The Road Ahead for Autonomous Trucking

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BISHOP CONSULTING

Robots
carrying people

Robots
in construction/mining

Robots
in the warehouse

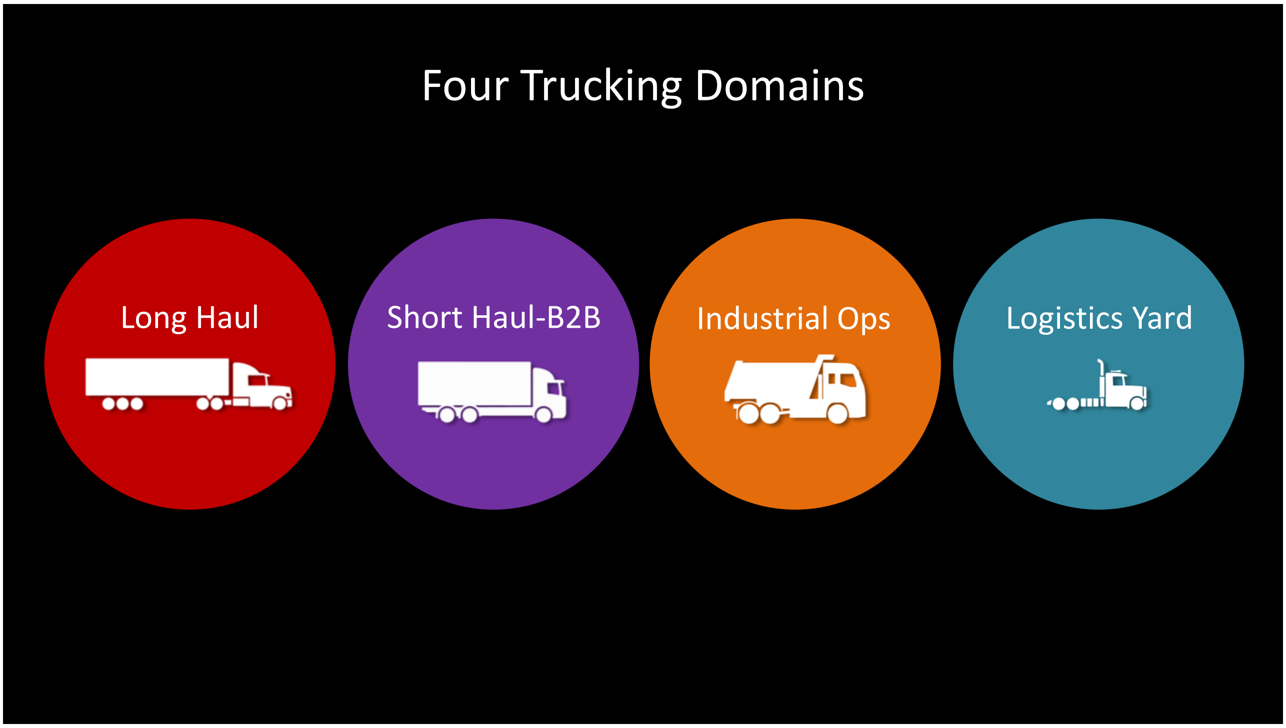
Robots
moving freight

Robots
helping farmers

Wherever wheeled vehicles
are "doing work,"
there's a business case for autonomy.

Demand for driverless trucks is driven by:

- Continuing driver shortage
- Energy efficiency
- Shorter transport duration times
- Increased safety
- Lower costs of operations


Four Trucking Domains
Long Haul
Short Haul-B2B
Industrial Ops
Logistics Yard


Long Haul Driverless

AV Trucking – U.S. Players

Long Haul

Aurora, BOT.AUTO, Kodiak, plus.ai, STACK, TORC, waabi, VOLVO Autonomous Solutions

Short Haul

EINRIDE, Gatik

Logistics Yard

FORTERRA, ISEE, Outrider, HUBPILOT

Truck Manufacturer Partnerships Are Key For Commercial Rollout

Aurora — VOLVO, PACCAR

Plus — TRATON, IVECO

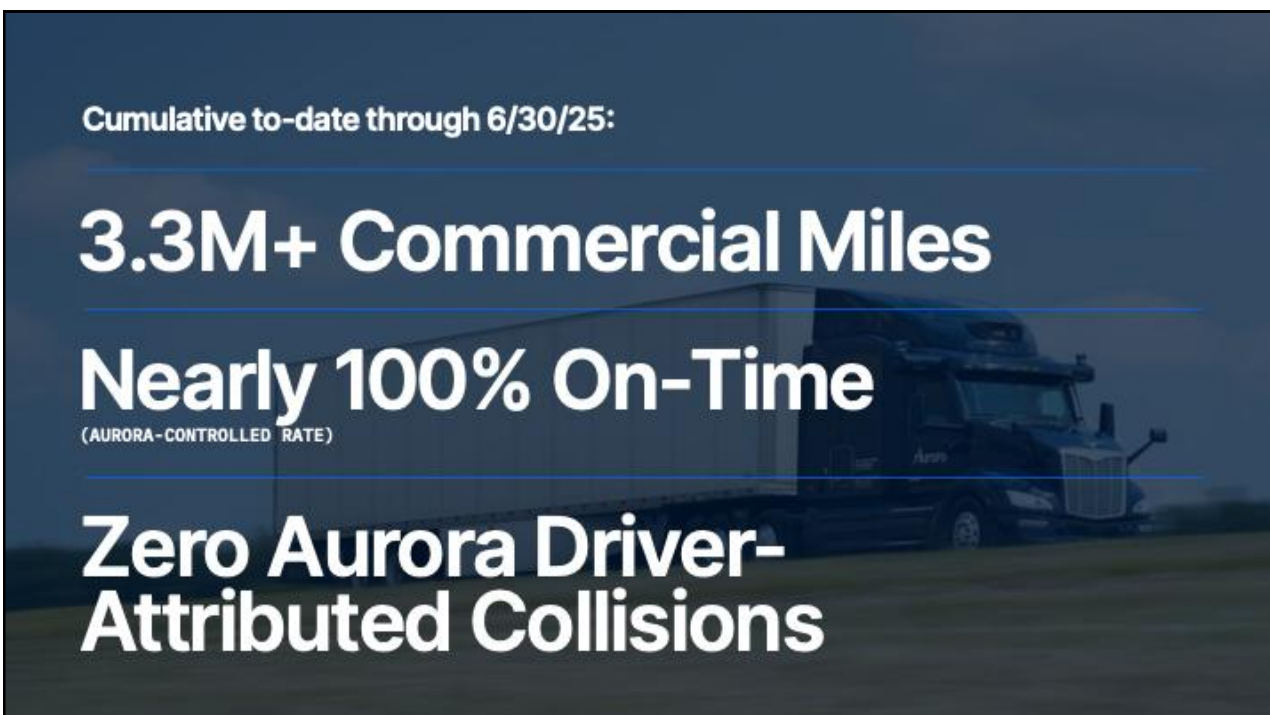
TORC — DAIMLER TRUCKS

Gatik — ISUZU

FORTERRA — Kalmar

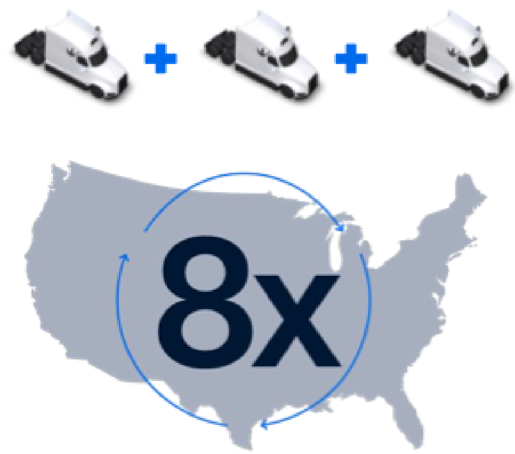
waabi — VOLVO

Driverless Trucks: Aurora Case Study

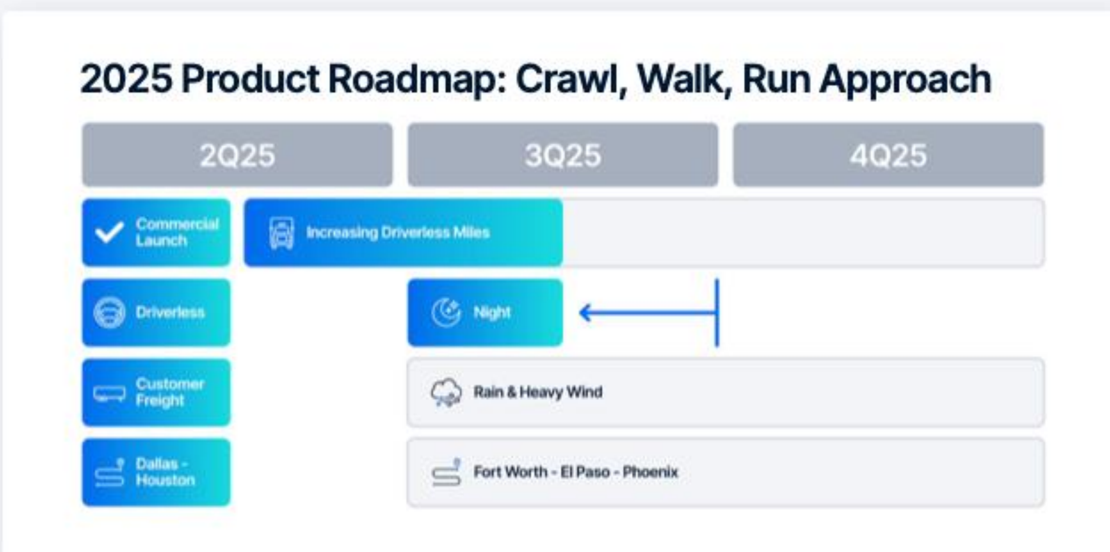


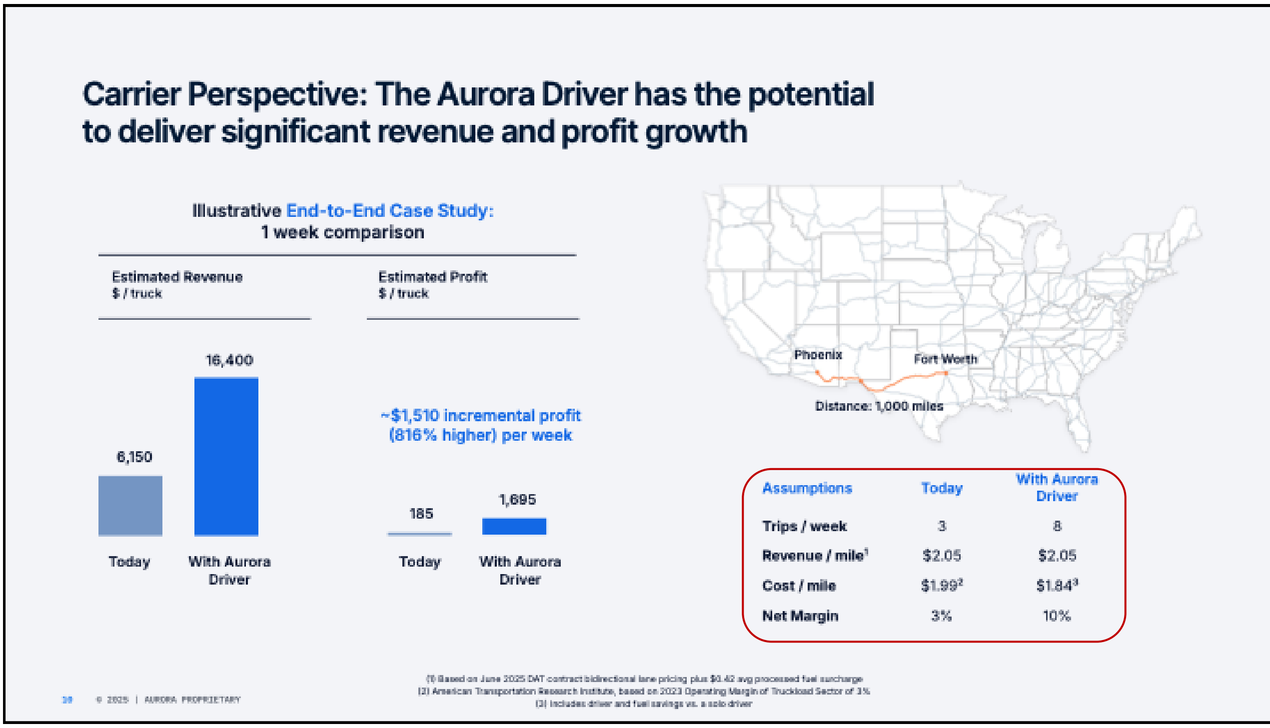
Q2 marked a pivotal moment in transportation history with our launch of the first driverless commercial trucking operations on public roads in the U.S. — the Aurora Driver already logged more than 20,000 driverless miles through 6/30/25

September 2025:
50,000 miles of autonomous driving



Driverless miles through 6/30/25 equate to more than eight coast-to-coast trips





Truck Automation Corridor

- Assessing the readiness for freeway automation
- Focus on Interstate 70 across Indiana and Ohio
- Funding from USDOT, Ohio DOT, and Indiana DOT ($8.8M)
- Operating truck platoons, partial automation, and full automation
  - Leader-follower platooning operations underway
    - Kratos Defense, EASE Logistics
  - Level 2 partial automation being launched soon
  - Level 4 (with safety driver) planned for 2026
- https://drive.ohio.gov/programs/av-cv/truck-automation

Short Haul—B2B

Gatik

- $250B Short-Haul Logistics market focus: retail, grocery chains, office supplies, etc.
- Locations include Texas, Arkansas and Ontario
- Operating on repetitive, predictable routes (surface streets and highways)
- 65 trucks currently operating
- “Freight-only” operations to launch in coming months

Logistics Yard

Logistic Yard Operations Are Proliferating

- Hundreds of thousands of automated trailer moves during late-stage testing and autonomous operations
- Significant partnerships with yard tractor OEMs

Industrial Ops

Industrial Operations

- Decades-long history of autonomous trucks in off-road operations
- Autonomous tech is spreading to an ever-wider set of vehicles and operating environments
- Kodiak running specialized tractor-trailers in Permian Basin to haul fracking sand.

Across all types of operations,
the timeline is now!

What To Keep An Eye On

What To Keep An Eye On:
Regulatory Certainty

- U.S.
  - 25 states allow operations of fully automated trucks.
    U.S. labor unions are pushing state legislators to require “drivers” in driverless trucks… but not successful yet.
  - U.S. Federal situation is fractured but works (for now).
    Industry seeks USDOT Rulemaking to formally allow automated trucking and create an AV Federal Safety Framework.
  - After years of Federal inaction, Trump administration and current Congress moving to put AV-enabling regulations in place.

What To Keep An Eye On:
Regulatory Certainty

- Canada
  - Ontario driverless allowance process recently put in place.
- Europe
  - A clear process is now in place (no trucks operating on road yet but soon.)

What To Keep An Eye On:
Safety Performance

- Early autonomy relied on deep engineering, software development, virtual testing, and many, MANY on-road miles. “AV 1.0”
- AV 2.0
  - Majority of development occurs in high fidelity virtual space
  - Mixed Reality Testing on test tracks
  - Limited on-road testing prior to driverless launch while virtual testing is framed as the equivalent of “billions of miles”

What To Keep An Eye On: Safety Performance

- Safety validation:
  - Safety validation processes have become highly rigorous and comprehensive
  - But skeptics abound, especially for AV 2.0

What To Keep An Eye On

Scaling Up

- For most ADS developers, the end customer is the OEM
- Factory built autonomy-ready trucks expected 2027-28 timeframe
- Uptake expected to be very strong in the U.S. due to lower cost of freight transport with a driverless trucks.

Business Models

- Supplier to OEM
- Purchase OEM vehicles > retrofit autonomy > commercial operations
- (Bot Auto, Kodiak)

Insurance / Liability

DISCUSSION