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Editor's Note: Stablecoin
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Everything Is Not *Terminator*: The Federal Government and Trustworthy AI
John Frank Weaver

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The Journal of Robotics, Artificial Intelligence & Law
Volume 4, No. 3 | May–June 2021

161 **Editor's Note: Stablecoin**
Victoria Prussen Spears

165 **What 2021 Has in Store for Stablecoin**
Robin Nunn, Sarah V. Riddell, and Steven Lightstone

185 **U.S. State Department Issues Human Rights Compliance Guidance for Products and Services with Surveillance Capabilities**
Michael R. Littenberg and Anne-Marie L. Beliveau

199 **The Impact of COVID-19 on Blockchain Advancement**
Keith B. Letourneau and Vanessa DiDomenico

205 **FAA Releases Two Final Rules to Advance Drone Integration**
Joel E. Roberson, Anita M. Mosner, Marina Veljanovska O'Brien, and Ben Slocum

213 **NHTSA Proposes Rule on Safe Deployment of Self-Driving Vehicles**
Rebecca Baden Chaney and Rukiya Mohamed

219 **Facial Recognition, Racial Recognition, and the Clear and Present Issues with AI Bias**
Daniel C. Wood

223 **Digitalized Discrimination: COVID-19 and the Impact of Bias in Artificial Intelligence**
Michael S. Horikawa

227 **Everything Is Not *Terminator*: The Federal Government and Trustworthy AI**
John Frank Weaver

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The Impact of COVID-19 on Blockchain Advancement

Keith B. Letourneau and Vanessa DiDomenico*

The need for blockchain technology recently was amplified when a single microbe showed just how interconnected the world is and how fragile supply chain networks and logistics providers are when unexpected demand for critical goods arose due to the COVID-19 pandemic. The authors of this article discuss blockchain use during the pandemic and believe its true potential remains ahead of us, but its need in creating secure supply chains is now.

Blockchain technology ensures security and transparency within transactions. The endless possibilities and solutions that blockchain can provide to a multitude of industries and consumers created a surge of interest over the past several years. Recently, the need for blockchain technology was amplified when a single microbe showed just how interconnected the world is and how fragile supply chain networks and logistics providers are when unexpected demand for critical goods (personal protective equipment and testing kits) arose due to the COVID-19 pandemic.

Global Supply Chain Disruption

The various levels of regulations imposed by national and local governments throughout the world because of COVID-19 concerns delayed and disrupted virtually all supply chain networks. For example, customs clearance processes have become more laborious and many factories have converted into producers of essential equipment, resulting in the delayed assembly of integral components relied upon by other manufacturers.

Before the global pandemic, companies were racing to become as lean as possible, cutting costs and sourcing multiple components from a variety of manufacturers in different countries. Reducing the costs of making a product would allow for more profit. Producers and manufacturers used complex supply chain networks to maximize comparative advantage strategies. Often, products would be shipped to another country merely to perform a certain task, or

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to simply add a singular component, and then the item would be returned to origin for sale to a consumer.

For example, Alaska exports approximately three-quarters of its freshly caught salmon to China—some of which is sold to Asia, but the majority is processed in China and then returned to the United States. "Because foreign labor is so cheap, many Alaskan salmon are caught in American waters, frozen, defrosted in Asia, filleted and boned, refrozen and sent back to us."[1] Many textiles, electronics, and other types of goods make this round trip journey as well, complicating supply chains and logistics networks if stressors are encountered along the way. An Apple iPhone is a prime example of how one item, comprised of hundreds of pieces, travels 500,000 miles before the finished product ultimately ends up in the consumer's pocket.[2]

The world has relied on globalization to achieve the benefits of these complex supply chains; however, countries and companies worldwide have been forced to take a closer look at their sourcing strategies during this pandemic because of serious bottlenecks, halted assembly lines, and the unavailability of critical supplies. Also, engaged citizens have started movements to "source locally" due to the delays and disruption from foreign suppliers crippled by COVID-19 demands. A *Logistics Management* article summed up the impact:

> The recent debate between onshoring and offshoring is more than just the trade-off between price versus speed (and quality). The debate has proven to be about nationalism. In the post-COVID world, there will be a strong desire to bring the supply chain onshore or nearshore in the name of resiliency, reduced risk, faster delivery and, for many governments, national security.[3]

Blockchain Disruption and Delays

COVID-19 not only hindered the movement of goods and people, it also slowed the advancement of blockchain technology itself. One blockchain developer, ChinaNet, shared that the company experienced setbacks due to the virus. The CEO of ChinaNet, Handong Cheng, recently said:

> The outbreak of COVID-19 and related policies implemented by local governments significantly impacted both our business schedules as well as our suppliers' and customers' business schedules in the first fiscal quarter of 2020 .... Nevertheless, despite this momentary setback, we continued to lay the groundwork for our initiatives in healthcare industry advertising, blockchain technology development, and the integration of artificial intelligence with data analytics.[4]

In addition to a downturn in blockchain investments and delays in project developments, major blockchain and cryptocurrency conventions had to be postponed and even cancelled because of the pandemic. These events aid in the education and marketing of blockchain technology.

However, this "temporary slowdown" should wane and blockchain investments recover when the pandemic subsides.[5] "While the current disruption may present challenges to the blockchain industry in the short term, it will also unlock new opportunities in the mid- and longer-term."[6]

As supply chains, companies, and governments work to combat the pandemic and jump-start economies, blockchain could aid in government contract procurements of vital medical goods, as well as securing elections and voting processes, and cross-border financial transactions.

Specifically relating to the pandemic, blockchain technology developers are working to create solutions to track drug supply chains, medical supply chains to reduce counterfeit masks, donations, and medical insurance claims.[7]

Technology Moves Forward

While there may have been delays due to office closings and cash flow constraints from potential blockchain technology customers, blockchain technology is moving forward. "During 2020, blockchain will continue to grow in the finance sector, ahead of other industries. Applications such as food tracking, goods authentication, and storage of sensitive data involve significant regulatory work to tie real-world objects to their tokenized equivalents."[8] Specifically, because more people are remaining at home during

the pandemic, the use of blockchain as a digital currency in online gaming will increase.[9]

Another "significant breakthrough in this area that we'll see is the application of blockchain's fundamental technology to sovereign currencies."[10] China and Sweden are two countries interested in this possibility.[11] In the United States, the Federal Reserve is investigating the potential of a central bank digital currency as the backbone for a new, secure real-time payments and settlements system, but the legal framework and regulations have not been enacted yet.[12] Further, there will be greater consolidation among blockchain developers because many start-ups were not prepared financially for the coronavirus crisis.[13]

A New Normal in the Maritime Industry

Blockchain promotes exactly what is needed in the "new normal" world: trust, resilience, and transparency to supply chains, producers, and consumers. Global supply chains require open borders and marketplaces. "Blockchain technology will play a critical role in the digital transformation of supply chains emerging in a post-COVID-19 world."[14]

In particular, "the coronavirus lockdown has accelerated a digitalization drive in a global shipping and logistics sector that still routinely delivers many documents by bike messenger in some countries, according to industry leaders."[15] In 2019, Maersk partnered with IBM to create a blockchain shipping tool called TradeLens, which is currently operating in more than 200 ports.[16]

Recently, Dubai-based ports operator DP World announced its plan for its 82 container terminals to join APM Terminals and other shipping conglomerates, Hapag-Lloyd, Ocean Network Express (ONE), CMA CGM, and Mediterranean Shipping Company (MSC), on the blockchain platform.[17] "'The situation around the coronavirus is a very good catalyst for making sure everyone in the supply chain can communicate with each other digitally,' Mike Bhaskaran, DP World's chief operating officer for logistics and technology, told *Reuters*."[18]

While Maersk is calling on other maritime companies, freight forwarders, ports and terminals, and customs authorities to join the blockchain platform, TradeLens "has yet to reach a 'critical mass' to make a significant impact."[19] For all stakeholders to obtain the

benefits of the ecosystem, more actors are needed to contribute data and transactions to the platform.

Blockchain can also aid in supply chain audits, facilitate accurate shipping data, assist in transaction settlements, reduce human error, automate purchasing, enforce tariffs and trade policies, reduce counterfeit goods, and provide food safety information.[20]

Final Thoughts

The pandemic highlighted the weaknesses in global supply chains, dangerous dependence on individual producers, and underscored the need for the transparent, uninterrupted movement of goods from trusted suppliers. The pandemic is not a call to close borders and cut ties with global supply chains; instead, it is an opportunity to integrate processes, link data, and share information.

Blockchain technology is rich with potential and the delays caused by COVID-19 will not stop its momentum to create secure ecosystems. As the world reemerges, blockchain developers are working to break down informational silos, help construct impervious supply chain networks, and encourage everyone to contribute to society's betterment. Blockchain's true potential remains ahead of us, but its need in creating secure supply chains is now.

Notes

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