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# HIGH-TECH & ELECTRONICS INDUSTRY IN INDIA

**FLANDERS** INVESTMENT & TRADE MARKET SURVEY

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# High-Tech & Electronics Industry in India

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# INTRODUCTION

The Indian Technology and Services Industry has been a catalyst for change for the global enterprises, delivering innovative solutions and business impact to help them become more competitive. India's story in this space is exceptional and inspirational. Over the years, India has emerged as the epicenter and the industry is fast approaching USD 150 billion mark which is a testament to the position of India as a partner of choice for customer segments. This has involved building deep capabilities and competencies, new and innovative business and delivery models and a business strategy to harness investments both within and outside the organization.

The industry has been a key contributor to India and driving transformation in many different ways. Over the last decade, the industry has been partnering with central and state governments, and leading Indian enterprises across verticals like banking, manufacturing, healthcare, education, retail to deliver impact. The technology industry has been helping governments revamp how they serve citizens and enable enterprises to become more competitive and effectively serve their customers. It has also been playing a key role in empowering the citizens in many different ways and enabling the aspirations of individuals as well as the small and medium businesses. The technology industry has played a pivotal role in transforming the socioeconomic landscape in terms of macro-economics, direct and indirect employment, catalyzing growth of dependent industries like real estate, services and also contributed positively to India's image across the world.

Innovation has been at the core of this transformation that the industry has been delivering. Today innovations from India are setting new benchmarks for the art of the possible and creating models that can be offered globally. Lot of leading organizations are using India as their key hub for path-breaking innovations.

India, with growing semiconductor consumption and acceleration in electronics manufacturing activities, is destined to emerge as an important semiconductor manufacturing location. As per the recent reports India is one of the fastest growing semiconductor-consuming markets in the world. The rise of the middle class fueled by the sustained economic growth is driving the consumer market in India at an astounding pace.

One of the major developments in this sector is the evolution of the Start Up ecosystem in India. Several hotspots have emerged in this segment supported by High Tech and Electronics segment. The Govt of India is also doing its part by launching the Start Up India campaign and also a dedicated policy in this regard. Several Startups have emerged and continue to launch products and development.

# MARKET INFORMATION

India is at the epicenter of global services market in technology. India constitutes nearly more than 55% of the global services market. It also has a strong growth of 12.5% against a global growth rate of 4.5%. India is emerging as a global Digital Lab with more than 20,000 technology companies, with an increasing focus on Innovation, of which nearly 50% are digitally focused. There is an increased R&D footprint with MNC R&D centers growing at 15% and R&D spending growth at 8%. In the technology innovation space, over 90% are satisfied with India cooperation and over 53% plan to maintain / expand foot print.

Technology is also transforming the socio-economic landscape in India. India also commands sizeable domestic market of USD 50 billion with massive growth potential. Indian technology space is the largest private sector employer with 3.5 million direct and over 10 million indirect employment. This segment contributes significantly nearly 9.5% of the GDP. It also has an inclusive growth with 60% of the revenue being generated from the SME segment. This segment also currently has clocked USD 98 billion of export revenue. This has emerged as the most significant economic impact fueling M&A growth as well.

India has been leveraging technology disruption to leapfrog and India is jumping the technology curve with high mobile and internet penetration with over 75% of the population mobile enabled and 2nd largest Internet user base in the world.

India is the fastest growing and most unique E-commerce market in Asia-Pacific. This market constitutes about USD 14 billion growing at 30% CAGR. India has also emerged as the booming hub for technology-led startups being amongst the top 5 globally. The ecosystem is characterized by SMEs spending about USD 16 billion on innovation and technology doubling the current spend in 2 years. The technology disruption is happening in the areas in affordable smart devices and sensors including social impact, broadband connectivity, cloud-based technologies, big data analytics and pervasive software among others.

Innovation and technology transformation is happening in across the sectors in manufacturing, transportation, healthcare, BFSI, social impact, government and other verticals. Technology will play a critical role as an enabler for growth in governance, social paradigm and others.
The Indian Electronics market size is expected to reach USD 400 Billion by 2020 and the Electronic Manufacturing Services (EMS) industry is expected to be a significant contributor to the entire industry's development. India has a large pool of skilled manpower and strong design and R&D capabilities in auto electronics and industrial electronics, and also has the third largest pool of scientists and technicians in the world. The government is promoting development of electronics manufacturing clusters throughout the country to provide world class infrastructure and facilities and Electronics India B2B Platform is helping various technology players to explore potential synergetic partners for technology transfer and joint ventures for electronics manufacturing. 65% of the current demand for electronic products is met by imports which presents an opportunity for import substitution.

The semiconductor industry is currently dominated by design services and embedded software and is estimated that demand of electronics products and systems in India would grow to about USD 400 Billion by 2020. At the conventional rate of growth of domestic production, it would only be possible to meet demand of about USD 100 Billion by 2020. The Government attaches high priority to electronics & IT hardware manufacturing. It has the potential to generate domestic wealth and employment, apart from enabling cyber-secure ecosystem. There have been some efforts for rapid growth of the electronics (including telecom) hardware manufacturing sector in the past like 100% FDI permitted under automatic route, no Industrial

license requirement, payment of technical know-how fee and royalty for technology transfer under automatic route. However, these efforts have not led to a substantial impact; partly because of India is a signatory to the Information Technology Agreement (ITA-1) that has resulted in a zero duty regime on import of the goods covered under the Agreement. India has also executed Free Trade Agreements (FTAs) and Preferential Trade Agreements (PTA) with several countries / trading blocks, which has enabled zero duty import of items not covered under ITA. DeitY (Department of Electronics & Information Technology) has taken some key steps to boost manufacturing of specific products and the setting up of planned semiconductor manufacturing facilities is likely to be accomplished. Thus, by 2020, India will have the entire semiconductor paradigm in place, and will be in the reckoning among other Asian semiconductor manufacturing countries.

The Industry segment key indicators:

- The market for semiconductors in India is expected to touch $52.6 billion in 2022
- Television sets lead semiconductor consumption in the consumer segment
- The industry is growing at a CAGR of about 29.4%
- Potential of 15.5 million jobs in the sector by 2025
- Currently about 500 companies in the sector with a huge demand supply gap of personnel
- By 2020, communications is anticipated to be the major contributor to semiconductor consumption.

There is a huge domestic demand and rising disposable income. Also, there is a huge consumption of electronic products in the Middle East and in emerging markets such as North Africa and Latin America, and there are rising manufacturing costs in other major manufacturing economies. India is the 4$^{th}$ largest Start-up ecosystem globally with favorable government policies such as Modified Special Incentive Package Scheme (M-SIPS), Electronics Manufacturing Clusters Scheme (EMC) and Skill Development Schemes.

The semiconductor consumption in India is likely to increase with consumer Electronics, Telecommunication segment, Instrumentation leading the growth. Further each segment the of semiconductor products like microprocessors, microcontrollers, memory, and DSP across each segment have tremendous potential. The major players in various semiconductor segments are already present in India. The next opportunity and the industry segment is the semiconductor manufacturing scenario in India. This has been corroborated especially from the Flanders point of view by the presence of IMEC in Bangalore and many more Electronics related companies expressing their intent to be present in India.

# OPPORTUNITIES

## Opportunities in high-technology sector

Opportunities lie across the sectors for high technology. Some of them are listed below for exploring possibilities

- mBanking – Financial Services: 120 million rural households without bank accounts; 48% leakage in employment guarantee program payments
- e-Learning – Education & Skills: 88% of class 8 students in rural India unable to read class 1 text; 500 million without secondary education or skills training
- Tele-medicine – Healthcare: 1/3 – 1/2 doctors / capita compared to China and Brazil; 43% absenteeism of healthcare workers
- Smart Grids – Energy: 30% import share in fuel demand; 24% electricity lost in transmission and distribution; 300 million lack electricity
- Intelligent Highways – Infrastructure: 105 liters of water supplied / capita but 140 liters needed; 2x traffic congestion in urban vs. best-in-class
- Indoor Farming – Agriculture & Food: 48% of agricultural yield per hectare of Asian countries; 20 million tons grain lost / year due to bad warehouse facilities

## Electronics development

### The 5 Key Products of Potential

*Mobile Phones (Smartphone and feature phone):*

Indian mobile devices market has been driven by rising demand for mobile handsets due to the reducing prices, tariffs and growing mobile use base. In value terms, the market registered turnover of USD 16.2 billion in FY15. This market is expected to grow at a CAGR of 17-22% over the next five years to reach USD 35.8-44 billion by 2020.

*Tablets*

The Indian tablet industry has shown rapid growth in last five years mainly driven by the development in wireless technology and rising pervasiveness of wireless networks and data connections. The overall tablet market in India is estimated to be USD 0.7 billion, with domestic manufacturing of USD 0.5 billion in 2015. This market is expected to grow at a CAGR of 6-18% over the next five years to reach USD 1-1.7 billion by 2020.

*LED Lighting*

The Indian LED market is nascent currently, emerging as one of the fastest growing industries over the last few years. Growing awareness towards energy conservation, reduction in prices of LED lights, lower maintenance cost and longer life has resulted in considerably high demand for LED lighting in both consumer and industrial segments. In value terms, the market was valued at USD 624 million in FY15. This market is expected to grow at a CAGR of 31-39% over the next five years to reach USD 2.4-3.2 billion by 2020.

### *Flat Panel Display Products (FPD)*

The market for FPD in India is growing at a steady 8% CAGR driven by increasing demand for FPD TVs. The total market (TM) was valued at USD 5.3 billion in FY15. TDM was valued at USD 3.0 billion in 2015, growing from USD 2 billion in 2013 at a CAGR of 24%. The total market (TM) is expected to grow at a CAGR of 14-18% over the next five years to reach USD 10.1-12.3 billion by 2020.

### *Smart Meters*

Smart meter market in India is estimated to be USD 182 million in FY15 growing at a CAGR of 18% from 2013. The growth has been largely seen in the last 1-2 years due to the Government's push on installing smart meters aiming to reduce power losses, bring power efficiency and build smart grid infrastructure. While the market is in nascent stage, it is expected to grow at a CAGR of 41-42% over the next five years to reach USD 1 billion by 2020 primarily driven by government initiatives.

## Market

### *Opportunities in the Electronics Segment in India*

A few verticals focused on the ESDM sector can be looked at to enhance the collaboration like Component / Product manufacturing, Semiconductor Engineering, Technology upgradation services, Design & Development services, Joint ventures in addressing the global market leveraging local talent and cost arbitrage, Joint development of technology products & possibilities of cooperation, Joint IP Creation.

### Investment Opportunities

- Setting up of Electronics Manufacturing Clusters (EMCs).
- Semiconductor Wafer Fabrication (FAB).
- Electronic Components.
- Strategic electronics.
- Semiconductor Design.
- Electronics Manufacturing Services (EMS).
- Telecom products.
- Industrial/ Consumer electronics.

### Design Services

A few Belgium companies are already operating in India. One of the most successful among them is IMEC. Belgium can look forward to have more design services companies in India.

### Solar

Solar is one of the key products which has been emphasized in the recent, due to its huge market potential to cater to the high domestic demand. Recently, a few Belgian companies have already set up / are already planning to set up operations in India (Eg. Ikaros Solar). India will require more solar companies to set up operations and manufacturing facilities in order to cater to this huge demand.

# POLICY INFORMATION

## Sector policy

### National Policy on Electronics (NPE)

1. NPE's vision is to create a globally competitive Electronics System Design and Manufacturing (ESDM) industry to meet the country's needs and serve the international market.
2. Develop an ecosystem for a globally competitive ESDM sector in the country by attracting investment in excess of USD 100 Billion and generating employment for 28 Million people at various levels.
3. To develop core competencies in strategic and core infrastructure sectors like telecommunications, automobile, avionics, industrial, medical, solar, information and broadcasting, railways, intelligent transport systems, etc.
4. A number of state governments have also come up with separate state specific policies for electronics sector.

### Preferential Market Access

1. Preference to domestically manufactured electronic products in Government procurement.
2. Nine (9) electronic products and twenty three (23) telecom products are notified under the policy.
3. All companies registered in India engaged in manufacturing of electronic products in India and the sole selling agents/ authorised distributors/ authorised dealers/ authorised supply houses of the domestic manufacturers of electronic products are eligible for consideration under the Policy.
4. The electronic products to be notified under this policy shall meet the minimum 25% domestic value-addition in terms of Bill of Material (BoM) from domestic manufacturers.

### Information Technology Investment Regions (ITIR)

1. Karnataka (42.5 sq. km, near Bengaluru, a USD 17.6 Billion investment).
2. Telangana (202 sq. km, near Hyderabad, USD 36.4 Billion investment).
3. Semiconductor Wafer Fabrication (FAB) manufacturing facilities being set up in India in Uttar Pradesh and Gujarat with a total investment of USD 10.5 Billion.

Electronic Sector Skills Council and Telecom Sector Skills Council have been set up for establishing an effective and efficient ecosystem for developing and imparting outcome-oriented skills for the ESDM sector. A total of 0.09 million people are to be supported under the Skill Development Scheme in six different states.

## FDI policy

- 100% Foreign Direct Investment (FDI) is allowed under the automatic route in the ESDM sector and is subject to all applicable regulations and laws.
- In case of electronics items for defence, FDI up to 49% is allowed under automatic route, whereas anything above 49% is allowed through the government approval.

## Startup policy

Government of India has launched a new Startup India Policy and the details of the Startup India Policy are as given below:
Startup India is a flagship initiative of the Government of India, intended to build a strong eco-system for nurturing innovation and Startups in the country that will drive sustainable economic growth and generate large scale employment opportunities. The Government through this initiative aims to empower Startups to grow through innovation and design.

In order to meet the objectives of the initiative, Government of India is announcing an Action Plan that addresses all aspects of the Startup ecosystem. With this Action Plan the Government hopes to accelerate spreading of the Startup movement:

- From Digital / Technology sector to a wide array of sectors including agriculture, manufacturing, social sector, healthcare, education, etc.; and
- From existing tier 1 cities to tier 2 and tier 3 cities including semi-urban and rural areas.

The Action Plan is divided across the following areas:

- Simplification and Handholding
- Funding Support and Incentives
- Industry-Academia Partnership and Incubation

Anyone requiring more information or details may contact FIT Bangalore.

## EXISTING GLOBAL PLAYERS IN INDIA

- Qualcomm (USA)
- Samsung (South Korea)
- LG (South Korea)
- GE (USA)
- Jabil (USA)
- Flextronics (USA)
- Bosch (Germany)
- Amphenol (USA)
- Motherson Sumi system (Japan)
- Nidec (Japan)
- Magneti Marelli (Italy)
- Continental (Germany)
- HMC MM (Japan)
- Delphi (USA)
- Mando Hella (South Korea)
- Mitsubishi (Japan)
- Harman (USA)
- Perto (Brazil)
- Giesecke and Deverient (Germany)
- Haier (China)
- Philips (Netherland)
- Liebherr Hausgerate (Germany)
- M2i (Taiwan)
- Asti (Japan)
- Panasonic (Japan)
- Huawei (China)
- Sony (Japan)
- Sansui (Japan)
- Aiwa (USA)
- Canon (Japan)
- Nikon (Japan)
- Keltron (India)
- 3M (USA)
- BPL (India)
- Videocon (India)
- Onida (India)
- Olympus (Japan)
- Akai (Singapore)

# RELEVANT SECTOR ORGANIZATIONS / ASSOCIATIONS

## Relevant Organizations / Associations

- The Ministry of Electronics & Information Technology, Government of India – Department of Electronics & Information of Technology
  http://meity.gov.in/

- India Electronics Semiconductor Association – IESA
  www.iesaonline.org

- Manufacturers Association of Information Technology – MAIT
  www.mait.com

- Indian Electrical & Electronics Manufacturers' Association – IEEMA
  www.ieema.org

- Automotive Component Manufacturers Association of India – ACMA
  www.acma.in

- Electronic Industries Association of India
  www.elcina.com

- Consumer Electronics & Appliances Manufacturers Association – CEAMA
  www.ceama.in

- Association of Indian Medical Device Industry – AIMED
  www.aimedindia.com