Indian Electronic System Design and Manufacturing (ESDM) Disability Identification Study

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Indian Electronic System Design and Manufacturing (ESDM) Disability Identification Study

An IESA - Ernst & Young Report
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# Table of contents

1. About this study .......................................................................................................................... 6
2. Executive summary .................................................................................................................... 7
3. Introduction to ESDM industry ................................................................................................. 20
   3.1. Definitions ......................................................................................................................... 20
   3.2. Global electronics industry overview ................................................................................. 21
   3.3. Indian ESDM industry overview ....................................................................................... 23
   3.4. Growth drivers .................................................................................................................. 25
   3.5. Key segments within ESDM industry .............................................................................. 27
   3.6. Demand-supply gap in domestic ESDM market ............................................................... 36
4. ESDM disability study in India ................................................................................................. 38
   4.1. Overview of disability computation and how we look at it .............................................. 38
   4.2. Category-wise computation of disability ......................................................................... 40
5. Key issues faced by manufacturers of electronics in India ....................................................... 71
6. Policy-related initiatives ........................................................................................................... 85
   6.1. Government’s initiatives to boost manufacturing in India ................................................. 85
7. Recommendations for overcoming disabilities ........................................................................ 91
   7.1. Key recommendations (across products) ....................................................................... 91
   7.2. Other recommendations (across products) .................................................................... 105
   7.3. Product-specific recommendations ................................................................................ 109
8. Appendix .................................................................................................................................. 111
   8.1. Disability to component manufacturing – PCB as a representative .............................. 111
   8.2. Leading practices in other economies ............................................................................. 118
   8.3. Case studies on how other manufacturing locales have been created ......................... 129
   8.4. Benchmarking and best practices- state government policies for ESDM sector .......... 133
   8.5. Top 25 products– market value and value addition ....................................................... 154
   8.6. Indicative analysis of manufacturing disability vs. exchange rate .............................. 155
1. About this study

This study on the Indian electronics system design and manufacturing (ESDM) industry has been commissioned by the Department of Electronics and Information Technology (DeitY), Ministry of Communications & Information Technology, Government of India, with the intention of conducting a thorough and systematic analysis of this industry and identifying the challenges Indian electronic system design and manufacturing companies are facing.

Although India’s ESDM market is growing at a robust rate, most of the demand is being met through imports. The domestic ESDM market is expected to reach US$94.2 billion in 2015 from US$68.3 billion in 2012. However, domestic production and services in the industry far lags far behind the demand, with revenues from domestic production estimated at US$29.8 billion in 2012 and forecasted to reach US$42.4 billion in 2015. Going forward, the Government estimates the demand for electronics to increase to US$400 billion by 2020, while the production will grow to around US$100 billion by the same year. This is an alarming situation for the country, because growing at this rate, the electronics import bill is expected to far exceed the oil import costs by 2020 and result in a major balance of payments crisis. Reaching US$400 billion in market size by 2020 is the true potential of India’s ESDM industry. However, if supply-side measures on promoting local manufacturing are not implemented, this could result in reduced demand with the INR adjusting itself, and result in the country’s aspiring class not being able to afford electronics and the associated benefits of transparency and productivity. It would also adversely affect India’s per capita GDP growth, since domestic consumption of electronics is correlated to the per-capita income of economies.

The objective of the report is to understand the factors causing disability in electronic system design and manufacturing and preventing its growth in India. In order to understand this, the report focuses on some key electronic product segments including the consumer electronics segment, e.g., set-top boxes; IT systems and hardware, e.g., notebooks and point-of-sale (POS) printers; the industrial electronics segment, e.g., smart energy meters, and the electronic component segment, e.g., printed circuit boards (PCBs), to analyze the issues faced by manufacturers in these segments as well as the industry as a whole.

The report highlights the overall ecosystem-related issues (including business environment and tax-related ones) faced by electronic product manufacturers in the country. It identifies certain electronics products (from the segments mentioned above), which are categorized into high/medium/low value-addition products and ITA 1/non-ITA1 products, and quantify disabilities in terms of designing and manufacturing products in these electronic product segments in India, as compared to importing complete products from abroad. The report makes recommendations and suggests solutions to the Government of India in its quest to overcome challenges to local manufacturing.

Ernst & Young LLP is the India Electronics and Semiconductor Association’s (IESA’s) knowledge partner in formulating this report.
2. Executive summary

Global production of electronics is estimated at US$1.78 trillion for 2012, which grew by 1.7% y-o-y. With the revival of the global economy, the electronics industry was expected to pick up and grow at a modest 4.4% y-o-y to reach US$1.86 trillion in 2013. The rapid growth of consumer electronics in emerging economies and the burgeoning demand for smartphones and tablets are the key growth drivers of the overall electronics market.

India’s ESDM market is estimated to have reached US$68.3 billion in 2012, growing by 5.7% as compared to 2011. Furthermore, although its growth rate was moderate last year, the Indian ESDM industry is expected to grow at a CAGR of 9.9% from 2010 till 2015 to reach US$94.2 billion. This is more than twice the growth rate of the global ESDM market and indicates the huge potential of the domestic market.

However, the major challenge faced by India today is that there is not adequate manufacturing in the country to meet the demand for ESDM. It is estimated that by 2020, the demand-supply gap will reach close to US$300 billion and will lead to a situation where the electronics import bill for the country will exceed oil import costs.

Another challenge India faces is that the manufacturing of electronic products that mainly takes place in the country is a low value addition, and is mainly focused on last mile assembly.

The Government of India is increasing its focus on this sector, and aims to transform it from a consumption-driven market to the one with manufacturing capability to meet local and export-related demand while simultaneously focusing on producing high-value add electronic products.

This study focuses on identification of key issues across different electronic segments, including consumer electronics, IT systems and hardware, and industrial electronics, to discover the root causes for the limited growth (at a rate that is inadequate to meet local demand) of overall manufacturing in the country.

For the purpose of this study, we considered the electronic product segments listed in the matrix below and have selected the top 25 electronic products from these segments. These products have been deemed by the IESA as being strategically important for India because of their market size and/or growth potential. They have been classified as ITA I/non-ITA I products\(^1\) and in terms of present state of value addition (high/medium/low) done in the country\(^2\).

---
\(\text{\(1\)}\) Refer to Section 4.2 for definition of ITA I and non-ITA I products.
\(\text{\(2\)}\) High local value addition: implies value addition > 50%; high level of local sourcing and of indigenous design, complete system manufacturing
Medium local value addition: implies value addition of 20%-50% — EMS,CKD assembly, sourcing of minimal components.
Low local value addition: implies value addition <20% — SKD assembly, minimal sourcing, no local design influence
Among these, products that account for nearly 89% of the total market value of the products in the list above are currently only manufactured with low value addition in India, as indicated in the chart below.

High domestic value addition in the products indicated is due to factors detailed below:

► High share of components/raw materials (BoM) procured in the country in overall BoM
► High cost of products being designed by local manufacturers due to their complexity (and thereby, long design-to-revenue cycles)

The traditional interpretation of “high value addition” in the manufacturing industry primarily refers to the higher share of BoM that is locally procured. However, in the ESDM industry, due to the complex nature of the products, design-related activity also plays an important role in increasing domestic value addition.

The Government needs to focus on addressing the key issues faced by manufacturers of electronics so that the share of high and medium value add categories in the overall electronics product market increases by 2020. The aim should be to increase the share of the high value add category to 30% by 2016 and 60% by 2020.
Disability to domestic ESDM and factors causing it

For the purpose of this study, “disability” has been defined as the difference (in percentage) in the selling price (SP) of a product that is manufactured in the country (Case 1) and that of the same or similar product (including all import taxes) when imported (Case2). In this study, a margin of 5% has been assumed to compute the selling prices of domestic manufacturers.

Disability has been broadly classified into disability due to the tax structure and disability due to various factors in the business environment.

Disability due to tax is the difference in the overall taxes paid in India in Case1 and Case2 (after offsets) as a percentage of the SP of products manufactured in the country.

Disability due to the business environment includes disabilities due to factors including inventory-carrying costs, other working capital costs, freight costs, electricity costs, real estate costs, etc. (A detailed explanation is provided in section 4.1.)

An illustrative chart depicting the disability is shown below.

The extent of disability to manufacturers of electronic products in India ranges from ~7% to ~26% depending on the nature of the product. The table below provides a summary of the disability for some representative products in each of the segments identified above.

<table>
<thead>
<tr>
<th>Value addition</th>
<th>ITA1/Non-ITA1</th>
<th>Examples of products</th>
<th>Disability as a percentage of SP</th>
</tr>
</thead>
<tbody>
<tr>
<td>High value addition</td>
<td>ITA1</td>
<td>Telecom Networking equipment etc.</td>
<td>26 %¹</td>
</tr>
<tr>
<td>Medium value addition</td>
<td>ITA1</td>
<td>PoS Printers etc.</td>
<td>19 %</td>
</tr>
<tr>
<td></td>
<td>Non-ITA1</td>
<td>Set top boxes etc.</td>
<td>14 %²</td>
</tr>
<tr>
<td>Low value addition</td>
<td>ITA1</td>
<td>Notebook Computer</td>
<td>13 %</td>
</tr>
<tr>
<td></td>
<td>Non-ITA1</td>
<td>Energy Meter³</td>
<td>7 %</td>
</tr>
<tr>
<td>Component</td>
<td></td>
<td>Printed circuit board</td>
<td>19 %</td>
</tr>
</tbody>
</table>

1. Disability represented here is for generic ITA1 – high value added products from telecom segment. However, disability rises to 29% for specific telecom networking products, where buyer’s credit is available on imports for a long period of time.
2. Disability represented here is generic for non-ITA1 medium value added products in the consumer electronics segments. However, manufacturing of set-top-boxes has certain specific disabilities, which when included, increase the overall disability of domestic STB design and manufacturing to 22.1%.
3. Energy meters with AMR functionality
Given the thin profit margins of domestic manufacturers (assumed as 5% for computation of disability), disability of 7%-26% has a huge impact on the businesses of electronic product manufacturers in the country.

Note: The disability represented here in the case of MVA and HVA products is for those whose higher value addition is primarily due to high design costs. However, due to the complex nature of the products, their design-to-revenue cycles are long and result in increased design costs. Furthermore, due to high interest rates, as indicated in the “Factors causing disability” section below, products with long design-to-revenue cycles have higher disabilities. Therefore, in essence, domestic manufacturers that add higher value (due to execution of complex designs) face higher disability. In the case of products whose value addition is due to the high share of domestic BoM, disability could dip slightly (depending on the share of domestic BoM and assuming that the components are available in the country in the required scale at competitive prices). This is due to reduced freight charges, inventory-carrying costs and disability of design-related expenses.

Issues causing disability in domestic design and manufacturing

As part of our study, we identified and quantified multiple factors across taxation, business environment, etc., which are creating and sustaining this disability. The key factors causing/sustaining disability across various segments are summarized below-

Taxation-related issues:

1) BCD-related issues:
   a. BCD exemption on imported finished products for ITA1 products, especially when the net cost of domestic manufacturing is higher, is an encouraging factor for imports vis-à-vis products manufactured in the country. In addition, some non-ITA1 products such as multifunction printers also have 0% BCD.
   b. However, manufacturers of products in the country have to pay non-zero BCD on some imported components, especially for those with dual-use functionality (e.g., fuses, inductors, batteries, certain ICs, etc.), which are used to manufacture such products in the country. This results in a differential duty structure for these products.
   c. Although there is concessional duty applicable on many raw materials/parts/components used in manufacturing of ITA1 products, the procedure of availing this concessional duty is sometimes long and complex, and results in stock-outs or increased inventory-carrying costs for domestic manufacturers.
   d. Convergence of technologies and miniaturization of devices have enabled multiple functionalities to be combined into single electronic products. This makes it increasingly difficult to interpret definitions of products in the ITA 1 agreement in order to apply the duty to new age products. Therefore, there is a danger of 0% BCD being applied on import of some non-ITA1 products due to confusion with respect to their classification.

Impact:
   ► 0.5%–2.5% disability due to differences in basic customs duty (for products with different duties for imported products and import of components)
   ► Lost opportunity to balance disabilities of domestic manufacturers through increased BCD on imports
   ► High inventory-carrying costs due to delay in clearances while availing exemption from duties
   ► Ineligible products receiving benefit of 0% BCD
2) **Higher sales tax rate for domestic manufacturers:** Higher sales tax rates are levied on products manufactured in the country (in the case of certain products such as set-top boxes), where a C-Form is not issued by the buyer. In such cases, tax has to be paid at the rate of VAT instead of CST by domestic manufacturers. However, in the event such products are imported, only SAD is charged (and no VAT), since these are imported for the specific use of operators (e.g., Multi-System Operators, in the case of set-top boxes).

**Impact:**
- Imposing CST instead of VAT could offset disability by 7%–8% (only for specific products such as those mentioned above).

3) **SAD refunds to traders vs CST paid by manufacturers**
Traders are eligible for exemption from or refund of SAD in the case of inter-state sale and the manufacturer has to pay CST, which is not refundable and cannot be offset against any other tax for products that are directly imported and traded in India. However, CST does not need to be paid by traders, since such products are generally directly imported and thereafter sold for consumption. However, since VAT is paid in both cases, CST paid by manufacturers continues to be an additional cost. The table below illustrates this scenario.

<table>
<thead>
<tr>
<th>Trader (taxes payable)</th>
<th>Domestic manufacturer (taxes payable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVD</td>
<td>Excise duty</td>
</tr>
<tr>
<td>SAD (exempted/refunded)</td>
<td>CST (no exemption/refund/offset)</td>
</tr>
<tr>
<td>VAT</td>
<td>VAT</td>
</tr>
</tbody>
</table>

**Impact:**
- The impact of the additional tax paid by domestic manufacturers (in comparison with imports) is ~ 1.95%.

4) **Non-cenvatable cesses for manufacturers when components are imported (while cess is charged only once on import of end product)**
When domestic manufacturers import components used to manufacture end products, duties such as on CVD, SAD and Education & Higher Education (2% & 1%) are levied in addition to BCD. While CVD and SAD are eligible for credit of Cenvat, cesses are not. Apart from this, domestic manufacturers pay Education & Higher education cess (2% and 1%, respectively) again as Excise duty. However, the Education & Higher Education cess is only payable once for import of end products. The table below illustrates this scenario.

<table>
<thead>
<tr>
<th>Trader (taxes payable)</th>
<th>Domestic manufacturer (taxes payable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCD on imported end products</td>
<td>BCD on imported components</td>
</tr>
<tr>
<td></td>
<td>CVD and SAD on imported components (cenvatable against ED on end product)</td>
</tr>
<tr>
<td></td>
<td>Education &amp; Higher Education cess on imported components (not cenvatable)</td>
</tr>
<tr>
<td>CVD and SAD on end products (SAD being exempt or refundable as elaborated above)</td>
<td>ED on end products</td>
</tr>
<tr>
<td>Education &amp; Higher Education cess on end products</td>
<td>Education &amp; Higher Education cess on end products</td>
</tr>
</tbody>
</table>
Impact:
► Non-cenvatable cesses to be paid by domestic manufacturers on imported components create disability of 0.2%–0.3% (depending on the proportion of imported BoM and extent of domestic value addition)

5) Input sales taxes that cannot be offset against output sales tax for manufacturers when components are procured in the country (interstate)

CST is applicable when domestic manufacturers procure components from other states, which cannot be set off against Sales Tax (CST/VAT) payable on end products. This increases the cost of procuring components for domestic manufacturers.

Impact:
► Non-offsettable Sales Tax paid on components procured from other states in the country is currently creating disability of 0.1%–0.5% (depending on the share of components procured from other states in the overall BoM).

6) Unabsorbed cenvat: Certain taxes on components procured (such as CVD, SAD and ED) are cenvatable and can be set off against output duties payable. However, when input taxes are higher than output taxes payable, the difference cannot be offset and results in unabsorbed cenvat. This can happen when most of the components are imported (with CVD and SAD applicable) and the extent of domestic value addition is low. The chart* below illustrates this scenario.

*Indicative only; chart not drawn to scale

Domestic manufacturers cannot always offset input taxes against output taxes payable. This results in unabsorbed input tax credit. This is a cost for manufacturers and accumulates over the years, especially for low value adding manufacturers at the nascent stage of their operations.

Impact:
► ~0.1% - 0.5% disability due to unabsorbed input tax credit (for products with unabsorbed input tax credit)
7) The total cost of manufacturing such products increases due to all the other disabilities. Therefore, Excise duty rates for products manufactured in the country and CVD rates for imported products are the same, although absolute amounts are different due to the high base on which excise duty is paid (in the context of transaction value-based assessment for ED).

**Impact:**

- Excise duty paid due to various disabilities in the system creates a disability of 0.2%–1.2% (depending on the extent of other disabilities).

**Finance-related costs:**

8) **High cost of working capital-related financing:** The high cost of working capital-related financing (receivables and payables) due to high interest rates is another major challenge faced by domestic manufacturers, since it increases the overall cost of finance. In addition, in the case of some products (set-top boxes telecom infrastructure equipment, etc.), foreign banks offer long credit periods of up to seven years at LIBOR-linked interest rates. These rates are low as compared to those offered for domestic borrowing. Therefore, domestic manufacturers attempting to match long credit periods (available on imports) are confronted with two key challenges:

- Inadequate availability of working capital-related financing for long periods
- High rates of interest on domestic borrowing

**Impact:**

- 1.5%–4.5% disability due to high cost of working capital-related financing (depending on the nature of the industry and payable/receivable cycles)
- Impact going up to 8% in the case of products where buyers credit is available for imports for long durations

9) **High cost of finance for design-related expenses:** In India, high rates of interest, combined with long gestation periods (design to commercialization), especially for high value addition products, result in disabilities for manufacturers by increasing per unit interest costs.

**Impact:**

- Disability caused by the impact of the high cost of finance on design-related expenses varies from 0.2%–8.5%, depending on the complexity of a product (rises with increasing design-to-revenue cycle time).

10) **High cost of financing capital expenses:** The high rate of interest paid on domestic borrowing for capital expenses adds to the high cost of finance for domestic ESDM players that borrow from local financial institutions.

**Impact:**

- 0.25%–0.6% disability due to the difference in the cost of financing capital-related expenses, which can be higher in the case of manufacture of components where capex requirements are much higher
Availability of components

11) Inadequate availability of components at required scales and competitive prices in India

Issues arising from inadequate availability of components are due to low levels of component-manufacturing activity in India and the absence of strong component distribution hubs that can import and trade components in large quantities. Although there is some manufacturing activity in the country, it is limited to a few parts of its component ecosystem (e.g., passives and PCB).

An inadequate component-related ecosystem also discourages domestic design/manufacture of end products in two ways:

► Individual manufacturers import components for their own use (in relatively small amounts) from different global component-manufacturing locations. This entails additional effort without any cost advantage vis-à-vis getting end products manufactured in other low-cost manufacturing countries. It tends to encourage trading of end products vis-à-vis manufacturing these in the country by importing required components.

► The longer supply chain of components results in high inventory-carrying and freight costs.

Impact:

► 2%–3% disability due to high inventory-carrying costs

► 1%–2.5% additional freight costs (depending on mode of transport and share of imported BoM) incurred due to import of components instead of domestic procurement

Conversion costs

12) High cost of manufacturing (conversion costs) due to inadequate availability/reliability of power (resulting in its high blended cost), high cost of real estate, etc.

Impact:

► 0.25%–0.6% disability for domestic product manufacturers due to unreliable power supply, which can go up to 3% in manufacture of components where power consumption is high)

► 0.25%–1% disability due to high real estate costs (depending on location)

Other issues

13) Poor brand perception of India as an electronics-manufacturing destination: The relatively poor perception of India as an electronics-manufacturing destination worldwide has resulted in high international marketing expenses being incurred by domestic manufacturers.

Impact:

► Disability due to higher international marketing efforts required by Indian manufacturers is ~1%. In addition, a negative brand-related perception also results in slow inflow of global investments in the ESDM sector.

Other issues that are adversely affecting domestic manufacturing of electronics on a large scale need to be addressed by the Government. These include an inadequate R&D ecosystem, a discouraging start-up environment, the lack of efficient logistics and supply chains, and inflexible labor laws.
A summary of the issues and their impact is provided in the table below:

<table>
<thead>
<tr>
<th>Issue</th>
<th>Quantitative impact (as percentage of revenue)*</th>
<th>Qualitative impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxation-related issues</td>
<td></td>
<td>Lost opportunity to balance disabilities for Indian manufacturers by increasing BCD on import of end products</td>
</tr>
<tr>
<td>Nil BCD on import of ITA1 products</td>
<td>0.5%–2.5%</td>
<td>Inability to meet demand/delivery timelines and loss of reputation</td>
</tr>
<tr>
<td>Differential duty due to 0 BCD on import of ITA1 products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complex/Long procedure for availing concessional duty on import of components</td>
<td>0.5%–2.5%</td>
<td></td>
</tr>
<tr>
<td>Other tax-related disabilities</td>
<td>2.45%–4%</td>
<td></td>
</tr>
<tr>
<td>For products such as STB and VAT— to be paid by manufacturer; SAD for imports</td>
<td>7%–8%</td>
<td></td>
</tr>
<tr>
<td>SAD is refunded/exempted for traders; CST to be paid by domestic manufacturers</td>
<td>1.95%</td>
<td></td>
</tr>
<tr>
<td>Non-cenvattable cesses for manufacturers in the case of imported components; cess charged only once on import of end product</td>
<td>0.2%–0.3%</td>
<td></td>
</tr>
<tr>
<td>Input sales taxes that cannot be offset against output Sales tax for manufacturers when components are procured interstate in India</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Excise duty paid by domestic manufacturer (compared to CVD on imported product) due to high base on which ED is paid**</td>
<td>0.2%–1.2%</td>
<td></td>
</tr>
<tr>
<td>Un-absorbed cenvat</td>
<td>0.1%–0.5%</td>
<td></td>
</tr>
<tr>
<td>High cost of finance</td>
<td>2% - 14%</td>
<td>Manufacturers seeing little reason to manufacture components in India in an inadequately supporting ecosystem; whereas most of the ecosystem of other low-cost manufacturing countries is mature</td>
</tr>
<tr>
<td>High cost of working capital-related financing (receivables and payables)</td>
<td>1.5%–4.5%*</td>
<td></td>
</tr>
<tr>
<td>High cost of finance for capital-related expenses</td>
<td>0.25%–0.6%</td>
<td></td>
</tr>
<tr>
<td>High cost of finance for design-related expenses</td>
<td>0.2%–8%</td>
<td></td>
</tr>
<tr>
<td>Inadequate availability of components in the country</td>
<td>3%–5%</td>
<td></td>
</tr>
<tr>
<td>High inventory-carrying costs</td>
<td>2%–3%</td>
<td></td>
</tr>
<tr>
<td>Additional freight-related costs due to import of components</td>
<td>1%–2.5%</td>
<td></td>
</tr>
<tr>
<td>Deficient infrastructure (high manufacturing cost)</td>
<td>0.5% - 1.5%</td>
<td></td>
</tr>
<tr>
<td>Unreliable power supply</td>
<td>0.50%–0.60%</td>
<td></td>
</tr>
<tr>
<td>High cost of real estate</td>
<td>0.25%–1%</td>
<td></td>
</tr>
<tr>
<td>High cost of international marketing</td>
<td>~ 1%</td>
<td></td>
</tr>
</tbody>
</table>

* Values are only indicative and have been calculated, based on data pertaining to specific products. They are subject to change, depending on the nature of products, segments, components used and other external factors.

** In the context of transaction value-based assessment of ED

# This can go up to 8% in case of products with longer duration of buyer's credit on imports; ^ In case of component manufacturing that has large power requirement, this can go up to 3%
Recommendations

The following recommendations are suggested for manufacturers making components for electronics products to enable them to overcome the challenges they are facing:

Suggestions for improving recent ESDM policies to increase uptake

1) Preferential market access policy:
   a) Repositioning PMA to VAMA: It is recommended that the name of the policy is changed to “Value addition-based market access (VAMA) policy” to ensure that it appropriately summarizes the intention of the policy and allays concerns in global organizations.
   b) Complying with the policy: Considering the challenges faced in the ESDM sector and the need for the Government to handhold the domestic ESDM sector, it is recommended that the initiatives taken by it with respect to providing preferential access to electronic products manufactured in the country are continued without any dilution.

2) Modified Special Incentives Package Scheme (MSIPS)

   It has been over a year since the policy was notified. It is suggested that it is reviewed in accordance with clause 5.1.2 of the notification (with provision for periodic review) to include the following modifications, which can help to improve uptake of the scheme in the industry.

   a) Since manpower and other non-capex related costs also form a significant part of the overall cost of manufacturing electronics, it is recommended that the scheme is expanded to include overall project-related expenses (including capital expenses) instead of capital expenses alone.
   b) For the purpose of this scheme, definition of capital expenses needs to include any items that can be capitalized under the Income Tax Act.

3) Electronic Development Fund (EDF)

   Need to make EDF immediately operational: EDF is expected to engender a well-funded and healthy ecosystem of fab-less chip companies, and ESDM product-manufacturing companies in India. A strong “systems” ecosystem is essential for attracting additional private investments in the components sector and also to ensure the success of semiconductor fabs being set up in the country.

4) Improving effectiveness of existing schemes

   ► Approval and disbursement should be faster and more time-bound.
   ► Sub-optimal funding should be avoided to have the maximum impact and funding decisions need to be based on the quality of proposals rather than the size of funding requests.
   ► Disbursements of incentives can be made in the form of cash or even “ESDM scrips,” which can be earned and used against any Central tax payments such as TDS, Income Tax, CST, Service tax and Excise tax.
Taxation-and finance-related costs

5) **Deemed export status to ITA1 products:** The status of “deemed export” should be granted to ITA1 products/components manufactured and sold in India. This would enable the benefits of drawback, advance authorization and refund of output Excise duty paid by manufacturers by availing credit of input taxes paid on components imported and made in the country and paid for in cash for value addition. Domestically manufactured electronic products (DMEP) for the purpose of conferring the status of deemed export on them should be identified by using domestic value addition norms, where the threshold progressively increases over the years.

6) **Soft loan to discharge VAT/CST for ITA1 products:** Grant of interest-free soft loans for a period of five to seven years for discharge of VAT/CST, based on criteria for gross VAT/CST payable, should be made universally available under the incentive-related policies of all Indian states with respect to locally manufactured and sold ITA 1 products. For the purpose of availing the benefit of deemed export and interest-free soft loans for discharge of VAT/CST, DMEPsshould be identified by using the domestic value-addition threshold, where the threshold progressively increases over the years.

7) **BCD rationalization for non-ITA1 products:** For non-ITA1 products, BCD on import of end products should be increased to match the disability for domestic manufacturing of each product. The extent of increase of BCD may not only balance the disability, but also enable strong margins and attract investors/manufacturers to manufacture electronics products in the country. The definitions of products in the ITA1 agreement need to be carefully examined so that Import duty-related concessions are not provided to ineligible products. Clearly mapping of various products to HS codes need to be ensured to avoid ambiguity in interpretation of product descriptions in an ITA agreement. BCD rationalization can be coupled with tighter value-addition and country of origin clauses.

8) **Interest subvention:** For ITA1 and non-ITA1 products, interest subvention of 2%–5% of the interest rate should be provided to domestic electronics design and manufacturing companies on interest paid on their working capital. The extent of subvention provided should increase with growth in domestic value addition.

Component-related ecosystem

9) **Component FTWZ:** A duty free component trading and warehousing zone (component FTWZ) needs to be established in the vicinity of a major port or a manufacturing cluster with a dry port. The development of such a zone may receive the same financial assistance as a greenfield/brownfield EMC (depending on where the zone comes up). Distributors with warehouses in such a zone can be eligible for benefits under the MSIPS scheme, provided they abide by norms pertaining to preferential fulfilment of orders from domestic customers of components.

10) **Encouraging domestic component manufacturing:** Manufacturers of the top 10 ESDM components should be incentivized to manufacture these in the country simultaneously with their imports. Deemed export status for a period of five years for manufacturers of such components (along with those that are part of ITA1) is recommended to provide high-quality, reliable and cost effective power and water to component manufacturers (including fab).
11) **Branding- and marketing-related issues:** A targeted marketing strategy should be adopted to attract global leaders in the 10 ESDM components as well as EMS. At the same time, the international and domestic component manufacturers who are already present in the country and have invested in it should be suitably incentivized (as indicated above) and motivated to invest further and scale-up their operations. Their success stories need to be documented and widely publicized as case studies to brand India as a leading global investment destination in these fields.

**Start-up environment and design**

Entrepreneurship must be promoted to attract more IPR/R&D-driven domestic fabless and product/system companies by publicizing various schemes for start-ups. Provided below are some start-up- and design-related recommendations:

12) The Government should co-invest with seed/angel/venture capital funds by providing a matching amount to any ESDM company that manages to obtain seed/angel/venture capital funding from a recognized seed/angel/VC fund.

13) The Government should set up ESDM incubators, with state-of-the-art tools and test facilities that can be used on a shared basis by ESDM product companies and start-ups, in at least five academic institutions in India.

14) The Government should expand MSIPS to include “overall project costs,” as suggested in its recommendations for MSIPS. This should cover the R&D manpower expenses of ESDM units R&D manpower expenses of Electronics companies involved in stand-alone R&D / design.

15) It should set up product-specific ESDM Centres of Excellence (CoEs), which can act as technology incubators and provide technology- and infrastructure-related support (pre-commercialization licenses, SMT lines for prototypes, etc.) at leading educational institutes.

**Process-related initiatives:**

16) **Self-declaration to be accepted:** Manufacturers would make self-declarations about products they manufacture and for which they intend to use imported components/parts/raw-materials to overcome process-related delays, ensure minimum loss of time due to Customs’ requirements and EHTP/SEZ-related formalities, and avoid undue high taxation on dual-use components/parts/raw-materials. Manufacturers would also provide their annual requirement for such components/parts/raw-materials and certification by a chartered accountant or chartered engineer, based on input-output ratio and norms, without the need for procurement or inspection certificates.

17) **Measures to check dumping:** If the price differential between the best quote from an Indian manufacturer and vendors based abroad is higher than 30%, the Government should immediately initiate anti-dumping investigations against the vendors abroad and take appropriate action if evidence of dumping is found.
Infrastructure and labor

18) **Encouraging open-access power and group captives:** Regulations on open-access power is to be relaxed for electronic manufacturing clusters. This is to consolidate the demand from all ESDM units in a particular cluster and enable low-power consumption units to avail the benefits of open-access power.

In addition, Group captive/Captive power plants based on renewable sources of energy that cater to the requirement of ESDM units are to be independently eligible for the MSIPS scheme (even if such a power plant is set up for existing manufacturing units). This would also act as a catalyst to the growth of the domestic industry for power-generating energy subsystems through renewable energy projects.

19) **Relaxation of labor laws:** In order to aid the rapid growth of the nascent ESDM sector, relaxation from labor laws on restrictions on overtime work, flexibility in maintaining employee headcount to suit business needs, work timings for women employees, etc., are to be provided for electronic manufacturing clusters for a period of five years, without compromising on safety and health aspects.

Others:

20) **Promotion and branding:** Global promotion and branding activities to be undertaken by the Govt. of India to establish India’s brand as an ESDM destination. The Government can provide reimbursement of 25% of actual expenses incurred in international marketing & promotion, trade show participation etc. by domestic ESDM companies, subject to a limit of INR 1 mn per annum per company.

21) **Status of sector:** Infrastructure status to the ESDM sector may be considered in view of the importance of the ESDM sector in enabling India’s infrastructure and development, considering the disabilities faced by the sector and the country being a signatory to agreements such as the ITA and other FTAs.
3. Introduction to ESDM industry

3.1. Definitions

The ESDM industry in India constitutes the following sub-segments:

- **Electronic products**: These constitute the total market for electronic products (produced locally or imported) for domestic consumption in India as well as export of electronic products manufactured in the country.
- **Electronic components**: These include revenues generated from local manufacturing of electronic components.
- **Semiconductor design**: This includes revenues generated by the semiconductor design-related activities of local players and captives of semiconductor MNCs operating in India. It includes revenues from embedded software, VLSI and hardware/board design.
- **EMS services**: These include revenues generated by EMS services delivered from the country.
3.2. Global electronics industry overview

Global production of electronics was estimated at US$1.78 trillion for 2012 and grew by 1.7% y-o-y. The low growth rate was mainly due to the continuing European debt crisis, which resulted in a slowdown in demand from Europe. The global economy was expected to pick up in 2013 due to the recovery of the US economy, monetary relaxation and implementation of fiscal policies in emerging economies. These were projected to offset the deceleration caused by the European economy. This is forecasted to lead to the growth of the electronics industry, which is expected to grow at a modest 4.4% y-o-y to reach US$1.86 trillion in 2013.

A major driver in this industry is the sharply increasing demand for electronic components and devices for smartphones and tablets. The expansion of the smartphone and tablet market has also accelerated the volume of data traffic, leading to the development of high-speed communication networks in developed economies. The rapid rise of consumer electronics in emerging economies due to their large youth populations and burgeoning middle-classes is also driving the growth of the overall electronics market. Figure 1 below depicts worldwide production of electronics.

Figure 1: Global production of electronics (US$ billion)

![Figure 1: Global production of electronics (US$ billion)](image)

Source: Japan Electronics and IT industries association, Semiconductor Industry Association, World Semiconductor Trade Statistics

Computers and peripherals comprise the largest segment and account for 27.2% of the total global sale of electronics, followed by the communication equipment segment with a 21.7% share. Figure 2 below depicts the segment-wise breakdown of global electronics sales.

Figure 2: Segment-wise breakdown, global production of electronics, 2012

![Figure 2: Segment-wise breakdown, global production of electronics, 2012](image)

Source: Japan Electronics and IT industries association, Semiconductor Industry Association, World Semiconductor Trade Statistics, EY analysis
Global semiconductor market

According to World Semiconductor Trade Statistics, the global semiconductor industry’s sales were estimated at US$290 billion in 2012, a 3.2% decline compared to 2011. The industry demonstrated impressive resilience in a challenging global macroeconomic environment. Growth was witnessed in the Americas in the last quarter of 2012 although sales for 2012 lagged behind that seen in 2011. Beyond 2012, the industry is expected to grow steadily and moderately across all regions. Sales for 2013 and 2014 are expected to be around US$303 billion and US$319 billion, respectively.

Customers had increased their chip inventories in 2011 to hedge against potential shortages due to natural disasters. However, subsequent demand was weaker than anticipated, leading to excess inventory. Inventory levels remained high in 2012 due to a decline in the demand for PCs, leading to oversupply. Figure 3 below depicts the global semiconductor market.

**Figure 3: Global semiconductor market, US$ billion**

![Global semiconductor market, US$ billion](image)

*Source: Semiconductor Industry Association, World Semiconductor Trade Statistics*

Computers represent the largest end market for chipmakers. Semiconductor chips form the backbone of a computer system and perform all its essential tasks. Together, the computing and communications end-use segments account for more than 70% of the industry’s revenue. In 2012, the military and aerospace segment grew outstripped others in its growth, with a 10.2% y-o-y growth rate. Figure 4 below depicts global semiconductor sales by end-use market.

**Figure 4: Global semiconductor sales by end-use market, 2011**

![Global semiconductor sales by end-use market, 2011](image)

*Source: Semiconductor Industry Association, World Semiconductor Trade Statistics*
3.3. Indian ESDM industry overview

India’s ESDM industry is estimated to have clocked revenues of US$68.3 billion in 2012, growing by 5.7% as compared to 2011. The industry is expected to grow at a CAGR of 9.9% from 2010 till 2015 (at more than twice the growth rate of the global ESDM market) to reach US$94.2 billion, even though its growth rate was moderate last year. While its current growth rate is lower than what was earlier forecasted before the economic slowdown hit the global economy, the Indian market has managed to demonstrate a decent growth, despite the overall slowdown in the global and Indian economies. Figure 5 below details total industry revenues in India’s ESDM industry.

Figure 5: Indian ESDM industry revenues (US$ billion)

![Chart showing Indian ESDM industry revenues from 2010 to 2015 with a CAGR of 9.9%]

Source: IESA-F&S study

The electronic products segment forms the largest chunk of India’s ESDM market, with an estimated 79% market share in 2012. Semiconductor design forms 15% of the market, while electronic components and EMS services form a very small portion with revenue contribution of 5% and 1%, respectively.

Figure 6 below depicts the break-up of ESDM industry revenues by categories:

Figure 6: ESDM industry revenues in India in 2012 (by category)

![Pie chart showing the distribution of revenues by category with 79% for electronic products, 15% for electronic components, 5% for semiconductor design, and 1% for electronics manufacturing services]

Source: IESA-F&S study
Product revenues constitute the bulk of revenues in the ESDM industry and accounted for 84% of the market in 2012, with services contributing the remaining 16%. The revenue contribution mix of products and services is expected to be similar until 2015. Figure 7 below provides a break-up of industry revenues by products and services.

**Figure 7: Revenues of India’s ESDM industry in 2012 (by products and services)**

![Pie chart showing 84% for products and 16% for services.]

*Source: IESA-F&S study*

Domestic revenues accounted for 70% of the industry’s revenues in 2012 and exports for the remaining 30%. The bulk of revenues from export were generated by export of semiconductor design and electronic products, with electronic components and manufacturing services constituting a small portion of this. Domestic revenues are expected to increase to around 72% by 2015. Figure 8 below details industry revenues by domestic revenues and exports.

**Figure 8: Revenues generated by Indian ESDM industry in 2012 (by domestic revenues and exports)**

![Pie chart showing 70% for domestic and 30% for exports.]

*Source: IESA-F&S study*
3.4. Growth drivers

The robust growth of India’s electronics industry is attributed to multitude factors including the following:

Growing middle class

India’s middle class is growing strongly. This has resulted in increased affordability of electronics products. According to a survey of middle class households’ incomes and expenditure, conducted by the National Council for Applied Economic Research (NCAER), there will be an increase in the number of households with annual incomes of more than INR112,000 by 2015.

<table>
<thead>
<tr>
<th>Category</th>
<th>Income range* (in INR)</th>
<th>2010–11</th>
<th>2015–16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deprived</td>
<td>Below 112,000</td>
<td>134.7</td>
<td>113.7</td>
</tr>
<tr>
<td>Aspirers</td>
<td>112,000–250,000</td>
<td>70.7</td>
<td>89.4</td>
</tr>
<tr>
<td>Middle</td>
<td>250,000–1,250,000</td>
<td>31.4</td>
<td>53.3</td>
</tr>
<tr>
<td>Rich</td>
<td>Above 1,250,000</td>
<td>3.2</td>
<td>6.6</td>
</tr>
</tbody>
</table>

*Income levels according to 2004–05 prices

Source: NCAER research

Increasing disposable incomes and declining prices of electronics

Increasing disposable incomes and the shift in consumers’ preference for products and devices with “smart” technology (such as smart LED TVs) and innovative designs has increased the demand for electronic goods. In India, personal disposable incomes have grown at a CAGR of 15.6% from FY07–FY11. This has a direct and positive correlation with consumers’ propensity to spend on electronic products. The declining price of electronic items is another factor driving its demand. Another factor leading to declining prices is the high degree of competition among electronics players in the country.

Government initiatives

The Government is one of the largest creators of demand in India’s electronics sector. In FY13, its overall IT spend was INR262 billion. This is growing by 11% y-o-y. Out of this expenditure, around 48% was in the IT hardware segment. Furthermore, there are several initiatives that have been undertaken by the Central and state governments that have given a significant boost to consumption of electronic products in the country. Some of these include:

► Increased government spending on laptops and tablets

“Aakash” is a government-sponsored project to design, manufacture and distribute low cost Android-based tablet computers to schools and universities in India as a part of its “one-child, one-computing device” policy announced in 2011. In the 2012–13 Union Budget, the Government allocated around INR7.5 billion for the Aakash project. It initially procured 100,000 tablets by March 2013. The project is expected to drive a huge demand for low-cost tablets in the country.

► e-Governance initiatives and Unique Identification (UID) project

The Government has launched several e-Governance initiatives to improve delivery of public services and simplify the process of accessing these. Its initiatives are resulting in an increased demand for IT hardware including laptops and tablets. Furthermore, consumption of electronic products is expected to receive a significant boost with the Government expected to spend more than US$10 billion on its National e-Governance Plan (NeGP), which will include 31 mission-mode projects.
The Government is also focusing on an ambitious cloud initiative — “GI Cloud” or “Meghraj” — to drive proliferation and adoption of cloud technology in government departments at Central and state levels for effective delivery of e-Governance services. This is also driving the demand for IT infrastructure including large-scale data centers, which are expected to drive the demand for storage, servers, network components and associated electronic products further.

The Government’s UID project aims to issue Aadhaar or Unique ID (UID) numbers to all residents of the country. This is a fingerprint-based verification system. The project is aimed at providing a single proof of identity to citizens to enable them obtain bank accounts, passports, driving licenses, etc., and help in their financial inclusion. The project is driving a large demand for IT infrastructure and biometric readers in the country.

► Rollout of National Knowledge Network (NKN)vi
The Government has rolled out the NKN, which aims to connect 1,500 top universities, scientific research institutes and central institutions such as the Indian Institutes of Technologies (IITs) and research labs through fiber optics in order to promote R&D in the country. This will be a multi-gigabit pan-India network providing a unified high-speed network backbone to all knowledge-related institutes in the country. Overall government spending on the project is expected to cross INR1 trillion by 2015. The program is driving a huge demand for electronic products including IT hardware, and networking and communication equipment.

► Broadband connectivity for villagesvii
In October 2011, the Government approved a plan to create the National Optical Fiber Network (NOFN), an optic fiber-based broadband network to connect 250,000 panchayats in the country by 2014. This is driven by its vision to transform governance and service delivery and develop local innovation capacity through rural broadband. Overall government spending on the project is expected to cross INR200 billion. The project is driving the strong demand for networking and communication equipment, thereby giving a significant boost to the electronics industry.

Adoption of high-end technology devices

Introduction of new technologies, such as high definition (HD), 3D technology, smart TV (voice recognition and gesture control), internet browsing, bluetooth connection and wireless AV in LEDS/LCDs, in the consumer electronics segment is driving replacement of CRT with LCD/LED TVs. Furthermore, direct-to-home TV broadcasting technology in televisions, RFID technology in smart refrigerators, etc., and energy-efficient technology across all product segments are leading to the robust growth of the electronics segment. In addition, the increasing preference for high-end technology devices such as tablets, smartphones and ultrabooks is leading to a fast-growing electronics industry in the country.

Rollout of 3G/LTE networks

Rollout of 3G and LTE services in India has led to telecom infrastructure witnessing a high demand in the country. With the fast-growing 3G subscriber base, telecom operators are investing in infrastructure to cater to the new needs of customers. The recent launch of LTE services will be followed by scaling-up of related services across the country. This is expected to continue to drive its telecom infrastructure market in coming years.

Low penetration in rural areas

Rural areas in India comprise around 70% of the country’s total population. Since penetration levels of most electronic products in such areas is still low as compared to urban areas, rural India is providing an untapped opportunity for various electronic industries to explore a potentially large market.
3.5. Key segments within ESDM industry

Electronic products

The electronic product market includes a combination of total domestic consumption and export of these products from India. The total market was estimated at US$54.3 billion in 2012, growing by 3.6% as compared to 2011. It is expected to grow at a CAGR of 9.2% from 2010–2015 to reach US$74.6 billion. In 2012, while the domestic consumption increased by 6.2% y-o-y, the exports declined by 9.5% y-o-y, resulting in a low overall growth rate of the market. Domestic consumption is likely to increase at a CAGR of 10.6% to reach US$64.9 billion in 2015, while exports are expected to be mostly flat, growing at a CAGR of 1.1% to reach US$9.7 billion in 2015. Figure 9 below depicts the electronic products segment market.

Figure 9: Electronic product market (US$ billion)

Source: IESA-F&S study
India’s electronic products industry can be divided into the following broad end-user segments:

<table>
<thead>
<tr>
<th>Segment</th>
<th>Products covered$^3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer electronics</td>
<td>TVs (CRT and FPD), DVD players, set-top boxes, home theatre systems, MP3 players, audio equipment, digital cameras and other household appliances</td>
</tr>
<tr>
<td>Automotive electronics</td>
<td>Electric vehicles, power windows, anti-brake locking systems, remote keyless entry, two-wheeler (2W) ignition units, flashers, regulators, instrument clusters (2W,4W), engine management system 4W and car radios</td>
</tr>
<tr>
<td>Industrial electronics</td>
<td>Power electronics, LED lighting, CFL, energy meters, UPS, inverters, weighing scales and power supplies</td>
</tr>
<tr>
<td>IT systems and hardware</td>
<td>Desktops, notebooks, tablets, monitors, servers, storage flash memory cards, USB drives and printers/MFDs</td>
</tr>
<tr>
<td>Telecom products and equipment</td>
<td>Fixed-line and mobile telecommunication equipment, modems, routers, switches, IP PBX, BTS (GSM, CDMA), WiMax (BTS,CPE), PON/GPON ONT/OLT and DWDM</td>
</tr>
<tr>
<td>Mobile devices</td>
<td>Mobile handsets</td>
</tr>
<tr>
<td>Other electronics</td>
<td>Aerospace, strategic electronics including defense, medical electronics and smart cards</td>
</tr>
</tbody>
</table>

The mobile device segment dominated the industry with a 38.8% share of the market in 2012. Driven by the strong growth in the number of mobile phones in the country, this segment is expected to retain its high share, even in 2015. IT systems and hardware comprise the other significant segments of the industry and account for a 17.7% share, followed closely by consumer electronics with 17%. Figure 10 below depicts the electronic products market by end-user segment.

$^3$ Indicative list only;
Key trends and growth drivers

► **Consumer electronics**
Expenditure on consumer electronics is growing at a robust rate due to rising incomes and growing affordability. TV sets continue to be the core product in the Indian AV segment. There has however been a shift in consumers’ preference from CRT TVs to LCDs, LEDs and smart LED TVs, which have been driving the growth of the market. This growth has also been driven by first-time buyers, since household TV penetration is estimated at less than 60%. The demand for TV sets is forecasted to reach 38 million units by 2017. In addition, the Government’s cable TV digitization policy is driving the demand for set-top boxes.

► **Telecom products and equipment, and mobile devices**
The growth of these segments has been driven by a strong increase in the number of wireless and wireline telephone subscriptions in the country. India’s telecom industry has become the second-largest market in the world in terms of subscribers. This growth is being driven by the increasing number of new subscribers in tier-2 and tier-3 cities due to the sharp decline in the prices of entry-level feature phones and smartphones. Telecom operators are also expanding their infrastructure to rural areas. In addition, the launch of 3G and LTE services is driving the demand for telecom infrastructure. The rapid growth in the number of internet and broadband subscribers in the country is further accelerating the growth of this segment.

► **IT systems and hardware**
The Government’s initiative to provide affordable computing devices, for example, the Aakash tablet, has given a significant boost to the country’s hardware market. In addition to this, other government programs including e-governance and Aadhar, as well as several initiatives of state governments, e.g., provision of free laptops/tablets to students, are driving demand in the hardware sector.

While enterprises were the main focus areas for many vendors earlier, over the last few years, the consumer segment has emerged as the main driver of the Indian PC market. It accounted for a 50% share of PC sales in 2011. The average price of a PC has nearly halved over the past few years, and rising incomes are bringing computers within the reach of lower income demographics. In 2013, strong growth opportunities were expected across the next 200–400 small cities in India, where hardware vendors are expanding their retail and distribution presence. Around 45% of new PCs sold in the Indian market are now being shipped to locations outside the top 75 cities.
► **Industrial electronics**

There has been an increased demand for automation and process control in process-based industries. The demand for automation and process control equipment is mainly from process-based industries including the power generation, chemical, medical, pharmaceutical, fertilizer, and petrochemical sectors. Going forward, the demand for industrial electronics is expected to be driven by its applications in areas such as artificial intelligence, robotics, decision analytics, smart image processing and nanotechnology.

► **Automotive electronics**

India’s automotive industry has been growing rapidly in recent years. Between FY07 and FY12, domestic sales in the industry increased at a CAGR of 11.4% to reach 17.4 million units. This growth can be largely attributed to increased sales of passenger vehicles (PVs), followed by commercial vehicles (CVs) and in the two-wheeler segment. Domestic sales in the PV, CV and two-wheeler segments reported a CAGR of 13%, 12% and 10%, respectively, during FY07 and FY12. Economic growth, favorable government policies and increased affordability have been the main growth drivers of the industry.

This booming industry is also driving the demand for automotive electronics in the country, with customers demanding comfort, convenience and enhanced safety features in vehicles. This is driving the demand for automotive electronic-control units. Moreover, customers’ increased awareness of the need for safety devices in vehicles is fueling the demand for anti-lock breaking systems (ABS) and airbags, and that for convenience features is driving the uptake of body control systems. The telematics market, with vehicle-tracking and vehicle-navigation systems, is witnessing a rapid increase in demand, particularly from commercial transport and truck operators. Moreover, the need for compliance with emission norms and innovation in vehicles using alternative fuels is giving a significant boost to the domestic auto electronics segment.

► **Other electronics**

Strategic electronics is a major segment in the electronics category. This segment includes military systems such as radar, sonar and electronic warfare systems; satellite-based communication and navigation systems; surveillance systems and other defense systems. The Government is increasingly promoting the “develop and make” model over the “buy and make” one to protect India’s strategic interests. This has led to players in the strategic electronics segment changing their value proposition by developing technology locally instead of importing it.
Electronic components

The electronic component segment includes active components such as transistors, diodes and CRT; passive components such as resistors and capacitors; electro-mechanical components such as PCBs, power devices, switches, relays, connectors and cable; and associate components such as magnets.

India’s electronic component market (including imports) was valued at US$7.3 billion in 2012. The segment is expected to grow at a CAGR of 12.8% from 2010 to reach US$10.4 billion in 2015. Domestic production of electronic components was valued at US$3.3 billion in 2012 and is expected to grow at a CAGR of 8.6% from 2010 to reach US$4.2 billion in 2015. The growth of the electronic component segment is primarily driven by the strong demand for electronic products in verticals including telecommunications, consumer durables, information technology, office automation (IT/OA) and automobiles. Figure 11 below provides details about India’s electronic component market.

Figure 11: Electronic component market (US$ billion)

Source: ELCINA ELCOMOS report

India’s electronic component market is dominated by electro-mechanical and associated components, with 27% and 29% shares, respectively. Their market composition has not changed significantly over the years and is not expected to do so in the near future. Figure 12 below depicts revenues by type of electronic components.

Figure 12: Market by type of electronic components, 2012

Source: ELCINA ELCOMOS report
Key trends and growth drivers

Convergence of technologies

The convergence of technologies has led to a single device such as a smartphone now using diverse technologies to offer communication, gaming, computing and location-based and other services. This trend is likely to move to other devices and also generate a demand for more sophisticated and integrated high-tech electronic components.

Surfacemount technology (SMT)

Surface mount technology entails construction of electronic circuits in which surface mount components are mounted directly on the PCB. The technology, which is being used in modern devices such as tablets, smartphones and laptops, offers significant advantages including automation, high-speed assembly, miniaturization, and enhanced mechanical and electrical performance. SMT requires the use of surface mount devices (consisting of passive chip components and integrated circuits). These are however not manufactured in the country extensively.

Growing focus on miniaturization

Miniaturization is gaining ground due to the advent of surface mount technology and nanotechnology, since it reduces costs and enhances aesthetics and quality in the final product. This trend is resulting in discrete components being replaced by integrated ones. Since the Indian electronic component industry mainly produces discrete components, it needs to move fast to catch up with this trend.
**Semiconductor design**

Revenue generated by India's semiconductor design industry was expected to amount to US$10.6 billion in 2012, growing at a CAGR of 17.3% from 2009 to 2012. Increasing availability of a capable talent pool, coupled with the emergence of India as an important consumer market for electronic goods, has led to a significant increase in design work executed in the country.

Embedded software development is the frontrunner in terms of its contribution to the Indian semiconductor industry's revenues (81.1%). VLSI design contributed around 12.6% of its overall revenues and hardware/board design the remaining 6.3% in 2012. Figure 13 below provides details of the revenues of the domestic semiconductor design industry.

**Figure 13: Revenues generated by India’s semiconductor design industry (US$ million)**

![Revenues generated by India’s semiconductor design industry](image)

*Source: IESA-EY study*

Increasing sale of consumer electronic goods, a burgeoning telecom/networking market and the exponential growth in the use of portable/wireless products globally (a trend also seen in India) is driving the growth of the semiconductor design industry in the country. Today, end users demand a lot more from electronic products in terms of their standalone functionality, cross-product integration, connectivity and use of new technologies such as LED screens, 3G and Wi-Max. This translates into an increased demand for semiconductor designs. Growing markets for such products in India have given rise to an emergent trend, with companies looking at domestic companies for semiconductor design services, since these have a significant knowledge and understanding of the market. Figure 14 below details semiconductor design projects by consuming industry segment.
Key trends and growth drivers

► **Increasing maturity of semiconductor industry**
After gaining considerable experience, Indian semiconductor design companies are now executing a growing number of projects in chip development as compared to derivative chip design earlier. The complexity of their work is also increasing with their working on more designs for the current technology node.

► **Availability of talent pool**
India adds a significantly large number of engineers to its talent pool every year due to the Indian Government focusing on improving access to higher education and the increasing number of colleges and universities in the country. The total engineering headcount in the VLSI, board design and embedded software segments is estimated to have reached 234,000 by 2012.

► **Cost competitiveness**
Although cost structures are gradually rising in India at an absolute level, the country still has a considerably significant overall cost advantage as compared to the US, Europe or Japan.

► **Stringent IP protection measures**
The Government of India and Indian design companies have strict policies on IP protection as compared to other competing Asian countries. There have been instances when companies have sent work to India, although design turnaround times were considerably higher in the country, compared to the countries mentioned above, because of more stringent IP protection measures in India. The focus on development of intellectual property (IP) is expected to increase as third-party design services companies look at going up the value chain.

► **Proximity to growing APAC customers**
Semiconductor design companies in India are receiving an increased amount of design work because the country is close in terms of distance and time zone differences for Asia-Pacific customers.
**Electronic Manufacturing Services**

Electronic Manufacturing Services (EMS) involves designing, testing, manufacturing, distribution and maintenance of electronic components and assemblies for Original Equipment Manufacturers (OEMs).

In India, the EMS market was estimated at US$3.8 billion in 2012, growing by 26.7% y-o-y. This growth has been mainly led by the telecom and consumer electronics segments, which together accounted for around 49% of overall EMS market revenues in 2011. India has attracted several global EMS players which have set up their operations in the country. The Government's recent policy-related initiatives are also giving a boost to the country’s EMS industry.

Figure 15 below provides details of the electronic manufacturing services market:

**Figure 15: Electronic manufacturing services market (US$ billion)**

![Graph showing electronic manufacturing services market (US$ billion)](source: ELCINA ELCOMOS report)

**Key trends and growth drivers**

The following are growth drivers of India’s EMS industry:

- Increase in outsourcing activity by OEMs in India and worldwide
- Increasing cost of labor, inflation and the overall cost of doing business in China, which is benefiting the Indian EMS industry
- Abundant supply of talented workforce, specifically in design and engineering services
- Growing local and global demand for electronic products
3.6. Demand-supply gap in domestic ESDM market

Although India’s ESDM market is growing at a robust rate, most of the demand is met through imports. The total domestic ESDM market is expected to reach US$94.2 billion in 2015 from US$59 billion and US$68.3 billion in 2010 and 2012, respectively. However, domestic ESDM production and services lag far behind the demand, with revenues from domestic production and services estimated at US$29.8 billion in 2012 and forecasted to reach US$42.4 billion in 2015. This leaves a demand-supply gap of around US$52 billion that will have to be filled in 2015 and provide a significant opportunity to improve domestic manufacturing capabilities.

Going forward, the Government estimates that demand will increase to US$400 billion in the ESDM industry by 2020, while domestic ESDM production and services are expected to grow to around US$100 billion by this year. This is an alarming situation because growing at this rate, the country’s electronic goods and component import bill would far exceed its oil import bill by 2020 and result in a major balance of payments crisis.

Figure 16 below depicts the demand-supply gap between the total ESDM market and domestic ESDM production and services.

**Figure 16: Demand-supply gap in the ESDM industry**

![Graph depicting demand-supply gap in the ESDM industry](source: IESA-F&S study, EY analysis)
Figure 17 below depicts the demand-supply gap in the electronics product market.

**Figure 17: Demand-supply gap in the electronic products market**

![Graph depicting demand-supply gap](image)

Source: IESA-F&S study

The chart above indicates that although total domestic manufacture of electronic products amounted to around 34% of the total market in 2012, HVA manufacturing was only around 8%, indicating low and medium value addition in the country. Furthermore, going forward, while domestic manufacturing is expected to amount to around 35% of the total market in 2015, HVA manufacturing is projected to decline further to around 6.7%. This decline in HVA manufacturing is another major cause of concern for India.

The Government is implementing various policies to develop the ESDM sector to prevent this. These initiatives are aimed at ensuring that the bulk of the demand is met through domestic production. This presents a huge opportunity for domestic players because of the sheer size of the expected market.

Section 6.1 discusses the Government’s recent initiatives to boost India’s ESDM sector.
4. ESDM disability study in India

4.1. Overview of disability computation and how we look at it

For the purpose of this study, for an Indian manufacturer, disability (referred to as “disability” henceforth) is understood as follows:

Overall disability is the difference in the selling price (SP) of a product manufactured in India (Case 1) and the price of the same/similar product when imported (Case 2), including all import taxes, as a percentage of the selling price of the product manufactured in the country. In Case 1, it has been assumed that the share of the domestic component bill of materials is a purely business-driven decision and depends mainly on availability of domestically manufactured components at the required scale and/or the economic/other appropriateness of procuring the component locally.

Disability has been broadly classified into disability due to the tax structure and that due to various factors in the business environment.

Disability due to tax is the difference in the overall taxes paid in India in Case 1 and Case 2 (after offsets) as a percentage of the selling price (SP) of domestically manufactured products. Disability resulting from unabsorbed cenvat, if any, is captured as a separate head in disability summary tables.

Due to the prevailing business environment, disability includes those resulting from factors including inventory-carrying costs, other working capital costs, freight costs, conversion costs and others. Disability due to high conversion costs includes those related to design and manufacturing of end products. Therefore, disability resulting from high conversion costs includes disability caused by the high interest on design-related expenses and increased manufacturing costs for power, real estate, depreciation, manpower, etc.

For computing the disability due to a business environment factor, the overall cost of a business environment factor as a proportion of sales-generated revenue and the typical cost difference between India and the import location on that business environment factor have been considered. For example, if electricity costs as a proportion of sales is x% in India and electricity prices per unit are y% lower in other low cost manufacturing destinations such as China, disability due to the cost of electricity is x*y% of its SP. It is assumed that electricity consumption for manufacturing a unit of a product remains the same in India and the import location.

The remaining part of overall disability (after accounting for tax-related and business environment-related disability) could be due to differences in margins (PAT), in component-procurement agreements, the liberal internal tax structure of the exporting country, etc., the reasons for which are not elaborated one in the disability-computation sections of this study. However, if a particular component or process is not procured in the country due to economic/business reasons, these reasons have been explored in issue 3, section 5 on issues faced by domestic manufacturers. In addition, tax- and policy-related practices in other economies have been elaborated on in sections 8.2 and 8.3. These relate to practices and case studies in other economies.
The following table summarizes the process of computing disability:

<table>
<thead>
<tr>
<th></th>
<th>Case1</th>
<th>Case2</th>
<th>Disability</th>
<th>Type of disability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling price (after considering taxes paid by buyer after offsets if any, e.g., CVD, SAD, etc.)</td>
<td>SP1</td>
<td>SP2</td>
<td>(SP1-SP2)/SP1</td>
<td>Overall Disability</td>
</tr>
<tr>
<td>Margin (PAT)</td>
<td>M1</td>
<td>M2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax</td>
<td>T1</td>
<td>T2</td>
<td>(T1-T2)/SP1</td>
<td>Disability due to tax</td>
</tr>
<tr>
<td>Business environment costs</td>
<td>B1</td>
<td>B2</td>
<td>(B1-B2)/SP1</td>
<td>Disability due to business environment</td>
</tr>
<tr>
<td>Cost of components (FOB) + Others</td>
<td>C1</td>
<td>C2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* SP = M+T+B+C

While computing disability, it is assumed that the manufacturing processes followed and resources required for it (such as electricity consumption and land required.) are the same in Case1 and Case2. Therefore, disability due to differences in component costs and efficiencies of processes are not covered in this study. While overall disability may vary from manufacturer to manufacturer, based on their sourcing-related negotiations with vendors, modes of sourcing, etc., the one that is considered the most apt by the majority of manufacturers has been selected for the purpose of this study.

Regarding the prices of imported goods, the products of comparable brands with similar specifications have been carefully chosen for the purpose of comparison.
4.2. Category-wise computation of disability

For the purpose of this study, we have considered the following electronic product segments listed in the matrix below and have selected the top 25 electronic products from these segments. These are deemed by IESA as being strategically important for India because of their market size and/or growth potential. They have been classified as ITA I/non-ITA I products in terms of the present state of value addition in the country (high/medium/low).

<table>
<thead>
<tr>
<th>Value addition</th>
<th>ITA I products</th>
<th>Non ITA I products</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Industrial electronics (such as power supply, offline UPS, inverter, CFL)</td>
<td>Automotive electronics (such as 2W – Ignition)</td>
</tr>
<tr>
<td></td>
<td>Telecom products and equipment (such as telecom network equipment)</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>Consumer electronics (such as set top boxes without internet function)</td>
<td>Automotive electronics (such as instrument clusters – 2W, 4W)</td>
</tr>
<tr>
<td></td>
<td>Telecom products and equipment (such as BTS – WiMax)</td>
<td>Industrial electronics (such as online UPS)</td>
</tr>
<tr>
<td></td>
<td>IT systems and hardware (such as POS printers)</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>IT systems and hardware (such as MFDs)</td>
<td>Consumer electronics (such as Flat Panel Display TV, digital camera with the exception of digital still image video cameras)</td>
</tr>
<tr>
<td></td>
<td>Industrial electronics (such as smart energy meters, LED lighting)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Automotive electronics (such as engine management system – 4W, car radio)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mobile devices (such as mobile handsets)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Telecom products and equipment (such as routers, switches, BTS - GSM/CDMA, PON/GPON ONT)</td>
<td></td>
</tr>
</tbody>
</table>

4 Note: For the purpose of this study, all analysis has been conducted by taking into consideration these top 25 products and not the entire range of products within the selected electronic product segments.

5 Note: Classification into ITA I and non-ITA I is based on a common understanding of ITA agreements and Customs notifications and is not based on an in-depth technical analysis of the nature and usage of a product. Wherever the product (based on its end use) is capable of falling under both ITA I and non-ITA I, it is classified as non-ITA I for the purpose of the report.
Provided below is a product segment matrix with details of the market value of product segments across six categories.

The following chart illustrates the segmentation on the basis of the combined market value of products in each of the six categories:

**Note:** The market value of product segments in six categories has been calculated by considering the market sizes of the products (among the top 25 ones) that come within these segments.
ITA 1 products: These products form part of the Information Technology Agreement (ITA), which is a plurilateral trade agreement that requires participants to eliminate their tariffs on a specific list of IT and telecommunications products. This agreement was drafted during a ministerial meeting of the World Trade Organization (WTO) in Singapore in December 1996 and concluded in March 1997 in Geneva. India is a signatory to the agreement.

Non ITA 1 products: These products do not feature in the ITA agreement.

High local value addition: implies value addition > 50%, high levels of local sourcing and indigenous design, and manufacturing of complete system

Medium local value addition: implies value addition of 20%–50%, EMS, CKD assembly, sourcing of minimal components.

Low local value addition: implies value addition <20%, SKD assembly, minimal sourcing, no local design influence

The following are the six categories on which the report focuses, based on the classification above:

Category A: Non ITA I, low value addition
Category B: Non ITA I, medium value addition
Category C: Non ITA I, high value addition
Category D: ITA I, low value addition
Category E: ITA I, medium value addition
Category F: ITA I, high value addition

One product segment has been chosen for a study on disability-related calculations for five of these categories. The following are the selected product segments:

Category A: industrial electronics (products such as smart energy meters and LED lighting)
Category B: consumer electronics (products such as set-top boxes without internet functionality)
Category D: IT systems and hardware (products such as notebooks, desktops, printers, USB flash memory drives/memory cards, tablets, LCD monitor, servers)
Category E: IT systems and hardware (products such as POS printers)
Category F: telecom products and equipment (products such as telecom network equipment)

In addition to the product segments mentioned above, disability of an important constituent of the component ecosystem — printed circuit boards (PCB) — has also been calculated.

The next sections describe in detail computation of disability and the market opportunity for these products segments across the six categories.
**Category A: Non ITA I, low value addition**

This category includes products that are classified as non-ITA I, and value addition in it in the country is low (value addition of < 20% — mainly SKD assembly, minimal sourcing and no local design influence). Industrial electronics is the product segment selected to identify overall disabilities in this category. The energy meter/smart energy meter product has been chosen to demonstrate market size, growth potential, demand drivers and key players in this segment. The section below includes an overview of the energy meter/smart energy meter market in the country, and is followed by disability calculations for the product segment.

<table>
<thead>
<tr>
<th>Value addition</th>
<th>ITA I products</th>
<th>Non ITA I products</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High</strong></td>
<td>Other electronics (such as smart cards without magnetic strips)</td>
<td>Industrial electronics (such as power supply, offline UPS, inverter, CFL)</td>
</tr>
<tr>
<td></td>
<td>Telecom products and equipment (products such as telecom network equipment)</td>
<td>Automotive electronics (such as 2W ignition)</td>
</tr>
<tr>
<td><strong>Medium</strong></td>
<td>Telecom products and equipment (such as BTS – WiMax)</td>
<td>Consumer electronics (such as set top boxes without internet function)</td>
</tr>
<tr>
<td></td>
<td>IT systems and hardware (such as POS printers)</td>
<td>Automotive electronics (such as instrument clusters – 2W, 4W)</td>
</tr>
<tr>
<td></td>
<td>Industrial electronics (such as online UPS)</td>
<td></td>
</tr>
<tr>
<td><strong>Low</strong></td>
<td>IT systems and hardware (such as notebooks, desktops, printers, USB flash memory drives/memory cards, tablets, LCD monitor, servers)</td>
<td>IT systems and hardware (such as MFDs)</td>
</tr>
<tr>
<td></td>
<td>Mobile devices (such as mobile handsets)</td>
<td>Industrial electronics (such as smart energy meters, LED lighting)</td>
</tr>
<tr>
<td></td>
<td>Telecom products and equipment (such as routers, switches, BTS - GSM/CDMA, PON/GPON ONT)</td>
<td>Automotive electronics (such as engine management system – 4W, car radio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer electronics (such as Flat Panel Display TV, digital camera with the exception of digital still image video cameras)</td>
</tr>
</tbody>
</table>
Energy meters/Smart energy meters

Segment overview

The overall electricity meter market in India was estimated at US$286.3 million in 2011. The market was expected to grow at a CAGR of 5.4% from 2011 to reach US$354 million in 2015. In terms of volume, the total market amounted to around 24 million units in 2011. Its primary driver of growth includes high investments in expansion of transmission and distribution (T&D) networks across the country. State and private utilities are major consumers of energy meters in India and issue these to EPC contractors for installation. Figure 18 below provides details of the Indian electricity meter market.

Figure 18: Indian electricity meter market (US$ million)

![Graph showing CAGR 5.4% from 2011 to 2015 with values 286 million in 2011 and 354 million in 2015.]

Source: IESA-F&S study

The electricity meter market in India comprises two major segments – tariff meters (electronic meter, trivector meter) and panel meters (Kwh meter, dual-source meter, multi-function meter). While tariff meters contribute around 90% of the market's total revenues, driven by the demand from transmission and distribution utilities, panel meters account for the remaining 10%, with demand being mainly driven by industrial end users in the segment. Single-phase electronic meters dominate the tariff meter market with a revenue share of 65% due to the huge demand from T&D utilities — primarily for installation at residential premises.

Figure 19 below provides a segmental break-up of the electricity meter market:

Figure 19: Electricity meter market (break-up by segment)

![Pie chart showing 90% Tariff meters, 10% Panel meters, and 0% Panel meters.]

Source: Frost & Sullivan study
Traditionally, static and electromechanical meters have dominated the electricity meter market in India. However, the market has been gradually moving toward next generation meters including smart and digital meters. Smart meters have in-built SIM card/data-connectivity options to communicate electricity consumption-related data via a telecommunications network to a pre-programmed utility location. This new category of meters has several advantages including accurate monitoring, transparency in overall working, online connectivity and analysis of meter data, network monitoring and compliance with service-level agreements (SLAs). They also enable detection of power theft, meter tampering or power leakage and remote connection/disconnection of power supply.

According to a global study conducted by the Innovation Observatory and Government estimates, 130 million smart meters are expected to be installed in India by 2021. The Government has announced that it will launch smart grid pilot projects to address issues relating to efficiency, reliability and sustainability in power generation and distribution. This is expected to drive the market for smart energy meters.

Key players

According to the F&S study, the Indian electricity meter segment is dominated by prominent players including HPL Electric & Power Pvt. Ltd., Secure Meters Pvt. Ltd., Genus Power Infrastructure Pvt. Ltd. and L&T Ltd. These together accounted for almost 70% of the market for tariff meters in 2011. Schneider Electric India leads in the panel meter market with a market share of more than 40%.

Growth drivers

Growing demand for energy and focus on conservation

India’s economy, being one of the fastest growing in the world, is witnessing a high demand for energy. The rising demand for household-related energy is driving that for tariff meters. Furthermore, the fast pace of industrial development, leading to increased energy consumption, is generating a significant demand for panel meters. In addition, ever-increasing energy costs have led to end users focusing on energy conservation and management. This offers an attractive opportunity for manufacturers of energy meters to work on innovative products that can help consumers monitor and minimize their energy costs.

Government’s focus on power sector reforms

The Government is increasingly focusing on reforms in the power sector in order to reduce transmission and distribution losses. It has launched the Restructured Accelerated Power Development and Reforms Program (R-APDRP), which aims to reduce power transmission losses. It also plans to make an US$900 billion investment in electrical infrastructure by 2020. This includes building of new transmission and distribution lines, and power-generation plants. The Government aims to achieve 100% metering by implementing this policy. This is driving the country’s energy meter market.

Introduction of pre-paid meters and automatic meter-reading schemes

Several electricity boards across the country are launching pilots to install prepaid meters and automatic meter reading (AMR) schemes due to the growing focus on energy conservation and reduction of power theft, and resultant revenue losses. Prepaid meters enable customers to view their power consumption and balance units and enable power corporations to gather energy bills from consumers prior to usage of power by delivering only as much as what has been paid for.
The Maharashtra State Electricity Distribution Company Ltd (MSEDCL) had launched a pilot for prepaid electricity meters in the state in 2011. It planned to install around 25,000 prepaid meters in cities including Pune, Nagpur, Aurangabad, Pen, Kalyan, Kolhapur, Mahabaleshwar, Matheran and Chikhaldara in the first phase.

In March 2013, the Bihar Electricity Regulatory Commission, in its electricity tariff order for 2013–14, directed Bihar State Power (Holding) Company Ltd. to install prepaid meters at some government departments and homes in Patna as a pilot project.

Bangalore Electricity Supply Company (BESCOM) announced its plan to run a pilot project to install 10,000 smart meters in a part of Bangalore in 2013. If the pilot is successful, the utility company will seek Karnataka Electricity Regulatory Commission’s (KERC’s) approval to implement the project over a larger area. It aims to install 800,000 smart meters in the city over the next two years.

**Large replacement market**

A large replacement market, which has emerged due to the introduction of new and innovative products in the market, is expected to propel the demand for energy meters in the next three to five years. Addition of transients and harmonics measurement features to panel meters is expected to be a key growth opportunity in the panel meter market due to the increasing focus on management of power quality.

**Other government initiatives**

The Ministry of Power has set up the India Smart Grid Task Force (ISGTF), an inter-ministerial group, to act as a focal point for all activities related to smart grid. The group is working toward development of cost-effective metering solutions that can be applied in the Indian context. The ISGTF plans to launch 14 smart grid pilots with smart meters in the country. These pilots are expected to be a stepping stone to large-scale rollout of these solutions in coming years. The group has also recommended development of low-cost smart meters to ensure that 100% metering is achieved by distribution companies.
Disability-related calculations

Indicative computation of disability for domestic manufacturers of non-ITA1 low value-addition products in industrial electronics (e.g., energy meters with AMR facility, etc.) has been carried out as depicted below. (All values are normalized to a domestic selling price of US$100.)

<table>
<thead>
<tr>
<th></th>
<th>Domestic manufacturing from imported and local components</th>
<th>Import of complete product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base cost (A)</td>
<td>59.2</td>
<td>67.0</td>
</tr>
<tr>
<td>Freight (B)</td>
<td>2.9</td>
<td>3.4</td>
</tr>
<tr>
<td>Insurance @ 1.125% (C)</td>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>CIF Value (D = A+B+C)</td>
<td>62.7</td>
<td>71.1</td>
</tr>
<tr>
<td>LC @ 1% (E)</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>Assesable value (F = D+E)</td>
<td>63.3</td>
<td>71.8</td>
</tr>
<tr>
<td>Customs duty Excise Duty (G)</td>
<td>11.8</td>
<td>20.7</td>
</tr>
<tr>
<td>CST (H)</td>
<td>0.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Total duties (I = G+H)</td>
<td>12.3</td>
<td>20.7</td>
</tr>
<tr>
<td>Cenvatble taxes (J)</td>
<td>10.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Duties net of cenvatable taxes (K = I-J)</td>
<td>1.8</td>
<td>20.7</td>
</tr>
<tr>
<td>Clearing charges @ 0.5% (L)</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Local transportation @ 0.5% (M)</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Landed cost (N = F+I+L+M)</td>
<td>76.2</td>
<td>93.3</td>
</tr>
<tr>
<td>Landed cost less cenvatable taxes (O = F+K+L+M)</td>
<td>65.7</td>
<td>93.3</td>
</tr>
<tr>
<td>Total landed cost (O)</td>
<td>65.7</td>
<td></td>
</tr>
<tr>
<td>Conversion cost (P)</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>Finance cost (Q)</td>
<td>8.2</td>
<td></td>
</tr>
<tr>
<td>Total cost (R = O+P+Q)</td>
<td>83.1</td>
<td></td>
</tr>
<tr>
<td>Manufacturer's Margin@5% (S)</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>ED @ 12.36% (T)</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>CST@2% (U)</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Unabsorbed Cenvat (V)</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Selling Price (including unabsorbed Cenvat) (W = R+S+T+U+V)</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Factors causing disability

<table>
<thead>
<tr>
<th></th>
<th>Disability (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disability due to taxes/duties (Including differential duties)</td>
<td>-6.2%</td>
</tr>
<tr>
<td>Disability due to unabsorbed Cenvat</td>
<td>0.1%</td>
</tr>
<tr>
<td>Disability due to inventory-carrying cost</td>
<td>2.8%</td>
</tr>
<tr>
<td>Disability due to financing of working capital (payables, receivables, etc.)</td>
<td>4.4%</td>
</tr>
<tr>
<td>Additional freight cost due to import of components</td>
<td>1.5%</td>
</tr>
<tr>
<td>Disability due to high manufacturing and design costs</td>
<td>2.2%</td>
</tr>
<tr>
<td>Disability due to high interest on design-related expenses</td>
<td>1.3%</td>
</tr>
<tr>
<td>Disability due to high manufacturing expenses (e.g., power, real estate, depreciation, manpower, etc.)</td>
<td>0.9%</td>
</tr>
<tr>
<td>Disability due to high international marketing expenses</td>
<td>1%</td>
</tr>
<tr>
<td>Others</td>
<td>1.0%</td>
</tr>
<tr>
<td>Total disability</td>
<td>6.7%</td>
</tr>
</tbody>
</table>
Assumptions:

► An inventory norm of three months is assumed with interest of ~ 14% for the purpose of computing the Raw Material (RM) inventory-carrying cost for domestic manufacturers; the RM landed cost, including Cenvattable taxes, is considered for its computation. In low-cost manufacturing destinations such as China, it is assumed that components are locally available and the raw material inventory-carrying cycle is negligible due to the country’s mature ESDM ecosystem.
► The receivable and payable durations are considered the same in India and other low-cost manufacturing destinations such as China for disability on account of high interest rates on financing of working capital. The assumed interest rate in India is ~14% and ~ 6% in other low-cost manufacturing destinations such as China.
► The base cost of BoM is assumed to be the same in India and other low-cost manufacturing destinations such as China.
► Margins have been calculated at 5% of the total cost, excluding Cenvattable and local taxes.
► Excise duty of 12.36% has been calculated on the transaction value.
► Service Tax paid on input services availed by manufacturers and traders has not been considered for the purpose of analysis.
► The cost of power in low-cost manufacturing destinations such as China is assumed to be 50% of the blended cost of power in India. Real estate costs in low-cost manufacturing destinations such as China are assumed to be 50% of India’s. The costs of other factor input are assumed to be the same in both the countries.
► In the case of export from other low-cost countries such as China, the extent of export-related incentives is comparable to taxes payable within the country and the margins of manufacturers.
► Freight has been assumed to be 5% in the case of sea freight for imported products/components and 2.5% in the case of local procurements.
► Cenvat credit of Customs duty paid is not available in the case of companies engaged in trading of fully imported goods.
► Clearing charges of 0.5% of the assessable value and local transportation of 0.5% are applicable in the case of imported goods.
► Local transportation of 0.05% of the purchase price is applicable in the case of domestic purchases.
► Excise duty of 12.36% has been calculated on the transaction value of products.
► It is assumed that CST @ 2% will be applicable on procurement of indigenous components or materials and this will not be available as credit.
► For the purpose of computation of design expenses per unit and to reflect the nascent stage of the industry, the domestic manufacturer is assumed to be in the first few years of its operation with a low scale of operations.
► CST @ 2% is assumed on the sale of domestically manufactured products such as energy meters.
► For the purpose of computation of design expenses, a design-to-market cycle of six months is assumed for low value-addition products, with an assumed interest rate of ~14% in India and ~ 6% in other low-cost manufacturing destinations such as China.

Issues specific to the category
► High cost of financing working capital due to high interest rates
► High cost of manufacturing due to high power costs, real estate costs, etc.
► Unabsorbed Cenvat existing and accumulating over the years

A detailed explanation of these issues is provided in Chapter 5.
Category B: Non ITA I, medium value addition

This category includes products that are classified as non-ITA I, and value addition in this category in India is medium (20%–50% — mainly EMS, CKD assembly and sourcing of minimal components). Consumer electronics is the product segment selected to identify overall disabilities in this category. The set-top box is the product chosen to demonstrate market size, growth potential, demand drivers and key players in the segment. The section below provides an overview of the country’s set-top box market. It is followed by disability calculations relating to the product segment.

<table>
<thead>
<tr>
<th>Value addition</th>
<th>ITA I products</th>
<th>Non ITA I products</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Other electronics (such as smart cards without magnetic stripe)</td>
<td>Industrial electronics (such as power supply, offline UPS, inverter, CFL)</td>
</tr>
<tr>
<td></td>
<td>Telecom products and equipment (products such as telecom network equipment)</td>
<td>Automotive electronics (such as 2W – Ignition)</td>
</tr>
<tr>
<td>Medium</td>
<td>Telecom products and equipment (such as BTS – WiMax)</td>
<td>Consumer electronics (such as set top boxes without internet function)</td>
</tr>
<tr>
<td></td>
<td>IT systems and hardware (such as POS printers)</td>
<td>Automotive electronics (such as instrument clusters – 2W, 4W)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Industrial electronics (such as online UPS)</td>
</tr>
<tr>
<td>Low</td>
<td>IT systems and hardware (such as notebooks, desktops, printers, USB flash memory drives/memory cards, tablets, LCD monitor, servers)</td>
<td>IT systems and hardware (such as MFDs)</td>
</tr>
<tr>
<td></td>
<td>Mobile devices (such as mobile handsets)</td>
<td>Industrial electronics (such as smart energy meters, LED lighting)</td>
</tr>
<tr>
<td></td>
<td>Telecom products and equipment (such as routers, switches, BTS - GSM/CDMA, PON/GPON ONT)</td>
<td>Automotive electronics (such as engine management system – 4W, car radio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer electronics (such as Flat Panel Display TV, digital camera with the exception of digital still image video cameras)</td>
</tr>
</tbody>
</table>
Set-top boxes

Segment overview

India’s set-top box (STB) market was estimated at US$357 million in 2012. It is expected to grow at a CAGR of 38.6% to reach US$951 million by 2015. Total shipments of STBs amounted to around 19.2 million in 2012 and are expected to grow at a CAGR of 28.5% to reach around 67.2 million by 2017.

This phenomenal growth is being driven by the Government’s directive to digitize the entire pay-TV network, including the cable TV platform which is mainly analog-based, by 2014. The early growth of STBs in India was driven by direct-to-home (DTH) subscribers, with satellite STBs leading the market in terms of value and volume. However, cable TV STBs are set to drive the majority of growth in the overall STB market in India due to the digitization drive. Furthermore, the market for digital TV viewing is expected to increase significantly due to the introduction of High Definition (HD) channels and smart TVs.

At present, out of the total TV households in India, 61% are cable TV-based, DTH households constitute 25% of the market, and terrestrial and free TV subscribers the remaining 14%.

Figure 20 below depicts the Indian STB market:

**Figure 20: Indian STB market (US$ million)**

Source: IESA-F&S study
Figure 21 below depicts the Indian STB market by volume:

**Figure 21: Indian STB market by volume (in million units)**

![Graph showing the Indian STB market by volume (2012 to 2017)].

*Source: 6Wresearch*

STBs, which are prominently deployed in the Indian market, can be categorized into the satellite STBs, cable TV STB and IP TV STB segments. In terms of content, they can be categorized into Standard Definition STBs and High Definition STBs.

**Key players**

According to ABI Research’s report, Huawei was the leading STB vendor in the country (with a 24% market share), followed by Pace, a UK-based company (with a 12% market share) in 2011. Other major players include Cisco, Chang Hong, Skyworth, HUMAX, Technicolor, Echostar, MCBS, Indieon Technologies, MyBox and Bharat Electronics.

**Growth drivers**

**Government regulations and other initiatives**

- **Digitization drive across the country**

In October 2011, the Information and Broadcasting Ministry accepted the recommendations of the Telecom Regulatory Authority of India (TRAI) and amended the Cable Television Networks (Regulation) Act for implementation of digital addressable cable TV systems in India, to transition from the existing analog cable network in the country. The Government’s policy specifies that digitization of cable TV will take place in four phases by December 2014.

Table 1 details phase-wise implementation of digitization in India:

**Table 1: Timeline for digitization of TV networks in India**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Timeline for implementation</th>
<th>Area coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I</td>
<td>30 June 2012</td>
<td>Four metro cities (Delhi, Mumbai, Kolkata and Chennai)</td>
</tr>
<tr>
<td>Phase II</td>
<td>31 March 2013</td>
<td>All cities with a population or more than one million (38 cities in 14 states)</td>
</tr>
<tr>
<td>Phase III</td>
<td>30 September 2014</td>
<td>Municipal corporations and other urban areas (other than cities covered under Phase I and Phase II)</td>
</tr>
<tr>
<td>Phase IV</td>
<td>31 December 2014</td>
<td>Rest of India</td>
</tr>
</tbody>
</table>
Considering that STBs have a product lifespan of five to seven years, there is expected to be a huge replacement market in the next two to four years for around 45 million STBs that are already installed for various digital platforms throughout homes in India.

► **Digitization of terrestrial TV network**

In addition to the cable TV digitization program, the Government has also initiated digitization of the terrestrial TV network operated by Doordarshan through the Ministry of Information and Broadcasting. This program, which is to be completed by the end of 2017, is expected to result in shifting of millions of customers to a digital network. This opens up an opportunity for STBs, based on DVB-T or higher standards. Doordarshan, which currently operates through a terrestrial analog network, has begun upgrading its infrastructure by migrating to a digital terrestrial network (using DVB-T2 technology) by the end of 2017. This will open up another opportunity for the industry, since in order to receive signals from such a terrestrial network, STBs will be required at subscribers’ premises.

► **Other government initiatives**

The Government’s rollout of the National Optic Fiber Network and the National Knowledge Network will be used for various content delivery- and interactivity-related activities by the Ministry of Human Resources Development, other ministries and departments of education, edutainment, health services and large-reach programs. STBs are essential for secure delivery of digital content as well as to ensure interactivity over national networks. Cumulatively, these two initiatives entail an investment of INR320 billion.

**Growth of Pay-TV subscribers**

India is the third-largest TV market in the world after the US and China, with 155 million TV households, which have grown at a CAGR of 6% from 2007 to 2012. However, even after growing at a robust rate over the last few years, penetration of TV in the country stands at 61% of the total number of addressable households in the country. This is significantly lower than the penetration in the developed and developing markets such as China (98%), the US (98%), the UK (97%), Australia (97%) and Japan (100%). This indicates that there is a huge scope of growth for pay-TV subscriber growth in India in coming years. This growth is expected to be primarily driven by improving affordability on the back of increasing rural incomes and decreasing prices of electronics.

**Increasing popularity of DTH platform**

The DTH platform has witnessed a significant growth rate in the last few years with DTH subscribers growing at a CAGR of 45% from 2008 to 2012. The platform is expected to continue on its growthpath in coming years. Smaller towns and the countryside, which are cable black or cable-deficient, are expected to contribute to the major part of this growth. DTH has an advantage over cable in these less densely populated and single-storey residential units because its cost of delivery is a fraction of that of laying last-mile cables. Furthermore, DTH platform in the country is set to grow, with TV sets often being sold bundled with free STBs and initial DTH subscriptions.

**Launch of HD TV and channels**

High Definition (HD) television was introduced in India in 2011 by DTH service providers. The service has been well received in the market with HD connections accounting for around 5% of subscriber additions. Increasing adoption of HD TV sets and cable TV digitization is expected to bring more HD channels and services to India, which is forecasted to accelerate the demand for HD STBs in the country.
Disability-related calculations

An indicative computation of disability for domestic manufacturers of Non-ITA1 medium value addition products in consumer electronics segment (such as Standard Definition Set Top Boxes*) has been carried out, as shown below. (All values are normalized to a domestic selling price of US$100.)

<table>
<thead>
<tr>
<th>Factors causing disability</th>
<th>Disability(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disability due to taxes/duties(including differential duties)</td>
<td>-3.0%</td>
</tr>
<tr>
<td>Disability due to unabsorbed Cenvat</td>
<td>0.0%</td>
</tr>
<tr>
<td>Disability due to inventory-carrying costs</td>
<td>2.2%</td>
</tr>
<tr>
<td>Disability due to financing of working capital (payables, receivables, etc.)</td>
<td>2.2%</td>
</tr>
<tr>
<td>Additional freight cost due to import of components</td>
<td>1.1%</td>
</tr>
<tr>
<td>Disability due to high manufacturing and design-related costs</td>
<td>8.9%</td>
</tr>
<tr>
<td>Disability due to high interest on design-related expenses</td>
<td>7.4%</td>
</tr>
<tr>
<td>Disability due to high manufacturing expenses (e.g., power, real estate, depreciation, manpower, etc.)</td>
<td>1.5%</td>
</tr>
<tr>
<td>Disability due to high international marketing expenses</td>
<td>1%</td>
</tr>
<tr>
<td>Others</td>
<td>1.6%</td>
</tr>
<tr>
<td>Total disability</td>
<td>14.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Domestic manufacturing from imported components</th>
<th>Import of full product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base cost (A)</td>
<td>50.0</td>
<td>64.2</td>
</tr>
<tr>
<td>Freight (B)</td>
<td>2.3</td>
<td>3.2</td>
</tr>
<tr>
<td>Insurance @ 1.125% (C)</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>CIF Value (D = A+B+C)</td>
<td>52.9</td>
<td>68.2</td>
</tr>
<tr>
<td>LC @ 1% (E)</td>
<td>0.5</td>
<td>0.7</td>
</tr>
<tr>
<td>Assesable value (F = D+E)</td>
<td>53.4</td>
<td>68.9</td>
</tr>
<tr>
<td>Customs duty/Excise Duty (G)</td>
<td>8.1</td>
<td>16.5</td>
</tr>
<tr>
<td>CST (H)</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Total duties (I=G+H)</td>
<td>8.3</td>
<td>16.5</td>
</tr>
<tr>
<td>Cenvatable taxes (J)</td>
<td>7.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Duties net of cenvatable taxes (K = I-J)</td>
<td>0.7</td>
<td>16.5</td>
</tr>
<tr>
<td>Clearing charges @ 0.5% (L)</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Local transportation (M)</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Landed cost (N = F+I+L+M)</td>
<td>62.1</td>
<td>86.0</td>
</tr>
<tr>
<td>Landed cost less cenvatable taxes (O = F+K+L+M)</td>
<td>54.6</td>
<td>86.0</td>
</tr>
<tr>
<td>Total landed cost (O)</td>
<td>54.6</td>
<td></td>
</tr>
<tr>
<td>Conversion cost (P)</td>
<td>22.8</td>
<td></td>
</tr>
<tr>
<td>Finance cost (Q)</td>
<td>5.6</td>
<td></td>
</tr>
<tr>
<td>Total cost (R = O+P+Q)</td>
<td>83.1</td>
<td></td>
</tr>
<tr>
<td>Margin @ 5% (S)</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>ED @ 12.36% (T)</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>VAT @ 12.5% (U)</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Selling Price (V = R+S+T+U)</td>
<td>100.0</td>
<td>86.0</td>
</tr>
</tbody>
</table>
**STB- specific computation of disability**

While the table above captures the generic disability for products in the Non-ITA1, medium value addition category, e.g., SD STBs, etc., there are certain disabilities that are specific to STBs indicated below:

- VAT being paid by domestic manufacturers (due to non-availability of Form C)
- Banks abroad offering longer duration buyer’s credit (up to three years) at LIBOR-linked interest rates in the case of imported STBs

Therefore, computation of disability, specific to STBs with the disabilities mentioned above, is presented below.

<table>
<thead>
<tr>
<th></th>
<th>Domestic manufacturing from imported and local components</th>
<th>Import complete product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base cost (A)</td>
<td>42.8</td>
<td>55.0</td>
</tr>
<tr>
<td>Freight (B)</td>
<td>2.0</td>
<td>2.7</td>
</tr>
<tr>
<td>Insurance @ 1.125% (C)</td>
<td>0.5</td>
<td>0.6</td>
</tr>
<tr>
<td>CIF Value (D = A+B+C)</td>
<td>45.3</td>
<td>58.3</td>
</tr>
<tr>
<td>LC @ 1% (E)</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Assessable value (F = D+E)</td>
<td>45.7</td>
<td>58.9</td>
</tr>
<tr>
<td>Customs duty/Excise Duty (G)</td>
<td>6.9</td>
<td>17.0</td>
</tr>
<tr>
<td>CST (H)</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Total duties (L=G+H)</td>
<td>7.1</td>
<td>17.0</td>
</tr>
<tr>
<td>Cenvatble taxes (J)</td>
<td>6.4</td>
<td>0.0</td>
</tr>
<tr>
<td>Duties net of cenvatble taxes (K = I-J)</td>
<td>0.6</td>
<td>17.0</td>
</tr>
<tr>
<td>Clearing charges @ 0.5% (L)</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Local transportation (M)</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Landed cost (N = F+I+L+M)</td>
<td>53.2</td>
<td>76.5</td>
</tr>
<tr>
<td>Landed cost less cenvatble taxes (O = F+K+L+M)</td>
<td>46.7</td>
<td>76.5</td>
</tr>
<tr>
<td>Total landed cost (O)</td>
<td>46.7</td>
<td></td>
</tr>
<tr>
<td>Conversion cost (P)</td>
<td>19.5</td>
<td></td>
</tr>
<tr>
<td>Finance cost (Q)</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>Total cost (R = O+P+Q)</td>
<td>75.4</td>
<td></td>
</tr>
<tr>
<td>Margin @ 5% (S)</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>ED @ 12.36% (T)</td>
<td>9.8</td>
<td></td>
</tr>
<tr>
<td>VAT @ 12.5% (U)</td>
<td>11.1</td>
<td></td>
</tr>
<tr>
<td>Selling Price (V = R+S+T+U)</td>
<td><strong>100.0</strong></td>
<td><strong>76.5</strong></td>
</tr>
</tbody>
</table>
### Factors causing disability

| Disability due to taxes/duties (Including differential duties) | 4.5% |
| Disability due to unabsorbed Cenvat | 0.0% |
| Disability due to inventory-carrying costs | 1.9% |
| Disability due to financing of working capital (payables and receivables) | 6.7% |
| Additional freight cost due to import of components | 0.9% |
| Disability due to high manufacturing and design-related costs | 7.6% |
| Disability due to high interest on design-related expenses | 6.3% |
| Disability due to high manufacturing expenses (e.g., power, real estate, depreciation, manpower, etc.) | 1.3% |
| Disability due to high international marketing expenses | 1% |
| Others | 0.8% |
| **Total disability** | **23.5%** |

### Assumptions:

- Inventory norms of three months has been assumed with interest of ~14% for the purpose of computing raw material (RM) inventory-carrying costs for domestic manufacturers; RM Landed costs, including Cenvattable taxes, have been considered for their computation. In low-cost manufacturing destinations (like China etc.) such as China, it is assumed that components are domestically available and the raw material inventory carrying cycle is negligible due to the mature ESDM ecosystem of these economies.
- For disability on account of the high interest rate on financing of working capital, receivable and payable durations are considered to be the same in India and other low-cost manufacturing destinations such as China, with an assumed interest rate of ~14% in India and ~6% in other low-cost manufacturing destinations including China.
- The base cost of BoM is assumed to be the same in India and other low-cost manufacturing destinations (in China, etc.).
- Margins have been calculated at 5% of total costs excluding local taxes (and apart from cenvattable taxes).
- Excise duty of 12.36% has been calculated on the transaction value.
- Service Tax paid on input services availed by manufacturers and traders has not been considered for the purpose of analysis.
- Cost of power in low-cost manufacturing destinations such as China is assumed at 50% of the blended cost of power in India. Real estate costs in low-cost manufacturing destinations such as China are assumed to be 50% of that in India. Other costs are assumed to be the same in both the countries.
- In the case of export from low-cost countries such as China, the extent of export-related incentives is comparable with taxes payable within the country and the margins of manufacturers.
- Freight has been assumed at 5% in the case of sea freight for imported products or components and 2.5% in the case of local procurement.
- Cenvat credit of customs duty paid is not available in the case of companies engaged in trading of fully imported goods.
- Clearing charges of 0.5% of the assessable value of a product and local transportation of 0.5% are applicable in the case of imported goods.
- Local transportation charges of 0.05% of the purchase price are applicable in the case of domestic purchases.
- Excise duty of 12.36% has been calculated on the transaction value of goods.
- It is assumed that the CST @ 2% will be applicable on procurement of indigenous components or materials and this will not be available as credit.
For the purpose of computation of design-related expenses per unit, a domestic manufacturer is assumed to be in the first few years of its operation with a low scale of operations, to reflect the nascent stage of the industry.

The landed cost of imported products includes the cost of software imported with STBs. It is assumed that the FOB value of imported components in the case of domestic manufacture includes the cost of software imported into India.

Sale of domestically manufactured products is assumed to have taken place between states to reflect the majority scenario.

VAT has been assumed to be 12.5% on sale of STBs. Domestic procurement of components is assumed to be inter-state and attracts CST of 2%; CST on indigenous procurements has been considered to be against C Forms.

For the purpose of computation of design-related expenses, a design to market cycle of 12–18 months is assumed for medium value addition products; an interest rate of ~14% is assumed in India and ~ 6% in other low-cost manufacturing destinations such as China.

A buyer’s credit of two years is assumed at the effective cost of capital of 10% for import of STBs.

**Issues specific to the category**

- Inadequate availability of components in India on the required scale and at competitive prices
- High inventory-carrying and freight costs due to import of components
- High cost of financing of working capital due to high interest rates
- High cost of manufacturing due to high power costs, real estate costs, etc.
- For some products (such as STBs), where C-Form is not issued by buyer, tax having to be paid at the rate of VAT instead of CST
- Foreign banks offering long durations of credit (up to three years) at LIBOR-linked interest rates, which are very low compared to domestic interest rates) for some imported products (such as STBs) that are considered capital goods for import and therefore eligible for a three years’ buyer’s credit; financing of working capital for long durations to match credit periods a huge challenge for domestic manufacturers

A detailed explanation of these issues is provided in Chapter 5.
Category D – ITA I, low value addition

This category includes products that are classified as ITA I. The value addition of this category of products is low in the country and amounts to < 20% (mainly SKD assembly and minimal sourcing, with no influence of local design). The product segment selected to identify overall disabilities for this category includes IT systems and hardware. The product chosen to demonstrate the segment’s market size, growth potential, demand drivers and key players is the notebook. The section below includes an overview of India’s notebook market and disability calculations relating to the product segment.
**Notebooks**

**Overview of segment**
The PC market comprises two major segments – desktops and laptops. Total PC shipments in the country reached 11.2 million in FY13, growing by 4.1% y-o-y. Out of these, laptops comprised 4.4 million units and desktops the remaining 6.8 million. The laptop segment is growing much faster than the desktop segment, witnessing a 9.5% y-o-y growth rate in laptop shipments and 0.9% in those of desktops in FY13.

Over the last four years, overall PC shipments in India have grown at a CAGR of 13.2% from FY09 to FY13. The major part of this growth is led by the laptop segment, which has grown at a CAGR of 30.4%, as compared to the desktop segment which has grown at a CAGR of 6.4%. The overall growth of the laptop market is driven by the growing demand for mobility by enterprises, the increasing popularity of notebooks among retail consumers and government programs for procurement of laptops. Figure 22 illustrates PC shipments from India and includes their break-up in the laptop and desktop segments:

**Figure 22: PC shipments from India – break up by segments (million units)**

![PC shipments chart]

Source: MAIT

According to MAIT’s growth forecast for FY14, laptop shipments are expected to grow by 16.4% y-o-y to reach 5.1 million units.

**Key players**
The leading players in the Indian PC market include global OEMs such as HP, Lenovo, Dell and Acer. Lenovo led the market with a 15.9% market share in 2012. Figure 23 illustrates the share of the Indian PC market in 2012 (by shipments).
Figure 23: PC market share in 2012 (by shipments)

Source: IDC Asia Pacific Quarterly PC Tracker, 2012

Growth drivers

Procurement of laptop and tablets by state governments

Several state governments in the country have launched programs to provide free or subsidized laptops and tablets to students. This has given a significant boost to the PC market. In 2013, states such as Chhattisgarh (14,000 laptops and 100,000 tablets), Uttar Pradesh (1.5 million laptops) and Odisha (20,000 laptops) launched programs to distribute free laptops and tablets to students. The Tamil Nadu and Rajasthan governments have also launched similar schemes to distribute these devices to students in the last couple of years.

Increasing adoption in SMB segment

The SMB segment has been traditionally seeing desktops being purchased and used as computing devices. However, the decreasing price gap between desktops and laptops has led to a shift, with users preferring laptops in this segment. The other factors causing this shift include ease of mobility of laptops, their enhanced productivity and space-saving due to their smaller size.

Growing demand from the household segment

The incomes of Indian consumers have increased significantly in the last few years. Nearly 10 million households in the country had income levels of more than US$10,000 per annum in 2012. Coupled with falling hardware prices, this has led them to increase their spending on laptops.
Calculation of disability

The following table provides an indicative computation of disability for domestic manufacturers of ITA1 low value addition products in the IT systems and hardware segment (notebooks, PCs, etc.). (All values are normalized to a domestic selling price of US$100.)

<table>
<thead>
<tr>
<th></th>
<th>Domestic manufacturing from imported and local components</th>
<th>Import of complete product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base cost (A)</td>
<td>66.6</td>
<td>71.5</td>
</tr>
<tr>
<td>Freight (B)</td>
<td>3.3</td>
<td>3.6</td>
</tr>
<tr>
<td>Insurance @ 1.125% (C)</td>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>CIF Value (D = A+B+C)</td>
<td>70.6</td>
<td>75.9</td>
</tr>
<tr>
<td>LC @ 1% (E)</td>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Assessable value (F = D+E)</td>
<td>71.3</td>
<td>76.6</td>
</tr>
<tr>
<td>Customs duty/ Excise Duty (G)</td>
<td>10.6</td>
<td>9.2</td>
</tr>
<tr>
<td>CST (H)</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total duties (I = G+H)</td>
<td>10.6</td>
<td>9.2</td>
</tr>
<tr>
<td>Cenvatible taxes (J)</td>
<td>10.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Duties net of cenvatible taxes (K = I-J)</td>
<td>0.6</td>
<td>9.2</td>
</tr>
<tr>
<td>Clearing charges @ 0.5% (L)</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Local transportation @ 0.5% (M)</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Landed cost (N = F+I+L+M)</td>
<td>82.7</td>
<td>86.6</td>
</tr>
<tr>
<td>Landed cost less cenvatible taxes (O = F+K+L+M)</td>
<td>72.6</td>
<td>86.6</td>
</tr>
<tr>
<td>Total landed cost (O)</td>
<td>72.6</td>
<td></td>
</tr>
<tr>
<td>Conversion cost (P)</td>
<td>5.3</td>
<td></td>
</tr>
<tr>
<td>Finance cost (Q)</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td>Total cost (R = O+P+Q)</td>
<td>83.1</td>
<td></td>
</tr>
<tr>
<td>Manufacturer’s Margin@5% (S)</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>ED @ 12.36% (T)</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>CST@ 2% (V)</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Unabsorbed Cenvat (W = T-J)</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Selling Price (including unabsorbed Cenvat)</td>
<td>100.0</td>
<td>86.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factors causing disability</th>
<th>Disability (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disability due to taxes/duties (including differential duties)</td>
<td>4.1%</td>
</tr>
<tr>
<td>Disability due to unabsorbed Cenvat</td>
<td>0.0%</td>
</tr>
<tr>
<td>Disability due to inventory-carrying cost</td>
<td>2.9%</td>
</tr>
<tr>
<td>Disability due to financing of working capital (payables and receivables)</td>
<td>1.8%</td>
</tr>
<tr>
<td>Additional freight cost due to import of components</td>
<td>1.7%</td>
</tr>
<tr>
<td>Disability due to high manufacturing and designing costs</td>
<td>1.2%</td>
</tr>
<tr>
<td>Disability due to high interest on design-related expenses</td>
<td>0.1%</td>
</tr>
<tr>
<td>Disability due to high manufacturing expenses (for power, real estate, depreciation, manpower, etc.)</td>
<td>1.1%</td>
</tr>
<tr>
<td>Disability due to high international marketing expenses</td>
<td>1%</td>
</tr>
<tr>
<td>Others</td>
<td>0.8%</td>
</tr>
<tr>
<td>Total disability</td>
<td>13.4%</td>
</tr>
</tbody>
</table>
Assumptions:

► Inventory norms of three months have been assumed with interest of ~ 14% for the purpose of computing raw material (RM) inventory-carrying costs for domestic manufacturers and RM landed costs, including Cenvatable taxes, for their computation. In other low-cost manufacturing destinations (such as China), it is assumed that components are domestically available and the raw material inventory-carrying cycle is negligible due to the presence of a mature ESDM ecosystem.

► For disability on account of the "high interest rate on financing of working capital," receivable and payable durations are considered to be the same in India and other low-cost manufacturing destinations (such as China). The assumed interest rate is ~14% in India and~ 6% in other low-cost manufacturing destinations (such as China).

► The base cost of BoM is assumed to be the same in India and other low cost manufacturing destinations (such as China).

► Margins have been calculated at 5% of the total cost excluding local taxes (Cenvatable taxes).

► Excise duty of 12.36% has been calculated on the transaction value.

► Service Tax paid on input services availed by manufacturers and traders has not been considered for the purposes of our analysis.

► The cost of power in low-cost manufacturing destinations (such as China) is assumed to be 50% of the blended cost of power in India. Real estate costs in low-cost manufacturing destinations (such as China) are assumed to be 50% of that in India. The costs of other factor input are assumed to be the same in both the countries.

► In the case of export from other low-cost countries (such as China), the extent of export-related incentives is comparable to taxes payable in the country and the margins of manufacturers.

► Freight has been assumed to be 5% in the case of sea freight for imported products/components and 2.5% in the case of local procurement.

► Cenvat credit of customs duty paid is not available in the case of companies engaged in trading of fully imported goods.

► Clearing charges of 0.5% of the assessable value and local transportation of 0.5% has been assumed in the case of imported goods.

► Local transportation of 0.05% of the purchase price has been assumed in the case of domestic purchases.

► Excise duty of 12.36% has been calculated on transaction value.

► It is assumed that CST @ 2% will be applicable on procurement of indigenous components or materials and this will not be available as credit.

► For the purpose of computation of design expenses per unit, the domestic manufacturer is assumed to be in the first few years of operation with a low scale of operations, to reflect the nascent stage of the industry.

► The cost structure represents that for a manufacturer who imports components, manufactures the product and sells it to a trader, who issues a form C

► In the case of imported and traded products, the traders will typically import their products to the destination state.

► It is assumed that SAD refund is available and made use of by traders of imported products such as notebooks.

► For the purpose of computation of design expenses, a design to market cycle of six months has been assumed for the current level of low value addition in India. The assumed interest rate in India is ~14% and ~6% in other low-cost manufacturing destinations (such as China).
**Issues specific to the category**

- For ITA 1 products, 0% BCD on imported finished product, while some imported components especially the ones with dual use functionality used for the manufacturing attract non-zero BCD.
- There is inadequate availability of components at the required scale and at competitive prices in the country.
- Inventory-carrying and freight costs are high due to import of components.
- The high cost of financing working capital is due to high interest rates.
- The high cost of manufacturing is due to high power costs, real estate costs, etc.

A detailed explanation of these issues is given in Chapter 5.
Category E – ITA I, medium value addition

This category includes products that are classified as ITA I and their value addition in the country is medium at 20%–50% (and mainly includes EMS, CKD assembly and sourcing of minimal components). The product segment chosen to identify overall disabilities for this category includes IT systems and hardware. A product chosen to demonstrate market size, growth potential, demand drivers and key players in the segment is the POS printer. The section below includes an overview of the POS printer market in India. This is followed by disability calculations for the product segment.
POS printers

Segment overview

The total market for POS printers in India was valued at around US$45 million in 2012. The market has grown at a strong CAGR of 18% over the last four years, increasing from US$23.3 million in 2009. The primary driver of growth of the POS printer market has been the rising demand for POS systems from the retail industry – from large organized retail to small and unorganized retail stores. Figure 24 illustrates the POS printer market size in India.

Figure 24: Indian POS printer market (US$ million)

Source: EY analysis, CyberMedia Research, Dataquest estimates

Growth drivers

Strong demand from fast-growing retail industry

India’s retail industry is growing rapidly and is driving the demand for POS printers with exponentially increasing customer footfalls. There is an increasing need for high-speed POS printers that can enable enhanced customer servicing and reduce waiting time.

Growing demand for wireless POS printers for mobile and tablet-based POS systems

Vendors are turning mobile computing devices such as tablets and iPads into complete POS systems. Wireless receipt printers are being integrated with tablet-based POS software and systems to print receipts and labels.

Introduction of Magnetic Ink Character Recognition (MICR) in receipt printers

Multi-function POS printers are being introduced with built-in MICR, which is used to describe the numbers and symbols that appear at the bottom of checks. This type of printer can read, print and then validate a check in a single pass-reducing check-time, speeding up customer checkout and reducing check-processing fees.
Computation of disability

Indicative computation of disability for domestic manufacturers of ITA1 medium value add products in IT systems and hardware segment (such as point of sale printers) has been carried out, as detailed below. (All values are normalized to a domestic selling price of US$100.)

<table>
<thead>
<tr>
<th>Description</th>
<th>Domestic manufacturing from imported and local components</th>
<th>Import of full product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base cost (A)</td>
<td>59.3</td>
<td>66.6</td>
</tr>
<tr>
<td>Freight (B)</td>
<td>2.8</td>
<td>3.3</td>
</tr>
<tr>
<td>Insurance @ 1.125% (C)</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>CIF Value (D = A+B+C)</td>
<td>62.6</td>
<td>70.7</td>
</tr>
<tr>
<td>LC @ 1% (E)</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>Assessable value (F = D+E)</td>
<td>63.2</td>
<td>71.4</td>
</tr>
<tr>
<td>Customs duty/ Excise Duty (G)</td>
<td>8.3</td>
<td>8.6</td>
</tr>
<tr>
<td>VAT/CST (H)</td>
<td>0.2</td>
<td>-</td>
</tr>
<tr>
<td>Total duties (I = G+H)</td>
<td>8.4</td>
<td>8.6</td>
</tr>
<tr>
<td>Cenvatable taxes (J)</td>
<td>8.1</td>
<td>-</td>
</tr>
<tr>
<td>Duties net of cenvatable taxes (K = I-J)</td>
<td>0.3</td>
<td>8.6</td>
</tr>
<tr>
<td>Clearing charges @ 0.5% (L)</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Local transportation @ 0.5% (M)</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Landed cost (N = F+I+L+M)</td>
<td>72.2</td>
<td>80.7</td>
</tr>
<tr>
<td>Landed cost less cenvatable taxes (O = F+K+L+M)</td>
<td>64.0</td>
<td>80.7</td>
</tr>
<tr>
<td>Total landed cost (O)</td>
<td>64.0</td>
<td>80.7</td>
</tr>
<tr>
<td>Conversion cost (P)</td>
<td>14.3</td>
<td>-</td>
</tr>
<tr>
<td>Finance cost (Q)</td>
<td>4.8</td>
<td>-</td>
</tr>
<tr>
<td>Total cost (R = O+P+Q)</td>
<td>83.1</td>
<td>-</td>
</tr>
<tr>
<td>Manufacturer's margin@5% (S)</td>
<td>4.2</td>
<td>-</td>
</tr>
<tr>
<td>ED @ 12.36% (T)</td>
<td>10.8</td>
<td>-</td>
</tr>
<tr>
<td>CST@2% (U)</td>
<td>2.0</td>
<td>-</td>
</tr>
<tr>
<td>Unabsorbed Cenvat (V)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Selling price (including unabsorbed Cenvat) (W = R+S+T+U+V)</td>
<td>100.0</td>
<td>80.7</td>
</tr>
</tbody>
</table>

Factors causing disability

<table>
<thead>
<tr>
<th>Description</th>
<th>Disability (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disability due to taxes/duties (including differential duties)</td>
<td>4.5%</td>
</tr>
<tr>
<td>Disability due to unabsorbed Cenvat</td>
<td>0.0%</td>
</tr>
<tr>
<td>Disability due to inventory-carrying costs</td>
<td>2.5%</td>
</tr>
<tr>
<td>Disability due to financing of working capital (payables and receivables)</td>
<td>2.4%</td>
</tr>
<tr>
<td>Additional freight cost due to import of components</td>
<td>1.3%</td>
</tr>
<tr>
<td>Disability due to high manufacturing and design-related costs</td>
<td>7.6%</td>
</tr>
<tr>
<td>Disability due to high interest on design-related expenses</td>
<td>6.9%</td>
</tr>
<tr>
<td>Disability due to high manufacturing expenses (power, real estate, depreciation, manpower, etc.)</td>
<td>0.7%</td>
</tr>
<tr>
<td>Disability due to high international marketing expenses</td>
<td>1%</td>
</tr>
<tr>
<td>Others</td>
<td>0.1%</td>
</tr>
<tr>
<td>Total disability</td>
<td>19.3%</td>
</tr>
</tbody>
</table>
Assumptions:
► Inventory norms of three months have been assumed with interest of ~ 14% to compute raw material (RM) inventory-carrying for their computation. In other low-cost manufacturing destinations (such as China), it is assumed that components are domestically available and the raw material inventory carrying cycle is negligible due to the presence of a mature ESDM ecosystem.
► For disability on account of “high interest rate on financing of working capital,” receivable and payable durations are considered to be the same in India and other low-cost manufacturing destinations (such as China), with assumed interest rate of ~14% in India and~ 6% in other low-cost manufacturing destinations (such as China).
► The base cost of BoM is assumed to be the same in India and other low-cost manufacturing destinations (such as China).
► Margins have been calculated at 5% of total costs excluding local taxes (Cenvatable taxes).
► Excise duty of 12.36% has been calculated on transaction value.
► Service Tax paid on input services availed by manufacturers and traders has not been considered for the purpose of analysis.
► The cost of power in low-cost manufacturing destinations (such as China.) is assumed to be 50% of the blended cost of power in India. Real estate costs in low-cost manufacturing destinations (such as China) are assumed to be 50% of that in India. The costs of other factor input are assumed to be the same in both the countries
► In the case of export from other low-cost countries (such as China), the extent of export-related incentives is comparable to the taxes payable within the country and the margins of manufacturers.
► Freight has been assumed to be 5% in the case of sea freight for imported products/components and 2.5% in the case of local procurement.
► Cenvat credit of customs duty paid is not available in the case of companies engaged in trading of fully imported goods.
► Clearing charges of 0.5% of assessable value and local transportation of 0.5% has been assumed in the case of imported goods.
► Local transportation of 0.05% of the purchase price has been assumed in the case of domestic purchases.
► Excise duty of 12.36% has been calculated on transaction value.
► It is assumed that CST @ 2% will be applicable on procurement of indigenous components/materials and this will not be available as credit.
► For the purpose of computation of design expenses per unit, the domestic manufacturer is assumed to be in the first few years of operation with low scale of operations, to reflect the nascent stage of the industry.
► For the purpose of computation of design expenses, a design-to-market cycle of 12–18 months has been assumed for medium value addition products, with an assumed interest rate of ~14% in India and ~ 6% in other low-cost manufacturing destinations (such as China).
**Category F – ITA1, high value addition:**

This category includes products that are classified as ITA I and their value addition in the country is high at > 50% (with high level of local sourcing, indigenous designs and complete manufacturing of systems). The product segment chosen to identify overall disabilities for this category includes telecom products and equipment. The section below includes an overview of the demand for products from this segment (such as telecom network equipment).

### Demand drivers of telecom network equipment

The telecom network equipment market has been witnessing rapid growth in India due to the country’s burgeoning telecom market. Listed below are some major factors driving the demand for this category of products.

#### Deployment of 3G/LTE technologies

Apart from 3G, LTE is expected to increase the demand for wireless equipment from telecom service providers. Manufacturers of wireless infrastructure have entered deals with operators to deploy LTE in India. They also begun to manufacture and distribute new multi-radio and TD-LTE products.

#### Rural segment driving expansion of network

In the long term, the rural segment is projected to be the growth driver of India’s telecom market. Therefore, all operators are expanding their networks in rural markets, which is driving the high demand for telecom network equipment.
Telecom operators’ increasing focus on customer retention

In addition to rural areas, even category “A” circles need adequate infrastructure to support their ever-growing subscriber bases. The quality of services provided is one of the biggest differentiators, resulting in subscriber retention. These factors have led to the wireless infrastructure segment attracting a significant amount of investments from players that want to differentiate their services from those of other contenders.

Increasing demand for broadband infrastructure

The demand for broadband is expected to rise in the next few years due to the increase in internet-related demand for e-mail, chatting, website browsing, e-commerce, etc. High bandwidth-intensive applications are replacing traditional internet services. Moreover, the increasing popularity of smartphones is driving the demand for wireless broadband and value-added services such as IPTV, high-speed DSL, Ethernet connections and managed services gaining popularity. The demand for broadband infrastructure is expected to grow at a rapid rate in the near future.
Computation of disability

Indicative computations of disability for domestic manufacturers of ITA1 high value add products in telecom products and equipment (such as telecom network equipment) is detailed below. (All values are normalized to a domestic selling price of US$100.)

<table>
<thead>
<tr>
<th>Computation of disability</th>
<th>Domestic manufacturing from imported and local components</th>
<th>Import complete product of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base cost (A)</td>
<td>48.5</td>
<td>61.2</td>
</tr>
<tr>
<td>Freight (B)</td>
<td>2.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Insurance @ 1.125% (C)</td>
<td>0.4</td>
<td>0.7</td>
</tr>
<tr>
<td>CIF Value (D = A+B+C)</td>
<td>51.1</td>
<td>64.9</td>
</tr>
<tr>
<td>LC @ 1% (E)</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Assessable value (F = D+E)</td>
<td>51.5</td>
<td>65.6</td>
</tr>
<tr>
<td>Customs duty/Excise duty (G)</td>
<td>6.9</td>
<td>7.9</td>
</tr>
<tr>
<td>VAT/CST (H)</td>
<td>0.2</td>
<td>-</td>
</tr>
<tr>
<td>Total duties (I = G+H)</td>
<td>7.2</td>
<td>7.9</td>
</tr>
<tr>
<td>Cenvatable taxes (J)</td>
<td>6.9</td>
<td>-</td>
</tr>
<tr>
<td>Duties net of cenvatable taxes (K = I-J)</td>
<td>0.3</td>
<td>7.9</td>
</tr>
<tr>
<td>Clearing charges @ 0.5% (L)</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Local transportation @ 0.5% (M)</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Landed cost (N = F+L+M)</td>
<td>59.1</td>
<td>74.1</td>
</tr>
<tr>
<td>Landed cost less cenvatable taxes (O = F+K+L+M)</td>
<td>52.3</td>
<td>74.1</td>
</tr>
<tr>
<td>Total landed cost (O)</td>
<td>52.3</td>
<td>74.1</td>
</tr>
<tr>
<td>Conversion cost (P)</td>
<td>23.4</td>
<td>-</td>
</tr>
<tr>
<td>Finance cost (Q)</td>
<td>5.0</td>
<td>-</td>
</tr>
<tr>
<td>Total cost (R = O+P+Q)</td>
<td>83.1</td>
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</tr>
<tr>
<td>Manufacturer's margin@5% (S)</td>
<td>4.2</td>
<td>-</td>
</tr>
<tr>
<td>ED @ 12.36% (T)</td>
<td>10.8</td>
<td>-</td>
</tr>
<tr>
<td>CST@2% (U)</td>
<td>2.0</td>
<td>-</td>
</tr>
<tr>
<td>Unabsorbed Cenvat (V)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Selling price (including unabsorbed Cenvat) (W = R+S+T+U+V)</td>
<td>100.0</td>
<td>74.1</td>
</tr>
</tbody>
</table>

Factors causing disability

<table>
<thead>
<tr>
<th>Disability (%)</th>
<th>Disability due to taxes/duties (including differential duties) 5.2%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Disability due to unabsorbed Cenvat 0.0%</td>
</tr>
<tr>
<td></td>
<td>Disability due to inventory-carrying costs 2.2%</td>
</tr>
<tr>
<td></td>
<td>Disability due to financing of working capital (payables and receivables) 4.5%</td>
</tr>
<tr>
<td></td>
<td>Additional freight costs due to import of components 0.9%</td>
</tr>
<tr>
<td></td>
<td>Disability due to high manufacturing and design costs 10.3%</td>
</tr>
<tr>
<td></td>
<td>Disability due to high interest on design expenses 8.6%</td>
</tr>
<tr>
<td></td>
<td>Disability due to high manufacturing expenses (power, real estate, depreciation, manpower, etc.) 1.7%</td>
</tr>
<tr>
<td></td>
<td>Disability due to high international marketing expenses 1%</td>
</tr>
<tr>
<td></td>
<td>Others 1.8%</td>
</tr>
<tr>
<td></td>
<td>Total disability 25.9%</td>
</tr>
</tbody>
</table>
Computation of telecom equipment-specific disability

While the table above captures the generic disability for products in the ITA1, high value addition category, e.g., telecom equipment etc., there are certain disabilities that are specific to telecom equipment, as indicated below:

- Banks abroad offering longer duration of buyer’s credit at LIBOR-linked interest rates in the case of imported STBs

The overall disability for telecom equipment manufacturing rises to 29% after considering disability due to the longer duration of buyer’s credit offered on imports.

Assumptions:

- Inventory norms of three months have been assumed with interest of ~14% for the purpose of computing raw material (RM) inventory-carrying costs of domestic manufacturers; RM landed costs including Cenvattable taxes is considered for their computation. In other low-cost manufacturing destinations (such as China), it is assumed that components are domestically available and the raw material inventory-carrying cycle is negligible due to a mature ESDM ecosystem.
- For disability on account of the “high interest rate on financing of working capital,” receivable and payable durations are considered to be the same in India and other low-cost manufacturing destinations (such as China), with an assumed interest rate of ~14% in India and ~6% in other low-cost manufacturing destinations (such as China).
- The base cost of BoM is assumed to be the same in India and other low-cost manufacturing destinations (such as China).
- Margins have been calculated at 5% on the total cost excluding local taxes (Cenvatable taxes).
- Excise duty of 12.36% has been calculated on transaction value.
- Service Tax paid on input services availed by manufacturers and traders has not been considered for the purposes of analysis.
- The cost of power in low-cost manufacturing destinations (such as China) is assumed to be 50% of the blended cost of power in India. Real estate costs in low-cost manufacturing destinations (such as China) have been assumed to be 50% of that in India. Costs of other factor input are assumed to be the same in both countries.
- In the case of export from other low-cost countries (such as China), the extent of export-related incentives is comparable to taxes payable in the country and the margins of manufacturers.
- Freight has been assumed to be 5% in the case of sea freight for imported products/components and 2.5% in the case of local procurement.
- Cenvat credit of customs duty paid is not available in the case of companies engaged in trading of fully imported goods.
- Clearing charges of 0.5% of the assessable value and local transportation of 0.5% has been assumed in the case of imported goods.
- Local transportation of 0.05% of the purchase price is assumed in the case of domestic purchases.
- Excise duty of 12.36% has been calculated on transaction value.
- It is assumed that CST @ 2% will be applicable on procurement of indigenous components/materials and this will not be available as credit.
- For the purpose of computation of design expenses per unit, the domestic manufacturer is assumed to be in the first few years of operation with low scale of operations, to reflect the nascent stage of the industry.
- Buyers’ credit of four years is assumed at the effective cost of capital of 10% for import of products including telecom equipment.
- Due to the highly complex nature of telecom products, a design to market period of around three years is assumed for products such as telecom equipment, with an assumed interest rate of ~14% in India and ~6% in other low-cost manufacturing destinations (such as China).
5. Key issues faced by manufacturers of electronics in India

We have identified several issues across different categories of products. This section describes these in detail. Our recommendations have been listed against each of them. Chapter 7 provides details of these recommendations.

Tax-related issues:

Issue 1

0% BCD on imported finished products, especially when domestic electronic manufacturing is at a nascent stage and has not achieved advantages of scale

Issue faced by

- ITA1 products and products that come under FTAs (low, medium and high value add)

According to the ITA1 agreement and other free trade agreements entered by the Government of India with the WTO and the governments of certain countries, the BCD on a large number of IT/electronic products has been reduced to 0%. However, the challenges faced by Indian manufacturers (highlighted in subsequent sections) increase the overall cost of manufacturing in the country, creating an overall disability of up to 11.5% for products chosen for the study or ITA1 products. Provision of imposing non-zero BCD would provide an opportunity for Indian manufacturers to balance these disabilities and create a level playing field. However, the disability for ITA1 products still remains high due to existing trade agreements and zero BCD.
Differential duty structure
The Government has acknowledged that 0% BCD on end products will encourage import of such products in place of domestic manufacturing, and has progressively reduced Import duty on several raw materials/parts/components that are required to manufacture these products to 0% BCD level. However, there are certain components such as fuse, inductors, batteries and some ICs as well as raw materials such as polycarbonate and ABS plastic, tin plating solution and components such as fuse, inductors and batteries that have dual use and on which Import duty is still non-zero. This is resulting in a differential duty structure for domestic manufacturers of ITA1 products, where non-zero BCD is paid by them on import of raw materials, but BCD on import of finished products is zero. The differential duty structure contributes to the overall disability for manufacture of ITA1 products in India.

While the overall difference in taxes paid by manufacturers and importers (excluding unabsorbed input tax credit) for ITA1 products amounts to 3.5%–5.5%, the contribution of the differential duty structure is estimated at ~ 0.5 – 2.5%.

Interpretation of product definitions in ITA agreement
With the convergence of technologies and miniaturization of devices, it is now possible to combine multiple functionalities into a single electronic product. This makes it increasingly difficult to interpret definitions of products in the ITA 1 agreement, to impose duties to new age products. Therefore, there is a danger of 0% BCD being levied on import of certain non-ITA1 products due to confusion with respect to their classification.

Long procedure of availing concessional duty
While the Government has reduced taxes on many raw materials used to manufacture electronic products, components, parts or assemblies, the process to be followed by domestic manufacturers to avail concession of duties (including issue of “end use certificate”) is complex and time-consuming. Furthermore, delays in the clearance process adversely affect production schedules and may result in stock-outs. This may leads to loss of revenue or increased inventory-carrying costs for domestic manufacturers.

Recommendations*

► “Deemed export” status accorded to ITA 1 products manufactured in India
► “Interest-free soft loans” for discharge of gross VAT/CST liability across all states
► Self-declaration by manufacturers about the product(s) they manufacture

* Recommendations are elaborated on in section 8.
Issue 2

Tax has to be paid at the rate of VAT instead of CST for some products (such as STBs) where the C-Form is not issued by the buyer.

Issues faced by the following:

- Specific products such as STBs

Today, the business models of most of MSO/DTH operators are such that STBs are provided to users during installation and are not resold. MSO/DTH operators are therefore unable to provide Form-Cs to STB manufacturers. MSOs’ inability to issue Form-Cs to STB vendors leads to STB manufacturers paying increased CST ranging between 5% to 15% (depending on the state). However, when an MSO/DTH operator imports the STB an SAD of only 4% is levied. Thereby, disability due to taxes being higher than sales tax paid is 7%–8%, depending on the rate of tax applied.

Recommendation

- Recognizing MSOs under telecom sector so that they can issue Form-Cs

* Our recommendations are elaborated on in Section 8.

Issue 3

Some non-ITA1 products still having 0 BCD

Issue faced by

- Non-ITA1 products (low, medium and high value add products)

<table>
<thead>
<tr>
<th>Value addition</th>
<th>ITA I products</th>
<th>Non ITA I products</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High</strong></td>
<td>Other electronics (such as smart cards without magnetic stripe)</td>
<td>Industrial electronics (such as power supply, offline UPS, inverter, CFL)</td>
</tr>
<tr>
<td></td>
<td>Telecom products and equipment (products such as telecom network equipment)</td>
<td>Automotive electronics (such as 2W – Ignition)</td>
</tr>
<tr>
<td><strong>Medium</strong></td>
<td>Telecom products and equipment (such as BTS – WiMax)</td>
<td>Consumer electronics (such as set top boxes without internet function)</td>
</tr>
<tr>
<td></td>
<td>IT systems and hardware (such as POS printers)</td>
<td>Automotive electronics (such as instrument clusters – 2W, 4W)</td>
</tr>
<tr>
<td></td>
<td>IT systems and hardware (such as notebooks, desktops, printers, USB flash memory drives/memory cards, tablets, LCD monitor, servers)</td>
<td>Industrial electronics (such as online UPS)</td>
</tr>
<tr>
<td><strong>Low</strong></td>
<td>Mobile devices (such as mobile handsets)</td>
<td>IT systems and hardware (such as MFDs)</td>
</tr>
<tr>
<td></td>
<td>Telecom products and equipment (such as routers, switches, BTS - GSM/CDMA, POH/GPOH ORT)</td>
<td>Industrial electronics (such as smart energy meters, LED lighting)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Automotive electronics (such as engine management system – 4W, car radio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumer electronics (such as Flat Panel Display TV, digital camera with the exception of digital still image video cameras)</td>
</tr>
</tbody>
</table>
It has been observed that import duty (BCD) of 0% is levied on certain electronic products such as multifunction printers, which are not covered by the ITA1 agreement. Therefore, the opportunity to create a level playing field for domestic manufacturers and promote domestic manufacture of these products by creating tariff barriers to imports is unutilized. The 0% BCD levied on these products is creating a tax-related disability that is similar for ITA1 products. This discourages domestic manufacturing of these products.

**Recommendation***

► BCD to be increased for non-ITA1 products to match the disability of domestic manufacturing of each product

* Recommendations are elaborated on in section 8.

**Issue 4**

Issue relating to unabsorbed input tax credit and its accumulation over the years

**Issue faced by**

- Low value add products (ITA1 and non-ITA1)
- Some medium value add products (ITA1 and non-ITA1)
Import duties paid by domestic manufacturers on import of raw materials or components are Cenvatable and are allowed to be offset against output Excise duty payable according to existing laws. It has been observed that a manufacturer typically needs to do a value addition of 20%–35% (depending on the level of import duties paid) to fully offset import duties paid against output Excise duty payable. However, most domestically manufactured electronic products have low levels of value addition (as illustrated in the value addition matrix above) due to various reasons including the fact that most domestic manufacture is at a nascent stage and domestically manufactured components are not easily available. Therefore, Import duty paid on components or raw materials is higher than the output Excise duty payable. This results in unabsorbed input tax credit (as illustrated in the chart* below). Since there is no provision to refund this unabsorbed Cenvat to manufacturers, this is a sunk cost, resulting in disability for domestic manufacturing. The extent of disability for domestic manufacturing due to unabsorbed Cenvat is in the range of 0.1%–0.5%, depending on the extent of value addition by a manufacturer.

*Indicative; chart not drawn to scale

Issue 5

Other tax-related disabilities

1) SAD refund to traders vs CST paid by manufacturers:

Issue faced

Products manufactured in the country and sold in Indian states
When traders directly import end products into India for trading, they are eligible for exemption/refund of SAD. However, in the case of interstate sale of domestically manufactured products, the manufacturer has to pay CST, which is not eligible for refund or set-off. However, in the case of traders, CST is not required to be paid, since the product is generally directly imported into the state of consumption. Therefore, CST paid by domestic manufacturers is an additional cost and adds to the disability for domestic manufacturing. The table below illustrates this.
The impact of the additional CST paid by domestic manufacturers (in comparison with imports) amounts to ~ 1.95%.

2) Non-Cenvatable cesses paid by manufacturers when components are imported (while cess is charged only once on import of end product):

Issue faced

Products domestically manufactured using imported components

Import of components by domestic manufacturers for manufacturing end products attracts taxes including CVD, SAD and Education and Higher Education taxes (2% and 1%, respectively) apart from BCD. While most input taxes such as CVD and SAD are eligible for Cenvat credit, the cesses are not. In addition, domestic manufacturers also pay Education and Higher education taxes (2% and 1%, respectively) again on Excise duty. In the case of import of end products, Education and Higher Education cesses are only payable once. The table below illustrates this:

<table>
<thead>
<tr>
<th>Trader (taxes payable)</th>
<th>Domestic manufacturer (taxes payable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCD on imported end product</td>
<td>BCD on imported components</td>
</tr>
<tr>
<td>CVD and SAD on imported components (Cenvatable against ED on end product)</td>
<td>Education and Higher Education taxes on imported components (not Cenvatable)</td>
</tr>
<tr>
<td>CVD and SAD on end product (SAD is exempt or refundable as elaborated above.)</td>
<td>ED on end product</td>
</tr>
<tr>
<td>Education and Higher Education Cess levied on end products</td>
<td>Education and Higher Education Cess levied on end products</td>
</tr>
</tbody>
</table>

Non-Cenvatable cesses to be paid by domestic manufacturers on imported components create a disability of 0.2%–0.3% (depending on the proportion of imported BoM and the extent of domestic value addition).
3) Input sales taxes that cannot be offset against output sales tax for manufacturers when components are domestically procured (interstate)

**Issue faced**

**Products domestically manufactured using components procured from Indian states**

Components procured from other states in India attract a CST, which cannot be set off against the sales tax (CST/VAT) payable on end products by domestic manufacturers. This non-offsettable Sales tax paid on components procured domestically (from other states) is currently creating a disability of 0.1%–0.5% (depending on the share of domestically procured components from other states in the overall BoM).

The total cost of manufacturing an electronic product domestically increases due to all the disabilities. Therefore, the amount of Excise duty paid also increases due to the high base on which it is paid (in the context of transaction value-based assessment of ED). The higher Excise duty paid due to various disabilities in the system creates a disability of 0.2%–1.2% (depending on the extent of other disabilities).
Cost-related issues

Issue 6

High cost of financing working capital due to high interest rates

Issue faced
- Low value add products (ITA1 and non-ITA1)
- Medium value add products (ITA1 and non-ITA1)
- High value add products (ITA1 and non-ITA1)

High interest rates in India are among the factors that increase the cost of manufacturing electronic products in the country. Therefore, despite having similar receivable and payable cycles as in other countries, the relatively higher rates of interest are creating a significant disability for domestic manufacturing in India. While the cost of capital for financing working capital varies from 11%–14% in the industry, most MSMEs secure rates of no less than 13%–14%. The impact of high interest rates is worse in the case of products such as smart energy meters, whose receivable cycles are relatively longer.

Disability due to the high cost of capital for financing working capital varies between 1.5% and 4.5%

The impact of high interest rates on financing working capital costs is much higher in the case of products such as STBs, where long periods of buyer’s credit are available for imports. In the case of STBs, an importer is eligible for buyer’s credit for three years at LIBOR-linked interest rates (since STBs are treated as capital equipment) when an MSO/DTH operator imports these from a foreign manufacturer. Indian manufacturers find it extremely difficult to obtain finance to offer similar credit terms. Moreover, interest rates for such borrowing by Indian manufacturers are as
high as 13%–14%. Even if it is assumed that Indian manufacturers manage to obtain loans, they have to bear the interest differential (which is 5%–7%, depending on the borrowing terms) for three years in order to match the interest rates offered to MSO/DTH operators by foreign banks on buyer’s credit.

In addition, some multinational organizations that manufacture STBs through their financing subsidiaries offer attractive schemes on buyer’s credit for MSOs/DTH operators that buy equipment from them. The differential in the cost of financing in such cases is around 4%–5%.

Moreover, MSOs/DTH operators are in dire need of working capital due to regulations on compulsory and time-bound digitization of Cable TV. They favor imports due to availability of low-cost financing, irrespective of the FOB cost of an imported STB. Therefore, the high cost of working capital-related financing alone results in disability of 6%–8% (depending on duration of buyer’s credit) for domestic STB manufacturers.

Recommendations*

► Interest subvention scheme
► Recognition of STB segment as part of telecom and infrastructure sectors

* Recommendations are elaborated on in section 8.

Issue 7

High cost of finance for design expenses

Issue faced

Medium and high value addition products

System-related design of electronic products requires huge resources in terms of skilled manpower, licenses, tools, infrastructure, etc. Requirement of such resources is higher in the case of high value addition products (HVA), where the designs are relatively complex. Moreover, design-related expenses incurred during the product development phase attract interest, which forms a significant proportion of the revenues, especially for firms at the initial phases of commercialization. Due to the nascent stage of the ESDM industry in India, most companies manufacturing HVA products show “interest on design expenses” as a major cost head. High rates of interest in India, combined with long gestation periods (from designing to commercialization), result in disability for manufacturers by increasing per unit interest costs.

Disability due to high design-related costs varies from 0.2%–8%, depending on the complexity of a product.

Recommendations

► Interest subvention schemes
► MSIPS to be expanded to include R&D manpower expenses
Component unavailability related issues:

**Issue 8:**

Inadequate availability of components in India at the required scale and at competitive prices

**Issue faced**

- Low value add products (ITA1 and non-ITA1)
- Medium value add products (ITA1 and non-ITA1)

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While there is a huge demand for electronic products in India, and a part of this demand is met by domestic OEMs, it is not translating into proportionate domestic manufacturing. Prominent among the reasons for this is the fact that OEMs find it beneficial to import manufactured sub-assemblies directly from other countries. A significant reason for sub-assemblies not being designed or manufactured in the country (despite adequate manufacturing capacity), pertains to the absence of a component ecosystem in India, apart from high manufacturing costs and taxation-related issues. This also is leading to reduced utilization of existing manufacturing capacity.

It has also been observed that there is little product/sub-assembly-level design-related activity taking place in the country, especially in consumer electronics. The reason for this is the absence of an incentive to design such products in India, since there is very little scope of such designs being manufactured indigenously due to the lack of a component ecosystem, high manufacturing costs and taxation-related issues prevalent in the country.

The BoM of products or sub-assemblies that are currently manufactured in India are also largely imported. This further indicates the lack of a component ecosystem in India.
Major issues relating to “component ecosystem” in India:

a) **Unavailability**

Components that are currently locally procured in significant quantity include power supplies, plastics, sheet metal, packaging materials and some passives. The rest of the components of BoM are mainly imported. Therefore, although some components are manufactured in India, there is very limited manufacture of BoM components in the country. Furthermore, very few domestic manufacturers of component operate at scales comparable to those seen in countries such as China.

Countries such as China manufacture most of the required components indigenously on a large scale, while a strong and complete component-manufacturing ecosystem is lacking in India.

b) **High cost of manufacturing**

The high cost of manufacturing components domestically due to various reasons, including lack of scale, an inverted duty structure on manufacture of components, environmental factors such as high electricity and real estate costs, etc., is leading to the price of domestic components being higher in India than in some low-cost manufacturing destinations.

**High inventory-carrying and freight costs due to import of components**

EMS players or manufacturers that intend to manufacture sub-assemblies/products in India are forced to import components from various locations in China and South-East Asia due to the lack of a complete component ecosystem in the country. Therefore, supply chain-related uncertainties that arise due to components being imported from various geographic locations, combined with long shipment times and customs clearances, require manufacturers to maintain large raw material inventories. Long-duration inventory norms, combined with high interest rates on working capital, result in raised inventory-carrying costs, which are negligible in other low-cost manufacturing countries due to most of the components being locally available and interest rates being lower in them.

Shipping components from various geographic locations also results in increased freight costs. Disability due to high inventory-carrying costs is in the range of 2%–3% in India, depending on the number of days inventory needs to be maintained.

Additional freight-related costs for manufacturers due to their importing components from distant geographies instead of procuring them domestically (due to inadequate availability of the complete component ecosystem) are estimated at 1%–2.5%, depending on the mode of transport and share of imported BoM.

**Recommendations**

► Establish a duty free component-trading and warehousing zone in the vicinity of a major port
► Leading component manufacturers of the top 10 components to be incentivized to manufacture in the country simultaneously

* Recommendations are elaborated on in section 8.
Conversion cost-related issues

Issue 9

High cost of manufacturing due to high power, real estate costs, etc.

Issue faced
- Low value add products (ITA1 and non-ITA1)
- Medium value add products (ITA1 and non-ITA1)
- High value add products (ITA1 and non-ITA1)

The cost of manufacturing/conversion costs (EMS) is slightly higher in India as compared to those in other low-cost manufacturing countries. The conversion cost of products/sub-assemblies in the consumer electronics domain can vary from 6%–10% of their selling price, depending on the complexity of a product and its manufacturing process. Conversion costs in India are high due to various factors such as the high cost of power, real estate, financing of capital expenses and compliance with environmental norms, as described below.

Power

Issues related to supply of power are rated the highest by manufacturers among all infrastructure-related issues. The blended cost of power (which takes the cost of alternative sources, back up, etc., into account) in India is 2–2.5 times higher (depending on the duration of use of alternative power sources) than in other low-cost manufacturing countries.

- Although the cost of grid power has been on the rise in recent years in certain parts of the country, the major concern for manufacturers relates to the quality of grid power. This includes reliability of its supply, frequency, duration of unannounced and announced power cuts, etc. This issue has been observed across various states, although with varying intensity. Manufacturers have made arrangements for alternative sources of power (such as DG sets)
and UPS equipment (for uninterrupted supply) due to the unreliability of grid power. These arrangements involve large fixed and variable costs, which increase the overall cost of power. Disability for domestic manufacturers due to unreliable power supply is 0.5%–0.6%.

**Real estate**
Although the cost of real estate varies, depending on the location of the facility, it has been observed that the cost of real estate in India is higher in general than comparable locations in other low-cost manufacturing countries. Disability due to the high cost of real estate varies from 0.25%–1%, depending on the location.

**Interest on capital-related expenses**
As mentioned earlier, interest rates in India are higher as compared to other low-cost manufacturing countries. Therefore, even if capital expenses are assumed to be similar in India and other countries, the difference in cost of financing results in disability of 0.25%–0.6%

This cost comes down to some extent in cases where refurbished capital equipment is used by manufacturers and sometimes where manufacturers adopt the MSIPS scheme.

**Labor**
While the effective cost of semi-skilled labor is becoming an advantage for Indian manufacturers due to rising labor costs in China, inadequate availability of skilled labor for manufacturing electronics is posing challenges for them. The relatively low effective cost of labor in India is an advantage for domestic manufacturers and reduces their disability by 0.3%–0.6%

**Recommendations**
- Access to open access power made easy for units in EMCs
- Interest subvention scheme
- Labor laws relaxed in EMCs for five years

* Recommendations are elaborated on in section 8.
Other issues

Issue 10

Perception of India as a brand and electronic-manufacturing destination
Since global perception of India as an electronic-manufacturing destination is not as high as of other low-cost manufacturing destinations in the Far East, greater efforts need to be made on branding and promotion by domestic manufacturers than companies in other low cost destinations. This is resulting in higher international marketing expenses being incurred by domestic manufacturers.

Disability due to increased international marketing efforts required of Indian manufacturers amounts to ~ 1%. In addition, this poor brand perception also results in the slow pace of global investment in the ESDM sector.

Recommendations:
► International branding initiatives and incentives
6. Policy-related initiatives

6.1. Government's initiatives to boost manufacturing in India

The Government of India is increasing its focus on this sector and aims to transform the country from a consumption-driven market to the one that has manufacturing capability to meet local and export-related demand while simultaneously focusing on producing high value add electronic products. This section describes various schemes the Government has launched to give a boost to manufacturing of electronics in the country as well create an entire electronics ecosystem.

These schemes are increasingly gaining acceptance within the industry, with the companies analyzing how to utilize them for their business growth. A detailed study to understand implementation and effectiveness of these schemes will be undertaken in the next 12 months.

Electronic Manufacturing Cluster scheme

In October 2012, the Government notified its Electronics Manufacturing Cluster (EMC) scheme to provide world-class infrastructure to attract investments in India’s ESDM sector. According to the scheme, the Government will offer financial support for implementation of EMCs that will help development of entrepreneurial ecosystem in the country, drive innovation and catalyze its economic growth by increasing employment opportunities and tax revenues.

Key features of the scheme

► The Government would support a Special Purpose Vehicle (SPV), which should be a legal entity that is duly registered for this purpose. The SPV may be promoted by private companies, industry associations, financial institutions, R&D institutions, state or local governments or their agencies and units within the EMC.
► The SPV will develop, operate and maintain infrastructure, amenities and other common facilities created in EMCs.
► The SPV should consider including an academic or research institution as part of it for suitable academic-industry linkages.
► EMCs will use existing Information Technology Investment Region (ITIR) wherever available.
► The scheme will be open for applications for five years from the date of notification (22 October 2012).

Financial assistance from the Government

The Government has decided to provide the following financial assistance to the SPV:

► Greenfield EMC: A greenfield EMC refers to an undeveloped or underdeveloped geographical area, which is preferably contiguous. In this case, assistance is restricted to 50% of the project cost, subject to a ceiling of INR500 million for every 100 acres of land. A pro-rate ceiling will apply for a larger area. The remaining project cost will be financed by other stakeholders of the EMCs contributing a minimum 25% of the project cost.

► Brownfield EMC: A brownfield EMC refers to a geographical area where a significant number of existing ESDM units are located. In this case, assistance is restricted to 75% of the project cost, subject to a ceiling of INR500 million. The remaining project cost will be financed by other stakeholders of the EMCs contributing a minimum 15% of the project cost.
Financial assistance provided under the policy will be subject to the approval of the Competent Authority, following a due process.

**Analysis (input from industry stakeholders)**

While the industry considers this a good scheme that will help in development of electronics clusters in the country, there are some suggestions with respect to its implementation:

► The Government should ensure that the following critical factors are adequately available at locations chosen for development of clusters. These include connectivity to a good sea port, air and road connectivity, availability of talent, and adequate availability of power and water.

**Modified Special Initiatives Package Scheme (M-SIPS)**

In July 2012, the Government approved a proposal to provide fiscal incentives as part of a special incentive package to promote large-scale manufacturing in the ESDM sector under its Modified Special Incentive Package Scheme (M-SIPS). The objective of the scheme is to remove impediments in manufacture of electronic products, e.g., the high cost of power and finance, high transactional costs and poor base of supply chain, and create a level-playing field for the development of an indigenous electronics-manufacturing eco-system in the country.

**Key features of the scheme**

► Under the M-SIPS, the Government will provide incentives of up to INR100 billion during the Twelfth Five Year Plan period (2012–2017).
► These incentives will be available for 29 categories of products, including in the telecom, information technology hardware, consumer electronics, medical electronics, automotive electronics, strategic electronics, avionics, industrial electronics, nano-electronics, solar photovoltaic, semiconductor chip and chip component segments.
► Units across the value chain, starting from raw materials (including assembly, testing, packaging and accessories of these categories of products) are included.
► It also includes Electronics Manufacturing Services (EMS) units, which are engaged in providing services related to manufacture of sub-assemblies and parts as well as integration services to OEMs.
► Incentives under this scheme are only available to units within notified Electronic Manufacturing Clusters.
► Incentives are available for investments made in projects within a period of 10 years from the date of approval.
► The scheme will be open for applications for three years from the date of notification (27 July 2012).
Financial assistance from the Government

The Government will provide the following financial assistance to ESDM units:

<table>
<thead>
<tr>
<th>Type of unit</th>
<th>Incentive in SEZ</th>
<th>Incentive in non-SEZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>New unit in ESDM sector</td>
<td>20% of capital expenditure</td>
<td>25% of capital expenditure</td>
</tr>
<tr>
<td>Existing unit in ESDM sector expanding its</td>
<td>20% of additional fixed capital investment in plant and machinery</td>
<td>25% of additional fixed capital investment in plant and machinery</td>
</tr>
<tr>
<td>capacity/modernization and diversification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>initiatives*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*To qualify as an expansion of capacity/modernization and diversification of an existing unit, there must be an increase in the value of fixed capital investments in plant and machinery of not less than 25%.

For the purpose of this scheme, capital expenditure will be treated as the total of capital expenditure in land (subject to a maximum of 2% of expenditure on total capital), building, plant and machinery and technology, including research and development.

The scheme provides for reimbursement of CVD/Excise duty on capital equipment for non-SEZ units.

Reimbursement of central taxes and duties for high technology and high capital investment units such as fabs is also provided in the scheme.

Incentives offered by state governments/agencies/local bodies will be over and above these.

Investment thresholds applicable for units are different, depending on the type and nature of products defined in the scheme.

Analysis (input from industry stakeholders)

While the industry perceives the incentives as a positive step in improving domestic manufacturing, the following are some suggestions for improvement:

The threshold for investment to be eligible for this scheme may need to be rationalized to allow more domestic players, most of which are at a nascent stage currently, to avail this scheme. For example, M-SIPS guidelines require a minimum investment of INR1 billion for EMS players to be eligible for incentives. Very few Indian EMS players may be willing to invest INR1 billion upfront, especially when the demand scenario is still uncertain (which is also dependent on development of the ESDM ecosystem, OEMs/ODMs manufacturing in India, taxes being relaxed to make manufacturing in India competitive, etc.).

The industry feels that the scheme currently requires extensive documentation for the first MSIPS application. The Government may simplify the application–related procedure by seeking limited information in the first application and extensive details in further rounds from shortlisted companies.

MSIPS should be expanded to include overall project cost (as described in recommendation 3 in section 7.1.)
In February 2012, the Government notified its policy of preferring domestically manufactured electronic products for procurement by all government ministries/departments (except Defense). The policy is applicable for goods purchased for the Government’s own purposes rather than for commercial re-sale. Each ministry/department will identify and notify all such electronic products for which preference will be given to domestic manufacturers. However, in the case of generic products that are procured across sectors, e.g., computers and communication equipment, notification will be communicated by the DeitY or DoT.

The policy will eventually notify all such electronic products that are procured by the Government and government agencies. However, only those products will be notified for which there exists at least one domestic manufacturer.

The notification issued by each ministry/department to communicate its preference for domestically manufactured products will specify the percentage of procurement to be made from domestic players, but it will be a minimum of 30% of the total procurement value of the electronic product. Furthermore, each ministry or department will specify the product’s domestic value addition-related requirement for it to qualify as a domestic product (subject to minimum requirements prescribed by the DeitY).

The definition of domestically manufactured electronic products requires that such products are manufactured by companies that are established and registered in India (including contract manufacturers but excluding traders). These products also need to meet the following graded domestic value addition in terms of their BOM:

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage of domestic value addition in terms of BOM of domestic manufacturers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>25%</td>
</tr>
<tr>
<td>Year 2</td>
<td>30%</td>
</tr>
<tr>
<td>Year 3</td>
<td>35%</td>
</tr>
<tr>
<td>Year 4</td>
<td>40%</td>
</tr>
<tr>
<td>Year 5</td>
<td>45%</td>
</tr>
</tbody>
</table>

The table below lists the electronic products notified by the Government, and includes the percentage of procurement from domestic manufacturers and their value addition in terms of BOM:

---

7 The Government has currently put its PMA policy on hold and has communicated that it is being reviewed.
<table>
<thead>
<tr>
<th>Product</th>
<th>Percentage of procurement from domestic manufacturers</th>
<th>% domestic value addition in terms of BOM from domestic manufacturers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laptop PC</td>
<td>50%</td>
<td>25% in Year 1</td>
</tr>
<tr>
<td>Desktop PC</td>
<td>50%</td>
<td>30% in Year 1</td>
</tr>
<tr>
<td>Tablet PC</td>
<td>50%</td>
<td>30% in Year 1</td>
</tr>
<tr>
<td>Dot matrix printer</td>
<td>50%</td>
<td>40% in Year 1</td>
</tr>
<tr>
<td>Contact smart cards</td>
<td>50%</td>
<td>30% in Year 1, 45% in Year 2, 65% from Year 3 onwards</td>
</tr>
<tr>
<td>Contactless smart cards</td>
<td>50%</td>
<td>40% in Year 1, 50% in Year 2, 70% from Year 3 onwards</td>
</tr>
<tr>
<td>LED products</td>
<td>50%</td>
<td>50% in Year 1</td>
</tr>
</tbody>
</table>

In addition to these, the DoT has also notified 26 telecom products that are eligible for preference by domestic manufacturers in government procurement.

**Analysis (input from industry stakeholders)**

► The feeling in the industry is that a PMA scheme will help to improve domestic manufacturing. Furthermore, the increasing focus of the central and state governments on enabling various sections of society with technology and digital devices to achieve inclusive growth is generating a huge demand for electronic products. Industry views indicate that PMA is a much needed and timely intervention by the Government to translate this demand into an enabler of domestic manufacturing. However, the success of the scheme is dependent on its effective implementation. It needs to be ensured that all Central Government departments or agencies include the PMA clause in their procurement-related requirements. Adoption of the policy by state government departments and agencies is another crucial factor.

► The scheme can also be advertised effectively so that vendors are clear about related guidelines and benefits.

► PMA to be renamed to VAMA, adherence to the policy and allowing premium quotes from domestic manufacturers as described in recommendation 2 in section 7.1
Setting up semiconductor fabrication units

Semiconductor wafer fabrication units play a pivotal role in the overall ESDM ecosystem. Chip manufacturing creates its own upstream and downstream ecosystem and could kick-start a new wave of electronics hardware being manufactured in India. The Government intends to set up two semiconductor wafer fabs in the country. In June 2011, it set up an empowered committee to identify technology and investors to set up wafer fabs, and invited proposals from companies willing to set up semiconductor fabs in India.

In September 2013, the Cabinet approved the establishment of two semiconductor fabs in the country. It approved two proposals for fabs – one led by Jaiprakash Associates and Israel's Tower Semiconductor, with IBM being the technology partner, and the other led by Hindustan Semiconductor Manufacturing Corporation and Malaysia's Silterra, with STMicroelectronics being its technology partner.

Technology providers should have a minimum stake of 10%, with the Indian Government having a 11% stake in each project. The Government would part-fund investments through interest-free loans for 10 years.

Electronics Development Fund

The Government plans to set up a US$2 billion Electronics Development Fund (EDF) to aid manufacture of domestic electronics in the country. The EDF will include separate funds for different segments along the electronics manufacturing value chain. It will float several other funds under its umbrella to identify suitable projects in different hardware-manufacturing verticals and fund them. All of these funds will be managed by different fund managers and the EDF will have between 25% and 100% equity exposure in them. The EDF will be managed by the DeitY and will be utilized for innovations, R&D, Indian Intellectual Property Rights (IPR) issues and promotion of India’s electronic manufacturing sector. It will not interfere in the day-to-day affairs of separate funds under its umbrella.

Initiatives under the Union Budget 2013–14

In its Union Budget 2013–14, the Government has announced several incentives for the development of the country’s ESDM sector. The most prominent of these are given below.

► The Government has increased its Import duty on STBs from 5% in the last fiscal year to 10% in 2013–14 to provide an incentive to domestic manufacturers by increasing their competitiveness against imported STBs.
► The Government has also announced zero Customs duty on capital equipment (plant and machinery) for semiconductor wafer fabs.
► The Budget also introduced an investment allowance for new high-value investments. For example, a company investing INR1 billion or more in plant and machinery from 1 April 2013 to 31 March 2015 will be entitled to deduct an investment allowance of 15% of its investment. This will be in addition to current rates of depreciation.
► The Government is to also notify that funds provided to technology incubators located in academic institutions and approved by the Ministry of Science and Technology or Ministry of MSME will qualify as CSR expenditure. According to the New Companies Bill, companies are to spend 2% of their average net profits on their CSR initiatives. Furthermore, technology incubators will help entrepreneurs set up new businesses by providing them financial and technology assistance.
7. Recommendations for overcoming disabilities

7.1. Key recommendations (across products)

We suggest the following to manufacturers of electronics in India to help them overcome the challenges they face:

Recommendation 1

Improvements made in Preferential Market Access policy:

a) Repositioning PMA to VAMA:

The current nomenclature of the policy, as “Preferential' Market Access for domestically manufactured electronic goods may suggest that global companies are not eligible for benefits under this policy. However, according to the policy, “all companies registered and established in India, engaged in manufacture in India and meeting the value addition norms are eligible for the benefits...,” which implies that the Indian arms of global companies are also eligible for benefits under this policy, provided they meet its other criteria.

Therefore, we recommended that the name of the policy is changed to the “Value Addition-based Market Access (VAMA) policy” to ensure that its nomenclature appropriately summarizes its intention.

b) Adhering to the policy:

The National Electronics Policy recognizes ESDM as a sector of strategic importance and sets achievement of a turnover of US$400 billion and an investment of US$100 billion in electronics as some of its objectives by 2020. The country’s ESDM sector is currently at a nascent stage and does not have the advantages of scale witnessed in China. Furthermore, manufacturing of electronics in India implies multiple disabilities, which are detailed in this report. In view of the challenges mentioned above, the Government needs to handhold domestic electronic design and manufacturing, and be particularly supportive of companies that have already invested in India and help them scale up quickly. It is therefore clear that the Government’s initiatives with respect to provision of preferential access to domestically manufactured electronic products should be continued with.
Recommendation 2

Improvements made in MSIPS policy

According to the Modified Special Incentives Package scheme announced by the Government, capital expenses incurred by companies in setting up new ESDM units or expanding/modernizing/diversifying existing ones are partly reimbursed for a fixed duration of time. R&D-related capital expenses eligible for this scheme include plant, machinery, equipment and software costs; purchase of IPRs, patents, etc., required for in-house or captive R&D, among other expenses. It has been observed that expenditure on skilled manpower forms an important part of the total expenses on R&D, especially in product/sub-assembly design. The MSIPS scheme does not currently consider these expenses for the purpose of providing incentives.

The MSIPS notification defines an ESDM unit as one engaged in “design and manufacturing" of electronics or nano-electronics products including accessories.” However, it is unclear if it includes companies that are engaged in standalone design activities without manufacturing facilities.

We suggest the following modifications are made in the MSIPS to encourage design-related activity:

1. The scheme can be expanded to include overall project expenses (including capital expenses) instead of capital expenses alone.
2. The definition of capital expenses for the purpose of this scheme needs to include any items that can be capitalized under the Income Tax Act.
3. Electronics companies engaged in standalone design of end products or sub-assemblies (and outsourcing their manufacturing activities to EMS players) can also be considered eligible for the MSIPS scheme.

For the manpower expenses to be considered under the MSIPS, the R&D unit of an ESDM company (standalone design company or otherwise) must have separately identifiable infrastructure with earmarked buildings/land/premises and exclusive manpower working on R&D activities and not on any other functions or support activities including sales and marketing, finance, administration, market research, etc. An R&D facility should maintain its accounts separately and have them audited annually.

The Department of Scientific and Industrial Research can act as a nodal agency to evaluate proposals from R&D units for eligibility under this scheme.
Recommendation 3

Effective implementation of schemes:

Current ESDM policies should be made more effective in the following respects:

- Approval and disbursement made faster and more time-bound
- Avoidance of sub-optimal funding to create the maximum impact; decisions to be based on the quality of proposals rather than the size of funding requests
- Disbursements of incentives in the form of cash or even “ESDM scrips,” which can be earned and used for any tax payments (TDS, Income Tax, CST, Excise Tax, etc.).

Programs such as the EDF should be made operational immediately to engender a well-funded, healthy ecosystem of fab-less companies. This is in view of the fact that the presence of a strong “systems” ecosystem is essential to attract additional private investments into the components sector and also to ensure the success of semiconductor fabs to be set up in the country.
Recommendation 4

Deemed export status for domestically manufactured ITA1 products

As discussed under issue 1, electronics products that are subject to ITA1 and FTA agreements enjoy concessional BCD of 0%. It is estimated that currently 0% of demand for mobile devices and only 20.5% of demand for consumer electronics is met through domestic high value add manufacturing. This is due to the disability to domestic manufacturing caused by various factors described in the “Key challenges” section (For ITA1 products this is as high as 11.5%). However, the BCD on such products cannot be reverted, since India is a signatory of ITA1 and FTAs.

Therefore, we recommend that to incentivize manufacture of such products in India and create a level playing field for Indian manufacturers of ITA1 products, domestically manufactured and sold ITA 1 products are treated as “deemed exports” in terms of the provisions of the Foreign Trade Policy (FTP). They should be accorded all the benefits available under the policy for DMEP, especially those relating to drawback advance authorization and refund of output Excise duties paid by availing credit of input taxes paid on components and services (by cash) on the value addition.

There needs to be a clear definition of what constitutes a DMEP and is eligible for a deemed export status. It is recommended that DMEP is defined on the basis of domestic value addition in terms of Bill of Material (BoM), as in the case of guidelines of the Preferential Market Access policy. The value addition threshold for a product to be classified as DMEP can increase progressively every year over a period of five years. Different initial threshold limits can be prescribed for various products, depending on their current level of value addition happening in the country. The definition of BoM and the criteria for its various components should be classified as “domestic BoM” as in the case of the PMA policy for various electronic products.

For example, a notebook PC can be considered a DMEP if it satisfies the value addition criteria given below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage of domestic BoM in overall BoM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year1</td>
<td>25%</td>
</tr>
<tr>
<td>Year2</td>
<td>30%</td>
</tr>
<tr>
<td>Year3</td>
<td>35%</td>
</tr>
<tr>
<td>Year4</td>
<td>45%</td>
</tr>
<tr>
<td>Year5</td>
<td>55%</td>
</tr>
<tr>
<td>Current value addition</td>
<td>15%–20%</td>
</tr>
</tbody>
</table>

The thresholds and criteria for components of BoM to be considered as domestic also need to evolve with improving domestic manufacturing capabilities, as in the case of semiconductors (mentioned under the PMA policy).

This will reduce the tax payable on sale of such products by 10%–11% of the selling price and directly affect the disability to manufacturing.

This incentive also strongly encourages companies to increase their levels of domestic value addition.
Furthermore, the value addition-based deemed export status also incentivizes top original design manufacturers (ODMs) to design and manufacture these products in India, since the definition of “domestic BoM” under the PMA policy includes the cost of design/R&D.
Recommendation 5

Interest-free soft loans for a period of five to seven years on the gross VAT/CST liability applicable across all Indian states for domestically manufactured and sold ITA1 products

In addition to the VAT payable on sale of electronic goods, manufacturers are also burdened with input CST on components and output CST on finished goods, which are not creditable down the supply chain. Furthermore, the CST retained in the cost of products facilitates the issue of cascading of taxes (tax on tax).

Therefore, we recommend that interest-free soft loans are given for a period of five to seven years on the gross VAT/CST liability (total liability discharged using input tax credits and cash) across all the states to manufacturers to incentivize manufacture of electronic goods and mitigate the cost burden created by the non-creditable nature of CST.

The DMEP criteria for grant of interest-free soft loans can be adopted from the criteria set for deemed export benefits (discussed above).

Interest-free soft loans could reduce costs for manufacturers by around 1.2%–7% (depending on the rate of VAT paid) of the sale price and positively affect their disability.
**Recommendation 6**

For non-ITA1 products, BCD to be increased to match disability to their domestic manufacturing

As discussed earlier in issue 6, certain electronics products currently enjoy 0% BCD on import, despite their not being part of the ITA1 or FTA agreements. The BCD on such products needs to be rationalized, since this gives an undue advantage to foreign manufacturers who export their products to India at 0% BCD, which results in disability for domestic manufacturing of such products. Even in the case of other electronic products, where non-zero BCD is applicable, there is significant disability for manufacturing various electronic products in India, as identified in the quadrant-specific disability computation sections. Therefore, for non-ITA1 products, an increase in the BCD on their import can create a level playing field for domestic manufacturers.

We recommend that the basic Customs duty on such products is increased from 10%–22%, depending on the disability for domestic manufacturing of these products. This can be coupled with tight value addition and “country of origin-related” clauses to ensure a level playing field for domestic manufacturers.

The extent of increase in BCD should not only balance the disability, but also attract more domestic players to manufacturing electronics. An example of STB is provided below to illustrate the increase in BCD for non-ITA1 products.

<table>
<thead>
<tr>
<th>Product</th>
<th>Current disability</th>
<th>Disability addressed by other initiatives*</th>
<th>Attractive margin assumed</th>
<th>Suggested increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>STB</td>
<td>23.5%</td>
<td>23%</td>
<td>10%</td>
<td>6%</td>
</tr>
</tbody>
</table>

* Only the immediate impact of the suggested initiatives (recognizing STB as telecom equipment and STB manufacturing as an infrastructure sector; interest subvention of 3% for domestic manufacturers), if they are implemented, should be considered.

In addition, in view of the confusion in the applicability of the ITA1 agreement for certain products, definitions of products in the ITA1 agreement need to be carefully examined so that concession on import duty is not provided for ineligible products. A clear mapping of various products to HS codes should be issued to avoid ambiguity in interpretation of product descriptions in the ITA agreement.
Recommendation 7

Interest subvention scheme

As discussed in issues 3 and 4, interest rates and the resulting cost of financing for working capital is a major disabler for manufacturing of electronics in India. The overall disability due to the high cost of fundsto finance working capital (including inventory carrying, payables and receivables) is 3.5%–6.5%. A part of this disability would be addressed through the development of a free trade component trading and warehousing zone, as recommended by us earlier.

In order to fully address the cost of financing issue, we recommend an interest subvention scheme, where 2% reduction on interest rate, which progressively increases to 5% depending on the proportion of domestic value addition, is applicable on working capital loans for Indian manufacturers.

Domestic manufacturers eligible for this scheme:

1. OEMs/ODMs of electronic products with their own end products or sub-assembly manufacturing facilities, which are registered and established in India and engaged in manufacturing in the country
2. EMS players/Contract manufacturers that are registered and established in India and engaged in manufacturing in the country
3. Manufacturers of electronic components that are registered and established in India and engaged in manufacturing in the country

Capital eligible for subvention:

1. Operating working capital (including inventory of raw material, receivables and payables), subject to an upper limit of 25% of annual turnover
2. Portion of operating working capital for which buyer’s credit is availed is not eligible for subvention of interest
3. Portion of operating working capital for which interest subvention is already available on export credit not eligible for subvention of interest under the current scheme
4. Processing fees and other charges (apart from interest) not eligible for concession

Extent of subvention applicable:

1. We recommend a minimum of 2% interest subvention, irrespective of the extent of value addition, for manufacture of end products, sub-assembly or components (mentioned in points 1, 2 and 3 of the eligibility section above).
2. For manufacturing of end products or their sub-assembly (mentioned in points 1 and 2 of the eligibility section above) interest subvention should be increased to 5%, depending on the extent of domestic value addition related to bill of materials, as described in the Preferential Market Access policy guidelines. Levels of domestic value addition required for different products in order to avail higher interest subvention can be different, depending on the current state of value addition. Definition of BoM and criteria for various components of the BoM should be classified as “domestic BoM” as in the case of the PMA policy for various electronic products.
An example of the applicability of the scheme for notebook PCs is given below.

<table>
<thead>
<tr>
<th>Percentage of domestic BoM in overall BoM</th>
<th>Percentage of interest subvention</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%–25%</td>
<td>2%</td>
</tr>
<tr>
<td>25%–30%</td>
<td>2.5%</td>
</tr>
<tr>
<td>30%–35%</td>
<td>3%</td>
</tr>
<tr>
<td>35%–45%</td>
<td>4%</td>
</tr>
<tr>
<td>More than 45%</td>
<td>5%</td>
</tr>
</tbody>
</table>

3. For domestically manufactured components (mentioned in point 3 of the eligibility section above), the interest subvention can be increased to 5%, depending on the extent of domestic value addition.

Domestic components include those that are manufactured in India with domestic or imported raw materials. The definition of the bill of materials and bill of materials sourced from domestic manufacturers for components would remain the same, as defined in the preferential market access guidelines. The levels of domestic value addition required for different products to avail increased interest subvention can be different, depending on their current state of value addition.

This addresses the cost of finance issue and encourages manufacturers to procure components from domestic suppliers and helps in gradual build-up of the component ecosystem. The scheme can positively affect the disability for domestic manufacturing by 0.5% to 1.5%.
**Recommendation 8**

**Component manufacturers of the top 10 components to be incentivized to manufacture their products in the country simultaneously while also importing them**

As identified in the “Issues” section, a major disabler for design or manufacture of electronic products in India is the lack of a robust component supply ecosystem at a comparable scale and price to that in other low-cost manufacturing countries. A short-term measure to address the issue of a weak component ecosystem is the establishment of a duty free trading and warehousing zone for components, as mentioned in the “Other recommendations” section. However, there is a need to encourage domestic manufacturing of components in the long run and reduce Indian component manufacturers’ dependence on imports. Some of the schemes suggested above, which are linked to domestic value addition (e.g., interest subvention and deemed export status/exemption of VAT/CST) create a demand for domestically manufactured components. The Government can ensure that this demand translates to domestic manufacture of components by attracting global component manufacturers to make these in India. It can provide incentives to manufacturers of the top 10* components used in ESDM manufacturing.

- Domestic sale of components by domestic manufacturers should be treated as deemed exports for a period of five years and incentives on drawback/refund of output Excise duty applied. Alternatively, VAT/CST on domestic sale of components by manufacturers can be exempted for a period of five years for domestic manufacturers.
- Supply of high-quality, reliable and cost effective power and water should be ensured for component manufacturing (including fab) to be cost-effective.
- Targeted marketing efforts to attract stakeholders to invest in these areas, e.g., company-specific marketing, is needed to attract global players to manufacture components in India and EMS to invest in the country.

*Top 10 components (by their market value) need to be identified and incentives provided to encourage their manufacture in India.
Recommendation 9

Co-invest in ESDM start-ups along with VCs/Angel/Seed Investors

While existing initiatives such as the MSIPS encourage large investments in the ESDM sector, which meet threshold investment levels specified in the MSIPS’ guidelines, there is also a need to encourage start-up companies in this sector. Inadequate availability of early stage funding is a challenge for start-ups that are focused on design and/or manufacture of electronics products/sub-systems, since many entrepreneurs do not have the financial resources to fund their start-ups. As compared to the IT/ITES sector, some characteristics of the ESDM sector, e.g., a long revenue-realization period, high initial investment and the sector being at nascent stage in India, make it relatively difficult to attract investments in it from venture capital, Angel or Seed investors. Furthermore, stringent collateral-related requirements make it difficult for entrepreneurs to obtain seed funding or funds for working capital in the form of loans from banks.

We therefore recommend that the Government co-invests with Seed/Angel/VC investors in ESDM start-ups by investing an amount equal to the Seed/Angel/VC funding garnered by a start-up. The investment can be administered and managed by private Seed/Angel/VC funds (along with a nodal agency formed by the Government), since they have a wealth of technical and business experience that can provide invaluable help to start-ups.

However, the size of funds dedicated to such investments should be fairly large, since capital requirements for manufacturing components is large, as compared to IT/ITES.

Eligibility for the fund

Indian start-ups in the ESDM sector that satisfy the criteria given below are eligible for consideration by the Government for co-investment.

- With core operations carried out from India.
- With at least 51% owned by Indian nationals
- Registered as private limited companies or in the process of being registered as such
- Not more than five years old since their registration
- With paid up capital of not more than INR 100 Cr
- The start-ups can be working on:
  - Electronic end-product or subsystem designs (with IP registered in India), with or without manufacturing of electronic products/subsystems
  - Electronics-manufacturing services
  - Electronic-component manufacturing
- Should have already found a Seed/Angel/VC investor or is in the final stages of the approval process

The highest funding limit mandated by the Government should be set, keeping in view high set-up costs in certain sub-sectors. The Government may prescribe different maximum limits for various sub-sectors.

The Seed/Angel/VC funds (third party investor) with whom the Government will co-invest should be independent and objective, and not have an interest in the start-up while submitting the application or before that. Third party investors must have the relevant management experience so that they can
contribute to the growth of start-ups. They should be ready to invest the maximum limit prescribed for that sub-sector, along with the Government.

The Government's investment can match the sum invested by third party investors, rupee to rupee, and it can acquire an equity stake in the start-up that is proportional to its investment. In order to encourage third party investors to take part in this initiative, the Government can also offer them the option to buy its shares under pre-determined and favorable conditions.

The Government can setup a nodal agency under the DEITY to administer and monitor this fund. The role of the agency would be focused on verification of facts and ensuring that start-ups and third party investors meet the basic criteria set by it. The agency would have at least one office in each electronic manufacturing cluster (greenfield and brownfield). It should also have a definite and detailed schedule, according to which applications from the start-ups will be processed. The agency may be led by fund managers (with experience in VC/private equity funding) from public sector units.

A case study on the “Yozma” program in Israel is provided in the table below:

### Case study: Israel Yozma Program

During the 1990s, Israel was facing a challenge to develop new enterprises, especially in the country’s high-tech sector. The Government of Israel addressed the difficulty in raising funds for projects or companies at their infancy stages through the Yozma and Technological Incubators (TI) programs.

As a part of the Yozma program, the Government established the wholly owned Yozma Venture Capital Company, with a total capital of US$100 million, in 1993. The aim of the company was to enter partnerships with VC companies and investors from the private sector to invest in start-up high-tech companies. Government participation helped to reduce risks for VC players. The Government also offered lucrative incentives to private investors to encourage them to enter this partnership by giving them the option to buy its shares under pre-determined and favorable conditions. The program was hugely successful and led to the formation of nine VC companies with a total capital of US$200 million during three years of operation (1993–1995). These VC companies invested in 130 start-up organizations.

The Technological Incubators (TI) program was launched in 1990, and within three years of its operation, established 28 incubator organizations throughout the country. In order to translate innovative ideas into commercial products, these incubators supported the early stages of technological entrepreneurship that were not ready for VC funding. The program offers R&D grants that provide 85% of approved R&D expenditure (up to US$300,000–US$500,000 for two years), with the remainder to be raised by the entrepreneurs. In return, the businesses are under an obligation to pay back the amounts in the form of royalty, but only if they are commercially successful.

Both these programs were setup and run under the guidance and support of the Office of the Chief Scientist (OCS) of the Ministry of Industry and Trade of Israel and have helped to develop Israel as a major hi-tech entrepreneurship center.
Recommendation 10

Allowing self-declaration by manufacturers about the products they manufacture

As discussed under issue 1, it has been observed that the long procedure to be followed by manufacturers to avail concessional duties results in loss of revenue or increased inventory-carrying costs for them. It has been also observed that manufacturers of electronics sometimes pay higher duty on components/parts/raw materials, especially in the case of their dual use.

Therefore, we recommend a self-declaration/self-certification system to be put in place for manufacturers and certification by a chartered engineer/chartered accountant to avoid delays and ease the process of availing concessional duties. Under this system, manufacturers can declare the products they manufacture in which the components/parts/raw materials are used and provide their annual requirement for these. This declaration can be certified by a chartered engineer/chartered accountant, based on the input-output ratio and norms (Input-output norms are to be prescribed, after consultation with industry bodies, as and when a new product/part/component/raw material is added to the list of materials that are eligible for concessional import duty). This declaration/certification may be accepted to identify the end use of the imported components/parts/raw materials and the concessional duty to be applied, without the need for procurement certificates or inspection certificates. This could eliminate the entire procedure of seeking consignment-wise approvals and greatly reduce procedural delays in availing concessional and Customs duties, and EHTP/SEZ formalities.

The self-declaration/CA certification model is being successfully implemented in the MSIPS scheme, under which applicants are required to submit an initial application with self-certification on financial details including their revenues, profits, details of fund-raising, lines of credit, external credit ratings, etc.
Recommendation 11

Enhancement of indigenous product/system design capabilities

Although the level of end-product design activity in India is different for different products, at an aggregated level, not much product design currently takes place in the country. Typically, in the case of electronics products, designers (ODMs or OEMs who also design or standalone design companies) decide the BoM, the approved vendor list for various BoM elements and the EMS players to be chosen for manufacturing. However, since the bulk of design-related activity takes place in other low-cost manufacturing countries such as China, it is the manufacturers there that manufacture the products/sub-assemblies.

While the measures suggested above to encourage manufacturing may also incentivize design activity in the country, the actions recommended below can help to ensure the growth of a robust design ecosystem in India. Furthermore, the presence of a strong “systems” ecosystem is essential to ensure the sustainability of semiconductor fabs being set up in the country.

► Establish product-specific ESDM centers of excellence with industry-academia partnership in at least five Indian cities
  ► For electronics design start-ups, setting up of ESDM Centers of Excellence (CoEs) that can act as technology incubators and provide technology- and infrastructure-related support at leading educational institutes
  ► One CoE to be setup per product (for high-growth products such as STB and tablets) and each institute/university to be eligible for only one CoE
  ► The following facilities can be made available at the CoEs:
    o Licenses for tools (such as design tools and CAS SDKs) for all major vendors, which can be used by start-up or other companies during the development phase for non-commercial purposes (however, these companies need to buy the licenses once they start commercializing their products).
    o In-house SMT line and PCB manufacturing to provide sample boards

► Expand MSIPS to include R&D manpower expenses

As described in recommendation 1 (changes to MSIPS policy), MSIPS guidelines need to be modified to include R&D manpower expenses.
7.2. Other recommendations (across products)

1) Establish a duty free component trading and warehousing zone in the vicinity of a major port or near a manufacturing cluster with a dry port

As discussed in the “Issues” section, a major disabler for manufacturers/EMS, OEMs and product design companies to design/manufacture their products in India is its lack of a complete component ecosystem at a comparable scale and price as offered by other competing countries. While importing components from other locations and manufacturing these in India is an option, the high inventory carrying costs and freight costs involved due to each manufacturer importing components separately is a strong disabler for domestic manufacturing. Therefore, it is crucial to have components available domestically.

We recommend that a duty free electronic component trading and warehousing zone (FTWZ) is established in India to attract major distributors of components to establish their warehouses in India and carryout their trading activities in the zone. Such a zone would need to have the attributes listed below:

- The zones should be closely associated with and be located in proximity to a major sea port in the country. Alternatively, it should be closely associated with an existing electronic manufacturing cluster with the facility of a dry port.
- Sale of components from these zones to domestic manufacturers should be allowed.
- Development of the zone should benefit from the same incentives that are applicable for the development of greenfield EMCs.
- Investments in the zone by distributors should be considered under MSIPS, provided distributors allow preferential access to components in stock to domestic manufacturers.

We suggest that such a zone is located close to a geographical region where manufacturing of electronics already exists, so that this eases logistics for existing manufacturers.

Establishing FTWZ can make India a hub for trading in components.

This would address the component-availability issue, and reduce inventory-carrying costs and inward freight costs to a certain extent.

In order to protect the interests of the domestic component industry, incentives suggested under recommendations 3, 4 and 6 are linked to domestic BoM procurement clauses. Recommendations 3 and 4 link eligibility for deemed export status and soft loans on VAT/CST to the share of domestic BoM in the overall BoM of a product. Recommendation 6 links the extent of interest subvention available to product manufacturers in the share of domestic BoM in the overall BoM. Therefore, domestic product manufacturers are encouraged to procure components locally to the fullest feasible extent. The component trading and warehousing hub can fill the gap between availability and requirement of components or parts by domestic manufacturers of products.

Such a hub can also ease the export process of Indian component manufacturers and increase the accessibility of Indian component manufacturers to global buyers.

This also addresses the issue of product design not being in India to some extent as the build-up of the component ecosystem combined with the presence of EMS capacity and design specific
incentives suggested in recommendations above will encourage product designers to design in India.

A case study of free trade and warehousing zones in Singapore is provided in the table below:

**Case study: Singapore Free Trade Zones**
Free Trade Zones (FTZs) are designated areas in Singapore where payment of duties and taxes (such as GST) are suspended when goods arrive in the country. These areas mainly benefit traders, particularly re-exporters and trans-shippers, since duties are suspended on all dutiable goods and there is a reduction in paperwork and simplified customs procedures for movement of goods within FTZs. Importers do not need to declare these goods as taxable purchases in their GST returns until the goods have crossed the duty point into Customs territory.

**Zero-GST warehouse scheme:** A zero-GST warehouse is an extension of the FTZ in business premises. GST on the goods is suspended when they are removed from the FTZ or imported via land checkpoints and moved into a zero-GST warehouse.

The FTZ and zero-GST warehouse schemes aim to strengthen Singapore’s status as a logistics and distribution hub in the region. It helps importers, exporters and distributors to reduce their business costs. These schemes have been instrumental in attracting FDI and helped to develop the country’s electronics industry.

In late the 1960s, several US electronics and semiconductor companies were looking for export platforms in East Asia to offset rising costs in the US. Singapore was an attractive destination for these companies because of such business-friendly schemes. This led to an influx of US companies, engaged in semiconductor/electronics assemblies for export. This influx was followed by similar investments from Japan and Europe. The creation of this component trading and warehousing zone played an important role in the development of Singapore’s electronics industry.

**GST treatment of overseas goods stored in FTZ**
Overseas goods refer to products from outside Singapore, landing in the FTZ and pending Customs clearance.

▶ GST is payable to Singapore Customs if goods are removed from the FTZ into Customs territory.
▶ GST is not payable to Singapore Customs if goods are removed from the FTZ to another FTZ, a zero-GST warehouse.
▶ GST is not payable to Singapore Customs if the goods are removed from the FTZ for export (trans-shipment).
▶ GST is not payable to Singapore Customs if the goods are used or consumed within the FTZ.

**GST’s treatment of local goods stored in the FTZ**
Local goods refer to products that have cleared Customs or are locally manufactured goods.

▶ If the goods are supplied within the FTZ, GST is chargeable and needs to be accounted for in the GST return as standard-rated supplies. However, supplies of goods that are intended for export can be zero-rated.
▶ GST is payable to Singapore Customs if the goods are removed from the FTZ and re-enter customs territory.
2) **Investment threshold for EMS players to be eligible for MSIPS scheme needs to be reduced to INR25 Cr from the current INR 100 Cr**

According to the Modified Special Incentive Package Scheme, the investment threshold required for EMS players, to enable them to avail the benefits provided under the scheme is INR100 Cr. Many domestic EMS players are of the opinion that this investment is huge, even for some of the large players, and consequently, the scheme cannot be availed by many of them. Therefore, in order to allow more domestic EMS players to avail this scheme and meet its broader objectives, we recommend that the threshold investment for EMS to be eligible for the MSIPS scheme is reduced to INR25 Cr.

3) **Open access power and group captive or captive power for Electronic Manufacturing Clusters**

In order to address the issue of unreliability of power supply and the higher costs arising out of it, the rules for availing open access power in greenfield and brownfield EMCs can be relaxed, as suggested below.

► The entire cluster can be treated as a single unit for the purpose of open access power so that there is consolidation of demand from all ESDM companies in the cluster.
► Since it would take some time for a cluster to attract companies after it becomes operational, we recommend that the threshold for open access for the cluster is reduced to 100 KW for the first three years.
► Encourage every EMC (or the power distribution zone under which the EMC falls) to have an ESDM - captive power plant established to supply open access power to the EMC.

In addition, group captive/captive power plants based on renewable sources of energy, which cater to the requirements of ESDM units in greenfield or brownfield clusters, can be made eligible under the MSIPS scheme (even if such power plants are setup for existing manufacturing units). The scheme can be independently applicable for the establishment of such group captive/captive power plants. This will also be a catalyst for the growth of power-generating energy subsystems in the domestic industry for renewable energy projects.

4) **Measures to check dumping**

Preventing dumping of cheap exports from other countries is an important factor in the creation a level playing field for domestic manufacturers. Therefore, in the case of government procurement (through the PMA/VAMA policy or otherwise), the Government can automatically initiate anti-dumping investigations against vendors if the price differential between the best quote from Indian manufacturers and those from vendors based abroad is higher than 30%. Appropriate action can be initiated against such vendors if evidence of dumping is found.

5) **Need for labor laws in EMC being on lines of those for the IT/ITES sector**

The National Policy on Electronics 2011 sets achievement of a turnover of US$400 billion and investments of US$100 billion in electronics by 2020 as some of its objectives. Since India’s ESDM sector is currently at a nascent stage, there is a need to attract investments into the sector and project the country as a favorable investment destination for ESDM in order to achieve the objectives of the policy. Industry experts are of the opinion that subjecting ESDM to stringent labor laws, especially when the industry is still at a nascent stage and already facing large cost disabilities with respect to imports, can further exacerbate issues relating to domestic manufacturing. As observed in the IT/ITES industries of some states, exemption from stringent labor laws during the initial phase has been one of
the factors responsible for the growth of the industry. Therefore, similar exemption from “Standing Orders for Industrial Employment,” relaxation of restrictions on overtime, allowing flexibility in maintaining employee headcount to suit business needs, relaxation of timings for women employees (without compromising on occupational safety and health-related aspects) in electronic manufacturing clusters for a period of five years can provide flexibility to India’s burgeoning ESDM industry.

6) Global branding efforts being incentivized

In order to establish India’s brand as an ESDM destination, global promotion and branding activities need to be undertaken by the Government through road shows, etc. In addition, it can provide reimbursement of 25% of actual expenses incurred in international marketing and promotion, participation in trade shows, etc., by domestic ESDM companies, subject to a limit of INR1 million per annum per company.

7) Conferring infrastructure-lending status to ESDM sector

Electronic products and equipment are and will continue to remain the key to the development of the country, be it by enabling a highly connected world; taking government schemes and benefits closer to the people; enabling healthcare (even in remote areas); providing a strategic advantage in defense, surveillance and public safety; enabling education for all; bridging the digital divide or enabling other infrastructure-related sectors such as power, railways, civil aviation, etc.

We recommend that infrastructure lending status is accorded to the ESDM sector in view of its importance in enabling the country’s infrastructure and development and addressing the disabilities faced by the sector, as well as the fact that India is a signatory to agreements including the ITA and other FTAs. Alternatively, benefits such as lower interest rates with higher repayment period limits (as suggested in some of our key recommendations above) may be extended to the ESDM sector.
7.3. Product-specific recommendations

1) 1% Tax refund to software vendors if it is being used on a domestically manufactured product

This is applicable for products that run software and require the support of software vendors during their development phase.

Since the electronics manufacturing industry in India is currently at a nascent stage, the Government should ensure that domestic manufacturers are not at a disadvantage due to software vendors’ preference for imported products. Sometimes, as in the case of STBs, the product needs to support software from a particular vendor (CAS software in the case of STBs) for the customer to buy the product. For example, a multi-system operator (MSO), who chooses to deploy a particular CAS software, can only opt for STB vendors that support the selected CAS software. It has been observed that a suggestion from a CAS software vendor also influences the choice of the STB vendor by the MSO, since most MSOs in India (especially those operating on a medium/small scale) do not have the technical expertise to choose STB vendors on their own. The support provided by software vendor to a product manufacturer during the development phase of the product is crucial to ensure that the product supports a particular software.

We therefore recommend that the Government refunds 1% of the tax paid on the elements of the software sold to the customer (e.g.: in the case of STB, the customer is an MSO and the elements of the CAS software sold to the MSO are CAS software license and the AMC), if the related hardware (e.g.: STB) is domestically procured. For this purpose, domestic and imported products need to be clearly defined, based on the value add in India (a definition similar to the one in PMA needs to be provided).

2) Recognize STB as telecom and infrastructure sectors

This is applicable for STBs and products facing problems mentioned in issues 7 and 4.

In view of the specific issues relating to manufacturing of STBs, we suggest that the RBI recognizes STBs as telecom sector equipment and accords infrastructure lending status to manufacturing of STBs. This can help the domestic STB manufacturing industry in two ways:

► Due to STBs being recognized as telecom equipment, MSOs will be able to issue C-Forms to STB vendors on procurement of STBs, even if the former consider STBs products bought for their own use. This would enable STB vendors to pay CST of 2% in place of the current VAT of ~14%. It would help to remove the disparity between tax paid on domestic procurement (VAT of ~14%) and tax paid on import of STBs (SAD of ~4%).

► Due to being accorded infrastructure sector status, domestic STB companies can gain access to long-term financing from banks/financial institutions, and thereby offer long-term credit to MSOs when they procure STBs in the country. In combination with the interest subvention scheme, this would help in the creation of a level playing field for domestic manufacturers of STBs by enabling them to match the long durations of buyer’s credit provided by foreign banks for imports.
3) **Reconsider digitization timelines**

This is applicable for STBs.

Timelines for implementation of a digital addressable system and roll-out of STBs should be re-considered to improve the share of domestic STB manufacturers.

We have observed that it typically takes one-and-a-half to two years for a STB designer or manufacturer to start designing an STB from scratch and come up with a credible product. Since building of a local ecosystem (after the measures mentioned above) takes time, STB roll-out deadlines can be re-considered to improve the share of domestic STBs. This would encourage more domestic players to enter the market, since they will have sufficient time to come up with design and manufacture STBs for upcoming digitization phases.
8. Appendix

8.1. Disability to component manufacturing – PCB as a representative

The component/parts procured for manufacture of electronic products form a significant part of the overall cost of product. However, due to various issues as described in issue 3 in section 5, a large proportion of the component BoM is currently imported by ESDM product manufacturers in India. One of the reasons for this is the higher cost of manufacturing components in India as compared to other low cost locations resulting in a disability to component manufacturers. In order to understand the issues causing this disability, a study has been carried out on printed circuit boards and the observations are provided in the following sections.

Printed Circuit Boards

Segment overview

A printed circuit board (PCB) is a plastic or fiber-glass board on which interconnected circuits and components are etched. Chips and other electronic components are mounted on the circuit by drilling holes through the board, placing the components and then soldering them in place. The copper tracks on the PCB link the components together to form a circuit.

PCBs which are prominently deployed in Indian market can be categorized based on the type of board – single-sided PCBs, double-sided PCBs and multi-layered PCBs. In a single-sided PCB, wiring is available only on one side of the flat board. The side which contains the circuit pattern is called the solder side whereas the other side is called the component side. These types of boards are mostly used in case of simple circuits and where the manufacturing costs are to be kept at a minimum. Over the years, PCBs have evolved from uncomplicated single and double-sided PCBs to multi-layered PCBs. The multilayered PCBs have multiple component sides and allow for much higher component density. The multilayered PCBs are expected to grow at a higher rate in future as the consuming industry segments are likely to switch to multilayered PCB for various applications.

The overall Indian PCB market was estimated to be US$718 million in FY11, with imports accounting for 60% of the market. The PCBs are primarily imported from China, Taiwan, Japan and South Korea. In addition, a significant portion of the PCBs used in the automotive sector are imported from Europe. The primary application segments of the PCBs are: consumer, industrial, automotive and power electronics markets. Telecommunication (30%) and consumer durables (25%) are the two largest sectors that account for the major portion of the current demand for PCBs. The market is estimated to have grown by 14.1% to reach US$819 million in FY12. The growth of the market is expected to be driven by telecommunication and automobile sectors which are expected to grow at 30% and 25% respectively.

PCB manufacturers in India mostly cater to the small to medium volumes across all sectors except motherboards, mobiles and high-end telecom equipment, which rely on imports. Most Indian manufacturers produce single layered PCBs only while a few large manufacturers produce double-sided PCBs. Multi-layered PCBs are imported mainly from China and Europe. Around 25% of the PCBs manufactured by the Indian manufacturers are exported to countries in Europe, Middle East and South America.
Several multinational companies dominate the Indian PCB manufacturing industry. It is estimated that there are more than 200 PCB manufacturing units operating in India. Majority of PCB manufacturing units operating in India are classified under small scale industry.
Growth drivers

**Increasing usage of embedded technology driving miniaturization in the PCB market**

Embedded technology applications are bringing about a revolution in the industry. Embedded systems are being used in navigation tools such as global positioning system (GPS), automated teller machines (ATMs), networking equipment, digital video cameras, mobile phones, aerospace applications and telecom applications. This in turn is resulting in the need to develop high-density and ultra-thin PCBs based on embedded technology, thereby reducing system-level cost, PCB space and software complexity. Such PCBs provide the highest level of digital and analog integration in a single-chip solution for industrial applications.

**Emergence of High Density Interconnect technology (HDI)**

The use of surface mount technology (SMT) in electronics manufacturing is evolving in India and this is leading to technological advancements in manufacturing processes for components, equipment and soldering materials. To cater to the increased demand for condensed component structure, PCBs have moved from the conventional two-sided board designs to multilayer variants, with many manufacturers opting for HDI methods for their designs.

**Increasing usage of optics in telecom and IT sector is expected to increase the usage of optical PCBs**

Companies are investing in optical PCB technology as the telecom and IT sector are embracing optical technology for increased bandwidth coverage and network efficiency.

**Adoption of special grade PCBs with gold plated contacts by Indian manufacturers**

The adoption of special grade PCB’s with gold plated contacts is at a very nascent stage currently due to its high cost. However, some of the large manufacturers have started using this for manufacturing specialized products.
## Computation of disability

An indicative disability computation for domestic manufacturers of electronic components (like Printed circuit board etc.) has been carried out as shown below. (All values are normalized to a domestic selling price of $100)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Domestic Manufacturing from imported and local components</th>
<th>Imported PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landed cost (A)</td>
<td>55.7</td>
<td>64.2</td>
</tr>
<tr>
<td>Freight @ 5% (B)</td>
<td>2.8</td>
<td>3.2</td>
</tr>
<tr>
<td>Insurance @ 1.125% (C)</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>CIF Value (D = A+B+C)</td>
<td>59.1</td>
<td>68.2</td>
</tr>
<tr>
<td>LC @ 1% (E)</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>Assessable value (F = D+E)</td>
<td>59.7</td>
<td>68.9</td>
</tr>
<tr>
<td>Customs duty/ Excise Duty (G)</td>
<td>10.1</td>
<td>11.3</td>
</tr>
<tr>
<td>CST (H)</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total duties (I = G+H)</td>
<td>10.1</td>
<td>11.3</td>
</tr>
<tr>
<td>Cenvatable taxes (J)</td>
<td>9.9</td>
<td>0.0</td>
</tr>
<tr>
<td>Duties net of cenvatable taxes (K=I-J)</td>
<td>0.2</td>
<td>11.3</td>
</tr>
<tr>
<td>Clearing charges @ 0.5% (L)</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Local transportation @ 0.5% (M)</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Landed cost (N = F+I+L+M)</td>
<td>70.4</td>
<td>80.9</td>
</tr>
<tr>
<td>Landed cost less cenvatable taxes (O = F+K+L+M)</td>
<td>60.5</td>
<td>80.9</td>
</tr>
<tr>
<td>Total landed cost (O)</td>
<td>60.5</td>
<td></td>
</tr>
<tr>
<td>Conversion cost (P)</td>
<td>18.5</td>
<td></td>
</tr>
<tr>
<td>Finance cost (Q)</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td>Total cost (R=O+P+Q)</td>
<td>83.1</td>
<td></td>
</tr>
<tr>
<td>Margin @ 5% (S)</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>ED @ 12.36% (T)</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>CST @ 2% (U)</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Selling Price (V = R+S+T+U)</td>
<td>100.0</td>
<td>80.9</td>
</tr>
</tbody>
</table>

### Factors causing disability

<table>
<thead>
<tr>
<th>Disability causing disability</th>
<th>Disability (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disability due to Taxes/Duties (Including differential duties)</td>
<td>1.6%</td>
</tr>
<tr>
<td>Disability due to unabsorbed Cenvat</td>
<td>0.0%</td>
</tr>
<tr>
<td>Disability due to Inventory carrying cost</td>
<td>2.3%</td>
</tr>
<tr>
<td>Disability due to working capital financing (payables, receivables)</td>
<td>2.0%</td>
</tr>
<tr>
<td>Additional freight cost due to import of components</td>
<td>1.4%</td>
</tr>
<tr>
<td>Disability due to higher conversion cost</td>
<td>7.3%</td>
</tr>
<tr>
<td>Disability due to higher power cost</td>
<td>2.4%</td>
</tr>
<tr>
<td>Disability due to higher real estate cost</td>
<td>1.0%</td>
</tr>
<tr>
<td>Disability due to higher interest on capital expenses</td>
<td>3.9%</td>
</tr>
<tr>
<td>Disability due to higher international marketing expenses</td>
<td>1.0%</td>
</tr>
<tr>
<td>Others*</td>
<td>3.5%</td>
</tr>
<tr>
<td><strong>Total Disability</strong></td>
<td><strong>19.1%</strong></td>
</tr>
</tbody>
</table>
Assumptions:

► For the purpose of computing raw material (RM) inventory carrying cost to domestic manufacturers, inventory norms of 3 months is assumed with interest of ~ 14%; For computation, RM Landed cost including Cenvattable taxes is considered; In other low cost manufacturing destinations (like China etc.) it is assumed that components are domestically available and the raw material inventory carrying cycle is negligible due to the presence of a mature ESDM ecosystem.

► For disability on account of ‘Higher interest rate on Working capital Financing’, the receivable and payable durations are considered to be the same in India and other low cost manufacturing destinations (like China etc.); Assumed interest rate of ~14% in India and~ 6% in other low cost manufacturing destinations (like China etc.);

► The base cost of BoM is assumed to be the same in India and other low cost manufacturing destinations (like China etc.).

► Margins have been calculated at 5% on total cost excluding local taxes (excluding cenvatable taxes)

► Excise duty of 12.36% has been calculated on transaction value

► Service tax paid on input services availed by the manufacturers and traders has not been considered for the purposes of analysis

► Cost of power in Low cost manufacturing destinations (like China etc.) is assumed to be 50% of the blended cost of power in India. Real estate cost in Low cost manufacturing destinations (like China etc.) is assumed to be 50% of that in India. Costs of other factor inputs assumed to be the same in both countries

► In case of export from other low cost countries (like China etc.), the extent of export incentives is comparable to the taxes payable within the country and margins of the manufacturer.

► Freight has been assumed to be 5% in case of sea freight for imported product / components and 2.5% in case of local procurements.

► In case of companies engaged in trading of fully imported goods, the cenvat credit of customs duty paid is not available.

► Clearing charges of 0.5% of the assessable value and local transportation of 0.5% in case of imported goods

► Local transportation of 0.05% of the purchase price in case of domestic purchases

► Excise duty of 12.36% has been calculated on transaction value

► It is assumed that the CST @ 2% would be applicable on procurement of indigenous components / materials and the same would not be available as credit

Key Issues faced by domestic PCB manufacturers:

1) Unreliability of power resulting in higher blended cost of power:
   As PCB manufacturing is power intensive, the impact of unreliable power supply is relatively large on this industry. Due to planned and unplanned power outages, PCB manufacturers need to make arrangements for alternative sources of power like DG sets etc. The cost of production of power from alternative sources is very high as compared to cost of grid power and the manufacturers also incur maintenance costs for the alternate sources. Thus, even though the cost of grid power in most states in India is comparable to that in other countries, the high blended cost of power is a cause of concern.

   The disability to PCB manufacturing due to higher blended cost of power is estimated to be 3% on an average, though this varies with duration of power outage, diesel prices etc.
2) High cost of finance due to higher interest rates:  
As discussed in issue 4 in section 5, due to relatively higher interest rates on borrowings from banks, the effective cost of finance in India for MSMEs in ESDM industry varies between 13%-14%. The impact of higher interest rates is further worsened due to the fact that component manufacturing in general and PCB manufacturing in particular require large investments in capital equipment. Thus the overall disability due to higher cost of finance on borrowings for capital equipment and borrowing for net of payables and receivables for PCB manufacturers can be as high as 3% - 4%
   a. Interest on capital expenses:  
      As PCB manufacturing is a capital intensive industry and the capital investment is 45%-70% of the revenues depending on the scale of operations. Thus the overall disability due to higher borrowings on capital equipment is estimated to be 3.1%
   b. Interest on working capital (payables, receivables):  
      Though the payables and receivable cycles are similar in India and other low cost manufacturing countries, the higher interest rates in India cause a disability estimated to be .5% to PCB manufacturers on borrowings to finance working capital (payables & receivables)

3) Unavailability of domestically produced/manufactured raw materials:  
The availability of raw materials domestically for PCB manufacturing is currently poor and it is understood that typically 85%-95% of the raw material requirement is met through imports. The supply chain uncertainties arising due to importing the raw materials from distant geographies necessitates PCB manufacturers to maintain large inventories. The long raw material inventory cycles combined with higher interest rates on working capital financing result in a disability of around 1.25% to domestic PCB manufacturers.

Apart from this, the duty concessions that are available to manufacturers when raw materials are imported directly are not available to traders, who pass on the duties paid to manufacturers. Due to uncertainty in demand and owing to unavailability of domestically manufactured raw materials, PCB manufacturers often end up buying the raw materials from traders to meet immediate requirements. This results in higher taxes being paid on raw materials.

4) Regulatory & compliance related issues:  
It has been observed that certain states in India have stricter waste discharge norms (like 0% discharge etc.). In addition, the complex reporting norms and lack of simplified and single point source for interpreting the complex laws results in higher regulatory compliance costs. It is estimated that the cost disability due complex regulatory environment varies from .5% - 2%

5) Higher cost of real estate:  
As discussed in issue 5 in section 5, higher real estate costs in India on an average result in disability to manufacturers. The impact of this is higher in case of PCB manufacturing in particular and component manufacturing in general as setting up factories for manufacturing require large areas of land and real estate cost forms a major share of the total cost. The disability due to higher real estate costs in India to PCB manufacturers is estimated to be 1%
Key Recommendations:

1) Accelerated depreciation for capital equipment:
   In order to reduce the impact of costs arising out of larger capital requirements and to encourage investments in the PCB/Component manufacturing space, it is recommended that accelerated depreciation for capital expenses be implemented. The manufacturers may be allowed to depreciate their capital expenses in 2 years.

2) Interest subvention scheme:
   As suggested in recommendation 6 in section 7, interest subvention should be applicable to domestic PCB/Component manufacturers

3) Deemed export status for ITA1 components:
   As suggested in Recommendation 1 in section 7, for ITA1 components like PCB, it is recommended that they be treated as deemed exports for a period of 5 years and the incentives of drawback / refund of output excise duty be applied. Alternatively, CST/VAT may be exempted for the same. This can help in reducing the disability and creating a level playing field to domestic manufacturers.

4) Incentives to be provided to attract manufacturers of top 10 components (ITA1 or Non-ITA1):
   As discussed in Recommendation 4 in section 7, manufacturers of top 10 components by market value need to be incentivized through the following measures:
   
   a. Domestic sale of components by domestic manufacturers to be treated as deemed exports for a period of 5 years and the incentives of drawback / refund of output excise duty be applied. Alternatively, VAT/CST on domestic sale of components by manufacturers may be exempted for domestic manufacturers for a period of 5 years
   b. Supply of high quality, reliable and cost effective power & water to be ensured to component manufacturing clusters (including fab) in order for them to be cost effective.
   c. Targeted marketing efforts to attract stakeholders to invest in these areas. Company-specific marketing for attracting global players in components and EMS to invest in India

5) Relaxation of labour laws:
   As suggested in section 7.2, keeping in view the nascent stage of the industry and the necessity to make India an ESDM investment destination to achieve GoI’s objectives stated in the national electronics policy, an exemption from 'Standing Orders for Industrial Employment' without compromising on the occupational safety and health related aspects can be provided in Electronic manufacturing clusters for a period of 5 years
8.2. Leading practices in other economies

Israel

Evolution of high-tech industry through support of government programs

During 1990s, Israel was facing a challenge to develop new enterprises especially in the high-tech sector in the country. The Government of Israel addressed the difficulties in raising money for projects or companies at their infancy stages through the Yozma and the Technological Incubators (TI) programs.

Both these programs were set-up and run under the guidance and with the support of the Office of the Chief Scientist (OCS) of the Ministry of Industry and Trade of Israel. These programs have been instrumental in the development of Israel as a major center of hi-tech entrepreneurship.

► Yozma program

Until the mid-1980s, all funds that were available for start-ups in Israel came from government sources. In 1991, the government worked on the idea that the participation of government in the risks involved in the venture capital (VC) activity will encourage private money (especially from foreign investors) to enter Israeli VC industry. To achieve this, the government established a wholly owned Yozma Venture Capital Company in 1993 with a total capital of US$100 million.

The aim of this company was to enter into partnership with other VC companies as well as investors from the private sector. The program led to the creation of several new VC companies that had a specific mandate to invest in start-up high-tech companies that were engaged in the development of exportable products and were considered having strong growth potential.

Yozma invested a sum of US$8 million in the individual VC companies or up to 40% of the VC companies’ own capital. The government offered lucrative incentives to private investors to enter into this partnership by giving them an option to buy the government (Yozma) shares under predetermined and favorable conditions.

This program resulted in formation of 9 VC companies with a total capital of US$200 million in a period of three years of operation (1993–1995). These VC companies invested in 130 start-up companies. After achieving its desired objectives, Yozma was privatized in 1997 and is now no longer a government-run program.

► Technological incubators program

The technological incubators (TI) program was launched in 1990 and within three years of operation established 28 incubator organizations throughout the country. Currently, the technological incubators in Israel carry out approximately 200 R&D projects at any given moment. 12 of the existing incubators were privatized, with the intent to enhance the involvement of private investors in the incubator’s activity.

These incubators enable new entrepreneurs, with innovative concepts, to translate those ideas into commercial products and to establish their own company. Each of these has an annual budget of US$30 million. The incubators support the earliest stages of technological entrepreneurship that are not yet ready for private investors (such as the VC funds) thereby preventing commercially viable technological ideas from going waste due to lack of resources. Since the TI program is more focused to support projects at their inception stages, the involvement of the government is more intensive.
The TI program provides entrepreneurs with the following benefits:

- R & D grants
- R& D infrastructure
- Business guidance
- Administrative assistance

The R&D grant provides 85% of the approved R&D expenditures (up to US$300,000–US$500,000 for two years), with the remainder to be raised by the entrepreneur.

In return, the businesses have an obligation to pay back in the form of royalty, in case of commercial success only. The royalties are being paid from the income generated from the sales of the new product at a rate of 3% of the annual sales, and the total amount paid is up to a ceiling of 100%.

Present state of government incentives

Technology incubators program is still in existence ever since its beginning in 1990. Currently, there are 23 technological incubators in Israel. After privatization, Yozma continues to operate as an independent VC company.

In addition to the above mentioned programs that were initiated by the Office of the Chief Scientist, the government also runs the following programs presently:

- **HEZNEK program – seed fund**
  The government has launched HEZNEK seed fund through which the government matches a private investor’s (VC company) investment in the share capital of a seed company. This new vehicle has been initiated to provide a positive signal to private investors, thus mobilizing funds for the establishment of start-up companies.

Criteria for government investment

- The government has defined a start-up as a company that has been in existence for 6 months or less, and has not incurred more than US$250,000 in expenses since its establishment.
- The government's investment will not exceed US$1 million over two years and 50% of the start-up’s working program.

Incentive to VC companies

The major incentive offered by government to the private investors is that they have an option to buy-out the government’s stake at any time within the first seven years in exchange for the investment amount plus interest and cost-of-living linkage.

- **TNUFA program – pre-seed fund**
  Through TNUFA program the Government of Israel encourages and supports technological entrepreneurship and innovation by assisting individual inventors and start-up companies during the pre-seed stage.

Support includes the following:

- Assistance in evaluating the concept’s technological and economic potential
- Patent proposal preparation
► Prototype construction
► Business plan preparation
► Establishing contact with the appropriate industry representative and attracting investors

The government provides grants up to 85% of approved expenses to a maximum of US$50,000 for each project.

► R&D fund
OCS runs an R&D fund which is open to all Israeli registered firms wishing to engage in technological research and development. The government provides grants up to 50% of the total approved R&D expenditures. These grants are a ‘conditional loan’ – in case of a technological and commercial success, it is subject to royalties (3%–5% of the sales); in case of non-commercialization no repayment is required.
China

China, in its 12th Five-Year Plan (2011-2015), has included several preferential taxes, fiscal and procurement policies designed to develop seven Strategic Emerging Industries (SEIs), which will become the backbone of the country’s economy in coming years. Information Technology industry (which includes electronics industry) has been chosen as one of these SEIs.

In terms of electronics manufacturing, over the next five year period, China plans to enhance its global competitiveness by optimizing industry structure, eliminating outdated production capacity and improving indigenous innovation capability. To achieve this, the government plans to invest heavily in science and technology R&D in order to bring about key breakthroughs in targeted technology subsectors, such as core electronic devices, integrated circuits and nanotechnology.

The 12th Five-Year Plan targets following structural adjustments for the electronics industry:

► Increased R&D level
► Enhanced product development capabilities, such as hardware and software designs
► Development of high-end/upstream supply chain

The main incentive offered to new high technology enterprises is a 15% preferential corporate tax rate. In addition, there is a geographically based incentive for new high technology enterprises which offers a two-year tax holiday followed by three years of tax levied at 12.5% rate. This incentive is in addition to 15% preferential rate that applies to all new high tech enterprises.

Tax incentives for display devices industry

In order to further encourage and promote the development of the new display devices industry, Chinese government has approved that tax concessions be granted from 1 January 2012 to 31 December 2015 to materials imported by Chinese enterprises producing new display panels including TFT-LCD, plasma and OLED.

As per the policy, enterprises in China manufacturing new display panels importing raw materials and consumables for their own production (including R&D) and where such materials are not produced locally are exempt from import tariffs, but are subject to import VAT according to the relevant tax rules.

Tax incentives for integrated circuit (IC) manufacturers

The government considers IC industry as one of the key emerging industries. Recognized IC manufacturers making ICs with a line width of 0.8 micron or smaller are exempt from enterprise income tax in the first two profit-making years, while a tax rate half of the prescribed 25% will be levied in the subsequent three years (known as the “two-year exemption, three-year reduction policy”).

For recognized IC manufacturers producing ICs with a line width smaller than 0.25 micron or those with an investment amount of over RMB8 billion, a reduced enterprise income tax rate of 15% will be levied. Of these enterprises, those with an operation period of over 15 years will be exempt from enterprise income tax in the first five profit-making years and levied a tax rate half of the prescribed 25% in the subsequent five years (known as the “five-year exemption, five-year reduction policy”).
Tax incentives for R&D activities

The Chinese government provides R&D tax incentives to high and new technology enterprises. The enterprises which own the intellectual property of the key technologies of their products are eligible for a reduced corporate income tax rate of 15% (as against the normal rate of 25%) for three consecutive years.

In addition, the companies engaged in R&D activity for the production of new technologies, products, or techniques are eligible for following benefits:

► 150% tax deduction on qualified R&D expenses (super deduction) that are incurred during the year if the expenses do not give rise to an intangible asset.
► 150% of capitalized R&D expenses that constitute the cost of the intangible asset.
Taiwan

The Government of Taiwan provides various tax-related and non-tax related incentives for high-technology industry. The government enacted the Statute for Upgrading Industries (SUI) in 1991. The statute encouraged the hi-technology industry by providing a five-year holiday on corporate income tax, applicable to the entire income for the newly incorporated company, and on incremental income from new construction or expansion for pre-existing and qualifying companies.

The SUI was replaced by Statute for Industrial Innovation (SII) after December 31, 2009. The only tax incentive offered under the SII is R&D credits. According to the SII, the companies may be entitled to a tax credit of up to 15% of the R&D expenditure against their income tax liability. The credit is limited to 30% of the income tax payable for the current year. This incentive is available from January 1, 2010 to December 31, 2019.

Taiwan has also recently reduced its corporate income tax from 25% to 17%, providing a significant incentive to the industry.

The following table compares the incentives available to companies under SII and SUI.

<table>
<thead>
<tr>
<th></th>
<th>Statute for Industrial Innovation</th>
<th>Statute for Upgrading Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Creditable amount</strong></td>
<td>15% of qualified R&amp;D expenditure of the current year</td>
<td>35% of R&amp;D expenditure of current year and 50% of the portion in excess of the average R&amp;D expenditure in prior two years</td>
</tr>
<tr>
<td><strong>Tax credit ceiling</strong></td>
<td>Not exceeding 30% of the tax payable in the current year.</td>
<td>The total investment tax credit should not exceed 50% the tax payable in the current year. This ceiling is not applicable in the last year.</td>
</tr>
</tbody>
</table>
### Items eligible for indirect tax incentive

<table>
<thead>
<tr>
<th>Items eligible for indirect tax incentive</th>
<th>Science park</th>
<th>Economic processing zone</th>
<th>Free trade zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Import of raw materials, fuel, supplies, semi-finished materials</td>
<td>0% import duty</td>
<td>0% import duty</td>
<td>0% import duty</td>
</tr>
<tr>
<td></td>
<td>0% VAT</td>
<td>0% VAT</td>
<td>0% VAT</td>
</tr>
<tr>
<td></td>
<td>0% commodity tax</td>
<td>0% commodity tax</td>
<td>0% commodity tax</td>
</tr>
<tr>
<td>Import of machinery</td>
<td>0% import duty</td>
<td>0% import duty</td>
<td>0% import duty</td>
</tr>
<tr>
<td></td>
<td>0% VAT</td>
<td>0% VAT</td>
<td>0% VAT</td>
</tr>
<tr>
<td></td>
<td>0% commodity tax</td>
<td>0% commodity tax</td>
<td>0% commodity tax</td>
</tr>
<tr>
<td>Export of products/services</td>
<td>0% VAT</td>
<td>0% VAT</td>
<td>0% VAT</td>
</tr>
<tr>
<td>Purchase of raw materials, fuel, supplies, semi-finished materials from non-bonded area</td>
<td>0% VAT</td>
<td>0% VAT</td>
<td>0% VAT</td>
</tr>
</tbody>
</table>

### Tax export incentives or guarantees for exports

The Customs Act in Taiwan has set an Export Tax Rebate System (ETRS) for encouraging exports. It allows the exporters to apply for the offsetting and/or refund of import duties, commodity tax and business tax on the imported raw material processed in Taiwan for exported products. Except for certain restricted raw materials publicized by the government, in general the exporters may apply for offsetting or refund of the duties and taxes in the three types mentioned above on the imported raw materials.

### Other government support/initiatives

The Government of Taiwan has taken several initiatives to reduce risks and enhance the competitiveness and innovation capability of businesses engaged in research activities. The government has developed the Hsinchu Science-based Industrial Park (HSIP) following the model of Silicon Valley in the US to create an environment conducive to the development of a high-technology industry.

In order to provide companies with technological and R&D support, the government has established research institutions such as the Industrial Technology Research Institute (ITRI), which has several laboratories that collaborate with private-sector companies to build their research competitiveness.

In terms of non-tax incentives, the government has initiated certain programs to reduce the business operating cost.

- Industrial Technology Development Program (to encourage enterprises to carry out R&D)
- Incentives program for lease and purchase of land in industrial parks
- Low-interest loans for promotion of R&D activities
Thailand

The Thailand government supports the development of the electronics industry through several bodies and tax and non-tax incentives. The government has also recently reduced corporate income tax rate from 30% to 23% in 2012 and to 20% in 2013.

Generally, incentives in Thailand are provided by two organizations; the Thailand Board of Investment (BOI) and the Revenue Department (RD). The BOI provides tax and non-tax benefits mostly to manufacturing companies in certain industries including electrical and electronics, while the RD offers tax incentives to the Regional Operating Headquarter (ROH) which is a Thailand-incorporated company providing managerial, administrative, and technical services as well as other supporting services to its associated enterprises.

Following are the special tax incentives granted to investors in the electrical and electronics sector by the BOI:

<table>
<thead>
<tr>
<th>Category</th>
<th>Corporate income tax incentives</th>
<th>Other tax incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic design:</td>
<td></td>
<td>NA</td>
</tr>
<tr>
<td>► Micro electronics design</td>
<td>8-year exemption of corporate income tax (without cap)</td>
<td></td>
</tr>
<tr>
<td>► Embedded system design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>► Manufacture of embedded software</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture of products, parts, or materials in organics and printed electronics (OPE)</td>
<td>8-year exemption of corporate income tax (with cap)</td>
<td></td>
</tr>
<tr>
<td>Manufacture of hard disk drives and/or hard disk drive parts (except top cover, base plate or peripheral for hard disk drives)</td>
<td>5-year corporate income tax exemption (with cap)</td>
<td>Exemption from import duties on machinery throughout the period of promotion.</td>
</tr>
<tr>
<td>Manufacture of solid state drive and/or solid state drive parts</td>
<td></td>
<td>Exemption from import duties on raw materials and components used for producing electronic goods for exports.</td>
</tr>
<tr>
<td>Manufacture of semiconductors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture of solar cells and/or raw materials for solar cells</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture of parts and/or photonics equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture of products and/or parts for telecommunication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture of flexible printed circuits and/or multi-layer printed circuit boards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture of equipment for solar cell systems:</td>
<td>3-year exemption of corporate income tax (with cap)</td>
<td></td>
</tr>
<tr>
<td>► Solar module</td>
<td></td>
<td></td>
</tr>
<tr>
<td>► Charge controller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>► Inverter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>► Battery (storage)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture of electronic parts for vehicles and/or scientific equipment and/or medical equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture of material for microelectronics:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>► Wafer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>► Manufacture of materials using thin film technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture of digital cameras</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture of flat panel TV and/or flat panel displays</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture of LED electric lamps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture of passive components</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture of electro-magnetic products</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Additional incentives as part of merit-based scheme

The BOI provides additional tax incentives as part of its merit-based scheme which fall under three categories:

R&D (whether it is in-house, cooperation with educational or research institution or donation to Technology and Human Resources Development Fund):

The number of additional years of corporate income tax exemption depends on the percentage of R&D expenditures to revenues:

- 1% or not less than Baht 150 million, one additional year of corporate income tax exemption
- 2% or not less than Baht 300 million, additional years of corporate income tax exemption
- 3% or not less than Baht 450 million, three additional years of corporate income tax exemption and corporate income tax exemption cap will also be removed.

Environment protection (projects that obtain ISO 14000 certificate, carbon footprint or other standards approved by the BOI):

- One additional year of corporate income tax exemption

Projects located within industrial estates/promoted industrial zones:

- One additional year of corporate income tax exemption

Other non-tax incentives

In addition to the above mentioned tax incentives, the BOI also provides several non-tax incentives such as:

- Land ownership rights for foreign investors
- Permission to bring in foreign experts and technicians
- Work permit and visa facilitation for expatriate employees
- Permit to take out or remit money abroad in foreign currency
South Korea

The Government of South Korea offers tax incentives to attract foreign direct investment in areas of advance technologies which includes electronics manufacturing as well as service industries supporting electronics manufacturing sector. The following table mentions the tax exemptions and deductions for which such foreign investments are eligible.

<table>
<thead>
<tr>
<th>Type of tax</th>
<th>Incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual and corporate income taxes</td>
<td>► Full exemptions for 5 years&lt;br&gt;► 50% reduction for next 2 years</td>
</tr>
<tr>
<td>Local taxes: acquisition tax, property tax and registration tax</td>
<td>► Full exemptions for 5 years&lt;br&gt;► 50% reduction for next 2 years (local governments can extend the applicable period up to 15 years)</td>
</tr>
<tr>
<td>Customs duties, special excise tax, value-added tax</td>
<td>► Full exemption for 3 years on imported capital goods by foreign invested companies</td>
</tr>
</tbody>
</table>

Cash grants for investment in high-tech industry

The government has put in place a cash-grant program since 2004 to attract manufacturers of high-tech parts and materials that have substantial impact on the addition of high value to the final product, or those engaged in the manufacturing industries of R&D equipment.

Greenfield investments, both new and additional, in which a foreign investor has an ownership stake of 30% or more and which meet the following criteria are eligible for these grants:

► High-tech and industry support services: FDI exceeding US$10 million
► Parts and materials: FDI exceeding US$10 million
► R&D centers: FDI exceeding US$5 million with a research workforce exceeding 20 persons

Following activities are eligible for these grants:

► Land acquisition and rental fees
► Construction costs
► Purchase of capital goods and R&D equipment
► Provision of utilities (electricity and communications)
► Subsidies for employment and training

The minimum amount of grant received is 5% of FDI.
Other incentives to foreign investors

The government has created exclusive industrial complexes for foreign corporations engaging in investment in Korea which allow several incentives. Incentives available to companies in these complexes include exemption from or a discount on lease charges, financial subsidies for the development of industrial technology (the capital goods development cost) and industrial base fund support (plant refurbishment and upgrade expenses, replacement cost of old facilities and purchase cost of facilities and equipment).

Foreign companies shall satisfy the following two conditions to get space in these complexes:

► These should be engaged in the production of high technology products which has attained the New Technology (NT) mark under the Industrial Development Law.
► The ratio of the foreign ownership above 30% in case of joint venture company or foreign investment wholly-owned by the foreign corporations.
8.3. Case studies on how other manufacturing locales have been created

Hsinchu Science Industrial Park (Taiwan)

Hsinchu Science Industrial Park (HSIP) was the first government planned industrial park in Taiwan focused on production of high-technology goods. Modeled on the Stanford Industrial Park in Palo Alto, California and nicknamed as Taiwan’s “Silicon Valley”, the park was established in 1980 to stimulate indigenous technological advancement and reduce dependence on foreign technology suppliers. The government convinced expats working in the US to come back and build companies in Taiwan just as had been done in the Silicon Valley. The HSIP has since then become a major base for the development of high-tech electronics industry in Taiwan.

Incentives offered to the companies

A series of special investment incentives was launched to ensure successful development of HSIP including:

- Five-year tax holiday
- A maximum income tax rate of 22%
- Duty-free imports of machinery, equipment, raw material and semi-finished products
- Venture capital from the state
- Low interest loans
- Reduced land rent
- No limits on foreign equity
- Capitalization of investors’ patents and know-how as equity shares

These incentives contributed around 26% of an individual investor's outlay.

In addition to these incentives, the government also directly entered into industrial production, establishing joint venture companies with private capital.

As a result of this major boost, Taiwan’s electronics companies were able to promote their own brand names and conduct their own R&D, while maintaining strong strategic alliances with foreign corporations.

The HSIP houses many Taiwanese heavyweights such as Taiwan Semiconductor Manufacturing Company (TSMC) and United Microelectronics Corp. (UMC) — the world’s two largest contract chip-makers.

Industries within the park

The industries run in HSIP consist of:

- Integrated circuits (IC)
- Computers and peripherals
- Telecommunications
- Optoelectronics
- Precision machinery and materials
- Bio-technology

These industry groups form a self-sufficient, closely integrated value chain — from R&D to mass production.

Among these, the IC or semiconductor industry accounts for more than 50% of the park’s total revenue. These IC companies focus on producing dynamic random access memory (DRAM) and
static random access memory (SRAM) chips and on the development of foundry services for application-specific electronic modules and systems-in-package. Firms involved in related sectors such as materials, design, testing and packaging provide support for IC manufacturers, forming a complete upstream and downstream production system.

**Location advantage**

The park was set-up close to the primary public R&D facility in Taiwan – the Industrial Technology Research Institute (ITRI) – as well as the campuses of the two leading technology-focused universities, National Chiao Tung University and National Tsinghua University. This was a major positive for the companies as they could leverage R&D facilities and innovations emanating from ITRI as well as were assured of supplies of skilled professional staff from these universities. In addition to these, the government also established a number of national labs at the Hsinchu Science Park including National Center for High-performance Computing, National Space Organization, National Chip Implementation Center, National Nano Device Laboratories, Instrument Technology Research Center and National Synchrotron Radiation Research Center. These research centers and labs cooperate closely with industries inside the park in technology innovation and talent cultivation.

**Evolution of the ecosystem**

In the first decade of its existence, IT and PC assembly firms were the primary occupants of the park. While these companies enjoyed advantages of a shared labor pool, shared utilities and shared infrastructure, they were lacking opportunities in terms of economies of scope through interdependence. But in the 1990s, Taiwan government took active steps to promote the creation of a semiconductor industry (including large fabricators plus upstream IC design firms and suppliers) in Hsinchu. Also during the second decade, a related industry of flat panel display fabrication came up in Hsinchu. Following these, the solar photovoltaic industry emerged as a ‘third pillar’ of Taiwan’s high-tech industrialization efforts in 2000s. The success of these industries is primarily attributed to their clustering in Hsinchu, closeness to ITRI and to the universities.

**Development of other science parks**

Following the success of the first park in Hsinchu, the government established the Southern Taiwan Science Park, consisting of the Tainan Science Park and the Kaohsiung Science Park in 1996. In addition to companies, several research institutes and universities have set up branches within the park. The Central Taiwan Science Park was established more recently in 2003. The companies in these parks focus on ICs, biotechnology, food and health sciences, TFT-LCD flat panel displays and optoelectronics.
Pearl River Delta (China)

The Pearl River Delta economic zone (PRD) is one of China's leading manufacturing centers. The zone is formed by 9 cities – Guangzhou (the provincial capital), Shenzhen, Foshan, Zhuhai, Jiangmen, Zhongshan, Dongguan, Huizhou and Zhaoqing. Covering less than 1% of China's total land area and less than 4% of its population, the nine cities in the PRD region account for almost 10% of China's GDP, almost 20% of its foreign direct investment (FDI), and a quarter of its trade.

In early 1980s, the PRD started producing labor-intensive consumer goods such as food and beverages, toys and clothes. After 1985, industrial relocation, mainly from Hong Kong, accelerated the growth of light industry in PRD until early 1990s, following which heavy industry featuring hi-tech electronic equipment and machinery started developing in the region.

Currently, the PRD, the Yangtze River Delta (YRD) and the Bohai region constitute the three traditional and largest electronics clusters in China, to get her accounting for over 85% of China's electronics industry sales. While the PRD focuses on assembly businesses of consumer electronics and computer items like printers and accessories, the YRD and Bohai concentrate more on relatively capital-intensive product, such as integrated circuits and computers.

In the PRD, the east bank focuses on electronics and IT products while the west bank is focused on household appliance products. Following table illustrates the electronics and IT clusters in different cities of the PRD:

<table>
<thead>
<tr>
<th>City</th>
<th>Clusters</th>
</tr>
</thead>
</table>
| Guangzhou| ► Electrical products  
|          |     ► Electronics                            |
| Shenzhen | ► Electronics  
|          |     ► Computer products  
|          |     ► Telecom products  
|          |     ► ICs                                     |
| Dongguan | ► Electronics  
|          |     ► Computers and peripherals               |
| Huizhou  | ► Laser diodes  
|          |     ► Digital electronics  
|          |     ► CD-ROMs  
|          |     ► Circuit boards                         |

Government incentives and support

There are currently three complementary plans guiding the development of the PRD region:
► China government’s national 12th Five-Year Plan
► Guangdong government’s provincial 12th Five-Year Plan
► The National Development and Reform Commission (NDRC) also issued the “Outline Plan for the Reform and Development of the Pearl River Delta (2008-2020)”

While the provincial plan acts as a supplement to and detailing of the national plan, the Reform and Development Plan, which was approved by NDRC in 2008, takes a longer-term approach of the PRD’s development up to 2020.
The NDRC plan includes a wide range of measures to improve the region’s innovative capacity and skill levels, emphasis on firm-based development, and links with the rest of the world. By 2020, the NDRC envisions the PRD region to move up the value chain, to foster advanced manufacturing and high technology industries, to develop globally advanced capabilities in scientific innovation, and to build strong modern service sectors. The plan also calls for greater autonomy in economic decision-making for the region, the acceleration of infrastructure construction in the region and closer economic links with Hong Kong and Macao.

During the 11th Five Year Plan, the China government chose Guangdong province and the PRD region to play a leading role in innovation, knowledge, and creativity-based economic development. In order to support innovation in Guangdong province, a large number of high-level research and advisory programs were set up. At the city level, the Guangzhou government allocated nearly US$144 million per year in spending to encourage scientific and technological innovation.

**Other factors contributing to success of the PRD region**

The PRD’s huge success in electronics manufacturing can be attributed to the cluster effect. This has resulted in development of supply chain where it is convenient to source all parts, components and accessories of a product, so that orders could be completed quickly. Clustering of upstream and downstream industries has resulted in consolidation of resources, enhanced specialization and efficiency as well as reduced cost.

In addition to this, the PRD has built strong infrastructure facilities in terms of complete network for water, land and air transportation to further boost the industries in the region. Cities in the PRD are interconnected by highways and railways. The region has also built excellent ports facilities, including coastal ports and ports of inland rivers, which play a critical role for transporting manufactured goods abroad. There are 6 airports in the PRD as well.
8.4. Benchmarking and best practices- state government policies for ESDM sector

Karnataka

Incentives as part of Karnataka ESDM Policy 2013

**Preferential market access (PMA) Policy**
In line with the preferential market access (PMA) policy notified under National Electronics Policy, the Government of Karnataka has also introduced preferential market access for procurement of electronic products by government departments manufactured by the companies registered and engaged in manufacturing in Karnataka. The policy will remain in force seven years from the date of notification.

The following table lists the percentage of domestic value addition in terms of BOM:

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage domestic value addition (in terms of BOM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>25%</td>
</tr>
<tr>
<td>Year 2</td>
<td>30%</td>
</tr>
<tr>
<td>Year 3</td>
<td>35%</td>
</tr>
<tr>
<td>Year 4</td>
<td>40%</td>
</tr>
<tr>
<td>Year 5</td>
<td>45%</td>
</tr>
</tbody>
</table>

**Electronics manufacturing clusters (EMCs)**
The state will provide additional incentives on top of those offered by GoI for the development of EMCs in the state. The government will support development of seven EMCs in the state by 2020. It will engage in development of necessary infrastructure such as roads and railways and ensure good connectivity of cluster to airport/seaport/railway station. However, its contribution toward infrastructure development in EMCs shall not exceed 20% of the total infrastructure cost.

**Semiconductor IP and chip design fund**
The Government of Karnataka will set up a fund in collaboration with GoI and other public/private financial institutions to provide money for startup, growth and debt/capital needs of semiconductor design companies. The fund will be in place for the next seven years and Karnataka government’s contribution to fund is restricted to 26% of the fund size. The aim of this fund is also to stimulate semiconductor IP creation in the state.

**ESDM innovation centers**
In order to help entrepreneurs and companies develop product concept and test their prototypes, the government has decided to set up three ESDM innovation centers within the state. These centers will be fully equipped with VLSI design tools, prototype development facilities, testing facilities, characterization labs and compliance and certifications labs.
Post-performance incentives and subsidies

Capital subsidies
The government will offer capital subsidies to Karnataka ESDM companies setting up ESDM design, R&D or high-tech manufacturing facilities in the state. The subsidy will be up to INR50 million or 10% of the total investment (whichever is lower) and will be provided to first two anchor units in each greenfield EMC.

R&D grant
The government aims to promote R&D activities by ESDM companies in the state by offering R&D grants to companies in the form of reimbursements of 20% of actual R&D expenses (including manpower) annually, subject to a maximum of 2% of their annual turnover. The upper cap on the grant is INR10 million and it is in addition to any similar benefits announced by GoI.

Incentives for patent filing
The Karnataka Government aims to further promote innovation activities in the state by providing incentives to companies to file domestic and international patents. The government will reimburse up to 50% of the actual filing costs (including filing fees, attorney fees, search fees and maintenance fees) subject to a maximum of INR100,000 for domestic and INR500,000 for international patents. This is in addition to any similar benefits announced by GoI.

Export incentives
Deemed export incentives: The ESDM companies will be eligible for an incentive in the form of interest free loan against the eligible gross VAT for sales within Karnataka under the Industrial Policy 2009-14. For inter-state sales, Karnataka government will reimburse 95% of CST, till GST is implemented, paid by the eligible ESDM units during the first five years of their operations.
For the exports outside the country, the Karnataka Government will formulate a “Duty Drawback Scheme” in respect of the state taxes that do not get refunded to the exporting units in the normal course of implementation of state tax laws, and as a result, get embedded in the exports.

Marketing incentives for international market expansion
The government shall reimburse 50% of the actual costs (subject to a maximum of INR1 million per year per company) for international marketing, sales promotion, trade show participation, webinars etc. by Karnataka ESDM companies.

Incentives as part of Karnataka Electronics Hardware Policy 2011

Investment promotion subsidy
This subsidy is only available for enterprises availing term loan to an extent of minimum 50% cost of fixed assets.

<table>
<thead>
<tr>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3 and 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro enterprises</td>
<td>25% VFA (max INR1 mn)</td>
<td>20% VFA (max INR0.75 mn)</td>
</tr>
<tr>
<td>Small enterprises</td>
<td>20% VFA (max INR2 mn)</td>
<td>15% VFA (max INR1.5 mn)</td>
</tr>
<tr>
<td>Medium enterprises</td>
<td>INR 3 million</td>
<td>INR 2 million</td>
</tr>
</tbody>
</table>

*VFA: value of fixed assets
Interest free loan on VAT

<table>
<thead>
<tr>
<th>Investment on fixed assets (INR billion)</th>
<th>Minimum direct employment</th>
<th>Quantum of interest free loan</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1-0.5</td>
<td>Min 100 and additional 20 for every INR100 million investment</td>
<td>50% assessed gross VAT for initial 5 years subject to 100% of total value of fixed assets.</td>
</tr>
<tr>
<td>0.51-2.5</td>
<td>Min 200 and additional 20 for every INR5 billion investment</td>
<td>50% assessed gross VAT for initial 6 years subject to 75% of total value of fixed assets.</td>
</tr>
<tr>
<td>2.51-10</td>
<td>Min 400 for up to INR3 billion investment and additional 50 for every INR1 billion investment</td>
<td>25% assessed gross VAT for initial 7 years subject to 50% of total value of fixed assets.</td>
</tr>
<tr>
<td>10-30</td>
<td>Min 750 for up to INR10 billion investment and additional 25 for every INR1 billion investment</td>
<td>25% assessed gross VAT for initial 10 years subject to 50% of total value of fixed assets.</td>
</tr>
<tr>
<td>More than 30</td>
<td>1,250</td>
<td>25% assessed gross VAT for initial 15 years subject to 50% of total value of fixed assets.</td>
</tr>
</tbody>
</table>

Zone 4: Nil

Interest subsidy
Available to an extent of 5% to micro enterprises for a period of 5, 4 and 3 years in Zone 1, Zone 2 and Zone 3 respectively.

Electricity duty waiver
100% exemption on electricity duty for 5, 4 and 3 years in Zone 1, Zone 2 and Zone 3 respectively.

Anchor unit subsidy
First two manufacturing enterprises (minimum employment 100 persons) investing at least INR500 million in each of the taluks (except those have industrial units with investments more than INR500 million present) coming in Zone 1, 2 and 3, will be offered a subsidy of INR10 million.

Stamp duty exemption
Stamp duty to be paid on loan agreement/credit deeds/mortgage/hypothecation deeds and lease deeds/lease-cum sale/absolute sale deeds shall be reimbursed as per the following:
Zone 1, 2: 100%
Zone 3: 75%
Zone 4: Nil

Registration charges for loan documents and sale deeds will also be charged at a nominal rate of INR1 per INR1,000 transaction.

Entry tax benefit
Electronics hardware manufacturing units shall be exempted for the payment of Entry tax on plant and machinery and capital goods for a period of 3 years and on raw materials/inputs/components for a period of 5 years from date of commencement of operations (not applicable for Zone 4).
West Bengal

In order to promote IT/ITeS and ESDM sector in the state, the West Bengal government has launched “ICT Incentive Scheme 2012” that has come into effect from 1 August 2012 and will be valid for a period of five years, ending 31 July 2017. In the following sections, IT units include IT services/software/ITeS as well as IT hardware units involved in the manufacturing of electronic IT equipment, telecom devices, telecom infrastructure equipment, electronic component manufacturing, solar equipment, LED systems and other units engaged in ESDM activities.

The state has been divided into following groups and the incentives are provided by the government based on the location of the companies in these particular groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>Kolkata Municipal Corporation, North 24 Parganas, South 24 Parganas, Howrah</td>
</tr>
<tr>
<td>Group B</td>
<td>District Hooghly, and sub-divisions of Siliguri, Kharagpur, Durgapur, Asansol, Haldia, Kalyani</td>
</tr>
<tr>
<td>Group C</td>
<td>Districts of Burdwan (excluding sub-divisions of Durgapur, Asansol), Purba Medinipur (excluding sub-division of Haldia), Malda, Jalpaiguri, Naida (sub-division of Kalyani) and Murshidabad.</td>
</tr>
<tr>
<td>Group D</td>
<td>Districts of Birbhum, Bankura, Paschim Medinipur (except sub-division of Kharagpur), North and South Dinajpur, Purulia, Coochbehar, Darjeeling (excluding sub-division of Siliguri) and any other places not covered Group A, B, C.</td>
</tr>
</tbody>
</table>

Fiscal incentives

Capital investment subsidy

▶ An eligible IT hardware unit being set up in Group A (except for areas under Kolkata Municipal Corporation), B and C will be entitled to a capital investment subsidy of 12% of the fixed capital investment subject to a limit of INR45 million, payable in 5 equal yearly installments.

▶ An eligible IT hardware unit being set up in Group D will be entitled to a capital investment subsidy of 15% of the fixed capital investment subject to a limit of INR45 million, payable in 5 equal yearly installments.

Interest/training subsidy

The state government will provide interest/training subsidy to all new eligible IT units on the interest liability on term loan borrowed from a commercial bank/financial institution for implementation of an approved project and providing training to employees for such projects at below mentioned rates.

▶ Group A & B (except hardware units located under Kolkata Municipal corporation): 25% of annual liability on term loan borrowed for an approved project and INR20,000 or one month salary, whichever is lower, to a maximum 750 candidates subject to a ceiling of INR15 million per year for 5 years.

▶ Group C & D: 25% of annual liability on term loan borrowed for an approved project and INR20,000 or one month salary, whichever is lower, to a maximum 1,000 candidates subject to a ceiling of INR20 million per year for 7 years.

These incentives can be availed as per either of the following options:

▶ Option 1: The company may claim only interest subsidy on annual interest liability subject to a maximum of INR15 million per year for Group A & B locations and INR20 million for Group C & D.
locations.

► Option 2: The company may claim only training subsidy subject to a maximum of INR15 million per year for Group A & B locations and INR20 million for Group C & D locations.

► Option 3: The company may claim both interest and training subsidy, but the combined limit of both should not exceed INR15 million per year for Group A & B locations and INR20 million for Group C & D locations.

Electricity duty waiver
All eligible IT units will be entitled for a waiver on electricity duty consumed for production/operational activities for a period of 5 years in Group A & B and 7 years in Group C & D from the date of commencement of operations.

CST refund
All eligible hardware units in all locations (except hardware units located under Kolkata Municipal corporation) will be entitled for a refund of 100% of Central Sales Tax (CST) until the abolition of CST or 5 years, whichever is earlier.

Stamp duty waiver
All eligible IT units will be entitled for a refund of 100% of stamp duty and registration fee for purchase of land and building for setting up the project, irrespective of the location.

Subsidy for patent filing
All eligible IT units in MSME sector shall be reimbursed 50% of the cost of filing patents subject to a maximum of INR0.5 million per year.

Subsidy for employment generation
All eligible IT units in large and medium sectors shall be reimbursed 50% (75% in case of micro and small) of the expenditure incurred for paying contribution toward Employee State Insurance (ESI) and Employee Provident Fund (EPF) subject to a maximum of INR10 million (INR15 million in case of micro and small) per year for following number of years:
- Group A & B (except hardware units located under Kolkata Municipal corporation): 5 years
- Group C: 7 years
- Group D: 10 years

Infrastructure development
► **Cluster creation:** The government plans to develop electronics clusters in the cities of Kolkata, Falta, Asansol, Kharagpur, Purulia, Kalyani and Siliguri. It aims to develop 15 such clusters over the next 5 years, either through assistance from Central Government or state funding.

► SME units interested in setting up plans outside these clusters will be extended assistance for their infrastructural needs. Similarly, large units willing to set up facilities in the state will be offered infrastructural support at reasonable cost and will be assisted through a dedicated hardware cell of the IT department.

► **Semiconductor fabs:** The government plans to carry out necessary policy and promotions for setting up semiconductor fabrication units both in digital and analog – mixed signal segments. For this the government will provide suitable land-sites and facilitate the building of necessary infrastructure.

► The government also plans to set up an electronics design center in the state in collaboration with one or more premier technological institutions.
Mega projects
Apart from the incentives mentioned above, in case of mega projects, the government may consider granting special package of incentives. The mega projects will be decided on a case-to-case basis, based on the pioneering nature of the project, location aspect, introduction of state of art technology, scope of further related investment etc.

Preferential access
Government is considering a review of existing procurement policies in the state, so as to give a preference to local manufacturers in its procurement of hardware.

Focus areas for government
The government aims to focus on verticals such as lighting, smart meters, security systems, set top boxes, industrial and medical electronics and certain specified components. It plans to bring investments in ancillaries focused on LCD and plasma devices, solar photovoltaic, LED equipment, device level packaging and assembly test mark pack.
Madhya Pradesh

Madhya Pradesh government has unveiled Information Technology Investment Policy 2012 which provides various incentives to IT industry that includes IT/ITeS companies as well as electronics hardware manufacturing units.

Following are the major incentives provided to IT industry by the state government:

**Interest subsidy**

All eligible micro, small and medium enterprises are entitled to get interest subsidies as per the table below:

<table>
<thead>
<tr>
<th>Category</th>
<th>Districts</th>
<th>% of subsidy</th>
<th>Period</th>
<th>Maximum amount (in INR million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro</td>
<td>All districts</td>
<td>5</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Medium</td>
<td>Backward-A</td>
<td>3</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Medium</td>
<td>Backward-B</td>
<td>4</td>
<td>6</td>
<td>1.5</td>
</tr>
<tr>
<td>Medium</td>
<td>Backward-C</td>
<td>5</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Medium</td>
<td>No industry block</td>
<td>5</td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

**Capital subsidy**

Small scale units in IT sector having fixed capital investment of more than INR5 million will be given special subsidy 25% subject to a maximum of INR3 million. In case of medium scale enterprises, a special subsidy of 25% subject to a maximum of INR1.2 million in backward-A category districts, INR1.8 million in backward-B category districts, INR3 million in backward-C category districts.

The government will provide an assistance of 15% of the expenditure incurred by private sector on the establishment/development of industrial/high-tech parks subject to a maximum of INR50 million. The condition is that such parks will have a minimum area of 100 acres and will have a minimum of 10 industrial units with a total of 250 employees employed on a regular basis.

**Land availability at concessional rates**

The government will provide land at concessional rates for establishing IT investment area. The land will be made available at the rate of 25% of the prevalent Collector guideline rate, subject to availability of land. In this case, investment in fixed capital will have to be made at within a period of 3 years.

<table>
<thead>
<tr>
<th>Project cost (in INR million)</th>
<th>Land available at concessional rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 200</td>
<td>Maximum 10 acres as per requirement</td>
</tr>
<tr>
<td>200 to 500</td>
<td>Maximum 15 acres as per requirement</td>
</tr>
<tr>
<td>500 to 1,000</td>
<td>Maximum 25 acres as per requirement</td>
</tr>
<tr>
<td>More than 1,000</td>
<td>Case to case basis</td>
</tr>
</tbody>
</table>

These rebates are applicable only for government lands.

Minimum number of engineers hired by a company in order to avail the concession shall be 100 per acre, of which, minimum 50% employment shall be for the persons who are residents of Madhya Pradesh.

The lease rent will be charged at the rate of 1% per year of the actual lease premium payable by the company.
**Stamp duty waiver**
All eligible IT units will be entitled for an exemption of stamp duty and registration fee for purchase/lease of space in IT investment area and stamp duty on mortgage/hypothecation with banks/financial institutions in IT investment area.

**Incentives related to statutory regulations**
- The hours of work for women employees working in an IT manufacturing unit shall be relaxed under the Factories Act. Women workers shall be allowed to work 24*7 operations with 3 shifts per day subject to the conditions fulfilled by the employers relating to women workers’ security and safety at the work place and during the transit.
- IT Units shall be permitted for self-certification of the registers and forms as contemplated under various following Acts viz Payment of Wages Act, Minimum Wages Act, Employees State Insurance Act, etc. and shall also be allowed to maintain unified register and record instead of maintenance of different registers and records under different Labour Acts.

**Power incentives**
The government will ensure uninterrupted power supply to IT industry through a dedicated feeder as per the prescribed terms and conditions on payment of requisite charges. Also, no prior permission will be required for installation of captive power plants.

**Entry tax benefit**
Electronics hardware manufacturing units shall be exempted for the payment of Entry tax for a period of 5 years.

**Subsidy for patent filing**
All manufacturing enterprises shall get full reimbursement for the cost of filing patents subject to a maximum of INR0.2 million.

**Training subsidy**
The government will provide one time reimbursement to the companies for providing skill gap trainings to the engineers that are domicile of Madhya Pradesh. The reimbursement will be up to 50% of the cost incurred subject to maximum of INR10,000 per employee, who are trained by the company within first two years of commencement of operations.
Maharashtra

Maharashtra government launched Maharashtra IT/ITeS Policy in 2009 which covers IT hardware units as well. The state has also recently launched Maharashtra Industrial Policy 2013 in January 2013.

Following are the incentives available as per Maharashtra IT/ITeS Policy 2009:

**Stamp duty**
All new IT units will be entitled for stamp duty exemption as per the following table:

<table>
<thead>
<tr>
<th>Areas</th>
<th>Transactions</th>
<th>Exemption</th>
</tr>
</thead>
<tbody>
<tr>
<td>C, D, D+, no industry and low HDI districts</td>
<td>Hypothecation, pawn, pledge, deposit of title deeds, conveyance, charge on mortgage property, lease, mortgage deed and security bond on mortgage deed</td>
<td>100% stamp duty exemption</td>
</tr>
<tr>
<td>Public IT parks, IT/IT Hardware/Telecom Hardware manufacturing SEZs in A and B areas</td>
<td>Hypothecation, pawn, pledge, deeds, conveyance and lease</td>
<td>100% stamp duty exemption</td>
</tr>
<tr>
<td>Private IT parks (including IT hardware and telecom hardware manufacturing units) in A and B areas</td>
<td>Hypothecation, pawn, pledge, deeds, conveyance, lease and public assignment lease</td>
<td>75% stamp duty exemption</td>
</tr>
<tr>
<td>Throughout the state</td>
<td>Merger, de-merger and reconstruction of IT/ITeS units</td>
<td>90% stamp duty exemption</td>
</tr>
</tbody>
</table>

**Entry tax benefit**
IT units shall be exempted for the payment of entry tax and Octroi tax or any other cess or tax levied in lieu of these.

**VAT benefit**
The government will charge the minimum floor rate recommended by the concerned Empowered Committee of the Central Government for the VAT on sale of IT products.

**Land at concessional rates**
The government will provide land at 25% of the prevailing rates for the IT units being set up in Maharashtra Industrial Development Corporation (MIDC) area in Low-HDI districts.

**Subsidy for patent filing**
All micro, small and medium IT enterprises in the state shall be reimbursed 50% of the cost of filing patents subject to a maximum of INR0.5 million.

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8 Low Human Development Index (HDI) Districts shall refer to the following 10 districts specified in the Package Scheme of Incentives (PSI) 2007: Gadchiroli, Yavatmal, Jalna, Nandurbar, Washim, Dhule, Nanded, Osmanabad, Buldhana, Chandrapur
Electricity duty exemption
IT units will be entitled for a 100% exemption from the payment of electricity duty for a period of 10 years.

EPF reimbursement
All IT units set up in the state in low HDI districts, and employ at least 75% local people will be reimbursed the 75% amount on expenditure on account of contribution towards Employee Provident Fund and Employee State Insurance schemes. This will be given for five years and is subject to a maximum of 25% of fixed capital investment.

Following are the incentives available as per Maharashtra Industrial Policy 2013:

The manufacturing units in the state receive incentives based on their classification as MSME or large enterprises. Following table has the classification:

<table>
<thead>
<tr>
<th>Area classification</th>
<th>Large projects</th>
<th></th>
<th>MSME projects</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Monetary ceiling as % of admissible fixed capital investment</td>
<td>Eligibility period (years)</td>
<td>Monetary ceiling as % of admissible fixed capital investment</td>
<td>Eligibility period (years)</td>
</tr>
<tr>
<td>A</td>
<td>-</td>
<td>7</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>B</td>
<td>-</td>
<td>7</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>C</td>
<td>30</td>
<td>7</td>
<td>40</td>
<td>7</td>
</tr>
<tr>
<td>D</td>
<td>40</td>
<td>7</td>
<td>70</td>
<td>10</td>
</tr>
<tr>
<td>D+</td>
<td>50</td>
<td>7</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>No industry districts</td>
<td>70</td>
<td>7</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>Naxalite affected area</td>
<td>80</td>
<td>7</td>
<td>100</td>
<td>10</td>
</tr>
</tbody>
</table>
Following are the incentives available to these units:

<table>
<thead>
<tr>
<th>Incentive available</th>
<th>Large projects</th>
<th>MSME projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial promotion subsidy</td>
<td>Every year, in areas other than A and B areas, industrial promotion subsidy</td>
<td>Every year, in areas other than A, industrial promotion subsidy payable is calculated at the rate of 60% to 100% of VAT on local sales + CST payable on finished products</td>
</tr>
<tr>
<td></td>
<td>payable is calculated at the rate of 60% to 100% of VAT on local sales + CST</td>
<td></td>
</tr>
<tr>
<td></td>
<td>payable on finished products</td>
<td></td>
</tr>
<tr>
<td>Energy and water audit</td>
<td>► Reimbursement of water and energy audit up to 75% subject to INR0.1</td>
<td>► Reimbursement of water and energy audit up to 75%. Assistance by the way of</td>
</tr>
<tr>
<td></td>
<td>million for water and INR0.2 for energy audit</td>
<td>50% grant, subject to INR0.1 million for water and INR0.2 for energy audit.</td>
</tr>
<tr>
<td></td>
<td>► 50% cost of capital equipment required for undertaking measures to conserve</td>
<td>► 50% cost of capital equipment required for undertaking measures to conserve</td>
</tr>
<tr>
<td></td>
<td>water and energy, limited to 0.5 million each</td>
<td>conserve water and energy, limited to 0.5 million each</td>
</tr>
<tr>
<td>Stamp duty exemption</td>
<td>Eligible units will be entitled for 100% stamp duty exemption</td>
<td>Eligible units will be entitled for 100% stamp duty exemption within investment period for acquiring land and term loan purposes. In A and B areas, stamp duty exemption will be offered to only IT units in IT parks.</td>
</tr>
<tr>
<td>Electricity duty exemption</td>
<td>Eligible new units in all areas except A and B will be entitled to exemption</td>
<td>Eligible new units in all areas except A and B will be entitled to exemption from payment of electricity duty for the eligibility period. In A and B areas, electricity duty exemption will be offered to 100% EOU large scale units and IT units for 7 years.</td>
</tr>
<tr>
<td></td>
<td>from payment of electricity duty for the eligibility period. In A and B areas,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>electricity duty exemption will be offered to 100% EOU large scale units and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IT units for 7 years.</td>
<td></td>
</tr>
<tr>
<td>Power subsidy</td>
<td>NA</td>
<td>► Applicable for new units located in Vidarbha, Marathwada, North Maharashtra, and districts of Raigarh, Ratnagiri and Sindhagar in Konkan. ► Extent of INR1/unit in the above mentioned areas and INR0.5/unit in all other areas (except A)</td>
</tr>
</tbody>
</table>
Andhra Pradesh

Andhra Pradesh government launched Electronics Hardware Policy 2012-2017 in June 2012 with an aim to promote the hardware and electronics industry in the state. The policy is valid for the period of 5 years till 2017. This policy covers the sectors such as industrial electronics, computers and peripherals, communication, electronic manufacturing services, broadcast equipment, strategic electronics and components.

The state has also identified various tier-II (Visakhapatnam, Vijayawada, Warangal, Tirupati and units located closer to seaports) and tier-III locations (identified in any district other than Hyderabad Metropolitan Development Authority area and tier-II locations).

Following are the incentives for the companies as listed in the Electronics Hardware Policy 2012-2017:

**Common incentives to all electronics hardware companies in the state**

- **Duty waivers**
  - **Stamp duty exemption:**
    - 100% reimbursement of stamp duty, transfer duty and registration fee paid on sale/lease deeds/mortgages/hypothecations on the first transaction.
    - 50% reimbursement of stamp duty, transfer duty and registration fee paid on sale/lease deeds/mortgages/hypothecations on the second transaction.
  - **Tax exemption:** 100% tax reimbursement of VAT/CST or CGST, for new units started after the date of issue of the state policy, for a period of 5 years from the date of commencement of production for products made in AP and sold in AP.

- **Subsidies**
  - **Interest subsidy:** 3% interest rebates limited to INR0.5 million for 5 years.
  - **Capital subsidy:** 10% subsidy on capital equipment for technology up-gradation.
  - **50% subsidy on expenses incurred for quality certification limited to INR0.4 million (Conformity European (CE)), China, Compulsory Certificate (CCC), UL Certification, ISO, CMM Certification etc.)
  - **25% subsidy on cleaner/green production measures limited to INR1 million.**
  - **Land availability at concessional rates:** 25% rebate in land cost limited to INR1 million in industrial estates, industrial parks, SEZs, hubs and clusters.
  - **50% reimbursement on cost involved in skills upgradation and training local manpower limited to INR 2,000 per person.**
  - **Reimbursement of 50% exhibition subsidy for participating in national/international exhibitions.**
  - **Investment subsidy of 20% (limited to INR2 million) to micro and small enterprises.**

**Preferential market access**

- The Government of Andhra Pradesh has reserved 20% of order value to electronics hardware SMEs in State government promoted projects.
- The main objective of the state government is to reduce the use of imported products in all state and central government programs.
  - Companies using greater Indian value addition and local language interface will be allocated additional basis points during technical evaluation.

**Electronics manufacturing clusters (EMCs)**

- The state will create 4 hubs (North, East, West and South) in and around Hyderabad consisting of 300 acres of multiproduct electronic SEZs and another 200 acres for the electronic industry.
► The state government plans to set up a new electronic hardware park in an area of 150 acres with options of SEZ and non-SEZ.
► The state plans to convert existing clusters such as FAB City and Aeronautical SEZ into Centers of excellence, to give fresh impetus to infrastructure.

The manufacturing units in the state receive incentives based on their classification as start-ups, micro, small, medium units or enterprises focused on R&D. Following table has the classification:

<table>
<thead>
<tr>
<th>Incentive available</th>
<th>Start-ups/ microenterprises</th>
<th>Small and medium units</th>
<th>R&amp;D focused units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruitment assistance</td>
<td>INR0.25 million for recruitment of up to 50 employees within a period of 2 years.</td>
<td>INR1 million for employing minimum of 200 employees within 2 years.</td>
<td>INR1.5 million for employing minimum of 150 employees within 2 years.</td>
</tr>
<tr>
<td>Leased rentals at concessional rates</td>
<td>25% subsidy on lease rentals of up to INR0.5 million per annum for a maximum period of three years.</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Power subsidy (for a period of 5 years from the date of commencement of operations subject to a maximum of INR3 million)</td>
<td>50% subsidy</td>
<td>40% to small units, 25% to medium units, 10% to large-scale industry</td>
<td>NA</td>
</tr>
</tbody>
</table>

The manufacturing units in the state receive incentives based on their location in tier II and III cities in the state. Following table has the classification:

<table>
<thead>
<tr>
<th>Incentive available</th>
<th>Tier III locations</th>
<th>Tier II locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruitment assistance</td>
<td>The state provides INR1.5 million as recruitment assistance for employing a minimum of 100 employees within 2 years of commencement of commercial operations in tier-II and III cities in AP.</td>
<td></td>
</tr>
<tr>
<td>Power subsidy</td>
<td>50% for a period of 5 years</td>
<td>50% to micro units, 40% to small units, 25% to medium units, 10% to large-scale industry for a period of 5 years subject to a maximum of INR3 million</td>
</tr>
<tr>
<td>Other incentives</td>
<td>The first five anchor electronics hardware companies employing more than 100 employees in tier-II and III cities are entitled to receive subsidy of INR1 million.</td>
<td></td>
</tr>
</tbody>
</table>
Other initiatives by the state government

**Fund to promote innovation in manufacturing and design**
The Government of Andhra Pradesh will set up a fund in collaboration with GoI to promote design, manufacturing, assembling and packaging businesses.

**ESDM innovation centers**
In order to help entrepreneurs and companies develop product concept and test their prototypes, the government has decided to set up incubation centers and electronic hardware parks with full-fledged testing facilities to meet global quality parameters such as safety, endurance, environmental and functional parameters.

**Export incentives**
For encouraging electronics export, the state proposes to offer a special negotiated package of incentives such as dollar loans, exports guarantee etc.

**Priority projects incentives**
A special negotiated package of incentives will be offered to priority projects in the ESDM sector proposed to be set up by electronic hardware companies. These companies should have a present employment of more than 100, existing investment of more than INR100 million and turnover of more than INR200 million for the last three years and projected employment of 500 to be eligible for this special incentive package.

**Incentive to “Go Green”**
Units using renewable sources for their operations and manufacturing are eligible for additional incentives such as electricity tax exemption for 5 years. Sales tax exemption for two additional years against carbon credits earned on a yearly basis is also being extended.

**Subsidy for patent filing**
All existing units in the state (other than large-scale industries) shall be reimbursed 50% of the cost of filing patents subject to a maximum of INR0.5 million.

**Women workers in night shift**
Women workers to be allowed to work in three shifts including night shift on similar lines as IT/ITeS industry.
The Government of UP has unveiled their new IT policy in 2012 as well as new Infrastructure & Industrial Investment Policy 2012. The IT policy provides various incentives to IT industry including IT hardware, software, services and ITeS companies. The major among them are listed below:

**Investment Promotion Scheme**
All new IT units to be set up in the state with fixed capital investment of INR50 million or more, will be provided the facility of interest free loan, from the date of first sale up to 10 years, equivalent to the sum of VAT and Central Sales Tax deposited by industrial units or 10% of the annual turnover whichever is less. This loan will be payable after 7 years from the date of disbursement.

**Interest subsidy**
New IT units will be reimbursed the amount of interest at the rate of 5% payable on term or working capital loan taken by them from banks/financial institutions for a maximum period of 5 years from the date of commencement of operations. The maximum limit of the same will be INR10 million per annum per unit.

**Stamp duty exemption**
All IT units will be entitled for a 100% exemption of stamp duty for purchase of land and building for setting up the project, with the condition of commencing operations within three years in Tier II/Tier cities such as Lucknow and Agra, against a bank guarantee in favor of IG Stamps and Registration valid for a period of three years.

**Land availability at concessional rates**
The government will provide land at concessional rates for establishing IT mega projects. The land will be made available at the rebate of 25% on the prevailing sector rates on purchase of land from state agencies.

**Electricity duty waiver**
Exemption in Electricity Duty is available to new units for 10 years and to pioneer units for 15 years. The electricity produced by captive power plant for self-use, will be exempted from Electricity Duty.

**Special incentives for mega projects**
The government will provide special package of incentives for IT units with investments above INR2 billion over and above the other mentioned incentives. Also, special incentives will be given to investment projects above INR1 billion focused on skill development, innovation and R&D.

**Power incentives**
The government will ensure uninterrupted power supply to IT industry through a dedicated feeder from state utilities. The cost of provision of separate feeder and separate transmission line will be borne by the developer.

**EPF reimbursement**
All new IT units set up in the state, which provide employment to 100 or more employees (and retain at least 75% locals for a period of three years), will be reimbursed the 50% amount on expenditure on account of contribution towards Employee Provident Fund and Employee State Insurance schemes. This will be given for five years and is subject to a maximum of 25% of fixed capital investment.
Other incentives
The policy also allows IT units to have 24*7 operations as well as women to work in all three shifts.
Tamil Nadu

The Government of Tamil Nadu came up with Information Communication Technology (ICT) Policy in 2008 and an Industrial Policy in 2007. The ICT policy covers IT industry including IT services, software, ITeS and hardware units. The government has announced that it will soon come out with a new ICT as well as industrial policy.

Various incentives available to IT companies as part of the ICT policy. Prominent among them are listed below:

Structured package of incentives
New IT units (as well as expansion projects) being setup in Chennai, Tiruvallur and Kancheepuram districts with an investment in eligible fixed assets of over INR2.5 billion in a period of 3 years would be eligible for a structured package of incentives to be decided on a case-to-case basis. In case of any district other than these three districts, the minimum investment will be INR1.5 billion in a period of 3 years. Weightage to investment, employment and potential for attracting further investment will be given while deciding the structured package.

Capital subsidy and Electricity Tax exemption
New IT units (as well as expansion projects) being setup in districts other than Chennai, Tiruvallur and Kancheepuram, i.e. tier 2 and tier 3 locations, will be eligible for a back-ended state capital subsidy and Electricity Tax exemption on power purchased from TNEB or generated from captive sources, based on investment in eligible fixed assets made within 3 years from start of commercial production and employment as below:

<table>
<thead>
<tr>
<th>Investment and employment</th>
<th>Capital subsidy</th>
<th>Duration of electricity tax exemption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment between INR50 million and INR500 million and employing more than 100 direct workers</td>
<td>INR3 million</td>
<td>2 years</td>
</tr>
<tr>
<td>Investment between INR500 million and INR1,000 million and employing more than 200 direct workers</td>
<td>INR6 million</td>
<td>3 years</td>
</tr>
<tr>
<td>Investment between INR1,000 million and INR2,000 million and employing more than 300 direct workers</td>
<td>INR10 million</td>
<td>4 years</td>
</tr>
<tr>
<td>Investment more than INR2,000 million and employing more than 400 direct workers</td>
<td>INR15 million</td>
<td>5 years</td>
</tr>
</tbody>
</table>

IT units located within specified SEZs will be provided an additional 50% capital subsidy over and above the eligible limit.
Exemptions in Stamp Duty
► IT companies will be provided 50% exemption from the Stamp Duty and the Registration Fee at the time of purchase of a land/building subject to the company putting up the facilities to commence the operations within three years from the date of the transaction.
► No stamp duty will be levied in respect of transfer of lands acquired by Government or alienated by Government to state agencies or their subsidiaries for promotion of IT/ITES parks.
► IT units setup in a Government park or that set up by a Government PSUs such as ELCOT/SIPCOT/TIDCO/SIDCO would be eligible for 50% exemption from stamp duty on lease sale or mortgage of land meant for IT use as well as on lease of new ready built IT space.

Administrative incentives
IT companies will be permitted to self-certify that they are maintaining the registers and forms as contemplated under - Tamil Nadu Shops and Establishments Rules, Tamil Nadu Payment of Gratuity Rules, Tamil Nadu Maternity Benefit Rules, Contract Labour Act, Payment of Gratuity Act, Tamil Nadu Industrial Establishment (National and Festival) Holidays Act, 1958.

ESDM research centers
Through this policy, the government aimed to promote a center of excellence in chip and electronic hardware design in Anna University in collaboration with the electronic industry. Also, a nanotechnology research center was planned to be set up in Bharathiar University.

R&D promotion
Capital goods to be used in setting up hi-technology R&D centers would be exempted from entry tax and VAT would be zero rated. The condition is that such capital goods shall not be used for commercial production and be used exclusively for R&D.

Subsidy for patent filing
All technology innovators or stand-alone R&D units shall be reimbursed 50% of the cost of filing patents, cost of registration and first time maintenance fee of the granted application, subject to a maximum of INR0.2 million.

Investment promotion grant
Reputed industry associations will be offered a back-ended subsidy of 50% of the cost of land or INR10 million, whichever is less, for setting up international exhibition-cum-convention centers.
Gujarat

Gujarat government unveiled IT Policy 2006-2011 in November 2006 with an objective to attract investments in the IT sector in the state and to promote and develop employment opportunities in the IT sector. In the following sections, IT units include IT services/software/ITeS as well as IT products units involved in the manufacturing of computer, digital-data communication and digital data broadcasting products.

Mega projects

The government considered granting special package of incentives for mega IT projects. The mega projects will be decided on a case-to-case basis and will be defined on the basis of employment created (more than 1,000 in the case of IT units) and investment made (INR500 million at the time of formulation of the policy).

Infrastructure incentive for the creation of IT Parks

- Fiscal incentive: Under the policy, developers of IT parks are entitled for a financial assistance of 50% of fixed capital investment in land, buildings and infrastructure facilities up to a maximum of INR25 million.
- Stamp duty exemption: The developer of the IT Park will be entitled for a 100% exemption of stamp duty on purchase of land. However, the IT units in the said IT park will be required to pay the stamp duty at 50%. This exemption will be limited to first sale only.

Electricity duty exemption

All new IT units and captive power units set up by eligible IT units will be entitled for a 100% exemption from the payment of electricity duty for a period of 5 years from the date of commencement of operations. IT units will also be eligible to receive uninterrupted power supply.

Incentives related to statutory regulations

- Women workers shall be allowed to work 24*7 operations with 3 shifts per day subject to the conditions fulfilled by the employers relating to women workers’ security and safety at the work place and during the transit.
- IT Units shall be permitted for self-certification of the registers and forms as contemplated under various following Acts viz Payment of Wages Act, Minimum Wages Act, Employees State Insurance Act, etc. and shall also be allowed to maintain unified register and record instead of maintenance of different registers and records under different Labour Acts.

Special venture fund for IT units

Gujarat government set up Gujarat IT fund for the development of IT units in the state. The fund was started with a corpus of INR240 million at the time of formulation of the policy.
## Comparison of incentives across state policies

<table>
<thead>
<tr>
<th>Incentives for filing patents</th>
<th>Karnataka</th>
<th>West Bengal</th>
<th>Madhya Pradesh</th>
<th>Andhra Pradesh</th>
<th>Tamil Nadu</th>
<th>Gujarat</th>
<th>Maharashtra</th>
<th>Uttar Pradesh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plans for ESDM specific fund</td>
<td>✅</td>
<td>✗</td>
<td>✗</td>
<td>✅</td>
<td>✗</td>
<td>✅</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>CST exemption</td>
<td>✅</td>
<td>✅</td>
<td>✗</td>
<td>✅</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Incentives for marketing activities</td>
<td>✅</td>
<td>✗</td>
<td>✗</td>
<td>✅</td>
<td>✅</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Power subsidies</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✅</td>
<td>✗</td>
<td>✗</td>
<td>✅</td>
<td>✗</td>
</tr>
<tr>
<td>Land/Office space at concessional rates</td>
<td>✗</td>
<td>✗</td>
<td>✅</td>
<td>✅</td>
<td>✗</td>
<td>✗</td>
<td>✅</td>
<td>✗</td>
</tr>
<tr>
<td>Electricity duty waiver</td>
<td>✅</td>
<td>✅</td>
<td>✗</td>
<td>✗</td>
<td>✅</td>
<td>✅</td>
<td>✅</td>
<td>✗</td>
</tr>
</tbody>
</table>
### States with ESDM/ICT policy

<table>
<thead>
<tr>
<th>State</th>
<th>ICT/ESDM policy present?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uttar Pradesh</td>
<td>Yes</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>Yes</td>
</tr>
<tr>
<td>Bihar</td>
<td>Yes</td>
</tr>
<tr>
<td>West Bengal</td>
<td>Yes</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>Yes</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>Yes</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>Yes</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>Yes</td>
</tr>
<tr>
<td>Karnataka</td>
<td>Yes</td>
</tr>
<tr>
<td>Gujarat</td>
<td>Yes</td>
</tr>
<tr>
<td>Odisha</td>
<td>Yes</td>
</tr>
<tr>
<td>Kerala</td>
<td>Yes</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>No</td>
</tr>
<tr>
<td>Assam</td>
<td>Yes</td>
</tr>
<tr>
<td>Punjab</td>
<td>No</td>
</tr>
<tr>
<td>Haryana</td>
<td>No</td>
</tr>
<tr>
<td>Chhattisgarh</td>
<td>Yes</td>
</tr>
<tr>
<td>Jammu and Kashmir</td>
<td>Yes</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>No</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>No</td>
</tr>
<tr>
<td>Tripura</td>
<td>No</td>
</tr>
<tr>
<td>Meghalaya</td>
<td>No</td>
</tr>
<tr>
<td>Manipur</td>
<td>No</td>
</tr>
<tr>
<td>Nagaland</td>
<td>No</td>
</tr>
<tr>
<td>Goa</td>
<td>Yes</td>
</tr>
<tr>
<td>Arunanchal Pradesh</td>
<td>No</td>
</tr>
<tr>
<td>Mizoram</td>
<td>No</td>
</tr>
<tr>
<td>Sikkim</td>
<td>No</td>
</tr>
</tbody>
</table>
8.5. Top 25 products– market value and value addition

Following is the list of top electronic products that form a major portion of the total electronics market in India. The combined value of these products is US$37.6 billion, constituting approximately 69% of the overall electronics market in 2012.

<table>
<thead>
<tr>
<th>Product</th>
<th>Market value 2012 (US$ million)</th>
<th>Value addition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Phones</td>
<td>17,800.4</td>
<td>Low</td>
</tr>
<tr>
<td>Flat Panel Display TV</td>
<td>3,383.0</td>
<td>Low</td>
</tr>
<tr>
<td>Notebooks</td>
<td>2,503.4</td>
<td>Low</td>
</tr>
<tr>
<td>Desktops</td>
<td>1,981.9</td>
<td>Low</td>
</tr>
<tr>
<td>USB flash memory drives and memory cards</td>
<td>1,141.1</td>
<td>Low</td>
</tr>
<tr>
<td>Engine Management System (EMS) - 4 Wheeler</td>
<td>1,067.4</td>
<td>Low</td>
</tr>
<tr>
<td>BTS – GSM/CDMA</td>
<td>1,051.7</td>
<td>Low</td>
</tr>
<tr>
<td>Digital camera</td>
<td>1,075.1</td>
<td>Low</td>
</tr>
<tr>
<td>LCD Monitor</td>
<td>907.0</td>
<td>Low</td>
</tr>
<tr>
<td>Servers</td>
<td>788.2</td>
<td>Low</td>
</tr>
<tr>
<td>Power supply</td>
<td>575.7</td>
<td>High</td>
</tr>
<tr>
<td>Inverters</td>
<td>543.9</td>
<td>High</td>
</tr>
<tr>
<td>Routers/Switches</td>
<td>544.3</td>
<td>Low</td>
</tr>
<tr>
<td>CFL</td>
<td>533.3</td>
<td>High</td>
</tr>
<tr>
<td>Online UPS</td>
<td>418.8</td>
<td>Medium</td>
</tr>
<tr>
<td>Car radio</td>
<td>472.2</td>
<td>Low</td>
</tr>
<tr>
<td>Printers/ MFD</td>
<td>484.0</td>
<td>Low</td>
</tr>
<tr>
<td>Set top boxes</td>
<td>456.1</td>
<td>Medium</td>
</tr>
<tr>
<td>Energy Meters</td>
<td>301.8</td>
<td>High</td>
</tr>
<tr>
<td>Instrument Clusters (2W+4W) – Automotive</td>
<td>313.7</td>
<td>Medium</td>
</tr>
<tr>
<td>Tablets</td>
<td>292.6</td>
<td>Low</td>
</tr>
<tr>
<td>2W – Ignition</td>
<td>231.5</td>
<td>High</td>
</tr>
<tr>
<td>Smart cards</td>
<td>263.4</td>
<td>High</td>
</tr>
<tr>
<td>Offline UPS</td>
<td>172.6</td>
<td>High</td>
</tr>
<tr>
<td>LED lighting</td>
<td>168.6</td>
<td>Low</td>
</tr>
<tr>
<td>POS printers</td>
<td>45</td>
<td>Medium</td>
</tr>
<tr>
<td>PON, GPON ONT</td>
<td>21.1</td>
<td>Low</td>
</tr>
<tr>
<td>BTS – WiMax</td>
<td>13.3</td>
<td>Medium</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>37,607</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: IESA-F&S study, EY analysis
8.6. Indicative analysis of manufacturing disability vs. exchange rate

<table>
<thead>
<tr>
<th>Product</th>
<th>2011</th>
<th>2012</th>
<th>Assumed Value1</th>
<th>Assumed Value2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchange rate</td>
<td>47.00</td>
<td>53.00</td>
<td>60.00</td>
<td>70.00</td>
</tr>
<tr>
<td>Low value add product like Notebook</td>
<td>15.00%</td>
<td>13.50%</td>
<td>12.00%</td>
<td>11.00%</td>
</tr>
<tr>
<td>Medium value add product like STB</td>
<td>20.00%</td>
<td>15.50%</td>
<td>11.00%</td>
<td>6.00%</td>
</tr>
<tr>
<td>Component like PCB</td>
<td>22.00%</td>
<td>19.50%</td>
<td>17.00%</td>
<td>14.00%</td>
</tr>
</tbody>
</table>

Assumptions
1. Finance charges are assumed to be constant in INR value
2. All domestic costs (i.e. INR costs) are kept constant at the value calculated when $ was INR 55
Sources:

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3. IT-BPM Sector in India 2013, NASSCOM Strategic Review
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Other sources: Interviews with personnel from companies that manufacture various products in the segments for which disability has been computed.