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Is Logistics 4.0 the answer to our supply chain woes?

By Daniel Covarrubias

We live in one of the most dynamic logistics regions in the world, Port Laredo. Port Laredo is the No. 1 inland port on the United States and Mexico border. According to data compiled by the Texas A&M International University Texas Center, every year, more than 4.5 million trucks, representing over 400 billion dollars in trade, are efficiently managed through this border crossing.

Many businesses in our region are directly involved in global supply chains and have recently been impacted by different supply chain strains that have arisen from a great variety of sources: weather, port backlogs, computer chips and material shortages, among others. Together with technological advances and changes in international trade policies, these supply chain woes have forced global companies to reevaluate their competitive advantages. Today we'll present one alternative that companies are exploring to further their competitiveness and efficiency: Logistics 4.0.

The Fourth Industrial Revolution, also known as Industry 4.0, is changing how businesses operate and the environments in which they participate and compete. This industrial revolution highlights the use of exponential technologies such as blockchain, cybersecurity, data analytics, artificial intelligence, augmented and virtual reality, and the Internet of Things. Industry 4.0 advances the convergence and integration of these digital-based technologies in designing new in-

dustrial and supply chain models, capable of competing both in flexibility and cost. This accelerated convergence effect is the main reason exponential technologies will significantly impact our lives. This effect occurs when the different technologies grow exponentially, and their growth curves begin to intertwine. These interactions are what allow us to race towards the digital transition.

Logistics 4.0 is a concept that has emerged from Industry 4.0. It refers to new advancements in the sector where exponential technologies play a crucial role. Speed, competitiveness, productivity and timing have always been essential in logistics. Today, as supply chains become increasingly complex with more participants, there are endless documents to verify and lengthy processes to follow. Exponential technologies are vital in handling, treating and analyzing information and managing physical processes. These advances translate into continuous improvement of the supply chain. Logistics 4.0 optimizes the processes involved across the supply chain, from demand forecasting to route planning. The goal is to achieve greater efficiency and raise the level of customer satisfaction.

Some examples of how these technologies are currently being used are as follows. Within the logistics sector, where each part of a supply chain is connected, blockchain is being used to accelerate the verification processes. This technology is expected to reduce human errors during long logistics processes and ensure

reliability at every step of the supply chain.

Gartner, a leading research company, estimates that the business value added by blockchain will grow to surpass \$3.1 trillion by 2030. IoT devices and big data analytics are helping vendors and customers determine inventories spread across the globe. Companies are implementing robots to perform repetitive and simple warehouse work. With Virtual Warehouse Systems, warehouse managers will know the current status of their warehouse remotely. Additionally, autonomous trucks, drone delivery and other advanced technologies and services will significantly impact Logistics 4.0.

The current pandemic has increased the need for logistic companies to use AI and advanced analytics applications to examine the large amounts of data they generate. This data management and processing allows companies to better understand their customer's needs. Gartner expects more than 50% of supply chain companies to invest in AI and data analytics applications by 2024.

Logistics 4.0 presents challenges and opportunities for international trade businesses. There is an increasing interdependence between using technological developments in firms and implementing corporate strategies and achieving strategic objectives. According to the McKinsey Global Institute's Automation Impact Model, 55% of jobs in transportation and warehousing are susceptible to automation, making it the third sector with the most replaceable jobs.



Because of this, organizations must identify the exponential technologies that best meet their needs and invest in them to gain competitive advantages. Logistics 4.0 holds the promise of a new revolution that combines advanced production and operations techniques with smart technologies which will integrate into organizations, people and assets. Companies risk losing market share if they are not open to adopting Logistics 4.0.

In this everchanging

work environment, the companies that will survive will not be the strongest, nor the most intelligent, nor will they have the best talent. They will be those that best adapt to change – those that can adjust the fastest to the changing contexts in which they interact.

The fourth industrial revolution is here to stay, and it is impacting different sectors within global economies. The logistics sector is rapidly on the move, and it is one of the sectors currently being

transformed by Industry 4.0. Exponential technologies facilitate logistics companies moving toward a more data-driven service and converting supply chains into more collaborative network structures.

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