Electronics industry in India

-PN Dhoot
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About VIDEOCON

25 Years in electronics.

Revenue: $5 Billion ($3 Billion from electronics)

30,000 people worldwide

CE/ HA, Retail, DTH, Oil & Gas, Power & Telecom.
Agenda

- Market
- Category
- Critical Success factors
- International case-studies
- Opportunities in India
- What can the stakeholders do?
UNDERSTANDING THE MARKET
Market Attractiveness

Source: AT Kearney GRDI 2011 Report

[Diagram showing market attractiveness analysis with countries plotted based on market potential and country risk.]
The world is moving to India...

<table>
<thead>
<tr>
<th>Opening</th>
<th>Peaking</th>
<th>Maturing</th>
<th>Closing</th>
</tr>
</thead>
</table>

Source: AT Kearney GRDI 2011 Report
Facts about India

- 9th largest economy in the world, 3rd largest by 2030
- Sustained GDP growth of over 8%
- India has the 2nd largest pool of engineers and scientists
- India adds 1 “Netherland” mobile users/month, world’s 2nd largest mobile market
- Indian Railways is the largest rail network in the world
- India is the 7th nuclear power in the world
- India has the world’s largest single location forging facility
- India’s GDP/capita will multiply 4 times till 2020
- 220 out of Fortune 500 companies outsource to India
- 25% of the world’s new workers in the next 3 years will be Indians
India accounts for only 3.5% of the global electronics market.

Worldwide market size = $1.8 trillion
Size of Indian market = $65 billion (approx.)
UNDERSTANDING THE CATEGORY
Global electronics landscape

For the 2004–09 period, the global industry has grown at an annual rate of 3%.

At the current pace, the global production is projected to reach USD2 trillion in 2014 and USD2.4 trillion in 2020.

Size of the global electronics industry vis-à-vis other major industries...

- **4.40 times** Oil, Petrol & Minerals
- **2.75 times** Chemical & Plastics
- **2.45 times** Food, Beverage & Tobacco
- **2.44 times** Transportation
- **2.20 times** Electricity, Gas & water

All figures in USD trn
Indian electronics landscape

Indian electronics manufacturing has seen a CAGR growth of 16 percent since 2003.

Domestic demand is expected to reach USD100 billion in FY14 and USD400 billion in FY20.

Electronics segment received less than 1% of the total FDI from April 2000 till date.
<table>
<thead>
<tr>
<th>Segment</th>
<th>Target 2014</th>
<th>Target 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semiconductor design</td>
<td>20.0</td>
<td>58.2</td>
</tr>
<tr>
<td>High-tech manufacturing</td>
<td>4.0</td>
<td>22.6</td>
</tr>
<tr>
<td>Electronic components</td>
<td>2.6</td>
<td>3.4</td>
</tr>
<tr>
<td>Electronic Manufacturing Services</td>
<td>1.4</td>
<td>2.3</td>
</tr>
<tr>
<td>Electronic systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT systems and hardware</td>
<td>16.7</td>
<td>54.4</td>
</tr>
<tr>
<td>Telecom products and equipments</td>
<td>29.5</td>
<td>153.5</td>
</tr>
<tr>
<td>Consumer electronics</td>
<td>8.1</td>
<td>17.8</td>
</tr>
<tr>
<td>Others (Industrial, Automotive and others)</td>
<td>2.7</td>
<td>7.8</td>
</tr>
<tr>
<td>Exports</td>
<td>15.0</td>
<td>80.0</td>
</tr>
<tr>
<td><strong>Total of all segments</strong></td>
<td><strong>100.0</strong></td>
<td><strong>400.0</strong></td>
</tr>
</tbody>
</table>
Key drivers for growth

- Growth in per capita income
- Increased corporate spends
- Government focus on infrastructure
- Increased investments in automotives
- Innovative products at low cost
- Retaining intellectual property in India
CRITICAL SUCCESS FACTORS
Components import from China

According to CMIE, as on 31 March 2009, India imported USD 19.77 bn worth of electronics goods and exported worth USD 3.17 bn.

Currently tier I suppliers in India import components from China as linkages to wider value chain are missing. More than 70 percent of Indian electronic market depends on imports of finished goods and components.
Critical Success factors for the industry

**Semiconductors**
- Capital to invest in fixed assets and R&D
- Availability of skilled personnel
- Support from government

**EMS/ODM**
- Labor, components and resource cost
- Transportation & logistics
- Proximity to suppliers

**OEM**
- Large & developed local market
- Developed transportation and logistics
- Government incentives (tax breaks and lower import duties)
INTERNATIONAL CASE STUDIES
Learning from the dragon
Dragon’s obsession with energy

- 10,000 workers in Sudan
- $25 billion loan to Russia, for 300,000 barrels of crude oil/day
- $1.7 billion deal with Iran to develop oilfields
- CNPC - 1 of the 2 companies to win contracts to develop Iraq’s oilfields
- CBC finances $1.2 billion Iran-Pakistan pipeline
- Eximbank - $2 billion low-interest loan to Angola – Oil for infra
State Capitalism

• Biggest importer of oil and largest exporter of manufactured goods from Middle East

• CAB’s investors are the Qatar Investment Authority ($2.8 billion) and the Kuwait Investment Authority ($800m).

• Important tourist destination to ME businessmen

• King Abdullah’s first visit abroad was China
Approach of the Taiwanese Tiger

(Figures in brackets represent the number of players in Taiwan in LCD TVs)

### Core: Materials & Components

<table>
<thead>
<tr>
<th>Material</th>
<th>Players</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo Mask (5)</td>
<td></td>
</tr>
<tr>
<td>Material (6)</td>
<td></td>
</tr>
<tr>
<td>Glass Substrate (7)</td>
<td></td>
</tr>
<tr>
<td>ITO Glass (3)</td>
<td></td>
</tr>
<tr>
<td>Color Filter (5)</td>
<td></td>
</tr>
<tr>
<td>Polarizer Film (5)</td>
<td></td>
</tr>
<tr>
<td>Liquid Crystal (3)</td>
<td></td>
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<tr>
<td>Back Light Module (4)</td>
<td></td>
</tr>
</tbody>
</table>

### Mid-stream: Types of displays

<table>
<thead>
<tr>
<th>Display</th>
<th>Players</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED (3)</td>
<td></td>
</tr>
<tr>
<td>TN LCD (5)</td>
<td></td>
</tr>
<tr>
<td>STN LCD (4)</td>
<td></td>
</tr>
<tr>
<td>TFT LCD (7)</td>
<td></td>
</tr>
<tr>
<td>LCOS (3)</td>
<td></td>
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</tbody>
</table>

### Downstream: End products

<table>
<thead>
<tr>
<th>End Products</th>
<th>Players</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display (5)</td>
<td></td>
</tr>
<tr>
<td>Consumer (6)</td>
<td></td>
</tr>
<tr>
<td>Te’lem (4)</td>
<td></td>
</tr>
<tr>
<td>Information (5)</td>
<td></td>
</tr>
<tr>
<td>Dashboard (4)</td>
<td></td>
</tr>
</tbody>
</table>

Multiple players in every sub-segment, organized in a given corridor.
The Taiwan Progression

- '85: Aspire!
- '90: Build Local market
- '95: Cost Advantage
- '00: Import Substitution
- '05: Opening for exports
- '09: Trade protection
- FDI Control
- Public R&D
- Fiscal Incentive
- Education
- Industrial Climate
- Special Human Resource Strategies
- Brands
- Inv. In PRC, Vietnam

Can India do it?

15+ years of focused effort from govt. & industry to build full fledged eco-system.
Creating Institutions:
Industrial Technology Research Institute

Works closely with the companies. Alliances with MIT, UC Berkley, Carnegie Mellon.

$10B of public R&D investment – working closely with the industry.
South Korea – House of giants

Role of government

- Promote industry growth through national banking regulations, low-interest loans, tax incentives and duty-free import of capital goods.

- Encourage education and R&D through MOST, MOTIE and MOIC.

- Fund infrastructure development, including highways and transportation systems, etc.

- Establish communication between industry, educational establishments, and the media.
Role of “Chaebols”  
(from chae: wealth or property + pŏl: faction or clan)  

• 1961 – Korean government realizes they need entrepreneurs to modernize the economy  
• Reasons for growth  
  – Foreign loans  
  – Special favors  
• Government acted as guarantor for foreign loans  
• Chaebol representation in the government (Chung Moon-Joon)
OPPORTUNITIES IN INDIA
Opportunities in India

- Access (Wireless)
- Digitization (Electronic Society)
- Security (Integrated Surveillance Systems)
- Education (Digital Classrooms)
- Energy (Smart Meters, LEDs, Green Energy Wireless)
- Healthcare (Affordable medicine/Telemedicine)
- Automotive (Low cost/zero emission)
WHAT CAN THE STAKEHOLDERS DO?
Stakeholders in Electronics value chain

- Industry Organizations
- Indian Government
- Private Sector
- Educational & Research centers
Industry organizations

- Combine electronics hardware sector expertise and resources
- Improve public knowledge
- Understand the role of industry in India’s potential
- Appreciate the rewards of participating on a global level
Educational & Research centers

• Provide expertise in industry-building initiatives

• Form partnerships emphasizing the needs of JVs

• Vocational training/educating of relevant personnel

• Define industry skill sets for future researchers, engineers and management leaders
Private Sector

- Alliances with MNCs, business leaders and industry experts
- Active part in advisory boards designed to guide EMS ventures
- Research/manufacturing initiatives that address regional & international concerns
- Support and adopt collaborative research approaches
Indian Government

- Increase core spending on sector related R&D
- Provide financial backing for initiatives, including human resource development
- Encourage partnerships and foreign technology-based venture capital investments
- Develop tech-parks and high-tech industry clusters
- Share risks in launching and running industry initiatives
- Coordinate efforts by ministries, private sector, research labs and academic circles.
- Corporate rewards for the private sector
- Strict implementation of IP rights to promote innovation
How can India do it???

Industry Organizations
Indian Government
Private Sector
Educational & Research centers

Liaison with Semiconductor manufacturers
Collaboration
Clear road map & policies
Focused approach
Thank you!