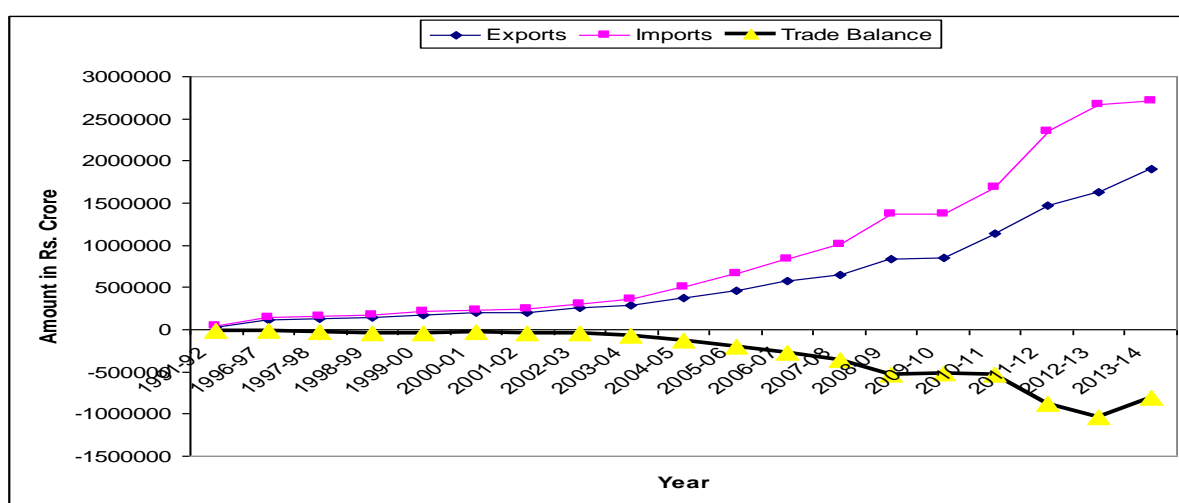


## In line with Make in India, India needs its Electronic Product Industry for contributing towards making India a \$20 Trillion economy

### Introduction – India's trade deficit, causes and remedies

Following graph highlights the fact of India having constantly been under a varying but injurious nature of foreign exchange deficit or trade deficit, as the imports have always outweighed the exports. But over the last 20-22 years, and especially during the last 10-12 years, the hiatus between the imports and exports have widened considerably. This is elaborated in the figure given below:



In recent past, the considerable surge in trade deficit has been due to electronic items. India imported \$31 billion worth of electronic items in 2013-14; \$10.9 billion of this was accounted for by phones. India imports 65% of its current demand for electronic products. If the situation is left unchanged, the country's electronics import bill may well surpass its oil import expenses by 2020.

Hence in order that India could become an economy of \$20 Trillion, it is now very pertinent to explore the ways and means to minimise this trade deficit or foreign exchange deficit, and the it can be done simply by employing reverse engineering in trade behavioural patterns. Needless to say that only technology, nay, information technology, nay, information and communication technology has to play the pivotal role in this mammoth job.

In fact, there are three items on which the imports are heavily bent upon. The first one is crude oil, the import of which is very impossible to be reduced. The second is gold and is difficult to curb its imports looking at the cultural and societal value of gold and pearls in Indian household unless new vistas are discovered in indigenous gold mining sector. The third is ESDM (Electronics System Design and Manufacturing) industry, and it is the sector which may bring about revolutionary vicissitudes and topple over the present trends of imports and exports thereof.

### **What is ESDM**

The ESDM industry in India comprises the following four key components:

1. Electronic Products
2. Electronic Components
3. Semiconductor Design
4. Electronics Manufacturing Services (EMS)

Of the above, the first two represent products while the remaining highlight the services opportunities catering to the domestic and export markets. As per Department of Electronics & Information Technology (DeitY), Electronics System Design & Manufacturing sector covers electronic hardware products relating to IT and office automation, telecom, consumer electronics, electronic components, etc., It also includes avionics, solar photovoltaic, strategic electronics, nano electronics, medical electronics, space & defence related items, design related activities like product design, chip designing, VLSI, board design, embedded systems etc. As per DeitY report, the Indian ESDM industry was estimated to be \$68.31 billion in 2012; anticipated to be \$94.2 billion by 2015; CGAR of 9.68% between 2011 and 2015. Further, top 10 electronic products contributing about 70% by total revenue - Mobile Phones; Flat Panel TVs; Notebooks; Desktops; Digital Camera; Inverters and UPS; Memory Cards & USB Drivers; 4W EMS; LCD Monitors and Servers as the following chart describes:

<b>Product</b>	<b>Revenue % of Total</b>
Mobile Phones	38.85
FPD TV	7.91

<b>Product</b>	<b>Revenue % of Total</b>
Notebooks	5.54
Desktops	4.39
Digital Camera	2.73
Inverters and UPS	2.65
Memory Cards and USB drives	2.46
4W EMS	2.33
LCD Monitors	2.02
Servers	1.72
<b>TOTAL</b>	<b>70.6</b>

### **Scope of ESDM, its potential and embodiment of concept of "Make In India" in ESDM Industry**

Over the last couple of decades India has been the epicenter of consumer demand fuelled by a phenomenal GDP growth. While demand increased across all sectors, demand for technology products, specifically electronic products has registered significant growth and going by current estimates, the demand for electronics hardware in the country is projected to increase from \$45 billion in 2009, \$90 billion in 2014-15 to \$400 billion by 2020 (Source: <http://DeitY.gov.in/esdm>).

The ESDM industry is by and large heartened by the government's 'Make in India' campaign. Currently the status of India's imports is 65% of total requirement. Needless to say that the indigenous ESDM industry requires impetus to be made smart enough for reducing imports at least by 12-15 percent per year on one hand, and boost domestic manufacturing to 50 percent by next two years on the other. With the industry's market size projected to touch a whopping \$400 billion by 2020 from \$90 billion in 2014-15, the industry should hope to slash imports to zero over the next five years by accelerating ESDM to grow at 10-15 percent annually. It is pertinent to note that if India doesn't speed up manufacturing of electronics goods and components in quantum, foreign exchange outgo on importing them at \$300 billion would be higher than that of crude oil, as the turnover of domestic production at the current growth rate would be about \$100 billion only.

There lies a huge opportunity of tapping of untapped potential of ESDM industry which is the largest and fastest growing industry of the world. As the living patterns are becoming advanced day by day, there is huge potential of big CAGR which is 22% approximately in this industry due to following facts:

- The driven-to-desire value of electronics goods,
- The demand from a promising corporate sector and
- Various governments focus in applications of e-governance.

Looking at the potential this industry enjoys, it does not seem to be a mammoth task to achieve zero percent imports of ESDM by 2020. The huge potential of ESDM in terms of expanding numbers of internet users in India, obviously directly proportional to the number of computers, smart phones, and other computer hardware and peripherals becomes explicitly clear when we see these figures of number of Indian users of internet vis-à-vis all global users.

Year	Internet Users	Growth	New Users	Population	% of Population with Internet	Country's Share of World Population	Country's Share of World Internet Users	Global Rank
2014	<b>243,198,922</b>	14%	29,859,598	1,267,401,849	19.19%	17.50%	8.33%	3
2013	<b>213,339,324</b>	37%	57,763,380	1,252,139,596	17.04%	17.48%	7.87%	3
2012	<b>155,575,944</b>	27%	32,605,503	1,236,686,732	12.58%	17.47%	6.18%	3
2011	<b>122,970,441</b>	36%	32,548,593	1,221,156,319	10.07%	17.45%	5.39%	3
2010	<b>90,421,849</b>	48%	29,486,779	1,205,624,648	7.50%	17.43%	4.42%	4
2009	<b>60,935,069</b>	18%	9,484,859	1,190,138,069	5.12%	17.41%	3.45%	6
2008	<b>51,450,210</b>	12%	5,665,948	1,174,662,334	4.38%	17.39%	3.27%	6
2007	<b>45,784,262</b>	43%	13,709,281	1,159,095,250	3.95%	17.37%	3.33%	6
2006	<b>32,074,981</b>	19%	5,157,948	1,143,289,350	2.81%	17.34%	2.76%	7
2005	<b>26,917,033</b>	23%	4,969,545	1,127,143,548	2.39%	17.30%	2.62%	7
2004	<b>21,947,488</b>	19%	3,500,884	1,110,626,108	1.98%	17.26%	2.41%	8
2003	<b>18,446,604</b>	11%	1,888,210	1,093,786,762	1.69%	17.20%	2.37%	9
2002	<b>16,558,394</b>	137%	9,564,138	1,076,705,723	1.54%	17.14%	2.50%	8
2001	<b>6,994,257</b>	27%	1,495,988	1,059,500,888	0.66%	17.08%	1.40%	12
2000	<b>5,498,269</b>	96%	2,697,680	1,042,261,758	0.53%	17.01%	1.33%	9

Source: <http://www.internetlivestats.com/internet-users/india/>

These figures provide a correlation between digital infrastructure as a utility for every citizen and governance and services, which ultimately provides a potential for grooming of a robust ESDM industry. Hence, with a view to converting India into digital India on one hand and looking at the fact that the estimated production will

reach USD 104 billion by the year 2020 creating a gap of USD 296 billion in demand and production, on the other creates a unique opportunity for companies in the ESDM sector to look at India as their next destination to cater to the domestic Indian demand as well as act as an exports hub.

Thus, in line of ideology "Make in India", in line with **making India a \$ 20000 Billion (20 Trillion) Economy**, in line with reducing the trade deficit, in line with ameliorating the foreign exchange scenario, the Indian ESDM industry is required to propel into one of the critical GDP contributors in the near future. The Indian electronics system design and manufacturing industry is one of the fastest growing sectors in the country. Witnessing uninterrupted growth, the ESDM industry in India is globally renowned for its consumption potential. Changing global landscapes in electronics design and manufacturing capabilities, and cost structures have turned the attention of global companies towards India. Hence, it is time to explore opportunities to materialize concept of Make in India in this sector too.

### **Government of India initiatives and Role of Madhya Pradesh in accelerating ESDM industry**

The concept of digital India provides material treasure to embodiment of many perceptions of good governance. In order to transform the entire ecosystem of public services and good governance through the use of information technology, the Government of India has unveiled an ambitious Digital India programme with the vision to transform India into a digitally empowered society and knowledge economy. A paper (Activities and Achievements) of DeitY describes nine pillars of digital India. One of these nine pillars is "Electronics Manufacturing – Target Net ZERO Imports". As per DeitY, GoI, the growth drivers for ESDM industry are:

- Significant local demand; Rising manufacturing costs in alternate markets
- 65 percent of the current demand for electronics product is met by imports
- Government polices - Modified Special Incentive Package Scheme (MSIPS) (USD 13.4 bin investment proposal till March 2014), Electronics Manufacturing Cluster Scheme (EMC), Skills Development Scheme

- Export potential - huge consumption market in Middle East; emerging growth markets of North Africa and Latin America
- Existing R&D capabilities can be encouraged to develop 'Made in India' products and generate local IP
- Information Technology Investment Regions (ITIR) notified
- Karnataka (42.5 sq.km; near Bengaluru; USD 17.6 bn investment)
- Andhra Pradesh (202 sq. km near Hyderabad; USD 36.4 bn investment)
- Greenfield Electronics Manufacturing Clusters (EMC) are being established across the country by GMR (near Bangalore); Andhra Pradesh Government (2 numbers near Hyderabad); Electronics Industries Association (near Delhi); Madhya Pradesh State Electronics Development Corporation (Bhopal and Jabalpur); Kerala Industrial Infrastructure Development Corporation (near Kochi)
- 35 Brownfield EMCs renamed as Notified EMCs for MSIPS.
- Semiconductor Wafer Fabrication (FAB) facilities being set up in India in Uttar Pradesh and Gujarat; total investment USD 10.5 bn.
- Venture funds, with focus on electronics, planned including Electronics Development Fund; Walden India Fund; KITVEN Fund; SIDBI Fund
- Electronics Sector Skills Council and Telecom Sector Skills Council set up for establishing an effective and efficient ecosystems for development and imparting of outcome oriented skills for ESDM sector; Skill Development Scheme-90,000 persons are to be supported under the scheme in 6 States/UTs in 5 level of courses
- A scheme to enhance the number of PhDs in Electronics sector to 1500 per annum by 2017-18
- Compulsory Registration of Electronic goods: The mandatory requirement of meeting safety standards for 15 set of electronic products with more products getting included in the list
- Four Incubators to be set up for start-ups in Electronics.
- A new National Centre of Excellence in Large Area Electronics, a joint initiative of industry and academia, to focus on research on problems of the industry in areas like flexible electronics, print electronics, LEDs, etc.

- International collaborations: A Joint Working group, involving both industry and the Government, has been set up between India and Japan to foster greater collaboration between the two countries. A Sub Group for promoting manufacturing in hi-tech sector has been constituted as part of the Joint Working Group between India and US. A proposal to set up Joint Working Group between India and Israel is under discussion. An MoU has been signed between TEEMA of Taiwan and STPI of India to promote the electronics sector. Taipei Computer Association (TCA) has opened its first office in India in Bengaluru.

In order to provide impetus to ESDM industry, the GoI has come with the following FDI policy:

- 100 % FDI is allowed subject to all the applicable regulations and laws
- In case of defence electronics items, FDI up to 26% is under the government approval route and above 26% is allowed through approval of cabinet committee on security

The GoI's National Policy on Electronics (NPE) 2012 is by far the most comprehensive policy document to boost indigenous ESDM Industry. The objective of the NPE is to create an ecosystem for a globally competitive ESDM sector in the country by attracting investment of about USD 100 billion and generating employment for around 28 million people at various levels.

Apart from this, the Government of India, through the DeitY, has instituted a number of forward-looking policies to foster the growth of the Indian electronics ecosystem:

**National Manufacturing Policy (NMP):** Government of India brought out the National Manufacturing Policy to bring about a quantitative and qualitative change with the two main objectives of overall six objective, viz,

- To Increase manufacturing sector growth to 12-14% over the medium term to make it the engine of growth for the economy. The 2 to 4 % differential over the medium term growth rate of the overall economy will enable manufacturing to contribute at least 25% of the National GDP by 2022.

- To Increase the rate of job creation in manufacturing to create 100 million additional jobs by 2022.

**Modified Special Incentive Package Scheme (MSIPS):** The MSIPS aims to offset cost disabilities and attract investments in the India ESDM sector through an INR 10,000 crore corpus. Subject to certain investment thresholds, subsidies to the tune of 20 per cent for SEZ units and 25 per cent for non-SEZ units will be given on capital expenditure along with reimbursement of excise/CVD.

**Electronic Manufacturing Clusters (EMCs):** The government is offering financial support for the development of EMCs. For Greenfield EMCs, assistance will be given up to 50 per cent of the project cost subject to a ceiling of INR 50 crore for every 100 acres of land. For Brownfield EMCs, assistance will be given up to 75 percent of the project cost subject to a ceiling of INR 50 crore.

**Electronics Development Fund (EDF):** The EDF aims to create an ecosystem of R&D in electronics in India which will promote IP generation and large scale manufacturing, while simultaneously fostering the growth of the ESDM ecosystem. The focus of EDF will largely revolve around small and medium enterprises (SME) in line with the goal of promoting innovation and job creation.

Taking cognizance of the demands of the economy and the industry, and looking at the requirements of chips everywhere in all peripherals of computer hardware and mobiles, the role of industry in chips' making is required to be perused. According to DeitY, nearly 2,000 chips are being designed every year in India and more than 20,000 engineers are working on various aspects of chip design and verification. There are more than 120 companies in India focused on semiconductor design for global products. This industry has witnessed a robust growth of 17.3 per cent since 2009 and today boasts of a 5.1 percent share of the global pie. Considering the continued growth momentum, the Indian semiconductor design market is expected touch US\$ 14.5 billion in 2015. Though the consumption of semiconductors has also steadily climbed and it is projected to grow from US\$ 7 billion in 2013 to US\$10 billion in 2015, the semiconductor industry is estimated to grow from US\$ 10.02 billion in 2013 to US\$ 52.58 billion in 2020 at CAGR of 26.72 per cent.



## **Role of Government of Madhya Pradesh**

The Government of Madhya Pradesh is committed for overall development of IT and ESDM industry in Madhya Pradesh with special focus on promoting entrepreneurship, innovation and start-ups in line with the "Make-in-India" concept. GoMP has endeavored various initiatives to promote manufacturing of IT products within the state. The aim of GoMP is to promote innovations, bring in new entrepreneurship ventures and strengthen the IT & ESDM start-ups to achieve zero import and contribute towards our vision of Digital India. Hence the GoMP has come up with The Analogue Semiconductor Fabrication (fab) Investment Policy 2015. The policy aims at developing analogue semiconductor fabrication and micro and nano manufacturing technology as a vibrant industry for inclusive growth, creating employment opportunities for people across the state. The policy will stay in force up to December 2016 or till the announcement of the next policy. As per the policy, the state government will provide land for establishing a fab unit. It will also provide state of art infrastructure that conforms to international standards. Apart from these, the government will facilitate transportation of raw materials and finished goods efficiently by providing transport, warehousing and allied infrastructure.

As per this policy, a wafer fab facility with a minimum investment of Rs 3000 Crore will qualify as a fab unit for the purpose of availing incentives, concessions and subsidies under this policy. Some of the incentives offered under the policy, inter-alia, include:

- Contiguous land measuring up to 75 acre, as per the actual requirement of the fab unit assessed by the authorized agency, will be provided free of cost on a 50 year renewable lease
- The state government will reimburse the cost of constructing the shell of the building that will house the fab unit, after deducting any other subsidy available to the facility from the Centre.
- Stamp duty payable by any unit located in the fab investment area on mortgage/ hypothecation with banks/ financial institutions will be exempted if such a unit is certified as a fab unit by the authorized agency

- The state government will reimburse the cost, if any, paid by the unit for electricity charges, including duties, over and above US\$ 7.5 per kWh up to a period of ten years from the date production starts
- The state government will provide uninterrupted, adequate water supply for the fab unit
- The state government will provide quality roads between the fab unit and the nearest airport.
- A Free Trade Zone will be set up at the concerned airport in collaboration with the government of India, which will remain open 24x7.
- The unit will be covered under the Essential Services Act
- Units necessary for fab operation will be provided all the benefits under this policy
- The total value of incentives paid under this policy to any unit will be limited to 15 percent of the total capital of the unit. The cost of land provided free of cost and the exemptions in Stamp duty will not be included in this limit of 15%.

US Based Cricket Semiconductor has signed an MoU (memorandum of understanding) with the government of Madhya Pradesh to set up \$1 billion analog fab in the state. Cricket Semiconductor is a US based company focused on creation of a specialty foundry in India and their goal is to establish India's first high volume, globally competitive production wafer fab. As semiconductors are the key component of any electronic product, the presence of a wafer fab will help in faster growth of ESDM industry in the state. Apart from this, recently, Madhya Pradesh approved Analog Semiconductor Fabrication [FAB] Investment Policy that provides for free government land, reimbursement for the cost of building the shell of the manufacturing unit, 24X7 power supply from two separate power grids and quality water supply at the doorsteps of the fab units at an internationally competitive price fixed for 10 years. With this new policy, the state government will extend support to any fab investment that exceeds Rs 3,000 crore in the state. The creation of this fab ecosystem coupled with the products and systems value chain is expected to create

close to 450,000 new jobs, making a potential future economic impact of \$40B, over its project life span and reduce electronics import burden for the nation.

Further, with the Indian ESDM industry is expected to touch the USD 400 billion mark by the year 2020, and thus being instrumental in **making India a \$ 20000 Billion (20 Trillion) Economy** by contributing 20% thereof, the Government of India has to identify the electronics hardware manufacturing sector as a major thrust area for the country. The investments in the area of ESDM have been galore. The government expects investment proposals in electronics manufacturing to "more than double" in the two years to 2017-18, giving a push to the government's 'Make in India' initiative. Of the 54 proposals received, the Centre has approved 30 requests entailing investments of Rs 6,000 crore (US\$ 965.49 million), while 24 are in an "advanced stage" and are likely to be cleared before the end of this financial year.

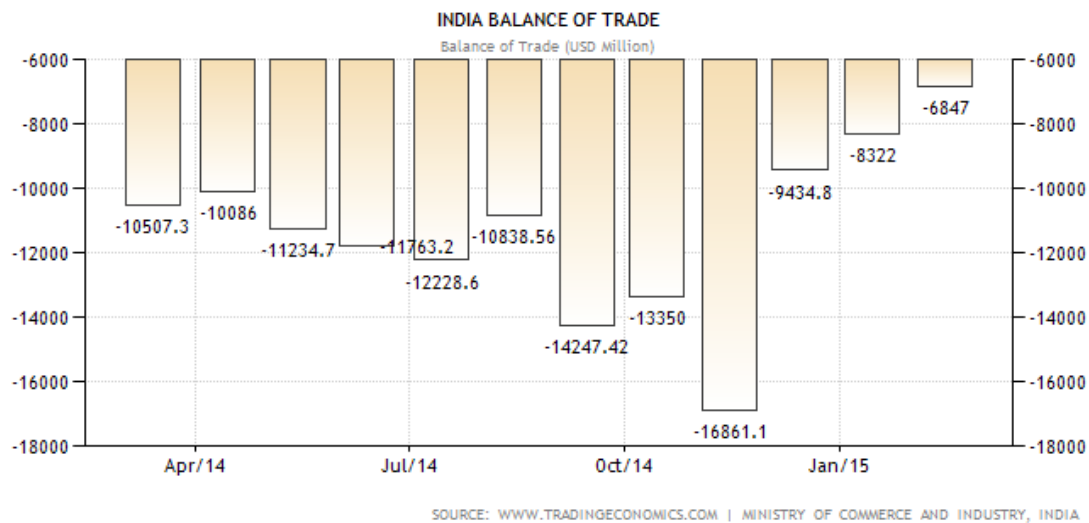
According to data released by the Department of Industrial Policy and Promotion (DIPP), the electronics sector attracted foreign direct investment (FDI) worth US\$ 1,417.42 million between April 2000 and January 2015. Also, the telecommunications sector attracted FDI worth US\$ 16,994.68 million during the same period.

Some of the notable investments in this sector are as follows:

- US-based semiconductor company Freescale having R&D facility in India, agreed for enabling its partners to bring smart products to facilitate the government's Rs 1.13 trillion (US\$ 18.18 billion) Digital India initiative.
- Cyient Ltd has announced that it is acquiring a majority stake in Rangsons Electronics Pvt. Ltd, a Mysuru-based ESDM services company. Cyient has signed an agreement to acquire a 74 per cent equity stake in Rangsons Electronics in an all-cash transaction.
- Chinese lighting solutions company Oppl Lighting has entered the Indian LED lighting market with the launch of its first retail store in Chennai. The Rs 3,000 crore (US\$ 482.69 million) company has presence in over 50 countries and provides lighting solutions for both retail and commercial users.

- Building of semiconductor fab in India is getting more real. Along with the two semiconductor fabs which have already got approved, the third semiconductor fab is expected to be constructed in the State of Madhya Pradesh. US-based Cricket Semiconductor has agreed to invest US\$ 1 billion in building an analog integrated-circuit and power supply integrated-circuit specific semiconductor fab/foundry in Madhya Pradesh.

In 2012-13, the GDP of India was \$1858 Billion (Source: IMF Report). The ESDM Industry contributed less than \$75 Billion, i.e. a meagre 4.0%. On the other hand, the overall trade deficit in this financial year was \$ 191.6 Billion, out of which trade deficit contributed by ESDM was 12% (\$ 23 Billion). Hence there is a need of not only reducing imports of ESDM but also to increase the exports thereof, which will ultimately ameliorate our trade balance and add to strengthening of our country's micro-economy.



Hence, this is the sector which must be given priority looking not only at the lessening of trade deficit, but also at the employment, direct and indirect, generation; and all states must come ahead to explore untapped potential in this area of Make in India.

**Further and finally**, this boost in ESDM manufacturing as a result of the massive capacity expansion to manufacture electronics products for industrial and consumer segments is capable of generating an additional 27.8 million jobs in the sector, which currently employs two million across the country. Further, the present contribution in

national GDP of ESDM industry is 4 percent, which is expected to rise upto 10 percent, against 20 percent in China currently.

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