Workshop: Blockchain Technology Fundamentals and Use Cases in Transportation

April 29, 2019; 1:30-4:30 PM, Stella Hotel, Bryan, Texas
https://events.tti.tamu.edu/conference/ttc19/

Hosted by TTI's Innovation Hub http://innovation-hub.tti.tamu.edu

Speakers:
Ginger Goodin, TTI
Rajat Rajbhandari, TTI
Chris Ballinger, Mobility Open Blockchain Initiative (MOBI)
Jorge Lecona-Murillo, Hutchinson Ports Mexico
Tyler Milligan, Milligan Partners
Juan Garay, College of Engineering, Texas A&M University

Total Duration: 3 hours

Brief Description:

The purpose of this session is to introduce the transportation community to blockchain technology and to discuss recent advances as well as potential use cases in transportation including mobility, logistics, and supply chain. This workshop will investigate how this emerging technology could transform mobility, facilitate micropayments, revolutionize cybersecurity and insurance, and enable trusted M2M communications without requiring either a trusted third party.

The workshop will include presentations from leading experts in the cross section of blockchain and mobility and provide an open forum for participants to discuss future opportunities as well as implementation issues and challenges. The expected outcome of this session will be a list of research needs and opportunities.

Goals/Outputs:
- Introduce the transportation community to fundamentals of blockchain technology.
- Explore potential use cases—and provide an update on mobility blockchain initiatives.
- Discuss challenges in implementing innovative business models involving blockchain in tolling and pricing.
- Identify potential research needs statements.

Format:
- Workshop Introduction/Participant Introductions – Ginger Goodin, TTI

- Blockchain Fundamentals – Rajat Rajbhandari, TTI

- o Fundamental elements of blockchain technology, including consensus, network of nodes, distributed data, and cryptography, potential to disrupt many industries including transportation and logistics using micro transactions, tokenization of assets, provenance of decisions, stable tokens, horizontal collaboration.

- Use Cases in Mobility - Chris Ballinger, MOBI

  - o Mobility related use cases being pursued and developed by private and public entities to solve specific problems.

- Blockchain in Ports - Jorge Lecona-Murillo, Hutchison Ports Mexico

  - o Discuss how third largest port in Mexico (Port of Veracruz) is using blockchain technology to improve port operations by building a blockchain powered port community system.

- BREAK

- Blockchain in Tolling

  - o Tyler Milligan, Milligan Partners

    - o How blockchain can be used in tolling; the benefits, technical and institutional challenges

  - o Juan Garay, TAMU

    - o Use of Smart Contracts and Micropayments for Various Tolling Use Cases – Demo

- Breakout table discussions and reporting

  - o Tolling/pricing implementation opportunities and challenges, research gaps

  - o Ports implementation opportunities and challenges, research gaps

  - o Mobility use cases – most promising, implementation aspects, research gaps