

Digital Assets Education We are observing the evolution/revolution of money.

Presented By:

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Digital Assets Advisory Practice

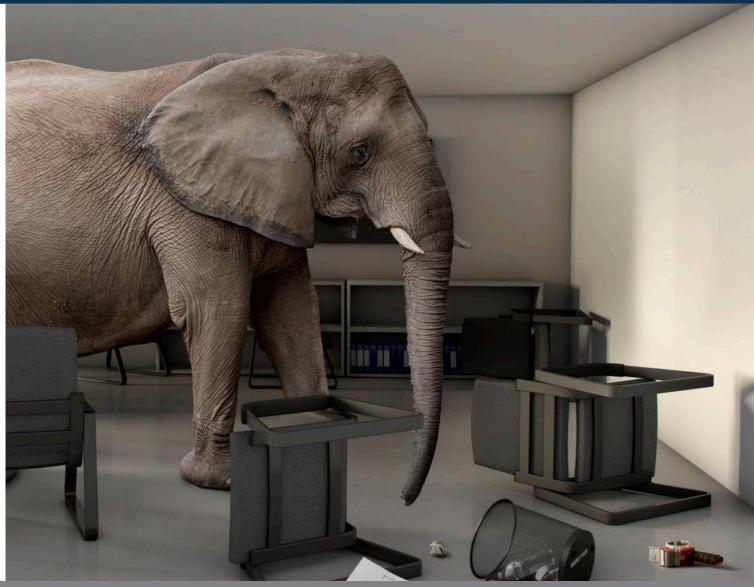
Strategic Resource Management

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Elephant in the Room



With cryptocurrency markets in a significant readjustment, how should financial institutions think about this?



DISCLAIMER

- All information found here, including any ideas, opinions, views, predictions, forecasts, commentaries, or suggestions, expressed or implied herein, are for informational, entertainment or educational purposes only and should not be construed as investment advice.
- The cryptocurrency industry is extremely fastmoving. Data/statistics become outdated quickly.
 While the information provided is believed to be accurate, it may include errors or inaccuracies.



SRM's digital assets/blockchain technology team's experience includes: cryptographic foundations, industry applications, the intersection of traditional finance and defi developments, regulatory environment, various crypto/digital assets, distributed ledger technology/blockchain, smart contracts and more...



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Key Takeaways



- Watch this space
- Defend your Deposits
- Drive interest and non-interest income
- Acquire new members, market share
- Increase member engagement
- Regulatory Guidance Exists
- SRM is helping to identify risks & opportunities

What Credit Unions are saying now

Embracing the rational as a new way of moving money



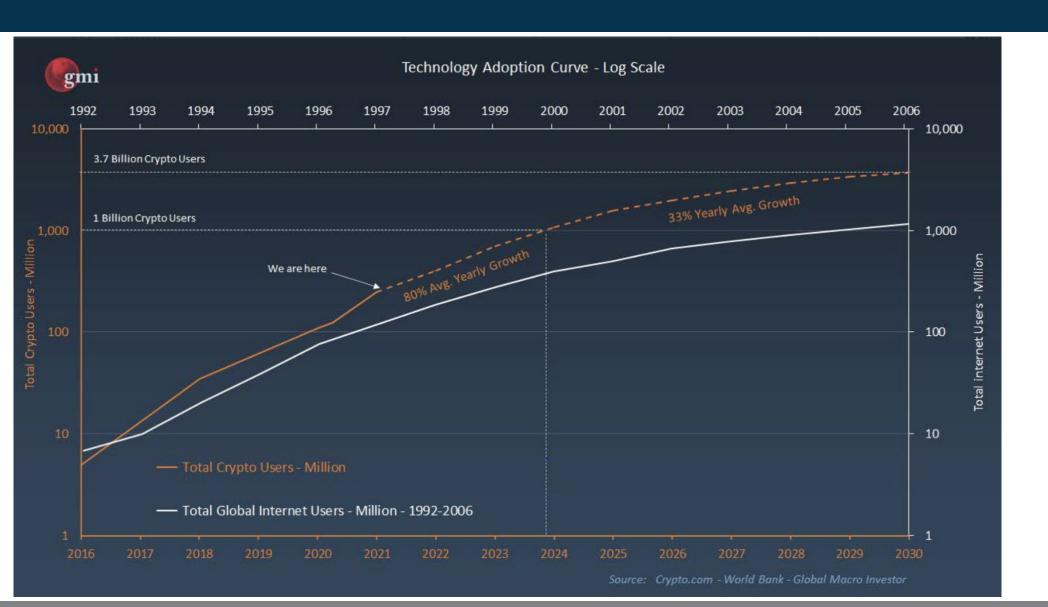
Growing Popularity and Interesting Facts



20-30% of Americans Own or Use Some Form of Cryptocurrency		Approx. 55% of Crypto Owners Pulled Funds from their Savings or Investment Accounts				
Industry Leadership 61% Of Americans Believes the US Government Should Support the Crypto Industry	Long View of Crypto Ownership 1 in 4 Millennials Have Crypto in Efforts to Fund their Retirement Needs		40% of Crypto Owners Purchased it in 2021			
Financial Institution – a Trusted So Over 50% Surveyed1 said they Would Definitely use a in Crypto if They Could		•	rket is Highly Correlated Crypto Market have Been Moving in Similar Manners			

Sources: Forbes, Capterra, Finder, KPMG, Bank of Canada

Digital Asset Adoption vs Internet



Generational Investing



Cryptocurrency attracts a younger demographic customer

Investment Types	Gen Z		Mill	enials	Gen X		Boome	rs
Have Investments		54%		64%		38%		43%
Stocks		26%		37%		28%		27%
Cryptocurrency		23%		38%		26%		6%
Mutual Funds		12%		21%		17%		24%
EFTs		7%		22%		13%		7%
Index Funds		8%		13%		13%		8%
NFTs		10%		15%		11%		0%
REITS		7%		14%		12%		3%
Commodities		5%		9%		9%		3%
Options		8%		9%		4%		2%
Other		2%		2%		4%		5%

At Least 1 in 4 Gen Z, Millennials, and Gen X Invest in Crypto



First Boulevard: Black neobank

- Black-owned digital banking offering
- Piloting crypto with Visa
- Crypto as a tool to close the racial wealth gap

DIVERSITY

Crypto ownership attracts diversity in both ethnicities and income levels

Underbanked Fully Banked Latino Americans Mhite Americans 0% 5% 10% 15% 20% 25% 30% 35% 40%

The Underbanked were more inclined to use cryptocurrency for transactions.

- 13% of people who utilized cryptocurrency for these transactions did not have a typical bank account,
- 27% did not have a credit card, and
- Nearly 6 out of 10 persons who use cryptocurrency for transactions earn less than \$50,000, while only 24% earn more than \$100,000.



Global Perspective



# of BTC	Value Today	% of 21m
828,641	\$23,715,874,463	3.946%
50,699	\$1,451,015,723	0.241%
268,271	\$7,677,970,747	1.277%
202,068	\$5,783,227,382	0.962%
1,359,781	\$38,917,209,615	6.475%
	828,641 50,699 268,271 202,068	828,641 \$23,715,874,463 50,699 \$1,451,015,723 268,271 \$7,677,970,747 202,068 \$5,783,227,382

<u>Countries</u>

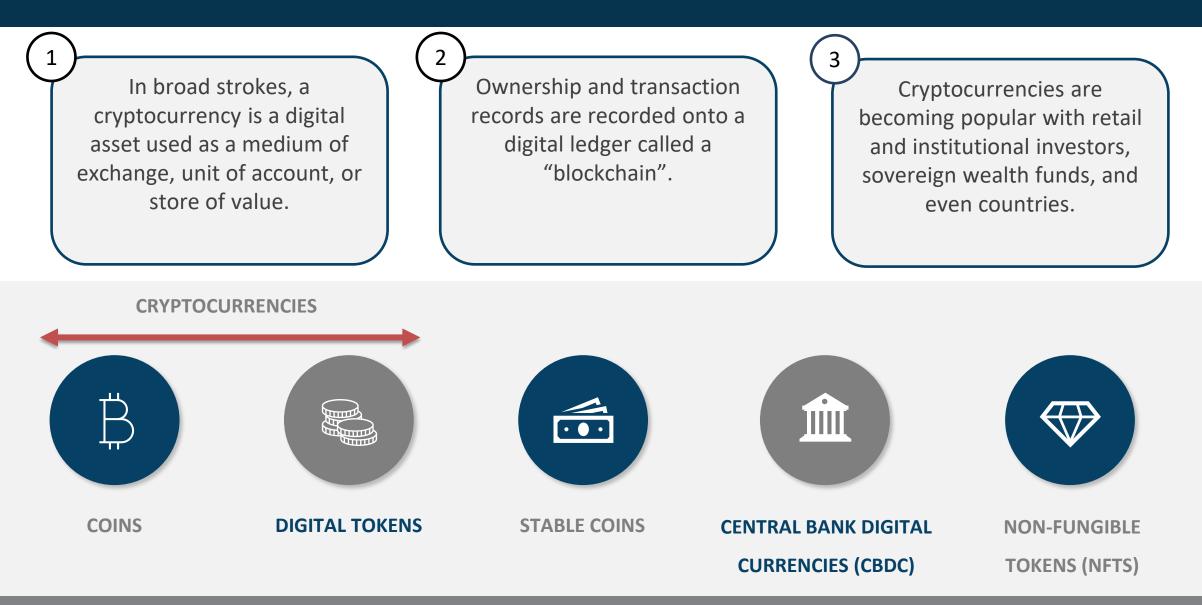
- Adoption as legal tender El Salvador, Central African Republic
- Considering Bitcoin adoption Panama, Paraguay, Mexico, Argentina¹

Companies Investing in Crypto/Blockchain



What are Digital Assets





Member Use Cases





Store of value/wealth

- "Hodling"
- Investing
- Diversifying Portfolio
- 401K and IRAs
- NFTs





- Staking
- Yield Farming
- Invest in early startups (ICOs)



Transactional

- Low Cost Money Transfer (International Remittances)
- Real-time Settlement (P2P)
- Payments of Goods and Services (Tesla)
- Charitable Donations
- Decentralized Finance (DAPPS)
- Virtual Gaming



What should your Credit Union be considering?





35% of Financial Institutions

Have already launched or are interested in offering digital asset solutions immediately

60% of Financial Institutions

Have digital assets on their roadmap for the next 2-3 years

Non-Interest Revenue Opportunity

90 % of Financial Institutions

Want to offer clients Buy/Sell/Hold options

Interest Revenue Opportunity

30 % of Financial Institutions

Would like to offer loans against digital assets or at least consider it in the lending decision

50% of Financial Institutions

Would like to offer crypto rewards

50% of Financial Institutions

Would like to offer a Secured Digital Identity

Financial Institution Use Cases



Custodial Services



Of crypto keys is something most banks and credit unions can easily provide

STATE STREET.

Five Star Bank

Banking | Investment | Insurance

FEDERAL CREDIT UNION



Integrations into existing online banking or mobile wallets can allow buying, selling, and use of crypto



Programs



Offers crypto rewards via debit & credit cards or even paying interest in crypto





BNY MELLON

ACHIEVA

Financial Institution Use Cases





Issuing/Backing Stablecoin



Could offer significant yields to financial by holding the underlying assets

DLT/Blockchain/Smartcontracts



Can secure sensitive data, speed up settlement periods, and provide P2P solutions











Member FDIC







US

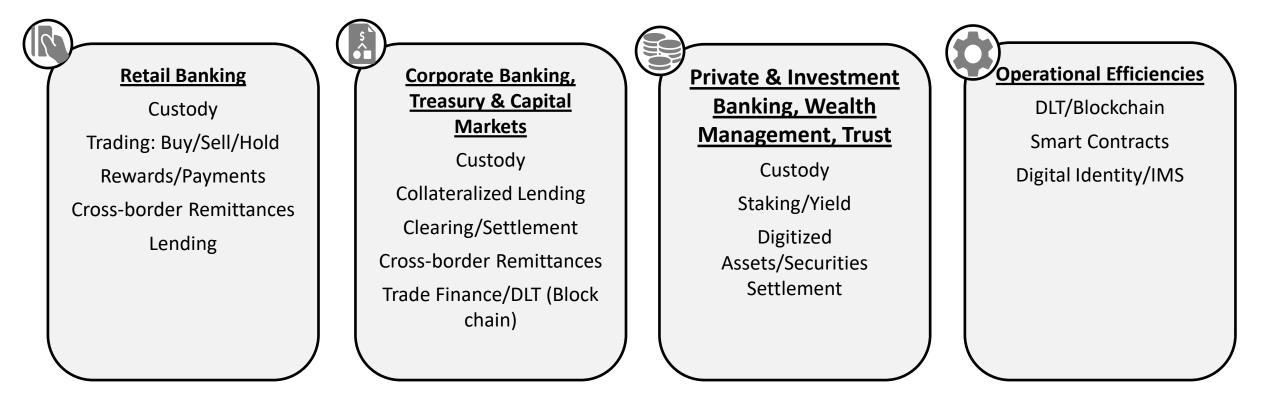
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WELLS FARGO



"Other" Digital Asset Applications





WHAT is Distributed Ledger Technology (DLT)



Use Cases – What Problems Are We Trying to Solve?

Members	Financial Institutions
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 Identity Management Services – IMS Lending and Trade Finance - fewer intermediaries, streamlined process, lower fees, smoother experience Payments – increased speed and security for transfers and reconciliation, cross 	 Reduced counter party risk/fraud with less intermediaries Intra and inter bank settlement Automated settlement and reduced transaction fees Regulatory transparency

• Proof of ownership

boarder payments



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A Digital Ledger A Blockchain is a digital ledger which keeps records of all transactions taking place on a peer to peer network.



Peer to Peer Lets you interact or send transactions with a peer, without an intermediary. Removes the middle man.



Decentralization The blockchain is decentralized, so there isn't a need for a central, certifying authority.



2

Encrypted Information All Information transferred via blockchain is encrypted and every occurrence recorded, meaning once the block is created and added to the chain, it cannot be altered.



The blockchain can be used for more than the transfer of currency. It can also be used to share contracts, records and any other type of data.

What is a Blockchain



A Digital Ledger



Encrypted Information

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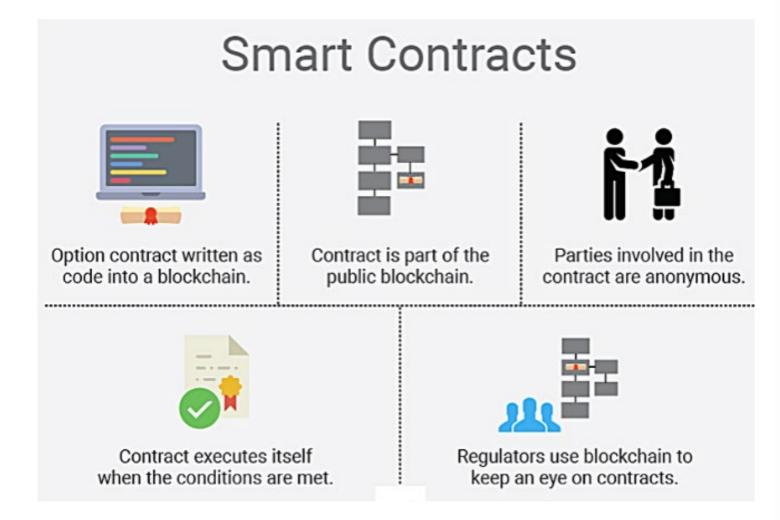
Peer to Peer



Data Sharing



Decentralization





Self executing contract

- Automated software protocol that lives "on chain" to automatically implement a procedure, contract or business practice.
- When the rules are met, the contract is executed on the blockchain.
- Automation simplifies the process but still ensure speed and accuracy with each contract.
- Not a legal contract

Digital Identity Benefits



Financial institutions



Offerings

Firms can use detailed and trusted customer information to provide customers with tailored services.



Operations

Digital attribute transfer and handling let financial institutions streamline and automate many processes, eliminating human error.



Security

The secure, digital storage of user information reduces fraud resulting from stolen information or compromised authentication.



Compliance

Thanks to digital attribute handling and greater access to user identity, compliance becomes easier and more accurate.



Revenue

Firms get the chance to increase revenue from improved products and services as well as offer identity-as-a-service.



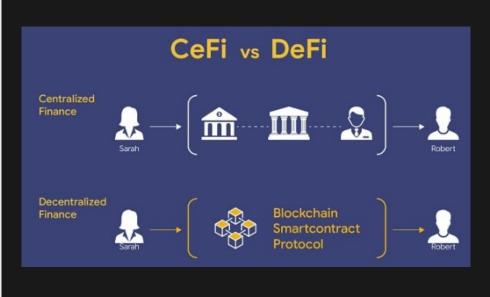
Competitiveness

Financial institutions offer a streamlined user experience and position themselves as a critical part of the digital economy.

- Extremely efficient financial applications in crypto and blockchain – "peer-to-peer" financing using crypto.
- Open, transparent, permissionless, trustless, decentralized, and highly interoperable protocol stack.
- DeFi applications (DAPPS) are a growing list and include borrow/lending, trading, payments, and insurance.
- Making finance more open and equitable, less expensive to build new innovative financial ecosystems.
- DeFi grew from \$30B to \$112B in one year.



DECENTRALIZED FINANCE (DEFI) – "OPEN FINANCE"



Solution Providers





STRATEGIC RESOURCE MANAGEMENT | CONFIDENTIAL

Regulatory Guidance





- OCC November 2021, 4th Interpretive Letter 1179, elaborated on the process that would be required to engage in cryptocurrencies in a "safe and sound" manner. As long as a bank shows that it has sufficient controls in place, and first obtains written notice of "non objection" by its supervisory office, then a bank is said to be engaging in a "safe and sound manner."
- **FDIC 4/7/2022 -** Notification of Engaging in Crypto-Related Activities.
 - FDIC supervised institutions needs to provide information that allows to the FDIC that allows it to be reviewed and provide relevant supervisory feedback.



- **NCUA** December 2021. Clarified that federally insured credit unions (FICUs) can establish relationships with third-party providers that offer digital asset services to the FICUs' members, provided certain conditions are met.
- <u>NCUA</u> May 2022. Provided guidance that the NCUA does not prohibit FICUs from developing, procuring, or using DLT (Distributed Ledger Technologies).

Regulatory Guidance in the works



- Lummis-Gillibrand Responsible Financial Innovation Act June 2022 Bi-partisan bill introduced seeking comprehensive set of regulations across the digital asset ecosystem in the U.S.
- <u>Presidents Working Group</u> November 2021 provided congress with guidance on stablecoin legislation including requirements to hold high quality US dollar denominated assets and hold these assets at US regulated entities.
- <u>Biden Administration</u> March 2022 released a directive to ask federal agencies to determine the risks and opportunities posed by digital assets. Should be hearing from them any day now!
- **<u>NY Department of Financial Services</u>** June of 2022 became the first financial regulator to issue guidance for criteria for stablecoins.

SRM's Digital Asset Advisory Capabilities





Education/Needs Assessment

- Inflow/Outflow Analysis
- Education executive team, employee, board, client
- Member/customer survey & possible focus group
- Market Scan list of top crypto solution providers
- High-Level Pro Forma
- SRM Crypto University



Digital Asset Strategy

- Design Thinking Sessions
- Compliance & Risk
 Considerations
- Strategy Development -Business Plan, Gap Analysis, Infrastructure Readiness
- Product Decisions
- Token Risk Rating: Definition of security vs. commodity
- Refined Pro Forma



Partner Selection

- Vendor Scan
- RFP, Due-Diligence
 Packages, Licenses
- Demos
- Negotiation
- Vendor Selection



Roll-Out

- Marketing and Roll-out Planning
- Implementation & Integration w/ Online/Mobile Banking Providers
- Market Scan
- Pricing Decisions
- Disclosures
- Regulatory Preparation
- Tracking



Digital Assets Education

QUESTIONS & DISCUSSION

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Bitcoin compared to Gold and Fiat



- Fiat currency has reigned in the last forty years, but every fiat currency that has existed in history has eventually failed.
- A study of 775 fiat currencies indicates the average life expectancy of fiat currencies is 27 years, with some taking a month to crash and others surviving for centuries.
- The two longest-surviving currencies are the British Pound and the US Dollar, both of which have lost the vast majority of their original value.
- The US is also deeply in debt, which encourages it to inflate its currency in order to reduce the dollar-value of that debt.
- Will the dollar beat the odds and survive? If it fails, what comes next? Bitcoin, CBDC, Stablecoin?

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GOLD

DURABLE

DIVISIBLE

X

FUNGIBLE

8-81

PORTABLE

 $\{\checkmark\}$

VERIFIABLE

SCARCE

RACK RECORD

BITCOIN

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FIAT CURRENCY



PAYMENT RAIL ALTERNATIVES EMERGE

SRM Proprietary and Confidential

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Trade Finance Blockchain Benefits





Real-time review:

Financial documents linked and accessible through Blockchain are reviewed and approved in real time, reducing the time it takes to initiate shipment

Transparent factoring: Invoices

accessed on Blockchain provide a real-time and transparent view into subsequent short-term financing

Disintermedi-

ation: Banks facilitating trade finance through Blockchain do not require a trusted intermediary to assume risk, eliminating the need for correspondent banks Reduced counterparty risk: Bills of lading are tracked through Blockchain, eliminating the potential for double spending

Decentralized contract execution: As contract terms are met, status is updated on Blockchain in real time, reducing the time and headcount required to monitor the delivery of goods Proof of ownership: The title available within Blockchain provides transparency into the location and ownership of the goods

Automated settlement and reduced in transaction fees: Contract terms executed via Smart Contract eliminate the need for correspondent

banks and

additional

transaction fees

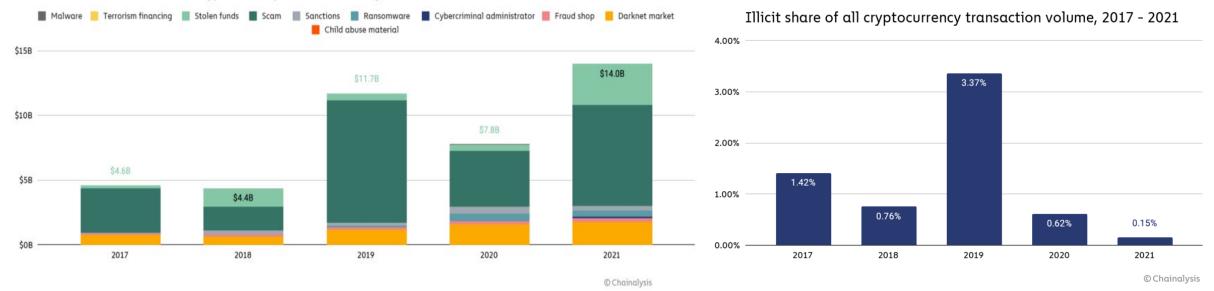
Regulatory transparency: Regulators are provided with a real-time view of essential documents to assist in enforcement and AML activities

Source: Deloitte

Crypto Crime trends for 2022



Illicit Transaction Activity Reaches All-Time High in Value, All-Time Low in Share of All Cryptocurrency Activity



Total cryptocurrency value received by illicit addresses, 2017 - 2021

Top 2021 Hacks & one BIG 2022 Hack



- Poly Network \$611MM. The Poly Network hack in August was the "second" largest cryptocurrency exploit ever. Bad smart contract
- **BitMart \$196MM**. The BitMart hack in December saw assets stolen from two of the platform's 'hot wallets' on Ethereum and Binance in December. Stolen private key
- **Cream Finance \$148MM**. DeFi platform Cream Finance was hacked twice in 2021, first for \$18MM in August followed by a larger \$130MM exploit in October. Bad smart contract
- **Vulcan Forged \$140MM**. In December, the play-to-earn NFT game Vulcan Forged had PYR tokens stolen from compromised wallets. Stolen private keys
- **Badger Finance \$120MM**. This hack occurred in December when BadgerDAO faced a 'front-end' attack that saw ETH and BTC stolen from the platform. Compromised API key
- 2022 Axie Infinity \$622MM. Blockchain gaming company Sky Mavis announced that, in March, someone had used hacked private keys to drain the treasury of its popular metaverse gaming project Axie Infinity. The stolen funds were stored in Ethereum and USD Coin on the Ronin bridge, a sidechain of the Ethereum network. Stolen private key

7 TYPES OF CRYPTO SCAMS

• Ponzi Schemes

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- Pump and dump
- Fake celebrity endorsements
- Fake exchanges
- Fake apps
- Fake press releases
- Phishing/spoofing





REGULATION & STANDARDS



Security and Exchange Commission (SEC) believes some digital assets "may be securities"

Commodity Futures Trading Commission (CFTC) considers crypto to be a commodity

Internal Revenue Service (IRS) classifies crypto as property

Office of the Comptroller of the Currency (OCC) the OCC in 2020 and 2021 provided regulatory guidance via 3 interpretative letters

National Credit Union Administration (NCUA) announced guidance for credit unions in 4th Qtr 2021

Department of Justice (DOJ) recently announced the creation of a National Cryptocurrency Enforcement Team (NCET)

Financial Crimes Enforcement Network (FINCIN) recently appointed FinCEN's first-ever Chief Digital Currency Advisor and is working on rules requiring crypto exchanges to file reports when a client moves \$3,000 of virtual currency domestically or \$250 internationally

Financial Action Task Force (FATF) recently updated its guidance on the risk-based approach to virtual assets (VAS) and virtual asset service providers (VASPs)

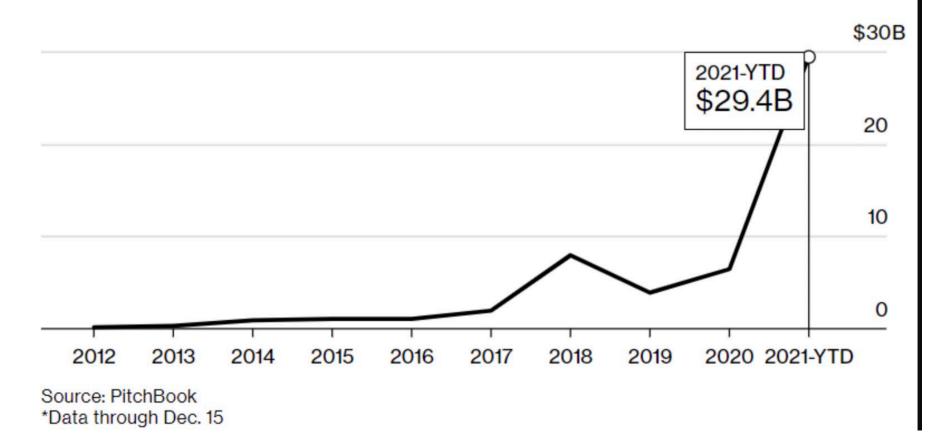
Financial Accounting Standards Board (FASB) has been considering changes to accounting rules and recently requested public comment on the subject. Current GAAP accounting prohibits businesses from showing the true value of crypto assets.

FBI recently announced new cryptocurrency unit.





Venture capital firms pour \$30 billion into crypto industry



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Additional Potential Regulatory Changes

- The Biden Administration released an Executive Order directive to ask federal agencies to determine the risks and opportunities posed by digital assets.
- SEC recently proposed rule classifying DEFI "communication protocols" like DEX's as exchanges. They are currently requesting public comments. <u>https://www.sec.gov/rules/proposed.shtml</u>
- The Federal Reserve recently kicked off debate about creating an official digital version of the US Dollar. This could have significant impacts to consumers and existing financial service companies. The Federal Reserve is soliciting public comment. <u>https://www.federalreserve.gov/apps/forms/cbdc</u>



THE CRYPTO WALLET



Public Key — This cryptographic key is usually designed to allow someone to send digital coins to an address without identifying the user. It's kind of like an account username.

Private Key — This is your own information that you use to identify yourself as the owner of the wallet. It's kind of like a PIN or a password. You can use your private key to get into your hot wallet and see what's happening.



CUSTODIAL WALLET

CUSTODIAL WALLETS ARE THIRD PARTIES SUCH AS EXCHANGES AND BROKERAGE SERVICES. THESE SERVICES HAVE CONTROL OVER YOUR COINS.



NONCUSTODIAL WALLET

NONCUSTODIAL WALLETS GIVE USERS 100% CONTROL BY PROVIDING OWNERS WITH THE PRIVATE KEYS

Bitcoin.com

HOT VS COLD Wallets





- Connected to the internet
- More accessible and can be connected to the platform you trade on
- Easier to use in transactions across the internet.
- More vulnerable to hackers.
- Often free



- Only limited and controlled internet connectivity
- Even when plugged into a computer and connected to the internet, the funds can't be stolen, as the transaction must be signed by the device itself.
- Less accessible since you need the key for each transaction.
- Designed to be thieve-proof.
- More expensive





Regulatory Changes: Tax Reporting for Brokers

The Infrastructure Investment and Jobs Act was effective on **November 15th 2021** includes a broad definition of "broker" to target cryptocurrency information reporting to the IRS. Requirements in the infrastructure bill will not take effect until Jan. 1, 2023, with reporting needed in 2024.

The bill imposes obligations similar to <u>IRS Form 1099-B</u> on various technology providers in the crypto industry, even if they do not broker digital asset transactions and lack the necessary information to comply.

Based on bill's imprecise wording, various noncustodial blockchain technology providers may represent "brokers" subject to reporting obligations. For example:

- Proof of Stake Validators and Proof of Work Miners
- Blockchain Node Operators or Delegates
- Software Developers
- Crypto Wallet Suppliers



President's Working Group Recommendations

- To address risks to stablecoin users and guard against stablecoin runs, legislation should require stablecoin issuers to be insured depository institutions
- To address concerns about payment system risk, in addition to the requirements for stablecoin issuers, legislation should require custodial wallet providers to be subject to appropriate federal oversight. Congress should also provide the federal supervisor of a stablecoin issuer with the authority to require any entity that performs activities that are critical to the functioning of the stablecoin arrangement to meet appropriate risk-management standards.
- To address additional concerns about systemic risk and concentration of economic power, legislation should require stablecoin issuers to comply with activities restrictions that limit affiliation with <u>commercial entities.</u> Supervisors should have authority to implement standards to promote interoperability among stablecoins. In addition, Congress may wish to consider other standards for custodial wallet providers, such as limits on affiliation with commercial entities or on use of users' transaction data.

Bitcoin Energy Consumption



Bitcoin Energy Consumption: A Comparison TVs in US 60 Paper & Pulp 586 Cement 384 **Data Centers** Lighting in 200 US 60 Iron and Steel BTC 1233 71.86 AC 2199 **Data Networks** 250 Fridges in US 104 Copper 167 Chemicals 1349 Industrial (TWh) Residential (TWh)

Repurposed from University of Combridge's Bilcoin Electricity Consumption Index



	Annual Cost	Energy Used (GJ)
Gold Mining	\$105B	457M
Gold Recycling	\$40B	25M
Paper Currency and Minting	\$23B	39M
Banking System	\$1,870B	2,340M
Governments	\$27,800B	5,861M
Bitcoin Mining	\$4.5B	183M

*One gigajoule (GJ) is equal to 277.8 kilowatt hours (kWh), 1.055 million British thermal units (Btu) or 0.17 barrels of oil.



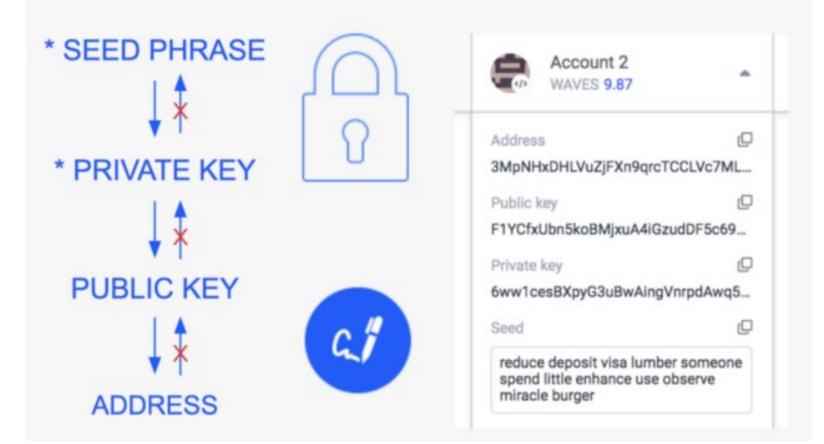
SEED PHRASE > Private and Public Keys & Wallet Address

The wallet uses the seed phrase to create the private keys.

Public keys are created using an asymmetric algorithm, which pairs the public key with an associated private key.

Public key are not the addresses, A address is like an email address that funds can be sent to.

The public key is used by the wallet to make different addresses.





MINING VS MINTING

Crypto mining is the process of earning cryptocurrencies by recording and confirming transactions on a public digital record of transactions known as a blockchain, and this is accomplished through the use of computers to solve cryptographic equations. In return for the complex mathematical problems that they solve, miners are rewarded in cryptocurrencies.





Minting, is the act of authenticating data, creating a new block, and storing that data onto the blockchain via the Proof-of-Stake method. The minting method for how blocks are formed and data is added to a block is known as Proof-of-Stake.

Coins are minted through staking rather than mining under the Proof-of-Stake process. Proof-of-Stake doesn't have miners; instead, it has validators, and it doesn't allow individuals to mine new blocks; instead, they can mint or fake them.

Proof of Work vs. Proof of Stake

Blockgeeks

VS.

Proof of Stake



Proof of Work

To add each block to the chain, miners must compete to solve a difficult puzzle using their computers processing power.



In order to add a malicious block, you'd have to have a computer more powerful than 51% of the network.



The first miner to solve the puzzle is given a reward for their work.



There is no competition as the block creator is chosen by an algorithm based on the user's stake.



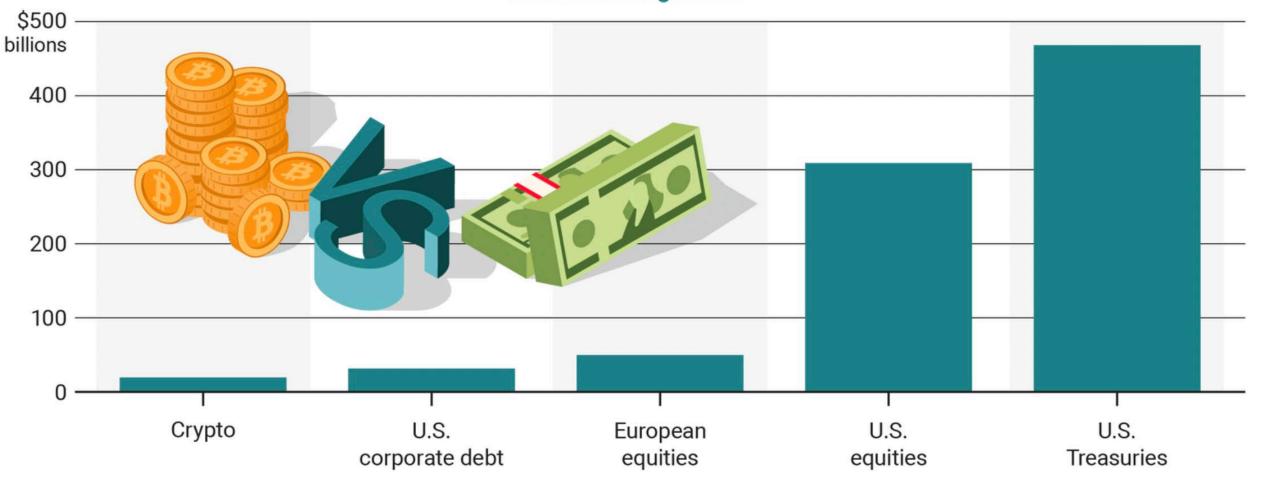
In order to add a malicious block, you'd have to own 51% of all the cryptocurrency on the network.



There is no reward for making a block, so the block creator takes a transaction fee.

Crypto volume vs the rest

Crypto daily trade volume compared with other segments*



*30 day average Source: Sanford C. Bernstein note citing CoinMarketCap. CBOE, Coindance, SIFMA

INSIDER PRO





Americans want Crypto from their Financial Institutions!!

- 1/4 of Gen Zers (21-26yo) are crypto investors and 3 in 10 plan to invest in 2022
- Millennials (27-41) 30% have already invested in crypto and 27% planning to do so this year
- Among both, with crypto, 40% bought or sold it five or more times in 2021
- Americans already holding crypto, ½ said they would definitely use a FI to invest in crypto if they could

Forbes

STRONG AWARENESS & ADOPTION



Receptive Audience

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Most consumers are familiar with crypto and owners are open to broader applications

Are aware of cryptocurrency

