India’s Commercial Vehicle Industry and Application of Connected Vehicle

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Hinduja Group

- Founded in 1914
- Employs over 35,000 people
- Global presence across 32 countries
Hinduja Automotive Landscape

**Foundry Business**
- Hinduja Foundries
- Ashley Alteams

**Engines & Gensets**
- Leypower

**Transmissions**
- Optare

**Defence Mobility**
- Ashok Leyland
- Nissan
- John Deere

**M&HCV**
- AVIA

**Buses**
- Albonair

**LCVs**
- Construction equipment

**Trucks**
- Bus

**Construction Equipment**
- Exhaust System Technology
- Engineering Manufacturing and Enterprise Services
Medium and Heavy Commercial Vehicles

- Second largest CV maker in India
- Market Leader in Bus Segment
- Significant Presence in Medium and Heavy Duty trucks
- 6 Manufacturing Plants in India
- 2 Overseas Manufacturing Operations
- Capacity of over 150,000 vehicles

Range from 7.5T GVW to 49T GVW
Company Profile - Bus

- Market Leader in Bus segment in India
- Largest global fleet of CNG Buses in commercial operation
- Showcased India’s First CNG Plug-in Hybrid – HYBUS at 2010 Auto Expo in New Delhi

A range that spans 18 – 80 seaters
Indian Auto industry - Snapshot

Segment Wise Market Share in 2009-10

- Passenger Vehicles: 15.86%
- Commercial Vehicles: 4.32%
- Three Wheelers: 3.58%
- Two Wheelers: 76.23%

Source: Various Industry Sources

Rankings:
- World’s second-largest two-wheeler market
- Asia’s third-largest passenger vehicle market
- World’s fifth-largest bus and truck market (by volume)
- World’s fourth-largest commercial vehicle market

Source: SIAM
Growing Trend of Indian Commercial Vehicle Industry

CV Market Share
- Ashok Leyland – 14%
- Tata Motors – 67%
- Volvo – 6%
- M&M – 11%
- Others – 1%
Not Limited M&HCV, LCV Segment is Growing Faster

Share of LCVs increasing as a %

![Graph showing LCV and M&HCV share over years]

Sub 3.5 Ton Category

Newly Announced Ashok Leyland “Dost”

LCV Manufacturers:
- Tata Motors
- Mahendra & Mahendra
- Eicher
- Swaraj Mazda
- GM – Recent Announcement
Key Drivers Fueling the Growth of Indian CV Market

• Higher economic growth in general
• Rapidly growing Mining and Construction Industry
• National plan on building infrastructure
• Stricter Government Regulations
• Growing Hub and Spoke Model
• Moving towards bigger trucks with higher power engines and LCVs – Growth in manufacturing sector
• Rapid urbanization – increased Inter- and Intra-city travel
• Commuter demands on ride and comfort
• Feeder bus systems for Metro Rails
Connected Vehicles Deliver value to the fleet operators through every stage of the value chain

**EXTERNAL**

- save customers time,
- improve operating efficiency
- keep in control & safe
- informed, and entertained
- increase market share through product differentiation

**INTERNAL**

- improved product quality
- more efficient product development
- better understanding of product usage and interactions
- create competitive advantage

**Ownership and Operation**

**Product Design**

**Development/Validation**

**Manufacturing**

**Sales/Service**
Connected Vehicles Deliver value to the fleet operators and the business through every stage of the value chain

Vehicle E/E Arch.

Telematics Unit

GPS Satellites

Cellular Network (GSM/CDMA)

Internet

Telematics Back End

G • Fleet Management
• Operational and service alerts via SMS / e-mail
• Remote Diagnostics

Connected Vehicle Services:
• Track and Trace
• Analytics / Reporting
• Hands free voice communication
**Vehicle Live!**

- **Last update:** 12:30 PM 21 Jan 11
- **Location:** Ambattur, Chennai
- **Status:** Ok/Malfunction Active
- **Speed:** 45 Kmph / Stopped
- **RPM:** 2345
- **Odometer:** 12324
- **Trip 1 Distance:** 345 km
- **Trip 1 Fuel Economy:** 3.1 kmpl
- **Trip 2 Distance:** 23 km
- **Trip 2 Fuel Economy:** 2.3 kmpl
- **Gear compliance:** 80%
- **GSAS Mode:** Economy
- **Fuel Economy:** 345 km
- **Fuel level:** 3.1 L
- **Distance to empty:** 23 km

**Driver/Vehicle Performance**

- **Driver Score:** 66

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Occurrence</th>
<th>Normal</th>
<th>BAD</th>
<th>POOR</th>
<th>AVERAGE</th>
<th>GOOD</th>
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<tr>
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<td>60</td>
<td>95</td>
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</table>

**Vehicle productivity**

- **Vehicle usage:** 90% time
- **Running time:** 00d 12h 12m 23s (60%)
- **Idling time:** 00d 03h 15m 34s (20%)
- **Stop time:** 00d 05h 23m 12s (10%)
- **Total distance:** 560 km
- **Speed:** AVG: 30 kmph MAX: 45 kmph
- **No of trips:** 21

**Maintenance/Diagnostics**

- **Engine**: Good
- **Anti Lock Braking System**: Good
- **Body Control Unit**: Good
- **Transmission**: Good

**Fuel Efficiency**

- **Total Fuel**: 150 Litres
- **Fuel Economy**: 3.4 km/l
- **Cost/km**: 15.45 Rs

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<th>Fuel events</th>
<th>Quantity</th>
<th>Amount (Rs)</th>
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<td>2 Pilferages</td>
<td>20 Liters</td>
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<td>Idling Consumption</td>
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**Eco Driving Recommendations**

- Avoid harsh accelerations, which would effectively improve the fuel efficiency.
- Avoid harsh breaking, which would effectively improve the fuel efficiency and reduce wear.
- Reduce over stoppages and improve the productivity.
- Drive in safe speed for safe journey as well as good fuel economy.
OEM Dashboard – Vehicle Diagnostics at a Glance

Overall Summary

- Vehicle Usage: 5 / 10
- Total Distance: 20 Km
- Vehicles Reporting Diagnostics: 5
- Total Diagnostics Count: 14

Diagnostic Summary

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<tr>
<th>Event</th>
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Diagnostic Event

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<tr>
<th>Time and Date</th>
<th>Vehicle ID with Num</th>
<th>Speed (kmph)</th>
<th>Source</th>
<th>Description</th>
<th>Location</th>
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</table>
The Passenger Information System

Passengers
• Information about arrival of buses at bus-stops which aids in better trip planning

Drivers
• Interaction with the transport control center in real-time during traffic and emergency conditions

Benefit
• Better driver management
• Dynamic scheduling of buses
Thank You