

Commercial Customs Operations Advisory Committee (COAC) Government Issue Paper: Emerging Technologies

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U.S. Customs and
Border Protection



Office of Trade/Trade Transformation Office
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Action Required: Informational

Background:

- CBP is working closely with the private sector and the Department of Homeland Security (DHS) to explore the application of blockchain technologies to the trade process.
- Blockchain is a digital ledger that provides a secure, tamperproof and permanent record of transactions. CBP believes this technology has the potential to become a major component in the supply chain for the movement of goods and facilitation of entry into the United States.
- As projects are developed to assess the application of blockchain technologies, CBP focuses on these business goals:
 - Develop a transparent supply chain from beginning to end
 - Identify legitimate actors
 - Reengineer and rethink outdated business processes
 - Adopt a team mentality to collect data directly from the source
 - Replace paper processes with digitized data
- CBP's end goals for every blockchain project are:
 - Obtain data earlier in the process
 - Enhance safety and facilitation
 - Improve reporting/targeting/predictive analysis
- So far CBP has demonstrated promising results, including accelerating cargo processing, expediting communications and supporting enhanced enforcement activity.

Issue:

- In September 2019, CBP completed the IPR blockchain proof of concept (POC), which demonstrated how blockchain technology can protect IPR on American imports and sensitive information transmitted between multiple parties using a single, streamlined platform.
- CBP and DHS are also seeking opportunities to implement blockchain in production to streamline and enhance processing of commodities such as pipeline, steel and timber.
- In addition to blockchain, CBP is researching other technologies that could become useful to trade in the near future. These technologies include Artificial Intelligence (AI), machine learning, and augmented reality. CBP recently ran a test on augmented reality to look at its ability to help protect IPR on American imports.

Current Status:

- The IPR blockchain POC aimed to enhance the process of exchanging data with IPR holders and other trade partners during the IPR examination and seizure process. A final report detailing the results of the IPR blockchain POC was shared with the working group in February 2020. Key outcomes included:
 - Blockchain technology combatted potential IPR violations by allowing CBP to exchange data securely and efficiently with manufacturers, retailers, rights holders and importers.
 - Blockchain's single access point concept provided the agency with the technology to connect the data correctly to the product and to the license, resulting in fewer physical examinations. This was accomplished via blockchain interoperability, which enabled organizations with distinct

blockchains to communicate regardless of differences in software used by each. This allows companies the flexibility to select and customize technology that suits their specific needs.

- This POC was a first-of-its-kind test of standards and specifications to facilitate blockchain interoperability using open, standardized approaches.
- At the beginning of the year, CBP conducted an augmented reality POC
 - This POC tested users' the ability to see legitimate products in a virtual space instead of looking at product guides.
 - The technology allowed inspectors to quickly identify discrepancies between the 3D renderings and a counterfeit version of the product physically in the room.
 - CBP has the potential to use this technology on any products recorded with CBP for protection of intellectual property.
- In November 2019, in conjunction with DHS S&T, CBP kicked off three Silicon Valley Innovation Program (SVIP) blockchain commodity-based projects (pipeline, steel, and timber). They are currently in the first phase of development, which is anticipated to last six months. Results of the first phase will determine whether each project will continue onto subsequent phases. CBP and DHS are looking into opportunities to implement blockchain in production to streamline and enhance processing of these commodities.
- Via these commodity-focused projects, CBP seeks to achieve these objectives using blockchain:
 - Reduction of paper
 - Data receipt earlier in the process
 - Supply chain transparency
 - Entity identification
 - Facilitation

Next Steps:

Blockchain

- With regard to future blockchain efforts, CBP and DHS are looking into the possibility of additional SVIP blockchain projects. Currently, CBP is looking at a project that would utilize blockchain in food safety. A food safety blockchain would have the potential to:
 - Enhance the visibility of food supply chains (from farm to point of purchase)
 - Enable the application of appropriate duties
 - Reduce spoilage and waste
 - Reduce paper documents
 - Expedite inspection times
 - Enhance targeting

Augmented Reality

- CBP is exploring the possibility of testing of augmented reality to evaluate higher complexity goods, like electronics. Other potential uses include integrating with existing trade processing workflows and pairing with cognitive services like object recognition for product packaging.

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