

Key Technological Drivers of Change in Transportation

TELEMATICS IN TRUCKING
DIGITIZATION OF AIR-FREIGHT FORWARDERS
BLOCKCHAIN IN MARITIME SHIPMENTS

Telematics in Trucking



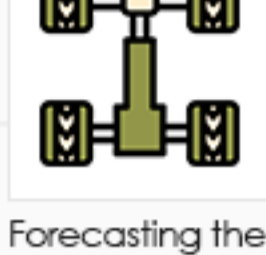
Telematics means tracking, storing, and analyzing vehicle data.

Why it matters: Telematics provide real time and broad data that allows for optimizing fleet management.

Key aspects of implementation:



Dynamically choosing the best route to reduce drive time



Forecasting the need of service in advance to avoid unplanned downtimes



Tracking driving habits and addressing dangerous ones with additional training



Finding idle trailers to reduce under-usage

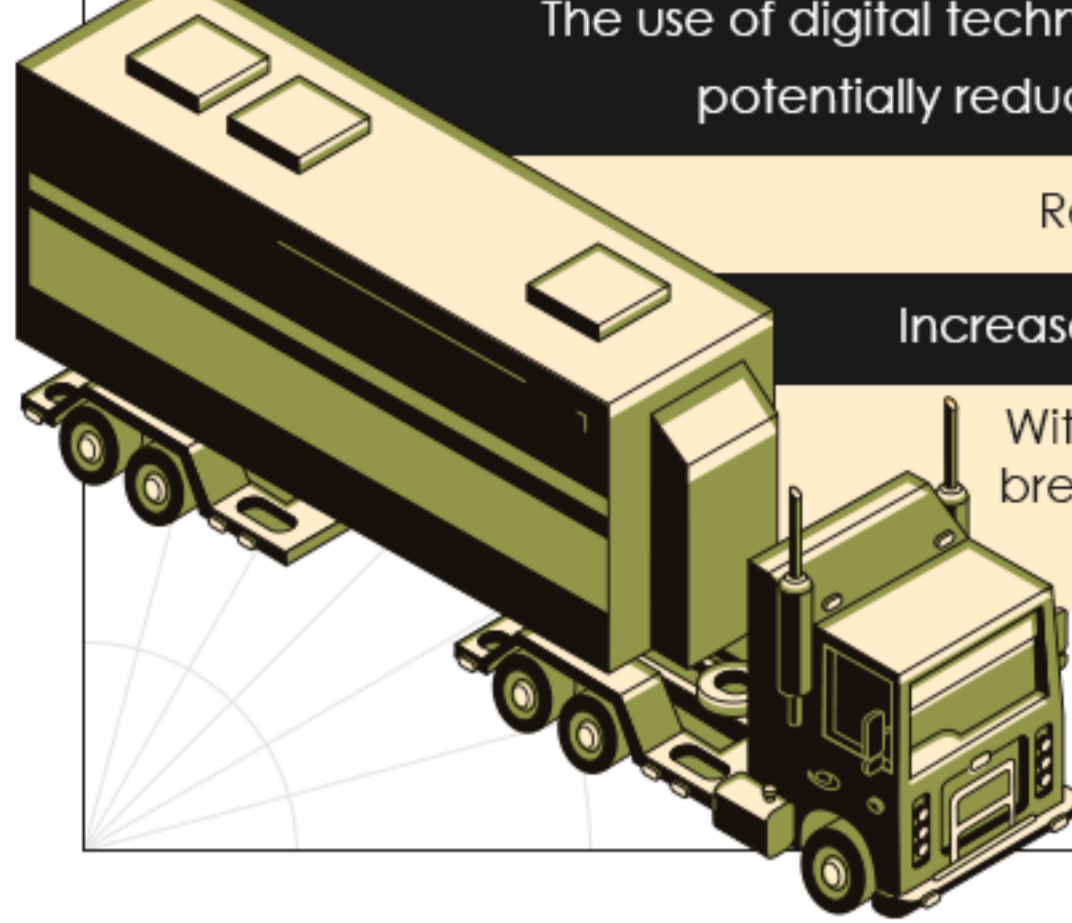
Potential impact:

The use of digital technology with telematics can potentially reduce truck demand by **10%**

Reduce crash rate by **20%**

Increase highway speed by **42%**

With predictive maintenance breakdowns can be reduced by **75%**



Digitization of Air-Freight Forwarders



Digitization of air-freight forwarders entails shifting from telephone- and email-based processes to digital ones in front- and back-end operations.

Why it matters: Digitalization reduces time and cost of back-end operations by automating booking processes.

Key aspects of implementation:



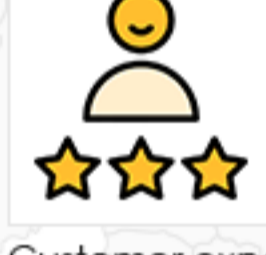
Booking process automation



Creating digital booking platforms



Real-time cargo tracking, capacity visibility, and routing



Customer experience personalization

Potential impact:

Back office-operations cost reduced by up to **40%**

Carriers' share increase by up to **15%**

Price and delivery transparency

Better customer experience

Instant freight quotes



Blockchain in Maritime Shipments



Blockchain is a distributed and secure implementation of data exchange.

Why it matters: Blockchain allows for information transparency and coherency. In shipments, the technology capable of simultaneously connecting multiple parties of the global shipping ecosystem.

Key aspects of implementation:

IBM and Maersk launched TradeLens, a blockchain-based shipping system, that connects multiple parties of the global shipping ecosystem.

Later in 2018, Cosco, CMA CGM, Evergreen Marine, OOCL, and others agreed to form another blockchain shipping platform Global Shipping Business Network.

TRADELENS

GSBN



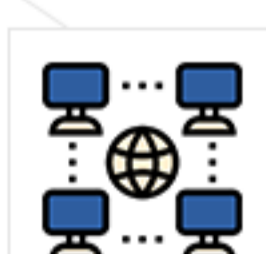
Use of blockchain smart contracts



Using IoT and sensor data for tracking



Distributed audit system



Use of structured data formats (e.g. JSON) for API-based exchange

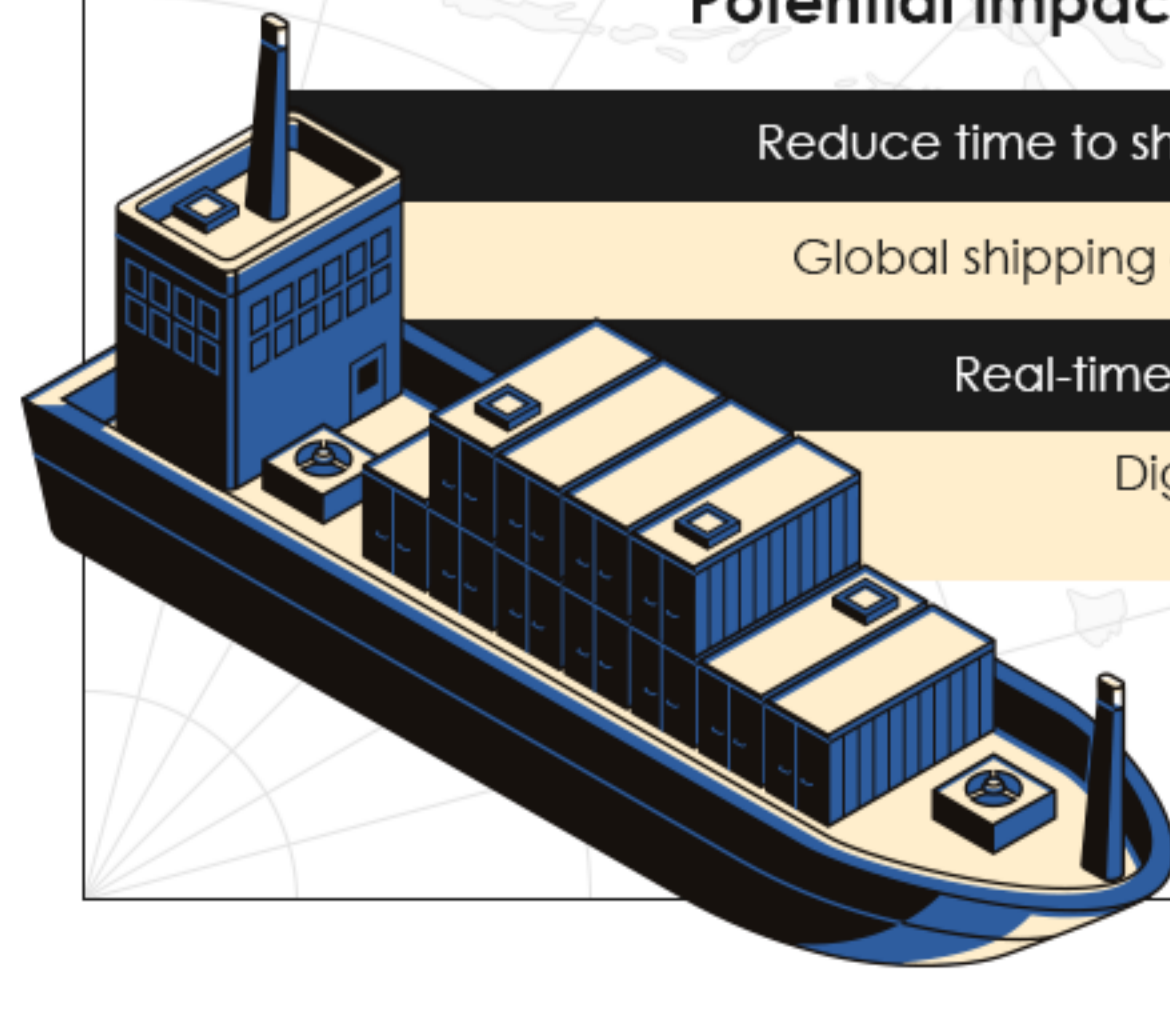
Potential impact:

Reduce time to ship packages by **40%**

Global shipping growth by up to **15%**

Real-time shipping data access

Digitization of document exchange



<https://aircargoworld.com/allposts/maersk-ibm-partner-on-logistics-blockchain-jv/>

<https://www2.deloitte.com/content/dam/Deloitte/us/Documents/manufacturing/us-manufacturing-global-truck-study-the-truck-industry-in-transition.pdf>

<https://www2.deloitte.com/insights/us/en/focus/future-of-mobility/future-of-freight-simplifying-last-mile-logistics.html>

<https://www.mckinsey.com/industries/travel-transport-and-logistics/our-insights/air-freight-forwarders-move-forward-into-a-digital-future>

<https://www.bcg.com/publications/2018/digital-imperative-freight-forwarding.aspx>

<https://newsroom.ibm.com/2018-08-09-Maersk-and-IBM-Introduce-TradeLens-Blockchain-Shipping-Solution>

<https://www.marinelink.com/news/global-shipping-business-network-443587>