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From Ship To Shore: How AI Will Transform The Container Shipping Industry

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With a mostly steady rise in imports and exports over the years, our nation's shipping ports are playing a much bigger role in today's globalized economy than they were just a decade ago. The shipping industry is now responsible for more than one-fourth of our total GDP, with the Port of Los Angeles (aka America's Port) and Port of Long Beach being the busiest — handling more than 40% of all inbound cargo shipped to the U.S.

Needless to say, operational efficiency is paramount for these ports, as delays could cause a domino effect in the distribution process and disrupt the entire supply chain. Unfortunately, with the entire economy grinding to a halt thanks to the Covid-19 pandemic, many points of the supply chain were threatened, the ports included. With fewer workers at the receiving-end distribution centers and warehouses (due to social distancing measures and virus outbreaks), fewer shipping containers were on the move (known as drayage), increasing the total "dwell time" of containers sitting idle.

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These delays swelled into ground zero of a chassis shortage and dislocation problem, crippling our nation's largest port. Without a chassis, a trailer or undercarriage used to transport shipping containers on the road, terminal operators are unable to move containers onto outbound trucks, throwing a wrench into the entire supply chain.

This problem is amplified when restrictions are placed on the return of empty containers and truckers struggle to book dual transactions. Dual transactions meaning drivers bring in a container to a port (either returning an empty one or dropping off an export load) and in the same trip pick up another container (either an import coming off a ship or an empty container to bring to a distribution center to load with exports). The chassis chaos also ensues when shippers and steamship lines offer a "free chassis day" on the day a

shipment arrives. These chassis are frequently returned late, accruing demurrage fees, often in the thousands of dollars per container. This leaves carriers with a set of chassis that aren't always readily available, limiting their earning potential and productivity.

So how could America's largest ports have prevented the chassis shortage and dislocation problem in the first place? By using artificial intelligence (AI) to improve its chassis utilization rates and guarantee dual transactions.

An AI-enabled port ecosystem can help increase communication at all points in the supply chain, from the beneficial cargo owners (BGOs) to the terminal operators, to the third-party logistics providers and drivers, as well as warehouse workers. Using AI to spot patterns in the logistics supply chain offers valuable insights, predictions and allows for greater planning to improve efficiency in the movement of goods.

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Running efficient ports makes it cheaper for the cargo owners to transport their goods, with cost savings often pouring over to the consumers in the form of smaller sticker prices. Efficiency isn't as easy as bringing in more truck drivers to swiftly load and unload cargo. In many cases, marine terminals are limited on space due to city zoning restrictions, capping the truck capacity at any given time.

Instead, terminal and independent operators should look to integrate new technology to help maximize port operational efficiency and chassis management. More specifically, they should turn to AI solutions to:

• **Better track containers:** AI can help prioritize which containers should be taken off the ship first (e.g., those filled with perishable goods or have guaranteed one-day shipping). Through data analysis and deep learning techniques, AI provides more efficient tracking of containers than human operators and can best optimize their movement from the start of the supply chain.

• **Better match drivers to containers:** Using AI predictive modeling, container-to-driver matching can be automated in a way that is mutually beneficial for shippers and drivers. For shippers, this optimization could help save them money. For truckers, it helps with scheduling, improving their productivity and total earnings.

• **Better manage capacity issues:** AI can also help maximize the time trucks have at a port, ensuring truckers can complete dual transactions and not miss appointments. The leave-one (container), take-one (container) approach helps with terminal capacity issues and chassis utilization so that no driver leaves a port with a bare chassis. This, in turn, benefits the environment, optimizing the in-and-out traffic at ports and eliminating empty truck bed routes from the equation.

While AI integration is starting to gain traction in ports in the form of data-sharing port community systems (PCS), there is still work to be done to improve efficiency. A PCS allows various parties such as port authorities, terminal operators, carriers and BGOs to

share data, insights and predictions through an AI-enabled interface.

Next steps would be to layer in track-and-trace technology for owner-operators and sanction a more modern programming language such as APIs to help solve the electronic data interchange issues.

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