# Table of Contents

Executive Summary  ................................................................. 1  
Methodology ............................................................................. 3  
Chapter 1: Introduction .......................................................... 4  
Chapter 2: Implementation of PMP .......................................... 6  
  Roll-out of the Phased Manufacturing Programme  
  Status of the Phased Manufacturing Programme  
Chapter 3: Trade Analysis ....................................................... 10  
  Net Increase in Imports  
  Lack of Focus on Exports  
Chapter 4: Impact on Local Brands ........................................ 14  
  The Eroding Value of Local Brands  
  Weak Financials  
Chapter 5: Manufacturing at Scale ........................................... 17  
  Far from Achieving Scale  
Chapter 6: Summary and Recommendations .......................... 19  
  Summary  
  Recommendations  
Annexure: Classification of Trade Data  .................................. 22
On September 25, 2014, India launched the ‘Make in India’ initiative to transform the country into a global manufacturing hub. Electronics manufacturing is one of the main priority areas identified under the initiative. The size of the electronics system design and manufacturing (ESDM) sector of India was pegged at USD 61.8 billion in 2015. The sector is expected to grow at a CAGR of 15-19 percent to reach USD 123-150 billion by 2020.

Mobile devices are the largest segment of the ESDM sector in India, accounting for just less than a third of the size of the sector. While the National Policy on Electronics (NPE), 2012 laid the grounds on which policy measures to bolster the ESDM segment were mounted, specific decisions to bolster domestic capacity for mobile phone manufacturing began from 2015-16.

The recently notified the NPE, 2019 also lays emphasis on developing the mobile phone and components manufacturing capacity locally. Against this backdrop, this report is a first modest attempt at evaluating the status of the domestic mobile manufacturing ecosystem and the impact of a specific type of tariff-based measure adopted by India to provide a fillip to the domestic capacity.

Recently, India surpassed the United States to become the second largest smartphone market in the world. The smartphone market is expected to continue towards this ascendency as the number of smartphone devices in the country is expected to reach 829 million by 2022 from 404 million in 2017. This presented a substantial opportunity for the Government of India (GoI) to establish a robust mobile phone value chain in the country.

Under the flagship initiatives – ‘Make in India’ and ‘Digital India’, the Indian Government has put special focus on developing mobile manufacturing ecosystem in the country. India’s effort to boost the domestic manufacturing capacity began in 2015-16, when the Union Budget announced a differential-duty structure introducing a countervailing duty on mobile phone imports. However, recognizing that the differential duty regime encouraged only Assembly, Programming, Testing and Packaging (APTP) model of mobile phone manufacturing, the Ministry of Electronics and Information Technology (MeitY) in April 2017 introduced a Phased Manufacturing Programme (PMP).

The twin objectives of the PMP were to reduce India’s import dependency and increase domestic value addition. To this end, PMP relied on an import substitution approach and levied a 10-15 percent Basic Custom Duty (BCD) on parts/components/sub-assemblies scheduled to be tariffed from 2016-17 to 2018-19. However, the programme has achieved limited success.

While, the PMP succeeded in restraining imports of handsets, the tariff-based approach failed to contain the imports of components and sub-assemblies. India’s total import bill (for handsets and total mobile-related components) increased by 15.7% from 2014-15 to 2018-19 (USD 15.45 billion to USD 17.88 billion). Notably, India’s imports of mobile specific components alone have increased by 185.9% (USD 2.8 billion to USD 7.9 bn) between 2014-15 and 2018-19. A major downside of relying exclusively on an import substitution approach has been the inability to build India’s export competitiveness. In 2018-19, India exported mobile handsets worth USD 1.4 billion compared to USD 2.7 billion in 2012-13.
Further, while the production of mobile handsets has reached 225 million units in 2017-18, the PMP has achieved limited success in establishing a domestic component/sub-assembly ecosystem that goes beyond chargers/adaptors. Some key reasons for this limited expansion of the local ecosystem include the high level of technical complexity, capital investment, and certain threshold of operations required to develop manufacturing capacity for several components.

In addition, despite an increase in number of manufacturing units the operating scale of such units remains unsatisfactory as production capacity per unit has seen a sharp decline when compared to 2014-15 levels. The smaller operating scale of the existing manufacturing units indicates that PMP has failed to attract capital investment, with domestic players preferring to rely on imports instead. The scale of operation also raises concerns with respect to employment supported by mobile phone and component manufacturing activity in India.

The PMP could not leverage global lead firms to relocate their manufacturing base to India. The programme achieved limited success in localising components manufacturing. Consequently, India’s local brands such as Micromax, Intex, Lava, and Karbonn have lost their domestic market share, and are struggling to sustain operations despite the introduction of PMP.

In order to enhance India’s domestic manufacturing capacity and build its export capacity as envisioned in the NPE 2019, the industry recommends adoption of the following measures, the basis for which has been expanded in this rest of this report.

**Assess the Impact of PMP**
Establishing robust processes for data and evidence collection to measure and improve future outcomes of policies/programmes aimed at enhancing the domestic manufacturing capacity.

**Large Scale Manufacturing**
Adopting a global view on mobile manufacturing, and aiming to manufacturing over a billion handsets annually, consequently allowing India to leverage the economies of scale more effectively.

**Manufacturing High-End Phones**
Attracting manufacturers that are willing to invest in higher-end production, with higher Average Selling Price (ASP), aiding India to penetrate middle-income and advanced markets.

**Taking an Ecosystem Approach**
Improving the ease of doing business, and rationalizing FDI rules wherever required, in consonance with an ecosystem approach in order to attract large brands to invest locally.

**Incentivizing Exports**
Introducing a production-based incentive along with an export-oriented incentive to encourage Indian domestic manufacturing.
Methodology

The report is based on multidimensional and multidisciplinary research. The focus is on providing useful evidence-based analyses, by harnessing several methods/analytical tools discussed briefly below:

**Harmonised System Codes Mapping**
This involved identification of codes for the various components/sub-components notified under the PMP as per the Harmonised System (HS), an international nomenclature used for classifying products. This is mapped with the help of Customs Notifications (various years) issued by Central Board of Indirect Taxes and Customs (CBIC), Finance Act (various years), and the General Rules for Interpretation of Import Tariff.

**Trend Analysis of Trade Data**
This report involves details trend analysis of trade data for various components/sub-components using the yearly trade estimates published by Export Import Data Bank, Directorate General of Foreign Trade (commodity-wise data at 8-digit level of HS classification). The data analysed is adjusted for inflation using Combined Consumer Price Index (base 2012=100): Category- Transport and Communication.

**Market Share Analysis**
The report also examines smartphone market shares of top OEMs using publicly available data from secondary sources. It provides quarter-wise smartphone market shares for years 2016-2018 based on smartphone shipments. The yearly market share approximations are computed by taking simple averages of the quarterly estimates available.

**Financial Ratio Analysis**
The financial and operating performance of key Indian brands has been assessed using several measures such as- ‘Profitability’ expressed as a ratio of Profit before Tax and Total Assets (proxied using Property, plant and equipment, Capital work-in-progress, Intangible assets under development, Other intangible assets, Non-current investments, Other non-current financial assets, Current Assets and Inventories), ‘Operating Performance’ expressed as a ratio of Total Revenue and Total Fixed assets (proxied using Property, plant and equipment), and Turnover. These ratios have been computed using standalone and consolidated annual filings of such brands with the Registrar of Company, Ministry of Corporate Affairs.

**Expert Interviews and Industry Discussions**
Much of the qualitative analysis in this report stems from semi-structured interviews with industry representatives and other stakeholders including mobile handsets and components/sub-components manufacturers. This also involved consultations with key industry associations and experts. Undertaken with the intent to add qualitative lens to the research, such discussions helped in gathering insights on market trends and progress on capacity developments.

**Ancillary Evidence Collection**
India’s aspirations to become a global mobile manufacturing hub started with the National Policy on Electronics 2012 (NPE 2012). Even though the NPE 2012 addressed the entire ESDM sector, the share of mobile devices dominated the ESDM sector with almost 30 percent of the pie. The size of the ESDM sector of India was pegged at USD 61.8 billion in 2015. The sector is expected to grow at a CAGR of 15-19 percent to reach USD 123-150 billion by 2020.

NPE 2012 recognised that the demand for the ESDM sector is going to increase to USD 400 billion by 2020, of which only USD 100 billion will be domestic production, leaving a gap of nearly USD 300 billion. The deficit in supply would lead to increased dependence on electronics imports.

It was pursuant to recognition of these challenges that NPE 2012 laid emphasis on building the domestic capacity of the ESDM sector in the country as well promote exports of electronics. The policy set an objective of achieving a turnover of USD 400 billion by 2020. In addition, the government planned to build the export capacity of the ESDM sector to the tune of USD 80 billion.

On September 25, 2014, India’s Prime Minister Shri Narendra Modi launched the ‘Make in India’ initiative. The programme was devised to transform India into a global manufacturing hub. Electronics manufacturing is one of the 25 priority sectors identified under the Make in India initiative. Subsequently, on July 1st 2015 the Government of India (GoI) launched the ‘Digital India’ initiative with the primary aim to transform India into a digitally empowered society and knowledge economy. In line with the Make in India initiative, the Digital India campaign identified electronics manufacturing as one of the growth pillars of the programme. The campaign envisaged - increasing production of electronic goods to reach USD 400 billion by 2020 and achieving net zero imports by the same time.

On 8th December 2014, a Fast Track Task Force (FTTF) was established by the erstwhile Ministry of Communications & Information Technology. The mandate of the FTTF was to ‘catalyse and re-establish’ growth in the mobile handset and component manufacturing ecosystem in India. The FTTF inter alia set targets to promote a large-scale manufacturing ecosystem in the country by:

i) Promoting production of 500 million mobile handsets by 2019;

ii) Establishing a component industry worth INR 50,000 crore (USD 8 billion) by 2019;

iii) Increasing export from 30 million units in 2014 to 120 million units by 2019;

iv) Supporting 1.5 million jobs.

Following the recommendations of the FTTF, the 2015-16 Union Budget announced a differential duty structure to provide a fillip to the domestic mobile manufacturing industry in India. The differential duty structure introduced a countervailing duty on mobile

---

1 Make in India: The vision, new processes, sectors, infrastructure, and mindset. Government of India. Access here
2 Government of India Initiatives. Access here
5 Ibid. Also refer to Government task force to nurture local mobile companies’ growth. The Economic Times. December 22, 2014. Access here
phone imports and a differential excise duty structure for domestic mobile phone manufacturing. Further, it also exempted several components/accessories of mobile phones from Basic Customs Duty (BCD).

The Ministry of Electronics and Information Technology (MeitY) recognised that the differential duty structure only encouraged the Assembly, Programming, Testing and Packaging (APTP) model of mobile phone manufacturing in the country with limited value addition. In order to promote indigenous manufacturing of mobile handsets and components, MeitY notified the Phased Manufacturing Programme (PMP) on April 28th 2017. The objective of both the differential duty regime in 2015-16, and subsequently the PMP, was to give fillip to mobile phone manufacturing ecosystem in India.

In the subsequent chapters, the report evaluates the performance of Phased Manufacturing Programme.

Chapter 2 focuses on the objectives of PMP and its implementation. PMP levied duties on mobile phones and components with the intent of promoting indigenous manufacturing. The chapter analyses why despite introducing duties in a phased manner, the domestic mobile manufacturing ecosystem did not take off. There are various factors that determine manufacturing capacity of producers. For example, size of capital investment, degree of technical complexity, ease of manufacturing etc. The chapter takes a stock of the implementation of PMP and domestic manufacturing capacity.

Chapter 3 shows that India’s trade deficit on account of electronics is widening. The PMP was envisaged to make India self-sufficient in mobile manufacturing but due to lack of domestic ecosystem and lack of export focus, India continues to incur foreign exchange loss on account of electronics. Meanwhile, the tariff-based approach alone has served to the detriment of the domestic manufacturing industry.

Chapter 4 shows that despite protective measures, the Indian Champions of the mobile industry as represented by Micromax, Intex, Lava and Karbonn have consistently lost market share to Chinese manufacturers.

Chapter 5 analyses the impact on both the productivity and employment and Chapter 6 concludes with recommendations to promote India’s mobile manufacturing.
MeitY notified the Phased Manufacturing Programme (PMP) on April 28, 2017 to promote indigenous manufacturing of cellular mobile handsets, its sub-assemblies and parts/sub-parts/inputs of the sub-assemblies. The PMP was introduced to promote in-depth manufacturing of domestically manufactured cellular mobile handsets.

The programme intended to increase value addition within the country. The objective of the programme was:

“…progressively increasing the domestic value addition for establishment of a robust Cellular mobile handsets manufacturing ecosystem in India.”

The PMP drew a manufacturing roadmap for the years 2016-2020 with the intent to reduce dependency on imports of electronics in a phased manner. Each year, the PMP is designed to bring some parts/components/sub-assemblies under its purview to progressively tariff imports and encourage domestic production. Table 1 shows the year in which the parts/components/sub-assemblies were brought under the purview of PMP and the implementation status thereof:

<table>
<thead>
<tr>
<th>Year</th>
<th>Sub-Assembly</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-17</td>
<td>(i) Charger/Adapter, (ii) Battery Pack, and (iii) Wired Headset</td>
<td>Implemented – BCD at 15 per cent</td>
</tr>
<tr>
<td>2017-18</td>
<td>iv) Mechanics, (v) Die Cut Parts, (vi) Microphone and Receiver, (vii) Key Pad, and (viii) USB Cable</td>
<td>Implemented – BCD at 15 per cent</td>
</tr>
<tr>
<td>2018-19</td>
<td>ix) Printed Circuit Board Assembly (PCBA), (x) Camera Module, (xi) Connectors</td>
<td>Implemented – BCD at 10 per cent</td>
</tr>
</tbody>
</table>

In pursuance of the objectives stated in the PMP notification, 10-15 percent BCD was imposed on parts/components/sub-assemblies scheduled to be tariffed from 2016-17 to 2018-19. PMP helped establish some local manufacturing capacity of products inducted in PMP-2016 (batteries, chargers and adapters). However, PMP 2019 has not yet been implemented owing to industry concerns around the feasibility of proposed timelines for localization. Specifically, in the 2019-20, display assembly, touch panel, cover glass assembly and vibrator motor/ringers were scheduled to be tariffed. MeitY “received representations from industry, (and) industry associations” and announced the deferment of PMP scheduled for 2019-20 until further notice.

---


Status of the Phased Manufacturing Programme

The PMP is implemented in phases. The original intent was to allow time to the domestic mobile manufacturing industry to develop. Several factors determine success in domestic manufacturing, for example, the degree of technical complexity; size of capital investment; level of automation; range of products offerings; ease of manufacturing; and scale of production. Table 2 shows the components/assemblies that were tariffed from 2015 onwards. PMP imposed BCD on less sophisticated components initially and expected domestic capacity to develop in more sophisticated and high value components over time. Table 2 shows schematically, the components/assemblies in which domestic manufacturing actually took off.

Table 2: Status of Manufacturing Localisation under PMP

<table>
<thead>
<tr>
<th>#</th>
<th>Component/Assemblies</th>
<th>Year of BCD imposition</th>
<th>Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>APTP*</td>
<td>2015</td>
<td></td>
<td>Micromax, Intex, Lava, Karbonn, Kara, Bloom, Videocon, Infix, Fox Mobile, Aqua, Celkon, Bloom, HTC</td>
</tr>
<tr>
<td>2</td>
<td>Gift Box</td>
<td>2015</td>
<td></td>
<td>ITC, Parksons, KCL, Mentor</td>
</tr>
<tr>
<td>3</td>
<td>Charger/Adapter</td>
<td>2016</td>
<td></td>
<td>Intex, Ambrane, HGD, Huiyuda, Salora, Champion, Elentec, Highlight, Xor</td>
</tr>
<tr>
<td>4</td>
<td>Battery Pack</td>
<td>2016</td>
<td></td>
<td>Advent, ERD, Hipad, Graviti, Wisepower</td>
</tr>
<tr>
<td>5</td>
<td>Wired Headset</td>
<td>2016</td>
<td></td>
<td>Fine MS, UKB, Radesh Tech</td>
</tr>
<tr>
<td>6</td>
<td>Die Cut Parts</td>
<td>2017</td>
<td></td>
<td>Small companies are starting to build some of these parts</td>
</tr>
<tr>
<td>7</td>
<td>Mechanics (Metal and Plastic Mechanics)</td>
<td>2017</td>
<td>Failed to take off</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Mic and Receiver (Speaker)</td>
<td>2017</td>
<td>Failed to take off</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Key Pad</td>
<td>2017</td>
<td>Failed to take off</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>USB Cable</td>
<td>2017</td>
<td></td>
<td>Manddeep Cable, UKB, Noida Electronics</td>
</tr>
<tr>
<td>11</td>
<td>PCBA**</td>
<td>2018</td>
<td></td>
<td>Micromax, Lava, Karbonn, Samsung, Flextronics, Foxconn, Vivo, Oppo</td>
</tr>
<tr>
<td>12</td>
<td>Camera Module</td>
<td>2018</td>
<td></td>
<td>Biometronics, Holitech exploring investment</td>
</tr>
<tr>
<td>13</td>
<td>Connectors</td>
<td>2018</td>
<td>Failed to take off</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>LCD Module Assembly</td>
<td>Deferred</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Touch Module Assembly</td>
<td>Deferred</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Vibration motor/Ringer</td>
<td>Deferred</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Industry estimates gathered through semi structured interviews.  

*Reader may wish to also refer to alternative secondary sources such as: https://www.counterpointresearch.com/india-imported-13-billion-worth-mobile-phone-components-2018/, wherein the variations in estimates from findings of this report pertain to a nominal share (5-7%) of total average value (ascertained on the basis of a typical Bill of Materials) of a smartphone.
PMP 2015
PMP commenced with Assembly Programming Testing and Packaging operations (APTP) in 2015. The process involves assembling the mobile phone from built up assemblies. Once the phone is assembled, software is loaded, final testing is done and the phone is packed. Micromax, Intex, Lava, Karbonn, are some of the brands that started out with APTP. India manufactures “sales boxes” also for mobile phones. Companies like ITC, Parsons, KCL and Mentor produce packaging for mobile phones.

PMP 2016
PMP successfully led to establishment of a number of charger/adapter factories. However, Chinese manufacturers provided stiff competition to local manufacturers. A large number of APTP manufactures preferred to import in bulk from countries like China to avail economies of scale, despite some localisation. Major local manufacturers include Salcomp which makes and exports chargers, and other players like HGD, Huiiyuda, Salora, Champion, Elentec, Highlight and Xor.

The early stage of PMP also encouraged several battery pack units to set up facilities in India. Some of the players in this space are Advent, ERD, Hipad, Graviti, Wisepower. But cell and mouldings continue to be imported as manufacturing cell and mouldings is capital intensive and highly automated.

Conversely, investments in wired headsets failed to take off perhaps because quality wired headsets require large investments and high automation. The twin barrier coupled with price sensitivity of the market in India ensured a muted response. Some of the industry players are Fine MS, UKB, Radesh Tech.

PMP 2017
In 2017 PMP imposed tariff on die cut parts, mechanics, mic, speakers, keypad and USB cable. Die cut parts consist of conductive cloth, heat dissipation battery cover, sticker-battery slot, protective film for main lens etc. Mechanics comprise of battery cover, front cover, middle cover, antenna, side key, main lens, camera lens, screws etc. Die cut parts, mechanics, mics and speakers are low value components but require high investment in machinery. It is likely that owing to the high investment imperative, APTP manufacturers preferred to import these components. Similarly, manufacturing in keypads failed to take off.

PMP 2018
By 2018 Printed Circuit Board Assembly was brought under PMP. The Printed Circuit Board Assembly (PCBA) is considered the brain of a smartphone, and accounts for almost 40 per cent of total mobile phone cost. A PCBA typically includes flash memory, application processor, and graphics processor. Many domestic manufacturers started population of printed circuit boards. an important step towards large-scale manufacturing involves mounting of Surface Mount Technology (SMT) components on PCB – also referred to as PCB population process. However, both the SMT components and PCB are not manufactured in India and continue to be imported. SMT machines are fully automatic and constitute a high investment item.

PMP 2019 and Onwards
It was originally scheduled to impose duties on LCD Module Assembly, Touch Module Assembly, Vibration motor/Ringer starting 2019. Display and touch panels assembly lines are capital intensive. They form approximately 20-25 percent of the cost of producing a mobile handset. Device makers and industry associations communicated to the government that it would take 18-24 months for manufacturers to set up display assembly/manufacturing lines. In such a situation, the office memorandum advancing the duties on display panels would have increased the cost of manufacturing mobile handsets India. The industry requested deferment of PMP on components/assemblies in 2019-20 by at least one year. In response to these representations, the Department of Revenue
deferred the duties. It is evident that imposition of duties has not encouraged the domestic mobile manufacturing industry. The domestic manufacturers have been able to create limited capacity in low value components and packaging and printing. The high value components that require high capital, complex technology and automation continue to be imported. Domestic mobile manufacturing in India continues to be centred around assembling of mobile phones.

---

Chapter 3: Trade Analysis

Net Increase in Imports

The PMP intended to make India a manufacturing hub for mobile phones. This vision entailed creating an ecosystem comprising handset manufacturers along with suppliers of components and sub-assemblies. Therefore, PMP envisaged that a large part of the supply chain of mobile manufacturing would shift to India. In order to realise this vision, PMP introduced duties on import of handsets and parts/sub-parts/inputs of sub-assemblies in a phased manner. It was believed that the tariff measures will discourage imports of mobile phones and related components/sub-assemblies, and these imports would be substituted by domestically manufactured handsets and components/sub-assemblies.

While PMP succeeded in arresting the imports of handsets, the tariff-based approach could not contain the imports of components and sub-assemblies. Figure 1 shows that the imports of completely built units or mobile handsets has reduced substantially from peaking at INR 47,439 crore in 2014-15 to INR 9,868 crore in 2018-19. However, the import of components (both “mobile-specific” and total “mobile-related” components) witnessed a steady increase (See Annexure).

India imported INR 47,011 crore mobile-related components in 2014-15 and INR 1,10,042 crore in 2018-19 (increase of 134.1%). Also, India imported mobile-specific components worth INR 16,954 crore in 2014-15 which increased threefold in 2018-19 to INR 53,166 crore (increase of 213.6%).

Figure 1: India’s Imports of Mobile Handsets and Components

Source: Export Import Data Bank, Directorate General of Foreign Trade, MOCI; Note: values are inflation-adjusted

10 The decline in mobile-specific components imports between 2017-18 and 2018-19 is on account of change in the procurement profile/pattern of Printed Circuits Boards (PCB). Prior to 2018-19, India largely imported the entire ‘Printed Circuit Boards Assembly’ as covered under HS 85177010. However, post 2017-18, Printed Circuits Boards (HS 85340000) and related PCB parts began to be imported separately, ostensibly leading to decline in imports under HS 85177010.
PMP levied a BCD rate of 15 percent on import of components such as charger/adapter, battery pack, and wired headset from 2016-17.

Figure 2 shows, the imports continued to increase both in value and volume. The import of charger/adapter rose from 38 million units (INR 219 Crore) in 2013-14 to 124 million units (INR 420 Crore) in 2018-19. The import of battery pack and wired headset has also increased both in value terms and volume terms. The import of battery pack rose from 20 million units (INR 1286 Crore) in 2013-14 to 627 million units (INR 7484 Crore) in 2018-19. Similarly, the import of wired headsets rose from 233 million units (INR 1046 Crore) in 2013-14 to 450 million units (INR 1728 Crore) in 2018-19.

**Figure 2: India’s imports of mobile components under Phase I of PMP**

Source: Export Import Data Bank, Directorate General of Foreign Trade, MOCI; Note: values are inflation-adjusted
While the volume and value of charger/adapter, battery pack and wired headsets increased between 2013-14 and 2018-19, the rate per unit of import witnessed a continuous decline, particularly since the levy of BCD under PMP. The rate per unit of charger/adapter declined from USD 0.95 in 2013-14 to USD 0.51 in 2018-19. Similarly, the rate per unit of battery pack, and wired headset has declined from USD 10.7 and USD 0.74 in 2013-14 to USD 1.8 and USD 0.57 in 2018-19 respectively.

Aside from charger/adapter component for which localisation of manufacturing has succeeded, the value and volume of other components imported under the first phase of the PMP have continued to increase after levy of BCD. One possible explanation of this trend is that manufacturers which export components to India are able to absorb some of the negative impact on their trade margins on account of higher tariffs and reduce the per unit price of their merchandise in order to meet steady demand. The economies of scale therefore continue to work in favour of companies based out of export hubs in countries like China.

Lack of Focus on Exports

In order to promote growth in the mobile handset and component industry, the FTTF had emphasised on the role of exports. Increase in exports would have counter-balanced the increasing electronics import bill. However, India’s import dependence on electronics has escalated since the introduction of the PMP. India’s total import bill (for handsets and total mobile-related components) increased by 15.7% from 2014-15 to 2018-19 (USD 15.45 billion to USD 17.88 billion). India’s imports of mobile specific components alone have increased by 185.9% (USD 2.8 billion to USD 7.9 billion) between 2014-15 and 2018-19.

Another area of focus of the PMP has been local value addition. However, the policy emphasis on import substitution and lack of stress on exports has led to a situation wherein the imports bill on account of mobile components has increased but the exports of mobile phones has consistently declined.

Figure 3 shows that India exported approximately only 18 million mobile handsets in 2018-19, clocking a value of USD 1.4 billion or INR 9328.1 Crore. This is approximately 14.7 percent of the target set by the FTTF of USD 9.4 billion or INR 63,268 Crore. Conversely, in 2012-13, India had exported 110 million CBUs worth USD 2.7 billion or INR 14,487 crore. Not only has the local value addition under the PMP been nominal, India has failed to sustain export competitiveness in mobile manufacturing since peaking in 2012-13. Evidently, the large scale of imports of intermediate goods (components) is catering only to a low value APTP ecosystem.
Figure 3: India’s Exports of Mobile Handsets

(*Mobile Handset export target in value terms is obtained using the average price (of mobile handset) in 2018-19 = INR 5307.8 (value of exports/volume of exports).

Note: Values are inflation-adjusted. Source: Export Import Data Bank, Directorate General of Foreign Trade, MOCI. Targets set by Fast Track Task Force.)
### Chapter 4: Impact on Local Brands

#### The Eroding Value of Local Brands

The emergence of Global Value Chains (GVCs) over the last two or three decades has been accompanied with an increasing specialization and fragmentation in manufacturing. Essentially, production has been outsourced to countries that offer greatest advantages in terms of productivity and costs. Processes such as production, logistics, marketing and R&D are outsourced to countries that offer greatest competitive advantages in terms of factor costs, productivity and quality linked efficiency. For instance, Germany offshored significant share of its textiles and apparels production to Central and Eastern European countries on account of low labour costs in the 1990s.\(^{11}\) Analogously in the services sector, the US continues to outsource significant share of IT related services to competitive services jurisdictions like India.\(^{12}\)

Pertinently, significant share of electronics manufacturing has shifted to East Asian countries. China in particular has evolved to be a global electronics manufacturing hub offering cost effective production as well as access to well-developed final markets. Similarly, Taiwan, Japan, and South Korea are home to world’s largest industry suppliers, contract manufacturers and original design manufacturers. GVCs are also contingent on “lead firms” that are typically the brand owners for different product categories within the electronics ecosystem. Consequently, countries that have been able to localize or leverage both lead firms/brands as well as accompanying components manufacturing, such as South Korea, extract the most value from mobile manufacturing.

In India, local brands have lost their market share to foreign brands, despite government interventions to support local manufacturing. Local champions Micromax, Intex, Lava and Karbonn (MILK) are struggling to sustain operations whereas competitors such as Oppo, Vivo, Oneplus, Xiaomi, Huawei and Samsung have prospered.\(^{13}\) This could be largely owing to techno-commercial reasons. For instance, Korean and Chinese brands enjoy economies of scale – that allow them to remain competitive despite imposition of custom duties during import into India.

Figure 4 shows the market share of smartphones for the years 2016-17 and Q2 and Q3 of the year 2018. In 2016-17 MILK and other entities accounted for 45 per cent of the market share. Xiaomi, Vivo, Oppo, Lenovo and Huawei – all large Chinese companies - collectively accounted for slightly more than 30 per cent of the total domestic market. Meanwhile, Samsung, a Korean major held almost a quarter of the total domestic market share. By the end of third quarter of 2018, MILK accounted for only 19% of the total market.

---


13 BBK Electronic Corporation, a Chinese manufacturing conglomerate, owns three of the five major Chinese mobile phone brands present in the India i.e. Oppo, Vivo and OnePlus.
Chinese Brands include Xiaomi, Vivo, Oppo, Lenovo and Huawei. Note: Assumed 0% market share for Huawei in Q2 2016, assumed 6% market share for Lenovo in Q2 2018. Source: Counterpoint Research

Weak Financials

Besides the consistent and sharp decline in the market share, the financial indicators of the Micromax, Intex and Lava are also weak – indicating that these local brands are losing prominence and unlikely to enhance participation within GVCs.¹⁴

Figure 5 shows that the Intex had a profitability ratio of 4.91 in 2015 and 0.90 in 2017. Its profitability ratio declined by 81.6% between 2015 and 2017. Lava’s profitability ratio stood at 0.52 in 2015 and 0.27 in 2017 (decline of 48.3%).

Micromax’s operating performance ratio declined from 403.6 in 2015 to 227.9 in 2017 (decline of 43.5%). The operating performance ratio of Lava in 2015 was at 209.6 and at 48.3 in 2017 (decline of 77%). Similarly, the operating performance ratio of Intex declined by 67.7% from 104.0 in 2015 to 33.6 in 2017.

Micromax’s turnover declined from INR 10340.5 crore in 2015 to INR 5503.7 in 2017 (decline of 46.8%). The turnover of Lava in 2015 was at INR 6557.7 crore and at INR 5875.5 crore in 2017 (decline of 10.4%). Similarly, the turnover of Intex declined by 32.6% from INR 6145.1 crore in 2016 to INR 4141.9 crore in 2017.

¹⁴ The report analyses three financial performance indicators namely profitability ratio, operating performance ratio and turnover of Micromax, Intex and Lava to capture business and operating performance on the basis of filings with the Registrar of Companies. Karbonn’s filings were unavailable.
Notably, the NPE 2019 seeks to achieve a balance between import duties and local manufacturing incentives – that may result in enhanced localisation of production in India. If the resultant value chains are leveraged appropriately by local brands, this may lead to enhanced domestic value generation and exports.
Chapter 5: Manufacturing at Scale

Far from Achieving Scale

India aspires to become one of the largest mobile manufacturing destinations. Prime Minister Narendra Modi has expressed global aspirations on behalf of the domestic manufacturing industry on both domestic and international fora. However, domestic production numbers suggest that India is far from achieving operational scale or efficiency in mobile handset and component manufacturing.

Although mobile manufacturing in India has grown from a low base – the per unit scale remains low. There were only two mobile phone manufacturing units in 2014-15, which increased to 120 by 2017-18. However, the two mobile manufacturing units produced 60 million units worth INR 18,900 crore in 2014-15, whereas the 120 units produced 225 million mobile handsets worth INR 1,32,00 crore in 2017-18. Even though there has been a significant increase in the number of factories and the production volume, the average production per manufacturing unit has declined over the years.

Table 3 shows that the average production volume per unit declined from 30 million in 2014-15 to 2 million in 2017-18 (decline of 93%). Also, the average production value per unit dropped from INR 9,450 crores to INR 1100 crores (88% decline).

The sharp decline in per unit production capacity raises concerns with respect to the operational scale and efficiency of new manufacturing units in the country (many of which have been established under the aegis of Make in India and availing the benefits under PMP). Smaller manufacturing units may not be as resource efficient as larger ones – and therefore are not likely to be globally competitive. One of the key reasons of this shift towards small-scale manufacturing units can be attributed to prevalence of the APTP model of operations.

It is also hard to reconcile publicly available employment figures pertaining to the electronics ecosystem in general and mobile manufacturing in particular. For instance, under the Modified Special Incentive Package

---

**Table 3: Average Production per Mobile Manufacturing Unit**

<table>
<thead>
<tr>
<th>Year</th>
<th>Average production volume per unit (million units)</th>
<th>Average production value per unit (INR crore)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014-15</td>
<td>30</td>
<td>9540</td>
</tr>
<tr>
<td>2017-18</td>
<td>2</td>
<td>1100</td>
</tr>
</tbody>
</table>

Calculation: Average production volume per unit = Total number of handsets produced/Total number of units; Average production value per unit = Total value of production/Total number of units.

Source: Calculations based on data available in National Policy on Electronics 2019

---

Scheme (M-SIPS), 134 units commenced operations and generated employment opportunities for 66,555 persons (direct and indirect). M-SIPS was launched in 2012 by MeitY to encourage private players to set up large scale manufacturing units in the country. In contrast, according to NPE 2019, India has 268 mobile phone and component manufacturing units. These units generate employment for 670,000 persons (direct and indirect). That is, employment generated by units engaged in manufacturing mobile phones and related components is 10 times the employment generated by units which have availed benefit under M-SIPS.

Figure 6 shows the number of mobile and component manufacturing units and the employment generated. 268 mobile and component manufacturing units generated 6,70,000 jobs. On the other hand, 134 M-SIPS eligible units generated 66,555 jobs. That is, on average an M-SIPS eligible (large) company generated 497 jobs whereas the average mobile manufacturing unit generated 2500 jobs.

This leads to two conclusions:
1) Even though the number of mobile and components manufacturing units has increased, the productivity per unit has declined. This will have implications on India’s competitiveness on the global arena;

2) Currently, there is no accurate measure of employment within the mobile and component manufacturing sector. Lack of employment will continue to create challenges with regard to measuring productivity.

---

17 Modified Special Incentive Package Scheme. Ministry of Electronics & Information Technology. [Access here](#); According to NPE 2019, 197 applications with proposed investment of approximately INR 41,971 crores were approved. This means that the average investment size of applications approved under M-SIPS was INR 213 crore.
Chapter 6: Summary & Recommendations

Summary

The National Policy on Electronics 2012 lay the ground on which policy measures to bolster the ESDM segment were mounted. The size of the ESDM sector of India was pegged at USD 61.8 billion in 2015. The sector is expected to grow at a CAGR of 15-19 percent to reach USD 123-150 billion by 2020. Mobile devices are the largest segment, which constitute 27 percent of the ESDM sector in India. Mobiles will continue to dominate the sector contributing 30 percent to the total ESDM market.

One of the key policy responses to build India's electronics manufacturing capacity was the announcement of the Phased Manufacturing Programme. The programme imposed duties on mobile components/assemblies in a phased manner. The government believed that the phased duties will reduce dependence on imports on one hand and on the other manufacturing of components/assemblies will gradually shift to India.

While India did succeed in attracting some companies to begin assembling phones here, the larger ecosystem comprising the vendors and suppliers of high value components and assemblies did not shift to India. The net result was that while India managed to reduce the imports of fully built mobile phones, it continues to incur forex outflow on account of imports of mobile phone components and assemblies.

India's mobile manufacturing currently lacks scale, depth and vision. India aspires to become a global manufacturing hub of mobile phones but its current turnover is unimpressive vis a vis its potential.

This means that the manufacturing capacity of India with regard to components/assemblies is insufficient to cater to the domestic demand and therefore India needs to depend on imports from other countries. In order to become a global manufacturing behemoth, India needs to think big and manufacture at a global scale. The global handsets market is worth approximately USD 467 billion. This demand is being met almost entirely by China, Vietnam, South Korea and Taiwan. India does not play any meaningful role, owing to severe limitations on its manufacturing capacity.

India also lacks the supply chain that feeds into manufacturing mobile phones. In order to produce mobile phones and become a manufacturing hub, India needs to make a paradigm shift in its vision. One of the key objectives of PMP was to increase value addition in the domestic market. The only way to capture gains in a value chain is by increasing ownership of the value chain. Currently, India figures at the end of the mobile manufacturing value chain where it assembles knocked down units. This is a low value activity and therefore India does not add much value. In order to increase value addition, India will have to start producing components and assemblies too.

An import substitution strategy suffers from several downsides because such a strategy relies only on protections instead of rewarding production. This increases costs for the manufacturers, thus impacting the competitiveness rather than improving it. In light of the challenges faced by Indian mobile manufacturing, an alternate strategy needs to be mulled over where production is incentivised and instead of import substitution, the focus shifts to export-oriented strategy.
This has been partially addressed in the National Policy on Electronics 2019 where the policy focus has shifted from domestic markets to exports and policy measures focus on incentives instead of tariffs.

**Recommendations**

1. **Assess Impact of the PMP**
The PMP has helped India build capacity in assembling phones. However, its success beyond augmenting India’s capacity in assembling phones is in doubt. It is therefore important for government to gather evidence and document the impact of PMP on number of factories, employment, imports, exports and value addition. Such evidence is important for measuring outcomes too. For instance, currently there is no definitive source of information with regard to the factory count, employment and volume and value of trade. It is important to establish robust processes for data and evidence collection to measure and improve future outcomes. This report is a modest attempt to evaluate the outcomes of PMP and demonstrates that tariff-based measures have not delivered. The preliminary findings indicate that the government should reconsider the implementation of the duty regime under PMP – to ensure that localisation is incentivised. This includes future duties on high value components like PCBA, camera modules, display and touch panels.

2. **Manufacture at Scale**
India needs to focus on becoming an attractive destination for manufacturing electronics. India will represent a USD 80 billion market for smartphones by 2025. However, this is a fraction of the global market size which is estimated to grow to around USD 648 billion by 2025. If local manufacturers produce only to service domestic demand, India would manufacture around 450 million handsets by 2025. Conversely, India must take a global view on mobile manufacturing. This would also mean that there would be a greater imperative for components manufacturers to add value locally in order to service a larger demand.

3. **Manufacture High-End Phones**
India needs to rapidly capture the markets for the high-end smartphones. Currently, the country serves as a base for manufacturing mostly low-end mobile phones. The same low-end phones are also exported to regions such as the Middle-East and South Asia. India must attract manufacturers that are willing to invest in higher-end production, with higher Average Selling Price (ASP). Such production can ensure that India is able to effectively diversify to international markets and sell to middle-income and advanced markets. Moreover, selling higher-end phones will help India achieve its 2025 export target of USD 110 billion in mobile exports.

4. **Take an Ecosystem Approach**
India needs to attract large brands to invest locally in order to improve forward and backward integration with mobile phone GVCs. Component suppliers tend to follow lead companies – that are typically brand owners. This means that attracting large brands like Samsung, Apple, Oppo, Vivo, Xiaomi and Huawei etc. will crowd in companies from the larger mobile manufacturing supply chain. It is essential that India improves ease of doing business, and rationalizes FDI rules wherever required, in consonance with an ecosystem approach in order to attract large brands to invest locally. Unless India provides a conducive business environment companies will not move to India.

Improving ease of doing business is crucial to attract investment and develop a sustainable manufacturing ecosystem in the country. Some of the areas where India exhibits sub-optimal regulatory performance and requires immediate attention are: high requirements for commencing business (including minimum capital requirements), procedural delays in property
registration, cumbersome tax payments systems, poor contract enforcement mechanisms and weak insolvency resolution framework.

5. Incentivize Exports (Make in India for the World)
India suffers from several cost disadvantages compared to other countries like China, Vietnam, South Korea and Taiwan. Such disadvantages emanate from challenges like logistics, high cost of debt, lack of utilities like high quality power and water. Countries like China and Vietnam provide incentives to the industry to make domestic manufacturing competitive.\(^{19}\) Government of India must therefore provide both production-based incentives as well as export-oriented incentives to encourage Indian domestic manufacturing. It should reinstate the benefit of M-SIPS which served as an added attraction for large companies to invest in India. The M-SIPS scheme came to an end on December 31, 2018. The government has not issued any communication with regard to the extension of the scheme. Meanwhile, India’s Merchandise Export Incentive Scheme (MEIS) has also come under World Trade Organisation’s (WTO) scanner for being inconsistent with WTO rules. India must formulate a new WTO compliant export incentive scheme(s) to replace the MEIS.

In order to promote exports of mobile handsets it is important to incentivise local production and exports of mobile related components. In this regard, MEIS incentives for low-value components like battery, chargers should at the very least be raised to 4% from the existing 2% i.e. harmonising with the MEIS incentives offered on mobile handsets exports.

\(^{19}\) China provides incentives including direct subsidies and VAT refunds. Vietnam also provides for land rent reductions, import duty exemptions, corporate income tax breaks for the high-tech sector to promote manufacturing.
### Annexure: Classification of Trade Data

<table>
<thead>
<tr>
<th>HS Code</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8517 12</td>
<td>Cellular Mobile phones</td>
</tr>
<tr>
<td></td>
<td><strong>Mobile-specific components (8517 70)</strong></td>
</tr>
<tr>
<td>8517 70 10</td>
<td>Printed Circuit Board Assembly (PCBA)</td>
</tr>
<tr>
<td>8517 70 90</td>
<td>Camera Module</td>
</tr>
<tr>
<td>8517 70 90</td>
<td>Connectors</td>
</tr>
<tr>
<td>8517 70 90</td>
<td>Display Assembly</td>
</tr>
<tr>
<td>8517 70 90</td>
<td>Touch Panel/Cover Glass Assembly</td>
</tr>
<tr>
<td></td>
<td><strong>Total Mobile-related components</strong></td>
</tr>
<tr>
<td>8504 40 30</td>
<td>Charger/Adapter</td>
</tr>
<tr>
<td>8507 60 00</td>
<td>Battery Pack</td>
</tr>
<tr>
<td>8518 30 00</td>
<td>Wired Headset</td>
</tr>
<tr>
<td>3920 99 99</td>
<td>Battery Cover</td>
</tr>
<tr>
<td>3920 99 99</td>
<td>Front Cover</td>
</tr>
<tr>
<td>3920 99 99</td>
<td>Front Cover (with Zinc casting)</td>
</tr>
<tr>
<td>3920 99 99</td>
<td>Middle Cover</td>
</tr>
<tr>
<td>3920 99 99</td>
<td>GSM Antena/ Antena of any technology</td>
</tr>
<tr>
<td>8538 90 00</td>
<td>Side Key</td>
</tr>
<tr>
<td>3920 99 99</td>
<td>Main Lens</td>
</tr>
<tr>
<td>3920 99 99</td>
<td>Camera Lens</td>
</tr>
<tr>
<td>7318 15 00</td>
<td>Screw</td>
</tr>
<tr>
<td>4016 99 90</td>
<td>Mic Rubber Case</td>
</tr>
<tr>
<td>4016 99 90</td>
<td>Sensor Rubber Case/ Sealing Gasket including sealing gaskets/cases from Rubbers like SBR, EPDM, CR, CS, Sillicone and all other individual rubbers or combination/ combinations of rubbers</td>
</tr>
<tr>
<td>3926 90 91</td>
<td>PU Case/ Sealing Gasket- Other articles if Polyurethane foam like sealing gaskets/ cases</td>
</tr>
<tr>
<td>3926 90 99</td>
<td>Sealing Gaskets/ Cases from PE, PP, EPS, PC and all other individual polymers or combination/ combinations of polymers</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>7326 90 99</td>
<td>SIM Socket/ Other Mechanical items (Metal)</td>
</tr>
<tr>
<td>3926 90 99</td>
<td>SIM Socket/ Other Mechanical items (Plastic)</td>
</tr>
<tr>
<td>3920 99 99</td>
<td>Back Cover</td>
</tr>
<tr>
<td>3926 99 99</td>
<td>Conductive Cloth</td>
</tr>
<tr>
<td>3919 90 90</td>
<td>Heat Dissipation Battery Cover</td>
</tr>
<tr>
<td>3919 90 90</td>
<td>Sticker-Battery Slot</td>
</tr>
<tr>
<td>3919 90 90</td>
<td>Protective Film for Main Lens</td>
</tr>
<tr>
<td>3919 90 90</td>
<td>Mylar for LCD FPC</td>
</tr>
<tr>
<td>3919 90 90</td>
<td>LCD Conductive Foam</td>
</tr>
<tr>
<td>3926 90 99</td>
<td>Film- Front Flash</td>
</tr>
<tr>
<td>3919 90 90</td>
<td>LCD Foam</td>
</tr>
<tr>
<td>3926 90 99</td>
<td>BT Foam</td>
</tr>
<tr>
<td>8518 10 00</td>
<td>Micorphone and Receiver</td>
</tr>
<tr>
<td>8518 29 00</td>
<td></td>
</tr>
<tr>
<td>8518 40 00</td>
<td>USB Cable</td>
</tr>
<tr>
<td>8544 19</td>
<td>Printer Circuit Board Assembly (PCBA)</td>
</tr>
<tr>
<td>8544 42</td>
<td></td>
</tr>
<tr>
<td>8517 70 10</td>
<td>Camera Module</td>
</tr>
<tr>
<td>8517 70 90</td>
<td></td>
</tr>
<tr>
<td>8525 80 20</td>
<td>Connectors</td>
</tr>
<tr>
<td>8525 80 90</td>
<td></td>
</tr>
<tr>
<td>8529 90 90</td>
<td>Display Assembly</td>
</tr>
<tr>
<td>8517 70 90</td>
<td>Touch Panel/Cover Glass Assembly</td>
</tr>
<tr>
<td>8501 10 11</td>
<td>Vibrator Motor/Ringer</td>
</tr>
</tbody>
</table>
About IAMAI

The Internet and Mobile Association of India [IAMAI] is a young and vibrant association with ambitions of representing the entire gamut of digital businesses in India. It was established in 2004 by the leading online publishers, but in the last 15 years has come to effectively address the challenges facing the digital and online industry including online publishing, mobile advertising, online advertising, ecommerce, mobile content and services, mobile & digital payments, and emerging sectors such as fintech, edtech and healthtech, among others.

Fifteen years after its establishment, the association is still the only professional industry body representing the digital and mobile content industry in India. The association is registered under the Societies Act and is a recognised charity in Maharashtra. With a membership of over 300 Indian and MNC companies, and with offices in Delhi, Mumbai, Bengaluru and Kolkata, the association is well placed to work towards charting a growth path for the digital industry in India.