India’s Electronics Manufacturing Sector

GS III | Economy, Infrastructure & Technology

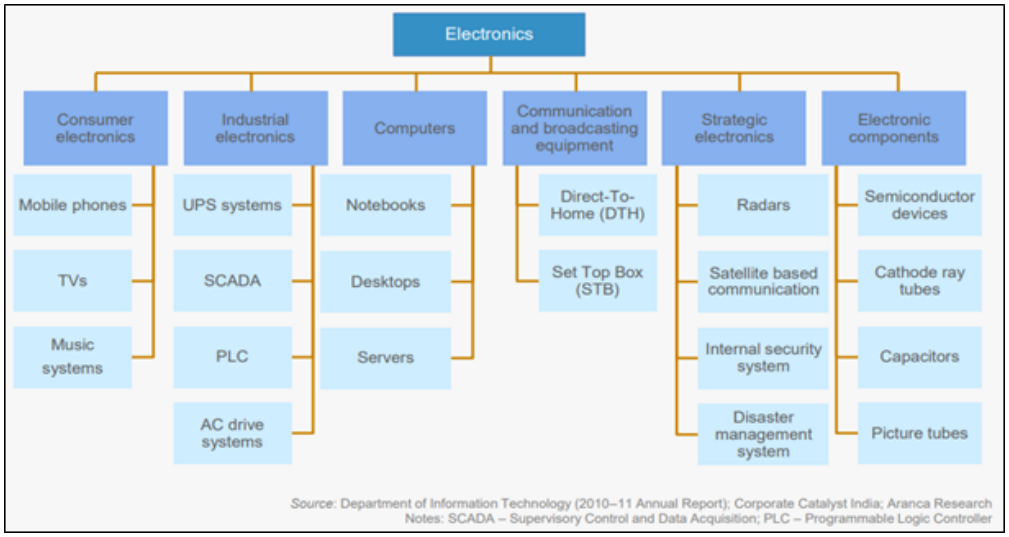
GS II | Government policies & Initiatives for development of various sectors

Why in the news?

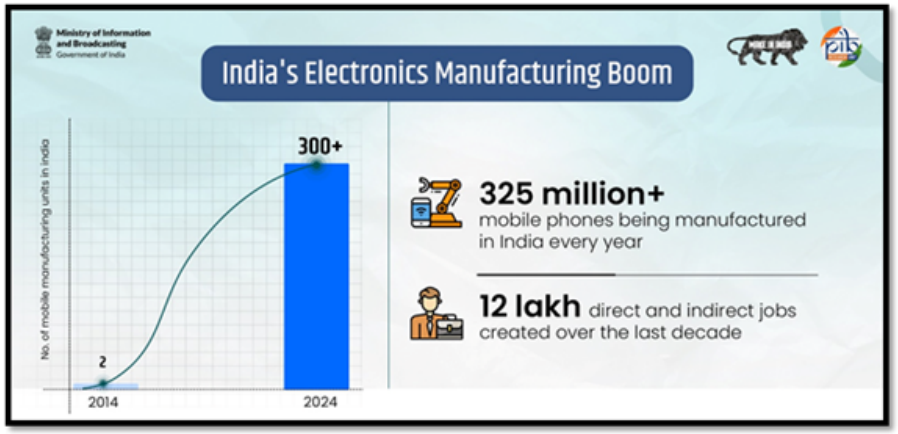
In recent times, India is building its own electronics industry, attracting big investments and boosting local production with initiatives like Make in India.

What is the status of electronics sector in India?

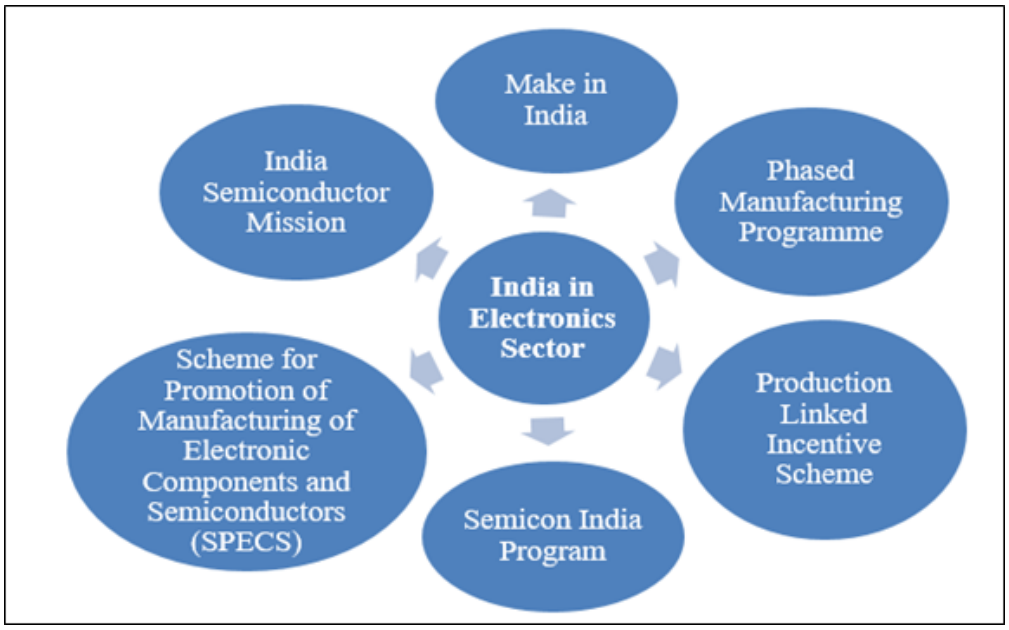
- It is a *rapidly expanding sector*.
- **Sector** – It is wide and includes the areas of semiconductor, mobile phones, electronics – consumers, industry and communications equipment.



- **Domestic production** – It has *nearly doubled* from FY17 level to USD 101 billion in FY23, driven largely by *mobile phones, which account for 43% of production*.



- **Growing exports –** From the status of net importer of electronics, now India electronic exports are growing rapidly, even *surpassing some traditional sectors like textiles*.
- **Global hub for manufacturing** – With strong government support and expanding factories, India is well on its way to become a global hub.
    - Projections indicate that India's electronics production will *reach USD 300 billion by 2026.*
- **Government schemes for Electronic boom**



What is the status of mobile phones and semiconductor sectors in Indian electronics industry?

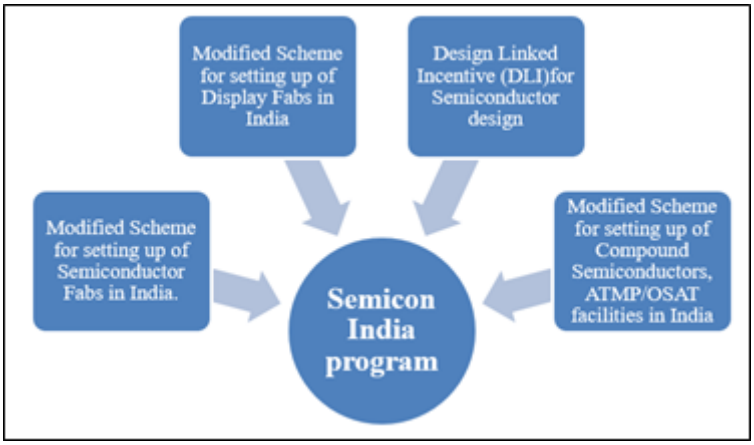
India's Mobile Phones Manufacturing
• **Global position** – India is the *2nd largest mobile phone producer i*n the World. • **Domestic production** – In 2014-15, 26% of mobile phones sold in India were locally made, rising to *99.2% by end of 2024.* • **Rising manufacturing units** – In 2014, India had just 2 mobile manufacturing units; today, it has *over 300.* • **Export growth** – India's mobile phone exports surged from Rs. 1,566 crore in 2014-15 to Rs. 1.2 lakh crore in 2023-24, *marking a 77-fold increase*.
Semiconductor Ecosystem in India
• **Semiconductor market** – It is projected *to grow at 13%*, reaching Rs 8.9 lakh crore 2030. • **Investments** – Recently 5 landmark semiconductor projects have been approved, with an investment of *Rs 1.52 lakh crore*. • **India's 1st indigenous semiconductor chip** – It will be ready for production *by 2025*. • **Target** – India to become a global hub for semiconductor manufacturing by 2030. • **Significance** – It supports domestic manufacturing of electronics and reduces import dependency.

What are the government measures to promote electronics manufacturing in India?

- **Make in India** – It was launched *in 2014,* designed to transform India into a *global*

hub for design and manufacturing.

- Its core objectives were to facilitate investment, encourage innovation, and develop world-class infrastructure.
- **Phased Manufacturing Programme (PMP)** – It was launched in 2017 to *promote domestic value addition* in mobile phones and their parts.
- It resulted in shifting from the state of Semi Knocked Down (SKD) to Completely Knocked Down (CKD).
    - **Semi Knocked Down (SKD)** - Product is partially assembled before shipping
    - **Completely Knocked Down (CKD)** – Product is shipped as individual components for final assembly at the destination.
- **Production Linked Incentive (PLI) Scheme** – PLI for Large Scale Electronics Manufacturing was *notified in 2020*.
- It aims to boost domestic manufacturing and attract investment *in mobile phones* value chain including electronic components and semiconductor packaging.
- Its primary goal is to attract substantial investments, incorporate advanced technology, and ensure operational efficiency.
- It *offers 3% to 6% incentives* on incremental sales for mobile phones and electronic components for 5 years.
- **Semicon India program** – It was *launched in 2021* to promote the domestic semiconductor industry *through incentives and strategic partnerships*.



ATMP *Refers to Assembly, Testing, Marking and Packaging.* ***OSAT*** *stands for Outsourced Semiconductor Assembly and Test.*

- **SPECS** – Scheme for Promotion of *Manufacturing of Electronic Components and Semiconductors*.
- It helps to mitigate the challenges of domestic manufacturing of electronic components and semiconductors to strengthen the electronics manufacturing ecosystem.
- It provides a *25% financial incentive on capital expenditure* for electronic components and semiconductor manufacturing.
- **India semiconductor mission** – It was *launched in 2021* to *build a semiconductor and display ecosystem*, positioning India as a global hub for electronics manufacturing and design.

- Under this mission Tata Electronics Private Limited (TEPL) have signed a Fiscal Support Agreement (FSA) for *India's 1st commercial semiconductor fab in Dholera, Gujarat*.

What Lies Ahead?

- *Reducing import dependency* on electronics raw material procurement which raises in cost of final product.
- Attracting more global investments in electronics and semiconductor manufacturing.
- *Strengthening the domestic supply chain* for electronic components.
- Developing component manufacturing and design ecosystems to advanced levels.
- *Enhancing R&D* for advanced technologies like 5G and IoT devices and expanding electronics manufacturing clusters in tier-2 and tier-3 cities.

Quick Facts

Semiconductor
• **Semiconductor** – It is a material usually comprised of silicon, which conducts electricity more than an insulator, such as glass, but less than a pure conductor, such as copper or aluminum. • It is a small electronic chip that plays a crucial role in electronics. • It consists of millions (sometimes billions) of tiny parts called transistors that acts as a tiny switch that allow or stop the flow of electrical signals. • **Uses** – They can store, process and transfer information. • They help devices perform tasks such as calling, storing data and even sensing signals.

Reference

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