Should Blockchain Technology be More Widely Used in Society?

“Blockchain technology has the potential to boost global gross domestic product (GDP) by US$1.76 trillion over the next decade.” (PWC, 2020). So what is Blockchain Technology? Blockchain is a decentralized, unchangeable database that makes it easier to track assets and record transactions in a corporate network. An asset may be physical (such as a home, car, money, or land) or intangible (intellectual property, patents, copyrights, branding). On a blockchain network, practically anything of value may be recorded and sold, lowering risk and increasing efficiency for all parties (IBM, n.d.). Blockchain technology includes many features. One of its key features is decentralization. In the blockchain, decentralization refers to transferring control and decision-making from a centralized entity (individual, organization, or group thereof) to a distributed network (AWS, n.d.). What are the benefits of applying blockchain technology in any industry? One of them would be improved traceability. When a transaction involving the exchange of products is recorded on a blockchain ledger, an audit trail is available to show where the items originated. This can not only assist exchange-related organizations in increasing security and avoiding fraud, but it can also help confirm the legitimacy of the exchanged assets. It may be used to follow the supply chain from producer to distributor in sectors like pharmaceuticals, or it can be used to establish ownership in sectors like the arts. Another would be greater efficiency. Blockchain eliminates the need for intermediaries in many procedures for industries like payments and real estate because of its decentralized nature. Blockchain enables quicker transactions by enabling P2P cross-border transfers with a digital currency compared to traditional financial services. A uniform system of ownership records and smart contracts that automate tenant-landlord agreements improve the efficiency of property management procedures (Koskal, 2019).

Firstly, the economy will gain from the increasing use of blockchain technology. From 2022 to 2030, the market for blockchain technology is projected to increase at a compound annual growth rate (CAGR) (2021) of 85.9%, from a market size of USD 5.92 billion in 2021, with the potential to boost global gross domestic product (GDP) to US$1.76 trillion by 2030. The expansion of venture capital funding for blockchain technology startups is responsible for the market expansion. For instance, the blockchain technology supplier Circle Internet Financial Ltd. revealed in May 2021 that it had secured USD 440 million in funding from institutional and strategic investors. Legalizing cryptocurrencies in nations like El Salvador and Ukraine is anticipated to open up new opportunities for market growth (Grandviewresearch.com, n.d.). Blockchain technology, in the opinion of its proponents, notably in the financial industry, has the power to drastically increase the productivity and profitability of most firms, if not all of them—or perhaps to completely transform the way we do business. Blockchain technology might increase levels of tracking, tracing, and trust to a value of US$1.76 trillion by 2030. Users from all across the world might now use financial services where they previously would not have been able to. People in emerging nations, where it is more difficult to use regular banks, may utilize blockchain technology to get these services (PWC, 2020). The two countries with the largest potential net benefits from blockchain are China ($440 billion) and the USA ($407 billion). The COVID-19 epidemic made the tracking and tracing of goods and services a new priority for many businesses’ supply chains, and it has the biggest economic potential (US$962 billion). As investors and public scrutiny of sustainable and ethical sourcing increases, many businesses, from heavy sectors like mining to fashion brands, can benefit from blockchain technology. Payments and financial services, including the usage of virtual currencies or promoting financial inclusion through international transfers and remittances (US$433 billion). Blockchain may affect the economy by advancing less developed countries. Despite the digital revolution and progress that followed in more economically developed countries over the past 20 years, environmental rules, regulations, and infrastructural issues severely disadvantage less economically developed countries. For instance, the World Bank Group has acknowledged that the continent’s access to digital technologies—crucial for economic growth, educational advancement, and the continuation of public services—is severely restricted by the absence of broadband throughout the continent. Many developing countries lack the robust banking, internet, or electronic systems required to take advantage of the global digital transformation, but adopting blockchain technology and cryptocurrencies could be crucial to assisting these countries “leapfrog” — a process that involves utilizing new technologies to skip over traditional stages of infrastructure development and close gaps — and help these countries benefit from the global digital transformation (Getsmarter.com, 2022). To provide micro-loans to vendors in Kenya, IBM collaborated with Twiga Foods, an African business-to-business logistics network for kiosks and food stalls. These loans were designed to assist merchants in acquiring and controlling additional inventory. IBM’s contribution was building a blockchain-enabled loan infrastructure that could assess the creditworthiness of food providers. Blockchain technology has been utilized to track toxin levels in Nigeria, where efforts are being made to clean up the river belt. These statistics are necessary for the reporting requirements of the international organizations supporting these initiatives (Reiff, 2021). However, blockchain technology and cryptocurrencies may occasionally still be erratic. A nation that only uses cryptocurrencies may experience volatility. Although stable currencies are employed, the stable currency of the “terra” crypto ecosystem failed. Blockchain technology is already having an obvious impact on the world economy and financial policies. However, some of the consequences are harder to see. Worker replacement by efficient blockchain-based apps may increase unemployment rates in various industries. Of course, as cryptocurrency becomes more popular, the market’s volatility is having an increasing influence on global financial markets (Kriptomat.io, n.d.). The U.S. Treasury Department warned Monday that unregulated cryptocurrencies could pose a risk to the U.S. financial system. The warning was a part of the first major public report released by the Treasury’s Financial Stability Oversight Council on digital assets. The council identified digital or “crypto” assets such as stablecoins and lending and borrowing on the industry’s trading platforms as an “important emerging vulnerability.” “The report concludes that crypto-asset activities could pose risks to the stability of the U.S. financial system and emphasizes the importance of appropriate regulation, including enforcement of existing laws,” Treasury Secretary Janet Yellen said. “It is vital that government stakeholders collectively work to make progress on these recommendations.” Earlier this year, the Treasury Department issued a series of sanctions against Russian oligarchs, certain Russian banks, and other organizations for using crypto assets to evade sanctions. In September, the agency blocked all property in possession or control of U.S. persons for 22 individuals and two entities that helped digitally finance Russia’s invasion of Ukraine (Cox, 2022).

Secondly, the use of blockchain technology may negatively impact the environment. The New York Times claims that the yearly electricity consumption of the Bitcoin network is close to 91 terawatt-hours (91 TWh), which is more than that of nations like Finland. According to some reports, this amount is 150 TWh annually, equivalent to more energy than Argentina, a country with 45 million inhabitants (Clarke, 2022). Annualized power consumption from worldwide crypto-assets increased quickly between 2018 and 2022, according to projections. Published projections of the total yearly power consumption for crypto-assets as of August 2022 range from 120 to 240 billion kilowatt-hours, exceeding the total annual electricity consumption of several individual nations, such as Argentina or Australia. This is comparable to the yearly power use of all traditional data centers worldwide and represents 0.4% to 0.9% of the world’s total annual electricity consumption (Whitehouse.gov, 2022). The highest market capitalization cryptocurrency assets generated 140-30 million metric tons of carbon dioxide yearly (Mt CO2/y), or roughly 0.3% of the world’s annual greenhouse gas emissions. According to estimates, the U.S. cryptocurrency market generates 25 to 50 Mt CO2/y, or 0.4% to 0.8% of the country’s overall greenhouse gas emissions (Whitehouse.gov, 2022). Consensus mechanisms, such as the DLT needed to mine and validate crypto assets, are what fuel almost all of the power consumed by these assets. The blockchains of Bitcoin and Ethereum both employ Proof of Work (PoW), the most popular consensus algorithm. More than 60% of the market value of all crypto assets is made up of Bitcoin and Ether combined. This feature prevents hostile actors from assaulting the network by making the PoW method more computationally intensive as more entities seek to validate transactions for coin rewards. Ethereum is projected to account for 20% to 39% of all global crypto-asset electricity usage by August 2022, while Bitcoin is expected to account for 60% to 77%. In addition to using grid electricity that has been purchased, crypto-asset mining operations may also have an impact on nearby noise and water quality, electronic waste, air and other pollution from any direct use of fossil-fired electricity, and additional air, water, and waste impacts from all grid electricity usage. These local impacts can exacerbate environmental justice issues for nearby communities, which are frequently already burdened by other pollutants, heat, traffic, or noise. When not directly utilizing renewable power, the development of energy-intensive crypto-asset technology might make it more difficult for the United States to meet its NDC under the Paris Agreement and prevent the worst effects of climate change. The federal government must take steps to promote and guarantee responsible development as crypto asset acceptance increases, and new forms of digital assets may be introduced. This entails avoiding detrimental effects on neighborhood populations, dramatically lowering energy intensity, and using clean electricity as a source of energy (Whitehouse.gov, 2022). But according to (Clarke, 2022), on how mining cryptocurrencies on PoW networks impacts the environment, there may not be a firm consensus. To save energy and improve the environment, there has been a push to adopt blockchain. As a result, the utilization of renewable energy sources for bitcoin mining has increased by over 60% this year. Another use of blockchain is to lower atmospheric concentrations of greenhouse gasses like carbon dioxide. Blockchain technology is sometimes used with carbon credits to benefit the environment. According to R. A. Wilson, chief technical officer of 1GCX, a worldwide exchange for digital assets and carbon credits, to assert that Bitcoin is “bad” for the environment leaves out several subtleties and crucial discussions. Proof-of-work networks like Bitcoin and others use more energy than a proof-of-stake consensus algorithm. When examining and comprehending the energy usage of Bitcoin and blockchain in general, there are a few more factors to keep in mind (Clarke, 2022).

In conclusion, I think society should employ blockchain technology more frequently. First, it might increase global GDP by USD 1.76 trillion by 2030. (PWC, 2020). The capabilities of blockchain have several uses. Right now, it is already assisting nations with shaky economies. Where they previously would not have been able to, users from all over the world may now access banking services. People may utilize blockchain technology to receive these services, particularly in emerging economies where it is difficult to locate traditional banks (Reiff, 2021). Additionally, tax evasion, money laundering, and corruption may all be helped by blockchain. Although the blockchain may also influence the local noise level and water quality, electronic waste, air, and other pollutants from any direct use of fossil-fired energy, as well as extra air, water, and waste implications from all grid electricity consumption. However, switching from PoW to PoS mining may minimize pollution because it uses less energy than PoW-driven alternatives. On PoS blockchains, miners do not need to solve challenging riddles to demonstrate their work; hence, the processing power is substantially lower (Lunie.io, 2019). Before this research, I believed blockchain technology should be more widely used in society. After the research, my belief became stronger as blockchain would be highly profitable and efficient for economic growth. Although previous PoW mining leads to adverse effects on the environment, through time, blockchain technology will slowly move to PoS mining. My research has made me realize that blockchain technology may change the future with more benefits than drawbacks.

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