



Why GEN Z Should CARE ABOUT BLOCKCHAIN TECHNOLOGY

by Hart Rodríguez Young

Gen Zers are the first true digital natives—exposed to the internet, social media networks, and mobile technology since early childhood. Born roughly between 1995-2010, today’s teenagers and early twentysomethings are poised to become the largest age group globally and we are more comfortable with capturing and evaluating information from myriad sources and with synthesizing virtual and real world experiences than any generation before us.

Yet ask a Gen Zer what they know about blockchain technology and you’re more likely to hear about the volatile price of Bitcoin or a Bored Ape Yacht Club NFT than the many innovations in blockchain already being implemented across dozens of industries worldwide. If we, the future architects of Web3 (the newest iteration of the internet), are going to live up to our reputation as the most tech-savvy generation in history, we must first understand what blockchain has accomplished so that we can expand its boundaries far beyond the already well-traveled cryptoverse. As our millennial predecessors are taking their seat at the table in leadership roles across all industries, it’s ok, perhaps healthy, that Gen Zers are looking to flip the table in many respects, especially as disruptors of traditional centralized control of assets and information. But we should do so, not merely for the sake of becoming self-proclaimed *disruptpreneurs*, but because we believe disruptive innovation is the best path to positive societal change.

What is Blockchain?

A blockchain is an immutable, encrypted digital database shared across a decentralized distributed network. But what does this really mean? A blockchain is essentially a digital ledger where encrypted “blocks” of data are stored and “chained” together chronologically by unique identifiers called “hashes” to form a single, unchangeable source for that data. The ledger is stored or distributed across a network of computers rather than on a single server or database controlled by a centralized administrator like a bank or a tech platform, ensuring data integrity and eliminating the need for parties to trust systems to establish security. Without getting too deep into the technical aspects of blockchain, consensus protocols are a feature of blockchains through which peers on the network reach common agreement about the present state of the distributed ledger. This allows many types of organizations and individuals to confidently access and share data because all participants maintain an encrypted record of each transaction that is recorded by consensus and cannot be altered.

While the technology was first introduced as a means to establish Bitcoin and other cryptocurrencies as an alternative to traditional financial systems, it took little time for entrepreneurs and businesses to see the limitless opportunities to transform other industries. Below are just a few ways innovators are harnessing the power of blockchain.

Healthcare

Gen Zers are now on the precipice of leading innovation in a majority of sectors globally, and none may be more personal than overhauling a healthcare system that continues to boast remarkable technology-driven medical advancements while dragging behind its archaic and clumsy systems of patient data collection, maintenance and sharing. Consider the simple example of creating and maintaining patient notes by clinicians. One study revealed that less than 12% of medical residents enter patient progress notes manually, with 51% of the content copied and 37% imported.¹ This begs the question, how reliable and complete are the sources from which the bulk of these records are being updated and relied upon by healthcare providers? More disturbing is that, while up to 96% of hospitals now utilize electronic health records (EHR), more than 700 vendors operate these proprietary EHR systems, many of which do not communicate with one another.² This antiquated piecemeal system is not only inefficient, but it increases the likelihood of transcription errors or omissions, and virtually ensures the continued use of incomplete or outdated patient data.

But these challenges are disguised opportunities, not only for ambitious members of our generation looking to innovate, but for the welfare of the generation as a whole, which will soon become the largest group of consumers of healthcare services on earth. Blockchain technology can be utilized to overcome some of these barriers to having complete, accurate and rapid access to patient records, research and other data. A more recent study, for example, demonstrated how a private blockchain can facilitate advancements in genomic data-driven healthcare and biomedical research by



making patients' genomic sequencing immediately and securely available to be utilized in routine clinical care.³ This is the future of healthcare and endless opportunities exist for Gen Zers to develop and apply decentralized Web3 concepts in medicine.

Financial Services

In 2021 El Salvador became the first country in the world to adopt Bitcoin as legal tender. According to its leadership, the move was intended to attract foreign investment and engage more Salvadorans in the country's economy given that only 70 percent of the population had traditional bank accounts.⁴ As one of the poorest countries in Central America with a history of corruption, Bitcoin's adoption was met with skepticism as the government seemingly embraced a currency system designed to disrupt governmental control over money. Nonetheless, many in the fintech community take a broader view and see the El Salvador experiment, regardless of its success, as a pioneering step toward global cryptocurrency adoption.

While cryptocurrencies such as Bitcoin, Ethereum, and Dogecoin may be the most visible representations of blockchain technology right now, there are many other ways companies are harnessing the power of blockchains to disrupt the financial services industry. For example, bank-to-bank international transactions (for which banks charge healthy fees) reached approximately \$35 trillion in 2022. Blockchains offer the ability to securely and inexpensively process such transactions in a fraction of the time banks require for third party verifications and clearance. Ripple, the company behind the cryptocurrency XRP, for example, created a decentralized payments network that reduces the time it takes to send an international payment to three seconds, versus up to five days for traditional international bank transfers. Twitter users can send Ethereum's native token, Ether (ETH) or Bitcoin "tips" to other users instantaneously via Strike's Lightning Network, which reduces fees on payments. Decentralized lending and credit scoring companies are becoming more popular as blockchains enable lenders and borrowers more secure and inexpensive ways to enter person-to-person (P2P) lending transactions through smart contracts and other DeFi protocols. Such services can be used for everything from transparent crowdfunding to ensuring charitable contributions reach the intended recipients to renting out your spare hard drive space to encrypted distributed networks that are more secure than corporate servers.

Voting Systems

While the country and world struggle with allegations of rigged voting systems (legitimate or not) and the resulting erosion of the voting public's confidence, one thing most of us can agree upon is that election security

and accuracy is paramount to the survival of democracy. *No pressure, blockchain!* Fortunately, the very nature of the blockchain protocol and its immutable characteristics make the technology uniquely suited to accomplish this herculean task. Under current systems, votes are recorded, maintained, counted (and oftentimes recounted) by a collection of centralized authorities, such as bureaus of elections, city, county and state election commissions, and countless elected and appointed officials involved with the process at every stage. As was on display once again during the 2020 presidential election and the 2022 midterms, the process by which votes are recorded and counted may differ significantly from state to state, and certain decisions delegated by a state to local election authorities can also create imbalances. If nothing else, the lack of a uniform system has the potential to create confusion and skepticism among the electorate.

A blockchain-enabled voting system promises to eliminate (or at least diminish) many of these concerns. Because of the distributed and permanent nature of the blockchain ledger, “trust” would be shifted away from central authorities as everything from voter registration to verifying identity to tallying votes would be transparently available to everyone. The official voter record could not be altered because irregularities would be evident to other voters, all of whom have the ability to scrutinize the “on-chain” data. One tangential benefit of implementing blockchain-based voting systems, especially once the public better understands that such systems are unhackable and unalterable, would be undercutting the increasingly prominent practice of alleging voter fraud as a political tactic.

Supply Chain & Logistics

The global supply chain is a dynamic and complicated network of manufacturers, facilities, transportation companies, distributors, retailers, and the many systems that connect them. The sheer number of parties and volume and types of transactions involved makes the industry particularly susceptible to fraud, causing *billions* in losses every year. This risk can be mitigated by using blockchains to create a verifiable record of every transaction and a permanent, unalterable audit trail of every stage in the supply chain. Each participant has real-time visibility of cargo, its location, documentation, and the identity and

circumstances of anyone making changes in the supply chain.



The industry also suffers from a lack of efficiency that causes significant losses of time and money that ultimately are passed along to consumers. The ways in which blockchain technology could be utilized to solve these problems is innumerable, but several specific examples highlight how adoption of this technology, even in its infancy, is extremely promising. A London-based company used blockchain to track fish caught by fishermen in Indonesia to ensure compliance with health standards all along the supply chain from origin to the consumers.⁵ A vineyard in Italy utilized blockchain to achieve full transparency for its customers, allowing them to access information about harvesting, pressing, bottling dates and conditions, and other bottle or case-specific information. Blockchain can also be instrumental in sharing demand, inventory, and capacity-related data to achieve operational efficiency, and by enabling smart contracts to automate transactions.⁶ As globalization and competition intensifies, this industry is sure to provide some of the greatest opportunities for blockchain innovators.

Real Estate

With the global residential, commercial and agricultural real estate market now topping a combined \$326 *trillion*—a greater store of value than all equities and debt securities combined—blockchain holds the potential to disrupt the world’s largest industry.⁷ Complex real estate transactions that once took months to paper could be completed in seconds, with ownership verification, title clearance, financing and other protocols automated through smart contracts and electronic signatures permanently recorded on the blockchain. Properties, leases and other real estate assets could be “tokenized” so that individuals or companies can own a fractional piece of that asset

anywhere in the world, with full visibility of the transaction and other data in real-time.



On a more personal level, Gen Zers will be purchasing their first homes soon, if they haven't done so already. The maze of purchasing real estate, including credit checks, mortgage preapprovals, title searches, securing financing and insurance, and closing could be streamlined through smart contracts that would only execute when certain contingencies are met, including funding. Intermediaries such as title companies, escrow agents, attorneys and, in some instances, real estate agents and banks, can be eliminated and all documents could be executed, stored and shared securely in real-time.

Government

Governments must grapple with the paradox of being among the largest and most complex organizations in society while at the same time meeting the highest expectations of transparency and accountability. Gen Z trusts the government less than any current living generation and those levels are declining. While blockchain cannot mitigate the 24 hour news cycle that seems to feed political polarization and blur the lines between news and entertainment, fact and opinion, it can be utilized to fight corruption and inefficiencies in government that often lead to distrust.

Like many healthcare providers, government agencies are notoriously siloed, lacking the ability to timely and effectively communicate and exchange data with one another. As we continue to move into a wholly digital age, even smaller governments have difficulty keeping up with emerging technologies, which makes them more susceptible to hacking or cyber terrorism. Essential infrastructure and public services such as

transportation, utilities, power grids, law enforcement, healthcare and telecommunications require enhanced and expensive security measures that must be constantly upgraded, making these sectors more vulnerable to attack. While blockchain technology is not a one-stop solution to all of these challenges, the decentralized nature of these networks offer not only significantly improved security, but also visibility and accountability. Government contracts, welfare, veterans and unemployment benefits could be securely validated and processed instantly through smart contracts and verification of certain conditions transparently set by officials, reducing fraud and waste. It is ironic that "trustless" blockchain systems may be exactly what is needed for Gen Zers to regain their trust in government.

Education

The COVID-19 pandemic was a catalyst for many changes that society was either not ready or not yet willing to make. Yet when online and distance learning was imposed upon us, educators at every level were required to rethink the way instruction was delivered, how collaboration was facilitated, and how testing and evaluations were conducted. Blockchain is a path to extend and improve the way that institutions provide educational services. For example, by offering transferable courses from other institutions by establishing protocols that would make student records and grades instantly verifiable, schools can offer a more robust or specialized curriculum. Parents could reliably verify the credentials of teachers, tutors, and administrators, opening opportunities for more convenient, affordable and universally accepted courses or programs. Employers would have a trustworthy method of verifying applicants' degrees, certifications, work history, foreign language proficiency, and other skills that could be confidentially recorded on private blockchains.

Opportunity Lies With Early Adoption

Blockchain has the potential to drastically change how we exchange value, transfer ownership, and verify transactions, just as the internet revolutionized how we share information. The basic architecture for the first practical use of blockchain was introduced less than 15 years ago, when the Bitcoin whitepaper was published under the pseudonym Satoshi Nakamoto, and the technology is still in its infancy. Now, blockchain is driving innovation in countless sectors, including

entertainment, gaming, travel, insurance, hospitality, energy, retail, food and beverage, defense and many others. The question is, will Gen Z seize upon the opportunity to meaningfully reshape the way society

develops these industries, or will we be content to merely disrupt the status quo just long enough to set the stage for Generation Alpha to pick up the mantle?



About Hart Rodríguez Young

Hart is a member of Wakefield H.S.'s Class of 2023, an aspiring physician with an interest in studying physics and mathematics, and the Founder and President of the Blockchain and Cryptocurrency Club.

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