Smart Mobility with Temsa
İstanbul, April 14th 2016

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Marketing and Business Development
Content

- Temsa in a Nutshell
- Market
  - Turkey
- Strategy
  - Smart Mobility
  - Powertrain
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Tems sa at a Glance

- Founded in 1968
- First bus manufactured in 1987
- Today 17,000 buses and 16,000 midibuses are manufactured
- Sells its products to 64 countries
- 4.5K + buses in France, 800 in Germany, 700 in Benelux, 700 in Italy, and 800 in USA
- First Automotive R&D center in Turkey
- R&D spending 4.5 %
- Number of employees: 1,560
Developing a broad range of products, Temsa has experienced rapid growth since its establishment.

- Yearly production capacity of 4,000 bus and coaches
- More than 10,000 vehicles exported to over 64 countries
Temsa Adana Plant (Capacity & Location)

Annual production capacity of 2,000 Motor Coach, 2,000 Midibus, and 7,500 Light Trucks

- Total Area: 555k sq m
- Covered Area: 115k sq m
Product Line-Up

COACH
- MARATON/ MARATON VIP
- TS 45
- SAFIR PLUS/ SAFIR PLUS VIP/ HD
- TS 35 E
- LD
- TS 30
- MD 9
- HD RHD
- OPALIN/ MD7
- MD9 RHD
- PRESTIJ SX

INTERCITY
- LD SB
- MD 9 IC
- MD 9 LE

CITY
- AVENUE/ LF18
- AVENUE/ LF12
- AVENUE IBUS/ LF12 IBUS
- AVENUE/ LF12 CNG
- AVENUE EV/ LF EV
- MD 9 LE
- MD9 ELECTRICITY
- OPALIN CITY/ MD7 CITY
- PRESTIJ SX CITY
New Products Launch Plan

2016-Q1
- TS35 E
- PRESTIJ SX

2016-Q2
- MD9 ELECTRICITY
- PRESTIJ SX CITY
- AVENUE/ LF12
- OPALIN/ MD7

2016-Q3
- AVENUE EV/ LF EV
- OPALIN CITY/ MD7 CITY
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Focusing on the domestic market, TEMSA benefited from the rapidly growing demand.

- TEMSA is on the right track to increase its domestic market share according to 2016 YTD1 figures.
**Temska Market Share-2016 March**

<table>
<thead>
<tr>
<th></th>
<th>Temsa</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coach</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>Multi Purpose</td>
<td>9%</td>
<td>91%</td>
</tr>
<tr>
<td>City Bus</td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td>Midibus</td>
<td>30%</td>
<td>70%</td>
</tr>
<tr>
<td>Total</td>
<td>29%</td>
<td>71%</td>
</tr>
</tbody>
</table>

**Market Influencers:**
- Steady tourism industry
- High investment in intercity roads
- Rapid urbanization growth
- Increase in number of schools & companies
- Increase of air & rail transport
- Regulatory changes
## Eastern Europe, MENA Markets

<table>
<thead>
<tr>
<th>Coach</th>
<th>City</th>
<th>Midibus &amp; Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Old bus fleet</td>
<td>+ Rising urban population</td>
<td>- Presence of low cost Asian players</td>
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<tr>
<td>- Second hand preference</td>
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<tr>
<td>+ Midibus usage on inter-city routes as well</td>
<td>+ Structured public bus systems replacing midibuses in cities</td>
<td>+ Midibuses widely used as shared taxi</td>
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<tr>
<td></td>
<td>+ Capacity not meeting demand</td>
<td>+ Presence of Japanese players</td>
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<td></td>
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<tr>
<td>+ Well established operator with good network</td>
<td>+ Bus kilometers traveled decreasing in last 3 years</td>
<td>+ Sheruts (minibus) preferred to get around rather than midibuses</td>
</tr>
<tr>
<td>- Recent conflicts damage tourism hence luxury coach segment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Currently imported buses from Brazil face heavy service problems, making Nigeria look for alternatives</td>
<td>+ Rising urban population</td>
<td></td>
</tr>
<tr>
<td>+ Very small market, ~300 buses per year</td>
<td>+ New BRT systems</td>
<td>+ Second hand driven market</td>
</tr>
<tr>
<td></td>
<td>+ Rising traffic in major cities</td>
<td>+ Minibuses are very dominant, midibuses are not</td>
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<td>+ Very old bus fleet</td>
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<td>+ Mini and midi buses also being preferred for intercity travels</td>
</tr>
<tr>
<td>- Delays in improvement of road network</td>
<td>+ High number of informal operators with low buying power</td>
<td>- Low cost Asian players presence in imports</td>
</tr>
<tr>
<td>- Insufficient financing</td>
<td>- Import duties</td>
<td>- Import duties</td>
</tr>
<tr>
<td>- Import duties</td>
<td></td>
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<tr>
<td></td>
<td>+ Realization of crisis-era plans in near future</td>
<td>- Capillary rail network</td>
</tr>
<tr>
<td></td>
<td>- Operators’ dependence on public funding</td>
<td></td>
</tr>
<tr>
<td>+ Old bus fleet</td>
<td>+ Individual car transport accounts less compared to other EU</td>
<td>- Availability of tram and metro in some regions limit midibus usage</td>
</tr>
<tr>
<td>+ Growing tourist coach segment</td>
<td></td>
<td>- Panel vans of Korean or Japanese origin usually preferred, rather than midibuses</td>
</tr>
<tr>
<td>- Capillary rail network</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>+ Cost-sensitive approach due to lack of funding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Operators’ dependence on public funding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ Heavily crowded bus networks in Cairo and Alexandria</td>
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Smart Mobility

- Our motto is meant to represent our innovative, safe and smart approach to mobility.
- Smart Mobility = Smart Energy + Smart Transportation
Converging Forces Transforming the Future...

**CO₂ Emissions**
- Battery and fuel-cell electric vehicles offer higher energy efficiency, lower emissions, greater energy diversity, and new vehicle designs.

**Connectivity**
- New vehicles are being outfitted with vehicle-to-infrastructure (V2I), vehicle-to-vehicle (V2V), and communications technologies, so every car can know precisely where every other car is on the road.

**User Preferences**
- Younger generations are leading the way toward pay-per-use mobility in place of owning a car; nearly 50% of Gen Y consumers like using a smartphone app for transport and already plan travel so they can multitask.

Smart Mobility = Smart Energy + Smart Transportation

Source: Deloitte University Press, Temsa
Environmental Concerns..

- **Battery Electric Vehicle (BEV)**

  Stronger and lighter materials are reducing vehicle weight without sacrificing passenger safety.

  Materials

- **Diesel**
- **CNG**
- **Electricity**

  Energy

Source: Temsa
EV Buses …Smart Energy

MD9 ElectriCity

Specifications
- 9.5 mt length
- 3.1 mt height
- 2.4 mt width
- Range: 230 km +
- Output: 100 kw
- Torque: 2200 Nm
- 160 kwh Battery
- Charge duration: 2 h
- AC: 27 KW
- 26 (seats)-30 (standing passengers)-1 WheelChair-2 Foldable Seats=59

Avenue EV

- ASELSAN and TEMSA will focus on producing a 100% made in Turkey bus, with all parts such as motors, gearbox, the electric motors, inverters and converters are designed domestically.

Source: Temsa
Avenue I-BUS

- **Fully connected** with city and the individuals... Fuel consumption, speed, rpm, location...

- **Digital DWP** ...

- **Eco.Logic Motion** in action...

- **Media server**...

- **Coach MediaRouter** provides Internet access to the passengers...

- **Integrated LCD window**..

- **Passenger counting system** ...

- **USB and DVR**.