Competitiveness and Urban Mobility
A Case from India

Dr. Amit Kapoor
Honorary Chairman, Institute for Competitiveness, India
INDIA CITIES ON GLOBAL BENCHMARK

Tokyo (68)  
Shanghai (55.2)  
Los Angeles (61.5)  
New York (71.4)  
London (70.4)  
Zurich (66.8)  
Paris (69.3)  
Chicago (65.9)  

Delhi (46.7)  
Mumbai (46.6)  
Kolkata (37.8)  
Bengaluru (44.6)  
Chennai (38.1)  
Bangalore (44.6)  

Source: Economist Intelligence Unit and Institute for Competitiveness Analysis
Competitiveness is the **productivity** with which a region utilizes its human, capital, and natural resources.

Productivity determines **wages** and the **standard of living** – Productivity growth determines sustainable **economic growth**.

It is not **what** industries a nation competes in that matters for prosperity, but **how productively** it competes in those industries.

Productivity in an economy depends on a **combination of domestic and foreign firms**.

**Innovation** in products and processes is necessary to drive productivity growth.

Only **productive businesses** can create wealth and jobs. States compete to offer the **most productive environment** for business.

The public and private sectors play **different but interrelated roles** in creating a productive economy.

Leading to the **prosperity** of the region.
INFLUENCES ON COMPETITIVENESS

Multiple Geographic Levels

WORLD ECONOMY

BROAD ECONOMIC AREAS

GROUP OF NEIGHBOURING NATIONS

NATIONS

STATES, PROVINCES

METROPOLITAN AREAS, RURAL AREAS [Our Focus]

Source: Institute for Strategy and Competitiveness
MEASURING COMPETITIVENESS: THE FRAMEWORK

Context for Firm Strategy and Rivalry

- Local rules and incentives that encourage investment and productivity.
  - E.g. performance based salaries, incentives for capital investments, intellectual property protection
- Vigorous local competition i.e.,
  - Openness to foreign and local competition
  - Sophistication of company operations

Factor Conditions

- Local availability of suppliers and supporting industries
- Presence of clusters instead of isolated firms

Demand Conditions

Sophisticated and demanding local customers and needs e.g.,
- Strict quality, safety, and environmental standards
- Consumer protection laws
- Government procurement of advanced technology
- Early demand for products and Services.

Related and Supporting Industries

- Access to high quality business inputs i.e.,
  - Natural endowments
  - Human resources
  - Capital availability
  - Physical infrastructure
  - Administrative infrastructure
  - Information infrastructure
  - Scientific and technological infrastructure

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DRIVERS OF COMPETITIVENESS

- Quality of overall business environment
- Concentration of resources and urban growth
- Policy Coordination among Multiple Levels of Geography/Government
TREND IN POPULATION SIZE AND GROWTH RATE (1901-2011)

Source: Government of India Census and Institute for Competitiveness Analysis

Presented by: Dr. Amit Kapoor
THE RURAL-URBAN DIVIDE

Source: Government of India Census and Institute for Competitiveness Analysis

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Presented by: Dr. Amit Kapoor
URBAN INDIA OF 1951

Cities Size Class By Population
- Red: 10 - 30 million
- Brown: 5 - 10 million
- Orange: 1 - 5 million
- Blue: 0.1 – 1 million

Source: India Urban Conference 2011: Evidence & Experience - IIHS
SNAPSHOT OF URBAN INDIA IN 2011

Cities Size Class By Population

- 10 - 30 million
- 5 - 10 million
- 1 - 5 million
- 0.1 – 1 million

Source: India Urban Conference 2011: Evidence & Experience - IIHS
URBAN INDIA OF 2031

Institute for Competitiveness, India

Presented by: Dr. Amit Kapoor

Cities Size Class By Population
- Red: 10 - 30 million
- Brown: 5 - 10 million
- Orange: 1 - 5 million
- Blue: 0.1 – 1 million

Source: India Urban Conference 2011: Evidence & Experience - IIHS
Density within Indian Cities

People per Square Km. of land

- World: 53.77
- Brazil: 23.25
- China: 144.10
- India: 417.56
- Russian Federation: 8.73
- United Kingdom: 259.35
- United States: 34.06
Most and the Least Dense Cities of India

<table>
<thead>
<tr>
<th>City</th>
<th>Density of People per square Km of Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chennai</td>
<td>26903</td>
</tr>
<tr>
<td>Kolkata</td>
<td>24252</td>
</tr>
<tr>
<td>Mumbai</td>
<td>20925</td>
</tr>
<tr>
<td>Hyderabad</td>
<td>18480</td>
</tr>
<tr>
<td>Delhi</td>
<td>11297</td>
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<td>Nashik</td>
<td>393</td>
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<td>Rajkot</td>
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<td>Vishakhapatnam</td>
<td>384</td>
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<tr>
<td>Raipur</td>
<td>310</td>
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<tr>
<td>Shimla</td>
<td>159</td>
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<td>Raipur</td>
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<tr>
<td>Rajkot</td>
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<td>Vishakhapatnam</td>
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<td>Nashik</td>
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<tr>
<td>Kolkata</td>
<td>24252</td>
</tr>
<tr>
<td>Chennai</td>
<td>26903</td>
</tr>
</tbody>
</table>
INDIA IS THRIVING – NOW AND WILL IN FUTURE

% contribution in World’s GDP

2010

- Others: 30%
- Europe: 26%
- United States: 23%
- China: 18%
- Japan: 9%
- India: 3%

2030 Projection

- Others: 35%
- Europe: 18%
- United States: 16%
- China: 18%
- Japan: 9%
- India: 4%

GDP growth (annual %)

Source: World Bank and Institute for Competitiveness Analysis

*value for 2012 and 2011 is for Q1

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Urban Population as a percentage of Total Population

Percentage of Urban Population (%)

- 17.3 in 1951
- 18 in 1961
- 19.9 in 1971
- 23.3 in 1981
- 25.7 in 1991
- 27.8 in 2001
- 31.2 in 2011
GSDP at current prices in Rs. Crore in 2012-13 vs. Factor Conditions Score

y = 22.879e^{0.2343x}
R² = 0.3619

Source: MOSPI, Institute for Competitiveness Analysis
SUB PILLARS OF FACTOR CONDITIONS - PHYSICAL CONDITIONS

\[ y = 13.908x^2 - 716.11x + 2523.6 \]
\[ R^2 = 0.7141 \]

Source: CEA, Institute for Competitiveness Analysis
SURFACE ROADS AND COMPETITIVENESS

\[ y = 98.06 \ln(x) - 329.88 \]

\[ R^2 = 0.2145 \]

Source: MORTH, Institute for Competitiveness Analysis
RAILWAYS AND COMPETITIVENESS

The diagram shows the state-wise route km of railway lines in km plotted against microeconomic competitiveness scores. The equation $y = 188.12x - 8495.8$ with a $R^2 = 0.1643$ indicates the relationship between the two variables. The source of the data is MOR, Institute for Competitiveness Analysis.
### A Glimpse: City Competitiveness 2014 Rank

#### First 25 Cities

<table>
<thead>
<tr>
<th>Rank</th>
<th>City</th>
<th>Overall Competitiveness Score</th>
<th>Factor Conditions</th>
<th>Demand Conditions</th>
<th>Context for Firm Strategy &amp; Rivalry</th>
<th>Related &amp; Supporting Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Delhi</td>
<td>73.134</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
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<tr>
<td>2</td>
<td>Mumbai</td>
<td>70.059</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
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<tr>
<td>3</td>
<td>Gurgaon</td>
<td>64.102</td>
<td>11</td>
<td>7</td>
<td>2</td>
<td>17</td>
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<tr>
<td>4</td>
<td>Noida</td>
<td>63.837</td>
<td>6</td>
<td>25</td>
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<td>5</td>
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<tr>
<td>5</td>
<td>Chennai</td>
<td>63.228</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>Hyderabad</td>
<td>62.903</td>
<td>9</td>
<td>4</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Bengaluru</td>
<td>62.803</td>
<td>10</td>
<td>3</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>8</td>
<td>Kolkata</td>
<td>62.158</td>
<td>4</td>
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<td>9</td>
<td>Pune</td>
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<td>10</td>
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<td>60.890</td>
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<td>3</td>
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<td>11</td>
<td>Kochi</td>
<td>59.123</td>
<td>7</td>
<td>26</td>
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<td>23</td>
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<tr>
<td>12</td>
<td>Coimbatore</td>
<td>59.006</td>
<td>5</td>
<td>37</td>
<td>17</td>
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<td>13</td>
<td>Chandigarh</td>
<td>58.598</td>
<td>18</td>
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<td>14</td>
<td>Nagpur</td>
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<td>15</td>
<td>Kozhikode</td>
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<td>16</td>
<td>Surat</td>
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<td>18</td>
<td>Thiruvananthapuram</td>
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<td>14</td>
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<td>20</td>
<td>Jaipur</td>
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<td>22</td>
<td>Rajkot</td>
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<td>Mysore</td>
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<td>Kota</td>
<td>55.727</td>
<td>27</td>
<td>20</td>
<td>33</td>
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</tbody>
</table>
### A GLIMPSE: CITY COMPETITIVENESS 2014 RANK

Next set of 25 Cities

<table>
<thead>
<tr>
<th>Rank</th>
<th>City</th>
<th>Overall Competitiveness Score</th>
<th>Factor Conditions</th>
<th>Demand Conditions</th>
<th>Context for Firm Strategy &amp; Rivalry</th>
<th>Related &amp; Supporting Industries</th>
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</thead>
<tbody>
<tr>
<td>26</td>
<td>Kanpur</td>
<td>55.666</td>
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<td>41</td>
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<tr>
<td>27</td>
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<td>31</td>
<td>Vishakhapatnam</td>
<td>55.091</td>
<td>38</td>
<td>31</td>
<td>23</td>
<td>29</td>
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<tr>
<td>32</td>
<td>Allahabad</td>
<td>54.783</td>
<td>35</td>
<td>50</td>
<td>36</td>
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<td>33</td>
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<td>37</td>
<td>Amritsar</td>
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<td>Srinagar</td>
<td>52.079</td>
<td>44</td>
<td>33</td>
<td>49</td>
<td>48</td>
</tr>
</tbody>
</table>
Visual imageries depicting India’s growing urbanization over the years creates a far greater impact than documented statistics giving the same information.

Since 1992, the Operational Linescan System (OLS) of the US Defense Meteorological Satellite Program (DMSP) has been collecting images of the world at night. These images capture the nighttime lights generated on the ground. These images have been captured, processed, and analyzed for India and select metropolitan regions for the past 20 years and are presented below.

Nighttime lights for India and surrounding countries from 1992 and then 18 years later. While the bright spots of Delhi and Kolkata and the Mumbai-Pune combination and the Hyderabad, Bangalore, Chennai triangle are all clearly visible in 1992, they have all increased in intensity and size by 2010. And, a whole series of new constellations have been added to the subcontinent.

Source: Excerpts from an article authored by Kevin Stolarick
THE (CURRENT) EXTENT OF INDIA’s URBANIZATION

Increased urbanization of selected cities

DELHI

MUMBAI-PUNE

Source: Excerpts from an article authored by Kevin Stolarick
THE (CURRENT) EXTENT OF INDIA’s URBANIZATION

Increased urbanization of selected cities

KOLKATA

HYDERABAD

Source: Excerpts from an article authored by Kevin Stolarick
MAIN CONTRIBUTORS IN INDIA’S GROWTH

Source: RBI and Institute for Competitiveness Analysis

Institute for Competitiveness, India

Presented by: Dr. Amit Kapoor
## Expansion Of Cities: Metropolitan Regions

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Metropolitan Areas</th>
<th>Population</th>
<th>Consist of</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>National Capital Region (NCR)</td>
<td>21,753,486</td>
<td>(a) Haryana districts- Gurgaon, Sonipat, Faridabad, Rohtak</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(b) Uttar Pradesh districts- Meerut, Baghpat, Ghaziabad, Gautam Buddha Nagar</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(c) Rajasthan- Alwar</td>
</tr>
<tr>
<td>2</td>
<td>Mumbai Metropolitan Region</td>
<td>20,748,395</td>
<td>Thane, Navi Mumbai, Mira-Bhayandar, Kalyan-Dombivali, Ulhasnagar, Vasai-Virar</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bhiwandi-Nizampur including other towns &amp; villages</td>
</tr>
<tr>
<td>3</td>
<td>Kolkata Metropolitan Area (KMA)</td>
<td>14,617,882</td>
<td>Kolkata Municipal Corporation (KMC), Howrah Municipal Corporation and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chandannagore Municipal Corporation</td>
</tr>
<tr>
<td>4</td>
<td>Chennai Metropolitan Area (CMA)</td>
<td>8,917,749</td>
<td>Chennai district, Thiruvallur district and Kancheepuram district</td>
</tr>
<tr>
<td>5</td>
<td>Bangalore Metropolitan Region</td>
<td>8,728,906</td>
<td>Hosur, Yeswanthpur, Yelahanka, Anekal, Hebbal, Marathalli etc.</td>
</tr>
<tr>
<td>6</td>
<td>Hyderabad Metropolitan Region</td>
<td>7,749,334</td>
<td>Secunderabad, Bhogir, Kondpur, Medchal etc.</td>
</tr>
<tr>
<td>7</td>
<td>Ahmedabad Metropolitan Region</td>
<td>6,352,254</td>
<td>Gandhinagar, Anand, Kheda, Kadi, Jambusar, Viramgam etc.</td>
</tr>
<tr>
<td>8</td>
<td>Pune Metropolitan Region</td>
<td>5,049,968</td>
<td>Pune city and Pimpri-Chinchwad town, etc.</td>
</tr>
<tr>
<td>9</td>
<td>Surat Metropolitan Region</td>
<td>4,585,367</td>
<td>One municipal corporation, 7 municipalities and 6 counter magnets</td>
</tr>
</tbody>
</table>

Source: PPP Database and Institute for Competitiveness Analysis
**CHALLENGES OF URBANISATION**

- Concentration of urban population in one or few cities
- Leading to massive growth of slum followed by misery, poverty, unemployment, exploitation, inequalities, degradation in the quality of urban life
- It is a result of rural push and not of urban pull
- Most of the cities using capital intensive technologies can not generate employment for the distress rural poor
- It is degenerating social and economic inequalities
- Crisis in urban infra-structural services
- Migration of poor from rural to urban areas
- These lead to mega cities that are subject to extreme filthy slum and very cruel mega city denying shelter. Drinking water, electricity, sanitation to the extreme poor and rural migrants
- Lack a modern planning framework

Source: PPP Database and Institute for Competitiveness Analysis
**Urban Infrastructure: Transportation in Indian Cities**

- Chaotic situation in most cities except the mega cities where the number of commuters is so high that the transportation seems weak

- **Challenges:**
  - Vast gaps between demand and supply
  - Poor infrastructure such as insufficient routes and roads
  - Increase in private vehicles which leads to congestion and also slows down the speed of other vehicles such as buses etc. to 10-12 km
  - Leads to environmental pollution
  - Absence of comprehensive parking facilities in the city

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**Operations of Road Transportation in Major Cities: 2010-11**

![Graph showing operations of road transportation in major cities: Chennai, Bengaluru, Mumbai, Ahmedabad, Kolkata, and Delhi.](https://via.placeholder.com/150)

- **Source:** Road Transport and highways Ministry, 2010-11 and Institute for Competitiveness Analysis

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Institute for Competitiveness, India

Presented by: Dr. Amit Kapoor
The other major mode of transportation in cities is Railways.

Though it is dominant for the inter city transportation only in cities.

Also has a different face in every region such as in:

- Delhi – Metro Rapid Transit System (MRTS) is main lifeline but Local Rails are also present.
- Kolkata – The Underground Metro, The Local Rails and the tram, all are widely used by commuters.
- Mumbai – Local Trains however, metro will be operational after short period, as reported by authorities.
- Bengaluru – The introduction of Metro in the city has change the travelling experience of the commuters.

**Passengers carried by railways (million passenger-km)**

- India: 903465
- China: 791158
- Japan: 244235
- United States: 78582
- South Africa: 18865
- United Kingdom: 55019
- Germany: 9518

Source: World Bank and Institute for Competitiveness Analysis.
Drivers for Mobility Solutions in India

- **Technology drivers**: Technological innovations in the Indian automotive and transportation industry over the past decade have enabled upgradation, right from the design and planning stage to the product development stage, and have also played a critical role in improving the overall performance of the product and integrated modes of transportation.

- **Cultural & behavioral drivers**: With rising urbanization and changing urban mobility needs, future mobility solutions would require vehicles that are small, maneuverable, energy efficient and connected. Further, with increasing congestion in cities, rising parking woes and rise in number of nuclear families, vehicles are becoming more compact.

- **Structural drivers**: The basic structural drivers is the rise in the disposable income with people and an aspirational middle class which wants more choices for modes of commuting. Economic growth and increased penetration in Tier II and Tier III markets drive the luxury vehicle segment because of which it has been predicted that by 2020, it will increase growth to 4-5% from 1% y/y presently.

Source: Institute for Competitiveness Analysis
Other Modes of Transportation

• The other major mode of transportation in cities is Railways
• Though it is dominant for the inter city transportation only in cities
• Also has a different face in every region such as in
  - Delhi – Metro Rapid Transit System (MRTS) is main lifeline but Local Rails are also present
  - Kolkata – The Underground Metro, The Local Rails and the tram, all are widely used by commuters
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In million passenger-km

- United Kingdom
- United States
- Japan
- Germany
- China
- India
- South Africa

Source: World Bank and Institute for Competitiveness Analysis

Institute for Competitiveness, India
Presented by: Dr. Amit Kapoor
Urban Mobility Index

Using 19 criteria Arthur D. Little assessed the mobility maturity and performance of 84 cities worldwide. The mobility score per city ranges from 0 to 100 index points; the maximum of 100 points is defined by the best performance of any city in the sample for each criteria.

Source:
SMART CITIES IN INDIA

“An urban settlement that uses the power of technology to bring efficiency in its existing set of resources (like mobility, governance, energy, buildings etc.) by improving and using them productively. Also, equipping the core systems of the settlement with new advanced technologies and ideas.”

- India plans to develop 100 new “Smart Cities” and the budget has already been allocated to initiate the plan
- Idea is to develop cities as satellite towns of larger cities and by modernizing existing mid-sized cities
- To attract foreign investors, Foreign Direct investment (FDI) in terms of minimum built up area and capital conditions have been substantially reduced
- It is being anticipated that many industrial and commercial centers along the significant corridors would be recreated as “Smart Cities”
- Being smart and well equipped with technology will convert the urban Indian centers into self-sustainable habitats with minimal pollution levels, maximum recycling, optimized energy supplies and efficient urban mobility.
- The cities can be a game changer and can take the country one step closer to the growth process

Source: Centre of Regional Science, Vienna UT, October 2007
India has also got into an agreement with Singapore to use its expertise in building 100 smart cities and in urban planning.

**Delhi-Mumbai Industrial Corridor**
- (1500km long)
- Will be a eastern freight corridor and will leverage the inland Waterway System being developed along National Waterway - 1

**Mumbai Bengaluru Industrial Corridor**
- Aimed to generate an investment of over USD 50 billion and expected to create 2.5 million jobs

**Chennai-Bangalore Industrial Corridor**
- (560 km long)

**Amritsar-Delhi-Kolkata Industrial Corridor**
- Plans are to construct 3 ‘smart cities’ on the corridor with the help of Japan International Cooperation Agency (JICA)

SMART CITIES IN INDIA: PROPOSED PROJECTS on industrial corridors

Source: [https://www.opendemocracy.net/openindia/mathew-idiculla/crafting-“smart-cities”—india’s-new-urban-vision](https://www.opendemocracy.net/openindia/mathew-idiculla/crafting-“smart-cities”—india’s-new-urban-vision)
**The Cities Of Future**

- Present cities seems stressed on multiple accounts that is, overpopulation, sketchy resources, exorbitantly high cost of living index, formal governance etc.
- So the cities of future would primarily be an itsy-bitsy variation of current cities
- Current cities have built in so many contra forces that they are now leviathan white elephants. However it is being suggested that city of future would be fragmentisation of population clusters
- Every employee shall serve many firms
- Geography and power would no longer correlate
- 21st century man is absolutely asocial
- Technology will keep on pouring and will make one city advanced and other obsolete
- Therefore, cities needs to see their future and then address the stresses bothering them and should not depend on the vacuous pronouncements of politicians
ENHANCING CITY COMPETITIVENESS

Focus on

1. Public-Private Partnerships
   - Increases the ease of business, fetches innovative ideas, provide potential for financing
   - One of the successful model is the Delhi Noida Bridge

2. Dealing with Urbanization
   - Understand the city challenges & search their solutions, improve internal & external environment
   - Some Tier-2 & 3 cities like Guwahati, Bhopal, Faridabad, Coimbatore are urbanizing at a fast pace

3. Urban Poverty
   - Leads to vulnerable conditions, create issues with respect to sanitation, water, health, education etc.
   - Government programmes: Swarna Jayanti Shahari Raozgar Yojana (SJSRY), JNNURM, Rajiv Awas Yojana

4. Transparency and Civic Engagement
   - Engage major stakeholders in most of the development activities
   - A tool for the betterment of the democracy and thus the city

5. Other Common Areas
   - Includes basic amenities, infrastructure, facilities etc. required for a decent standard of living

Institute for Competitiveness, India
Presented by: Dr. Amit Kapoor
Need for Better Mobility

Economic Growth
Increase in Industrial Activities
Increase in personal income
Increase in consumption

Transport Services
Facilitate movement of goods and services
Improve access to work, education, etc.

Transport Impacts
Increase in Trip Rates
Motorization
Urban Expansion

Economic and Environmental Impacts
Emissions
Congestions
Collisions
Noise, etc.

Changing context of Urban Mobility

Some Facts:

• Passenger travel distance to double by 2050 — over 70 trillion kms per year*
• Per capita commuting delay to double by 2050 to over 100 hours per year*
• Over 37 cities—majority in Asia and Latin America – to have over 10 million inhabitants by 2025*
• Over 70% of global population to live in urban areas by 2050, up from 51% in 2010*

Aims for the Future of Mobility:

The aim should be to ‘meet the societies’ desire to move freely, have access, trade and establish relationships without sacrificing other essential human or ecological values, today or in the future’.

Four Models In India

Public

- JANMARG
- Delhi Metro Rail Corporation Limited

Private

- Yo bykes
- Life, fully charged!

Less

More

People Impacted

- G-Auto
- An initiative of NIRMAL FOUNDATION
DMRC: A case for Integrated Urban Transportation Planning

Points about Integrated Mobility of DMRC:

• Integrated with **Feeder Bus Service**: 23 Routes 170 Buses, 1,20,000 passengers a day.
• Integrated with **Bus**: Integration at Bus terminals at Kashmiri Gate, Anand Vihar, etc.
• Integrated with **BRT**: At Moolchand and Lajpath Nagar
• Integrated with **Railways**: At Old Delhi, New Delhi and Anand Vihar Metro stations
• Integrated with **Rapid Metro Gurgaon**: At a station Sikendarpur in Gurgaon
• Integrated with **Airways**: Airport Express Line connects the Main metro with IGI
• Parking Facility at 92 stations
• Integrated Ticketing with **Smart card** usage across various Services.
• Integration with **Taxi/ Auto/ Grameen** Stands.
• **Bicycle Rental Scheme** at Vishvavidyalaya Station.

• All the factors help Delhi Metro Rail corporation to be a preferred choice for urban mobility for citizens with more than 2.0 Million people commuting on the same daily.

Development of Smart cities:

Financing Urban Transportation:

• What can be built with 1000 Crores INR:
  • Underground Metro: 2.5Km
  • Elevated Metro: 5 Km
  • Monorail: 6.7 Km
  • BRT: 67 Km

The Smart City Solution:

According to ITDP (Institute for Transportation and Development Policy) for every million urban residents for a smart city, it is required that there is at least:

• 25-35 km of rapid transit
• 200-500 city buses
• 80 km walking & cycling infrastructure

## Infrastructure Requirement in Top 100 Cities in India

<table>
<thead>
<tr>
<th>City Size</th>
<th>Mode of Transportation</th>
<th>&lt; 1 million</th>
<th>1-5 million</th>
<th>&gt; 5 million</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NMT</strong></td>
<td></td>
<td>5,000 km</td>
<td>13,000 km</td>
<td>7,000 km</td>
<td>25,000 km</td>
</tr>
<tr>
<td><strong>Minibuses</strong></td>
<td></td>
<td>4,000 minibuses</td>
<td>14,000 minibuses</td>
<td>10,000 minibuses</td>
<td>28,000 minibuses</td>
</tr>
<tr>
<td><strong>Buses</strong></td>
<td></td>
<td>8,000 buses</td>
<td>29,000 buses</td>
<td>34,000 buses</td>
<td>71,000 buses</td>
</tr>
<tr>
<td><strong>BRT</strong></td>
<td>-</td>
<td>-</td>
<td>4,000 km</td>
<td>2,000 km</td>
<td>6,000 km</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>+ 22,000 buses</td>
<td>+ 15,000 buses</td>
<td>+ 37,000 buses</td>
</tr>
<tr>
<td><strong>Metro</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>750 km</td>
<td>750 km</td>
</tr>
</tbody>
</table>

Source: [http://urbanmobilityindia.in/Upload/Conference/fe50d218-3344-4089-b0a0-7c9ffa6ef899.pdf](http://urbanmobilityindia.in/Upload/Conference/fe50d218-3344-4089-b0a0-7c9ffa6ef899.pdf)
## Infrastructure Cost in Rs. For Top 100 cities

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>NMT</td>
<td></td>
<td>15,000</td>
<td>39,000</td>
<td>21,000</td>
<td>1,00,000</td>
</tr>
<tr>
<td>Minibuses</td>
<td></td>
<td>3,000</td>
<td>11,000</td>
<td>8,000</td>
<td>22,000</td>
</tr>
<tr>
<td>Buses</td>
<td></td>
<td>10,000</td>
<td>35,000</td>
<td>41,000</td>
<td>86,000</td>
</tr>
<tr>
<td>BRT</td>
<td></td>
<td>-</td>
<td>1,03,000</td>
<td>65,000</td>
<td>1,68,000</td>
</tr>
<tr>
<td>Metro</td>
<td></td>
<td>-</td>
<td>-</td>
<td>2,04,000</td>
<td>2,04,000</td>
</tr>
</tbody>
</table>

Source: [http://urbanmobilityindia.in/Upload/Conference/fe50d218-3344-4089-b0a0-7c9ffa6ef899.pdf](http://urbanmobilityindia.in/Upload/Conference/fe50d218-3344-4089-b0a0-7c9ffa6ef899.pdf)
Business Models Emerging and for the future

• Will be driven by services rather than means of transportation or Products in the past.

• These will include:
  • Car Pooling,
  • Car sharing,
  • Multimodal transportation

• Change in Technology- with adaptive cruising, emergency braking, ‘smart cars’. Much more integrated and more door to door within Cities.

• In 5-10 years time should also be aligned with the smart cities program of the union government- where services can be offered by OEM’s. Example like a car company takes ownership of Taxi within a smart city.

• But in the present time one has to be careful especially with the recent issue of Uber in India. That of a lady travelling in a Cab. Now Uber does now own the cab is it really Uber’s responsibility for Safety of Women?
Present cities seem stressed on multiple accounts that is, overpopulation, sketchy resources, exorbitantly high cost of living index, formal governance etc.

So the cities of future would primarily be an itsy-bitsy variation of current cities

Current cities have built in so many contra forces that they are now leviathan white elephants. However, it is being suggested that city of future would be fragmentisation of population clusters

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Therefore, cities needs to see their future and then address the stresses bothering them and should not depend on the vacuous pronouncements of politicians
**KEYS FOR SUCCESSFUL CITIES**

- **Vision**: ambition for future + desire + shared value system
- **Governance**: shaping people and not merely “shaping knowledge”
- **Entrepreneurship**: include principles such as, participation, coherency, competitiveness, subsidiarity, sustainability
- **Social cohesion**: creative city planning which, addresses social issues
- **Specialization**: understand every city’s unique characteristics

Institute for Competitiveness, India            Presented by: Dr. Amit Kapoor
Therefore,

- Clear boundaries between Metropolitan governance body and municipal corporation
- Need to make institutional arrangements
- Empower Local bodies
- Create well defined model for governance structure
- Focus should be on managing the change wherein expectations of all stakeholders is taken into consideration

A ‘GOOD’ City = sound political and governance system
provide quality services in adequate quantities to the residents
are responsive towards the requirements of the businesses
UNTANGLING THE LINKAGES BETWEEN CITY, COMPETITIVENESS & ECONOMIC GROWTH

- More advanced economies are more urbanized economies
- Cities tend to be the only place where companies and individuals find opportunities for successful economic activity
- Rise of cities is seen as an inevitable part of development but also as a policy challenge
- Avoid a political schism between metropolitan and rural regions
- Cities have a different role to play in advanced economies
- From the competitiveness perspective, the policy imperative is crucial for cities as well as for rural regions
- Cities and the rural regions around them should cooperate closely

The case with Mumbai

- Tried to manage the growth by creating artificial boundaries
- The approach failed and made living conditions worse
- Different policy approach is required that focuses on better public services and land use inside the city
- Competitiveness-oriented policy approach can be used that changes the economic fundamentals of where people live and work
**AUTOMOTIVE CLUSTERS IN INDIA**

**NORTH**
- Maruti Suzuki, Honda, Hero, Yamaha, LML

**EAST**
- TATA, HM

**GM, TATA, Fiat, Bajaj, Mahindra, Mercedes Benz, Volkswagen, Eicher, Force, Skoda, Audi, Mahindra Renault, Swaraj Mazda**

**Hyundai, Ford, Mitsubishi Motors, TVS, Toyota, Volvo, Royal Enfield, BMW, Nissan, Renault Nissan**


Institute for Competitiveness, India

Presented by: Dr. Amit Kapoor
Automotive Clusters in India

Delhi is a cluster for the light vehicle manufacturing while the eastern part is dominated by Tata which is known for heavy vehicle manufacturing. Maharashtra and Gujarat are still the hotspots of manufacturing of light and heavy motor vehicles in India. Chennai is known for manufacturing of light and heavy vehicles.

Source: Institute for Competitiveness Analysis
EVOLUTION OF THE INDIAN AUTOMOTIVE AND URBAN MOBILITY CLUSTER

1940s
- Premier Automobiles sets up plant in Kurla.
- Hindustan Motors Sets up plant near Port Okha
- Mahindra ties up with Willys jeep

1960’s
- 1966 saw the establishment of ARAI lead by Tata.
- TVS and Ashok Leyland invest in the Tamil Nadu Automotive Cluster

1980’s
- Joint venture (JV) Indian government and Suzuki to form Maruti Udyog; started production in 1983
- Fiat introduces 118 NE into India and Contessa is born

Early 2000’s
- Introduction of value added tax in 2005
- 11 million units sold in 2007

1950’s
- Tata Motors manufactures its first vehicle with Daimler Benz in 1954.
- 1956 saw the restriction of players in the industry.
- Force motor established in 1958

1970’s
- License raj only 5 players existent in the system.
- Industry heavily under the grip of price controls.

1990’s
- Delicensing of Automotive industry in 1993
- Peugeot, Daewoo, Hyundai, Ford, GM Opel, Mitsubishi enter into Indian market

Since 2008:
- More than 35 players
- Removal of most import controls
- Setting up of National Automotive Board
- Sales of 20.4 Million (SIAM 2012)

Source: Institute for Competitiveness Analysis

Presented by: Dr. Amit Kapoor
IT’s Role for the cluster:

Role of IT

Increasing Complexity
IT Services Continuum

Just plain ticketing solutions

GPS Mapping for obtaining real time location of trains/buses

Complete IT Blueprint of the City enabling smart mobility solutions
How would the Urban Mobility Industry Serve Various Categories of Consumers

<table>
<thead>
<tr>
<th>CLASSES</th>
<th>URBAN MOBILITY CHOICES</th>
</tr>
</thead>
</table>
| Rich (42,800 people with more than 1 Crore Income in 2013, GOI) | • Already have access to various modes.  
• Preference to Personalization (Luxury cars etc).  
• Some do prefer green modes of urban mobility (bikes, etc) which are both green and make one healthy. |
| Middle Class (Roughly 13% or 160 Million according to NCAER 2011) | • Rising Income levels and aspirations.  
• Most likely to use MRTS and other urban mobility platforms for going to work.  
• Usage of cars and other owned private vehicles limited.  
• Likely to benefit from implementation of various urban mobility projects.  
• Information asymmetry is largely reducing due to rising internet penetration. |
| Poor (68.72%) at less than $2 Dollar a day (World Bank 2010) | • Often have limited access due to economics of access.  
• Economics and information often determines the distance and choice of commuting.  
• Mostly stay close to workplace and often go walking to work.  
• Do not have the capacity to purchase most mobility assets (scooters, motorbikes or cars) however some do have a cycle for commuting.  
• Likely to use old public modes (Buses) or privatized very cheap modes of travel like shared autos when they travel. |
Global versus Local

- Separate local value chains
- Integrated global value chain

- Geographic scope of competition is determined by the ability to leverage activities in the value chain across borders. Industries differ greatly in the scope of competition.

Inbound Logistics
(e.g. Incoming Material Storage, Data Collection, Service, Customer Access)

Operations
(e.g. Assembly, Component Fabrication, Branch Operations)

Outbound Logistics
(e.g. Order Processing, Warehousing, Report Preparation)

Marketing & Sales
(e.g. Sales Force, Promotion, Advertising, Proposal Writing, Web site)

After-Sales Service
(e.g. Installation, Customer Support, Complaint Resolution, Repair)

Firm Infrastructure
(e.g. Financing, Planning, Investor Relations)

Human Resource Management
(e.g. Recruiting, Training, Compensation System)

Technology Development
(e.g. Product Design, Testing, Process Design, Material Research, Market Research)

Procurement
(e.g. Components, Machinery, Advertising, Services)
THE END