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**SPECIAL OPERATIONS AND
CRYPTOCURRENCY: CONCEPTS TO HARNESS
INNOVATION FOR NATIONAL SECURITY**

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NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

SUPPLEMENTAL TO THESIS (1 OF 1: DIGITAL ASSET AND CRYPTOCURRENCY RESOURCE GUIDE)

**SPECIAL OPERATIONS AND CRYPTOCURRENCY:
CONCEPTS TO HARNESS INNOVATION
FOR NATIONAL SECURITY**

by

Michael S. Rowen

December 2022

Thesis Advisor:
Second Reader:

Leo J. Blanken
Nicholas Dew

Approved for public release. Distribution is unlimited.

Digital Asset and Cryptocurrency Resource Guide

The resources contained here are intended to provide a starting point to discover more knowledge in the digital asset ecosystem and increase understanding in cryptocurrency terminology.

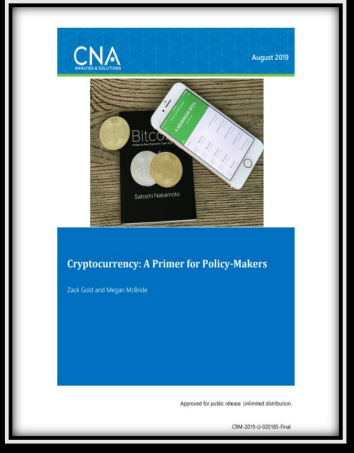
Many of the resources are cited in the thesis however, this product may help reduce the burden when searching for reading material or clarity.

The reports or websites recommended below are only a snapshot of the ecosystem and cover several years of innovation for the digital asset markets or analysis in national security affairs.

Cryptocurrency: A Primer for Policy-Makers

“This primer is an effort to address a gap in knowledge about cryptocurrencies and the cryptocurrency ecosystem among the policymaking community and advance the understanding of cryptocurrencies and consideration of their national security implications.”

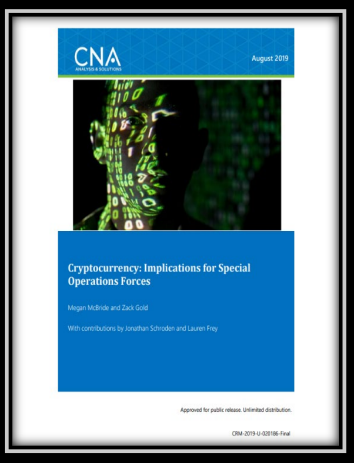
Source: <https://www.cna.org/reports/2019/08/cryptocurrency-primer-for-policy-makers>



Cryptocurrency: Implications for Special Operations Forces

“This document assumes a baseline understanding of cryptocurrencies, and focuses on the four questions that motivated our analysis of the implications of cryptocurrencies for SOF. Such as Operational considerations, range of activities observed, likely next evolution, and challenges and opportunities for SOF.”

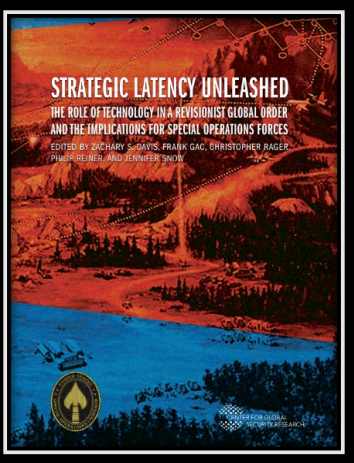
Source: <https://www.cna.org/reports/2019/08/cryptocurrency-implications>



Strategic Latency Unleashed: The Role of Technology in a Revisionist Global Order and the Implications for Special Operations Forces

“Taking guidance from these SOF Truths, and with full appreciation for SOF’s Core Activities, we have gathered a group of top experts from multiple disciplines, along with current and former SOF operators, to view developments in geopolitics, technology, and business through the eyes of American SOF.”

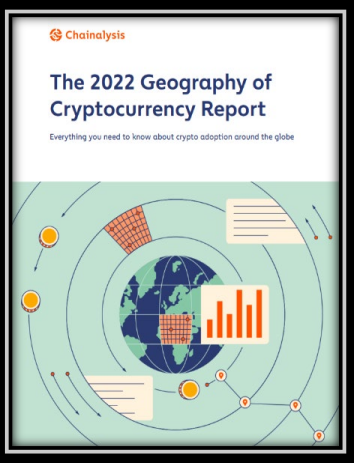
Source: <https://cgsl.llnl.gov/content/assets/docs/StratLatUnONLINE.pdf>



Chainalysis: The 2022 Geography of Cryptocurrency Report

“For the third consecutive year, we ranked all countries by grassroots cryptocurrency adoption. This article covers; what is grassroots adoption, our methodology, the 2022 global crypto adoption index, and key takeaways from the index.”

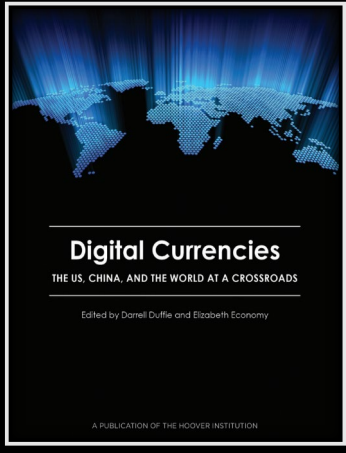
Source: <https://blog.chainalysis.com/reports/2022-global-crypto-adoption-index/>



Digital Currencies: The US, China, and the World at a Crossroads

“This Multidisciplinary report explores the economic and sociopolitical motives for China’s central bank digital currency and its implications for privacy, international security, and the leading role of the United States in global finance.”

Source: <https://www.hoover.org/research/digital-currencies-us-china-and-world-crossroads>



Digital Currencies

THE US, CHINA, AND THE WORLD AT A CROSSROADS

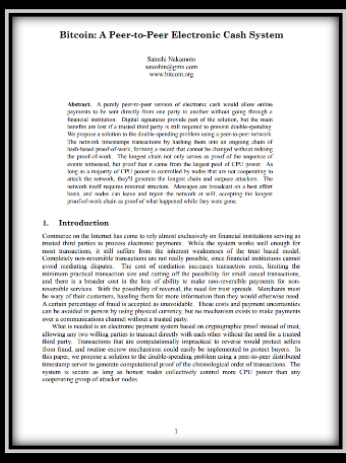
Edited by Darrell Duffie and Elizabeth Economy

A PUBLICATION OF THE HOOVER INSTITUTION

Bitcoin: A Peer-to-Peer Electronic Cash System

“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.”

Source: <https://bitcoin.org/bitcoin.pdf>



Bitcoin: A Peer-to-Peer Electronic Cash System

Satoshi Nakamoto
satoshi@bitco.in
www.bitco.in

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 generates transactions by having them sent to a central daemon of high-speed proof-of-work. A longer chain not only serves as proof of the sequence of events witnessed, but proof that it came from the original 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 replace blocks. 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.

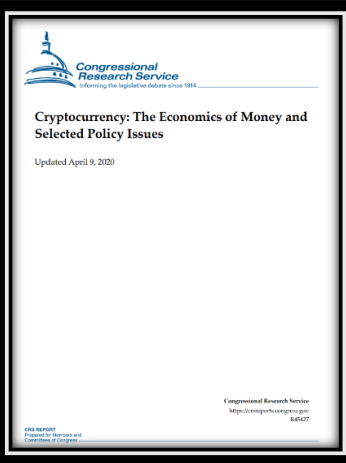
1. Introduction

Commerce on the Internet has come to rely almost exclusively on financial institutions serving as trusted third parties to process electronic payments. While the system works well enough for most transactions, it still suffers from the inherent weaknesses of the trust based model. Completely non-reversible transactions are not possible, since financial institutions cannot avoid recording disputes. The cost of mediating transactions comes from the overhead of the institutions that are required to process them. The cost of mediating transactions comes from the overhead of the institutions that are required to process them. The cost of mediating transactions comes from the overhead of the institutions that are required to process them. The cost of mediating transactions comes from the overhead of the institutions that are required to process them.

Cryptocurrency: The Economics of Money and Selected Policy Issues

“The rapid growth and volatility, cryptocurrencies have drawn the attention of the public and policymakers. The purpose of this report is to assess how and how well cryptocurrencies perform this function, and in so doing to identify possible benefits, challenges, risks, and policy issues surrounding cryptocurrencies.”

Source: <https://crsreports.congress.gov/product/pdf/R/R45427>



Cryptocurrency: The Economics of Money and Selected Policy Issues

Updated April 9, 2020

Congressional Research Service
https://crsreports.congress.gov
R45427

Blockchain: Background and Policy Issues

“Since its creation in 2008, blockchain has been most commonly associated with cryptocurrencies, digital currencies that users exchange through decentralized computer networks. More recently, public and private sector actors have used blockchain applications in fields such as supply chain management, identity management, and asset registration.”

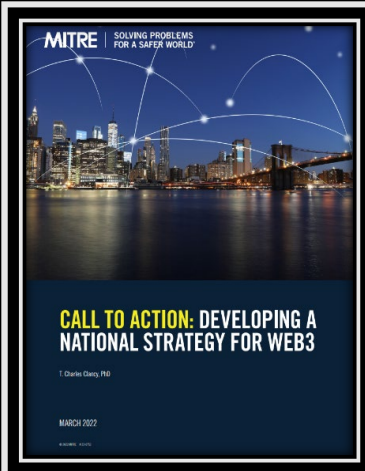
Source: <https://crsreports.congress.gov/product/pdf/R/R47064>



Blockchain: Background and Policy Issues

Updated February 28, 2018

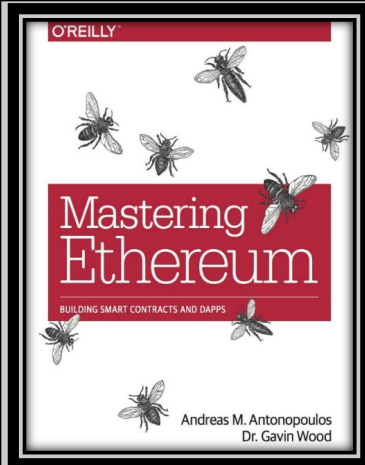
Congressional Research Service
https://crsreports.congress.gov
R47064



Call to Action: Developing a National Strategy for Web3

“The third generation of the World Wide Web, known as Web3, is bringing an entirely new technology stack built on blockchain. This new epoch of social interconnectivity blurs the lines between telecommunications and finance, compounding an already complex regulatory ecosystem.”

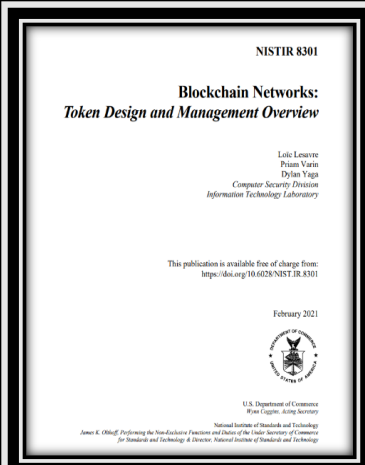
Source: <https://www.mitre.org/news-insights/publication/call-action-developing-national-strategy-web3>



Mastering Ethereum: Building Smart Contracts and DApps

“Ethereum represents the gateway to a worldwide, decentralized computing paradigm. This platform enables you to run decentralized applications (DApps) and smart contracts that have no central points of failure or control, integrate with a payment network, and operate on an open blockchain.”

Source: <https://aantonop.com/books/mastering-ethereum/>



Blockchain Networks: Token Design and Management Overview

“Blockchains are tamper evident and tamper resistant digital ledgers implemented in a distributed fashion. This document provides a high-level technical overview of blockchain technology. The purpose is to help readers understand how blockchain technology works.”

Source: <https://csrc.nist.gov/publications/detail/nistir/8202/final>

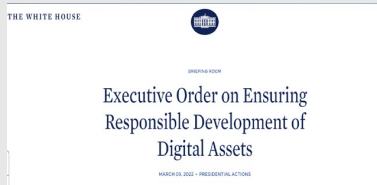


Department of Commerce: Responsible Advancement of U.S. Competitiveness in Digital Assets by

“This report lays out a framework to foster U.S. competitiveness in digital assets in a manner intended to facilitate responsible development of the industry in accordance with the values and policy objectives outlined in EO 14067.”

Source: <https://www.commerce.gov/files/digital-asset-competitiveness-report>

The White House Guidance



Source: <https://www.whitehouse.gov/briefing-room/presidential-actions/2022/03/09/executive-order-on-ensuring-responsible-development-of-digital-assets/>



Source: <https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/16/fact-sheet-white-house-releases-first-ever-comprehensive-framework-for-responsible-development-of-digital-assets/>

Cryptocurrency References



Source: <https://www.gemini.com/cryptopedia/glossary#digital-asset>

Source: <https://www.coinbase.com/learn/crypto-basics/what-is-cryptocurrency>

See also: <https://www.coinbase.com/learn/crypto-basics/what-is-lightning>

See also: <https://www.coinbase.com/learn/crypto-basics/what-is-a-smart-contract>

Stablecoins



Source: <https://home.treasury.gov/news/press--releases/jy0454>

Source: [releases/jy0454 https://www.circle.com/en/usdc](https://www.circle.com/en/usdc)

See also: <https://www.circle.com/en/usdc/ecosystem#get-usdc>

Electronic Wallet Guides



Source: <https://blockgeeks.com/guides/cryptocurrency-wallet-guide/>

See also: <https://coldcard.com/>