WILL THE DRIVERLESS TRUCK DERAIL THE FREIGHT TRAIN?

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BCG team

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Agenda

1. Impact of digital technology on cost of the truck
2. Impact assessment on rail freight
3. Implications for rail freight companies
1 Two disruptions in the truck industry...

Driverless technology

Driverless technology has made dramatic progress during the last years
- Limited regulatory issues
- Limited cost issues
- Substantial technological issues in the last mile

While most attention is aimed at driverless passenger transport (Google-car), driverless truck initiatives are also arising

First applications seem fairly 'innocent'
- Eg, 'Platooning' reduces fuel costs (40%) with 10-20%

Platform driven load factor optimisation

Average load factors of trucks is currently ~ 60%
- Less than full truck size consignments
- Empty returns

Most platforms that attempted to increase the load factor have at best been moderately successful
- No real time matching
- No 'quality guarantee'
- Too scattered

However, Uber-like freight platforms (like Timocom and Telogis) do have the potential to increase truck load-factor to a much higher level by solving these barriers
1 Driverless technology may reduce trucking costs by 50%.

Cost per trucking km

-50%

Self drive

Driverless

SPEED IS ALSO LIKELY TO INCREASE (FEWER DRIVER BREAKS, MORE POINT TO POINT)
Loadfactor platforms (Uber for trucks) may reduce trucking costs with another 5% (FTL) to 30% (LTL)

**LTL trucks have 30% cost reduction potential**

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<th>Loadfactor (% of total capacity per truck)</th>
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TOGETHER, THESE TWO DISRUPTION MAY REDUCE TRUCKING COST PER TONNAGE BY 60%

THIS IS NOT TOMORROW; IT IS AN END-PERSPECTIVE
First assessment suggests 20-30% of rail freight to be at stake, though differences are large between players and countries.

- **SIZE OF SHIPMENT**
  - < 1 container
  - >50 wagons

- **QUALITY OF ROAD AS ALTERNATIVE**
  - Same distance / 100% tarmac
  - Much longer distance/ unpaved

- **TYPE OF GOODS (I)**
  - Ordinary
  - Hazardous

- **TYPE OF GOODS (II)**
  - Heavy (eg iron, sand)
  - Light (eg goods)

In some countries 40% of volumes may be at risk, in others <10%.
While driverless trucks may seem 5-10 years away, they are essential already for investment decisions today.
Rail freight companies need to take action along three dimensions

**Improve competitiveness**
- Faster
- Cheaper
- ...

**Align investment business cases**
- Stress test investment business cases on driverless scenarios
- Modularize investments, less 'grand design'

**Build position in driverless**
- Develop intermodal propositions between train and driverless truck (eg cross docks)
- Partner with road freight companies as a hedge
Multiple pain points still need to be resolved in the rail freight sector...

1. Catch-up on traditional SW
   - Timetabling automation
   - Fleet & crew mgt
   - Demand & supply mgt
   - Pricing/ Yield management
   - Increased flexibility of IT architecture

2. Unlock potential of digital trends
   - Big data for network optimization
   - Predictive maintenance
   - Real time decision making and scheduling in operations
   - Augmented reality in operations, maintenance
   - B2B/B2B sales platforms
   - Digital client journey

3. Next-generation public transportation
   - Autonomous driving
   - Train on demand

Short term
3-5 years

Medium term
5-8 years

Long term
10-15 years
... which can substantially improve performance of rail vs other transport modes

- Global path optimization using mathematical algorithms
- Event triggered real time updates prevent wastage
- Identification and sale of idle capacity

↑ 5-7%

- Replacement of large part of manual effort in timetable production
- Automated update to incorporate new information e.g. construction plan

↓ 50-60%

- Greater flexibility in case of unanticipated events e.g. real time optimal re-routing
- Ability to incorporate operations feedback into the timetable

↑ 2pp

RAIL FREIGHT NEEDS TO FAST FORWARD EXCELLENCE TO SURVIVE!

Source: Expert interviews, BCG analysis

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Thank you