

OP-ED

Land ports of the future: Where are we heading?

By Daniel Covarrubias

Land Ports of Entry (LPOE) refer to the facilities through which entries or departures, to and from the United States, of persons, vehicles, cargo, and materials occur in a controlled and supervised manner by U.S. Customs and Border Protection and other federal inspection agencies responsible for the enforcement of federal laws.

According to the General Services Administration (GSA), there are 167 LPOE on the United States borders with Canada and Mexico. Data compiled by the Texas Center for Border Economic and Enterprise Development (TCBEED) calculates over \$1 trillion of trade, over 130 million people, 62 million cars, 12.5 million commercial trucks, and 3.5 million railroad cars processed annually through the U.S. southern and northern border LPOEs.

A significant amount of activity occurs daily at these ports. TCBEED data shows us that annually, in Laredo alone, \$250 billion of trade, 7.8 million people, 3 million passenger vehicles, 2.5 million commercial trucks, and 500,000 railroad cars are processed. Major ports of entry have seen exponential increases through the last 10 years, with Laredo, the most important land port for commercial vehicles, seeing a 60% increase in traffic. San

Ysidro, a Port of Entry near San Diego, CA., and the most crucial land crossing for passenger vehicles, is experiencing an increase of about 15%. The nearby Eagle Pass LPOE has seen an increase in loaded train containers of 93% in the past 10 years.

Regrettably, this exponential growth and LPOEs' importance for world trade and people and vehicles clearance does not always correlate to being up to speed on the latest technologies. Two of the big four consulting firms, McKinsey & Company, and Deloitte, have identified several challenges posed to land ports: the increasing complexity of operations, increased pressure on security and faster processing, slower adoption of automation against comparable sectors, and transformation into environmentally cleaner and more efficient facilities.

Smart infrastructure, innovation, and technological development will shape land ports of the future, and help them solve the challenges shared above. Digitalization, automation, advances in technology, cybersecurity, data access, and environmental awareness are changing the landscape of securely moving cargo, and people across borders.

Trends for the future of LPOE can be divided into two main drivers: infrastructure and technology. Today, let's examine the

technological drivers shaping the future of land ports.

In a previous column here, I presented the concept of Logistechs. I defined it as representing the impact that exponential technologies have on logistics, and can be classified as the technologies that support the transport of goods -- those that improve their handling, and those that expedite their customs clearance. Let's use the framework of Logistechs to analyze the impact that technologies will have on LPOE.

First off, let's analyze the transport of goods. Two leading exponential technologies can produce significant efficiencies concerning transportation: autonomous (driverless) vehicles and the Internet of Things (IoT). Autonomous vehicles have fewer adverse environmental impacts and raise safety standards. They increase transport efficiency by having better capacity utilization and autonomously moving goods within land port facilities, and across international borders -- allowing for a complete security screening process. LPOE demand an efficient network of people, computers, and devices, working together to securely clear cargo and persons and avoid delays. IoT sensors permit transportation and traffic pattern data for people, passenger, and commercial vehicles, and railroad cars to be gathered. This data can then be



Courtesy photo/TAMIU

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analyzed, helping produce higher efficiency, speed, throughput, and quality in border crossings.

Exponential technologies can also impact the handling of goods at LPOEs. Technologies such as artificial intelligence (AI), predictive analytics, robotics, and automation reduce the costs of handling, and inspecting goods, and people at LPOEs. Optimization models can be generated using predictive analytics and AI to minimize border crossing wait times -- while at the same time increasing the screening and security capabilities at LPOEs. Automation and AI permit LPOE's security agencies to evaluate travelers and cargo using intelligent sensors that integrate technological advancements in traveler, and cargo processing. The use of biometric screening and non-intrusive inspection devices aid agencies in detecting security hazards. Machine learning algorithms can better anticipate threats, and program resources as needed.

Finally, blockchain, together with AI, big data, and predictive analytics,

can reshape customs clearance processes at LPOEs. Blockchain increases the traceability of materials within supply chains, improves visibility, and compliance, and reduces paperwork, and administrative costs by reducing physical inspections. It allows businesses and port authorities global shipment visibility, generating total linkage between manifests and invoices, allowing for the supervision of the entire logistics process, and data-sharing across multiple customs organizations and users. This exponential technology enhances collaboration between government agencies, and corporate entities, expanding opportunities to work jointly to address new security and efficiency challenges.

To further this conversation and promote and generate supply chain, logistics, and land ports research, Texas A&M International University (TAMIU) will host the Land Ports of the Future Workshop March 24 - 25.

The Land Ports of the Future Workshop is a joint effort between the Texas Cen-

ter for Border Economic and Enterprise Development at TAMIU, the Cross-Border Threat Screening and Supply Chain Defense Center of Excellence, and the Texas A&M Transportation Institute (TTI). This Workshop will serve as a binational meeting of federal, state, and local government with private sector supply chain stakeholders and academia to identify the studies and applied research that will advance land port function and trade through people, programs, infrastructure, and technology.

Interested? Please register and attend this free workshop open to all. Registration is underway through Tuesday, March 15. To register, please visit: <https://events.tti.tamu.edu/conference/land-ports-of-the-future-workshop/registration/>

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