MAIT

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MAIT
4th Floor, PHD House,
4/2, Siri Institutional Area
August Kranti Marg,
New Delhi 110 016, India
Website: https://www.mait.com/

Research Partner
Feedback Advisory Services Pvt. Ltd.
211, DLF Tower B, Jasola Business District
New Delhi – 110025
Tel: +91-11-4653 4653
Website: www.advisoryfeedback.com

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Production Linked Incentive Scheme in India

Introduction

In alignment with India's ambition of becoming 'Atmanirbhar,' the government announced Production Linked Incentive (PLI) Schemes for fourteen strategic sectors, with a financial outlay of Rs. 1.97 lakh crore [1] . The objective of these schemes is to bolster India's manufacturing capabilities and enhance exports. The fourteen sectors encompass

- Mobile Manufacturing and Specified Electronic Components,
- Critical Key Starting Materials/Drug Intermediaries & Active Pharmaceutical Ingredients (Bulk Drugs),
- Medical Device Manufacturing,
- Automobiles and Auto Components,
- Pharmaceutical Drugs,
- Specialty Steel,
- Telecom and Networking Products,
- Electronic and Technology Products (IT Hardware),
- White Goods (Air Conditioners and LED lighting),
- Food Products,
- Textile Products, including the Man-Made Fibre (MMF) segment and technical textiles,
- High-efficiency Solar Photovoltaic (PV) Modules,
- Advanced Chemistry Cell (ACC) Batteries, and
- Drones and Drone Components.

The aim of the PLI Schemes is to attract investments in key sectors and advanced technology; improve efficiency, achieve economies of scale in manufacturing, and enhance the global competitiveness of Indian companies and manufacturers. These schemes could substantially increase production, create jobs, and drive economic growth over the next five years. Approved products under PLI Schemes have been strategically selected to align with national goals, boost production capacity, improve global competitiveness, and encourage exports in key sectors like electronics, renewable energy, pharmaceuticals, and textiles. This selection aligns with the objectives of Make in India and Atmanirbhar Bharat.

All sectors approved under the Production Linked Incentive (PLI) Schemes adhere to the primary criteria of prioritizing key technologies wherein India can achieve rapid advancement, thereby augmenting employment, exports, and overall economic growth. These sectors received approval following comprehensive reviews by NITI Aayog and detailed consultations with pertinent Ministries and Departments. To date, the Union Cabinet has not authorized any proposals to incorporate additional sectors under the PLI Schemes. Presently, a total of 806 applications have been sanctioned across 14 sectors.

[1] Ministry of Commerce & Industry; Lok Sabha Unstarred Question No. 458, 22nd July, 2025

Some key highlights of the Policy are shown below

Key outcomes of all 14 PLI Scheme*

Sectors

14

Applications

806

Outlay

INR
1.97L Crore

Investments

INR
1.76 L Crore

Incremental Production

INR
1.65 L Crore

Exports

INR
6 L Crore

Employment generated

1.2
million

Incentive disbursed

INR
21,689 Crore

Source: Lok Sabha Unstarred Question No. 2689. Answered On Tuesday, The 05th August, 2025

02

PLI Scheme for Large Scale Electronics Manufacturing

Introduction

The Government of India prioritizes electronics hardware manufacturing as a crucial component of the "Make in India" and "Digital India" initiatives. The electronics industry is recognized as having a cross-cutting economic and strategic significance across all sectors. Acknowledging the sector's unique aspects, opportunities, and challenges, the government introduced the National Policy on Electronics (NPE) 2019 on February 25, 2019.

Objectives of NPE 2019

- Position India as a global hub for Electronics System Design and Manufacturing (ESDM).
- Encourage domestic capabilities in developing core components, including chipsets.
- Create a competitive environment for the industry to thrive globally.
- Promote domestic manufacturing throughout the ESDM value chain, including essential components and materials.
- Increase domestic value addition.
- Reduce dependence on electronic goods imports by focusing on technology, skill, scale, and the global market.

Need for the PLI Scheme

The Merchandise Exports from India Scheme (MEIS) was previously a significant incentive initiative designed to promote the export of commodities from India, including electronics. It supplied exporters with duty credit scrips, which could be utilized to settle customs duties, excise duties, and service tax on imports. The scheme effectively contributed to the growth of India's electronics exports by mitigating elevated local manufacturing costs, thereby enhancing the competitiveness of Indian products in the international market.

However, the MEIS was discontinued effective January 1, 2021, due to non-compliance with World Trade Organization (WTO) regulations, which prohibit export subsidies that distort international trade. Consequently, the Indian government was compelled to implement an alternative incentive mechanism that adheres to WTO guidelines while continuing to support domestic industries manufacturing.

This resulted in the creation of the Production Linked Incentive (PLI) Scheme, which provides financial incentives to manufacturers based on the incremental sales from products made domestically. Its main goal is to lower India's manufacturing costs and boost its global competitiveness, ultimately supporting exports. This strategy complies with WTO regulations since it encourages production instead of directly subsidizing exports.

Under the PLI Scheme, the government focuses on targeted sectors like electronics to encourage large-scale manufacturing. This initiative aims to address challenges posed by higher costs relative to other major manufacturing nations, while also attracting significant investments, increasing production, and generating employment domestically. It marks a strategic move to bolster India's manufacturing sector, thereby strengthening the economy and positioning India as a key player in global manufacturing hub.

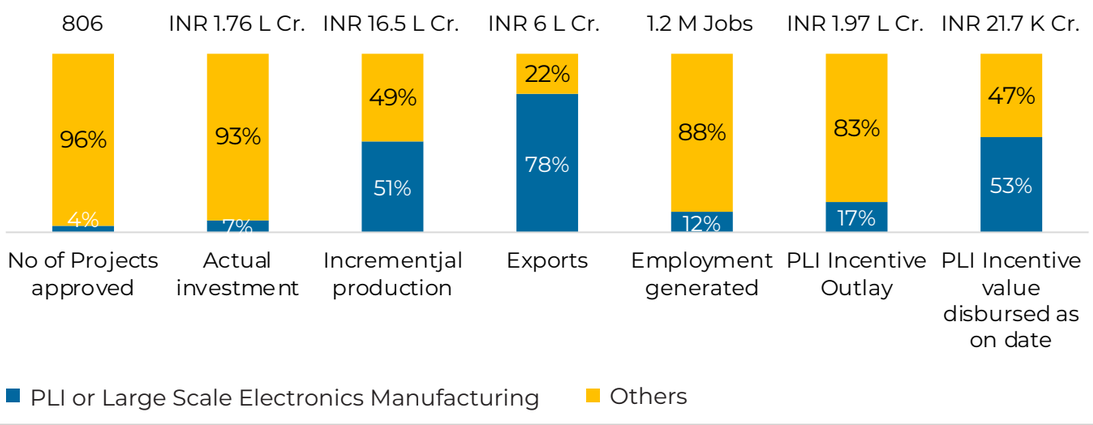
The COVID-19 pandemic highlighted the supply chain risks of a single source country for electronic hardware and component imports. Sudden or unforeseen events can cause significant shortages and disrupt manufacturing. The PLI scheme aimed to diversify the sources of electronics hardware to India. It emphasizes the importance of promoting indigenous production and reducing dependency on a single market or geographical region.

The PLI Scheme is designed to efficiently link India's manufacturing sector with international supply chains. It offers a 4% to 6% incentive on incremental sales over five years. This initiative aims to boost jobs and elevate exports. The scheme supports the vision of NPE 2019, which positions India as a worldwide center for Electronics System Design and Manufacturing (ESDM). It encourages the growth of key components such as chipsets and seeks to foster a competitive environment for the industry on a global scale.

Importance of PLI for Large Scale Electronics Manufacturing & Specified Electronic Components in the overall PLI offered by the Government of India

The significance of PLI for Large Scale Electronics Manufacturing is evident, as it was the first PLI scheme launched in the country. Its success persuaded the Government of India to adopt this scheme for other sectors. Compared to most key indicators, PLI for Large Scale Electronics Manufacturing is a 'SUCCESS' when measured against all other 13 PLI's combined. Notably, this scheme accounts for nearly 78% of all PLI exports, about 51% of the total 'Incremental Production,' and it accounts for nearly 53% of the overall disbursals even though it accounted for just 17% of the total PLI Budget. These points and more are illustrated in the figure 1

Figure 1: PLI outcomes as of July' 2025



Source: PIB Announcements, Lok Sabha Starred & Unstarred Questions in the 18th Lok Sabha Session IV & V, 2025; Feedback Advisory analysis

Objectives of PLI for Large Scale Electronics Manufacturing[2]

The base year for the PLI for Large Scale Electronics Manufacturing was considered as 2019-20. The companies approved under the scheme are expected to generate the following

Production

Over INR 10.5 lakh crore (~USD 141 billion) in the next 5 years

Export

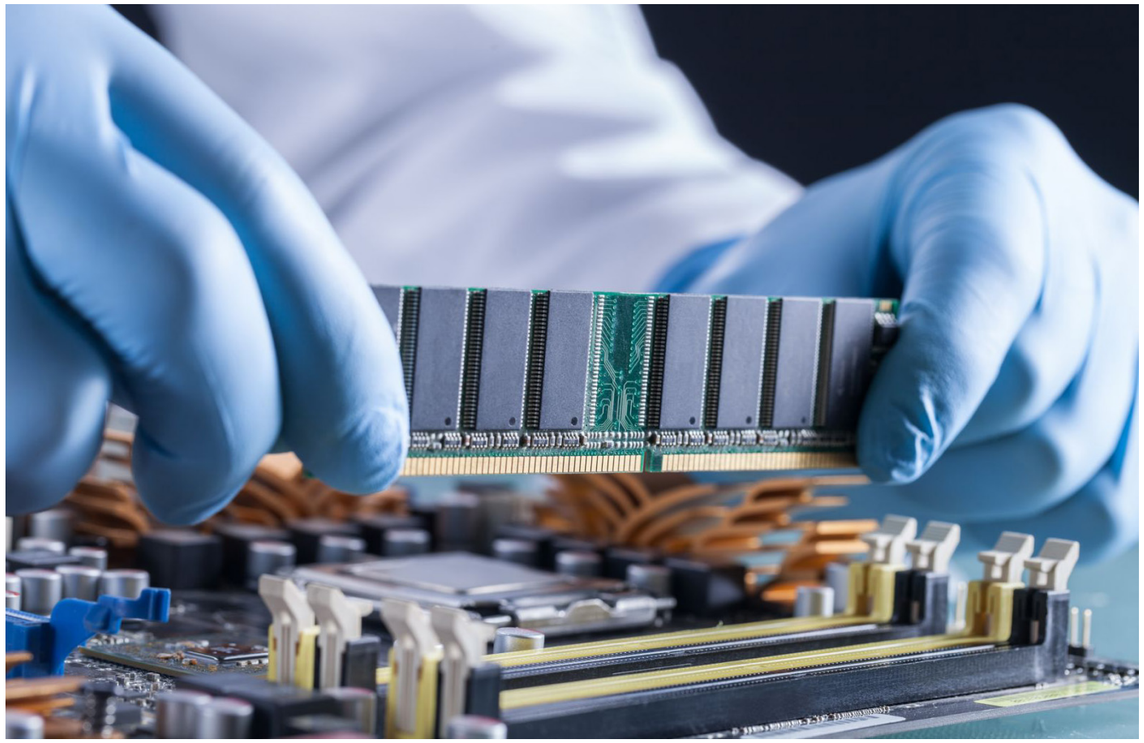
Out of total production, around 60% (INR 6.5 lakh crore / USD 84 billion) will be contributed by exports in the next 5 years

Investment

Around INR 11,000 crore (USD 1.43 billion)

Employment

Over 2 lakh (0.2 million) direct employment is likely to be generated in the next 5 years along with an additional indirect employment of nearly 3 times



[2] https://www.meity.gov.in/static/uploads/2024/02/PLI-booklet__english.pdf

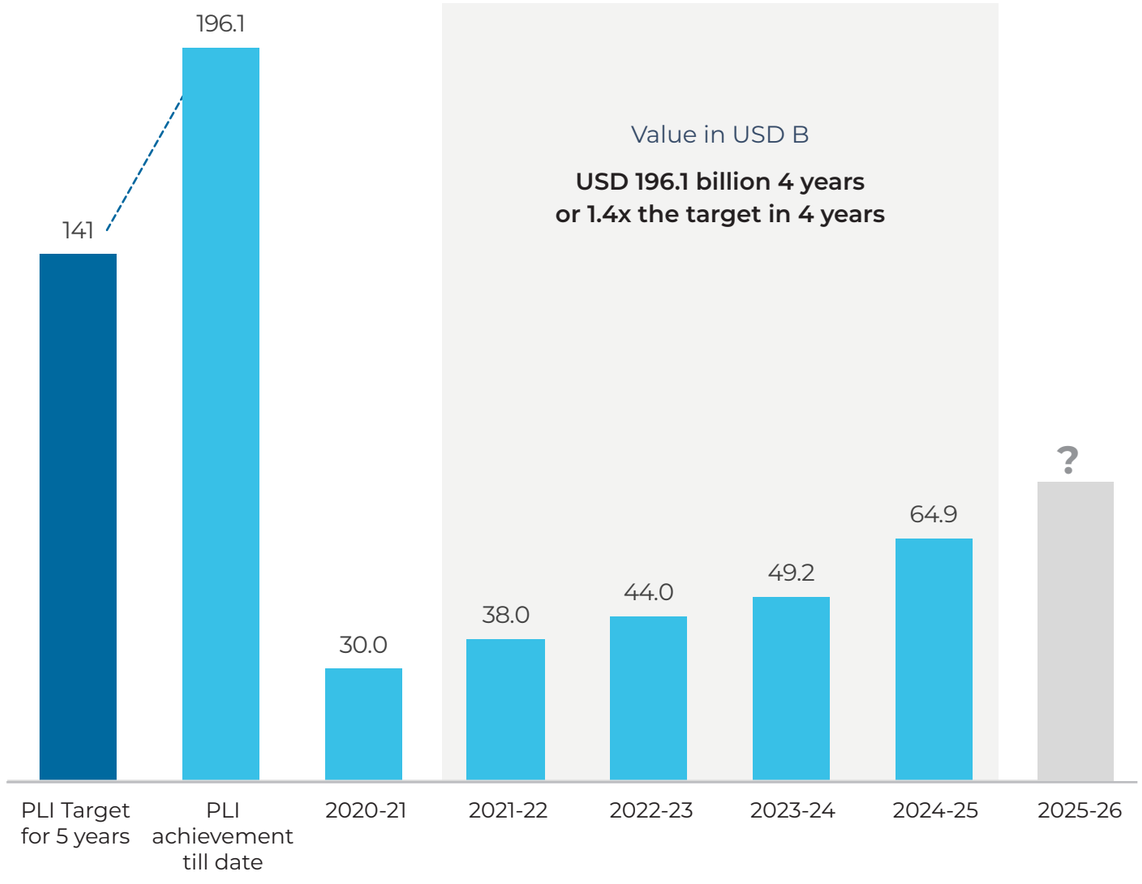
03

Impact of PLI for Large Scale Electronics Manufacturing's achievement against the stated objectives & beyond

1. Production Targets

India's mobile manufacturing sector has reached approximately USD 65 billion in 2024-25 alone. Against a cumulative target of USD 141 billion over five years, over the first four years of the PLI scheme, it has cumulatively achieved USD 196.1 billion, as shown below in Figure 2

Figure 2: Mobile Phone Manufacturing Target & Achievement



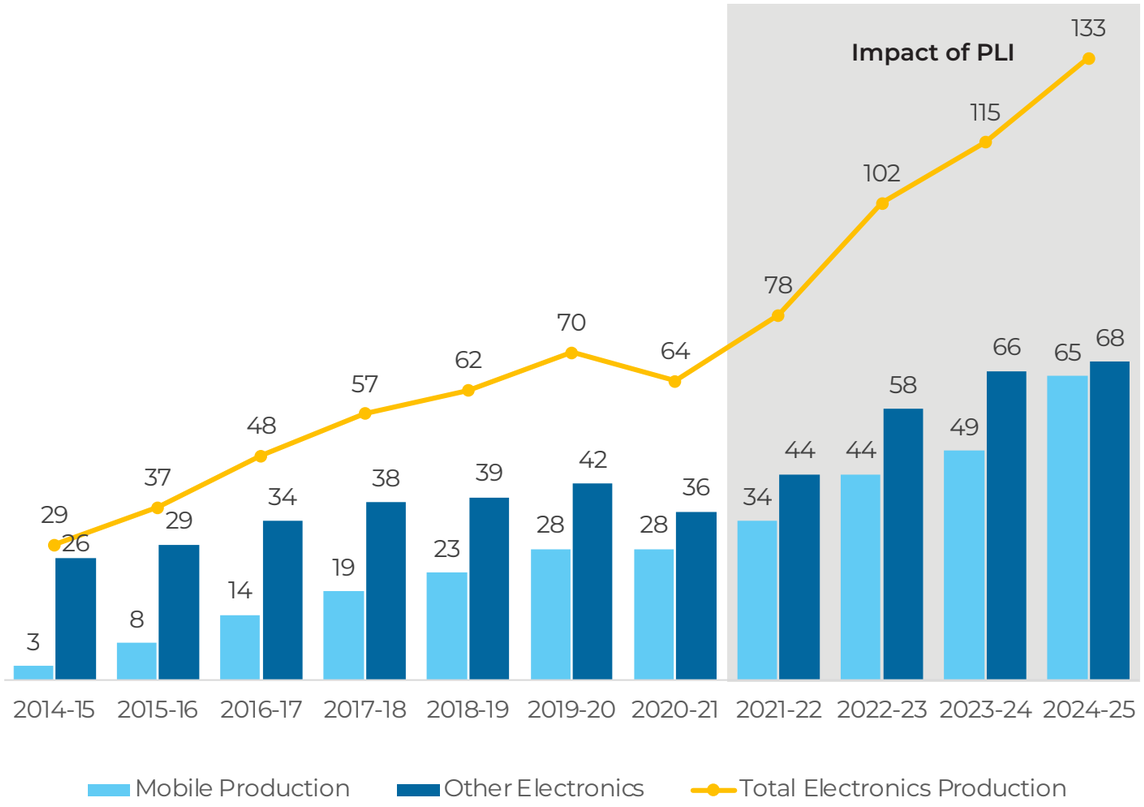
Value in USD B

USD 196.1 billion 4 years or 1.4x the target in 4 years

Source: MeitY Annual reports and Lok Sabha Unstarred Question No. 2950 Answered On: 06.08.2025; Feedback Advisory analysis

It is also important to highlight that Mobile Production was only 10% of the total Electronics production in 2014-15 and now represents nearly 45% in US Dollar terms and approximately 49% in INR terms of India's total electronics output, as shown in Figure 3. The high growth in the last 4-5 years is large due to the PLI impact on Mobile manufacturing.

Figure 3: Electronics Production in India and Share of Mobile Production in USD B

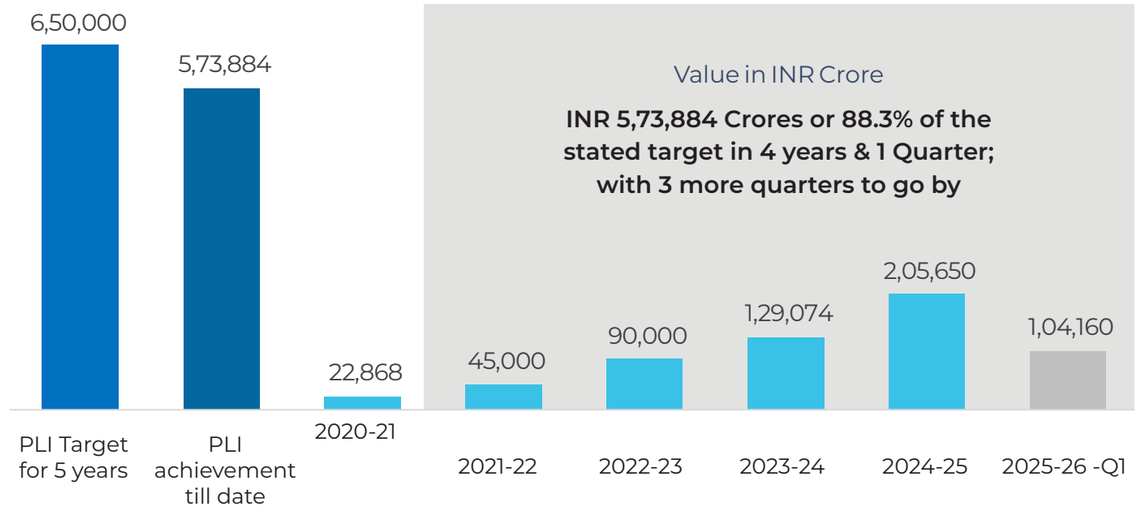


Source: MeitY Annual reports for 2014-15 to 2023-24; 2024-25 data from PIB Factsheet - Manufacturing an Atmanirbhar Bharat Posted On: 15 AUG 2025 15:16 PM and Feedback Advisory analysis

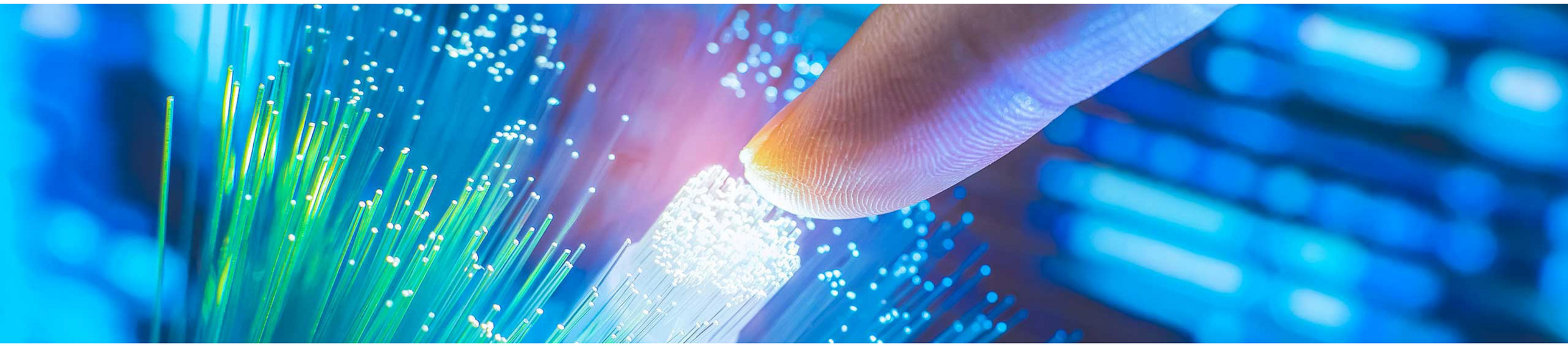
2. Exports Targets

India's mobile exports have reached approximately INR 2,05,650 crores in 2024-25 alone against a cumulative target of INR 6,50,000 crores over five years from 2021-22 to 2025-26. Over the first four years and 1 quarter of FY 2026 of the PLI scheme, it has cumulatively achieved INR 5,73,884 crores or 88% of the targeted exports, as shown below in Figure 4

Figure 4: Mobile Phone Exports



Source: https://www.pib.gov.in/PressReleasePage.aspx?PRID=1920586; LOK SABHA UNSTARRED QUESTION NO. 2950 ANSWERED ON: 06.08.2025; MeitY Annual reports; Feedback Advisory analysis



3. Investment Target

The PLI firms in Mobile Manufacturing have invested more than **INR 12,390 crores**[3] so far against the planned **INR 11,000 crores** over five years, representing 113% of the target with three quarters remaining in FY 2026 investments. Apart from the INR 12,390 crores investments directly made by the PLI firms, there have been larger investments by ecosystem players in India, and these investments are still continuing – a high-level estimate could be over **USD 10.5 billion**[4] of investments.

Table 1: Investments: ~$10.4B

Company name	Total investment in FY21-25 (USD Mn)	Location of investments
Foxconn	~6560	Karnataka, Tamil Nadu, Telangana
Tata Electronics	~860	Tamil Nadu
TDK (ATL)	~760	Haryana
Samsung	~390	Uttar Pradesh
Pegatron	~270	Tamil Nadu
Salcomp	~240	Tamil Nadu
Jabil	~275	Tamil Nadu
Dixon	~200	Uttar Pradesh
Vivo	~195	Uttar Pradesh
Optiemus	~190	Uttar Pradesh
Wistron	~160	Karnataka
Lava	~100	Uttar Pradesh
MothersonElectronics	~90	South India
Bhagwati	~60	UP, Uttarakhand, Telangana, RJ
Oppo	~50	Pan-India
Total	**~10,400**	

Source: Research (Links Economic Times, 20 May 2025; Economic Times, 24 June 2025; NY Times, 30 June 2025; Press Trust of India, 17 August 2025; Deccan Herald, 2020; Economic Times, 2020;Money Control, August 2025; Business Standard, Oct 2023; Live mint, April 2023; Financial express, May 2020; Financial express, May 2025; Oppo, 2022; Angelone, June 2024; Manufacturing Today India, Oct 2024; Reuters, September 2024; Economic times, 2019; Business standard, Jan 2024; Financialexpress, Oct 2022; Timesofindia, December 2020; Ndtv, December 2023; Economictimes, Oct 2020; Reuters, July 2020; Timesofindia, May 2025; Moneycontrol, May 2023; Reuters, Aug 2023; Reuters, December 2023; Business-standard, March 2023; Indianexpress, July 2023)

[3]Lok Sabha Unstarred Question No. 559 Answered On: 23.07.2025; Unstarred Question 458 For Answer On 22.07.2025; Unstarred Question No. 2855 For Answer On 18th March, 2025

[4]Multiple business news articles and news reports

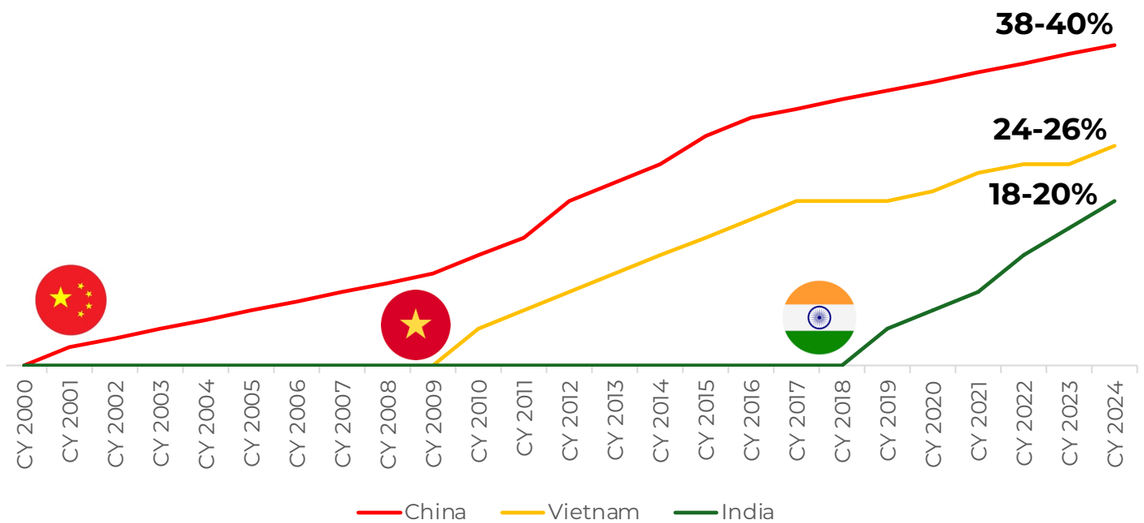
4. Employment Generation

This sector has created a total of ~13L direct and indirect jobs with the strong female workforce participation. It is noteworthy to note that nearly **70-75%**[6] **of these employments involve women** and thereby greatly increases the gender disparity in manufacturing in India.

5. Domestic Value Addition

India notably achieved an 18-20% growth within only five years of dedicated mobile manufacturing, in contrast to other manufacturing nations such as China and Vietnam, which required a significantly longer period to reach their current levels of DVA, as illustrated in the figure below

Figure 5: Domestic value addition by countries and the time period



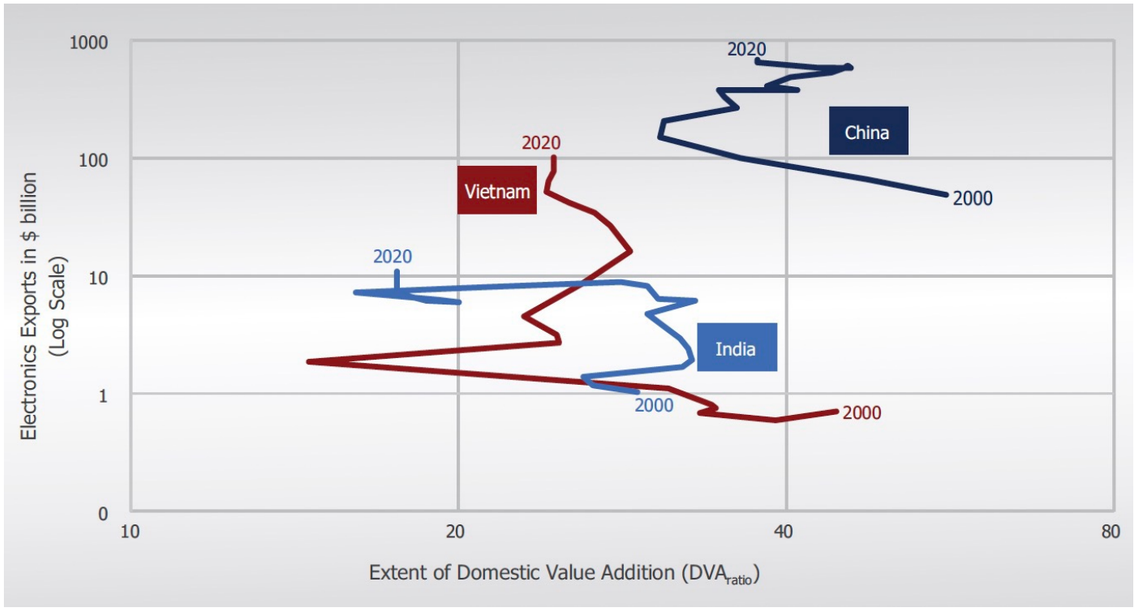
Source: Industry estimates; China and Vietnam refers to the Electronics Manufacturing DVA

It is essential to recognize that DVA in a rapidly evolving digital product, such as a Mobile Phone, improves over time, and its improvement is linked to the 'Scale of manufacturing' and the subsequent ecosystem development, ultimately leading to further enhancements in DVA over time. This can be seen from the Figure 6 below which shows the comparison of how the **Successful countries have first achieved SCALE before increasing DVA ratio**

[5] Lok Sabha Unstarred Question No. 559 Answered On: 23.07.2025; Unstarred Question 458 For Answer On 22.07.2025; Unstarred Question No. 2855 Answer On 18th March, 2025

[6] Industry Stakeholders input

Figure 6: China, India, and Vietnam have pursued different approaches to boost their exports of electronic products, 2000-20



Source: ICRIER report on Globalise to Localise

China, India, and Vietnam appear to have pursued very different paths in supporting the growth of their electronics sector. In the Figure 6 above, in 2000, Vietnam was in the low SCALE and DVAratio quadrant. Between 2000 and 2007, its DVAratio fell while SCALE increased, implying a negative relationship between the two. However, after 2007, and more recently after 2016, SCALE and DVAratio appear to be moving in the same direction. In the case of China, SCALE and DVAratio moved in opposite directions between 2000 and 2005, and only after 2015 one sees both variables moving in the same direction. **DVAratio for the electronics sector falls as countries get aggressively into GVCs and gains as SCALE improves**. China's DVAratio fell from **77% in 1997** to **31% in 2004** and rose back to **46% in 2016**.Vietnam's electronics DVAratio fell from **57% in 1995** to **13% in 2007** and rose to **24% by 2018.**

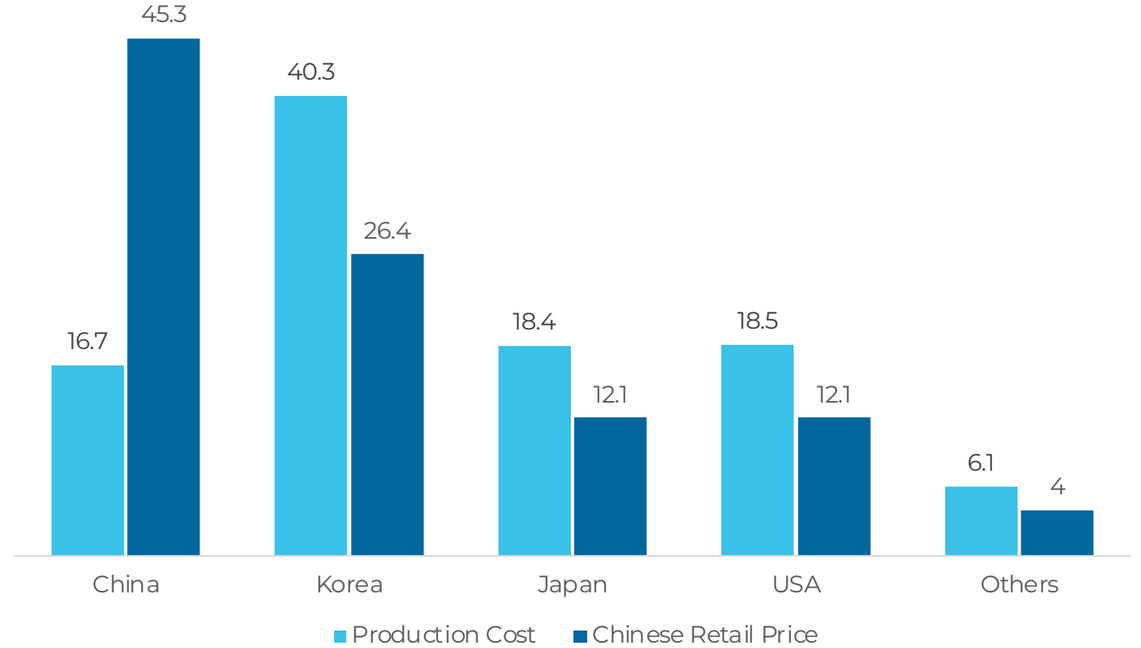
India has pursued a completely different approach than China and Vietnam in pursuing DVA in Electronics. India's path seems the opposite of China's and Vietnam's. At the beginning of the period, when SCALE was low, India chose to increase its DVAratio, denying producers the incentive to build SCALE. So, after 2009, when DVAratio fell, there was hardly any response from the sector, and SCALE declined further (especially after Nokia's exit in 2014). With the implementation of the Electronics Components Manufacturing Scheme (ECMS), most MAIT members are of the opinion that the DVAratio in Mobile manufacturing will gradually improve over a period of time with growth in Exports and improved scale of manufacturing in India.

Among the top five global mobile brands, three—Huawei, Xiaomi, and OPPO—are Chinese. Nonetheless, at the time of their inception, these Chinese smartphones relied on foreign technologies, operating on Google's Android OS and utilizing Qualcomm chipsets. Despite this technological dependence, the industry continues to expand, propelled by strategies such as sourcing key technology platforms, emphasizing product differentiation, and pursuing ongoing innovation. The examples of two prominent Chinese brands and their reliance on foreign technology are illustrated in Figure 7 and Figure 8 below.

Table 2: Foreign Technology and Suppliers of Oppo R11s

Operating System	Android (US)	**Foreign Value Added**
CPU: Snapdragon 660	Qualcomm (US)	83.3% of the total manufacturing cost of $293.18
Memory: eMCP	Samsung (Korea)	
Display: 6.01-inch, 1080×2160 pixels	Samsung (Korea)	
Dual Camera	Sony (Japan)	
Front Camera	Samsung (Korea)	

Figure 7: Distribution of the Oppo R11s Value added by Country

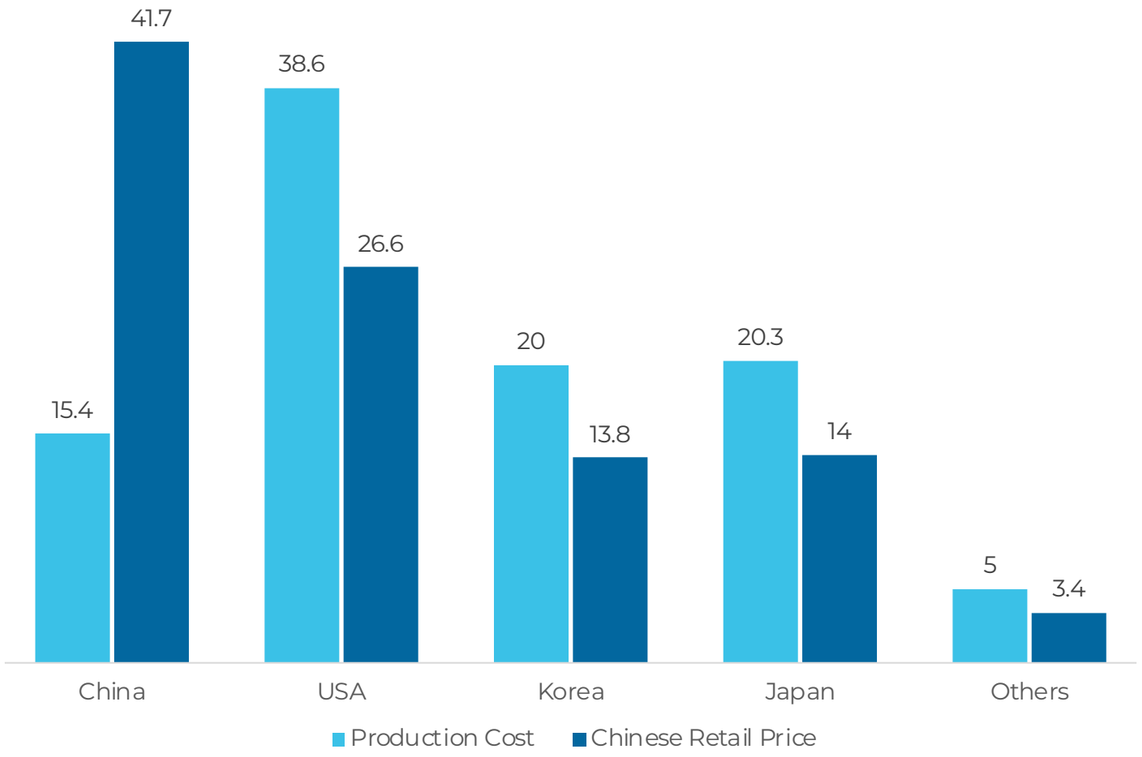


Source: Xing Yuqing; EAI Working Paper No. 168; Global Value Chains and the Innovations of the Chinese Mobile Phone Industry

Table 3: Foreign Technology and Suppliers of Xiaomi MIX-2

Operating System	Android (US)	**Foreign Value Added**
CPU: Snapdragon 835	Qualcomm (US)	84.6% of the total manufacturing cost $335.98
NAND (6GB)	Hynix (Korea)	
DRAM (64GB)	Samsung (Korea)	
Display (5.99 inch, 1080×2160)	JDI (Japan)	
Camera	Sony (Japan)	

Figure 8: Distribution of the Xiaomi MIX-2 Value added by Country



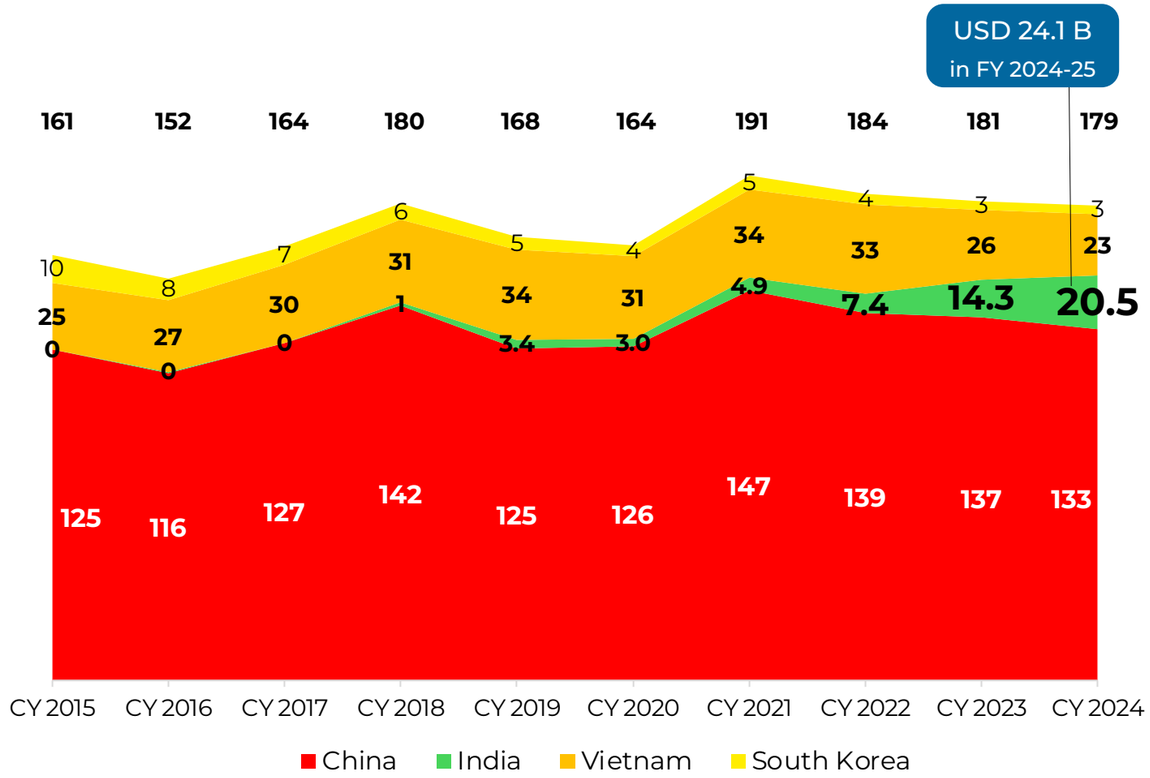
Source: Xing Yuqing; EAI Working Paper No. 168; Global Value Chains and the Innovations of the Chinese Mobile Phone Industry

Aside from the objectives outlined by the Government of India at the inception of the PLI scheme, there exist numerous additional aspects requiring examination to comprehensively evaluate the influence of PLI on mobile manufacturing in India.

6. Impact of PLI for Large Scale Electronics Manufacturing on India's position in International trade

India was a non-existent player in the international mobile trade for a very long time. Following 2017, shifts in geopolitical trade dynamics commenced, prompting India to proactively engage and invite GVC anchors to establish mobile manufacturing operations within the country. The Production Linked Incentive (PLI) scheme represented a significant step towards overcoming India's limitations and attracting these global value chains. Remarkably, **within a brief span of four years, India has ascended to the list of the top three countries** (China, Vietnam & India – Hongkong is not considered separately) for mobile phone exports. This progress is illustrated in Figure 9 below:

Figure 9: World Mobile Manufacturing Exports including Re-exports in USD B, as per Trademap



Source: Trademap analysis of 6 digit HS code 851713 and Feedback Advisory analysis

A report by the Center for Development Studies, authored by Chidambaram Iyer, titled 'Mobile manufacturing path for India: Lessons from other Asian countries,' offers several policy insights for India, drawing from the experiences of four Asian nations—South Korea, Taiwan, China, and Vietnam—that have followed this developmental trajectory. The report discusses various aspects but highlights an interesting analysis of the Imports Dependence Path in Mobile and

Mobile Parts across three competing countries. This dependence is shown in the table below, comparing the export-to-import ratios for mobile phones and components in China, India, and Vietnam. Moreover, the table illustrates how the positive influence of PLI has positively impacted India's mobile manufacturing sector, with India surpassing Vietnam in mobile phone manufacturing—in recent two years. However, India still trails behind China and Vietnam in mobile parts manufacturing, where imports dependence remains high. It is hoped that the ECMS will also benefit this sector in the coming years.

Table 4: Mobile Phone and Parts of Mobile Phones - Ratio of Exports to Imports in a Country

Year	Mobile Phones			Parts of Mobile Phones		
	China	India	Vietnam	China	India	Vietnam
2009	22.3	1.1	0.3	1.6	0.10	0.50
2010	41.2	0.3	1.7	1.8	0.10	0.30
2011	49.2	0.6	6.3	1.6	0.30	0.20
2012	49.7	0.6	13.6	1.2	0.20	0.50
2013	57.7	0.4	19.6	1.2	0.30	0.20
2014	64.6	0.1	16.5	1.2	0.20	0.30
2015	41.5	0.0	18.0	1.2	0.10	0.50
2016	46.0	0.1	17.1	1.3	0.10	0.80
2017	169.5	0.0	16.0	1.2	0.02	1.00
2018	486.8	0.5	18.6	1.2	0.02	1.20
2019	286.0	3.9	19.4	1.3	0.02	1.30
2020	140.4	1.4	20.7	1.3	0.10	1.30
2021	111.8	3.2	13.0	1.2	0.10	1.20
2022	86.0	6.9	11.6	1.6	0.04	1.30
2023	109.8	13.7	11.2	2.0	0.04	1.30
2024	119.0	40.1	11.0	2.2	0.04	0.81

Positive Impact of the PLI on Smartphone Manufacturing & Exports - India's Mobile Exports to Imports ratio overtaking that of Vietnam in the last two years

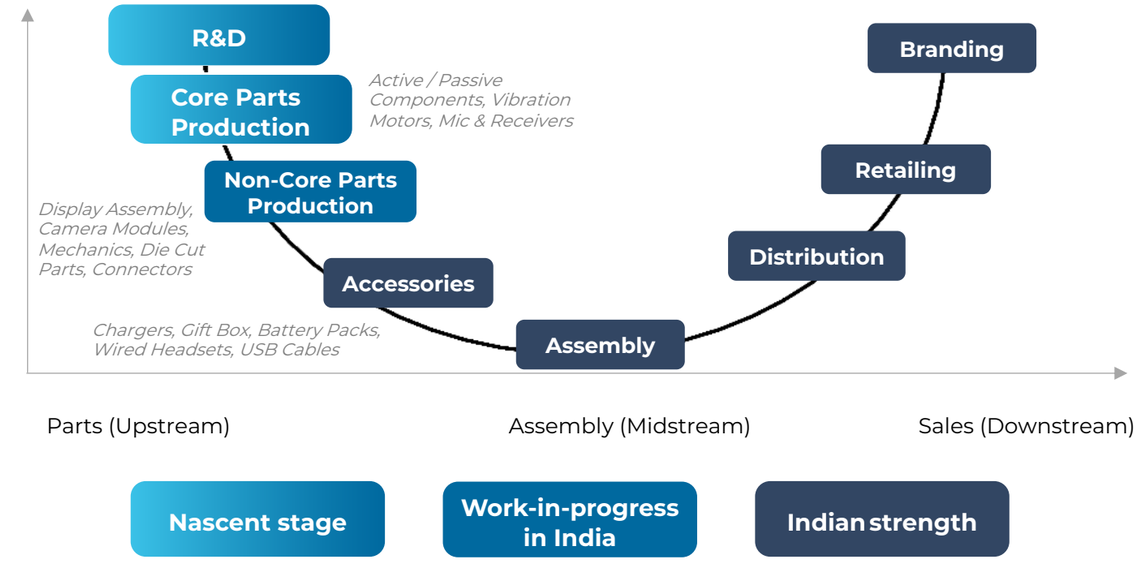
Source: 2009 to 2021 data taken from Chidambaram G Iyer; Mobile manufacturing path for India: Lessons from other Asian countries, 20th August 2024; CDS; Updated & customized by Feedback Advisory by using similar datapoints for 2022-2024 period from UN Commtrade

In another report by CII-NCAER in 2022 - Building India's Export Competitiveness in Electronics – 2025-26, they had used the Revealed Comparative Advantage (RCA) method to estimate India's Electronic export competitiveness. We have taken inspiration from this methodology to set out India's 'Smartphone Exports Competitiveness' trend and also understand the impact of PLI on Smartphone export competitiveness. A brief overview of the RCA methodology is set out below.

7. Impact of PLI on developing India's Mobile Value Chain

Hess & Coe (2006) have emphasized that the highest value addition in telecommunication manufacturing systems is often found at both ends of the production chain, a concept popularly known as the 'smile curve'. In India, the 'Right Hand Side' of this curve is well-established (although the present operations can shift to other countries if not supported), with assembly/ production operations substantially deepened, largely due to the PLI for LSEM. Additionally, most of the non-core components are now being established domestically. The entry into core product development has recently commenced following the launch of the 'India Semiconductor Mission (ISM)' and the ECMS by the Government of India. However, it is imperative to note that ECMS will take at least 3-4 years to start yielding results, and if the Mobile phone manufacturing fails to scale further, ECMS itself risks fading out before it matures. Since component investments depend on large-scale assembly to absorb output, a slowdown in smartphones could choke the demand needed to build a robust supplier base. Currently, India's primary deficiency lies in the domains of research and development, as well as product development within the mobile sector. This is illustrated below in Figure 10.

Figure 10: Mobile value-chain in India



Source: Hess & Coe(2006) - Smile Curve; Chidambaram G Iyer; Mobile Phone Manufacturing In India: A Study Of Few Characteristics; CDS WP 502; Adapted & customized by Feedback Advisory

An elaboration of the localization efforts across the different elements of a Mobile phone is shown in Table 5, which further validates the 'Smile Curve' as shown above.

Table 5: Localisation in India in the Mobile Ecosystem

Elements of Mobile Phones	Localisation in India
PCBA	Localised
Components for PCBA: Active / Passive	~97% Imported*
Display Assembly	Localisation efforts have begun - yet to attain dominant position
Camera Module	Localisation efforts have begun - yet to attain dominant position
Mechanics (Metal & Plastic Mechanics)	Localisation efforts have begun - yet to attain dominant position
Battery Pack	Decent localisation efforts
Charger/ Adapter	Localised
Mic & Receivers	100% Imported
Die Cut Parts	Localisation efforts have begun - yet to attain dominant position
Connectors	Localisation efforts have begun - yet to attain dominant position
USB Cable	Decent localisation efforts
Gift Box	Localised
Vibration motor	100% Imported
Wired headsets	Decent localisation efforts

*Some passives (connectors) are being sourced in india for manufacturing Phones < INR 25K

Source: Primary interviews from MAIT Mobile Committee Members, Feedback Advisory analysis

It is estimated that there are over 300 units[7] manufacturing cellular mobile phones and parts/ components thereof in the country. Most importantly, today India has 2 DOMESTIC CHAMPIONS in Tata Electronics and Dixon, who are now comparable with global EMS firms and operate on the same league. This would not be possible without the PLI support. The Table 6 below highlights the key players established in India in each of the above-mentioned key elements of the Mobile Phone manufacturing.

Table 6: Key players in the Mobile Ecosystem in India (Non-Exhaustive)

Elements of Mobile Phones	Key Domestic Players
PCBA	Samsung, Foxconn, Tata Electronics, Dixon, United Telelinks, Neolync, Optiemus etc
Display Assembly	Samsung; Holitech Technology; TXD; TCL, Lianchuang Electronic; Panel Optodisplay Technology Pvt. Ltd.
Camera Module	Sunny Opotech; Kunshan; Holitech Technology, Muruguppa Group
Mechanics (Metal & Plastic Mechanics). & Die Cuts	Bharat FIH; Salcomp Manufacturing India; DLJM; PG Electroplast; LingFeng; Tata Electronics; Motherson Group, JCK, SFO
Battery Pack	Sunwoda Electronic India Pvt. Ltd.; TDK; Advent; Everup; NVT; TMB Battery India LLP; Adit Infratel Pvt. Ltd; Bharti Infotech; APSC Electronics Private Ltd; Irphenix Electron Private Ltd; Navitasys India Pvt Ltd.
Charger/ Adapter	Salcomp; Flextronics; Elentec; XIHl Technology; Tianyin Worldtech; BJD Electronics; Hong Guang De Technology; Vonda Tech; Wisepower; Sonepar India.
Connectors	Avary
USB Cable	Foxlink; Tainyin; Yingtong; Mandeep Cables

Source: Primary interviews from MAIT Mobile Committee Members, Feedback Advisory Desk Research & analysis

- Competitiveness relative to other source countries like China, Vietnam, and Mexico will largely be a key success factor, while Thailand and the Philippines will play a smaller role.
- India must significantly expand both electronics manufacturing overall and smartphone production and exports specifically in the next five years to try and achieve national policy objectives and GDP targets.

[7] Lok Sabha Unstarred Question No. 2950 Answered On: 06.08.2025

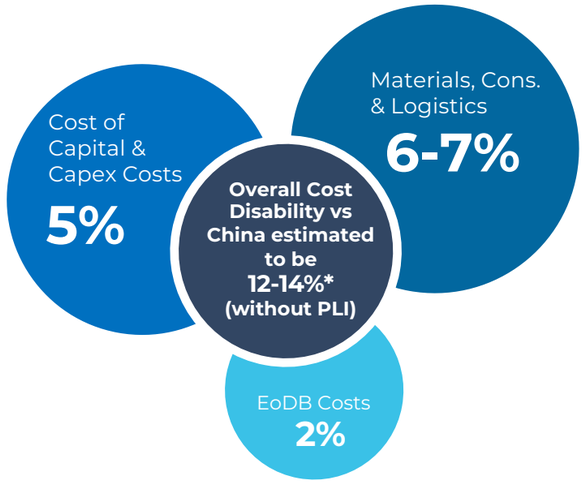
8. Impact of PLI on managing India's Cost Disabilities

This section presents a comparative analysis of the disability in the mobile phone manufacturing sector in India compared to China and Vietnam, focusing on the 'Smartphone' category. Based on data from various Industry Members' inputs, publicly available studies on utility costs, and Central Bank lending data, this analysis aims to provide a quantitative assessment of India's competitive disadvantages. The results show that while India has a clear advantage in manufacturing costs due to lower labor expenses, it faces significant disadvantages from higher productivity costs, logistics and financial costs, less favorable preferential policies, and a less developed supply chain ecosystem compared to other supply source countries. Addressing these challenges is essential for improving India's competitiveness and attracting more investments in mobile manufacturing. The disability figure presented is based on conservative estimates, and the actual disability is likely higher. It also indicates that PLI did help reduce the cost gap, and continuing with Large Scale Mobile Manufacturing Scheme (LSMMS) is crucial to sustain and expand our mobile manufacturing sector in the country.

Overall Disability Assessment

India's current overall disability in the mobile phone manufacturing sector compared to China is estimated at **12-14%.** This combined disability results from several factors described in the following sections. This is explained below in Figure 11

Figure 11: PLI has been a key contributor for India to manage its cost disabilities - The continuation with LSMMS is essential for India to maintain its cost disabilities



*MAIT Estimates through published report for some factors and from Industry Stakeholder interviews for others

Also, Niti Aayog in its latest report estimates India's Cost Disabilities vs China in Electronics manufacturing to be 10-14%

Source: Industry Stakeholders, Desk research, Feedback Advisory analysis

Key Disability Factors

Material / Consumables Cost (including logistics):

India demonstrates a 6 to 7% disadvantage and a 5% disadvantage in material/consumables and logistics costs relative to China and Vietnam, respectively. This disparity principally stems from China's well-established and extensive supply chain network, which facilitates economies of scale and reduced inventory costs. The number of Vietnamese tier 1 and tier 2 suppliers in Samsung's global supply chain has increased tenfold, from 25 in 2014 to 257 by the end of 2022. In India, over the past two to three years, mobile manufacturers have begun establishing domestic supply chains.

High tariffs on imported components and sub-assemblies contribute to increased input costs, resulting in an approximate 6 to 7% cost disadvantage on a smartphone's Bill of Materials (BOM). Although certain components and sub-assemblies have recently been localized, their production remains confined to select sectors due to elevated costs, thereby leading to higher prices for finished goods. Elevated tariffs generate pricing arbitrage opportunities, particularly in the absence of competitive domestic suppliers.

India's tariffs are around 4-5%, higher than those of China (~0% effective) and Mexico (~0.7% effective). In these countries, most products are manufactured in bonded zones, making the effective tariff essentially 0%. The complex tariff system and high input costs discourage multinationals from relocating their production bases to India, leading them to focus more on the domestic market instead of exploring export opportunities.

The logistics costs includes three aspects of

- Raw materials inbound from International destinations to India (Air)
- Internal transportation in India (mostly Road)
- Outbound from India to International destinations (Air)

Since air transportation involves both inbound and outbound shipments, there is also an element of checks and investigations at the ports of these materials. This process can lead to some losses, as these products are very fragile and highly delicate. They are packed extensively and involve some level of technology.

In China, the first two elements are essentially local transportation and do not have a significant impact, as they have an efficient outbound international transportation system due to their large and extensive experience in exports.

In Vietnam, the Raw materials inbound is also an Inland transportation, and decent local sub-assemblies manufacturing also helps them save on logistics costs.

The initiatives undertaken by the central and state governments in India have resulted in significant changes in the transportation sectors of roads, rail, ports and air. However, India continues to face considerable logistical challenges compared to other economies such as China and Vietnam.

Finance Cost

- The overall finance cost includes two key components of:
- Working Capital Costs
- Balance sheet impact due to land, building and Capex (Interest costs)

Working Capital

The typical working capital interest cost in India is around 9.4%[9], whereas it varies from 2-3.67%[10] in China and approximately 4.5 [11] in Vietnam. This is because electronics is a priority sector, and key anchor firms are offered these rates. Besides the actual rates, the working capital requirement in India is approximately 3.5 months, while it is approximately 1 month in China and Vietnam. Hence, purely on working capital comparison, India suffers a disability of **2%** and **0.8%** respectively in China and Vietnam.

Balance sheet impact due to land, building and Capex (Interest costs)

In China, there is subsidized land available for long tenures with minimal or no payments upfront. Additionally, many provincial hidden incentives facilitate land access, thereby reducing initial capital expenditure requirements. Furthermore, there is availability of contiguous land parcels and infrastructure.

China currently faces excess capacity and pre-established industrial infrastructure, eliminating the need for new capacity development. Most of these existing industrial parks are plug-and-play — equipped with utilities, logistical connections, and built-in facilities – reducing initial capital expenditure. There are also provisions for worker hostels and similar amenities.

Process and line efficiency in China is advanced, in view of which, manufacturers can achieve higher output per line – enabling better utilization of capital assets.

In India there is also a disadvantage of supply-chain restrictions from certain source countries on equipment exports and raw material.

In Vietnam, the country offers ready-to-move-in factories with fully built-in features. In China and Vietnam, most firms utilize ready-made buildings equipped with all necessary facilities, including cleanrooms and power substations, available for rent, which minimizes the impact on their financial statements. Vietnam's close geographic access to major supply hubs enables manufacturers to source machinery at competitive prices and with minimal delivery time. Conversely, in India, companies are compelled to invest directly in these aspects, thereby affecting their balance sheets. This aspect leads to a huge gap in the disabilities in India compared to China and Vietnam.

Together, these aspects contribute to an overall finance cost disability in India of around 3% and 2.3% compared to China and Vietnam respectively.

[9] https://rbi.org.in/scripts/BS_PressReleaseDisplay.aspx?prid=60075
[10] The People's Bank of China - http://www.pbc.gov.cn/en/3688110/3688175/5379439/index.html
[11] State Banks of Vietnam - https://www.sbv.gov.vn/vi/trang-chu

This issue worsens with delays in PLI disbursals. On average, a one-month delay in payment increases the cost of capital by 0.8%[12] . The delays in incentive payments have ranged from 6 to 15 months[13] .

EODB Costs

India's mobile phone manufacturing sector faces a series of regulatory interpretation challenges, particularly in customs processes and HS code classification that impose significant cost and time disadvantages compared to other competing manufacturing hubs. These factors create a "cost disability" that is estimated to add 1.5-2% to operational costs vis-à-vis China, reducing India's global competitiveness

a. Customs Interpretation Ambiguity

- Unclear and inconsistent application of customs regulations leads to differing interpretations between field formations and industry.
- Frequent interpretation challenges for schemes like MOOWR and special facilitation measures create uncertainty in operations.
- Ambiguities in applicability of exemptions, procedural requirements, and transfer provisions result in unplanned procedural compliance, additional documentation, and unpredictable clearance timelines.

Impact

- Delays in clearance of imports and exports.
- Increased operational risk due to unpredictable procedural demands.
- Loss of competitiveness against nations with more predictable frameworks.

b. HS Code Classification Disputes

- Ambiguous product classification results in disputes over applicable duty rates and eligibility for exemptions. Example, Display clarification issue (INR 18,000 cr impact), camera module clarification issue.
- Customs reclassification to higher-duty HS codes often occurs post-import, leading to retroactive duty demands.
- Inconsistent classification decisions across ports and Commissionerate's add to unpredictability.

Impact

- Sudden increase in landed cost when goods are reclassified at higher duty rates.
- Litigation costs from challenging reclassifications - covering legal counsel, court fees, and internal compliance efforts.
- Diversion of management bandwidth from manufacturing operations to dispute resolution.

[12] Inputs from Industry Stakeholders
[13] Inputs from Industry Stakeholders

C. Increased Compliance Costs

- High incidence of legal disputes on HS code interpretation and customs scheme provisions.
- Companies allocate significant resources to continuous litigation rather than business growth.
- Prolonged dispute resolution timelines disrupt supply chain planning.

Impact

- Financial strain from legal expenses and blocked working capital during disputes.
- Reputational risk with global HQs evaluating India's policy stability.
- Reluctance to expand operations or localize new product lines.

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d. Comparative Disadvantage vs. other manufacturing countries

- Other competitive manufacturing countries regulatory model offers:
  - » Predictable HS code classification
  - » Bonded Zones with zero-tariff regimes for manufacturing inputs
  - » Faster, more automated customs processes with minimal procedural rework
- Companies in these countries benefit from just-in-time component flows without fear of post-clearance reclassification or prolonged litigation

Impact

- India's relative disadvantage pushes companies to consider relocating future investment or incremental production to countries with smoother trade facilitation
- Cost disability of ~1.5-2% compared to one such country - China, directly impacting pricing competitiveness in global export markets

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e. Broader Business Implications

- Longer production timelines due to customs disputes and procedural rework
- Higher working capital requirements from delayed clearances and blocked inventory
- Reduced attractiveness of India as a global manufacturing hub for high-value electronics

India's mobile industry operates under an environment of regulatory unpredictability, frequent litigation, and procedural bottlenecks that directly increase costs and reduce speed to market. Unless addressed through clear, uniform, and stable customs interpretations especially on HS code classification and bonded warehousing provisions, India risks losing manufacturing investment to competing nations with streamlined, zero-tariff, and litigation-free operational ecosystems.

9. Impact of PLI – Financial benefit to the Government[14]

PLI has the been one of the most fiscal incentive program for the Government of India.

In April 2020, the Ministry of Finance increased the Goods and Services Tax (GST) on smartphones from 12 percent to 18 percent, aligning with the implementation of the PLI scheme. This 6 percent increase in GST is anticipated to yield approximately **INR 1 Lakh Crore by the conclusion of the current fiscal year, representing four times the fund allocated for the smartphone PLI.**

Over a period of five years, the total tax revenue generated from mobile devices — encompassing GST, customs duties, and corporate taxes — is estimated to amount to approximately **INR 3 Lakh Crores.** This figure **signifies a 150 percent increase** in **comparison to the total budgeted incentives** allocated for all Production Linked Incentive (PLI) schemes combined.

Impact of PLI for Mobile Manufacturing

~28x	~127x	~150x
Production of Mobile Phones (FY 25 vs Fy 15)	Exports of Mobile (FY 25 vs Fy 15)	Rise in no. of factories (FY 25 vs Fy 15)
<1%	**Top 3#**	**1st Rank**
Mobile imports (FY 25 vs Fy 15)	Mobile Exporting Nation # As of CY 2024; UN Commtrade data	In Exports by HS codes
~13L*	**2**	
Total Jobs * MAIT estimation	Emergence of 2 large domestic champions (Dixon & Tata)	

[14] Inputs from Industry Stakeholders

04

Potential export opportunities for India

In 2024, the global smartphone market demonstrated a robust recovery, achieving a 7% growth rate and reaching a total of approximately 1.22 billion units shipped worldwide. This upward trend marks a significant rebound after two consecutive years of decline, driven by factors such as increased consumer demand for 5G-enabled devices, innovation in camera and battery technology, and renewed consumer confidence amid economic stabilization. The recovery highlights the resilience of the smartphone sector and its crucial role in connecting global markets, especially in emerging economies where smartphone adoption continues to accelerate. This growth also reflects the strategic pivot by manufacturers to introduce more affordable models alongside premium offerings, catering to diverse consumer segments and fueling sustainable expansion in the years ahead. This is illustrated further below in Figure 12

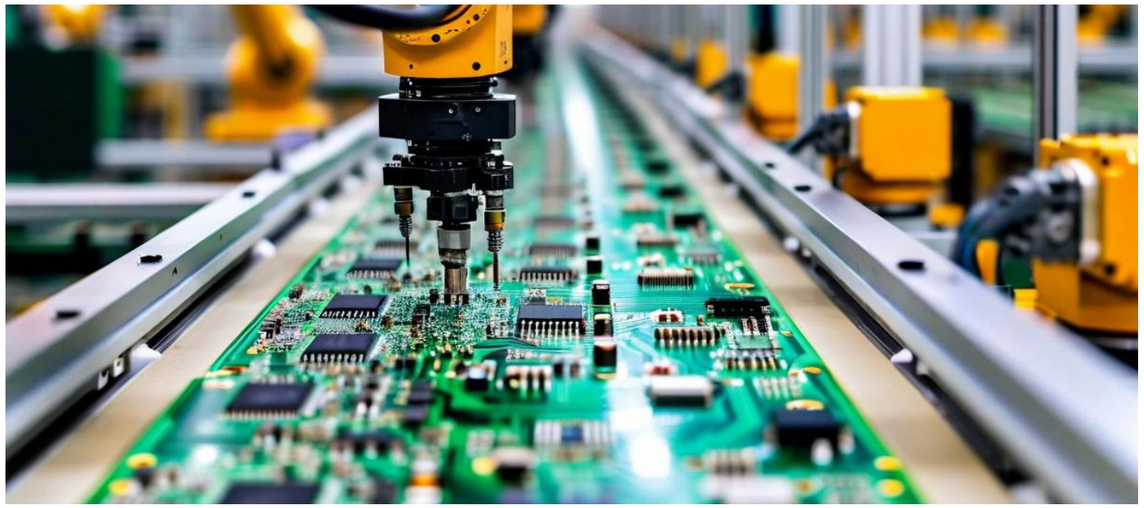
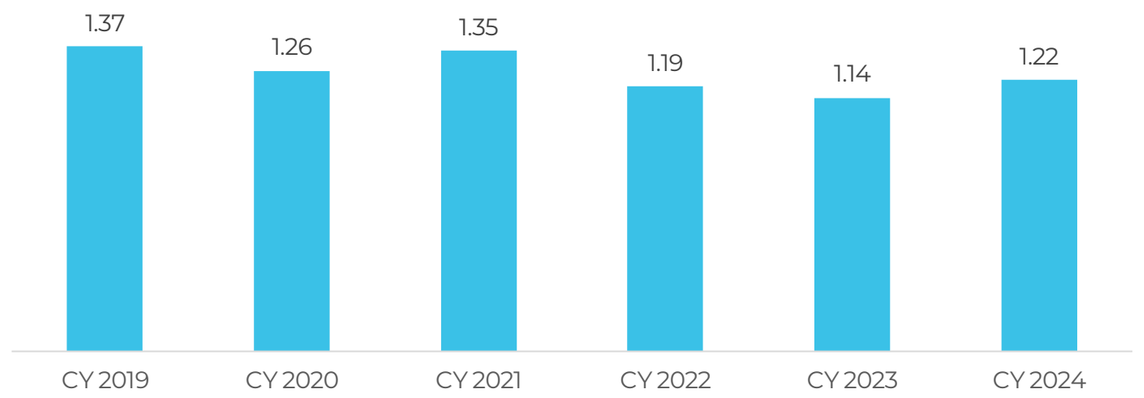


Figure 12: Worldwide Smartphone shipments (million units)



The bulk of these Smartphone shipments is based on Exports from key producing nations to key consuming nations/regions. The Top 15-EU nations are largest block to import Smartphones in the works followed by the NAFTA region of USA, Mexico & Canada. The Imports by different countries/regions and the trend analysis of these regions are shown in Figure 13a,13b & 14.

Figure 13a: CY 2024 Imports of Mobile Phones: USD 274 Billion

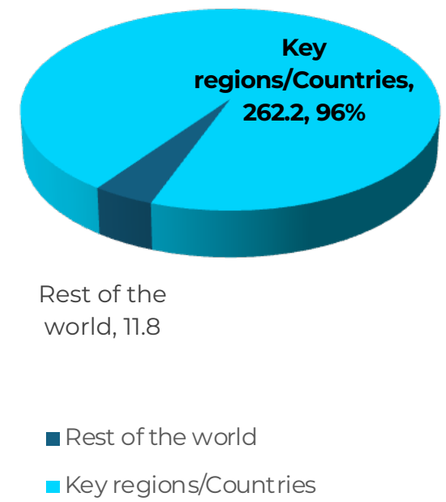


Figure 13b: Imports split by Regions / Countries (USD Billions)

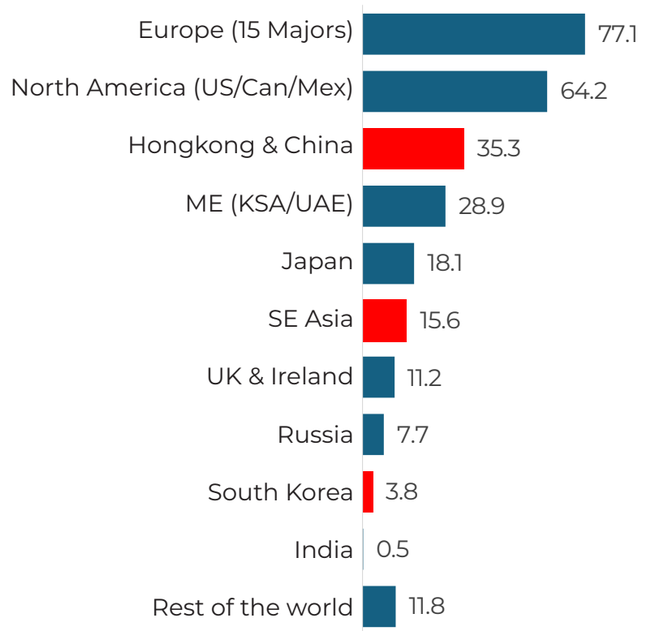
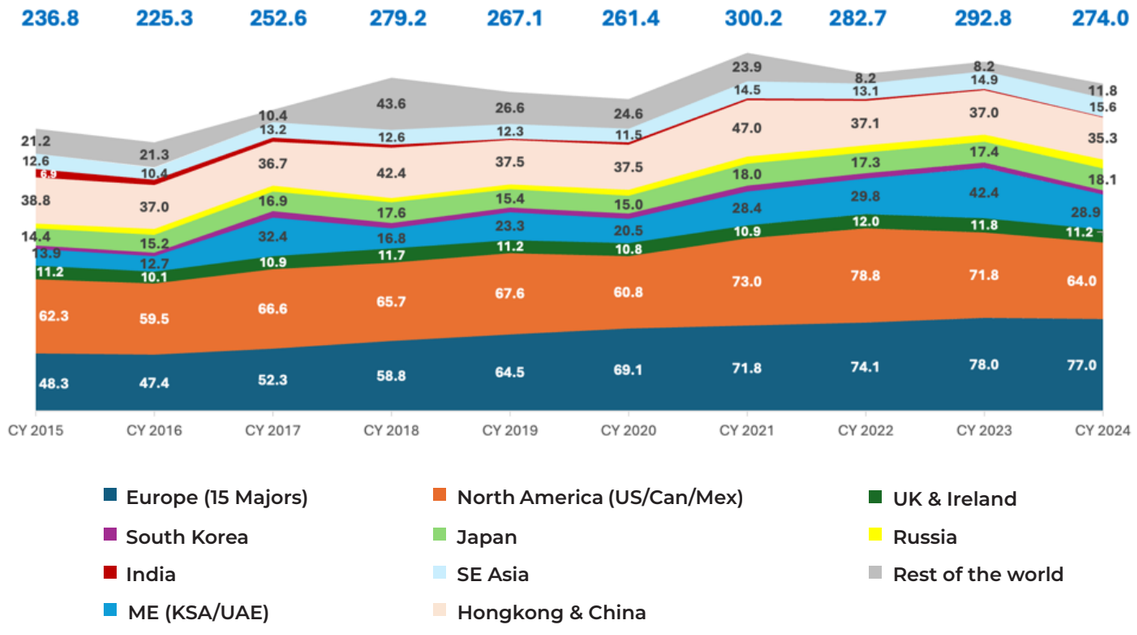


Figure 14: World Import of Mobile Phones key Region and Countries (In USD billions)

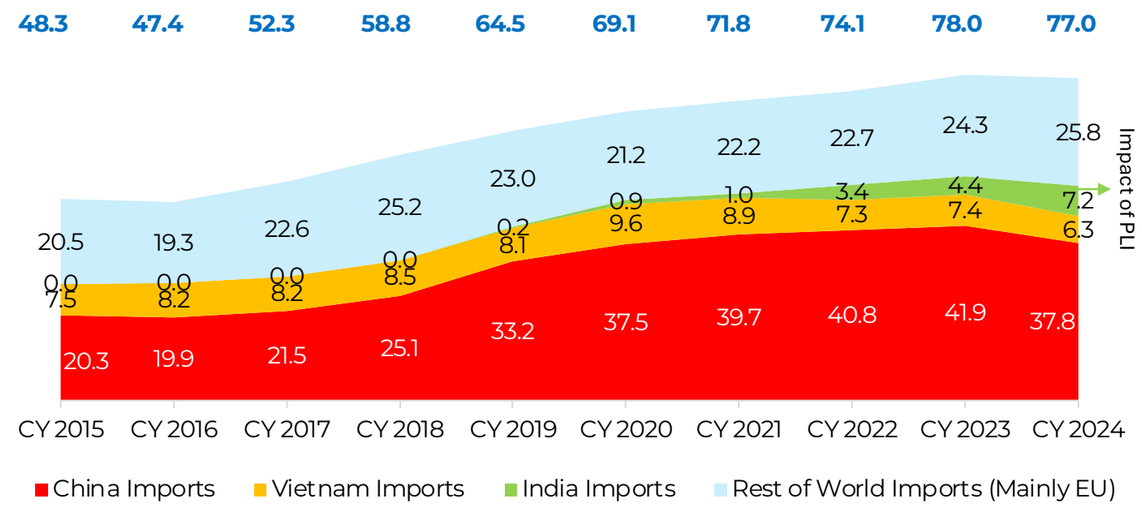


Source: Trademap.org data and Feedback Analysis of HS Code 851712/13

Now let us examine closely the key potential regions for India's exports and understand the global competition for India in these regions.

a. EU-Top 15

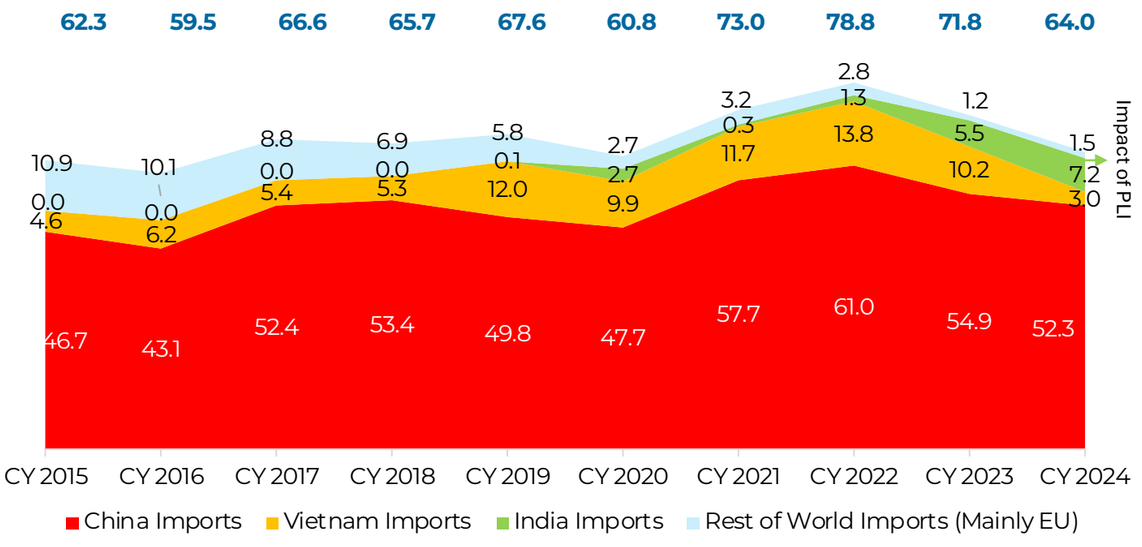
Figure 15: European majors (Top 15 countries) import from China & EU are dominant, and Imports from India from India are gaining (USD billions)



Source: Trademap.org data and Feedback Analysis of HS Code 851712/13

b. NAFTA

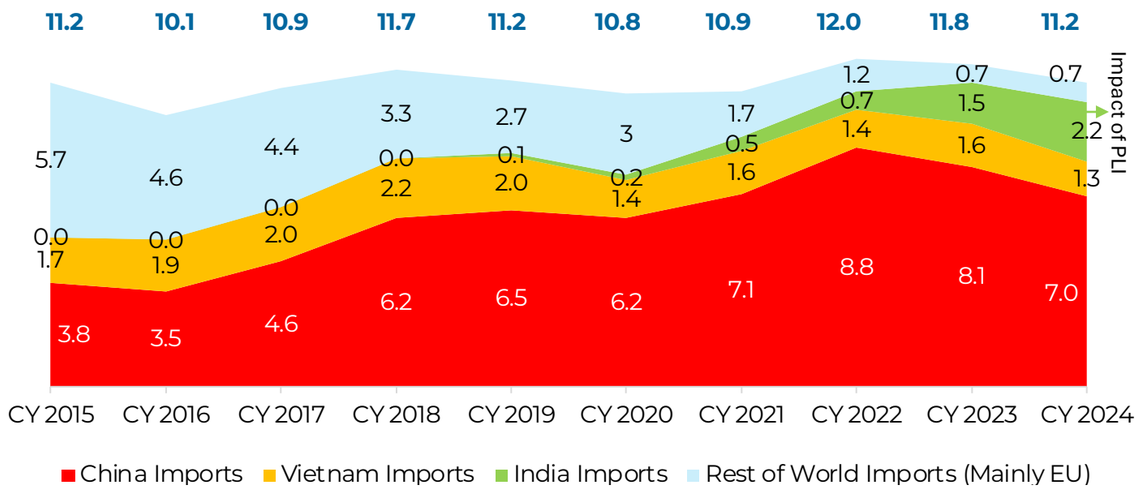
Figure 16: North American imports from China dominant, and Import form India are gaining (USD billions)



Source:Trademap.org data and Feedback Analysis of HS Code 851712/13

c. UK & Ireland

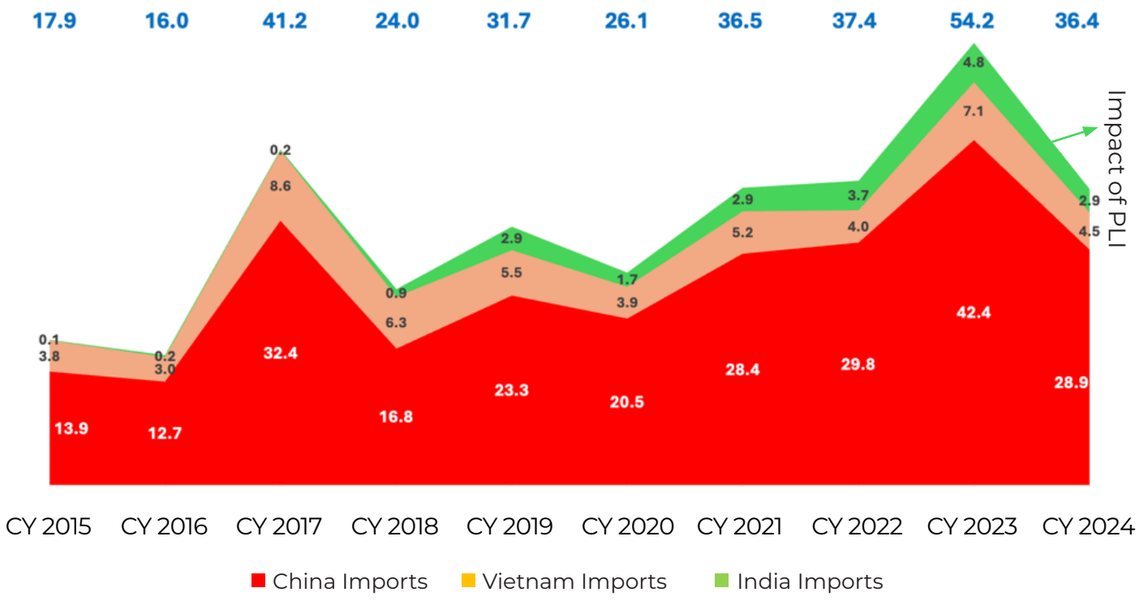
Figure 17: UK & Ireland's import from China are dominant, and Imports from India are gaining (USD Billions)



Source:Trademap.org data and Feedback Analysis of HS Code 851712/13

d. ME (KSA/UAE)

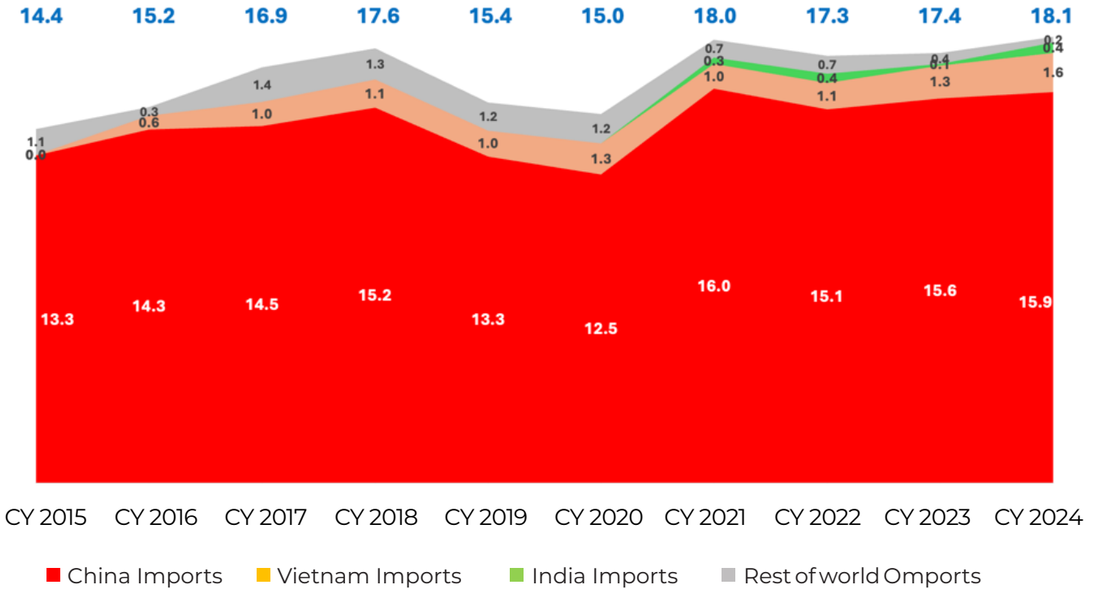
Figure 18: Middle East (KSA/UAE) nations' imports from China are dominant, and imports from India are gaining (USD billions)



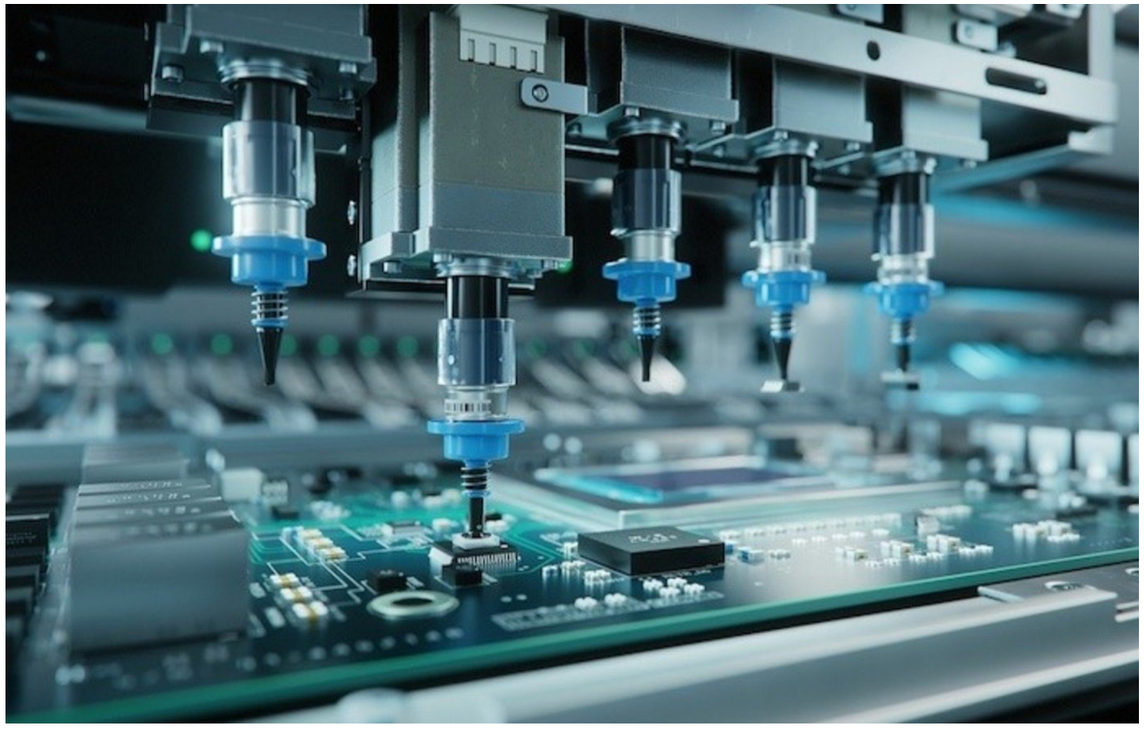
Source:Trademap.org data and Feedback Analysis of HS Code 851712/13

e. Japan

Figure 19: Japan's imports are predominantly from China, and imports from India are just beginning (USD billions)



Source:Trademap.org data and Feedback Analysis of HS Code 851712/13

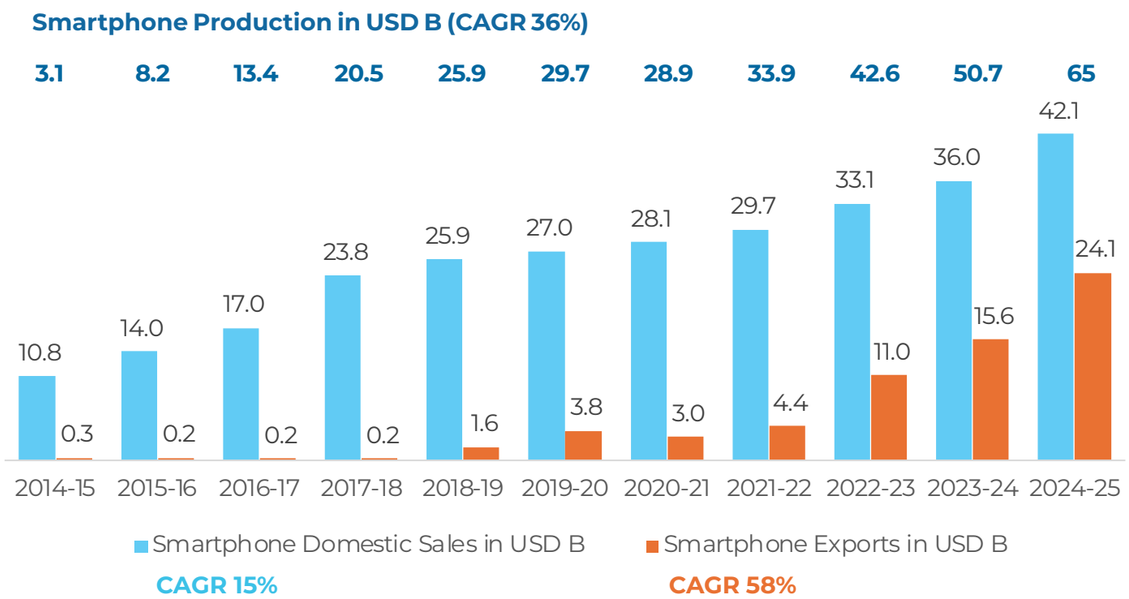


India's Smartphone exports

India's robust smartphone manufacturing sector, as previously explained, is directly correlated with significant export success. Domestic smartphone sales are increasing at a considerably slower rate compared to the growth of exports, as illustrated below in Figure 20:

Smartphone Exports is driving Smartphone Manufacturing in India - domestic market growing much slowly

Figure 20: Comparison of Smartphone Domestic Sales in India Vs Exports



Source: Meity / DGFT data, Feedback Advisory analysis

05

Need gaps for the Mobile Manufacturing Industry in India

The mobile manufacturing sector has demonstrated, over the past five years, the potential to serve as a transformative force, significantly influencing India's manufacturing and export landscape. The preceding chapter has outlined India's existing potentials which remain largely untapped. The future trajectory of mobile manufacturing hinges on how effectively India can capitalize on global export opportunities more assertively and enhance its supply chain infrastructure domestically. The changing geopolitical situation and current gaps in mobile manufacturing primarily stem from the necessity of preparing the nation to leapfrog to a more advanced stage, thereby addressing emerging market opportunities.

1. Implications of Recent U.S.-China Tariff and Policy Developments on India's Electronics / Mobile Manufacturing Sector

The recent decision by the Trump administration in November 2025 to reduce tariffs on fentanyl-related imports from China, lowering the rate from 20% to 10% [15] with potential for full elimination, has already begun to restore China's export competitiveness. This development, alongside subsequent actions by both Beijing and Washington, poses significant risks to the tariff-driven supply chain diversification efforts that India has leveraged to strengthen its electronics manufacturing capabilities. China reached a significant bilateral agreement with the United States to strengthen controls over the illicit production and export of fentanyl-related chemicals[16] . This development is part of efforts to combat the global opioid crisis, with China pledging to implement stringent regulatory measures on precursor chemicals[17] used in fentanyl synthesis.

Specifically, the United States' actions include the implementation of a bilateral agreement with China on de-escalation, which followed the truce established during the recent meeting between President Trump and President Xi. This involved not only tariff reductions but also the suspension of port fees on Chinese vessels, penalties on Chinese port equipment, and an expansion of export controls[18] —measures that collectively serve to reinforce China's strategic position.

Meanwhile, China has signaled reciprocal de-escalation by removing or suspending retaliatory tariffs and non-tariff barriers in response to United States' initiatives. China seeks to augment its leverage through security measures, export controls, and resource actions such as rare-earth elements[19] .

India currently contends with dual challenges

a. Firstly, the reduction of the fentanyl tariff to 10% diminishes India's comparative price advantage in the United States market for smartphones.

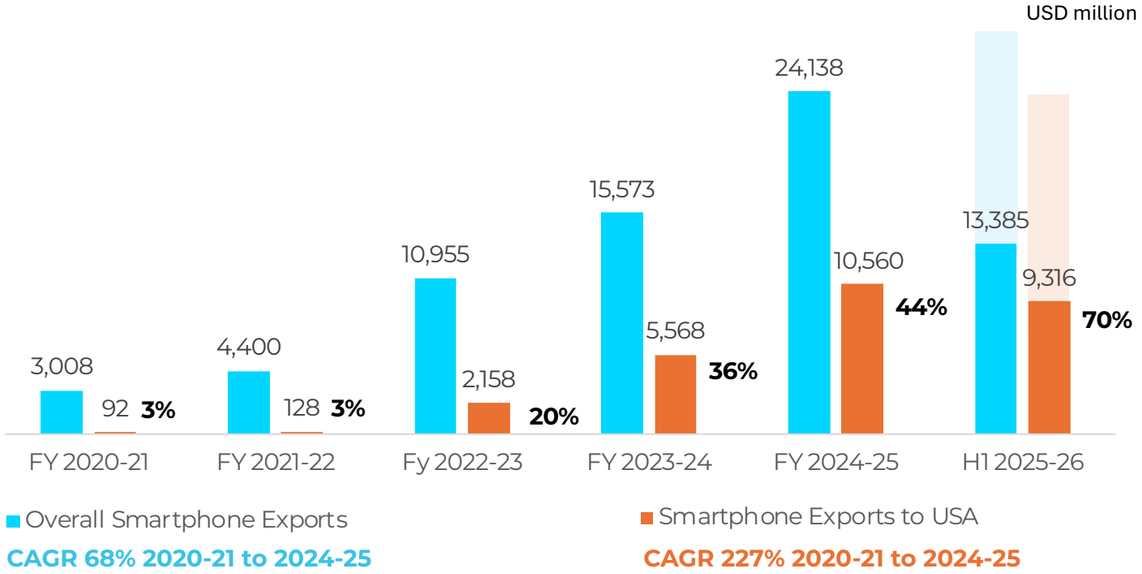
b. Secondly, the ongoing Section 232 investigation[20] into semiconductors and associated manufacturing equipment risks imposing broader downstream restrictions, which could adversely affect India's smartphone exports across various sectors.

[15] https://www.nbcnews.com/world/asia/us-china-hope-make-progress-tariffs-trump-xi-meet-south-korea-rcna240445
[16] https://www.reuters.com/business/healthcare-pharmaceuticals/fbi-chief-china-agreed-plan-stop-fentanyl-precursors-2025-11-12/?utm_source
[17] https://www.mofcom.gov.cn/zwgk/zcfb/art/2025/art_df629a8dc2244bc4a57f3656618bfb5f.html
[18] https://www.reuters.com/business/autos-transportation/china-suspends-port-fees-us-linked-ships-year-2025-11-10/
[19] http://english.mofcom.gov.cn/News/SpokesmansRemarks/art/2025/art_d3b018b922a4458989e43a46a04be6fe.html
[20] https://www.federalregister.gov/documents/2025/07/16/2025-13345/notice-of-request-for-public-comments-on-section-232-national-security-investigation-of-imports-of

These developments require strategic policy measures to protect India's position within the global supply chain and to sustain growth in domestic electronics manufacturing.

Figure 21: Smartphone Exports to USA Vs Overall Smartphone Exports trend

Exports to USA are important



US exports key to scaling India's global manufacturing in Smartphones

Source:Trademap.org data and Feedback Analysis of HS Code 851712/13

2. Current gaps in PLI for Large Scale Electronics Manufacturing

The MAIT Members commend the Government of India and specifically the Ministry of Electronics & Information Technology (MeitY) for their proactive support and encouragement to the industry through impactful initiatives such as the Production Linked Incentive (PLI) Scheme, Electronics Components Manufacturing Scheme (ECMS), Cluster development among others. Their proactive backing has instilled confidence among members that their concerns will be adequately addressed. The following are some prominent gaps identified within the current scheme

- Where an EMS provider undertakes manufacturing for multiple OEMs, a non-binding prior intimation may be provided to the Government for transparency purposes.
- Delays in the payment of incentives have ranged from 6 to 15 months. On average, a one-month delay in payment results in a 0.8% increase in the cost of capital.

- The ceiling of PLI impedes scaling up business, considering the existence of the cost structure.
- Lack of an insulation mechanism to ensure that manufacturing growth remains resilient, even amid changing geopolitical dynamics
- Streamlined customs processes, predictable tariff regimes, and simplified import–export procedures are essential to scale and export led growth .

3. Technology Transfer, Equipment supply, Availability of key manpower from certain source countries to train Indian workers & install machines and Supply of materials from these source countries.

India previously limited visas for nationals from other source countries, but due to current geopolitical tensions, these countries are now leveraging its strengths to restrict the export of their workers, materials, and equipment to India. The government should employ diplomatic efforts to resolve this deadlock and improve the trade relationship with these source countries.

India heavily depends on global players to adopt the latest technology and methodologies, particularly in component manufacturing. Market share of critical electronic components like PCBs, batteries, cameras, and displays remain concentrated in certain geographies. This reliance extends across various components, emphasizing the significant dependency on global players, in those geographies, for technology transfer. The next chapter sets out how China has become such a strong and powerful Industrial Nation' and how it will take some time for India to attain these levels.

Most firm face challenges under the current PN3 guidelines. Approval processes for FDI, joint ventures, and partnerships encounter delays and uncertainties, hindering efficient technology transfer. The need for explicit guidelines with adequate guardrails and transparent timelines is essential to enhance the pace and effectiveness of technology transfer.

Suppliers like WUS, Shengyi, and JOVE have started expanding into countries like Vietnam, Thailand, and Malaysia but have yet to explore opportunities in India. Therefore, a clear policy roadmap is essential for allowing joint ventures and technology transfers currently affected by PN3. In addition to PN3, specific taxation hurdles like high withholding tax on on-site support services and elevated GST on inter-group services further compound challenges related to technology transfer. In case the ecosystem of suppliers is not shifted, it will not only stifle large-scale production but also adversely impact domestic value addition, as GVCs will turn to imports for components.

Certain large-scale companies that are looking to shift supply chains owing to a more conducive policy, regulatory, and EoDB environment. Competing geographies are focusing on introducing policies and incentives to attract these critical GVC players to relocate to their regions. Owing to their competitive edge, these economies are witnessing the onset of the shift. To capitalize on this emerging opportunity, India must act swiftly and through appropriate policy intervention to encourage GVCs to consider India a competing investment destination.

4. Limited and inefficient FTAs are impacting Export growth.

The MAIT members commend the Government of India for signing the India-UK BTA; this will open up a significant market for mobile phone exports as well. India's limited number of FTAs compared to its Asian counterparts (especially Vietnam) results in missed opportunities for lower duty benefits on exports to major economies like the U.S. and the EU, which comprise around 50% of global electronics demand. India's historical underutilization of FTAs, with only about 25% utilization compared to 70-80% of other countries, stems from factors like low awareness of FTA benefits, complex certification requirements, high compliance costs, and non-tariff barriers in importing countries. In response, the government initiated a review in 2019, leading to the signing of new trade agreements with Mauritius, Australia, and the UAE (except UAE – signed in 2022) in 2021. In contrast, Vietnam has effectively leveraged FTAs, exemplified by commitments to eliminate 90% of tariff lines, to secure demand from important regions like the EU through agreements like the EU-Vietnam FTA.

5. Complex regulatory landscape

The Indian manufacturing sector faces significant challenges due to a convoluted regulatory environment that deters global brands from establishing manufacturing operations there.

Key issues include

Regulatory Complexity

India's regulatory framework needs to be more cohesive across various government levels. Bureaucratic hurdles in obtaining approvals and permits cause delays and increased costs for businesses.

Compliance Burden

Businesses in India must navigate through numerous acts, leading to a high compliance burden with a substantial number of filings and strict penalties for non-compliance, particularly in labor-related matters.

Policy Uncertainty

Frequent policy changes, especially concerning tax laws and import tariffs, disrupt supply chains and strategic planning for businesses engaged in international trade, creating instability and challenges.

Institutional Overreach

Inconsistent enforcement by government agencies such as the Income Tax Department, Enforcement Directorate, and Competition Commission of India adds to uncertainty, impacting investors' confidence and hindering business operations.

6. Non-Tariff Barriers

The Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry, in consultation with the Bureau of Indian Standards (BIS), and Ministry of Consumer Affairs, have been frequently enacting Quality Control Orders (QCOs). These QCOs are wide-ranging and impact multi-sectoral imports – with unintended consequences for companies undertaking electronics manufacturing in India as several QCOs may apply to a wide range of materials used in components and subassemblies. This further leads to supply chain disruptions, inventory management challenges, increasing compliance costs, export delays, etc. QCOs appear to be a non-tariff barrier, especially under the current circumstances, working against the ethos of building resilient supply chains. Further, QCOs are proving to be investment barriers as an unpredictable regime regarding NTBs can act as barriers to entry for new players and discourage investments.

7. Lack of enablement for a Full-Spectrum New Product Development to Make New products from India for the World

Overview

New Product development and product prototyping is a major part of R&D. This is not an isolated function but a derivative of scale - to achieve largescale, competitive production.

Product prototyping is capital-intensive and a critical essential. This, in turn, provides the impetus for large-scale production, which is also dependent on competitiveness. R&D in the case of Smartphones includes Design and Prototyping which is a complex, multistage process that turns a design into mass production.

It plays a crucial role across layers of manufacturing, and manufacturing-design of a product and its inputs in driving innovation, enhancing manufacturing competitiveness, and boosting exports. While India has made notable progress in mass commercial production and exports, it remains as only a starter from the upstream phases- especially prototyping products and their parts. The phases in the prototyping and testing of a product and its parts are critical for localization, vendor development, capital equipment localization, and deeper integration into Global Value Chains (GVCs).

The current policies in India are not fully conducive to enabling large-scale, multi-level high-tech electronics product prototyping, unlike the practices in other competing manufacturing economies.

The opportunity for India is to leverage this space to enable products made in India for the global market. Implementing seamless policies that support product prototyping in India will not only position the country as a top contender in global prototyping but also create a critical pathway toward essential high-tech skills. This can further help develop the necessary skill and technological expertise, which are crucial for building domestic Indian champions.

Enabling prototyping within India, supported by the right policies and infrastructure, will unlock high-value R&D, attract global players, and position India as a hub for end-to-end innovation-driven manufacturing. However, the current regulatory, tax, and logistical frameworks create significant hurdles. To realize this opportunity, key barriers must be addressed through focused policy intervention.

Specific issues

Capital equipment constraints

India's interpretation of PE rules creates tax uncertainty when foreign firms deploy capital equipment on a loaner basis, deterring support during early product development. Vendors hesitate to engage with CMs due to payment risks, IP concerns, and unclear cost recovery. Equipment import/customisation is delayed by complex procedures, while moving leased/loaned machinery between MOOWR sites requires multiple clearances, adding weeks to timelines and slowing iterative prototyping.

Confidentiality and IP risks

Rapid sample movement in NPD depends on hand-carry imports/exports, but third-party hand-carry policies remain underdeveloped. Sensitive prototypes risk exposure during custom checks, GST audits, and MOOWR compliance reviews. High export prices, reflecting bundled labour and development costs, often invite scrutiny despite prototypes not being for retail sale.

Skilling bottlenecks

Restrictive visa rules (six-month cap, single-site deployment, one year cooling-off), restrictive business visa rules that do not allow active prototyping or capital equipment tooling and retooling prevent repeated deployment of experienced foreign experts. This constrains on-site training and knowledge transfer, compounded by the absence of industry-aligned skilling programmes.

Raw material availability for NPD

Import delays arise from disputes over HSN classification of new components, varied valuation of development materials, and upfront BOM disclosure requirements. This creates friction at the prototype stage, where BOM variants are common and often confidential.

Input tax credit on scrapped prototypes

WWE Prototypes, though essential precursors to mass manufacturing, are not eligible for ITC when scrapped after testing. This penalizes vendors and CMs despite prototypes being non-revenue generating and indispensable for validation before full-scale production.

The impact on Mobile Manufacturing in India, If there is no LSMMS support continuance for large-scale manufacturing

Exports

India's export growth will stall. At $24B exports, the country remains sub-scale; without continuity, exports could fall below $5-10B, with production shifting focus only to the domestic market.

Job creation

Blue-collar employment will decline sharply, reducing opportunities in key smartphone manufacturing clusters.

Investor confidence

Withdrawal of support will erode the confidence of global brands and investors, increasing the risk of relocation to alternative geographies.

ECMS impact

Component and sub-assembly manufacturing will remain limited to domestic demand levels, undermining India's Electronics Component Manufacturing Scheme (ECMS) objectives, and may even backslide.

MSME growth

Lower production volumes will constrain MSME expansion and weaken linkages with anchor manufacturers.

Indian brands

The absence of policy continuity will hinder the emergence of globally competitive Indian brands.

Economic security

Weakening the electronics manufacturing base will jeopardise India's long-term economic security and global competitiveness.

06

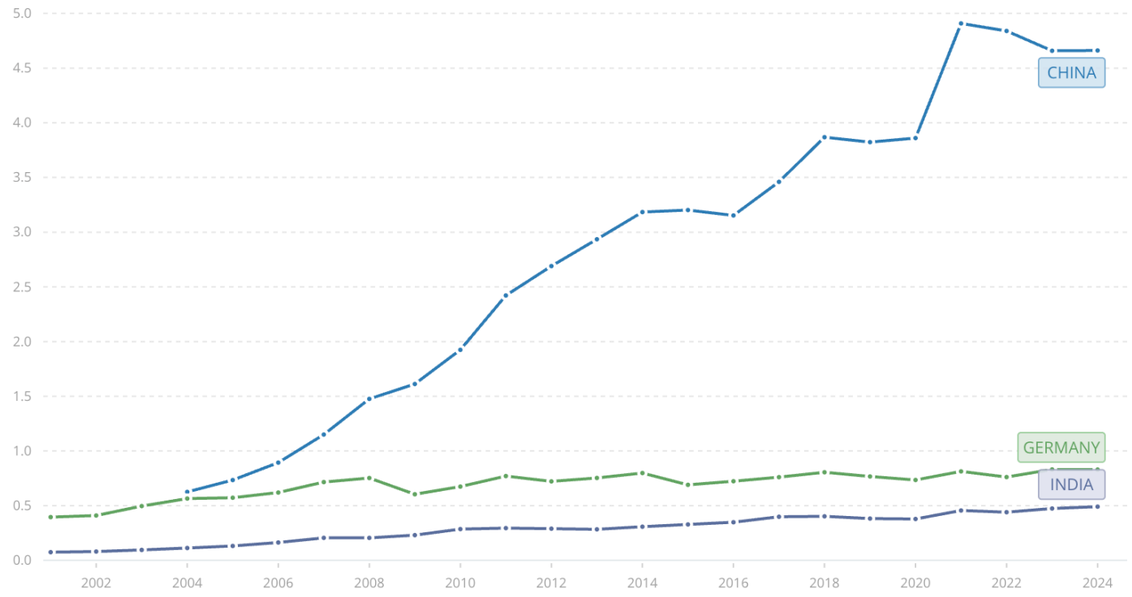
The China Factor – Dominance in Materials, Equipment and Skill

Introduction

In the current uncertain geopolitical landscape and during a period of tariff disputes, China appears to maintain its position based on three primary strengths: **Materials, Equipment, and Skill.** The nation leverages its industrial capacity as a means of negotiation with the international community and frequently succeeds in influencing outcomes.

Over the past few decades, China has established itself as a leading global manufacturing and export center, frequently exceeding expectations established by traditional economic theories. The figure 22 below from the World Bank illustrates that, in comparison to China's rapid ascent, the outputs of India and Germany appear relatively stable. However, in reality, India's output increased fourfold and Germany's doubled during this period.

Figure 22: Manufacturing, value added (current US$) - China, Germany & India



Source: World Bank

China's rapid economic transformation has been fueled by a long-term vision in manufacturing, strategic government initiatives, infrastructural development, and unique ecosystem formation—factors that go beyond just wage costs.

Long-term Vision

China always had a long-term plan on its key national issues – the industrial plan is summarized in the Figure 23 below, which covers the last 4 decades of the rise and dominance of China's industrial strength.

Figure 23: Long Term National Plans of China

'Unofficial' MIC 35 program

Emphasis on digital transformation, green manufacturing, and technological self-reliance

Focus on boosting domestic consumption and innovation, reducing reliance on foreign supply chains amid global disruptions

MIC -25 Program

- **Made in China 2025 (2015)—**goal to upgrade Chinese industry into high-end, smart, and autonomous manufacturing, especially in sectors such as robotics, aerospace, and semiconductors.
- Transition from a manufacturing hub to a global innovation leader.
- Estimated investment of USD 300 billion over ten years to develop core technologies in advanced manufacturing

973 Program

- **Launched 1997 (also known as the State High-Tech Research and Development Program) -** estimated to have spent USD 10 B in this program
- To strengthen China's basic scientific research capabilities in key strategic areas such as information technology, biotechnology, new materials, and energy

863 Program

- **Launched in March' 1986 (also known as the State High-Tech Research and Development Program)** - with a USD 1 B budget
- To focus on key technological areas such as aerospace, electronics, automation, and information technology

1980's - Early Reforms and the Open Door Policy:

- Transition from a centrally planned economy to a more market-oriented system, focusing on attracting foreign investment, technological upgrading, and establishing Special Economic Zones (SEZs)
- Modernize industries, promote high-tech manufacturing, and develop infrastructure

Source: Feedback Advisory analysis based on various China's policy documents and International reports

Programs lasting 10-15 years were launched at key moments in their history. The primary focus was on improving national productivity through the "Manufacturing" route.

China recognized at an early stage that the economics of development differ from the economics of efficiency. A significant aspect of this distinction pertains to manufacturing. It was understood that the primary challenge for any nation is that, in the initial years, manufacturing requires support before it can effectively compete with firms from developed countries.

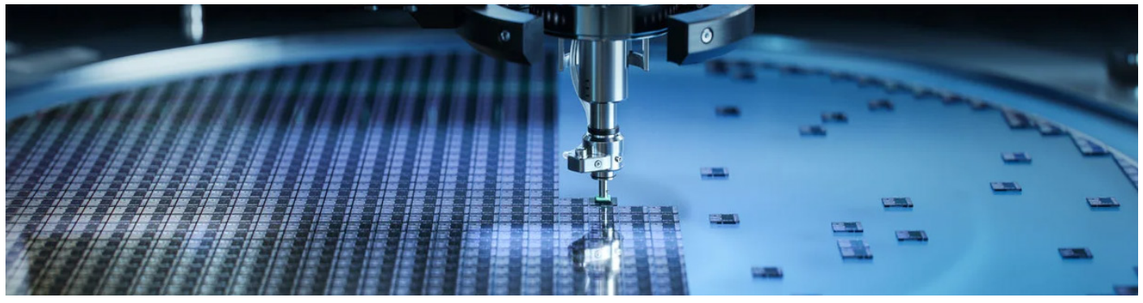
China addressed the learning challenge in part by engaging the worldwide community to teach it.

China's strategy of attracting foreign manufacturers was characterized by highly generous terms and aggressive incentives, especially within its Special Economic Zones (SEZs). The Chinese government facilitated rapid clearances, invested in infrastructure to support export activities, and provided cheap credit, effectively removing typical barriers such as labor issues or bureaucratic delays. Between 1985 and 2005, China experienced an exceptionally high level of foreign direct investment (FDI), averaging nearly 3% of GDP annually—a stark contrast to South Korea and Taiwan during their high-growth phases, where FDI accounted for just about 0.5%, and Japan's negligible FDI prior to 1975. This influx of foreign capital heavily contributed to China's export-driven growth, with over 50% of exports in 2005 produced by foreign-invested firms, and more than 80% of "high-tech" exports originating from these foreign entities. Unlike the West—where manufacturers often face skepticism and moral judgments—China's approach was to make foreign firms feel genuinely welcomed, celebrated, and associated with national development, which explains the rapid and massive foreign investment flow into the country.

During this learning phase, entrepreneurs typically require substantial guidance. Such support can take various forms, including subsidies, inexpensive inputs and funding.

Strategic initiatives and Infrastructure development

The modernization initiative initiated by Deng Xiaoping did not adhere to the traditional manufacturing model. Instead, it concentrated on urban development by establishing new modern cities and integrated industrial estates within extensive, province-sized regions. Western standards of quality, legal frameworks, and practices served as the reference points. Additionally, substantial financial autonomy was granted to provincial and city authorities. Four provinces in South China, regarded as 'most likely to succeed,' were selected for this experimental approach and consequently designated as Special Economic Zones (SEZs), as they differed from the rest of China, which continued to be governed by traditional methods.



The Result

These cities and industrial estates bore a resemblance to the benchmarks set by the European Union and the United States, coinciding with the offshore outsourcing trend of the 1990s. It was this ecosystem—comprising sizable industrial estates, favorable living conditions, and a range of urban public amenities akin to those in the EU and US, coupled with a policy of welcoming all foreign companies and individuals irrespective of their political affiliations—that rendered China an irresistible destination.

This appeal persists, albeit amid growing uncertainties. Chinese export volumes and growth rates surged to unprecedented levels as foreign enterprises flocked to these newly established cities and industrial zones, which offered minimal entry barriers while ensuring factory locations promoted uniformity. Initially focused on traditional exports like textiles, garments, leather goods, and consumer products, China's export basket has evolved dramatically. Today, it leads in high-tech manufacturing—telecom equipment, drones, electrical machinery, computers, solar diodes, and EV batteries—transforming the rest of the world from a reliance-on-imports market into a major exporter.

Additional provinces were incorporated once initial centers achieved critical mass. As these substantial, attractive manufacturing and residential complexes were developed sequentially, a pronounced clustering phenomenon emerged, creating a highly magnetic ecosystem. This effect attracted multinational corporations from Japan, Korea, and Taiwan seeking expansion.

The critical difference between India and China is in the structure of foreign investment. **Nearly 50% of Chinese exports originate from wholly-owned foreign enterprises, attracting thousands of global firms — despite political tensions with countries like the US, Japan, South Korea, and Taiwan.** What drew these multinationals was China's ecosystem of large industrial zones, state support, and extensive infrastructure.

Over time, a significant transfer of technology occurred across various sectors to large cohorts of Chinese workers, engineers, and supervisors employed within foreign-owned companies. This process facilitated the subsequent emergence of indigenous Chinese companies.

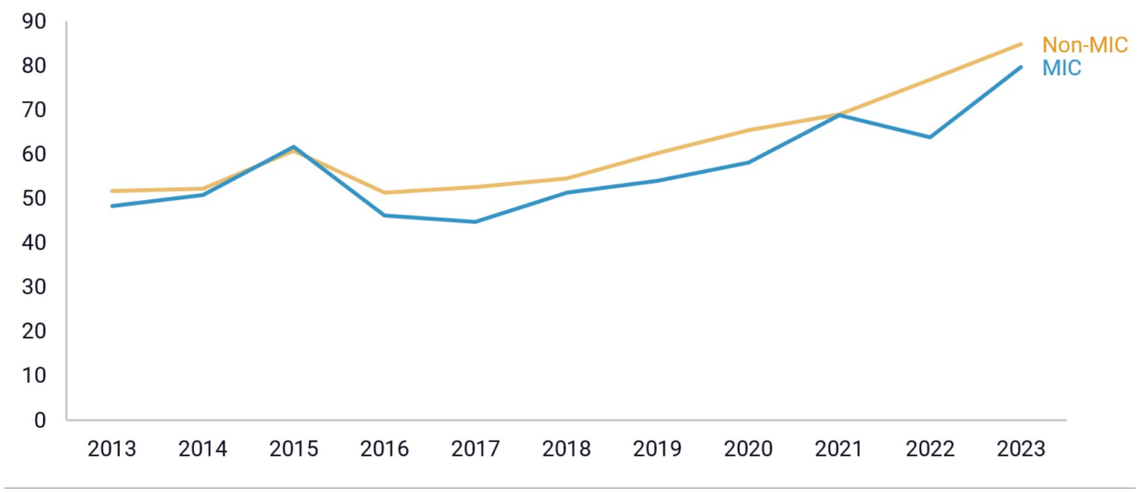
Financial Support to domestic manufacturing[21]

China's intensification of financial support for its industries has been unparalleled in both scale and scope, notably through unconventional means that bypass and disregard World Trade Organization (WTO) compliance concerns while minimizing fiscal burdens. Research indicates that Chinese industrial policy expenditures significantly exceed those of other nations, with state support averaging 4.5% of revenues within affected sectors—substantially above the OECD average of 0.69%. This figure accounts solely for traditional industrial policy tools. When considering the broader context, the state-controlled financial system has arguably played an even more pivotal role in this strategy, with extensive credit allocations to politically favored sectors, thereby enabling Chinese enterprises to expand swiftly, often without the same profit and return considerations as their international counterparts. The proliferation of state-backed credit, alongside instruments such as below-market interest rates, tax incentives, and direct grants, has facilitated Chinese companies in reducing prices, increasing investments, and capturing both domestic and global market share at a rate surpassing that of their competitors.

[21] Was Made in China 2025 Successful? Rhodium Group Report

Direct support through grants—the most conspicuous aspect of China's industrial policy—has exhibited the least remarkable growth within this ecosystem. Between 2015 and 2023, the average government grants to publicly listed companies increased by 80%, a rate surpassing that of previous years but lagging behind China's overall GDP growth. More critically, the anticipated reallocation of resources toward strategic sectors does not seem to be reflected in the data. Instead, enterprises in sectors outside the MIC25, which constitute approximately 67% of the listed companies as of 2023, appear to have benefited at least as much from the increase in government grants as shown below in Figure 24.

Figure 24: Average government grants to listed companies in MIC25 and non-MIC25 sectors
Million RMB



Source: Rhodium Group analysis of listed companies' financial disclosures

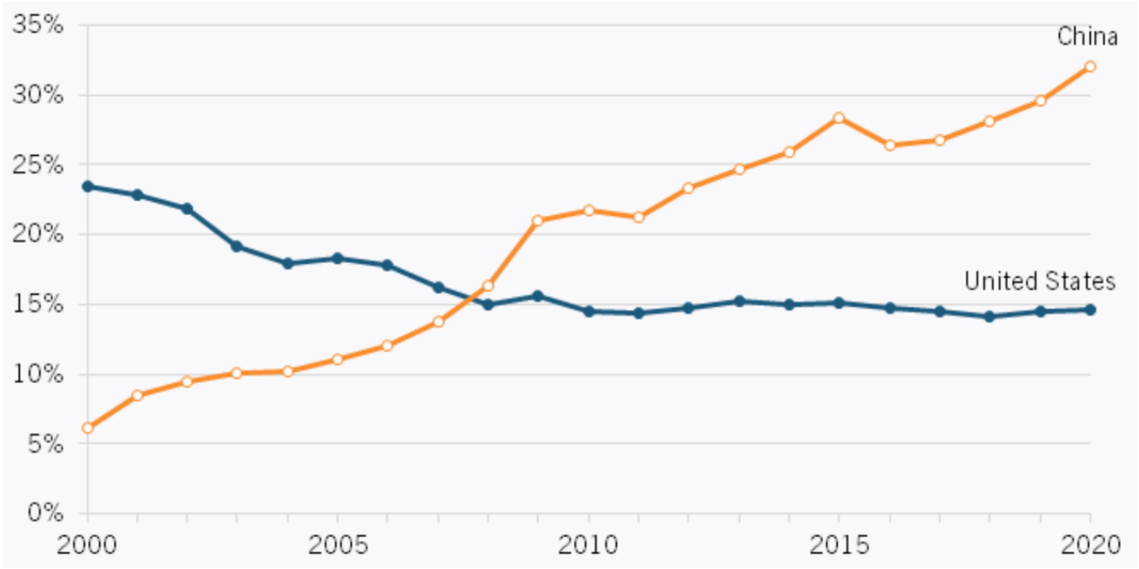
Focus on Materials

Focusing on acquiring materials necessary to sustain extensive industrial manufacturing constitutes a central element of their national policies – "Businesses flourish if the inputs are cheap" seems to be the motto behind this. This principle prompted China to prioritize the procurement of essential materials and energy sources early on, thereby establishing a first-mover advantage in securing these resources prior to a surge in demand. Presently, China's long-term strategic vision distinguishes it significantly from other nations, serving as a key differentiator in the global landscape.

Focus on Machinery Equipment

China's early manufacturing plans of 863 & the 973 programs had laid a foundation for the development of plant and machinery building in the country as a key focus of their industrial growth. The consistent growth in FDI and increasingly complex demands from their international partners over a consistent two-and-a-half-decade period led to the domestic industry stakeholders developing and creating machinery required for their clients. This can be understood from the Figure 25 below how China overtook USA in the mid 2010 period to become the world leader in machinery production in the world.

Figure 25: U.S. and Chinese firms' global market shares in machinery and equipment



Source: OCED data

Focus on Skill Development

Manufacturing skills are primarily developed through practical experience. Even when entire operational plants are transferred, it remains essential for the new proprietors and personnel to undertake significant learning to ensure the production of goods of comparable quality to the original plant[22] .

The vast population during the period of industrialization from 1990 to 2015 consistently regarded manufacturing skills as of greater significance than other skills. The Chinese government has acknowledged the importance of fostering skilled personnel as a crucial strategy and task in advancing the development and utilization of human resources, as well as a fundamental pillar necessary to support China's industrial upgrading.

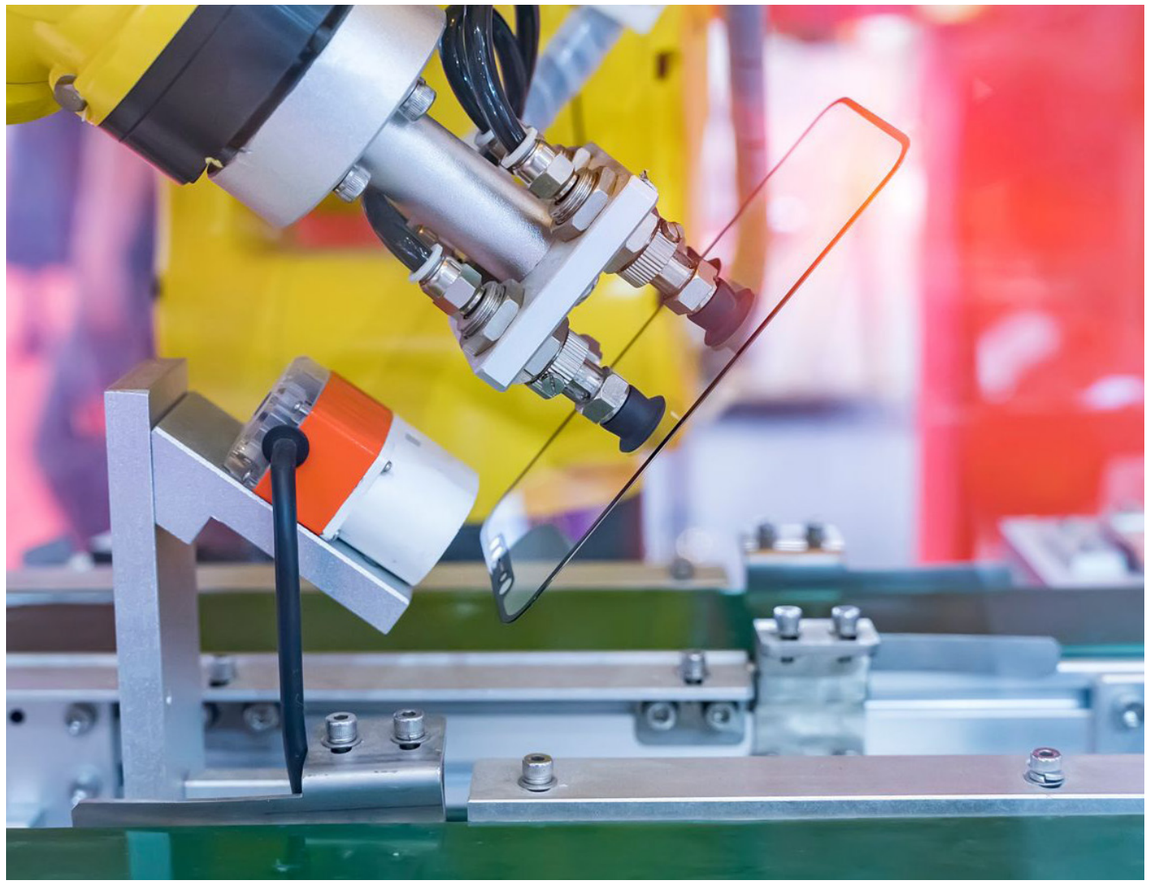
As of now, China boasts a workforce exceeding 200 million skilled workers, encompassing over 60 million highly-skilled professionals. The nation has committed to advancing a modern vocational education framework, aiming that by the conclusion of 2025, more than 30 percent of the total employed population will comprise skilled professionals, with one-third of these being highly-skilled talents[23] .

[22] Industry Stakeholders' inputs
[23] Source: Xinhua

Today, China utilizes these strengths in materials, equipment, and skills as a crucial instrument in its diplomatic efforts, and the application of these strengths varies with different nations.

Sustained investments over 40+ years

China has sustained nearly five decades of comprehensive policy support for its manufacturing sector. Central government incentives alone exceed $650 billion+, while provincial governments are estimated to have provided support of a similar or even greater scale[24]



[24] Source: China State Council; MoF; Company Annual Reports

07

Need for Large Scale Mobile Manufacturing Scheme (LSMMS) for Mobile Manufacturing

This report attempts to analyze the actual impact of PLIfor Large Scale Electronics manufacturing and outlines the challenges faced by the industry moving forward. In this section, we summarize our rationale for the necessity of implementing Large Scale Mobile Manufacturing Scheme (LSMMS) for Mobile Manufacturing:

Large Scale Mobile Manufacturing Scheme (LSMMS) to meet upto 30-35% of global production & exports; ~USD 100-130 B mobile manufacturing by FY 2031

Large Scale Mobile Manufacturing Scheme (LSMMS) required for India to retain its competitiveness in the global market

- Flat domestic market and exports are necessary to maintain growth targets
- Addressing global markets necessitates India to compete with Vietnam and China
- Global headwinds are changing (US-China thaw) and may lead to India facing more competitive global pressures

Large Scale Mobile Manufacturing Scheme (LSMMS) also necessary for ECMS to be more effective

- A strong mobile ecosystem spurs a wider EMS capability & ecosystem
- Investments made in ECMS would require a strong domestic demand from EMS firms
- Sustain growth in Finished goods while the benefits of ECMS will be seen in 3-4 years,
- Maintaining competitiveness, growth of scale to support the growth in ecosystem.

Mobile OEMs/EMS face challenges due to Source country sanctions, making fiscal support through Large Scale Mobile Manufacturing Scheme (LSMMS) a key initial step

PLI for Large Scale Electronics Manufacturing has been one of the most financially successful schemes

08

MAIT Recommendations for Large Scale Mobile Manufacturing Scheme (LSMMS)

India has achieved a breakthrough in smartphone manufacturing, making it one of the fastest-growing pillars of the economy. The stakes are high: **electronics, led by smartphones, can secure both economic strength and strategic autonomy.** The policy choices taken today will determine whether India truly becomes a global manufacturing powerhouse – **'Making in India, for the world'.**

Key Recommendation

Large Scale Mobile Manufacturing Scheme (LSMMS for Smartphones – **Focus on Reducing structural cost disabilities to close the 12 -14% gap with Vietnam and China**

Key recommendations for Large Scale Mobile Manufacturing Scheme (LSMMS)

- Targeted incentives Large Scale Mobile Manufacturing Scheme (LSMMS) for smartphone manufacturing to drive scale and exports and achieve target of $100- $130B production by FY31, India will need a **long-term, stable policy** framework
- Aggressive incentives for India champions
- Rapid trade facilitation
- Continue tariff rationalization
- Targeted incentives for capex localization

Expected Outcome

- Turbocharge smartphone production and exports
- Smartphones could emerge as an export powerhouse
- Complement ECMS to build local depth
- Build MSMEs and accelerate emergence of Indian champions
- Enable large-scale, high-quality job creation
- Reinforce long-term economic security

MAIT members are very committed to meet India's USD 500 B Electronics target in India. The members assess that the following recommendations, if accepted, would be critical in meeting this ambition of the nation.

a. Applications of participants in the existing PLI scheme should be considered automatically approved for Large Scale Mobile Manufacturing Scheme (LSMMS) if they apply again.

b. Existing investments under PLI for Large Scale Electronics Manufacturing should be carried forward to Large Scale Mobile Manufacturing Scheme (LSMMS).

c. There should be no price ceiling on the 'Price' of phones manufactured for firms to claim incentives. India has a large base of 2G phone users needing migration to 4G or higher smartphones. They likely cannot afford INR 15,000/- smartphones and would require models in the INR 6000/- to 8000/- range. However, OEMs and EMS firms are discouraged from offering these phones since they are not covered under PLI.

MAIT

4th Floor, PHD House,
4/2, Siri Institutional Area August Kranti Marg,
New Delhi 110 016, India