GOVERNMENT OF INDIA
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY
RAJYA SABHA
STARRED QUESTION NO. *214
TO BE ANSWERED ON: 08.08.2025

R&D IN ELECTRONICS SECTOR

***214. SHRI RAGHAV CHADHA:**

Will the Minister of ELECTRONICS AND INFORMATION TECHNOLOGY be pleased to state:

(a) whether Government is aware of the fact that India contributes less than 1 percent to global electronics patents and that most domestic manufacturers focus on assembly rather than innovation;
(b) whether any assessment has been conducted of Research and Development (R&D) investment levels in the electronics and semiconductor value chains in the country;
(c) the steps taken to promote indigenous design, product development and intellectual property creation in the electronics sector; and
(d) whether Government plans to introduce targeted incentives or R&D-linked funding for Indian companies and Startups in chip design, embedded systems and next-gen electronics?

ANSWER

MINISTER FOR ELECTRONICS AND INFORMATION TECHNOLOGY
(SHRI ASHWINI VAISHNAW)

(a) to (d): A Statement is laid on the Table of the House.

STATEMENT REFERRED TO IN THE REPLY TO RAJYA SABHA STARRED QUESTION NO. *214 FOR 08.08.2025 REGARDING "R&D IN ELECTRONICS SECTOR"

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(a) to (d): Electronics manufacturing value chain is extremely complex. It involves multiple processes such as design, wafer fabrication, packaging, manufacturing of components, assembly, testing, and high-volume final production. Multiple organizations/companies operating in multiple countries undertake these processes.

From the growth trajectories of various economies, it is evident that nations typically progress within the global value chain in stages. They start with manufacturing of finished goods, then engage in assembly and production of components/sub-assemblies and then advancing towards product development and research associated with it.

India has followed a similar trajectory. Over the last 11 years, electronics manufacturing in India has expanded significantly. It can be seen from the following statistics:

#	2014-15	2024-25	Remarks
Production of electronics goods	Rs. 1.9 Lakh Cr	Rs. 11.3 Lakh Cr	Increased ~6 times
Export of electronics goods	Rs. 0.38 Lakh Cr	Rs. 3.27 Lakh Cr	Increased 8 times
Mobile manufacturing units	2 units	300 units	Increased 150 times
Production of mobile phones	Rs. 0.18 Lakh Cr	Rs. 5.45 Lakh Cr	Increased 28 times
Export of mobile phones	Rs. 0.01 Lakh Cr	Rs. 2 Lakh Cr	Increased 127 times

This expansion is a result of various government policies including:

- Production Linked Incentives (PLI) for large scale electronics manufacturing
- Production Linked Incentives (PLI) for IT hardware
- Electronics Manufacturing Clusters (EMC and EMC 2.0) Scheme
- Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS)
- Public Procurement (Preference to Make in India) Order 2017 to prioritize domestically manufactured products in public procurement
- Allowing 100% Foreign Direct Investment (FDI) in electronics manufacturing, subject to applicable laws/regulations
- Greater localization of key components & indigenous semiconductor design for CCTV applications through mandatory local value addition, stringent security testing and trusted supply chains under revised procurement & certification norms
- Reforms in taxation including rationalization of tariff structure and exemption of basic customs duty on capital goods
- Phased Manufacturing Programme (PMP) for cellular mobile handsets and wearable & hearable devices

To cater to the growing demand of electronics manufacturing, it is imperative for us to develop the semiconductor and electronics components industry.

The semiconductor development strategy is inspired by Prime Minister Shri Narendra Modiji's vision of Atmanirbhar Bharat and Make in India, Make for the world. It builds on the design capabilities in our country.

Manufacturing of Semiconductor chips and packaging

- Government approved Semicon India programme with a total outlay of ₹76,000 crore for the development of semiconductor & display manufacturing ecosystem
- In a short span of three years, six units have been approved and construction is going on rapidly.
- These units are expected to produce 6 lakh wafers and 2,400 crore chips per year.
- These chips will be used in mobile devices, tablets, computers, automobiles, etc.
- The program includes budget for promotion of semiconductor design as well.

Design of semiconductor chips

Design Linked Incentive (DLI) Scheme:

- Supporting domestic companies, startups, and MSMEs engaged in semiconductor chip design.
- So far, 72 companies have been enabled with latest EDA tools
- 23 projects from 22 companies have received financial support for chip design
- These span across diverse applications (e.g., surveillance cameras, energy meters, microprocessor IPs, and networking).
- Almost every major semiconductor company has its design centre in India.
- These centers are designing the most advanced 7 nm, 5 nm and 3 nm chips.

Chips to Start-up program:

- Latest EDA (Electronic Design Automation) tools and regular training sessions have been provided to a total of 278 academic institutions across the country
- More than 45,000 students and researchers have benefitted from access to these tools
- 56 designs have been completed for fabrication at Semiconductor Lab (SCL), Mohali

Semiconductor Lab (SCL), Mohali

- SCL Mohali is being used by Indian startups and academia to fabricate semiconductor chips
- End-to-end fabrication of 20 such chips designed by 17 institutions has been completed so far

Electronic Components Manufacturing Scheme (ECMS)

- Launched on 8th April 2025, with a budgetary outlay of Rs. 22,919 crore.
- It aims to deepen the electronics manufacturing value chain by attracting investments in component, sub-assembly, and capital equipment sectors.

- Promotes manufacturing of components such as resistors, capacitors, inductors, printed circuit boards, sub-assemblies, electro-mechanicals, etc.
- It is a pan India scheme. The applications for the scheme are currently being accepted on the portal.
- Details of the scheme are available on ecms.meity.gov.in

Patents

Global electronics trade is highly innovation-driven, with patents being a key indicator of technological leadership. According to the Department for Promotion of Industry and Internal Trade (DPIIT), the number of patents filed increased from 2,526 in 2019 to 8,241 in 2024 showing a growth of 226% over the past five years. Also, according to the World Intellectual Property Indicators 2024 report, India ranks 6th globally in total patent filings, with 64,480 applications filed in 2023.

Research and Development (R&D)

The Government is promoting Research and Development (R&D) support for electronics sector. The private sector is also increasingly engaged, supported by a conducive policy framework that promotes stability, export and deep integration with global value chains.

(i) Research, Development and Innovation (RDI) Scheme:

Recognizing the critical role that the private sector plays in driving innovation and commercializing research, the Cabinet has approved the Research, Development and Innovation (RDI) Scheme with a corpus of Rs.1 Lakh Cr. The scheme has been designed to overcome the constraints and challenges in funding of private sector and seeks to provide growth and risk capital to sunrise and strategic sectors, including semiconductors and electronics.

(ii) Research and Development (R&D) budget of Ministry of Electronics and Information Technology (MeitY) has increased over 6 times in the last 11 years (2014-2025), reaching Rs.1,249 Cr. This includes:

- Enhanced R&D funding support for indigenous design, product development, and IP creation in the Electronics & ICT sector
- Support extended through R&D grants, capacity-building programs, and infrastructure development for academia, startups and Indian companies

Major R&D National Missions/Programs supported by MeitY include:

- National Supercomputing Mission (NSM)
- India Artificial Intelligence (AI) Mission
- National Mission on Power Electronics Technology (NaMPET)
- Electric Vehicle Sub-System (EVSS) programme
- National Strategy for Additive Manufacturing (NSAM)
- 6 MV (Mega Volt) Medical Linear Accelerator (LINAC) Program
- Circular Economy in e-waste

Government is also taking initiatives to promote and develop technology-driven startup ecosystem with a special focus on strengthening the IPR creation in the Electronics and ICT sector:

- Technology Incubation and Development of Entrepreneurs (TIDE 2.0) Scheme
- Gen-Next Support for Innovative Startups (GENESIS) Scheme

Electronics R&D is also supported through other Missions, National Laboratories, Public Sector Units, and Statutory Bodies such as:

- National Quantum Mission (NQM), Department of Science and Technology (DST)
- Research, Development and Innovation (RDI) Scheme under the Anusandhan National Research Foundation (ANRF), DST
- Council of Scientific & Industrial Research (CSIR)
- Electronics Corporation of India Limited (ECIL), Department of Atomic Energy (DAE)
- Department of Telecommunications (DoT) through implementation of Digital Communications Innovation Square (DCIS) Scheme
- Technology Development Board (TDB), DST

Periodic assessments on the status and requirements of electronics manufacturing are undertaken by various industry bodies and Government of India organizations. In this context, NITI Aayog, in 2024, released a comprehensive report on the Electronics Global Value Chains, providing valuable guidance on future policy and industry interventions.

With these government initiatives and efforts, India has emerged as an important stakeholder in global innovation and electronic value chain.

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