Prospects for Smart Mobility in India: Chances & Challenges

Talk at the Symposium “Smart Mobility”
(India Days Hannover)

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Research Areas:
- Fuzzy Front-end of Innovation
- Intellectual Property Rights
- Open Innovation
- Innovation in SMEs
- Globalization of Innovation
- Mobile Commerce

Research Project “Global Innovation”
Innovation management related research with special focus on chances & challenges in India
Research Project Global Innovation

Focus of our studies...

Frugal Innovations in a Global Context

India’s Role as a Location for Global R&D

Outward FDI from India

India’s National Innovation System

Business Opportunities at BoP in India

India as a Lead Market for (low-cost) Small Cars

A.D. Little’s “Urban Mobility Index”

Understanding the Challenge

- Immense (economic & social) opportunity costs in India due to the lack of a sufficiently extensive & “smart” transport system
  - Inter-regional: Travelling in a vast country consumes immense time (slow trains, often single track; technically outdated buses, bad roads in the hinterland..)
  - Intra-regional / City travel: Traffic jams during rush hours, air pollution
- Long & cumbersome journeys on a regular basis negatively affect productivity
  - In the commercial vehicle segment the reason for developing a vehicle like the “Tata Ace”
- And the challenge keeps on growing (general population, working age population, increasing economic activity)

Smart Mobility in the Indian Context

- “Smart Mobility” in the context of developed countries may mean intelligent, ICT-based solutions (telematics) that enable:
  - Ease of individual transport (in megacities) while attending to environmental concerns
  - Mobile Office Applications (work flow management)
- In India’s context the term has to be redefined to include all modes of transport that enable:
  - (Ease of) Individual transport in rural and semi-urban areas as well as in urban megacities while attending to environmental concerns
  - Creation of sustainable mass transportation systems as well as greater penetration of environmental-friendly (motor) vehicles for personal use
  - The distances to be covered in India may be large, both intra-regional and inter-regional
India: Now & Then?

The growing need for (smart) mobility

<table>
<thead>
<tr>
<th>Indicator</th>
<th>1947</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (1951)</td>
<td>361 million</td>
<td>1.21 billion</td>
</tr>
<tr>
<td>Life expectancy at birth (in years) (1951-2007)</td>
<td>32</td>
<td>66 (M) / 71 (F)</td>
</tr>
<tr>
<td>Literacy</td>
<td>12%</td>
<td>74%</td>
</tr>
<tr>
<td>Per capita income (Current prices; RBI &amp; IMF data)</td>
<td>Rs. 255</td>
<td>Rs. 70,654</td>
</tr>
<tr>
<td>Per capita income (Current prices, USD) (1991-2011)</td>
<td>$ 334</td>
<td>$ 1,389</td>
</tr>
<tr>
<td>Universities</td>
<td>20</td>
<td>544</td>
</tr>
<tr>
<td>Colleges</td>
<td>~ 500</td>
<td>31,324</td>
</tr>
</tbody>
</table>

India is a “young” and aspiring nation on the path to economic development and urbanization.

Mobility is its key requirement in the time to come, as India prepares to become the third largest economy of the world by 2050.

Status of Economic Development in India

Chances and Challenges for Corporate Houses

<table>
<thead>
<tr>
<th>Availability of Assets in Indian Households</th>
<th>2001</th>
<th>2011</th>
<th>2011 (in million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Households in 2001=192 million; 2011 = 247 million)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to banking services</td>
<td>36%</td>
<td>59%</td>
<td>145</td>
</tr>
<tr>
<td>Radio/Transistor</td>
<td>35%</td>
<td>20%</td>
<td>49</td>
</tr>
<tr>
<td>Television sets</td>
<td>31%</td>
<td>47%</td>
<td>117</td>
</tr>
<tr>
<td>Computer/Laptop</td>
<td>n.a.</td>
<td>10%</td>
<td>25</td>
</tr>
<tr>
<td>Access to the Internet</td>
<td>n.a.</td>
<td>3%</td>
<td>7</td>
</tr>
<tr>
<td>Telephone (Landline/Mobile)</td>
<td>9%</td>
<td>63%</td>
<td>156</td>
</tr>
<tr>
<td>4-wheeler (Car/Jeep/Van)</td>
<td>3%</td>
<td>5%</td>
<td>11</td>
</tr>
<tr>
<td>2-Wheeler (Scooter/Motorcycle/Moped)</td>
<td>9%</td>
<td>21%</td>
<td>52</td>
</tr>
<tr>
<td>Bicycle</td>
<td>44%</td>
<td>45%</td>
<td>111</td>
</tr>
<tr>
<td>None of the above (in %)</td>
<td>34.5%</td>
<td>17.8%</td>
<td>44</td>
</tr>
</tbody>
</table>

Based on the provisional results of the Census 2011. Rounded to the nearest full-digit.
Share of Different Vehicle Segments in India

*Two-wheelers are the most present medium*

The total number of all registered motor vehicles in India increased from 0.3 million in 1951 to an estimated 107.8 million in 2011.

Source: Tiwari and Herstatt (2012); calculated on the basis of SIAM data. 2011* estimated figure.

India’s Passenger Car Market

*Small cars (A1+A2) rule the roost*

As of now, German carmakers have largely ignored India’s “Small Car” segment

*Exception: VW Polo and Skoda Fabia*

Close to 80% of all cars sold in India are small cars

(broadly speaking: length up to 4,000 mm and engine displacement not exceeding 1,500 cc)
Key Implications…

• India faces an enormous challenge for ensuring smart mobility.
• The other side of the coin is the enormous chance, probably not present anywhere else in the world, a one-time opportunity.
• The mobility sector – in all facets and variations – is a sunrise industry and provides for excellent growth opportunities.
• Solutions developed for India could be ideally used in other developing countries at a later stage.
• The environmental issues concern all and have a global impact.

“Das Land der Ideen trifft das Land der Chancen”
Dr. Jürgen Hambrecht, ehemaliger Vorsitzender des Asien-Pazifik-Ausschusses der Deutschen Wirtschaft

Thank you for your kind attention
ध्यानपूर्वक सुनने के लिये धन्यवाद
Vielen Dank für Ihre Aufmerksamkeit

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