BLOCKCHAIN 1.0



Smart Contracts

- More financial functionality than simply being a cryptocurrency transactions processor
- Decentralized applications (DApps) based on programmable language
- Autonomously executing algorithms
- Proof-of-work (PoW) protocol

BLOCKCHAIN 2.0



More Functionality

- Larger-scale of applications of non cryptocurrency-related Distributed Ledger Technology (DLT)
- Improved performance with more scalability and interoperability
- Proof-of-stake (PoS) protocol

BLOCKCHAIN 3.0



Market Drivers

Market Risks

Paradox: Currency, Security, or Property

Congress has largely deferred to regulatory agencies and States

This has caused issues with clarity

Paradox: Currency, Security, or Property

Examples:

- IRS considers the sale of crypto assets to be taxable, but what about people now receiving compensation in crypto?
- Staking rewards are taxed upon receipt of the asset and when it is sold. Yet artists are not taxed when a painting is created, only when sold. Farmers are not taxed when corn grows and is harvested, only when sold.
- Going to a Bitcoin ATM at a gas station to withdraw money would mean someone is being charged Capital Gains Taxes for withdrawals to pay for fuel and food?

A large orange circle on the left side of the slide, partially cut off by the edge.

Executive Order: Ensure Responsible Development of Digital Assets

Authorizes exploration of a U.S. CBDC

Consumer and Investor Protection

Financial Stability

Illicit Finance

U.S. Leadership

Financial Inclusion

Responsible Innovation

How Does IRS Consider Cryptocurrency?

“Virtual currency is treated as property and general tax principles applicable to property transactions apply to transactions using virtual currency. ”

What About Taxes?

Cryptocurrency is not viewed as a currency, it is considered property

Crypto is considered to be an asset (thus it is also an asset class)

Two taxes can apply; Income Tax and Capital Gains Tax

Since Capital Gains can apply, so do Capital Losses

Income Tax

- Getting paid in crypto
- Mining crypto - on a hobby level
- Receiving an airdrop
- Receiving new coins from a hard fork
- Staking rewards**
- Referral bonuses
- DeFi including:
 - Earning interest through yield farming on lending protocol
 - Earning new liquidity pool tokens, governance or reward tokens on protocols
 - Lending your crypto to earn interest
 - Earning crypto dividends

Area of Regulatory Focus: Current

- Defining what “brokerage” means in a highly decentralized market
- Reducing tax avoidance/evasion
- Ensuring crypto markets are following U.S. Securities laws
 - Scrutiny on “Initial Coin Offerings” (ICO) as securities
- Potential exemption for transactions under \$50 from Capital Gains Taxes



Blockchain and Crypto In Traditional Financial Services (TradFi) and Decentralized Finance (DeFi)

Blockchain Use Cases in Financial Services



CLEARING



SETTLEMENT



RECORDS
MANAGEMENT



AUDIT



MORTGAGE



WILLS



TRUST

What Is Decentralized Finance?

DeFi is a peer-to-peer model of financial services that is based on interactions through Blockchain. DeFi enables access to “trust-less” financial solutions, without traditional financial intermediaries such as banks or brokers.



DeFi Changes the How,
Not the What

Benefits to Users and Investors

Cryptocurrency in Retirement Plans

- Some investors want access to Crypto in their retirement account
- At this time, investors can use a “crypto-compatible” IRA
- Funding:
 - Make contributions
 - Transferring funds from your existing account
 - Rollover to a “crypto-compatible” IRA. Once your account is funded, you can buy cryptocurrency from the account.
- All eyes are on a larger Retirement Plan provider, which stated they will allow Bitcoin in 401(k)s and questions emerge.

Blockchain and Trusts



Blockchain Trusts

- Same approach applies, but:
 - Trustee role could be a Smart Contract
 - Validation of information completed via “Oracles” (e.g., country death records, other public records)
 - Triggers may also be built into the Blockchain, which allow for the trust to alter its structure upon the occurrence of certain events
- Uses: Asset Protection, Asset Transfer

Blockchain Wills

“Blockchain wills would serve the true purpose of wills’ formalities--which is to authenticate a document as the one executed by the testator with the intention of having it serve as the binding directive for the distribution of property.”

Final Thought: Bitcoin and Inflation

Did Bitcoin actually work as a hedge against inflation?

Inflation: 2017- Today



Bitcoin: April 2021



Bitcoin and Inflation

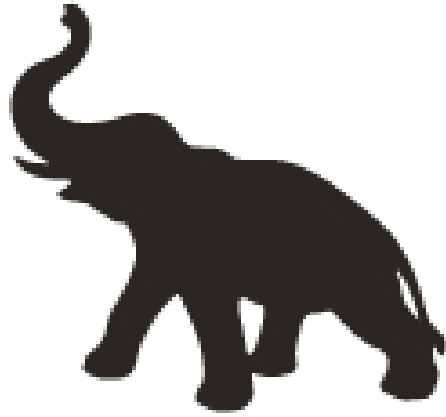
Bitcoin Most Certainly Did
Serve as a Hedge





Questions

What Questions Do You Have About Cryptocurrency or
Blockchain?



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Questions