ELECTRONICS SYSTEM DESIGN & MANUFACTURING

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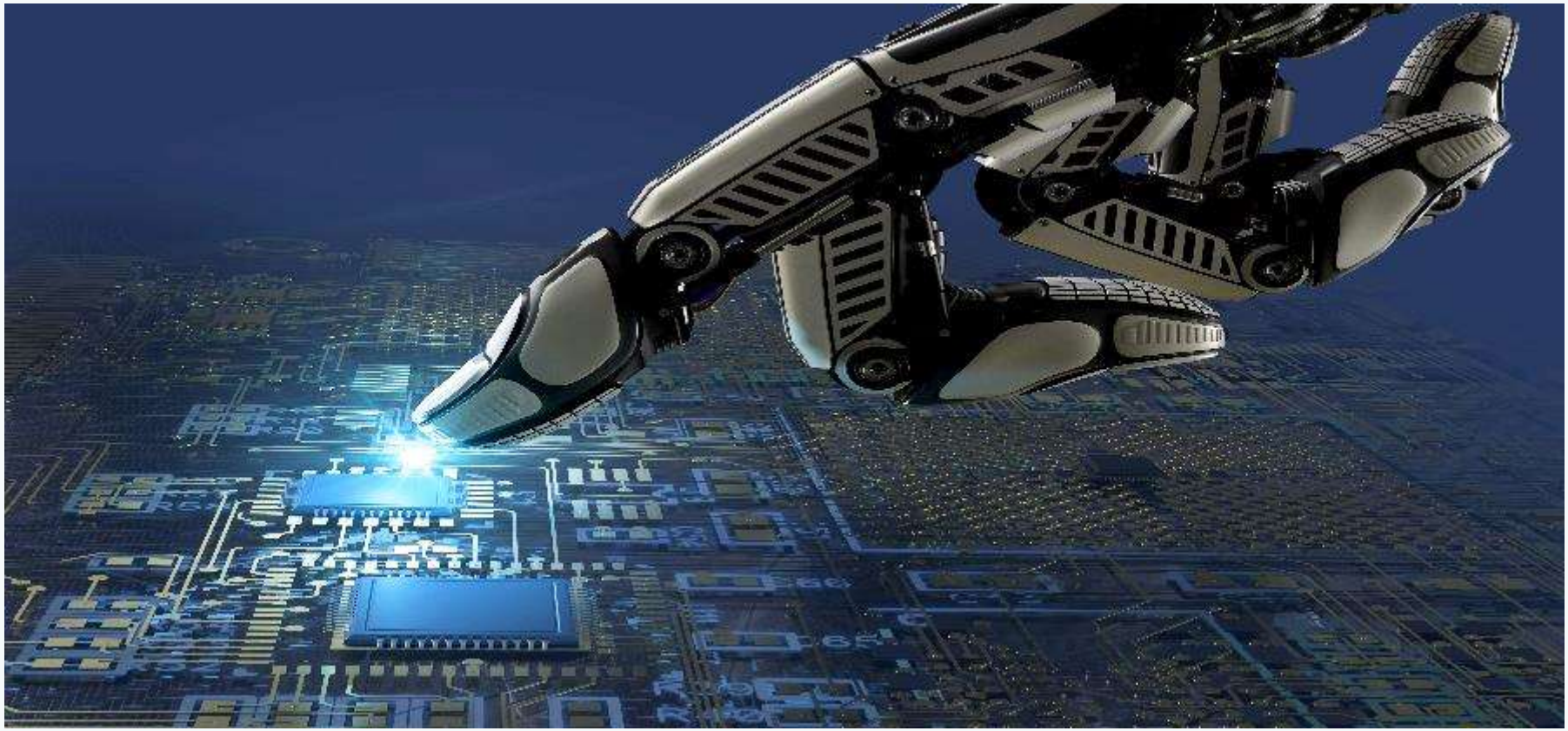

March 2024

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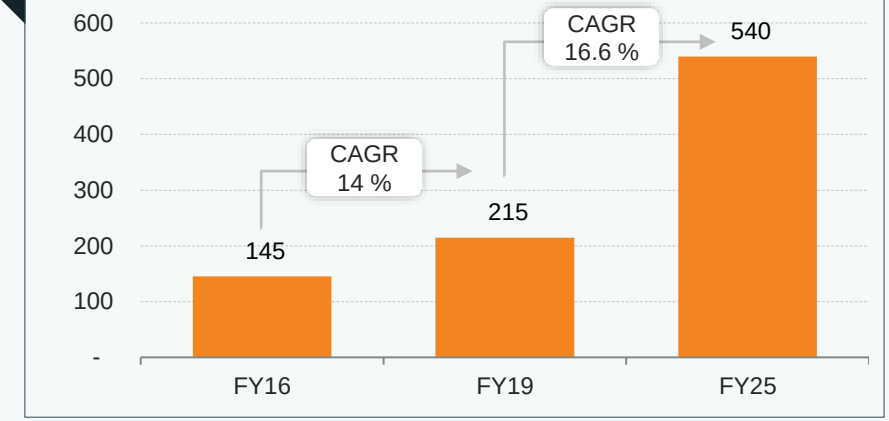
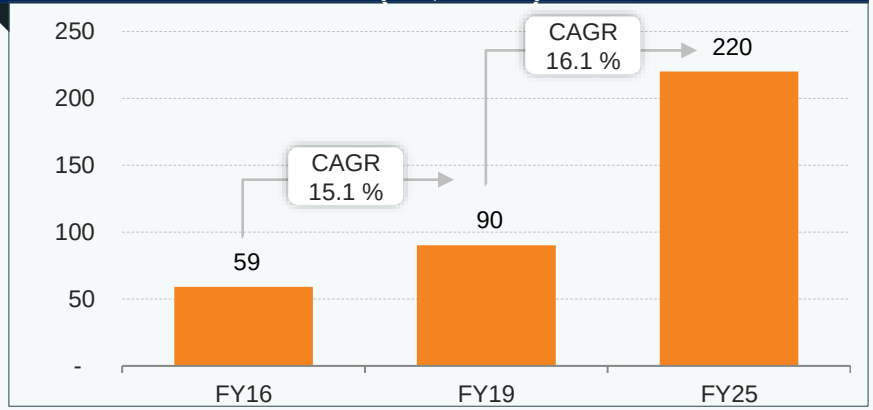
Executive summary

- The Electronics System Design & Manufacturing (ESDM) industry includes electronic hardware products and components relating to information technology (IT), office automation, telecom, consumer electronics, aviation, aerospace, defence, solar photovoltaic, nano electronics and medical electronics.
- The industry also includes design-related activities such as product designing, chip designing, Very Large-Scale Integration (VLSI), board designing and embedded systems.
- The Electronics System Design & Manufacturing (ESDM) market in India is anticipated to increase at a CAGR of 16.1% between 2019 and 2025, owing to strong demand, supportive government policies and increased digitalisation.
- The ESDM sector plays a key role in the government's goal of generating US$ 1 trillion of economic value from the digital economy by 2025.
- India's digital media and entertainment industry, worth US$ 12 billion, is set to triple by 2030, as forecasted by Redseer.
- During April- January (2024), the exports of electronic goods were recorded at US$ 22.64 billion as compared to US$ 18.78 billion during same period.
- The demand for electronic products will rise to US$ 400 billion by 2025 from US$ 33 billion in FY20.
- India has a goal of producing 1 billion mobile handsets worth US$ 190 billion (Rs. 13,00,000 crore) by 2025, with 600 million handsets worth US$ 110 billion (Rs. 7 lakh crore) targeted for exports.

Electronics Market in India (US$ billion)



Electronics System Design & Manufacturing (ESDM) Market in India (US$ billion)



Note- *Electronic goods include Electronic instruments, Electronic Components, Consumer Electronics*
Source: *Ministry of Electronics & Information Technology (MeitY), India Electronics & Semiconductor Association (IESA), Make in India*

Advantage India

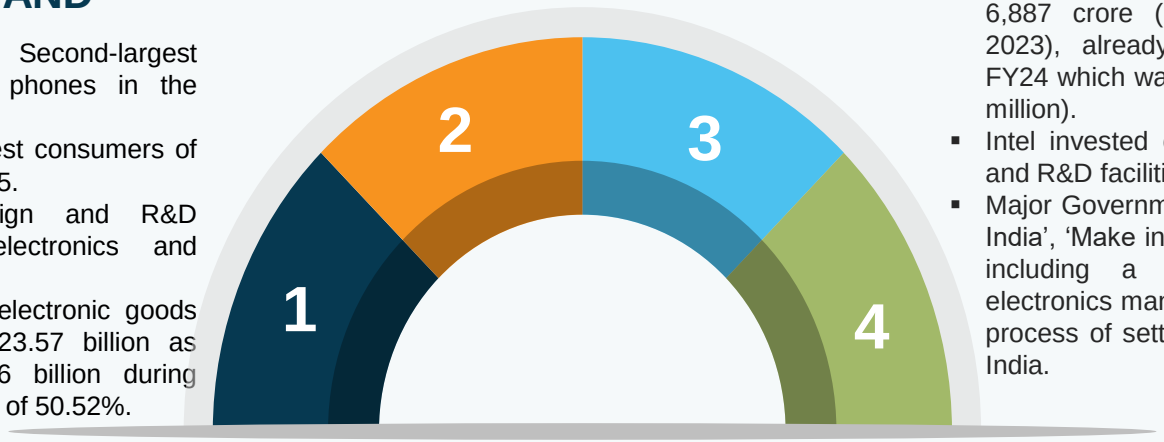
Advantage India

2. ATTRACTIVE OPPORTUNITIES

- India and Taiwan plans a US$ 7.5 billion chip plant deal, potentially boosting India's semiconductor manufacturing with anticipated tariff reductions on components.
- India is committed to reach US$ 300 billion worth of electronics manufacturing and exports of US$ 120 billion by 2025-26.
- Addressable market for domestic OEMs is projected to be >Rs. 10 lakh crore (US$ 131.99 billion) by 2025.
- The government intends to incentivise and attract investments to set up semiconductor FABs (fabrication plants) in India.
- AI is expected to add US$ 967 billion to Indian economy by 2035 and US$ 450-500 billion to India's GDP by 2025, accounting for 10% of the country's US$ 5 trillion GDP target.
- In March 2023, the Government approved setting up of the Electronics Manufacturing Cluster (EMC) at Hubli-Dharwad in Karnataka, worth US$ 22 million (Rs. 180 crore) and is expected to create about 18,000 jobs.

1. ROBUST DEMAND

- In 2023, India became Second-largest manufacturer of mobile phones in the world.
- India will be the fifth-largest consumers of electronic products by 2025.
- India has strong design and R&D capabilities in auto electronics and industrial economics.
- In FY23, the exports of electronic goods were recorded at US$ 23.57 billion as compared to US$ 15.66 billion during FY22, registering a growth of 50.52%.



3. POLICY SUPPORT

- The production-linked incentive (PLI) schemes will provide companies opportunities to establish manufacturing plants in India.
- 100% FDI is allowed under the automatic route. In case of electronics items for defence, FDI up to 49% is allowed under automatic route and beyond 49%, government approval is required.
- The Digital India Program has been transforming the country into a digitally empowered society and knowledge economy since its launch in July 2015.
- The Indian government's National Policy on Electronics (NPE 2019) aims to facilitate a turnover of US$ 400 billion in domestic manufacturing by 2025.

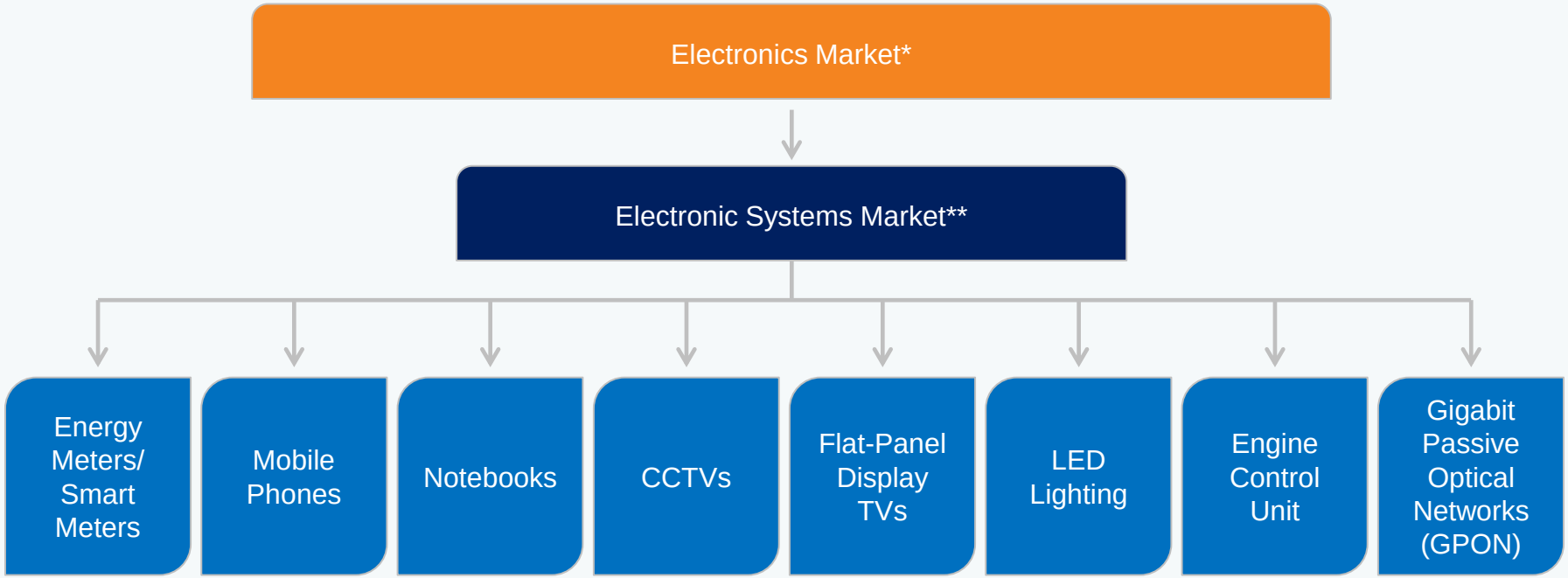
4. INVESTMENTS

- In March 2024, the Cabinet approved a massive US$ 15.2 billion (Rs. 1.26 trillion) investment in three semiconductor plants, signifying India's technological progress.
- Production-linked scheme (PLI) for large-scale electronics manufacturing (including mobiles) has seen investments worth Rs. 6,887 crore (US$ 833 million) (till June 2023), already surpassing the target for FY24 which was Rs. 5,488 crore (US$ 664.4 million).
- Intel invested over US$ 7 billion in design and R&D facilities in the country to date.
- Major Government initiatives such as 'Digital India', 'Make in India' and supportive policies including a favorable FDI Policy for electronics manufacturing have simplified the process of setting up manufacturing units in India.

Source: *Ministry of Electronics and Information Technology (MeitY), Union Budget 2021-22, Make in India, Press Information Bureau*

Market Overview

Major product segments



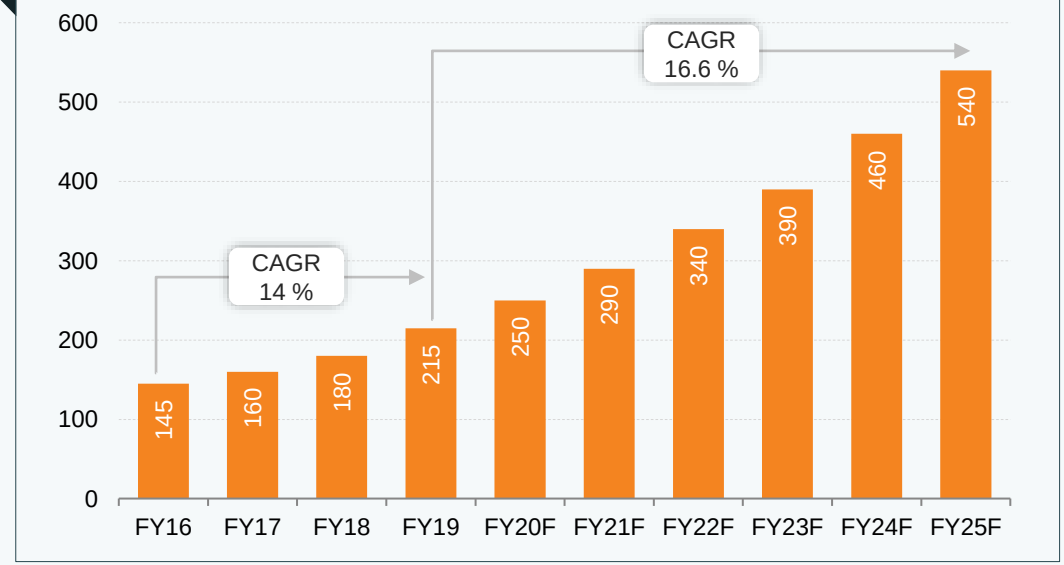
*The Electronics Market includes (Total Domestic Consumption + Exports) + Electronics Design Market + Electronics Manufacturing Services Market + Electronics Component Market

**The Electronics System Design & Manufacturing (ESDM) industry includes electronic hardware products and components relating to information technology (IT), office automation, telecom, consumer electronics, aviation, aerospace, defence, solar photovoltaic, nano electronics and medical electronics. The industry also includes design-related activities such as product designing, chip designing, very large-scale integration (VLSI), board designing and embedded systems

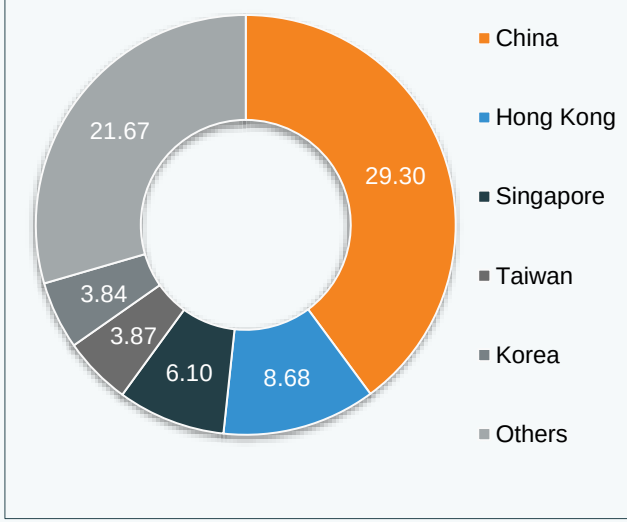
Note: *The top eight product segments by value have been considered for the purpose of market sizing*

Overview of electronics market in India...(1/2)

Electronics Market in India (US$ billion)



Electronics imports in India (FY23) (US$ billion)



- The electronics market has grown at a CAGR of 14% from 2016-19 and is expected to accelerate at a CAGR of 16.6% in 2020-25, with the total demand likely to account for US$ 540 billion in FY25.
- In FY23, the imports of electronics goods stood at US$ 73.46 billion, whereas exports stood at US$ 22.68 billion.
- During April-October 2023, the imports of electronics goods stood at US$ 51.33 billion and exports stood at US$ 15.48 billion.
- The ESDM sector is likely to generate US$ 100-130 billion in economic value by 2025.
- The Government of India aims to make electronics goods amongst India's 2-3 top-ranking exports by 2026.
- Electronics goods exports are expected to increase from the projected US$ 15 billion in 2021-22 to US$ 120 billion by 2026.
- PLI scheme for large scale electronics manufacturing launched by Ministry of Electronics and Information Technology (MeitY) in April 2020 has been extended from existing five years band (FY21-FY25) to six years (FY21-FY26).

Source: *India Electronics & Semiconductor Association (IESA), Make in India*

Overview of electronics market in India...(2/2)

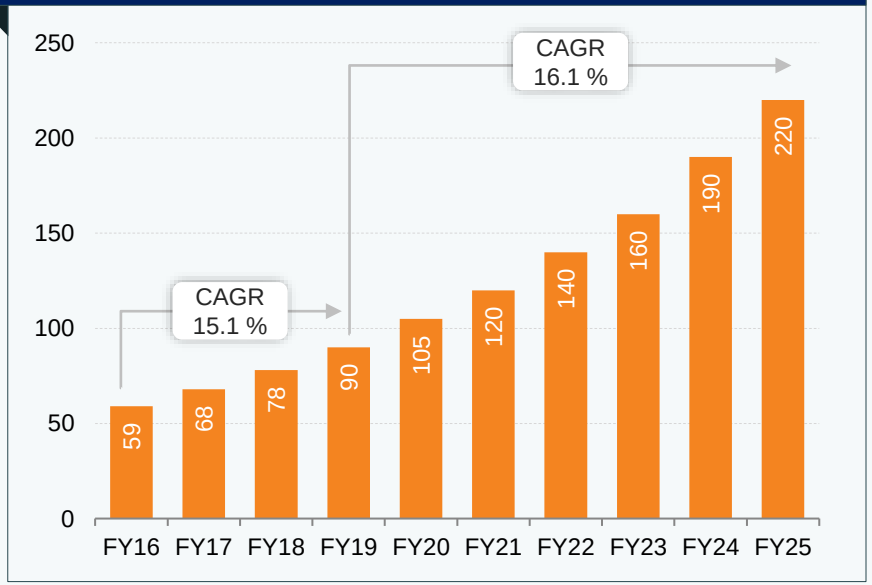
- The government allocated Rs. 6,903 crore (US$ 830.8 million) for the Indian Semiconductor Mission in the Union Budget 2024-25, which is likely to help kickstart the development of the semiconductor and display manufacturing ecosystem in India.
- Union Budget 2023-24 allocated Rs. 16,549 crore (US$ 2 billion) for the Ministry of Electronics and Information Technology, which is nearly 40% higher on year. The budget for FY23 had allocated Rs. 14,300 crore (US$ 1.7 billion) for the IT ministry.
- As per the Union Budget 2023-24, an outlay of Rs. 4,795.24 crore (US$ 580 million) was allocated for the Digital India program, which is a flagship programme of the Government of India, with a vision to transform India into a digitally empowered society and knowledge economy.
- The Indian electronics manufacturing industry is projected to reach US$ 520 billion by 2025.
- India has been one of the largest consumers of electronic products specifically in Asia-Pacific due to factors such as rising per capita disposable incomes and consumption in the past decade.
- In July 2023, electronics maker Elista announced that it would invest Rs. 100 crore (US$ 12.1 million) in Andhra Pradesh to set up a manufacturing unit for Smart LED TVs, smartwatches, audio speakers, and large appliances.
- US CHIP design major Advanced Micro Devices (AMD) will invest up to US$ 400 million in India over the next five years and will set up its biggest design facility in the country.
- In March 2022, Reliance announced that it would invest US$ 220 million in a joint venture with Sanmina Corp, a US-listed company for making electronic products in the Asian countries.
- Fujitsu, a Japanese IT hardware manufacturer, announced its foray into the Indian consumer laptop market in July 2021, with plans to sell 10,000 premium notebooks in the country by March 2022.
- In FY23, India manufactured wearables such as earphones and smartwatches worth Rs. 8,000 crore (US$ 976.7 million), boosted by the implementation of a phased manufacturing plan (PMP). The industry is hopeful of doubling the production to Rs. 15,000-17,000 crore (US$ 1.83-2.07 billion).

Per Capita Disposable Income and Consumption Expenditure (US$)

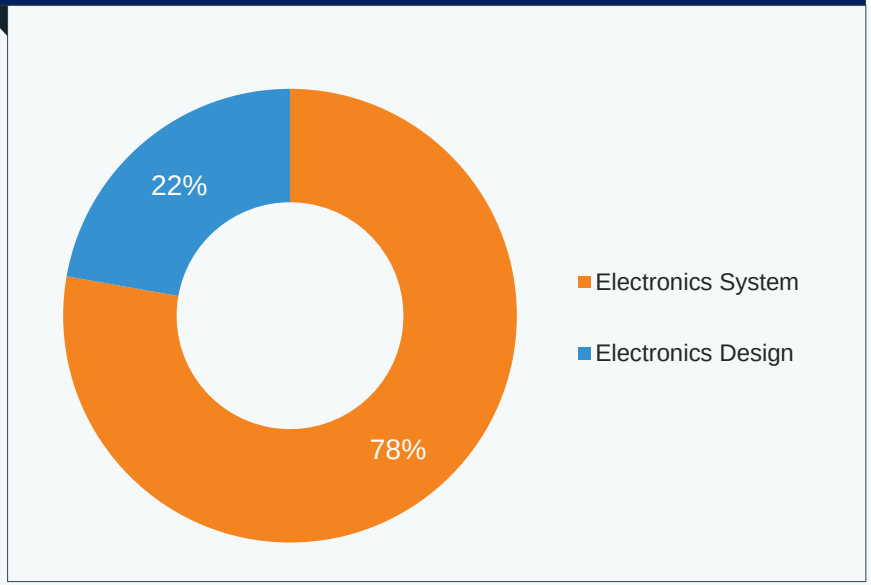
Source: *News Articles, Union Budget 2023-24*

Overview of electronics system design & manufacturing (ESDM) market in India...(1/2)

ESDM Market Demand (US$ billion)



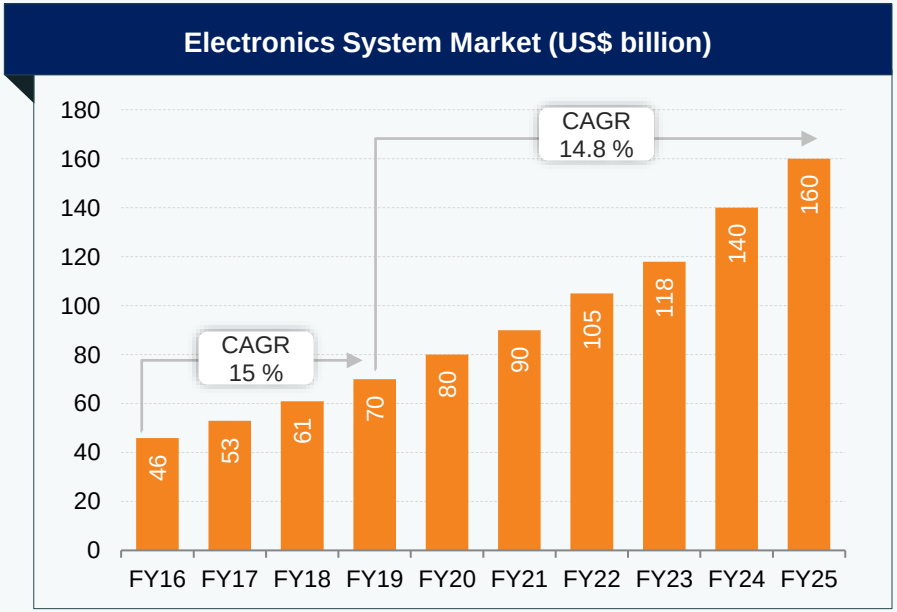
Segmentation of ESDM Market (FY19)

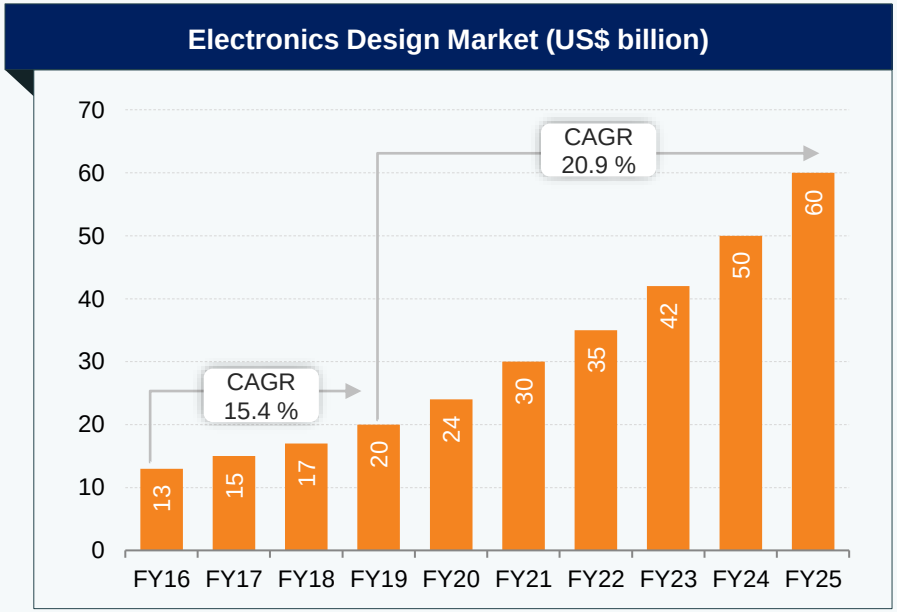


- The Electronics System Design & Manufacturing (ESDM) is broadly segregated into—Electronics System and Electronics Design.
- India is one of the largest consumer electronics markets in the Asia Pacific Region and is home to considerable talent for electronic chip design and embedded software. India has committed to reach US$ 300 billion worth of electronics manufacturing and exports by 2025-26.
- Major Government initiatives such as 'Digital India', 'Make in India' and supportive policies including a favorable FDI Policy for electronics manufacturing have simplified the process of setting up manufacturing units in India.
- India is the second fastest digitizing economy amongst the 17 leading economies of the world. The Government of India aims to make electronics goods amongst India's 2-3 top ranking exports by 2026. Electronic goods exports are expected to increase from the projected US$ 15 billion in 2021-22 to US$ 120 billion by 2026.top-ranking

Source: *India Electronics & Semiconductor Association (IESA), Invest India, Make in India*

Overview of electronics system design & manufacturing (ESDM) market in India...(2/2)

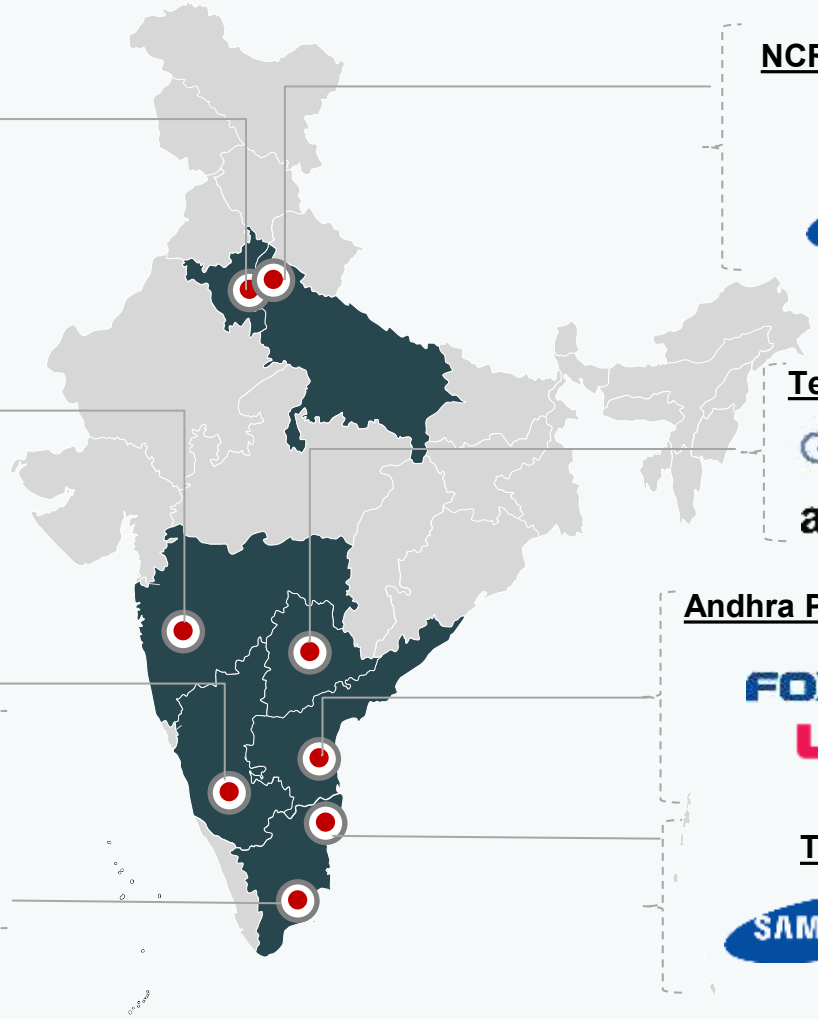




- India has strong Design and R&D capabilities in auto electronics and industrial economics. The Government is promoting the development of Electronics Manufacturing Clusters (EMCs) throughout the Country to provide world-class infrastructure and facilities.
- Post COVID, The Government of India aims to increase India's contribution by around US$ 400 billion worth of electronics goods including exports worth US$ 120 billion, which would account for 9-10% of the overall global value chains, from the current supply potential of 1-2%.
- The consumer electronics and appliances industry in India is expected to become the fifth-largest in the world by 2025.
- As global companies are leveraging the well-developed manufacturing system in the State, Tamil Nadu has emerged as one of the major electronics hardware manufacturing and exporting States in the country. The state is well positioned to achieve a US$ 100 billion ESDM industry in the next five years.
- The India Cellular and Electronics Association in February 2023 signed a memorandum of understanding with the Uttar Pradesh government to facilitate investments as the electronics manufacturing and skill hub to cater to domestic demand and exports. The government has set a target to achieve US$ 300 billion of electronics manufacturing by 2025-26, out of which US$ 75-100 billion of electronics manufacturing is expected from UP.

Source: *India Electronics & Semiconductor Association (IESA), Invest India, Make in India*

ESDM landscape in India - key players & clusters



NCR | Gurugram

Panasonic, Midea, Delta, TDK

Maharashtra | Pune

LG, Belden, Jabil, NVIDIA, Crompton

Karnataka | Bengaluru, Mysuru

Intel, Huawei, Samsung, Qualcomm, Broadcom

Tamil Nadu | Sriperumbudur

acer, Lenovo

NCR | Noida, Greater Noida

LG, oppo, Samsung, mi, vivo

Telangana | Hyderabad

Google, Microsoft, amazon, Qualcomm

Andhra Pradesh | SriCity, Tirupati

Foxconn, Celkon, Lava, TCL

Tamil Nadu | Chennai

Samsung, Foxconn, flex

Growth Drivers

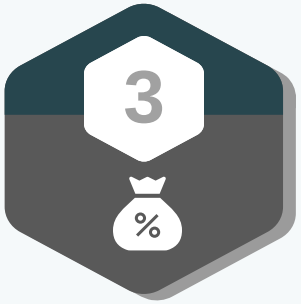
Growth drivers

POLICIES

- The National Policy on Electronics (NPE) 2019 envisions to position India as a global hub for ESDM by encouraging and driving capabilities in the Country for developing core components, including chipsets and by creating an enabling environment for the industry to compete globally.
- The Government attaches high priority to electronics hardware manufacturing, and it is one of the important pillars of both “Make in India” and “Digital India” programme of Government of India.

DEMAND-SIDE DRIVERS

- There is a huge demand for electronic goods in the Middle-Eastern countries and in emerging markets such as North Africa and Latin America. This provides an export market for ‘Made in India’ electronic goods.
- Technology transitions such as the rollout of 5G networks and IoT (Internet of Things) are driving the accelerated adoption of electronics products.



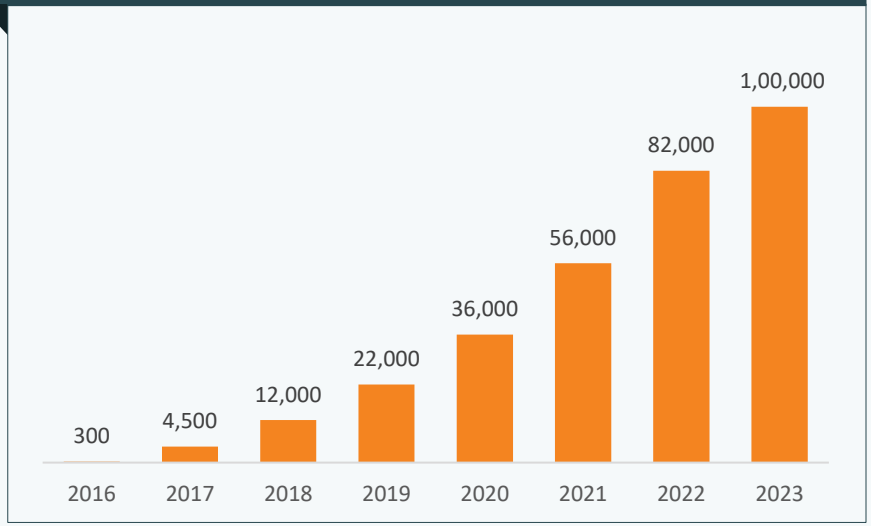
INVESTMENT

- The cumulative FDI equity inflow in the Electronics industry is US$ 4.57 billion during the period April 2000-December 2023.
- Third-largest start-up ecosystem.
- Robust research & development (R&D) ecosystem.
- Union Budget 2023-24 has allocated Rs. 16,549 crore (US$ 2 billion) for the Ministry of Electronics and Information Technology, which is nearly 40% higher on year. The budget for FY23 had allocated Rs. 14,300 crore (US$ 1.7 billion) for the IT ministry.

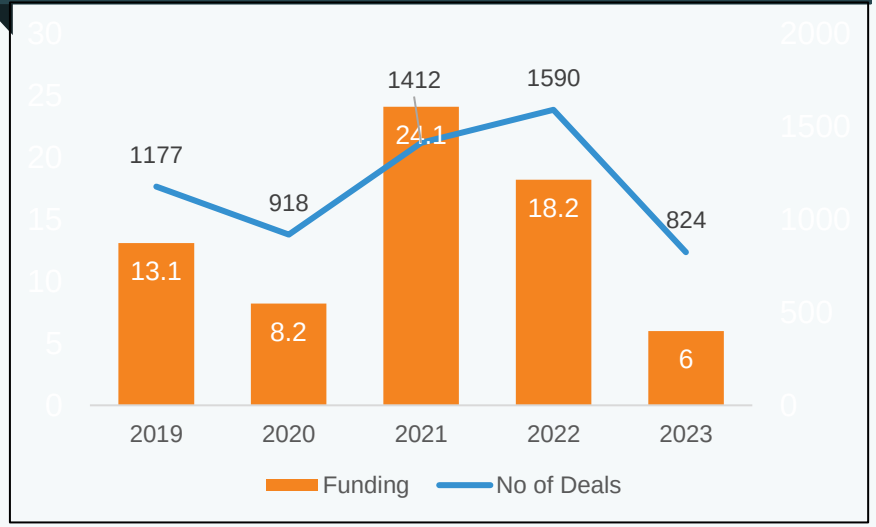
Source: *News Article, Union Budget 2023-24, Make in India*

The third-largest start-up ecosystem

Number of Startups in India



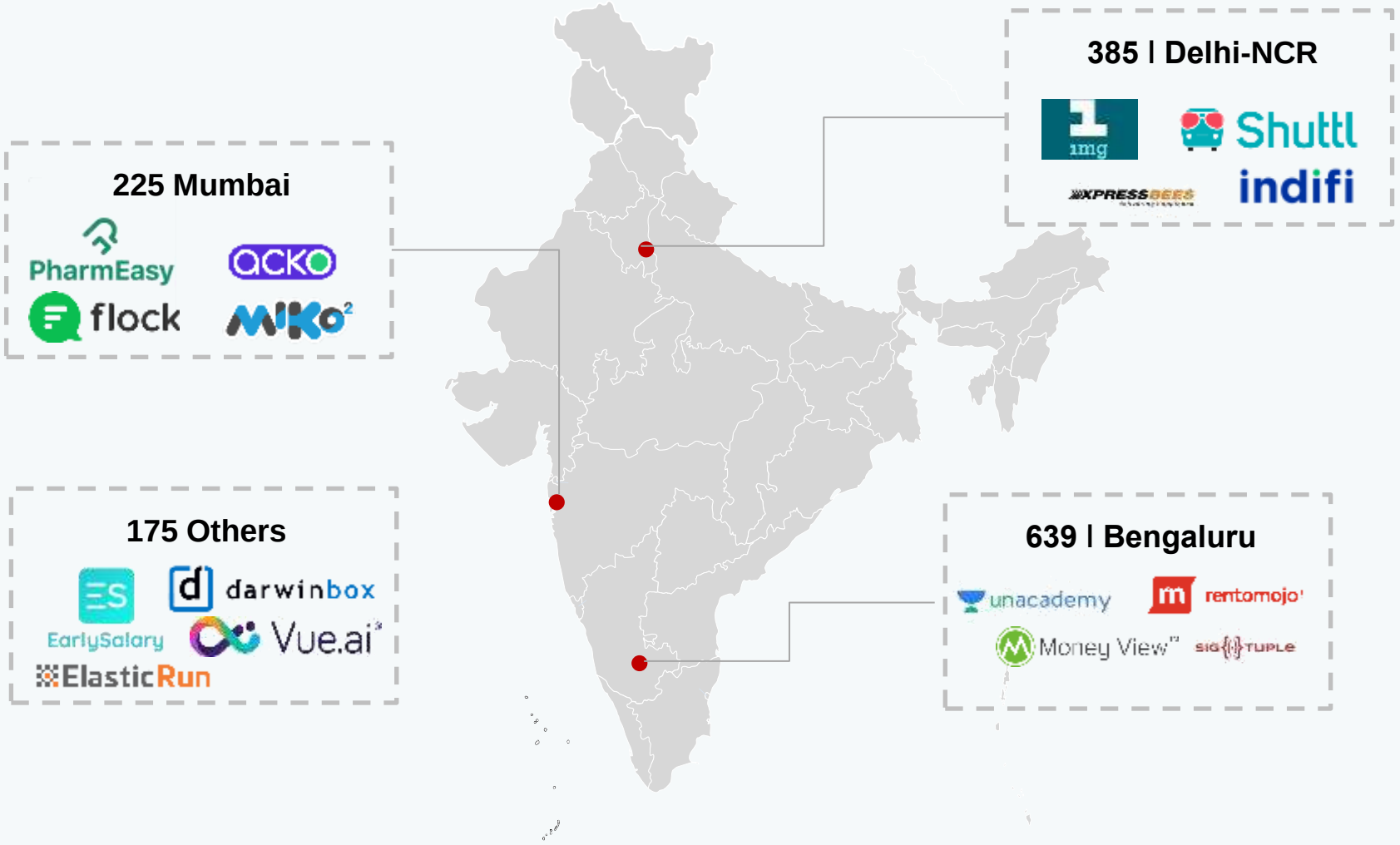
Tech funding (US$ billion) and no of deals over the years



- The Indian startup ecosystem is experiencing a surge over the years, due to rapid technological advancements, increasing internet penetration, growing digital infrastructure, rising startup culture, government initiatives like Digital India, Make in India, and Startup India, as well as a large pool of skilled workforce.
- India has witnessed an exceptional surge in the creation and funding of startups as the country has solidified its position as a major global centre for innovation and businesses. However, securing adequate funding remains a significant task for startups, often leading to survival challenges.
- In 2023, the funding scenario for tech startups turned bleak amid the global uncertainty, witnessing a 67% YoY plunge in total funding to US$ 6.0 billion. This decline came after the peak funding levels observed in 2021 (US$ 24.1 billion) and 2022 (US$ 18.2 billion), where investors displayed confidence in Indian tech startups. In 2023, the number of deals declined to 824 However, the decline appears to be cyclical than a long-term trend.

Source: *NASSCOM, Startup India*

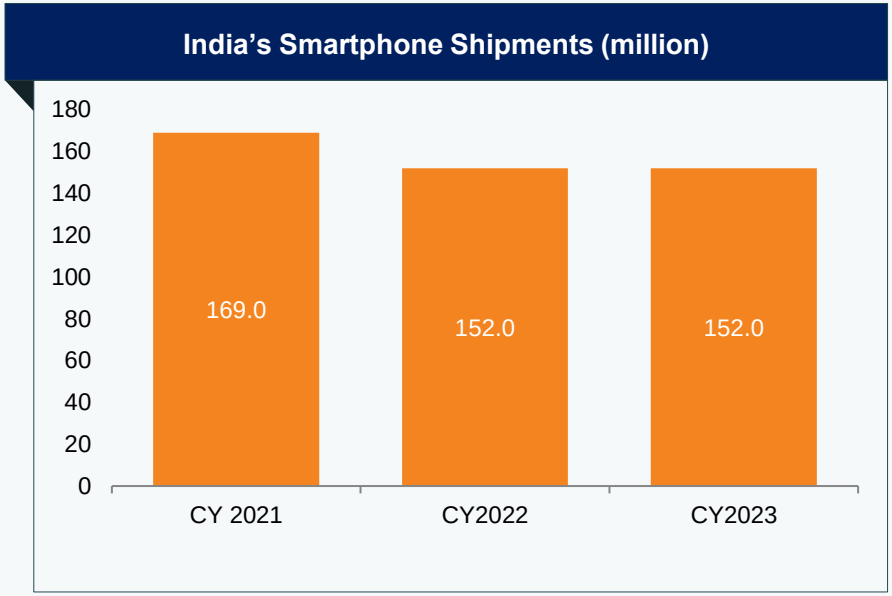
Bangalore, Delhi-NCR and Mumbai are home to 55-58% start-ups



Source: *NASSCOM*

Large consumer base

- In FY23, the exports of electronic goods were recorded at US$ 23.57 billion as compared to US$ 15.66 billion during FY22, registering a growth of 50.52%.
- During April-October 2023, the imports of electronics goods stood at US$ 51.33 billion and exports stood at US$ 15.48 billion.
- India's export of electronic goods rose tremendously by US$ 6.3 billion in 2013-14 to US$ 23.57 billion in 2022-23. Mobile phones, IT hardware (laptops, tablets), consumer electronics (TV and audio), industrial electronics and auto electronics are key exports in this sector.
- The Consumer Electronics and Appliances Industry in India is expected to become the fifth-largest in the world by 2025.
- India emerged as the second-largest manufacturer of mobile phones in the world, with a production value of mobile devices reaching US$ 44 billion in 2023 from US$ 3 billion in 2014-15.
- In addition, the consumer electronics and appliances industry in India is expected to become the fifth largest in the world by 2025; this is noticeable for LCD/LED TVs, which witnessed more than 2x growth (by volume) in the past five years.
- Factors such as high internet penetration rate (over 820 million users) and second-largest global smartphone manufacturer boosted penetration of electronic products to the large potential consumer base, which in turn is driving ESDM market.



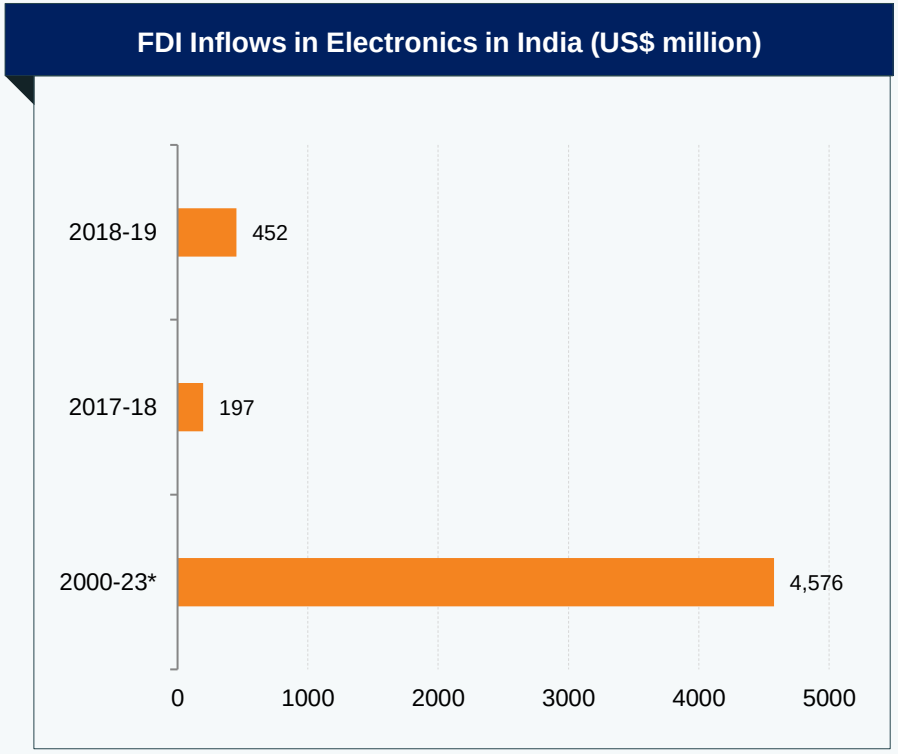
Note: *LCD - Liquid Crystal Display; LED - Light-emitting Diode, F - Forecasted*
Source: *Reserve Bank of India (RBI), Ministry of Electronics and Information Technology (MeitY), News Articles, Make in India*

Increasing FDI inflows

- The cumulative FDI equity inflow in the Electronics industry is US$ 4.76 billion during the period April 2000-December 2023.
- For defence electronics, FDI inflows in this sector up to 49% are allowed under automatic route and beyond 49% through government approval
- The government allows 100% FDI in the ESDM sector through an automatic route to attract investments from OEMs and IDMs.

Areas of interest for investments in ESDM are as follows:

1. Mobile phone manufacturing
2. Light Emitting Diode (LED) and Liquid Crystal Display (LCD)
3. Wearable devices
4. Solar cells and modules
5. Research, innovation and skill development in emerging areas such as Augmented Reality (AR), Virtual Reality (VR), drones, robotics and additive manufacturing
6. Semiconductor wafer fabrication
7. Medical electronic devices manufacturing
8. Research and development of automotive electronics and power electronics for mobility



Notes: *OEM - Original Equipment Manufacturer, IDM - Integrated Device Manufacturers, * - From April 2000-December 2023*
Source: *Make in India, Department for Promotion of Industry and Internal Trade*

Key investors in electronics sector

- Foxconn Technology Group and STMicroelectronics NV are collaborated in 2023 to construct a semiconductor plant in India.
- Mitsubishi Electric India would invest Rs. 1,891 crore (US$ 230.9 million) to build an air conditioner and compressor factory in Tamil Nadu. This facility will generate over 2,000 jobs, 60% of which will be held by women.
- The electronics and IT ministry approved a total of 314 applications in May 2022 with proposed investments of Rs. 86,824 crore (US$ 10.51 billion) under a modified special incentive package scheme. The proposals that were approved in May included an investment of Rs. 596 crore (US$ 72.2 million) from Bosch Automotive Electronics Private Limited.
- Voltas announced plans of Rs. 400 crore (US$ 50.10 million) capex under the PLI scheme to manufacture components for white goods in May 2022.
- In November 2022, Voltas entered into a technology license agreement with Denmark's Vestfrost Solutions to develop, manufacture, sell and service medical refrigeration and vaccine storage equipment including ice-lined refrigerators, vaccine freezers and ultra-low temperature freezers to the Indian market.
- As of March 03, 2021, 19 companies filed for the production-linked incentive (PLI) scheme for IT hardware. The scheme was open for applications until April 30, 2021; its incentives will be available from April 01, 2021. Over the next four years, the scheme is expected to lead to a total production of ~Rs. 160,000 crore (US$ 21.88 billion). Of the total production, IT hardware companies have proposed production of >Rs. 135,000 crore (US$ 18.46 billion) and domestic companies have proposed production of >Rs. 25,000 crore (US$ 3.42 billion).

Source: *News Articles*

Government initiatives and policy support

New schemes to promote electronics manufacturing

- The inaugural Future Skills Summit was organized by the Ministry of Electronics and Information Technology (MeitY) in collaboration with the National Institute of Electronics and IT (NIELIT) in Guwahati on February 15, 2024.
- Union Budget 2023-24 allocated Rs. 16,549 crore (US$ 2 billion) for the Ministry of Electronics and Information Technology, which is nearly 40% higher year on year. The budget for FY2023 had allocated Rs. 14,300 crore (US$ 1.7 billion) for the IT ministry.
- The Government attaches high priority to electronics hardware manufacturing, and it is one of the important pillars of both “Make in India” and “Digital India” programme of Government of India.
- The National Policy on Electronics (NPE) 2019 envisions to position India as a global hub for ESDM by encouraging and driving capabilities in the Country for developing core components, including chipsets and by creating an enabling environment for the industry to compete globally.
- In September 2022, MeitY Startup Hub (MSH), an initiative of the Ministry of Electronics & Information Technology (MeitY), and Meta announced the launch of an accelerator programme to support and accelerate XR technology startups across India.
- By 2030, ADIF, a think tank for IT start-ups, aims to put India among the top three start-up ecosystems in the world, with emphasis on expanding the knowledge base, encouraging collaboration and outlining the best policies.
- As per Union Budget 2022-23, the Ministry of Electronics and Information Technology (MeitY) has been allocated Rs. 14,300 crore (US$ 1.85 billion). In the allocated budget, revenue expenditure allocation is Rs. 13,911.99 crore (US$ 1.8 billion) and capital expenditure allocation is Rs. 388.01 crore (US$ 50.4 million).
- Ministry of Electronics & Information Technology (MeitY) has announced “Scheme for Promotion of Semiconductor Eco-System” in India with a massive outlay of Rs. 76,000 crore (US$ 9.48 billion) in 2022.
- Under the production-linked incentive (PLI) scheme for IT Hardware Products, the Ministry of Electronics and Information Technology has approved 14 qualified applicants. To manufacture these products in India, the government will offer incentives of US$ 983.76 million over the next four years. In this duration, production worth US$ 21.62 billion and exports of US$ 8.06 billion are expected.

Remission of duties or taxes on export products (RoDTEP) scheme.

- In January 2021, the India Cellular and Electronics Association (ICEA) proposed a RoDTEP rate of 2% on smartphones, 2.4% on featurephones, 2% on tablets/laptops, 3.4% on battery chargers and 1.48% on battery packs.

Source: *Ministry of Electronics and Information Technology (MeitY), News Articles, Union Budget 2022-23, Union Budget 2023-24*

Skill development in ESDM sector

1. Electronics Sector Skills Council of India

- Electronics Sector Skills Council of India (ESSCI) aims to facilitate a world-class ecosystem for developing a future ready workforce in the Electronics System Design & Manufacturing Sector. Its mission is to become a global leader in skill development in Electronics by aligning to the product lifecycle - Design, Manufacturing & Service through blended Skilling, R&D, Innovation & adoption of state of the art technologies to reach masses and lead to the growth of the ESDM sector.

3. National Institute of Electronics & Information Technology,Ajmer

- The Government of India launched the 'Scheme for financial assistance to select states for skill development in ESDM sector' in November 2013. The scheme was aimed at enhancing the skilling capacities in ESDM Sector through public and private sector for students/unemployed youth belonging to other disciplines.

2. India Electronics and Semiconductor Association

- India Electronics and Semiconductor Association (IESA) aims to grow the ESDM and electronics business segment in India and make India the preferred destination for electronics and semiconductor design and manufacturing.
- India Electronics and Semiconductor Association (IESA) acts as a trusted knowledge partner to the Central & State Governments helping device policies and incentives for the ESDM industry to help attract investments into India. In order to promote technology solutions to positively impact the lives of 1.3 billion Indian citizens is a key aim for IESA, which it achieves by bridging the gap between academia and industry to bring innovations faster to market.

Notes: *ESSCI - Electronics Sector Skills Council of India; NSDC - National Skill Development Corporation; IESA - India Electronics and Semiconductor Association*
Source: *Ministry of Electronics and Information Technology (MeitY), Electronics Sector Skills Council of India, India Electronics and Semiconductor Association*

Key Trends and Developments

Trends and opportunities

LOCAL MANUFACTURING OF LAPTOPS, TABLETS, SMART PHONES

- The Index of Industrial Production of manufacturing was valued at 150.6, in December 2023.
- By 2025, these initiatives would have a potential production value of US$ 100 billion and will also generate five lakh additional job opportunities.
- India's growing mobile phone manufacturing industry, fueled by the Make in India initiative, is set to generate 150,000 to 250,000 jobs in the next 12-16 months.

GROWING DOMESTIC HANDSET MANUFACTURING MARKET

- India’s export of electronic goods rose tremendously by US$ 6.3 billion in 2013-14 to US$ 23.57 billion in 2022-23. Mobile phones, IT hardware (laptops, tablets), consumer electronics (TV and audio), industrial electronics and auto electronics are key exports in this sector.
- Electronic goods exports clocked US$ 25.3 billion in FY23, rising a stunning 49% since 2021-22.
- The increasing domestic demand for handset manufacturing and government support policies have led India to build on its smartphone manufacturing capabilities. By 2025, it is estimated that the addressable market for OEMs (original equipment manufacturers) would reach ~Rs. 10–11 lakh crore (US$ 140–150 billion).

ESTABLISHING QUANTUM COMPUTING APPLICATIONS LAB

- To accelerate quantum computing-led research & development and enable new scientific discoveries, the Ministry of Electronics and Information Technology (MeitY), in collaboration with Amazon Web Services (AWS), will establish a quantum computing applications lab in the country.
- The MeitY quantum computing applications lab will provide quantum computing as a service to government ministries and departments, researchers, scientists, academia and developers, to enable advances in areas such as manufacturing, healthcare, agriculture and aerospace engineering.

Source: *News Articles*

Major recent developments…(1/10)

1

August 2020

- Samsung Electronics Co. and Apple Inc.'s assembly partners pledged investments worth Rs. 110 billion (US$ 1.5 billion) to establish mobile phone manufacturing units in India.

2

September 2020

- Larsen & Toubro announced closure of its deal to sell its electrical and automation business to Schneider Electric. The companies announced this deal in May 2018; for US$ 1.9 billion (Rs. 14,000 crore)
- Tamil Nadu unveiled the Electronics and Hardware Manufacturing Policy, which targets US$ 100 billion output by 2025, with a goal to contribute 25% to India's total electronic exports by 2025

3

October 2020

- Abaj Group, in partnership with QThree Ventures, will set up ABAJ-QThree Techpark—a manufacturing facility for LED televisions and air-conditioners in Gujarat.
- Aequs to invest Rs. 3,500 crore (US$ 476.27 million) to set up a consumer electronics cluster in Karnataka

4

November 2020

- On November 7, 2020, a delegation of representatives of seven Taiwanese firms under Taipei Economic and Cultural Centre (TECC) agreed to invest in YSR Electronics Manufacturing Cluster in Andhra Pradesh.
- HPL Electric & Power established a new R&D centre for smart metres in Gurugram, Haryana.

Source: *News Articles*

Major recent developments…(2/10)

5

December 2020

- Lenovo announced its plan to start manufacturing tablets in India and expand its laptop manufacturing by 10x. The company is also expecting to grow by 25-30% in the current fiscal year, due to increase in demand from the education segment and large enterprises.

6

January 2021

- boAt, a earphones and smart wearable manufacturer, received an investment of US$ 100 million from Warburg Pincus, a key private equity firm.
- India Cellular & Electronics Association announced its plan to create a smartphone design, R&D and application ecosystem in India.

7

February 2021

- On February 16, 2021, Amazon announced that it will commence manufacturing of electronics products from India with Cloud Network Technology, a subsidiary of Foxconn in Chennai, later in the year. The device manufacturing programme will be able to produce 'Fire TV Stick' devices in large quantities every year, catering to demands of customers in India.

8

July 2021

- C4V, a lithium-ion cell manufacturer in the US, invested >US$ 537.15 million in the electric battery manufacturing sector in Karnataka.

9

August 2021

- Dixon Technologies, an Indian electronics manufacturing services (EMS) company, has signed an MoU with Rexxam, a Japanese electronics company, to form a joint venture.

Source: *News Articles*

Major recent developments…(3/10)

10

September 2021

- PG Electroplast, a contract manufacturer of electronic goods, announced that it had applied for a PLI scheme and pledged to invest Rs. 300 crore (US$ 40.47 million) towards the production of air conditioner components.

11

November 2021

- 42 companies have been selected under the PLI scheme for white goods with an outlay of Rs. 6,238 crore (US$ 839 million). The selected companies include 26 air conditioner manufacturing companies and 16 LED lights manufacturing companies.

12

February 2022

- To boost manufacturing in India, about 80% of the Production-Linked Incentive Scheme (PLI) spanning 14 sectors with a Rs. 3,00,000 crore (US$ 39 billion), is concentrated towards only three sectors - electronics, automobile and solar panel manufacturing.

13

March 2022

- In March 2022, Reliance announced that it would invest US$ 220 million in a joint venture with Sanmina Corp, a US- listed company for making electronic products in the Asian countries.

Source: *News Articles*

Major recent developments…(4/10)

14

March 2022

- Government has received three applications under Semicon India Programme for setting up of Semiconductor Fabs in India for manufacturing of semiconductor chips, including microprocessors chips. Incentive may be extended upto two eligible applicants with approval of the Union Cabinet.

15

April 2022

- As one of the concrete steps towards realizing the ambition of self-reliance and a momentous stride towards “Atmanirbhar Bharat”, India launches Digital India RISC-V (DIR-V) program for next generation microprocessors to achieve commercial silicon and design wins by December 2023.

16

September 2022

- India committed to reach US$ 300 billion worth of electronics manufacturing and exports by 2025-26.

17

December 2022

- Government to launch the Digital India Innovation Fund for Catalyzing deep tech start-ups.

Source: *News Articles, Press Information Bureau*

Major recent developments…(5/10)

18

January 2023

- Digital India Startup Hub through the Software Technology Parks of India shall set up India's first Centre of Excellence in Online Gaming at Shillong. The Centre of Excellence in Shillong is expected to catalyse startups and entrepreneurs from the entire Northeast Region to build the Next Gen Online Gaming ecosystem.

19

January 2023

- The Centre for Development of Advanced Computing (C-DAC), Kolkata in collaboration with ICAR-CIFRI, Baraackpore under the 'National programme on Electronics and ICT applications in Agriculture and Environment (AgriEnIcs)' has developed a biosensing system for detection of Endocrine Disrupting Chemicals (EDC) in aquatic ecosystems, for qualitative and quantative analysis of EDC content in water bodies.

20

February 2023

- India's G20 Sherpa given a Demo of the Digital India Mobile Van at the Sushma Swaraj Bhawan (New Delhi). The Digital India Mobile Van will tour various other cities in the country as well, enlightening citizens about G20 DEWG and Digital India's key initiatives.

21

February 2023

- Setting up of Software Technology Parks of India. STPI has set-up 63 STPI centres across the country. Additionally, Government of India has also approved 22 new STPI centres across the country.

Source: *News Articles, Press Information Bureau*

Major recent developments…(6/10)

22

February 2023

- Andhra Pradesh has emerged as a rapidly expanding hub for global manufacturing, with a particular emphasis on the electronics system design and manufacturing industry. It has four electronics manufacturing clusters, including two in Tirupati, one in Sri City, and another in Kopparthy, which is already under construction.

23

February 2023

- According to a new report by Counterpoint Research, India's true wireless stereo (TWS) earbuds shipments registered an 85% year-on-year growth in 2022, with boAt leading the market for the third time in a row. As per the report, boAt registered an 89% year-on-year increase while contributing two-fifths of the total shipments

24

March 2023

- Foxconn which is the original equipment manufacturer for various electronics and mobile companies including Apple, will establish a manufacturing facility in Telangana which will create employment generation potential for over 100,000 people.

25

March 2023

- A nine-member task force has been constituted by the Ministry of Electronics and Information Technology (MeitY) in March, 2023 with the primary goal of making India a 'product developer and manufacturing nation', as per a report. The members of task force are some of the veterans from the Indian electronic industry, including HCL Founder Mr. Ajay Chowdhary, Lava International Chairman Mr. Hari Om Rai,, and Boat Lifestyle Co-Founder Mr. Aman Gupta, among others.

Source: *News Articles, Press Information Bureau*

Major recent developments…(7/10)

26

April 2023

- Buoyed by locally-manufactured smartphones, India's electronics industry witnessed its outbound shipments surging by 58% to Rs. 1.85 lakh crore (US$ 23 billion) in FY23 from Rs. 1.17 lakh crore (US$ 14 billion) in FY22.

27

April 2023

- Vedanta Group signed memorandums of understanding (MoUs) with 20 Korean companies from the display glass industry for the development of an electronics manufacturing hub in India. The MoUs were signed at the 'Korea Biz-Trade Show 2023' event organised by KOTRA, in collaboration with Korea's Ministry of Trade, Industry, and Energy.

28

April 2023

- ELCINA organized its 3rd Electronics Supply Chain Summit on April 28, 2023 in Noida, Uttar Pradesh on the theme of “Road to Atmanirbhar Bharat in Electronics Manufacturing”, with the aim of strengthening local sourcing and value addition of consumer electronics, semiconduction modules and components, among others.

29

May 2023

- India manufactured wearables such as earphones and smartwatches worth Rs. 8,000 crore (US$ 976.7 million) in 2022-23, up from lower levels in FY22, boosted by the implementation of a phased manufacturing plan (PMP). In FY24, the industry is hopeful of doubling production to Rs. 15,000-17,000 crore (US$ 1.83-2.07 billion), according to the data shared with the government.

Source: *News Articles, Press Information Bureau*

Major recent developments…(8/10)

30

June 2023

- IIT-Madras in June 2023 announced the launching of a Bachelor of Science (BS) in Electronic Systems programme to meet the fast-emerging demands of the indigenous electronics industry. The course is designed keeping in mind the industry-specific requirements and skill sets.

31

June 2023

- Production-linked scheme (PLI) for large-scale electronics manufacturing (including mobiles) has seen investments worth Rs. 6,887 crore (US$ 833 million) (till June 2023), already surpassing the target for FY24 which was Rs. 5,488 crore (US$ 664.4 million).

32

July 2023

- India and Japan on July 20, 2023 signed an agreement for semiconductor design, manufacturing, equipment research, talent development and to bring resilience in the semiconductor supply chain.

33

July 2023

- In July 2023, electronics maker Elista announced that it will invest Rs. 100 crore (US$ 12.1 million) in Andhra Pradesh to set up a manufacturing unit for Smart LED TVs, smartwatches, audio speakers, and large appliances.

Source: *News Articles, Press Information Bureau*

Major recent developments…(9/10)

34

July 2023

- As announced in July 2023, US CHIP design major Advanced Micro Devices (AMD) will invest up to US$ 400 million in India over the next five years and will set up its biggest design facility in the country.

35

July 2023

- India Semiconductor Mission organized a three-day SemiconIndia 2023 Conference in July 2023 with the theme ‘Catalysing India’s Semiconductor Ecosystem’ in Gandhinagar, Gujarat. SemiconIndia 2023 witnessed participation of industry leaders from major global companies such as Micron Technology, Applied Materials, Foxconn, Cadence and AMD, and the industry association, SEMI.

36

July 2023

- The Ministry of Electronics and IT (MeitY) announced the exchange of signing of a Memorandum of Understanding (MoU) between the Centre for Nano Science and Engineering (CeNSE) at the Indian Institute of Science (IISc), Bengaluru and Lam Research India at the SemiconIndia in Gandhinagar.

37

August 2023

- According to a report 'India Monthly Wearable Device Tracker' by International Data Corporation (IDC), "hundreds" of" smartwatch model launches in the first half of the calendar year 2023 contributed to India's wearable market's growth of 53.3% year-over-year (YoY). The companies shipped 57.8 million units of wearables like smartwatches, earwear, and eyeglasses to the market in the first half of CY23.

Source: *News Articles, Press Information Bureau*

Major recent developments…(10/10)

38

August 2023

- India has overtaken China as the second-largest manufacturer of mobile devices in the world, according to a report released by the international research firm Counterpoint in August. The ‘Make in India’ initiative's mobile phone shipments from India exceeded 2 billion cumulative units and an annual growth rate of 23% was recorded.

39

August 2023

- India's electronics sector is set to harness US$ 7 billion untapped revenue by 2035 via circular business model and policy pathways, industry stakeholders said. Current commitments and targets set the projected market size for these circular models at US$ 13 billion in 2035.

40

November 2023

- In November 2023, Mr. Ashwini Vaishnaw, Union Minister Of Communications & IT said that 99% of mobiles used in India are made in India.

41

November 2023

- Industrial robot accessories company Robot System Products (RSP) has announced plans to set up a subsidiary in India. The Indian entity Scandinavian Robot Systems India Private Limited has been registered in Chennai and will supply a range of industrial robot accessories to Indian customers.

Source: *News Articles, Press Information Bureau*

Major recent developments…(10/10)

42

February 2024

- On February 15, 2024, the Ministry of Electronics and Information Technology (MeitY), in collaboration with the National Institute of Electronics and IT (NIELIT), organized the inaugural Future Skills Summit in Guwahati. The Summit convened India's most talented individuals to discuss strategies for shaping the future of talent in the country.

Source: *News Articles, Press Information Bureau*

Sector policies

National Policy on Electronics (NPE), 2019

- The National Policy on Electronics 2019 (NPE 2019), prepared after extensive stakeholder consultation, envisages to position India as a global hub for ESDM with thrust on exports by encouraging and driving capabilities in the country for developing core components, including chipsets, and creating an enabling environment for the industry to compete globally.
- The NPE 2019 targets to promote domestic manufacturing and export in the entire value chain of ESDM and achieve a turnover of US$ 400 billion by 2025

Phased Manufacturing Programme (PMP)

- The Ministry of Heavy Industries has notified a Phased Manufacturing Programme (PMP) to promote indigenous manufacturing of Electric Vehicles, its assemblies / sub-assemblies and parts / sub-parts / inputs of the sub-assemblies. The PMP envisaged a graded duty structure to promote indigenous manufacturing over a period of time.

Production-Linked Incentive (PLI) Scheme

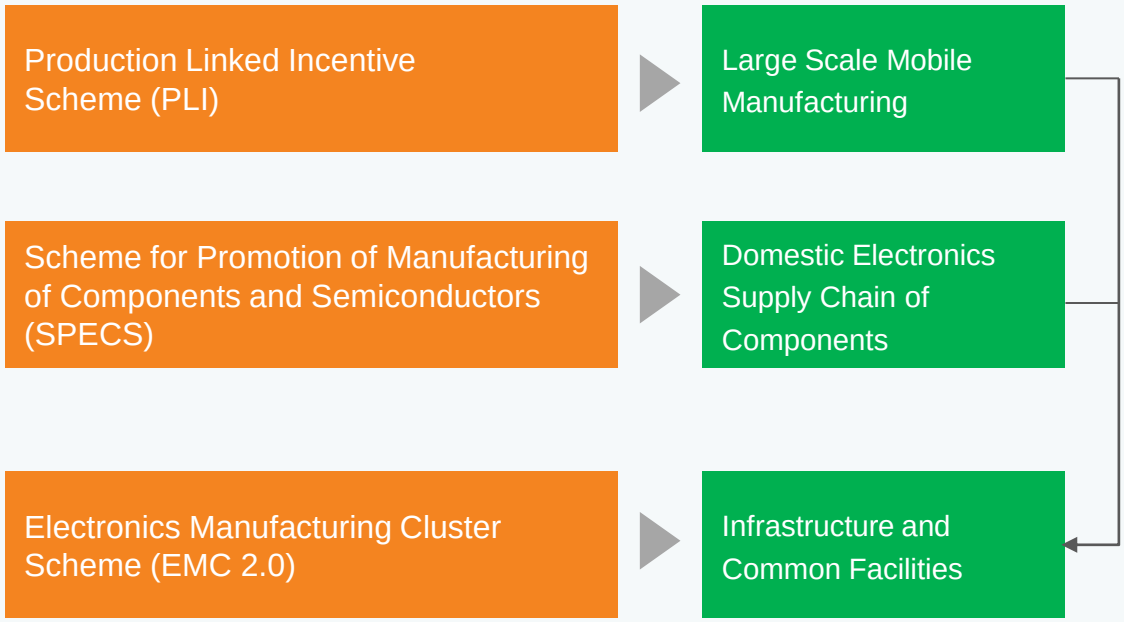
- PLI scheme for large scale electronics manufacturing launched by Ministry of Electronics and Information Technology (MeitY) in April 2020 has been extended from existing five years band (FY21-FY25) to six years (FY21-FY26).
- For growth industries, such as consumer electronics, electric vehicles and renewable energy, ACC battery production represents one of the biggest economic opportunities. PLI scheme for the ACC battery would allow key domestic and international players to set up a competitive ACC battery plants in the region.
- PLI offers a production linked incentive to boost domestic manufacturing and attract large investments in mobile phone manufacturing and specified electronic components, including Assembly, Testing, Marking and Packaging (ATMP) of units.
    - Incentive: 4-6% on incremental sales (over base year) of goods manufactured in India; incentives up to US$ 5 billion will be awarded over a period of five years.
    - Eligibility: Subject to thresholds of incremental investments and incremental sales of manufactured goods

Sectors	Ministry/ Department	Approved financial outlay over a five-year period
Electronic/ Technology Products	Ministry of Electronics and Information Technology	Rs. 5,000 crore (US$ 674.92 million)
'National Programme on Advanced Chemistry Cell (ACC) Battery Storage	Department of Heavy Industries and Public Enterprises	Rs. 18,100 crore (US$ 2.47 billion)

Source: *Ministry of Electronics and Information Technology (MeitY), PIB*

New schemes for electronics manufacturing…(1/3)

To position India as a global hub for ESDM sector and further the vision of the National Policy on Electronics (NPE) 2019, three new schemes were announced by the Indian government on April 1, 2020, as follows:



Expected Five Year Outcomes	
Production	US$ 106 billion
Exports	US$ 77 billion
Employment	1 million

Total incentives of up to Rs. 500 billion (~ US$ 6.7 billion)

Source: *Ministry of Electronics and Information Technology (MeitY)*

New schemes for electronics manufacturing…(2/3)

1

Production Linked Incentive Scheme (PLI)

- PLI offers a production linked incentive to boost domestic manufacturing and attract large investments in mobile phone manufacturing and specified electronic components, including Assembly, Testing, Marking and Packaging (ATMP) of units.
- Incentive: 4-6% on incremental sales (over base year) of goods manufactured in India; incentives up to US$ 5 billion will be awarded over a period of five years
- Eligibility: Subject to thresholds of incremental investments and incremental sales of manufactured goods

2

Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS)

- Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS) notified vide Gazette Notification dated April 01, 2020 provides financial incentive of 25% on capital expenditure for the identified list of electronic goods that comprise downstream value chain of electronic products, i.e., electronic components, semiconductor / display fabrication units, ATMP units, specialized sub-assemblies and capital goods for manufacture of aforesaid goods.
- Through this scheme, Government of India aims to make India a significant design and manufacturing hub in Global Value chain for Electronics as part of its Atmanirbhar Bharat Economic policies.

3

National Policy on Electronics 2019 (NPE 2019)

- The National Policy on Electronics 2019 (NPE 2019) has been notified by Ministry of Electronics and Information Technology (MeitY).
- The vision of NPE 2019 is to position India as a global hub for Electronics System Design and Manufacturing (ESDM) by encouraging and driving capabilities in the country for developing core components, including chipsets, and creating an enabling environment for the industry to compete globally.

Notes: *RBF - Ready Built Factory*
Source: *Ministry of Electronics and Information Technology (MeitY)*

New schemes for electronics manufacturing…(3/3)

4

Electronics Development Fund (EDF)

- Electronics Development Fund (EDF) has been set up as a “Fund of Funds” to participate in professionally managed “Daughter Funds” which in turn will provide risk capital to startups and companies developing new technologies in the area of electronics and Information Technology (IT).
- This fund is expected to foster R&D and innovation in these technology sectors.

5

Design Linked Incentive (DLI) Scheme

- The scheme offers financial incentives, design infrastructure support across various stages of development and deployment of semiconductor design for Integrated Circuits (ICs), Chipsets, System on Chips (SoCs), Systems & IP Cores and semiconductor linked design.
- The scheme provides “Product Design Linked Incentive” of up to 50% of the eligible expenditure subject to a ceiling of Rs. 15 crore (US$ 1.8 million) per application and “Deployment Linked Incentive” of 6% to 4% of net sales turnover over five years subject to a ceiling of Rs. 30 crore (US$ 3.6 million) per application.

6

Modified Special Incentive Package Scheme (M-SIPS)

- THE M-SIP Scheme, launched in 2012, provided capital subsidy of 20% to electronic industries in Special Economic Zones (SEZs) and 25% to industries outside SEZs. As of 30th November 2019, 407 applications with a total proposed investment of Rs. 1,09,768 crore (US$ 13.29 billion) are under consideration. Out of these 407 applications:
  - 235 applications with about Rs. 66,407 crore (US$ 8.07 billion) proposed investment have been approved.
  - 31 applications with about Rs. 13,072 crore (US$ 1.58 billion) proposed investment have been recommended by the Appraisal Committee for approval.
  - 141 applications with Rs. 30,289 crore (US$ 3.66 billion) proposed investment are under appraisal process.

Source: *Make in India, Ministry of Electronics and Information Technology (MeitY)*

Key Industry Contacts

Key Industry Contacts

Agency	Contact Information
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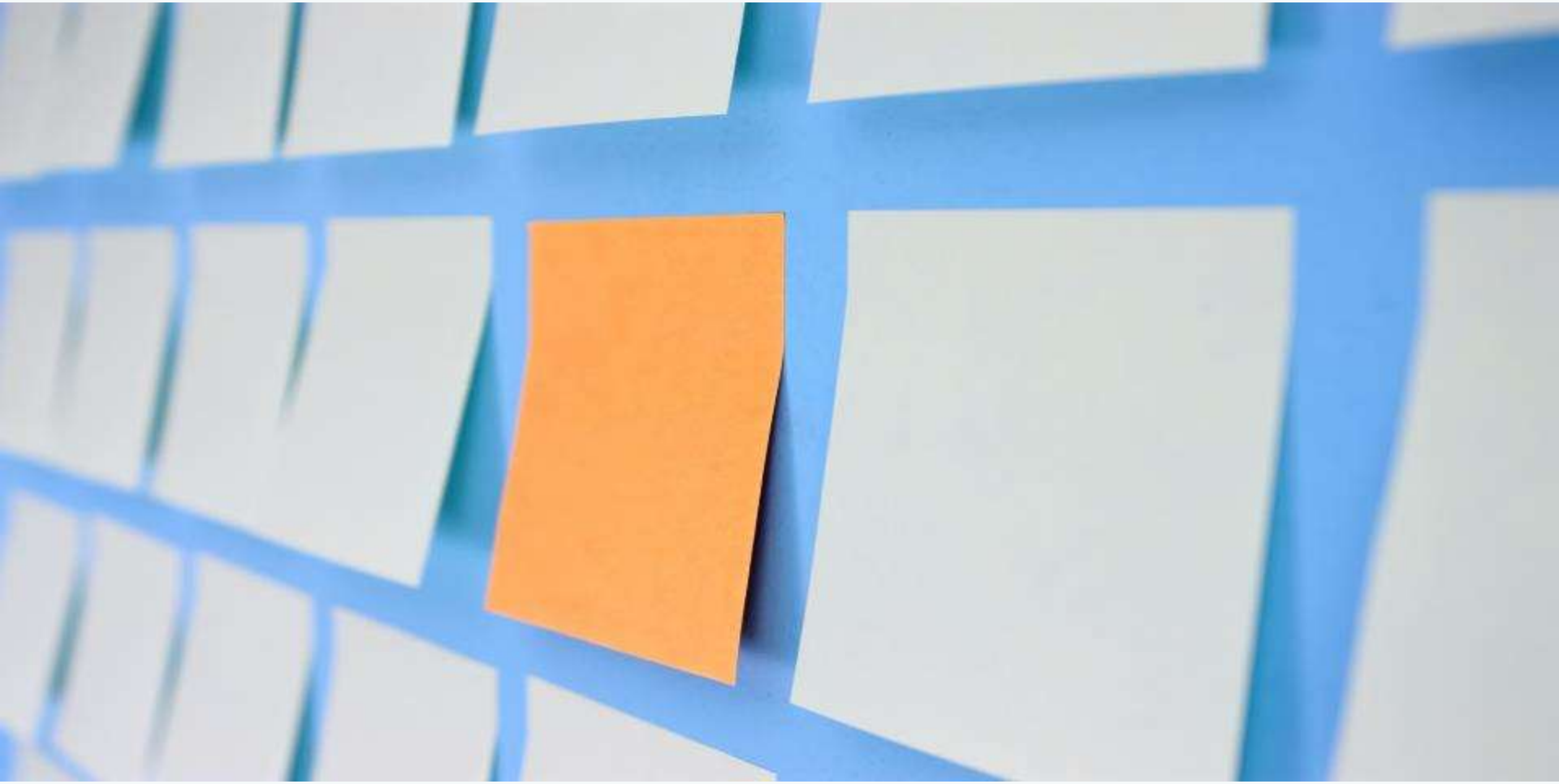
Appendix



Glossary

- ESDM: Electronics System Design and Manufacturing
- MeitY: Ministry of Electronics and Information Technology
- IESA: India Electronics and Semiconductor Association
- PLI: Production Linked Incentive Scheme
- SPECS: Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors
- EMC 2.0: Modified Electronics Manufacturing Clusters Scheme
- ESSCI: Electronics Sector Skills Council of India
- NSDC: National Skill Development Corporation
- ICT: Information and Communications Technology
- ITU: International Telecommunication Union
- NPE: National Policy on Electronics
- NDCP: National Digital Communications Policy
- PMP: Phased Manufacturing Programme
- MEIS: Merchandise Export from India Scheme
- SEZ: Special Economic Zone
- US$: US Dollar
- FY: Indian Financial Year (April to March)

Exchange rates

Exchange Rates (Fiscal Year)

Year	Rs. Equivalent of one US$
2004-05	44.95
2005-06	44.28
2006-07	45.29
2007-08	40.24
2008-09	45.91
2009-10	47.42
2010-11	45.58
2011-12	47.95
2012-13	54.45
2013-14	60.50
2014-15	61.15
2015-16	65.46
2016-17	67.09
2017-18	64.45
2018-19	69.89
2019-20	70.49
2020-21	73.20
2021-22	74.42
2022-23	78.60

Exchange Rates (Calendar Year)

Year	Rs. Equivalent of one US$
2005	44.11
2006	45.33
2007	41.29
2008	43.42
2009	48.35
2010	45.74
2011	46.67
2012	53.49
2013	58.63
2014	61.03
2015	64.15
2016	67.21
2017	65.12
2018	68.36
2019	69.89
2020	74.18
2021	73.93
2022	79.82
2023	82.61
2024*	83.09

Note: **- Until February 2024*
Source: *Foreign Exchange Dealers' Association of India*

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