

# Harnessing Blockchain for American Business and Prosperity

*10 Use Cases, 10 Big Questions, 5 Solutions*

Kati Suominen

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## *Executive Summary*

Imagine running a restaurant and hearing about a food outbreak in your city stemming from contaminated spinach. You just ordered 200 pounds of fresh spinach to serve to your patrons. Wouldn't you love to be able to trace both the contaminated spinach and the spinach you just received to their origins to see if your spinach happens to be from the contaminated batch?

Now imagine running an airline. One of your paramount concerns is passenger and crew safety; another is speed of turnaround of planes at the gate. To accomplish both missions, you need to ensure each of the thousands of parts and components in your planes is top-quality and know which may need maintenance soon so you can replace them before they break down and cause delays. Wouldn't you love to be able to verify where each part came from, have access to a reliable certificate on its quality, and know how similar parts made around the same time by the same company are performing?

Next put yourself in the shoes of a corn grower in a region with extreme weather conditions. Your instinct is to insure your crop against Mother Nature's fury, but you also know that the insurance is expensive, and getting a claim paid can take a long time and might require an expensive lawyer. Wouldn't you love to have insurance that would automatically be paid when a devastating hailstorm damages your corn field?

Blockchain can resolve each of these challenges. Blockchain enables interactions among anonymous users without central authority, using tamper-evident data on those interactions that are visible to all users in real time. It is particularly useful in the many settings where there are large networks of players, high

intermediation costs, significant informational asymmetries among the players, and concerns about fraud and veracity of data. And it is already being adopted by startups, major corporations, and government agencies to solve complex business problems across such sectors as health care, energy, manufacturing, and financial services. Globally, there have been over 650 equity investments totaling \$2.1 billion between 2012 and 2017 in blockchain companies across industry verticals.<sup>1</sup> Fortune 500s such as Walmart and GE have made substantial investments in blockchain and participated in over 140 deals totaling \$1.2 billion.

The purpose of this paper is to review how blockchain can be used to solve complex business problems across various sectors and areas of life, to assess myths and challenges surrounding blockchain, and, in particular, to discuss what the U.S. government's policy should be regarding blockchain. This paper does *not* focus on Bitcoin or cryptocurrencies enabled by blockchain; rather, the focus here is primarily on enterprise blockchains—blockchain applications operated by a company or an organization for a specific community of users. This paper uses the term “blockchain” loosely to refer to a family of distributed ledger technologies.

There are three broad conclusions:

- **Blockchain has left the station, and it is becoming a bullet train that can unlock trillions of dollars in efficiency gains in the U.S. economy.** It is hardly a stretch to claim that blockchain can unlock trillions in new economic value through efficiency gains, greater transparency, trust, and customization. Blockchain can help businesses, individuals, and governments do many activities better and faster, such as accelerate product tracing and quality assurance in manufacturing, automate the verification and compliance with contractual obligations in international payments, secure individuals' medical records, open credit to segments of the population that previously needed to show high levels of collateral, create efficiencies in the many markets where buyers are inherently wary of sellers' motives and the quality of assets (such as in markets for used cars or for fine art), improve data sharing among border agencies, and accelerate customs clearance for imports.
- **Blockchain is still very nascent and it needs time and freedom to mature.** Blockchain is a foundational technology poised to transform social and economic interactions and business models across sectors. Though the technology's hype cycle may be peaking, its many potential uses such as smart contracts and digital identities are a work in progress. In that sense, blockchain is where the internet was in the early 1990s, a seminal technology whose full potential will become evident only in the next 10 to 20 years. Blockchain should not be regulated with blanket rules that stifle innovation; if anything, regulation, when considered, should be considered on a sectoral basis. While several states have developed laws around blockchain, for example, to define what “blockchain” is and to make smart contracts embedded on blockchains legally enforceable, private-sector demand for federal regulations or federal preemption of state laws are still limited. Besides, many laws in the books in such areas as privacy already apply quite well to blockchain.
- **The U.S. government needs to adopt a nuanced approach to regulating blockchain, and a forceful stance to promote the development and use of blockchain.** Given blockchain's enormous

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1. “Blockchain Investment Trends in Review,” CB Insights Research, April 13, 2018, <https://www.cbinsights.com/research/report/blockchain-trends-opportunities/>.

potential to unlock new value and generate productivity gains in the U.S. economy and globally, it is a high time the U.S. government adopt a more coherent and strategic approach to blockchain.

The United States should consider five measures for approaching blockchain:

- **Lead the development of global blockchain standards at the International Standards Organization (ISO) and beyond that encourage innovation and use cases involving blockchain applications, scalability of blockchain ecosystems, and integrity and usefulness of data and smart contracts built on blockchain.** Standards are critical for ensuring that blockchains are governed by common principles and can easily interconnect, interoperate, and scale. Several governments such as China, Japan, Russia, and Germany and intergovernmental organizations are analyzing and developing blockchain standards. For U.S. companies and the U.S. government, it is critical to play a leadership role and ensure that the many standards-setting initiatives drive U.S. interests and are complementary and coordinated, so that disparate standards themselves do not end up fragmenting the blockchain ecosystem. This coordinated approach and U.S. leadership are all the more relevant when blockchains cross borders and impact such issues as revenue collection or national security.
- **Enable blockchain innovation in the United States through regulatory certainty and flexibility, including via a blockchain sandbox and a safe harbor for blockchain platforms.** Surveys indicate that a major hurdle to blockchain development among businesses is regulatory uncertainty and opacity. Blockchain initiatives and companies cannot keep innovating if they worry that new regulations waiting around the corner might obliterate their investment. This concern needs to be addressed in three ways.
  - First, policymakers and businesses need to critically educate regulators in various sectors about blockchain and its uses; bringing regulators along early will set the table for open and frank communication.
  - Second, regulators can accelerate their learning by setting up a blockchain sandbox, where companies can bring new applications to market without having to comply with the gamut of regulations that might otherwise apply, and regulators can monitor their uptake and outcomes and create regulations if and when legitimately needed. Sandboxes are widely used around the world to enable fintech applications to deploy quickly with temporary regulatory authorization for a certain period of time.
  - Third, regulators and lawmakers can consider for blockchain a similar safe harbor law as was created in the 1990s for internet intermediaries, via Section 230 of the Communications Decency Act. The law exempted intermediaries such as social media and e-commerce platforms from liability for user-generated content on their platforms. The law is widely regarded as a key to the growth of the online U.S. economy and angel and venture capital investments in internet services. Such a law could include provisions for states to be able to override the safe harbor in cases of malign uses of blockchain.
- **Commit federal funds to accelerate blockchain development, use cases, and public-private partnerships in such areas as defense, counterintelligence, customs and border protection, trade enforcement, and health care management.** Many U.S. government agencies from Health

and Human Services to Customs, Treasury, and Defense have considered blockchain use cases or invested in blockchain applications to improve their own processes and products. Now it is time to systematize and amplify these efforts by encouraging agencies to pursue blockchain innovation and use and public-private partnerships to apply blockchain in creative ways. Several other governments have made significant investments in promoting blockchain. For example, the European Commission plans to invest another €300 million in blockchain by 2020, and the Chinese government is aggressively investing in blockchain; for example, two cities, Nanjing and Hangzhou, have recently launched blockchain funds totaling \$3.1 billion.<sup>2</sup> The United States needs to step up if it wants to demonstrate leadership in the development of what is possibly the most seminal technology of the twenty-first century. In light of the threats posed by private and governmental bad actors to blockchains, some of this funding needs to go to identity issues, blockchain security, and encryption technologies to ensure a robust and secure U.S. blockchain ecosystem.

- **Create with key allies and development partners a Global Blockchain Development Fund (GBDF) to accelerate the uptake of blockchain in developing countries, thereby improving business environments, advancing the UN’s 2030 Sustainable Development Goals, and opening new opportunities for U.S. technology companies in developing economies.** U.S. businesses and government stand to gain from the efficiencies, transparency, and security that blockchain offers in developing nations—for example, to combat red tape, corruption, and inefficient processes. Blockchain can also critically help attain the UN Sustainable Development Goals for 2030, a set of targets that many U.S. and foreign companies have pledged to help attain. As such, the United States should work with long-standing development partners such as the United Kingdom, Japan, Australia, Germany, Netherlands, and the Nordic countries to create a GBDF that provides funding for businesses, non-profits, and multilateral development banks to catalyze creative, high-impact blockchain pilots in developing economies that create market-driven networks and solutions that have lasting impact after the support of a donor ends. Such a common facility would also enable the donor countries to coordinate efforts and ensure strategic, high-impact investments in a set of key sectors with high inefficiencies and great development impacts such as trade, health, and energy—rather than duplicating efforts and spreading resources thinly.
- **Accelerate blockchain’s adoption through raising awareness about the benefits of blockchain among regulators, federal and state government agencies, and businesses.** Blockchain applications will catch on with the U.S. public if they enable people to do things cheaper, faster, and better—just like online search and email caught on in the 1990s. Just as an internet user did not need to understand how the internet works in order to grasp the benefits of email, a blockchain user does not need to understand how blockchain works to trade a house’s excess energy to another house via a blockchain. However, education is critically needed among public officials and regulators and U.S. businesses. In voting, for example, public officials will need to have a much more knowledge about the technology’s benefits in order to apply it. Government agencies such as the Small Business Administration (SBA) and the Department of Commerce could develop campaigns to raise awareness about blockchain and its benefits with U.S. business, and the White House can coordinate awareness-building across federal agencies.

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2. Georgi Gerogiev, “China’s Nanjing City Launches \$1.5 Billion Blockchain Investment Fund,” Botcoinist, July 25, 2018, <https://bitcoinist.com/chinas-nanjing-city-launches-10-billion-yuan-1-5-billion-blockchain-investment-fund/>.

Blockchain is a seminal technology that can catapult the world to a new growth path and become a marvel of twenty-second century economic historians. But it will not create value on its own: it requires the ingenuity of entrepreneurs and intrapreneurs and investments by businesses. These players in turn need a hospitable environment and funding to cultivate blockchain innovations, accelerate the development of new blockchain use cases, and ensure proliferating blockchains can interoperate. These are what the United States government now needs to offer.

*Kati Suominen is an adjunct fellow with the Europe Program at the Center for Strategic and International Studies in Washington, D.C.*

*The author would like to thank Andrew Chatzky for excellent research assistance, William Reinsch and all participants in the workshops on July 26 and September 13, 2018 for outstanding comments and ideas, and Jonathan Robison for superb project management.*

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