



## CONNECTIVITY COMES WITH A HIDDEN COST

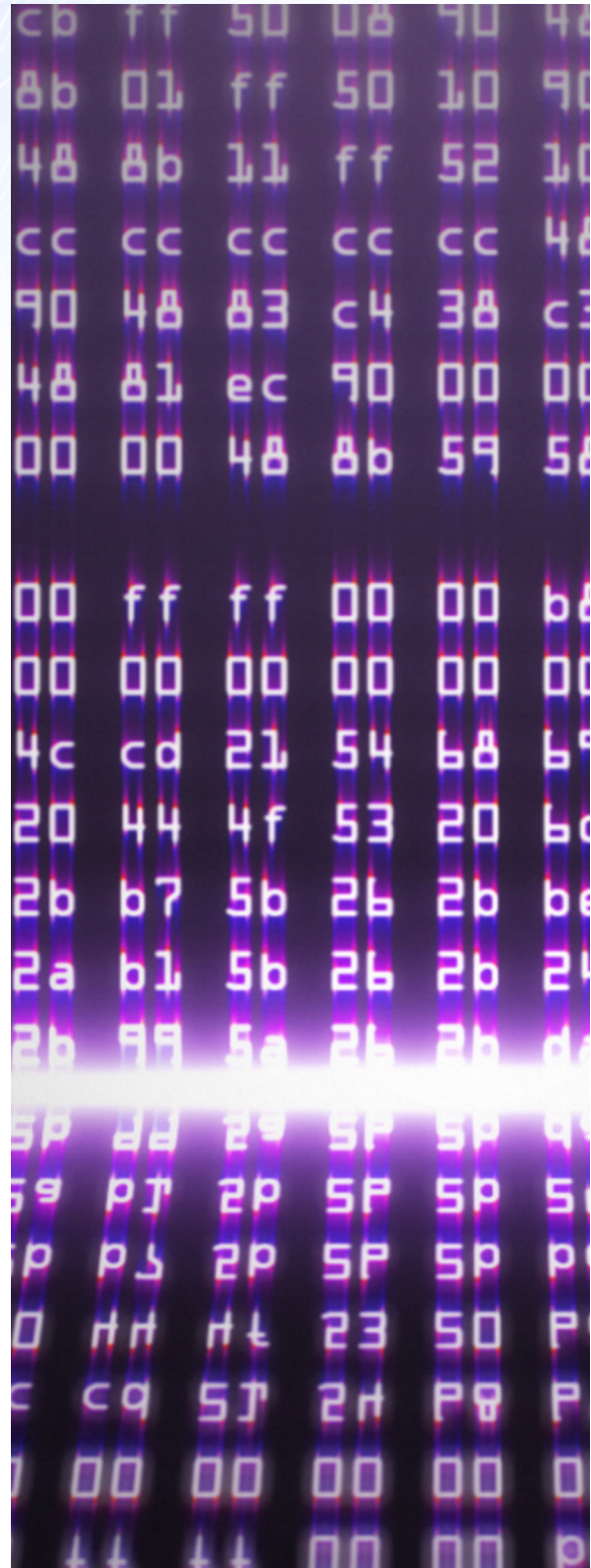
It is no secret that as we scroll through websites and social media apps, we leave a trail of digital breadcrumbs that create a cyber profile from our online activities.

These data points are collected, evaluated and sold to other companies, organizations and government entities, both foreign and domestic.

The demand for our data can come from anyone looking to influence our behavior, direct our purchases, or capture our attention.

The data that we freely trade away to companies like Facebook and Google has become so valuable that its annual price tag exceeds the total annual global expenditure for oil.

Data has become the world's most valuable commodity.





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## BRIDGING THE GAP BETWEEN DATA SOVEREIGNTY AND SELF-SOVEREIGNTY

Many are familiar with the concept of data sovereignty: the idea that data is subject to the laws and governance structures of the nation where it is collected. In an increasingly connected and decentralized world, one can further this discussion by considering the concept of self-sovereignty -- a person's natural right to ownership and control of themselves -- to include sovereignty over their personal data.

The world's expanding distributed infrastructure is bringing overdue prominence to the intertwinement of data sovereignty and self sovereignty as individuals become more sensitive to their digital footprint and recognize the economic value that data ownership possesses.



As such, the increasingly personalized nature of data and the demand for its commercialization is blurring the lines between self sovereignty and data sovereignty. Personal data of internet users is managed by a host of powerful actors other than the individual, all of whom are external stakeholders for data control.

These stakeholders include governments, social media platforms, and various business entities who utilize personal data to coordinate and control mindshare, ad targeting, and the digital behavior of the user population. As everyone has the right to personal autonomy, many believe self-sovereignty should extend to individuals' data, its collection, and subsequent use.

## ENCRYPTION AS A PATH FORWARD

Protecting personal data and reducing data breach vulnerability requires bridging the gap between data sovereignty and self sovereignty through cryptographic encryption solutions. Encryption is the process of securing data by locking it with a randomly generated password key that is difficult, but not impossible, to crack with modern technology.

Methods of encryption have existed since ancient times, but with the advent of computers, cryptographic techniques have evolved exponentially. Modern encryption methods follow three main approaches: symmetric encryption, asymmetric encryption, and one-time pads.

As quantum computing evolves, the world's most secure symmetric and asymmetrically encrypted data risks seizure due to the recently discovered quantum-predictability of "randomly-generated" password keys associated with these encryption methods.

With highly sensitive government, corporate, and financial data resting on the protection of symmetric and asymmetric encryption, safeguarding the world's secrets, and yours, presents a looming challenge as well as a profound market opportunity.





## ONE-TIME PADS: ENCRYPTION'S GOLD STANDARD

One-time pads are a method of encryption that pair each character of a dataset with an uncorrelated character of a randomly-generated private key. One time pads are computationally unbreakable when applied correctly.

While one-time pads are the pathway to a more secure and sovereign future, the sheer storage size of each pad next to its encrypted message makes their commercial use impractical.

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## THE NEXT FRONTIER OF DIGITAL ASSET INVESTING

The next great investment opportunity within cryptography is being driven by the global adoption of cryptocurrencies and blockchain technology.

Cryptocurrencies and digital assets rely on encryption as their mechanism of consensus, transaction, and security. As the finance world grows increasingly digitized and decentralized with the adoption of blockchain and digital assets, significant investment opportunities will arise as quantum-proof cryptography becomes a market requirement. While encryption concerns are essential to address in a blockchain-powered world, the widespread adoption of digital assets is suiting up to be the driving force for a wave of cryptography advancements.

Unprotected data yields minimal economic value. As the cryptocurrency ecosystem develops, so too does the marketplace for feasible quantum-resistant digital security protocols. By incorporating future-proof controls to data and its transmission, it becomes apparent that while data and its encryption both give each other value, data security serves as the primary value driver of encryption, not data itself. This makes quantum-proof data perhaps the most valuable asset in the world.



## DATA SECURITY: THE NEXT INVESTMENT OPPORTUNITY

The future of data security relies on the engineering of an unbreakable encryption code that efficiently harnesses the power of one-time pads. How do we achieve commercial-grade transactional functionality with the security assurance of the one-time pad standard? As this marketplace emerges, governments, corporations, and digital asset investors must take advantage of the greatest investment opportunity of the 21st century.