

DIVERSITY
IN BLOCKCHAIN

D&I on the Block

Preamble

Building Blocks of Web3

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- dApps (Decentralized Applications)
- Smart Contract Platforms
- DeFi (CeFi vs. DeFi)

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Introduction



Web3: Web3, also known as Web 3.0, is an idea for a new iteration of the Internet that is based on public blockchains. The term was coined in 2014 by Ethereum co-founder and Polkadot founder, Gavin Wood. Web3 aims to be a decentralized version of the digital (virtual) world, where users can interact and collaborate intelligently without the need for central, data-specific repositories. Web3, similar to Diversity in Blockchain, Inc., focuses on a more inclusive and less biased evolution.

In addition to the contributors listed within this paper there are many supporters globally who have made this paper possible. Our collective experiences have driven our innovation.

Diversity & Inclusion in Block Chain

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Who: Diversity in Blockchain, Inc.

Diversity in Blockchain (DiB) is a not-for-profit organization with 501(c)(3) status that is committed to creating equal, open, and inclusive opportunities in Web 3 and the blockchain industry. Our officers include Susan Joseph, Executive Director, Anna Ashurov, and Jennifer Zegel. Our co-founders include Susan Joseph, Anna Ashurov, Michelle Gitlitz, Shawwna Hoffman, and Joshua Ashley Klayman. DiB’s mission is to empower everyone from all walks of life to engage with Web3 and blockchain technology to ensure equal participation and distribution. True innovation includes everyone.

Why:

We intend for this Report to create a benchmark with regard to diversity and inclusion in blockchain and provide the blueprint for actionable insights for a “call to action” with task forces and toolkits to deliver leading practices for this sector.

What:

The contributors to this paper are inherently a diverse and inclusive group. We come from various levels of our organizations, role types, and backgrounds. We have collaborated, planned, and executed this paper by leveraging our differences to drive innovation and collaboration. We are determined to continue to promote inclusion and diversity within the blockchain industry and beyond. We believe our ability to leverage our varied experiences and networks has driven efficiencies within our own team to deliver the DiB 2021 annual report (Report). We would like to thank our contributors, Susan Joseph and the entire DiB team, and our formal corporate sponsors.



Introduction (continued)

Toolkit:

Why does it matter to the economy? Why does it matter to everybody? How to fix it?

Diversity and inclusion are crucial to the further success and advancement of any industry and Web3 is no different. We must ensure our industries and companies are diverse and inclusive in order to drive growth and advancement for all. Diverse groups have shown time and time again to drive profit (note in the *2019 State of Diversity and Inclusion in Blockchain*), efficiencies and innovation. As we lead more inclusive and diverse companies in turn our economy will be inherently more inclusive. Everyone must get involved as it will benefit the greater good. Increased diverse participation in the economy will allow us to lower the wealth gap as a society. In order to address inclusion and diversity Web3, companies in the space must ensure a conscious effort of D&I initiatives is made. The leaders in the space need to implement standards, metrics, and disclosures, and

create a means of sharing best practices. Implementing these measures will not solve the entire issue, and further action such as education, training and inclusive talent strategies will be necessary. By taking the conscious step of incorporating this into the onset of Web3 and blockchain, companies will be ensuring an equal opportunity playing field for all.

This is what it is.

We are at a critical point in Web3 industry. We can ensure diversity and inclusion are at the forefront of everything accomplished in the space and serve as an example of what true inclusion can lead to.

How do we Fix it?

Here are some courses of action companies in the space could leverage to accelerate their own D&I efforts:



These recommendations are based off of KPMG 2021 U.S. Transparency report which can be found here ([KPMG Diversity, Equity and Inclusion Report](#))

Additionally, another important resource to build out the reporting and transparency as it relates to D&I is the World Economic Forum’s “Measuring Stakeholder Capitalism: Towards Common Metrics and Consistent Reporting of Sustainable Value Creation” report. This report includes

key metrics from the global reporting initiative standards issued by the Global Sustainability Standards Board that can be leveraged to ensure equitable and accurate reporting is completed. For example, we mentioned previously the importance of measurement of quantifiable metrics as it relates to D&I. The table below outlines the general metric and the GRI standard that can be leveraged to ensure accurate reporting of that metric is completed.¹

¹ (Measuring Stakeholder Capitalism: Towards Common Metrics and Consistent Reporting of Sustainable Value Creation | World Economic Forum (weforum.org))(gri-405-diversity-and-equal-opportunity-2016.pdf (globalreporting.org))

Introduction (continued)

Theme	People: Core metrics and disclosures	Sources
Dignity and equality	Diversity and Inclusion (%) Percentage of employees per employee category, by age group, gender and other indicators of diversity (e.g. ethnicity).	GRI 405-1b
	Pay equality (%) Ratio of the basic salary and remuneration for each employee category by significant locations of operation for priority areas of equality: women to men, minor to major ethnic groups, and other relevant equality areas.	Adapted from GRI 405-2
	Wage level (%) 1. Ratios of standard entry level wage by gender compared to local minimum wage. 2. Ratio of the annual total compensation of the CEO to the median of the annual total compensation of all its employees, except the CEO.	GRI 202-1, Adapted from Dodd-Frank Act, US SEC Regulations
	Risk for incidents of child, forced or compulsory labour An explanation of the operations and suppliers considered to have significant risk for incidents of child labour, forced or compulsory labour. Such risks could emerge in relation to: <ol style="list-style-type: none"> type of operation (such as manufacturing plant) and type of supplier; and countries or geographic areas with operations and suppliers considered at risk. 	GRI 408-1b, GRI 409-1a

Key Takeaways

People: <ul style="list-style-type: none"> Create a culture where differences are respected and all feel safe to participate. 	Culture: <ul style="list-style-type: none"> Implement strategies that align with culture and values of organization 	Community: <ul style="list-style-type: none"> Create outreach/educational programs in the community to promote careers in blockchain
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Building Blocks of Web3

The Evolution of Web 1.0 to 2.0 to 3.0

Blockchain technology is an emerging peer-to-peer technology that is foundational in nature. It creates digital infrastructure that touches all in that, it is decentralized and publicly available. Blockchain-based digital structure employs tools that enable transactions to occur without trusting the party on the other side of the transaction. This is especially important in today's age because trust is necessary to support the digital interactions of today's civil society, financial systems, and relationships.

At every iteration of the web, the changes are transformative. Web 1.0 began and was driven by hardware engineers to establish a technical connectedness. Then with the advent of Web 2.0, the software engineers in a new industry drove widespread adoption. Finally, with Web 3.0 led by gamers and the like captivated by the story and community, we arrive in the more liquid value transfer and community-based environment.



With Web 1.0 (Web1), there were fewer participants in the space, information had to be created and stored, and the user experience was not emphasized.²

With the advent of Web 2.0 (Web2), large corporations like Google, Facebook and Amazon provided outlets to search and the mobile connectivity provided users with an “always connected” opportunity. However, the control over the data and information remained and remains with the corporation, not the individual. The impact of Web 2.0 is so widespread that it affects 80 percent of the world's population.³

Web 3.0 (Web3) presents the opportunity to decentralize the web and ensure individuals have control over their data as well as the opportunity for not only increased participation and ownership, but also enabling value transfer as well.^{4,5}

² <https://www.geeksforgeeks.org/web-1-0-web-2-0-and-web-3-0-with-their-difference>

³ [What Is Web 3.0 & Why It Matters. Written by Max Mersch and Richard... | by Fabric Ventures | Fabric Ventures | Medium](#)

⁴ [People are talking about Web3. Is it the Internet of the future or just a buzzword? : NPR](#)
[People are talking about Web3. Is it the Internet of the future or just a buzzword? : NPR](#)

⁵ [What Is Web 3.0 & Why It Matters. Written by Max Mersch and Richard... | by Fabric Ventures | Fabric Ventures | Medium](#)

dApps (Decentralized Applications)

Web3 is considered to be the new era of the internet, which runs on blockchain. Due to its decentralized nature, Web3 aims to give individuals the ownership and control of their data, instead of traditional intermediaries. The first phase of the internet, known as Web1, allowed users to read and consume information. The evolution of the internet into a more dynamic Web2 empowered and enabled users to create and write content—much more than just reading information. As the internet continues its evolution and levels up to Web3, users will have the ability to own their data, not corporations; ensure that global digital transactions are secure; and ensure that online exchanges of information, content curation, and value are decentralized.

No information about Web3 can be complete without further discussions about decentralized applications (dApps). dApps are blockchain-based applications, which enable the Web3 to develop as a decentralized ecosystem of applications, like the execution of, for example, smart contracts, which is one of hundreds of areas of applications.

Smart Contract Platforms

The term smart contract was first used in 1997 by Nick Szabo, who is a computer scientist and cryptographer. His idea was to store tiny programs named “smart contracts,” inside a blockchain (distributed ledger). These contracts or code routines may or may not be legal contracts depending on what the computer code accomplishes. Smart contracts help parties execute transactions, once certain conditions are met, without using traditional intermediaries to oversee the process. Vitalik Buterin, Gavin Wood and Jeffrey Wilcke laid the foundation with Ethereum in 2015, now a popular blockchain platform, which had a top market capitalization of approximately 550 Billion USD in 2021. But Ethereum is not the only smart contract issuer. The space is developing with high pace and competing platforms hosting their own smart contracts are doing their best to catch-up. It is fair to say these are early days, and we can expect an explosion of development and systems as Web 3 grows. Examples of where smart contracts could eliminate intermediaries are in the banking system. One such application could be loan approvals that are automated via smart contracts. Other real-life use cases in the media include the non-fungible token (NFT) space

Building Blocks of Web3 (continued)

which is also built on the basis of smart contracts and helps to exchange certain ownership rights of various digital assets. Apart from digital art, NFTs offer a variety of real-life use cases like the ownership of in-game elements and items in computer games, fashion, collectibles, etc.

DeFi (CeFi vs. DeFi)

The decentralized (DeFi) and centralized (CeFi) finance spaces have grown at a wild rate. Just DeFi itself has brought almost \$100 billion of value locked on the network. Locked value is described by CoinPedia as “usually calculated using three major components, which is the total value locked in Dollars, Ethereum, Bitcoin, and the native token of each protocol.”⁶ Other buzzwords such as, yield farming, which is a way to earn on crypto assets, hit the news regularly in 2021. To explain the difference between both terms, DeFi is a system which enables financial products publicly—on a decentralized blockchain network. It allows actors (buyers, sellers, lenders, and borrowers) to interact without a traditional intermediary, which is replaced by a software-based middleman, using smart contracts. CeFi, on the other hand, also offers yield benefits, but often uses some of the traditional financial service products and middlemen. For example, in CeFi, lenders transfer risks to corporations such as Coinbase. Another DeFi related trend to observe in 2021 is liquidity mining, which incentivizes asset investors to secure a network for providing their crypto currencies, and play to earn gaming concepts, where DeFi protocols are required to ensure in-game transferability. These trends will likely play a major role in the upcoming years when it comes to the utilization of DeFi services.



⁶ What is Total value locked down in DeFi? Top Defi Tokens with TVL (coinpedia.org)

Diversity and inclusion in Blockchains

The Importance of Inclusion in Web3

Emerging technologies such as cryptocurrencies and blockchain have rapidly expanded their reach and impact over the course of the past two years.



According to a recent Crypto.com study,
the number of crypto users has increased

108.9%

in just the first 6 months of 2021.⁷

This rapid increase in participation begs the question: who is participating? In a recent CNBC article discussing the gender makeup of cryptocurrency investors, “[t]wice as many men as women invest in cryptocurrency (16% of men vs. 7% of women), according to CNBC and Acorn’s Invest in You: Next Gen Investor survey, conducted in partnership with Momentive.⁸ And Forbes citing a Harris Survey comparing cryptocurrency and stock investing demographics noted “[I]n the U.S., 30% of Black and 27% Hispanic investors own cryptocurrencies, compared with just 17% of White investors. Perhaps crypto’s main appeal to underrepresented groups is that it’s viewed as the more accessible financial investing option.”⁹

These statistics push the very important consideration of diversity and inclusion to the forefront of this emerging technology. Actions must be taken to ensure that the rights to access, equity, and innovation are inclusively driven. We note that the blockchain world often speaks about the potential for inclusion to be reached as the technology moves toward mainstream, and there are many grass roots efforts targeted to different demographics. We applaud them all and DiB encourages and invites these groups to reach out to us so we can help augment their work. There is a big tent. Startups and corporates alike should understand that it is good business to be inclusive.¹⁰ There is a real risk

of harm that ignoring these concerns in the foundational era may create a longer-term imbalance in terms of lack of access, loss of income, decreased innovation and a noninclusive workforce that would be expensive to remediate and have reverberations across what products and services are offered. In short it is integral to establish and implement a diversity and inclusion strategy in the DNA of Web 3.0 as this is the foundational era.

Remove Ceilings and Walls, Let’s Build Bridges

The workplace of the future must become a more equitable and inclusive place if organizations want to achieve long-term growth¹¹. A recent WEF article described how organizations can no longer view inclusion and diversity as a series of boxes to check. In order to cultivate equitable and inclusive organizations, we need long-term initiatives and sustained efforts. The article went on to state “It’s very different to try to increase representation in an organization assuming the problem is a lack of diversity, instead of assuming diversity exists but your organization has built walls that keep it out.” The blockchain industry is at a critical point in its history and possesses the opportunity to ensure the “walls” of exclusion built are minimized. The industry can ensure diversity and successful financial results.¹²

ESG and the Platform of Proof

An individual’s financial decisions are no longer based solely on shareholder returns. Investors are demanding companies operate with additional environmental, social, and governance (ESG) considerations. How does blockchain technology interact with these concerns? Blockchain can be described as “the platform for proof” as by design it is a digital ledger that will allow organizations to answer essential questions such as ESG concerns as they relates to various types of reporting. Using blockchain solutions offer the potential to report on ESG data and give organizations valuable insights and data in order to improve their current status as it relates to ESG and other data driven considerations.¹³ UN News noted the important role this technology can have in terms of driving transparent reporting. For example, the World Food Programme (WFP) used blockchain technology to ensure humanitarian cash

⁷ [202107_DataReport_OnChain_Market_Sizing.pdf \(crypto.com\)](#)

⁸ <https://www.cnbc.com/2021/08/30/cryptocurrency-has-a-big-gender-problem.html>

⁹ <https://www.forbes.com/sites/korihale/2021/08/10/why-black-investors-seemingly-prefer-cryptocurrencies-over-traditional-stocks/?sh=40b12f616839>

¹⁰ The Business Case for More Diversity – WSJ

¹¹ [How diversity, equity, and inclusion \(DE&I\) matter | McKinsey](#)

¹² [Nurture inclusivity and create a more diverse workforce | World Economic Forum \(weforum.org\)](#)

Diversity and inclusion in Blockchains (continued)

reaches the individuals and projects that it is intended for. But more than that, we should be looking at the ESG concerns within the blockchain industry itself.¹⁴

Environmental

With increasing concerns surrounding climate change and the environment, the impact of mining blockchain has become increasingly important and politically charged. Some say the compute impact is devastating for the climate. Many believe the compute impact is not accurately compared to current systems¹⁵. However you come out on this issue, one thing remains clear. Environmental concerns need to be evaluated with all compute processes we are engaged in as a society. Why is the compute impact under discussion? Blockchains like the bitcoin blockchain use a mechanism called “Proof of Work”(What Is Proof-of-Work? – CoinDesk). This type of consensus mechanism requires significant processing power. A consensus mechanism can be described as “a system that allows all the computers in a network to agree about which transactions are legitimate.” This concept is central to the success of cryptocurrency and the mining of the next block in the chain. As the network of miners increases, the power and security of the network increases. With coins such as bitcoin, the processing power to mine the next block is increasing as the network grows in popularity. What impact will there be on the environment as the popularity of proof of work coins continue? It should be mentioned that many blockchain miners use renewable energy or capture previously unused energy such as methane flares¹⁶. The environmental impact is not so black and white as various proponents and detractors would have you believe. The jury is still out on energy use, and there are no standards used by the industry to evaluate energy usage. It behooves the industry to engage and create sustainable and responsible energy usage.

The environmental effects of the increase in proof of work coins are interesting. Stating “energy concerns,” China has denounced crypto and forbidden crypto mining precipitating the shift from China to the U.S. as the leader now in crypto mining. Additionally, in the Xinjiang area where the large majority of the crypto mines were located, there have been reports of human rights abuses which we will explore further in the social portion of our ESG analysis.¹⁷



Proof-of-work blockchains are secured and verified by virtual miners around the world racing to be the first to solve a math puzzle, such as bitcoin.

Proof of stake blockchains employ a network of “validators” who “stake” (i.e., contribute) their own crypto in exchange for a chance of getting to validate new blockchain transactions that update the blockchain, and earn a (staking) reward.

Practically, this means that Chinese miners can no longer participate in this newly burgeoning economy, and the U.S. can and will so long as it promotes cryptocurrency innovation. This is a huge opportunity for the U.S. to engage and embrace this innovation.

¹³ [The Decarbonization Journey: Five pillars to achieving net zero \(kpmg.us\)](#)

¹⁴ [Crypto, Meet ESG; ESG, Meet Crypto | Katten Muchin Rosenman LLP](#)

¹⁵ [Bitcoin Mining is Not Wasteful \(zorinaq.com\)](#)

¹⁶ [Bitcoin miners, oil and gas execs talk about natural gas mining \(cnbc.com\)](#)

¹⁷ [Crypto, Meet ESG; ESG, Meet Crypto | Katten Muchin Rosenman LLP](#)

Diversity and inclusion in Blockchains (continued)

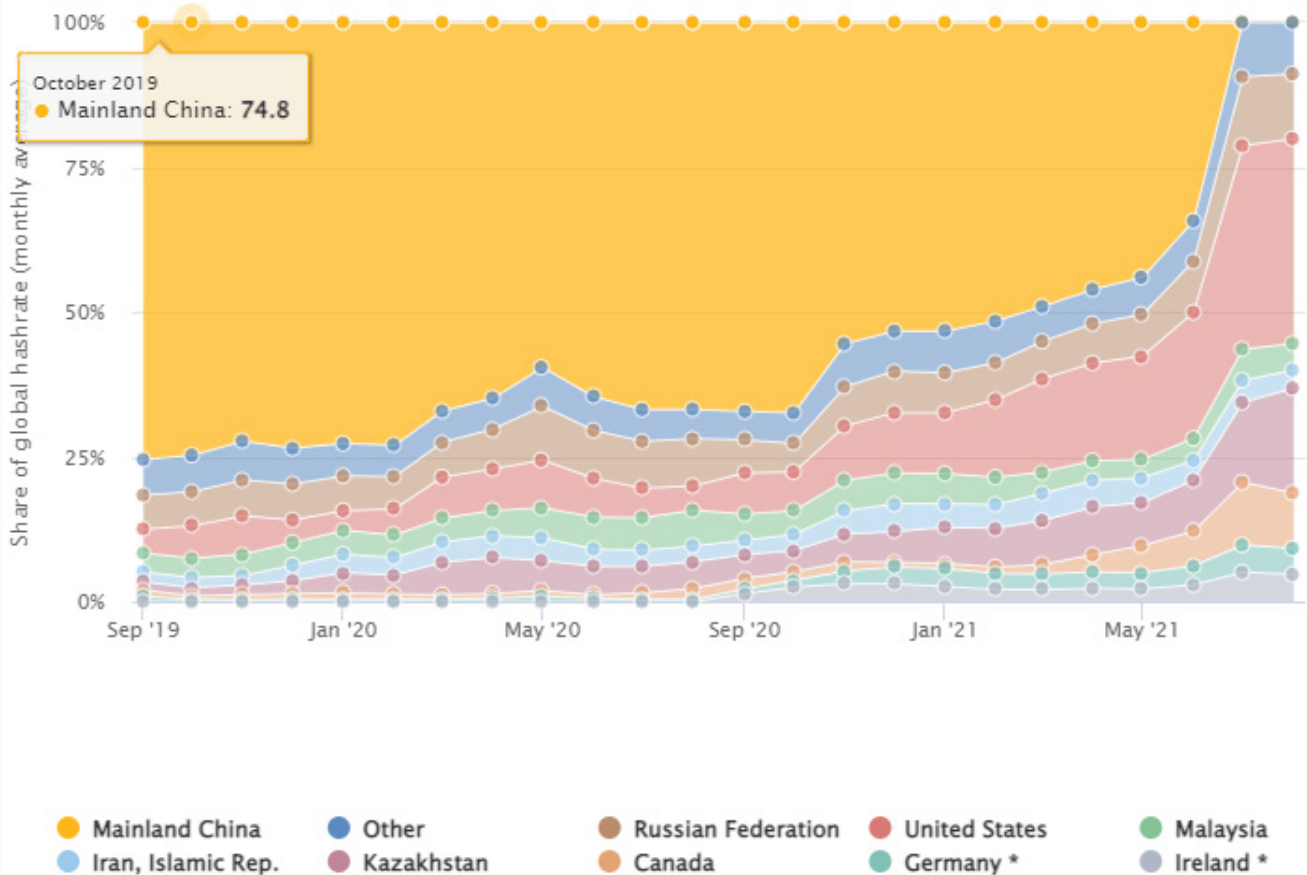
But blockchains are not just Proof of Work protocols. Many varieties of consensus mechanisms can be used. For example, many coin protocols that are issued on top of the proof of work foundation protocol use less energy-intensive computing called Proof of Stake. Proof of Stake can be described as:



“Employ a network of ‘validators’ who ‘stake’ (i.e., contribute) their own crypto in exchange for a chance of getting to validate new blockchain transactions that update the blockchain, and earn a (staking) reward.”

An example of a Proof of Stake coin is [DOT](#). As we see Proof of Stake protocols start to proliferate, the arguments about energy intensive computing may start to become less relevant. Further, to make a true comparison, one would have to look at the energy consumption of our current financial infrastructure vis-a-vis the protocol of a Web3-driven system to get a true picture of climate impact.

Evolution of country share



US leads Bitcoin mining as China ban takes effect – BBC News

Diversity and inclusion in Blockchains (continued)

Social

The social impacts of cryptocurrency present an opportunity for millions globally to have access to a decentralized form of currency that could afford them the opportunity to first transact and then build wealth. This could be life changing for many as they may not have had access to traditional financial institutions. This is true both domestically and globally. Many Americans face significant challenges in the traditional financial system in place today. According to the most recent Federal Reserve Economic Well Being Report, 5 percent of adults in the U.S. do not have a bank account and 13% are considered underbanked meaning they have an account but rely on other financial instructions such as check cashing, payday advance, and pawn shops to complete their financial transactions. According to the Federal Reserve, “Unbanked and underbanked rates were higher among adults with lower income, adults with less education, and Black and Hispanic adults. The largest differences were by education and income level.¹⁸” The most important aspect of the social impact of blockchain is the simplicity in access. All you need is a smartphone or computer and internet to participate. This ease of access is an important driver in lowering wealth inequality. We would be remiss if we did not discuss stablecoins as well. According to Coinbase, a stable coin can be defined as “a digital currency that is pegged to a “stable” reserve asset like the U.S. dollar or gold.” [What is a stablecoin? | Coinbase](#)

- Approximately 7 percent of U.S. adults do not have internet access¹⁹
- Nearly 97 percent of U.S. adults own a cellphone, of which 85% are considered “smartphones.”²⁰

Even those who are digitally connected may lack quick and convenient banking access. We live in a world where banker’s hours exist, but our need for payments don’t fit within those hours. Access to stable payment mechanisms such as stablecoins can help financially underserved communities by giving them payment options that are cost effective, flexible, at the speed of the internet, and available 24/7. Additionally, they can help with cross-border payments and offer cheaper and faster remittances. Finally, in economies outside of the U.S. that are hyperinflationary, the use of stablecoins to connect to global remittance

corridors offers a path to faster receipts of hard currencies like the dollar (preferred currency of choice for most of the world). [\(see payments article\)](#)

Globally, nearly 1.7 billion people are considered unbanked, and blockchain is changing this statistic. It is allowing people who typically did not have access to credit get access.²¹ In addition to this access is the ability to have an alternative or, for some, primary stream of income and vehicles for wealth creation at your fingertips. An important social consideration is the need for regulation, be it government players or self-regulation, in the marketplace ahead of widespread adoption and implementation as a replacement for fiat currency. Widespread reasonable regulation that makes sense with decentralized systems decreases the potential for fraudulent actions in the marketplace increases.

In Xinjiang, the Chinese government is forcing Uyghur people to work in factories producing household goods. The Uyghur are predominately Muslim and members of other ethnic and religious groups. They are targeted based on their ethnic and religious backgrounds.²² The social implications of the Xinjiang region leading the mining of crypto raises cause for concern given the government-imposed labor camps. However, since the Chinese government has now denounced crypto and mines have been disbursed across the globe, including the U.S., we are able to promote ethical business practices in the industry. As we mentioned earlier, the location of the cryptocurrency mining has strong implications for diversity and inclusion. Specifically, this is an important consideration as it relates to inclusion and diversity, as it is important that the mining occurs in a variety of locations to ensure the access and adoption is that of a diverse population in terms of thought, race, and economic status.

¹⁸ The Fed – Banking and Credit ([federalreserve.gov](https://www.federalreserve.gov))

¹⁹ [7% of Americans don’t use the internet. Who are they? | Pew Research Center](#)

²⁰ [Demographics of Mobile Device Ownership and Adoption in the United States | Pew Research Center](#)

²¹ [\(4\) Decentralized Networks & The Fight Against Inequality | LinkedIn](#)

²² [Forced Labor in China’s Xinjiang Region – United States Department of State](#)

Diversity and inclusion in Blockchains (continued)

Governance

Regulation is an essential factor to any industry and blockchain is no different. As it relates to inclusion and diversity, regulation can be difficult to implement. While New York State has the toughest cryptocurrency regulations of any state and even as compared to many countries in the form of the [BitLicense](#), New York recently took action to implement additional transparency as it relates to diversity and inclusion and financial institutions (including virtual currency service providers). New York Department of Financial Services (NYDFS) will conduct a survey to report diversity and inclusion data related to management and executive groups from New York financial institutions including virtual currency service providers. This measurement is a good start as it gets at part of the issue, but not all. According to the letter issued by NYDFS, the dataset will be focused on “gender, racial and ethnic composition of their boards or equivalent body and upper management as of December 31, 2019 and 2020, including information about board tenure and key board and senior management roles.” This data is set to be released in quarter one of 2022. Blockchain industry companies set to be included in this requirement are Coinbase, Genesis

Global Trading, Paxos and others. This regulatory change has been implemented under the provision of banking law §373 stating that the superintendent may require banking organizations to make special reports at such times as prescribed. Regulators are in a unique position in terms of inclusion and diversity as they have the power to drive change and create an impact. This report will be an integral metric moving forward in measuring inclusion and diversity in blockchain and related industries. (Industry Letter – July 29, 2021: Diversity, Equity and Inclusion and Corporate Governance | Department of Financial Services ([ny.gov](#)).²³) The larger question for the protocols that do not fit within a virtual asset service provider definition is, how are they going to disclose and measure diversity in inclusion? This is an open question for the industry, and the establishment of benchmarks and toolkits for these groups to use will be an important aid.



²³ NYDFS Plans to Collect Diversity Data From Crypto Institutions – CoinDesk

Circle

Drivers of business extend beyond that of simply profit and returns to shareholders. Circle's Chief Strategy Officer, Dante Disparte, stated that businesses that genuinely take diversity and inclusion to heart are able to have a dynamic that allows them to have an edge over their competitors. Dante took some time out of his day to speak with Susan Joseph on the topic of diversity and inclusion. He shared with Susan his personal driver in the space "is the ability to do something radically different through promoting diversity and inclusion in blockchain". He believes that by means of inclusion and increased diversity within the blockchain space, the door of financial access will be opened to many across the globe. Dante went on to discuss his strong support of Circle's approach. "Circle's approach to diversity, equity and inclusion is just very authentic; we're not doing this merely to pay lip service to these important issues." He described the company as a mosaic and that their inherently natural approach is what makes them unique. He wants to ensure their natural, inherently inclusive, and diverse approach does not get lost as the company expands. He believes they will be able to leverage this unique characteristic and showcase a model to other companies for cultivating and maintaining inherently diverse and inclusive organizations.

Dante believes that organizations should have a team-based mindset and approach to drive this critical change successfully. No single department or individual will be able to move the needle. The importance of collaboration along with diverse and inclusive leadership will best accelerate and drive change.

Digital Asset

Sherrill Crivellone is the Director of Human Resources at Digital Asset. She took some time to connect with Susan Joseph on critical DE&I efforts at Digital Asset. She shared that the company is dedicated to the efforts and believes inclusion must be woven into an organization, particularly at the onset. Digital Asset is a rapidly growing software and services provider that is leading the way with this effort on their minds, and particularly on the minds of the company's top leadership. Sherrill wants to build programs and opportunities across the company to ensure these efforts are achieved. She believes strongly in ensuring that there are actions behind their programs. The CEO and co-founder, Yuval Rooz, sees the 200 plus person team in 5 countries as "whole beings." That sentiment is felt throughout the company. He values collaboration and "robust debate" as a critical component of their approach. Their approach has DE&I at the foundation of their company history and allows the organization to be universally impactful. In every strategic decision the executive team incorporates the concept of inclusion as foundational to the company's approach. The unique difference is the CEO's natural, instinctive approach within this space. The culture is that of mutual respect and understanding. Individuals within the organization are encouraged to have open and honest conversations that at times can create discomfort but ultimately drive change and action. Sherrill believes this is built into the fabric and culture of the company.

Blockchain in Academia

Demand for Skills in the Market

According to data from [LinkedIn's Economic Graph](#) team job postings containing the terms "crypto" and "blockchain," have [grown nearly 615 percent](#) in the past year. This rapid increase represents the ever-increasing presence of cryptocurrency in our day-to-day lives. The demand for individuals with this skillset has increased at an incredibly fast rate. It is nearly three times higher in 2021 than 2015. The need in the job market extends beyond that of a traditional software developer. Companies are increasing their footprint in the space and the demand for related roles such as community developers, accounting, tax, marketing, and compliance is increasing as well. As banks and other financial institutions expand their footprint in the market, it will be critical to analyze their hiring strategies in the context of diversity and inclusion. Financial institutions, mainstream businesses, and startups are competing in a fierce marketplace as the skillset is technical, competition for top talent is intense, and pay is competitive among firms. Salaries can increase anywhere from 20 percent-50 percent according to a recent Bloomberg article. It will be integral that as Wall Street scales their cryptocurrency groups, they consider D&I within their growth strategy.²⁴

This is no longer a "niche" market. One need only look at a recent report from Bank of America, which stated blockchain is a market "too big to ignore" and has established a cryptocurrency research group and department.²⁵

Many of the large traditional financial institutions have begun hiring crypto and blockchain talent, establishing formal digital assets groups within their organizations, and discussing the future of digital assets. The combination of FinTech and traditional banking will present some challenges to organizations and its newly hired employees. Banking is a long-standing industry filled with regulation

and structure. FinTech represents a relatively new industry filled with innovators and rests upon new technology. The combination of the two will present one of the greatest transformations the financial industry has seen to date. We must consider what this means for inclusion and diversity efforts as financial services and the technology sector are not known as the most inclusive industries and barriers exist already without the addition of innovative technology applications. Employees and employers must be agile, willing to innovate and operate within the bounds of regulation presented in banking. Banks have the potential to become "magnets" of talent according to BNY Mellon's Roman Regelman. It is critical within all entities to have a culture that allows for open dialogue, transparency and focus on diversity. This allows your talent to operate at an entirely different speed than that of its competition. This different speed referenced by Regelman will be marked by an emphasis and active consideration of inclusion and diversity. With this conscious effort, there should be increased innovation, a more equitable workplace, and growth in the overall industry.²⁶

Academia has in turn had to meet the demand for this skillset in the market by ensuring sufficient exposure to digital assets in their curricula. As mentioned above, while experts are necessary, the industry overall is expanding, and as such, the need for related roles with knowledge in digital assets is also necessary. Colleges and universities have expanded their course offerings, hired experienced and knowledgeable staff, established think tanks, and provided additional related activities.

²⁴ Wall Street Jobs: Crypto Positions Come With 20% to 50% Pay Raise – Bloomberg

²⁵ <https://newsroom.bankofamerica.com/content/newsroom/press-releases/2021/10/bofa-global-research-launches-coverage-of-digital-assets.html>

²⁶ (2) All aboard: Bitcoin's rise inspires even big banks to staff up on crypto talent | LinkedIn

Blockchain in Academia (continued)

Top Blockchain Universities

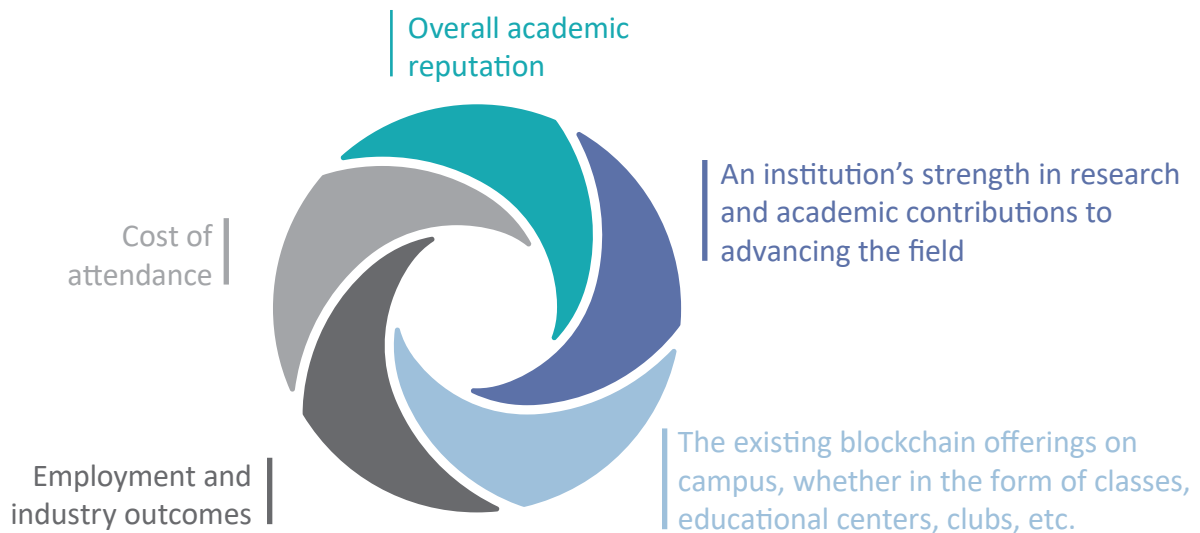
A recently released study by Coindesk evaluated 230 universities internationally and reported detailed profiles on the top 30 universities. In 2019, the study focused on U.S.-based schools and universities exclusively. For this year, the study expanded the dataset to include universities globally.²⁷

Top five U.S. schools in order of ranking are Berkeley, MIT, Stanford, Cornell and Harvard

This wider inclusion of universities on a global scale allows for a more accurate representation of blockchain offerings and in turn a more accurate ranking of universities. However, the study did note that the formal data on this topic is lacking and encouraged universities to share what

they are doing. The study assessed publicly available resources such as course catalogs, social media and a survey of students and professors to determine the ranking of the universities. An important metric introduced in this year's study is the comparison of cost of tuition to the cost of living in the location of the respective university. The cost of an education is often a significant barrier to entry for many globally. This metric is an important consideration in the context of inclusion and diversity. If the cost of living and tuition is higher, the population of students has the potential to be less diverse in race, wealth, and gender. However, direct metrics on diversity and inclusion were not measured or included, and it would be useful to have these numbers moving forward.

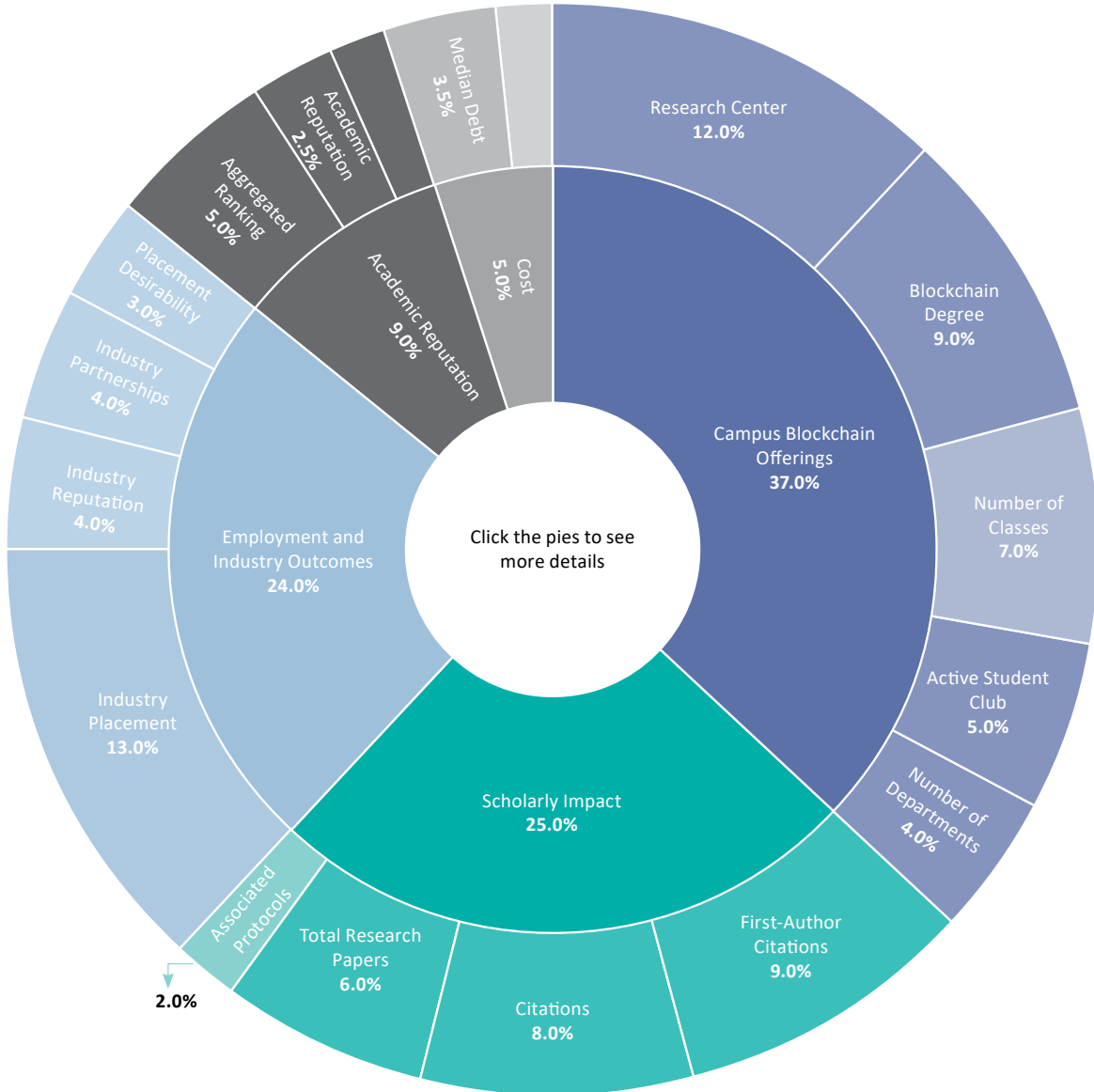
Overall, the five factors analyzed are:



²⁷. <https://www.coindesk.com/learn/2021/10/04/the-top-universities-for-blockchain-by-coindesk-2021/>

Blockchain in Academia (continued)

Weight and Details of these Driving Factors



CoinDesk University Ranking		
Ranking	School	Score
1	National University of Singapore	100.00
2	Royal Melbourne Institute of Technology	97.65
3	University of California Berkeley	93.26
4	University of Zurich	91.66
5	Massachusetts Institute of Technology	91.57
6	Hong Kong Polytechnic University	84.30
7	UCL	81.54
8	Tsinghua University	79.20
9	Chinese University of Hong Kong	75.30
10	ETH Zurich	75.04
11	Nanyang Technological University, Singapore	74.98
12	Stanford University	68.41
13	UNSW Sydney	66.29
14	City University of Hong Kong	66.13
15	University of Oxford	65.47
16	Shanghai Jiao Tong University	65.18
17	Cornell University	63.98
18	Delft University of Technology	63.85
19	University of Hong Kong	61.97
20	University of Sydney	61.48
21	École Polytechnique Fédérale de Lausanne (Switzerland)	60.78
22	University of Illinois Urbana-Champaign	60.10
23	University of Cambridge	58.69
24	Hong Kong University of Science and Technology	58.51
25	University of California Los Angeles	58.40

CoinDesk University Ranking		
Ranking	School	Score
26	Korea Advanced Institute of Science and Technology	57.87
27	Sun Yat-sen University	57.18
28	University of British Columbia	55.80
29	Peking University	54.15
30	Arizona State University	51.86
31	Technical University of Munich	51.78
32	University of Edinburgh	51.77
33	Carnegie Mellon University	51.10
34	University of Melbourne	50.95
35	Worcester Polytechnic Institute	50.77
36	Georgetown University	50.40
37	Fudan University	49.95
38	University of Southern California	49.57
39	Korea University	48.85
40	Imperial College London	48.59
41	New York University	48.55
42	Tokyo Institute of Technology	47.37
43	University of Warwick	47.19
44	Fordham University	46.89
45	Columbia University	46.46
46	Seoul National University	45.72
47	King Abdulaziz University	45.59
48	Monash University	44.05
49	Harvard University	43.89
50	Zhejiang University	43.37

Blockchain in Academia (continued)

When compared to the prior year report, the rankings have shifted significantly given the expanded dataset. Eight out of the top 10 universities are located outside the U.S., demonstrating a global trend which makes sense as the technology itself is global in nature. The leading universities have comprehensive course offerings, leaders in innovation, and drivers in the overall blockchain industry. The National University of Singapore hosts a leading think tank, Crystal Centre, led by Professor Keith Carter. The think tank centers its conversations on how the gap between the experts in the industry and the “layperson” can be bridged. Their approach is focused on streamlining communications between the two parties. That the top university globally has diversity and inclusion as a top-of-mind issue of their think tank demonstrates the importance of this topic. Without this consideration and conversation, the advancement of this industry will be short sighted.^(28,29,30)

As we look forward to next year, of note is a recent partnership announced between Circle and Historically Black Colleges and Universities (HBCU) to support financial inclusion and create a digital financial literacy program in the United States. The program will allow leading Circle professionals to work directly with students to ensure equitable access to “digital financial revolution”. We hope these types of programs will practically foster inclusion in the academic spheres and serve as an example of how other industry leaders can get involved in D&I efforts.³¹

Where to get your FinTech/Blockchain Education Search Started^(33,33,34)

Whether you are a student entering your college years, a professional early on in your career, or a retiree with additional free time, there is no better time than now to begin your blockchain journey. There are a variety of means to educate yourself on this important topic from podcasts, news outlets, online certifications, and formal university-based courses/degrees. Many working in this industry are self-taught, and there are few barriers to join in. An excellent place to start is using Coursea.org, as universities across the United States offer various courses in the blockchain/cryptocurrency space. Another online platform, Udemy, offers a variety of courses in several languages. Their offerings span from basic introductory courses to more specialized learnings. Additionally, many leading universities, such as Cornell, offer their own unique learning portals and certificates. Crypto exchanges such as Coinbase are beginning to offer in-depth trainings and educational resources in order to increase participation in the space. These learnings and resources are free and available to the public via their website.

²⁸ The Top Universities for Blockchain by CoinDesk 2021

²⁹ Top Blockchain University: National University of Singapore (coindesk.com)

³⁰ How We Ranked the Top Universities for Blockchain (coindesk.com)

³¹ <https://www.arover.net/2021/11/17/circle-pushed-the-button-to-increase-global-financial-inclusion/>

³² Academic Programs in Cryptocurrency, Blockchain, and Bitcoin | BestColleges

³³ Coinbase Launches New Tools to Drive Education | PYMNTS.com

³⁴ 20 Best Cryptocurrency Courses [2021 DECEMBER][UPDATED] (digitaldefynd.com)

Concluding Notes

6 Sides of the Block

In this second year of issuing this Report, the authors believe that awareness of D&I issues in the blockchain industry is growing. There is still a lot of work to be done. As mainstream adoption occurs, traditional entities should be looking at their D&I efforts in their blockchain and crypto divisions. Startups should be looking at their structure to ensure they are inclusive from their outset. Why? Not only is it better for business. It is better for the world as a whole to embrace innovation in a way that serves all. Blockchain will not be the only technology to emerge. As new technologies take their place at the table, we hope that by embedding D&I in the blockchain industry, we create the paradigm and example that other emerging tech will follow and embed D&I as they develop and are adopted.



The 6 Ws of the Block

1. Web3....How can we add D&I as part of our strategy?
2. What practical tools can we use to encourage D&I?
3. What is the culture of diversity and inclusion within our company?
4. Where can we focus our efforts first in order to effectively encourage diversity and inclusion and how will we broaden our efforts to insure inclusion?
5. When did our company learn its most important lesson about diversity and inclusion and what is the takeaway?
6. How can we work with Diversity in Blockchain to further our D&I efforts? If you would like to be interviewed as a Business Case Study, please contact Diversity in Blockchain.

Appendix (continued)

Blockchain: Further Information

Ledgers and Blockchain: An Introduction

Today, all businesses transact on centralized ledgers. Each business has their own ledger version, which must be reconciled with the counterparty or middleman ledger, or both, to complete a transaction. This is a centralized method of transacting where typically the third-party or intermediary helps the counterparties create a transaction. This age-old centralized system is fraught with errors and is slow, thus creating the desire by many individuals and businesses to seek different technologies to replace the current error-prone and slow centralized system.

Blockchain is seen as one of the answers to this age-old problem. Blockchain is a transaction database. It is created through a distributed and decentralized ledger of transactions. It uses blocks that store information about each transaction such as date, time and dollar amount. Blocks are chained together thus creating a blockchain.

Blockchain switches from the centralized method of transacting to a more direct, peer-to-peer system of transacting. The decentralization and architecture of blockchain solves the problem of the digital double spend. All parties can access the ledger without the need for a third party to oversee it. Synchronization and integrity of the ledger is enabled through a form of decentralized computing secured by cryptography. In short, everyone has a copy of the ledger, and changes to the ledger ONLY occur once a majority has come to consensus about that transaction. These changes are additive (append only) and mistakes can be fixed by creating a new entry to the ledger. The result is a tamper-proof, censorship resistant set of transaction records. All participants do not need to reconcile any of these records whether payment or smart contract code offerings.

“You see what I see always” is the manner of operating, and it offers new transparency at scale.

Bitcoin the Network and Bitcoin the Cryptocurrency

One of the applications based on blockchain technology is bitcoin, the world’s first cryptocurrency. Bitcoin was founded ten years ago by an unknown person or a group of people, called Satoshi Nakamoto. In the bitcoin whitepaper, Nakamoto came up with an idea of a digital payment system using digital currency called bitcoin. Nakamoto created the architecture for a decentralized, verified network that can be used for payment transmission between private parties without the use of intermediaries. Bitcoin transactions are recorded and transmitted via a decentralized public ledger,

called blockchain. Nodes (or computers) are used to verify each transaction that is recorded in a transaction “chain” on the ledger.³⁵

Types of Blockchains with Cryptocurrencies and Smart Contracts

Different types of public blockchains exist that emit cryptocurrencies. Examples of these types of cryptocurrencies include bitcoin and ether. The Bitcoin blockchain is geared to payment functions and the Ethereum blockchain is geared to contracting functions. Automated business processes embedded in these blockchains are computer protocols that are known as “Smart Contracts”.

Smart contracts are composed of computer code that carries out an if/then function in a determinative manner. Smart contracts may or may not be legal contracts depending on what the computer code represents.

Technical: Public Chains Emit Cryptocurrencies

On a more technical level, blockchains are synchronized decentralized transaction databases that are maintained by a distributed network of computers which rely on cryptographic puzzles that contain economic incentives to secure the network. The networks emit cryptocurrencies as the economic incentives to solve the puzzle and verify a transaction. The reward in the form of a cryptocurrency is given to the winner, and the integrity of the network is maintained by those solving the puzzle, also known as miners.

The cryptocurrency is made up of a public key (generally that anyone can see) and a private key (that functionally acts as a safe deposit box). The cryptocurrency can be moved when the private and public keys are put together. Access to the private key is the only way for someone to access the asset.

Private Blockchains and Distributed Ledger Technology

Private chains are similar to public blockchains, but generally do not use emitted cryptocurrencies to ensure the integrity of the system. Private Chains use different consensus mechanisms to ensure the integrity of the system. Private chains are made up of decentralized transaction databases and are often referred to as distributed ledgers. Private chains are membership organizations. The parties running the chain are all known “members” operating under some sort of joint agreement. Private chains can be built and used by consortia, joint ventures and other entities to form networks.

³⁵ State of Diversity and inclusion in Blockchain by Susan Joseph

Appendix (continued)

Cryptocurrencies and digital assets (coins or tokens) can also be created by open source protocols that accomplish certain functions such as lending that exist as applications upon foundational blockchains such as Ethereum. A specialized type of cryptocurrency that can be created by a coin offering is a stablecoin, which is a cryptocurrency backed by assets. USDC is one such stablecoin.

Definitions

- 1. Public Blockchains:** These chains generate cryptocurrencies as incentives to support network integrity. Transactions may not be altered or deleted, though they can be overwritten by additional entries appended to the ledger. Public chains are being tested as a foundation upon which to create the framework for open financial, law, and other products, and to sustain messaging incorruptibility.
- 2. Private Blockchains:** These chains do not generate cryptocurrencies in the same way as public chains, but tokens representing assets can be created, and back office processes including communications can be built on these systems that can potentially create efficiencies and improvements as well as sustain a level of messaging integrity. These types of chains also use a consensus mechanism performed by “validators.” Since the technology can be applied to many business sectors, it potentially offers many types of applications ranging from identity, law, finance, insurance and supply chain solutions which today are works in progress.
- 3. Timestamp:** Chains record interactions that are chronologically planted in time or “timestamped” that are truths that cannot be erased. This data certainty is very powerful. For instance, a blockchain ledger could store the source of the data used to develop artificial intelligence applications and maintain user permissions for that data in a transparent and tamper-resistant manner allowing one to trace and understand any biases in the data sets used.
- 4. Smart Contract:** The ledger can host embedded automated protocols called “smart contracts” that can potentially create digital assets as well as help improve and streamline business processes and digital interactions. This has vast implications for the way we provenance, manage, audit, and treat data, and the manner in which we implement compliance and accountability. However, smart contracts must be carefully coded and tested, or far-reaching and damaging unintended consequences can occur. For example, a smart contract that miscalculates and creates an endless loop of financial transactions can have profound negative results.
- 5. Centralized Systems:** Today, our system is set up and regulated with third-parties in mind—gatekeepers who we must trust and go through to engage with our centralized financial system. Banks, financial advisers, brokers, stock exchanges, and insurance companies are a few. They all own and manage their private transaction ledgers, and their systems are rather opaque to those transacting on them.
- 6. DeFi:** DeFi by comparison is a new and arguably more open way to transact—one that does not involve these third parties and is available 24/7 365 days a year. To access and transact in this world, all you need is a phone or computer. The application could be lending, saving, trading, derivatives and hedging, and any other form of financial transaction for which there is a computer protocol. The applications are built from code we can characterize as “money legos” that can be functionally combined in as many ways as you can imagine financial products. The code is open source, meaning you can view and audit it before you choose to engage with the application. And all parties using a DeFi application have an identical copy of the public ledger which records each transaction in encrypted code. You can see that transactions occur. It is a more open manner of transacting. That is not to say there are not risks such as hacking, code defects and the like as we are in the early days of DeFi. The experience is not user friendly to the average retail investor. One can expect, as the new system develops, it will evolve for the better. Remember back to the beginning of the internet. It was not user friendly either, and look at it today.

Appendix (continued)

7. **Money Legos:** or open source building blocks to build new financial products for Web 3.0 enabling permissionless access to the ecosystem: Open source software developer communities create the DeFi protocols encompassing multiple types of financial services and products on blockchain networks.
8. **Ethereum,** currently the most popular network for DeFi Protocols; the [original Ethereum whitepaper](#) envisioned derivatives, hedging, savings and subcurrency applications. Some existing applications include decentralized exchanges (DEXs), stablecoins, lending platforms, wrapped cryptocurrencies, prediction markets, yield farming, liquidity mining. DeFi specifically uses automated protocols known as smart contracts to conduct activities that in the legacy finance world (tradefi) are conducted by brokers, exchanges, banks, and other intermediaries. DeFi is an evolving area; hacks and coding errors occur with regularity and make the headlines. Many such exploits end with the funds returned due to community communication and public pressure. One can imagine DeFi will include and welcome some oversight disclosures and mechanisms (code audits, certifications, etc.) so the area can become more mainstream rather than solely relying on a community to roll back and exploit.
9. **Blockchain:** A type of distributed ledger that maintains a continuously growing list of transaction records ordered into blocks (called “append only”) with various protections against tampering and revision, with a cryptographic key. Overall, the term “blockchain” is used interchangeably with “distributed ledger.” There is no true agreed-upon taxonomy yet.
10. **Cryptocurrency:** A digital currency that uses cryptographic techniques for governance and security and operates independent of any central bank. Cryptocurrencies are a popular use case for the application of blockchain technology. They can be generated by a blockchain platform itself or as an application that sits on layer(s) above the blockchain platform. Some cryptocurrencies have been categorized as securities by various regulatory authorities. The rules for cryptocurrency treatment differ across jurisdictions.
11. **Stablecoins:** A stable-coin is a cryptocurrency backed by assets. Stablecoins act as stable digital currency to tame the extreme volatility of the cryptocurrency markets, and are often offered and used by cryptocurrency exchanges. Stablecoins can be pegged against currencies, commodities or an asset basket which then offers a fixed value relative to the underlying asset enabling a less speculative asset to trade. These assets may be considered securities depending on the jurisdiction and underlying asset composition of the stablecoin. Banks are experimenting with stablecoins and testing their issuance, and private stablecoins are also issued. The regulatory world has not yet decided its approach to stablecoins though there has been a lot of global conversation.
12. **Underbanked:** Those who have bank accounts but use alternative financial services as their preferred vehicle.
13. **Unbanked:** Those who rely on alternative financial services and do not rely on traditional ones such as banking and credit cards because they lack access to them.
14. **ESG:** Environmental, Social and Governance factors. Disclosure of these factors are often used in addition to financial factors when evaluating whether a financial decision is sustainable, mitigates risk, or fits within a responsible finance framework. ESG performance ratings and reports have become increasingly important.
15. **Central Bank Digital Currency (CBDC):** Digital form of fiat currency issued and regulated by a particular nation’s monetary authority. Fully trackable, unlike cash. Invokes strong opinions on privacy, security, and inclusion. Will require strong identity systems (compliance with know your customer and anti-money laundering regulations needed), likely excluding many emerging markets and nonidentified populations (about one fifth of the world’s population is unidentified). The global race is on; China is testing their version.

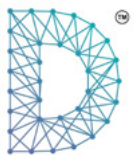
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