Road based transportation ready for disruption

Karin Svensson Volvo Group
Volvo Trucks - Refuse handling like you've never seen it before

https://youtu.be/ZSL2H9JBWbI
There are major challenges and the need to transport goods and people continues to grow globally.

### Global trends and challenges defining our business

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<th>Environmental threats and resource scarcity</th>
<th>Urbanization and demographics</th>
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<td>E-commerse and transformation of retail</td>
<td>Evolving trade and regulatory environment</td>
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**Source:** Progtrans database, no data available for 2000-2010
At the same time, transportation is ripe for disruption

Utilization

40–50%

- 40% of capacity
- 25% of the time

Efficiency

Only ~5% of energy is used to move goods

Inertia vehicle

Roll resistance

Aerodynamics

Transmission

Aux

Engine losses

Idling

70-85% of fuel never reaches wheels

Deaths and injuries on US roads

33,000 deaths

$300 Bn annually

~95% of accidents from human error

Land utilization

50% of most city land dedicated to streets and roads, parking, service stations, driveways, signal and traffic signs

Road reaches peak throughput only 5% of time and only covered with vehicles then

SOURCE: WFF; S. Heck and M. Rogers, Resource revolution: How to capture the biggest business opportunity in a century, 2014; Trafikanalytik
(Transportstyrelsen, 2016), Tomtom, Trafikanalytik 2015, Trafikverket 2015
Disruptive trends will rapidly impact large parts of the market
Driving innovation
Meeting the challenges – Electrification

Drivers: regulations, cities, noise, urban development, customer demands etc.

Challenges: Battery prices, diesel prices, emission regulations, charging infrastructure etc.
Meeting the challenges – Automation

**RENOVA** - an autonomous, self-driving refuse truck in the urban environment

**BOLIDEN** - the world’s first self-driving truck in and underground mine

AUTOMATION

- **Level 1**: Driver Assistance
- **Level 2**: Partial Automation
- **Level 3**: Conditional Automation
- **Level 4**: High Automation
- **Level 5**: Full Automation

**SAE Stage Definition (SAE J3016)**
Meeting the challenges – Connectivity

Connectivity is an enabler for new services, features and optimization but also introduces new challenges.

700,000 connected vehicles

Site performance
Transforming transportation - keys to success

Technology
New ways of working
With the customer
In partnership
Our mission

DRIVING PROSPERITY THROUGH TRANSPORT SOLUTIONS