

OFFICE OF THE MAYOR
THE CITY OF NEW YORK

OFFICE OF TECHNOLOGY AND INNOVATION TESTIMONY BEFORE THE NEW YORK CITY COUNCIL COMMITTEE ON TECHNOLOGY

Oversight - Cryptocurrency and Blockchain Technology in New York City

FEBRUARY 15, 2023

Good afternoon, Chair Gutiérrez and members of the Council Committee on Technology. My name is Matthew Fraser. I am the Chief Technology Officer for the City of New York and I lead the Office of Technology and Innovation (OTI). Thank you for the opportunity to highlight OTI's role in identifying how new technologies, such as blockchain, can be deployed to enhance government services, and to provide a platform for a robust discussion about this relevant topic.

Blockchain, a distributed ledger technology that can enable more efficient and transparent transaction of digital information, has seen rapid growth over the past several years. The cryptocurrency market, for example, which illustrates only one use case for the underlying blockchain technology, is worth hundreds of billions of dollars today, having barely existed a decade ago. This sort of growth presents an incredible opportunity if harnessed in the right way.

In addition to the blockchain industry helping New York City's economy recover from the lingering impacts of the pandemic, blockchain technology has the potential to streamline and centralize document retention, enable real-time records validation, and support asset transfers, among many other applications.

As the nation's most forward-looking city, New York has a responsibility to carefully elevate any emerging technology, and to put systems into place that can leverage that technology to strengthen government services, propel economic growth, and improve the lives of New Yorkers.

For the past several years, New York City has proudly been a pioneer in embracing the blockchain industry as it evaluates potential government applications and plants a flag as a viable home for blockchain companies that can grow our economy and hire New Yorkers. For example, the New York City Economic Development Corporation helped to sponsor New York City Blockchain Week and launched a blockchain-focused civic technology competition, among other efforts.

The Adams administration has also taken a forward-looking approach to this emerging industry and is exploring potential use cases that can make government work better for New Yorkers living in an increasingly digital society. For example, the administration is actively investigating using blockchain technology to support the validation and sharing of legal documents such as birth certificates. Recently, the Department of Finance launched a proof-of-concept to test how blockchain could be used to detect



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and reduce deed fraud. Additionally, the administration is evaluating the use of a digital wallet, which will help meet New Yorkers where they are and support electronic payments and transactions.

As the City's central technology authority, the Office of Technology and Innovation has stood up a robust Strategic Initiatives division aimed at developing partnership networks and programs to cement New York City as a leading hub for inclusive innovation. Over the past year, we have built a research team within this division tasked with investigating, piloting, and developing framework to implement emerging technologies.

With this team in place, we are actively recruiting two digital assets and blockchain policy advisors to investigate and advance government blockchain use cases. The individuals who will fill these positions will work with government and external stakeholders to identify, assess, and develop strategies to implement blockchain applications in the right way. It is important to note that while blockchain could have a plethora of use cases in government, our team is laser-focused on researching and determining where blockchain implementation could make more sense than traditional technology.

We feel that taking a thoughtful, measured approach to the evaluation of any new technology is critical for our city. The blockchain industry, like any emerging technology, has felt its share of growing pains largely due to over-hyped companies, bad actors, and ill-suited applications.

OTI is committed to continuing this approach, working with partners across government, and hearing from public and private stakeholders to find ways for New York City government and its economy to benefit from this technology, which is ripe with potential. We look forward to discussing this further with the Committee and I will now take Council Members' questions.

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Testimony of Queens County District Attorney Melinda Katz

Before the Committee on Technology

Oversight hearing on Cryptocurrency and Blockchain Technology in New York City

February 15, 2023

First, I would like to thank Speaker Adrienne Adams, Chairperson Jennifer Gutiérrez and the members of the Committee on Technology for holding this oversight hearing on this important topic. I thank you for inviting me to provide testimony on our efforts to investigate and prosecute cybercrimes, including cases involving cryptocurrency and non-fungible tokens (NFTs) and other digital transactions.

Recent reports indicate approximately 21 percent of all Americans own cryptocurrency. While illicit usage remains a small microcosm of the overall cryptocurrency ecosystem, the numbers are still staggering. A prominent cryptocurrency analytics company estimates that \$18 billion dollars in illicit transactions occurred in 2021, and rose in 2022, despite the downturn in overall cryptocurrency transactions, to over \$20 billion. The message is clear: where once cryptocurrency was dominated by hi-tech users, today it is very much part of the mainstream life of everyday New Yorkers.

As cryptocurrency grows in usage, so are the crimes in which it is present. We have seen growing instances where fraudsters are focused on separating victims from their digital assets in the virtual world. In response to the rising concerns, I created the Cyber Crime Unit within my Major Economic Crimes Bureau to focus on these crimes. The unit handles cases involving cryptocurrency, non-fungible tokens (NFT) and digital transactions. They investigate and coordinate cryptocurrency cases across the office, engaging in everything from money laundering and narcotics operations, to helping victims of insidious romance and investments scams trace and recover their stolen funds.

We have invested in our infrastructure, contracting with an analytics company to trace software so that our investigators can follow the trail of cryptocurrency. As cryptocurrency and blockchain technology grow in scope and usage, it is increasingly important to have investigators and prosecutors who are trained to meet the challenges to effectively investigate these cases and recover stolen assets. We have added personnel who are specially trained in cryptocurrency investigations and prosecutions to keep our office on the leading edge in this space.

In addition to our internal commitment, we make that same commitment to our community. Although the usage of cryptocurrency has grown, there remains a great deal of mystery and misunderstanding behind it. Scammers still permeate the space. One particularly insidious scam induces victims by preying on their romantic vulnerabilities to invest in fraudulent cryptocurrency or blockchain technology platforms, resulting in tremendous financial loss to the victims. In 2022, the FBI's Internet Crime Complaint Center (IC3) estimated that they received over 4300 complaints from victims of this scam, resulting in almost half a billion dollars in fraud loss. Despite this, the public remains largely uneducated about these scams and how to deal with them. To assist Queens residents, I have instructed my Community Partnerships Division and the Cyber Crimes Unit to work together to provide education on these scams to the public; prevention and understanding are critical in this space. Partnership in this endeavor is also crucial and that is why I have made it a point to work with other District Attorney's Offices in pursuing cases and in helping to create opportunities for learning and growth.

Looking at blockchain technology more broadly, we are already beginning to see its uses as a means to create immutable and trusted data chains that could ultimately become the way we verify everything from the delivery of goods to proving our very identities. One can imagine a future where the Social Security number is replaced with a cryptographic hashtag that cannot be changed or co-opted, or where the trusted nature of a business record or medical record can be verified through a decentralized network of trusted nodes on a blockchain, rather than through a human affiant. This will also change how we view information from a legal perspective, how we assign trust, and determine the admissibility of evidence. It is for this reason that I continue to have my Cyber Crimes Unit stay abreast of technological, social, and legal changes in this space, and continue to have them provide internal education to all of our personnel.

Again, I thank you for holding this oversight hearing and continuing to shed light on the implications of this technology. Knowledge and training on cryptocurrency and blockchain technology, and how to identify current laws that can be utilized, is important as we move forward. To safeguard this expanding technology, we must have a clear legal framework from which to do it. This technology is here to stay, and it is our responsibility to understand it.

I look forward to working with you and your staff on this important issue.

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Testimony: Cryptocurrency & Blockchain Technology

2.15.23

NYC COUNCIL COMMITTEE ON TECHNOLOGY

Tech:NYC is a nonprofit member-based organization representing over 800 technology companies in New York. Our membership includes hundreds of innovative startups as well as some of the largest tech companies in the world. We are committed to supporting New York's tech based economy and ensuring that all New Yorkers can benefit from innovation. Tech:NYC works with government and community partners to guarantee that New York remains the best place in the country to start and grow a technology company.

As the financial capital of the world, and the second largest tech hub in the US, New York City is a crucial market for developing Web3 and blockchain technology. Studies last year from Startup Genome found that New York City was ranked the #2 fintech hub in the world, and from Tech:NYC and Center for an Urban Future found that there were 435 blockchain and cryptocurrency startup companies in New York, in addition to over 800 fintech companies. Since these numbers were published, we have been seeing a market correction for cryptocurrencies and platforms, which is an opportunity for companies to revisit their core priorities and concentrate on services that are dedicated to long term success. New York state's virtual currency licenses have also helped to shield the state from unstable companies.

New York is home to a vast community of innovative blockchain, Web3, and decentralized finance companies. These technologies are based on universal and accessible recordkeeping, which creates new solutions compared to dated and energy intensive technologies. Blockchain and decentralized finance technologies are being built into various local industries including banking at Goldman Sachs and BNY Mellon, as well as consumer products like Estee Lauder, which uses blockchain technology to keep track of ingredient supply chains.

Virtual currencies and platforms make financial products more accessible for New Yorkers and internationally. Through virtual currencies, platforms, and exchanges, New Yorkers now have more options to make investments and transfer funds to others quicker, and without excessive banking fees. These services not only increase financial options for underbanked and immigrant communities, but also provide new options for sending funds to family members around the world.

Web3 and blockchain technologies can also be incorporated into government operations — the most common uses have been seen in recordkeeping, issuing licenses, certificates, and digital IDs. Blockchain technologies allow for enhanced transparency by requiring multiple parties to verify



information. Blockchain technology is currently being used in California to store car title records, and in Rhode Island to allow residents to establish state IDs and obtain professional licenses online. Tech:NYC encourages the city of New York to continue exploring which agencies, services, and records could benefit from blockchain technology, and to develop pilot programs to test these solutions. New York City is home to many talented professionals and companies that specialize in blockchain technology, and contracts from the city to develop these programs will greatly benefit our tech community.

Additional solutions that have been explored throughout the US include accepting virtual currencies as payment for licenses, fines, fees, and taxes, as seen in Colorado and Utah. Blockchain technologies can also provide efficient and quicker methods for accepting or requesting payments, verifying identification documents, and tracking supply chains and budgets, which the [US Dept. of Homeland Security has been testing](#).

As Web3, blockchain, and virtual currency technologies continue to develop, Tech:NYC recommends that the city leverage this growing sector and its workforce to collaborate on modernizing the city's services and recordkeeping. This will provide additional benefits and opportunities for companies both large and small to partner with the city on pilot programs. We encourage New York City to welcome these emerging technologies and to provide opportunities for the city to learn from innovative companies in these fields.

To: New York Assembly - Committee on Technology
From: Jazzy Smith, Fellowship Manager at BetaNYC
Re: Oversight - Cryptocurrency and Blockchain Technology in New York City



Wednesday, February 15th 2023

Good afternoon Chair Gutiérrez and Committee Members,

Thank you for creating an option for us to participate remotely. We believe that remote communication tools are fundamentals for the Government in the digital age. I am Jazzy Smith (she/her) and I am standing in for Noel Hidalgo. I am the Fellowship Manager at BetaNYC.

Introduction

BetaNYC is a civic organization dedicated to improving the lives of all NYers through civic design, technology, and data.¹ We envision an informed and empowered public that can leverage civic design, technology, and data to hold government accountable, and improve their economic opportunity.

BetaNYC demystifies design, technology, and data to the point where anyone can use it, create it, and participate in the decision making process. We host a number of online platforms that provide the general public a mechanism to share ideas and data.

For the last ten years, we have helped NYC government agencies explore and adapt to new technologies. For the last seven, we have dedicated our efforts to modernize Community Boards. We have researched their needs and documented technology and data literacy gaps across the five boroughs. We bridge these gaps via a service we call Research and Data Assistance Requests - RADAR for short. RADARs help provide in-depth technology and analytical services to borough presidents, council members, community boards, and community based organizations.²

¹ <https://beta.nyc/about/>

² <https://beta.nyc/products/research-and-data-assistance-requests/>

Testimony on Blockchain

Through our research, we haven't seen cryptocurrencies, i.e. City Coin³⁴, nor blockchain technologies provide any real solutions for New Yorkers who need government services through technology.

Right now, blockchain technology is not a piece of technology that's mature enough for government services. Currently, blockchain and cryptocurrencies are solutions looking for a problem.

Why should we adopt experimental technology when we can barely keep our current services modern?

We spent a decade being sold on "smart city" technology only to see government practices not keep up with the marketing hype⁵. From gunshot detection⁶ to facial recognition⁷, we consistently see "groundbreaking" technologies fail to meet up to their marketing. Chris Whong, an NYC urban technologist, so aptly said, "Every government agency, everywhere is working on a "new system". It will solve *all* of their data problems and will be ready to use in 18-24 months." (end quote)

We do not want to be fleeced, again!

³ <https://qz.com/2165639/miamis-mayor-backed-miamicoins-then-its-price-dropped-95-percent>

⁴

<https://www.brookings.edu/blog/the-avenue/2022/03/22/mayors-cryptocurrency-wont-solve-your-cities-problems/>

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<https://www.thestar.com/news/atkinsonseries/2021/01/13/smart-city-megaprojects-get-a-lot-of-hype-so-why-do-so-many-turn-out-to-be-expensive-disappointments.html>

⁶

<https://www.bloomberg.com/news/articles/2022-10-27/cities-weigh-value-of-ai-powered-gunshot-detection-tech>

⁷

<https://www.aclu.org/news/privacy-technology/three-key-problems-with-the-governments-use-of-a-flawed-facial-recognition-service>

Recommendations

We recommend keeping an eye on blockchain and cryptocurrency development, but let us make sure we fix current issues with government services. Let us make sure we're developing services for all New Yorkers.

Moving forward, we want NYC agencies to ask themselves three questions before adopting any blockchain or cryptocurrency technology.

One, how does blockchain or cryptocurrency tools uniquely address this need?

Two, how are blockchain or cryptocurrency tools better than currently vetted, open or closed sourced tools?

Three, what are the unique issues that these tools will solve that won't require perpetual service contracts with external service providers?

I would defer to my team for any follow up questions. Thank you for the opportunity to speak and for your time and attention.

NYC Council Committee on Technology

Good afternoon, Chairwoman Gutiérrez and Members of the New York City Council Committee on Technology.

My name is Bryan Daugherty, and I am the Director of Public Policy for the Bitcoin Association, an educative, non-profit trade association focused on advancing the original vision of Satoshi Nakamoto, which is a globally scalable, public blockchain for enterprise, government, and individual users, to transfer value and data securely and efficiently.

I am honored to be before you today to share my views on digital assets and the underlying technology of blockchain.

First, thank you for hosting this hearing at such a critical juncture.

The recent collapse of FTX has left policymakers, media, and the public scrambling to make sense of the situation. There appears to be little question that FTX suffered a critical failure in leadership at best and criminal activity at worst. Unfortunately, it is also my view that the collapse of FTX may not prove to be an isolated event.

The rampant speculation in the digital asset markets, which I often refer to as the “crypto casino”, has created a complex environment where illicit finance, influencers, and Ponzi schemes can thrive.

Proponents of digital assets have advocated that cryptocurrencies can help foster financial inclusion and increase efficiencies, but the fact is that most are only seeking to trick consumers and investors out of their hard-earned money with false promises of future solutions.

It is the Bitcoin Association’s opinion that blockchain, not crypto, is the real, long-term innovation of the future.

Organizations can leverage the advantages of immutable data integrity, improved network security, and microtransaction capabilities of blockchain today.

I am currently collaborating with developer groups in the United States and across the globe, creating state-of-the-art utility applications for Cybersecurity, ESG, Authenticated Carbon Sequestration, Digital Rights Management, and several other fields that will be announced later this year.



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So, what could the widespread utilities of blockchain mean for New York?

Cyber-attacks continue to plague our nation's state, local and municipal governments. Last year's hack of "Illuminate Education", a taxpayer-funded software company that NYC's Department of Education uses to track grades and attendance, was compromised with over 800k students' personal identifiable information being stolen. By deploying CERTHASH, a blockchain cybersecurity platform, developed in collaboration with IBM, local governments can be alerted to unauthorized data modifications and breaches and mitigate the detection time of a data breach from the current average, 221 days to near instant. Let me repeat - almost immediate, real-time intrusion detection! This is a prime example of where the city and state can immediately benefit from implementing a blockchain infrastructure.

Another example of blockchain's widespread utility is in the ticketing industry. Through Ticketmint, a solution built on blockchain, illegal, fraudulent ticketing scams are almost completely eliminated. This technology can even be incorporated in the city's public transportation system to improve efficiencies and auditability, all while making it possible to help under-served populations in the process.

Moving forward, I believe it is critical that policymakers at all levels - local, state and federal - take a step back and understand the incredible utility promise that blockchain provides. It is critical that we as a country do not take a "throw the baby out with the bathwater" approach when distinguishing between blockchain and the "crypto casino."

I look forward to working with this Committee and the Mayor to ensure that New York City remains a leader in this emerging technology. Thank you for the opportunity to testify today.

About the Bitcoin Association for BSV Blockchain:

Bitcoin Association is a non-profit association (Verein) in Switzerland, and the global industry organization which advances Bitcoin SV (BSV). It brings together enterprises, start-up ventures, developers, merchants, exchanges, service providers, blockchain transaction processors (miners), and others in the Bitcoin SV ecosystem.

The Association supports Bitcoin SV as the original Bitcoin, with a stable protocol and massive scaling roadmap to become the world's new money and global blockchain for enterprise. The organization seeks to build a regulation-friendly ecosystem that fosters lawful conduct while encouraging digital currency and blockchain innovation.



Website.

bsvblockchain.org



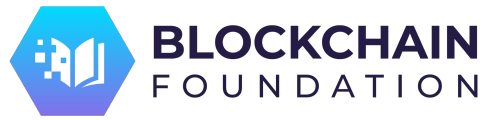
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Testimony of Cleve Mesidor, Executive Director of Blockchain Foundation

Before the New York City Council Committee on Technology

Regarding “Oversight - Cryptocurrency and Blockchain Technology in New York City”

February 15, 2023, 1PM

Good afternoon Chairwoman Jennifer Gutiérrez and Committee Members Shaun Abreu, Vickie Paladino, Julie Won, and Robert F. Holden.

I am honored to be with you today and I look forward to this important discussion.

My name is Cleve Mesidor and I am the Executive Director of Blockchain Foundation, a 501c3 nonprofit organization with a laser focus on educating the general public and increasing accessibility. Our mission is to ensure consumers have access to trusted content from reputable sources in order to make informed choices.

The Foundation has developed strategic partnerships with the NYC Department of Small Business Services and the Zahn Innovation Center at City College of New York to help educate their stakeholders.

Today, I come before you as a product of the New York City K-12 public education system. I grew up in Queens and graduated from Richmond Hill High School. I attended SUNY Albany, but graduated from LIM college in Manhattan.

I previously served in Congress and in the Obama administration. In fact, I first learned about bitcoin in 2013 while working as Director of Public Affairs for the U.S. Department of Commerce’s Economic Development Administration. Fast forward to today, I have been working full time in crypto for over six years.

Turning to my testimony, I will focus on the differences between long standing, exclusionary consumer protection policies and 21st Century legislative actions to empower and foster financial inclusion.

Consumer protection policies, often centered around financial disclosures, do not provide a clear pathway to advance economic and job growth, expand access to capital to fuel entrepreneurship, or promote wealth creation.

We need a more inclusive policymaking and rulemaking framework for the blockchain, cryptocurrency, web3, and decentralized finance (DeFi) sector, which extends beyond regulatory enforcement and compliance. Let’s learn from the policy debates around the



internet in the 1990s that did not prioritize accessibility, inclusion, workforce training, and financial literacy. Look at where we are today.

Despite what other witnesses may assert, the more options individuals have, the more inclusive money becomes. No one should be denied access to innovative tools to transform their financial future, especially groups that have been locked out of centralized finance.

Let me step back and provide some context.

Black and Latino communities lead national adoption of crypto. Since Fall 2021, separate datasets – Pew Research Center survey, Harris/Harvard Poll, University of Chicago’s NORC study, and a Morning Consult analysis – all confirm this.

There have been Black and Latino innovators in crypto since its beginnings in 2008. We are not late-comers. We are leading.

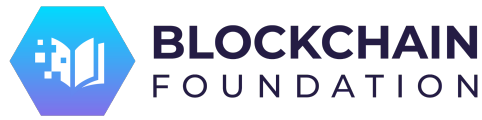
We do not just buy and trade cryptocurrencies. We are creators and holders of NFTs and we fuel the DeFi ecosystem and the web3 marketplace. And we are developing products and services to tackle inequities. The price of cryptocurrencies is not our great motivator - it is the capacity for ownership.

But we still need more research and data to better understand the drivers for adoption. There are too many ‘assumptions’ being made that are disguised as ‘facts.’ Black and Latino consumers are often profiled as victims of crypto without evidence or data - while the ‘sophisticated’ retail investors at the core of the Celsius, Terra Luna, and FTX collapses are not subject to patriarchy disguised as consumer protection.

Wealth Creation Requires Calculated Risk

Let’s face it, if you have benefited from traditional finance, it is crypto that looks risky to you and you would prefer to find ways to bring Black and Latino consumers into traditional banking. I argue that ship has sailed. According to Yaya J. Fanusie, an Adjunct Senior Fellow at the Center for a New American Security, “People mainly lack financial services because they lack income and not the other way around. So, to effectively bank the unbanked, the key problem to solve is how to help people generate more income.¹”

¹ <https://www.forbes.com/sites/yayafanusie/2021/01/01/stop-saying-you-want-to-bank-the-unbanked/?sh=4bc225c456a7>



Let us unpack who has been locked out beyond the group problematically labeled, “Unbanked².”

Black and Latino professionals like myself, small business owners, nonprofit leaders have also been locked out of traditional banking and financial markets and accordingly negotiate their risk tolerance.

Even with advanced academic degrees, six digit incomes, we are redlined by wealth managers and do not get access to high-growth financial instruments. We have been excluded from the loans and investment opportunities — including mortgages and high-growth assets — our White contemporaries use to build wealth³.

Many others have been excluded, too – including an estimated 70 million Americans who do not have a bank account or lack ready access to banking services. And millions more — including rural White and Indigenous people — lack the employment records, credit history or official documentation needed to qualify for banking.

The inequities do not just apply to people. Black churches have for years deposited massive sums of money into banks that have historically denied them loans. Government efforts, like the Paycheck Protection Program during the COVID-19 pandemic, were billed as boosting minority businesses, independent contractors, and the self-employed. Instead, they ended up benefiting hedge funds and large corporations.

We straddle traditional and alternative financial systems because of the risks posed to us in centralized finance. Fintech evolved to try to fill that gap, but today many are extensions of big banks with entrenched, exclusionary practices.

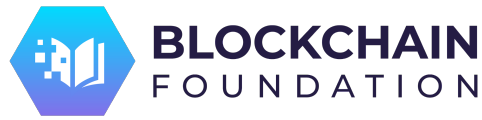
No, technology, by itself, does not solve problems. But I would argue that neither does government intervention when it comes to financial exclusion. Innovation and policy should empower the public with the tools and resources to change their circumstance.

Consumer Protectionism/Patriarchy vs Agency/Empowerment

Government actions to empower consumers are just as important as traditional protection policies.

² Stop Saying You Want To Bank The Unbanked by Yaya Fanusie <https://www.forbes.com/sites/yayafanusie/2021/01/01/stop-saying-you-want-to-bank-the-unbanked/?sh=4bc225c456a7>

³ Crypto can be a driver for racial equity <https://www.bostonglobe.com/2022/05/10/opinion/crypto-can-be-driver-racial-equity/>



Regardless of how an individual personally defines wealth, they cannot build wealth without taking a level of calculated risk. And bear markets are a given in investing. So we absolutely should be talking about tools for risk mitigation. But too often, the debate is around banning access, when it should be about equipping consumers to better measure and assess their risk-tolerance and be in the driver's seat when it comes to their financial future.

A sticking point for me is the Securities and Exchange Commission's Accredited Investor rule which creates a safe haven and guard rails for the wealthy to get wealthier. It is every-day Americans who need this type of empowerment from their government.

We need policymaking that includes diverse voices and perspectives. Too often, it is old data-sets, old rules, old standards which are not inclusive that inform policy decisions.

In a 2020 report,⁴ Chris Brummer, a professor at Georgetown Law and a member of the Commodity Futures Trading Commission's Subcommittee on Virtual Currencies, cited that only ten African Americans (of 327 total regulators) have ever served on a financial regulatory agency since the New Deal. He noted that, "This absence of diverse leadership has in turn trickled down and infected rulemaking and supervision more generally."⁵

We can rewrite the rules of engagement to level the playing field. We need new legislation to redirect funding to where it has been absent in order to finally address inequities and increase financial inclusion.

Train Americans for Jobs of the Future:

Seizing on the momentum around cryptocurrencies, we should also invest in training, given there are various jobs in emerging technologies that do not require coding experience or a college degree. Consumer enthusiasm around the growth of the digital asset economy has already resulted in non-technical individuals acquiring new skills.

The rising interest in new technological instruments is an opportunity to prepare key demographics for the next-gen workforce. State and local governments must be more proactive when it comes to future-of-work strategies to position historically disadvantaged groups to compete in the global innovation economy and to foster digital equity⁶.

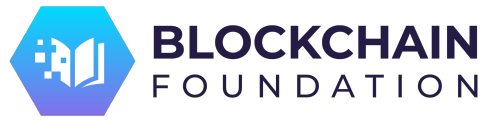
⁴ What do the Data Reveal about (the Absence of Black) Financial Regulators?

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3656772

⁵ Fintech's Race Problem <https://chrisbrummer.medium.com/fintechs-race-problem-856df6351695>

⁶ How Crypto Can Power the Future of Work for People of Color

<https://www.coindesk.com/layer2/2022/02/06/how-crypto-can-power-the-future-of-work-for-people-of-color/>



Injecting blockchain and cryptocurrency into the future-of-work toolbox is as common sense as the government working to expand access to economic opportunity. We must do everything at our disposal to dismantle barriers, build an inclusive innovation-forward workforce, and promote entrepreneurship that spurs the nation's economy.

Entrepreneurship & SME Growth:

There is a real need for digital cash infrastructure. Cryptocurrencies offer an option for cheaply and safely sending money to family abroad in a matter of minutes.

Entrepreneurship has been a pathway out of poverty, fueling the gig and sharing economies. Yet the cost of existing credit card payment services is costly. Cryptocurrency makes less expensive options possible and would provide relief to this pain-point for entrepreneurs and SMEs. Data shows that female-led startups receive less than 2% of venture capital funding and are significantly affected by the high cost of doing business.

Education About Digital Assets is Key to Financial Literacy:

Additionally, greater investment in financial and digital literacy programs is paramount. Regardless of socioeconomic status or race, most Americans struggle with basic financial understanding. Financial illiteracy cost Americans more than \$415 billion in 2020.

Education is the first line of defense against digital asset scams and is key to empowering consumers to mitigate risk.

Last month, Blockchain Foundation published its first report, "Infusing Digital Assets & Jumpstarting Financial Literacy in America's K-12 Education System," and called on cities and states to lead the way with legislation to standardize financial literacy requirements.

Currently, 23 states require high schools to offer financial literacy courses. Yet, only 17 states mandate a standalone personal finance class as a course requirement for high school graduation. Unfortunately, New York State is not among them.

States are starting to advance legislation to fuel the movement to standardize financial literacy education in public school curriculums to ensure the next generation has access to the instruction they need to make informed financial planning decisions before graduating high school.

Generation Z are embracing decentralization and creating new metrics for wealth creation, including alternative financial instruments often labeled as risky. Public school curriculums should prepare young people for the future of commerce. Action now will help to groom savvy consumers, vigilant investors, and fiscally responsible heads of households tomorrow.



We need New York City to prioritize policy measures to guarantee K-12 students are able to navigate the complexities of traditional and decentralized finance.

As I close, I want to applaud the Technology Committee for prioritizing this conversation. Thank you again for the opportunity to testify today.

Testimony to New York City – Committee on Technology - *“Oversight - Cryptocurrency and Blockchain Technology in New York City”*

Yorke E Rhodes III

Adjunct Professor of New York University – “Ecommerce with a heavy dose of blockchain”

Cofounder of Blockchain at Microsoft

Directory of Strategy & Transformation – Blockchain – Cloud Hardware Supply Chain

New York City Resident

[\(99+\) Yorke Rhodes III | LinkedIn](#)

[\(1\) Yorke E Rhodes III UA \(@yorkerhodes\) / Twitter](#)

Good afternoon to Chairwoman Gutierrez and the Committee on Technology,

I am here in my capacity as a long time New York City resident, educated at New York University and currently teaching as an Adjunct Professor in the Masters Degree program, teaching Ecommerce at New York University.

I have had the pleasure to thrive in my work in technology while remaining in New York City. In my day job I currently work for Microsoft, a journey I started in late 2014 to learn about cloud. In 2015 I fell down the blockchain rabbit hole and Cofounded our Blockchain work at Microsoft. Three roles later I am a Director of Strategy & Transformation leading our blockchain work in our Cloud Supply Chain. This is award winning work, garnering the top Gartner Power of the Profession Award in Supply Chain and recently nominated as a finalist in Treasury Risk work in Risk Management. This work is highlighted in a few public facing blogs:

- Finalist this semester for Risk Management in the Treasury Awards: [\(99+\) Microsoft Cloud Supply Chain & Finance is a finalist in Alexander Hamilton Treasury Awards for its blockchain work | LinkedIn](#)
- Gartner blockchain awards: [Microsoft's Cloud Supply Chain blockchain initiative receives top award from Gartner for Supply Chain Breakthrough of the Year - Microsoft Industry Blogs](#)

Microsoft and others in the technology industry often make a distinction when talking about how to govern or regulate things that involve written code. This debate plays out time and time again, including in the AI space, in privacy enabling cryptography, in the digital divide that separates the internet haves from the have nots. It even delves into code as free speech.

The reason for this distinction is that it is a very slippery slope once you cross the chasm and seek to regulate written code.

Let us imagine what the tech industry would be like if every innovation were preceded by a desire to regulate the new invention before it had a chance to flourish.

I started in the technology space as a Computer Science student at New York University in the 1980s. I've seen the journey of tech booms and innovation waves from PCs to networking to peer-to-peer networking, to databases, client-server databases & email systems and the evolution of the web from a command line interface to the scaled-up Ecommerce and transactional system it is today.

Imagine if we tried to regulate all the code that was being written by IBM, Microsoft, Oracle, Borland, Sybase, and others. Today, the United States would not have the vibrant tech industry and its innovation and creativity that exists today.

The communities that flourished around the tech industry would not exist if it were regulated into oblivion.

Today, New York City is a beneficiary of the tech community, something that in the early 1980s was not predestined. With the advent of the cloud boom, it became possible for tech startups to work from offices in New York City versus campuses in Silicon Valley. This tech industry brings a vibrant young innovative and intellectually curious community to every neighborhood of the five boroughs. Witness the recent rental booms in the Financial District, Hells Kitchen & Hudson Yards, East Williamsburg, Bushwick, Greenpoint, and beyond.

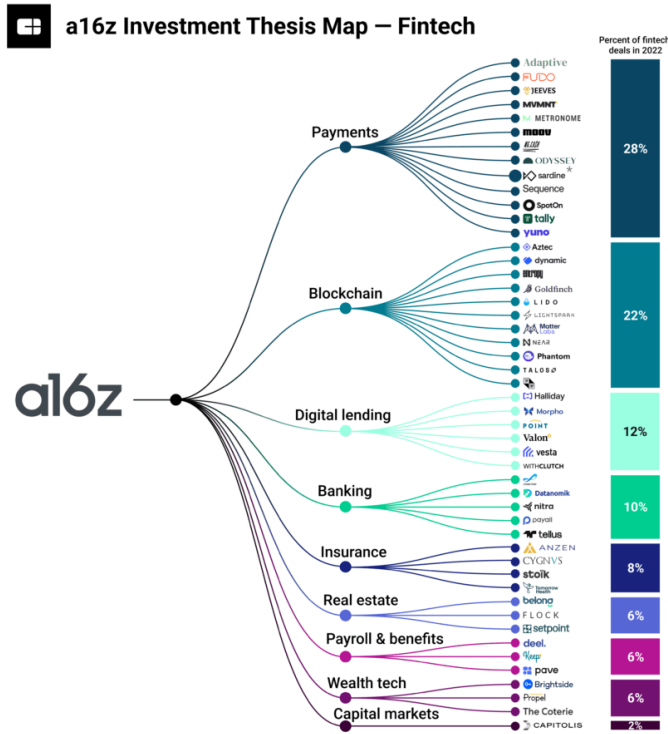
While large commercial buildings suffer from a reduction of permanent office workers, young community and socially driven people are moving into cities to work and live where they want in the proximity of their peers.

Let me say that again: curious, young, educated, well paid people in the tech industry are moving into New York to be with their peer groups. This is a good thing and the blockchain & crypto currency community is part of this.

Think about this cohort in the same way we think about the cohorts that attend the universities and colleges that flourish in New York City. A large number of people have their first experience in New York City because of this draw, the opportunity to go to a college among their peers, in a vibrant city.

The number of blockchain and crypto startups dominates the Fintech landscape. According CB Insights, more than 50% of 2022 Fintechs were in blockchain / crypto.

- <https://www.cbinsights.com/research/a16z-andreessen-horowitz-fintech-investment-strategy/>



Source: CB Insights. Based on Andreessen Horowitz's fintech investments in 2022. Categories are not mutually exclusive, and companies are organized by primary application. CBINSIGHTS. *Two investments were made in Sardine during 2022.

The Commissioner made some very good distinctions between blockchain technology and cryptocurrency, which are important to consider. This is a vast technical landscape.

- Cryptocurrency is a use case of blockchain technology

The vast majority of cryptocurrency networks, which are public distributed blockchain networks are open source and use an incentive mechanism to maintain them. That incentive is a reward in the form of cryptocurrency.

This is a novel approach to maintaining the viability of open source development, and public blockchains represent the first scaled up examples of this possibility. They also have scaled up the usage of privacy technology like PKI, attestations and digital signatures. These are remarkable advances impacting technologies that otherwise were hiding in niche use cases.

Digital wallets that hold crypto currency are an example and are used to connect to an account owned by a user. Many see the converged future of digital wallets as dealing with regular currencies like Venmo and others, tokens of various forms and crypto currencies.

Examples include:

- Signature and notary use cases that presents an opportunity to move to digitally signed attestations about things. This is essentially like a digital notary. Recognizing that would be an ideal advance.
 - Proof of Vitality is a great example mentioned by the Commissioner
 - Deeds, Titles, records, etc
- Zero Knowledge Proofs, which enable such privacy preserving use cases, where consumers can share something without revealing their entire profile. An example of this is entering a bar. The consumer, bar owner, and government only care that they are not serving underage people. Today we share a government document, typically a license that reveals much more information than is required for this purpose. This is a security risk to the consumer. In an ideal world, a digital wallet could reveal only one thing to the bar: "I am not underage". This is a very simple example of what a Zero Knowledge Proof enables.
- This theoretical technology, tested in the wild of the internet, deployed at scale, distributed systems, holding Trillions of dollars of value

Blockchain is not a database, it is a transactional ledger

- In it's public open source network form, it is quite useful for things like signatures, notaries, and signed attestations, such as sealed evidentiary data that is auditable and not controlled by a centralized party

Decentralized Identity plays a positive role in providing basic services. There are many advances in KYC & AML that also utilize these identities. These provide attestable proof about credentials.

Public blockchains are by default transparent, but there are many advances that enable privacy such as the referenced approach above using Zero Knowledge Proofs.

Microsoft utilizes a third party provider to accept crypto currency in our online stores. The third party provider converts the cryptocurrency into US dollars to pay for services in its online stores.

A couple of comments on what some of the other speakers mentioned:

- Bitcoin uses an energy hungry mechanism to secure it's public blockchain network. This mechanism is called Proof of Work (POW).
- 98% of the blockchain technology industry does not use Bitcoin to build applications.
- Most of the technical development work in the public blockchain industry (some of which is cryptocurrency related specifically) uses a distributed systems network approach that is secured

using a much less energy hungry mechanism called Proof of Stake (POS) or some variant of that. This approach is akin to a piece of code running on a laptop. Typically this consumes as little as 10W on a running laptop.

- There are also devices that are as small the Raspberry Pi to run these nodes:
 - [Ethereum on ARM](#) 🦉 🔊 🐼 🗣️ 🗣️ 🐼 (@EthereumOnARM) / Twitter

Blockchain technology is an innovation wave much like AI and VR have been innovation waves. With innovations come opportunities to embrace them and ultimately changes in the ways we do things. Technology is adopted across a bell curve of activity with innovators embracing its potential and adopting early, and people fearful of change or those more risk averse waiting until they believe things are 'safer'. I wrote about this here [Two Silicon Boys were talkin' outside: the signals NFTs crossed the chasm | by Yorke E. Rhodes III | Medium](#)

In conclusion, I quote a powerful figure from the banking industry and long time collaborator in the crypto currency ecosystem:

"HERE'S THE REALITY: INTERNET-NATIVE MONEY EXISTS, AND IT WON'T BE UNINVENTED."
- @CAITLINLONG_

With Best Regards,

Yorke E Rhodes III

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