IGNITO

INDIA'S ESDM QUARTERLY DIGEST

5th Edition

INDIA'S MANUFACTURING ECOSYSTEM ADVANCING TOWARD SELF-RELIANCE

- DILIP SAWHNEY

Government Support Propelling India's Electronics Industry

Sagar Gupta

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Transformative Impact of GaN and SiC in Next-Generation Electronics

Bolstering Electronics Sector Through Indo-US Partnership

Next Shift Will be from 'Make in India for India' to 'Make in India for World'

Published By

ICEA
INDIA CELLULAR & ELECTRONICS ASSOCIATION
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Vol.02, Issue 03

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Published by
India Cellular & Electronics Association (ICEA) New Delhi, India
LeMeridien Commercial Tower, 7th Floor, Raisina Road, Windsor Place, New Delhi, 110001
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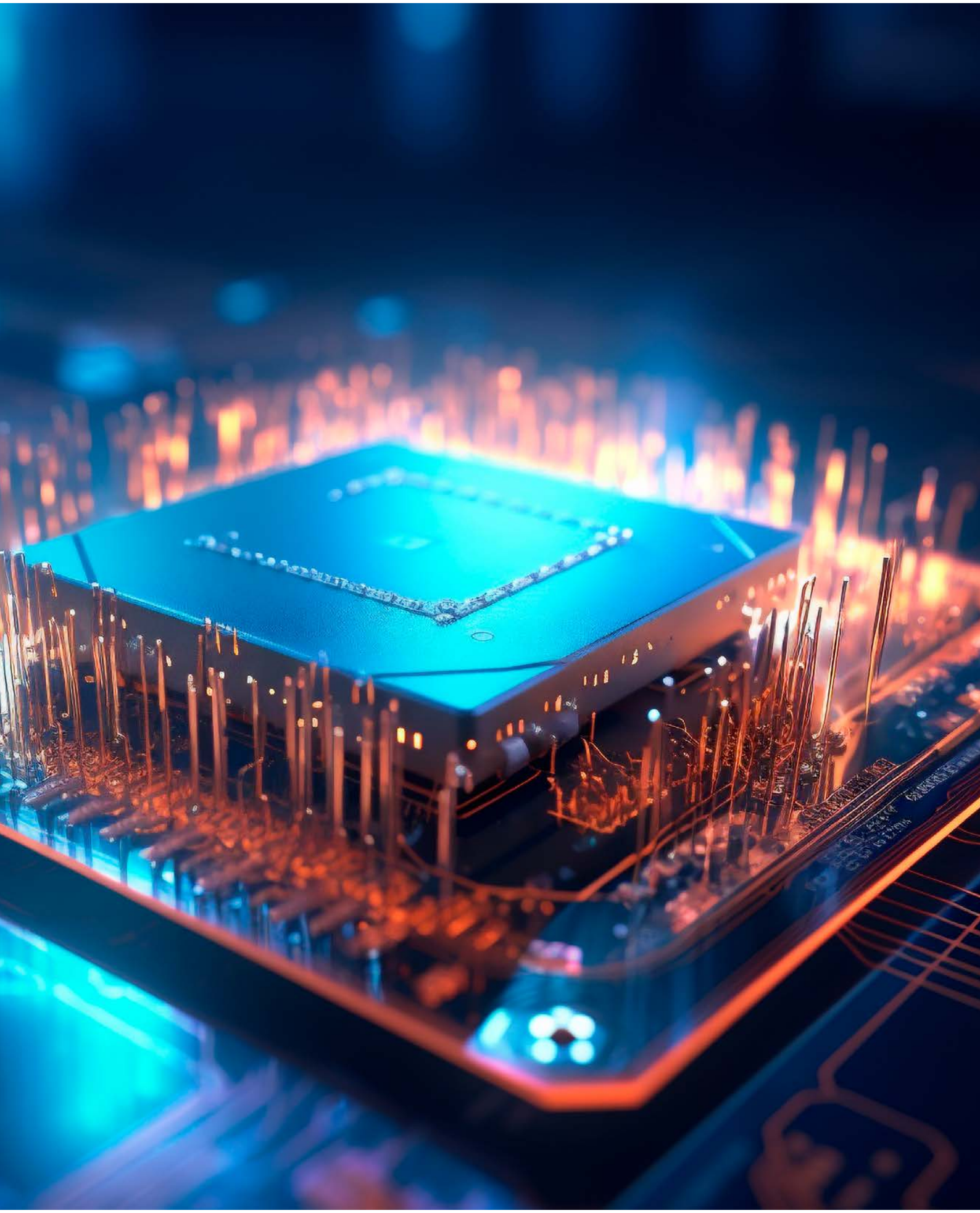
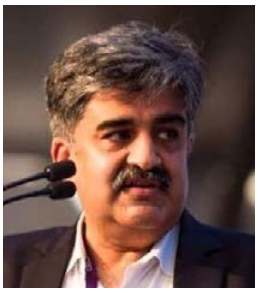


NOTE FROM EDITOR-IN-CHIEF



Dear Readers,

The past decade has been nothing short of revolutionary for India's mobile and electronics manufacturing industry. It has been a time of unparalleled growth, solidifying India's position as a rising global hub for electronics manufacturing. One of the significant milestones has been the exponential rise in mobile phone manufacturing, surging an astonishing 2200% to reach INR 4,22,000 crores in 2023-24 compared to INR 18,900 crores in 2014-15. Equally remarkable is the 8100% increase in mobile phone exports, touching INR 1,29,000 crores in 2023-24 from modest INR 1,566 crores in 2014-15.

The overall electronics manufacturing sector, too, has experienced significant strides, with production reaching INR 9,52,000 crores and exports crossing INR 2,41,157 crores in 2023-24. These remarkable achievements have been primarily driven by the success of mobile phone manufacturing – a testament to India's potential and resilience of its manufacturing ecosystem.

Now, the focus shifts to replicating this success story across other verticals of electronics manufacturing – IT Hardware, wearables & hearables and consumer electronics, etc. The goal is to create a robust and globally competitive manufacturing ecosystem focusing on transformation and not just expansion. To achieve this, critical verticals such as semiconductors, passive components, subassemblies and components must be rigorously developed. The upcoming policy to encourage domestic manufacturing of sub-assemblies and components promise to usher in a new era, strengthening capabilities and capacities thereby driving domestic value addition across the supply chain.

India's semiconductor ambitions are a cornerstone of this larger vision. The announcement of five semiconductor units is a clear signal of India's emergence as a global player in this high-tech domain. At the heart of this progress lies the India Semiconductor Mission (ISM), whose first phase has successfully laid the groundwork for a vibrant semiconductor ecosystem.

As discussions around the second phase of policy incentives take shape, it is imperative to expand the focus to the entire semiconductor supply chain – spanning design, mask sets, substrates, chemicals, skilling and capital goods. The vision should aim for nothing less nurturing 500 indigenous semiconductor product design companies, backed by robust workforce development and innovation-led growth.

Hon'ble Prime Minister's ambitious vision of USD 500 billion of electronics manufacturing by 2030 is a clarion call for industry leaders and policymakers to work in unison. Achieving this target requires collective resolve, leadership and a relentless drive to align strategy with execution. We must forge partnerships, stimulate innovation, and create a manufacturing ecosystem that not only meets this goal, but exceeds global benchmarks of excellence.

At IGNITO, we are proud to document this incredible journey, with each milestone reached, we reaffirm our commitment to providing insightful analysis, fostering meaningful dialogue and highlighting the key trends that will continue to drive the future of India's electronics sector. As we chart the path to 2030, IGNITO will stand as a partner, celebrating achievements and inspiring the next wave of transformation.

The story of India's rise as an electronics manufacturing powerhouse is still being written – and we, along with our readers, are privileged to witness and contribute to this extraordinary chapter. Let us shape a future where India's electronics sector not only leads but inspires the world.

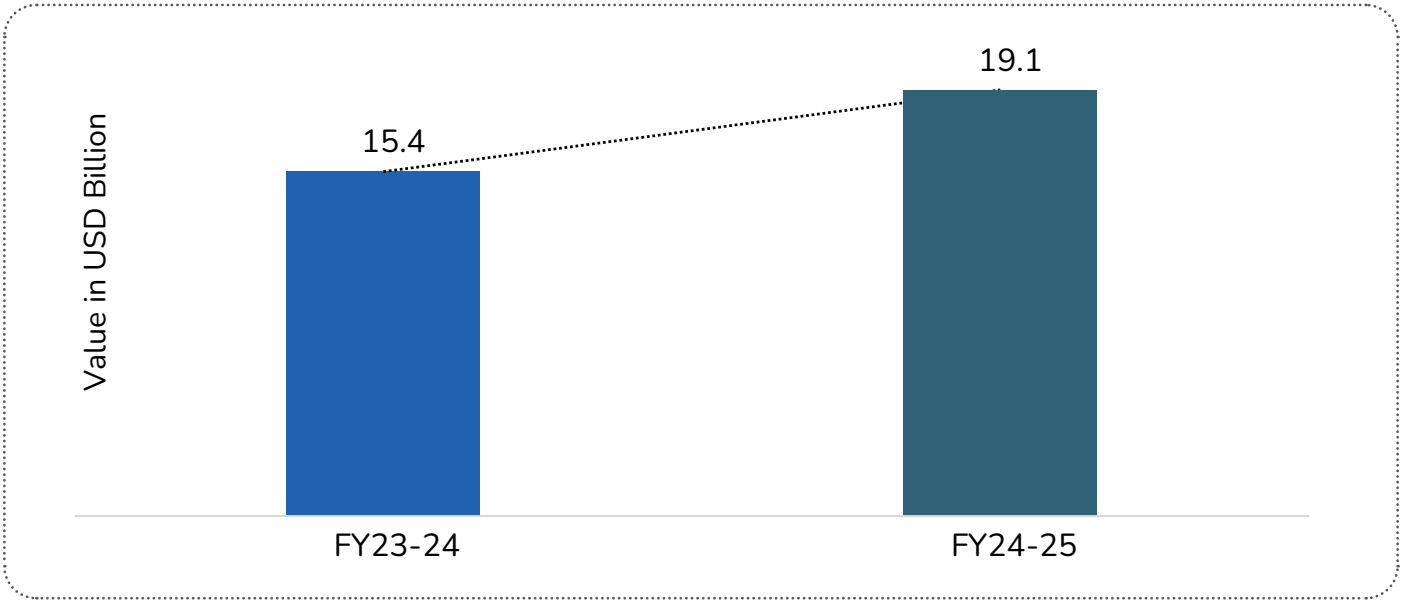
Sincerely,

Pankaj Mohindroo
Editor-in-Chief

INDUSTRY STATISTICS

ELECTRONIC GOODS

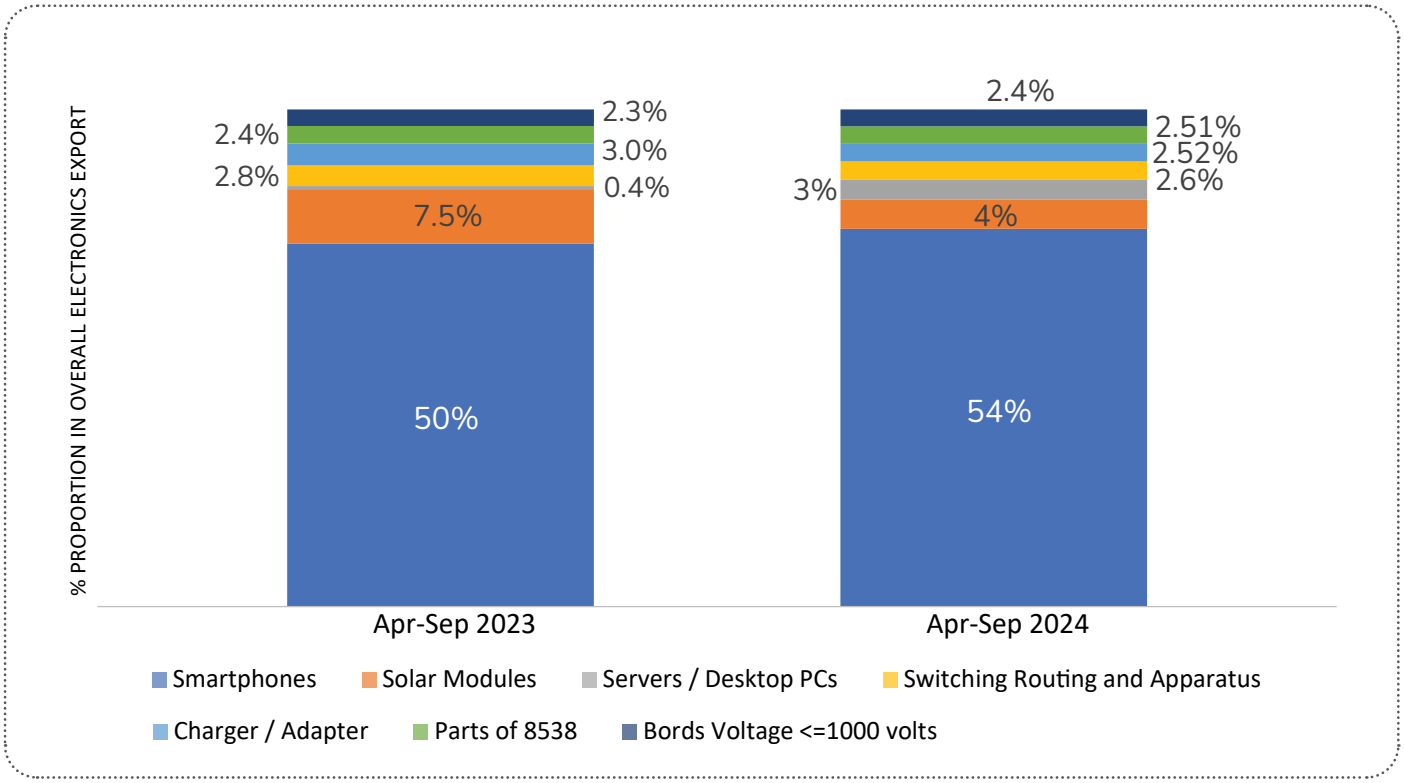
EXPORT OF ELECTRONICS



Source: Department of Commerce

Fig. 1a compares the electronic exports for the first and second quarters of FY23-24 to FY24-25. During Apr-Oct FY24-25, electronic Goods has become the third largest principal commodity export from India, as compared to sixth position last year during the same period. The export during the April-October in FY23-24 was recorded to be USD 15.4 Bn which has increased to USD 19.1 Bn in April-October of FY24-25.

TOP ELECTRONICS EXPORTS BY COMMODITY OF VALUE MORE THAN USD 300 MILLION

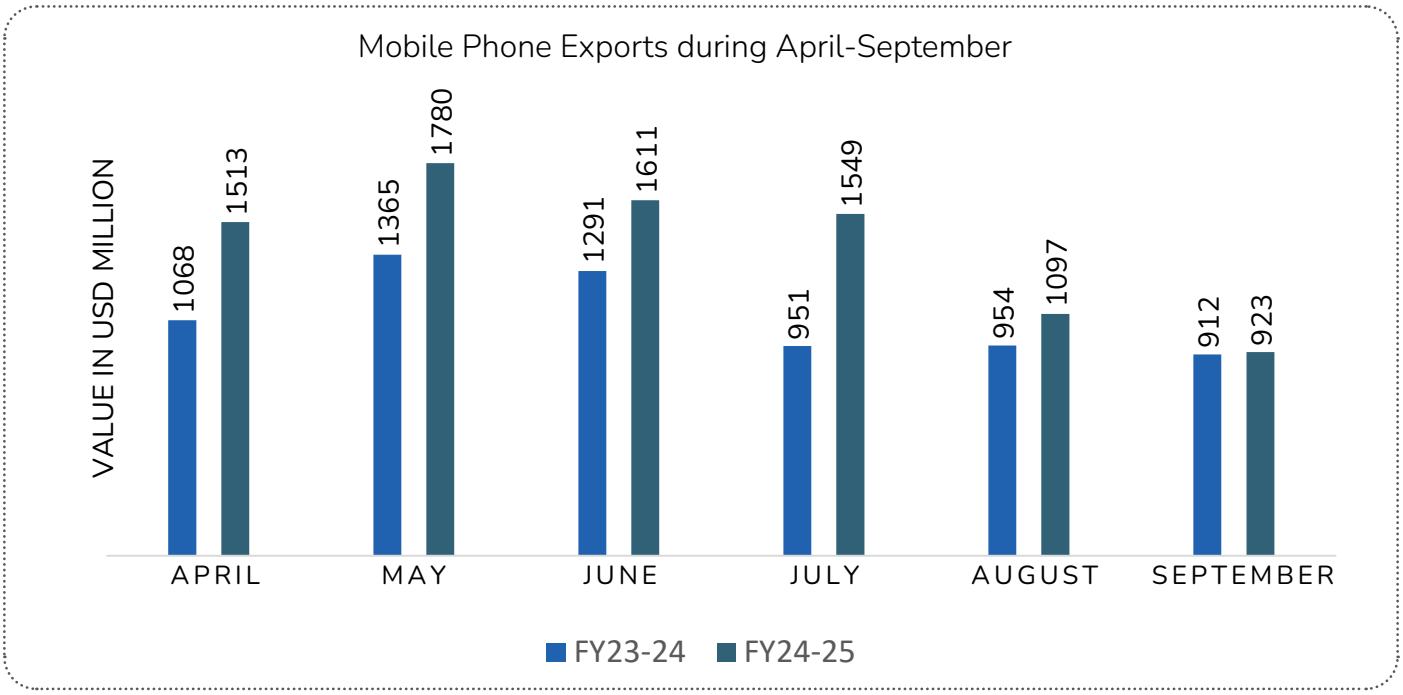


Source: Department of Commerce

Fig. 1b shows the top electronics exports by commodity of value more than USD 300 Mn. The total electronic goods export between April-September in 2024 was USD 15,640 Mn while the same during the corresponding period in 2023 was USD 13,060 Mn. Meanwhile, the smartphone exports have gone up to USD 8,470 Mn in 2024 from USD 6,539 Mn in 2023

MOBILE PHONES

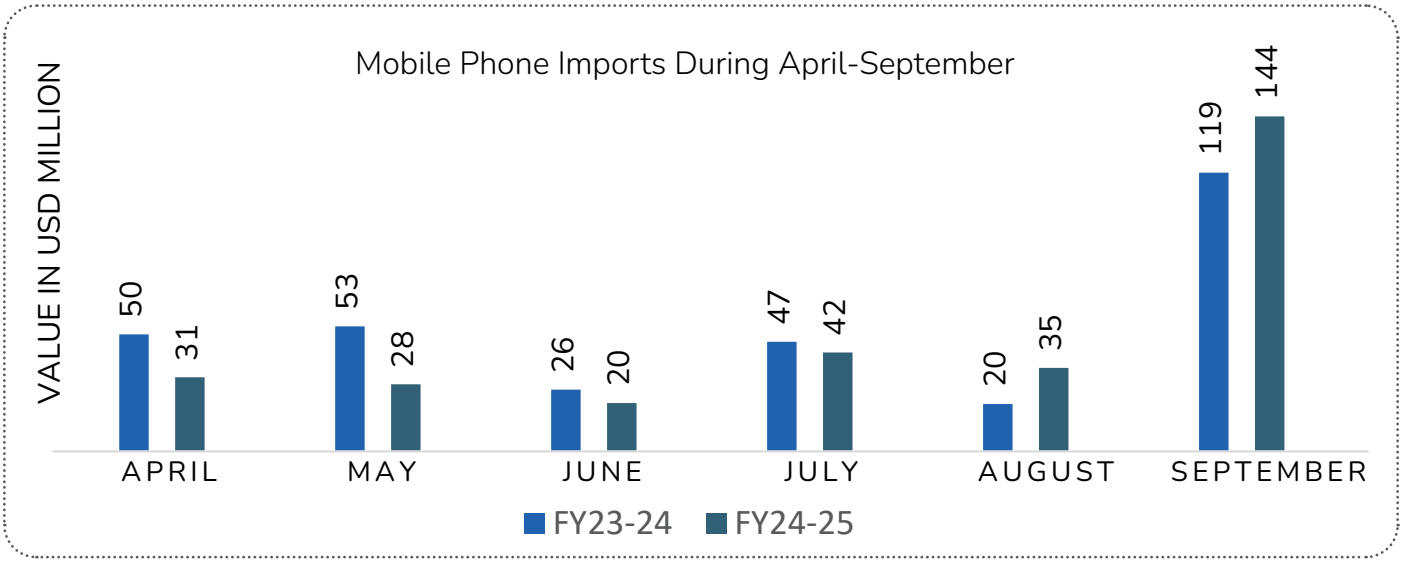
MOBILE PHONES EXPORT



Source: Department of Commerce

Fig. 2a shows the growth in mobile phones export from April-September in FY23-24 to the same period in FY24-25. The overall exports in FY24-25 was recorded to be USD 8,474 Mn while it was USD 6,542 Mn in FY23-24. In the month of April of FY24-25, the export was recorded to be USD 1,513 Mn while in May, June, July, August and September it was USD 1,780 Mn, USD 1,611 Mn, USD 1,549 Mn, USD 1,097 Mn and USD 923 Mn, respectively as compared to USD 1,068 Mn, USD 1,365 Mn, USD 1,291 Mn, USD 951 Mn, USD 954 Mn and USD 912 Mn, respectively during the corresponding months of FY23-24.

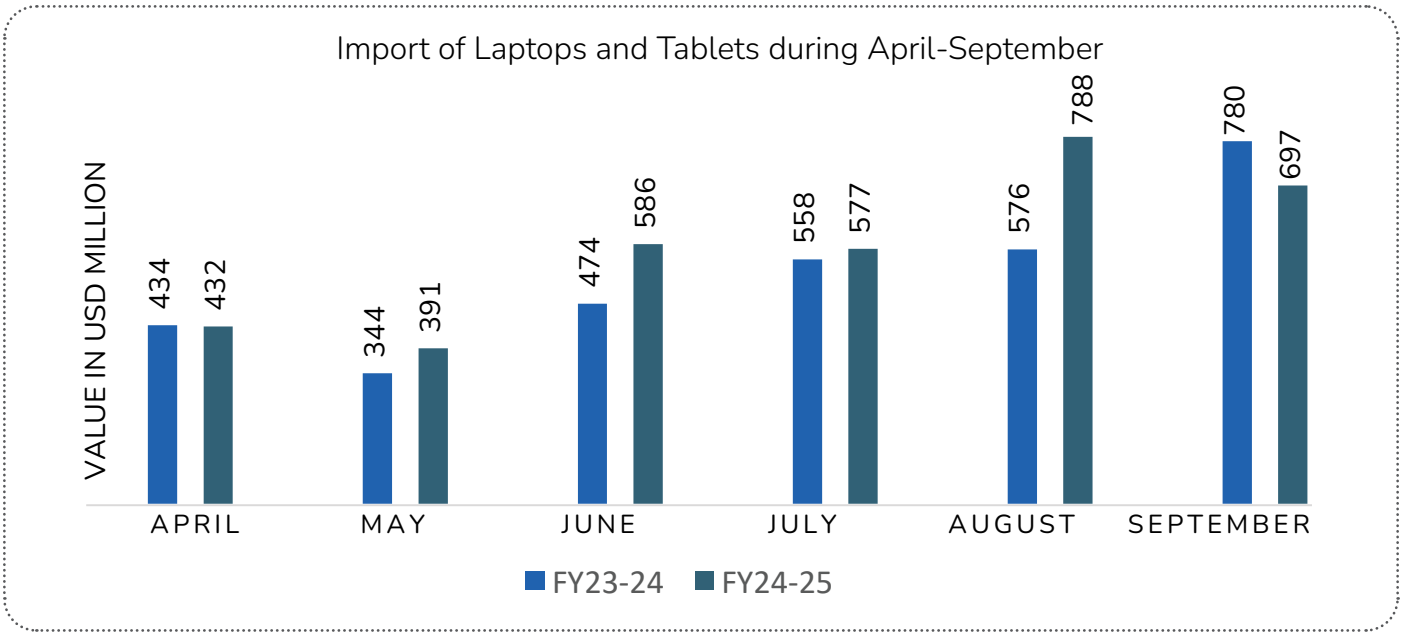
MOBILE PHONES IMPORT



Source: Department of Commerce

Fig. 2b depicts the decline in the mobile phones import from April-September in FY23-24 to the same period in FY24-25. The overall import has gone down to USD 315 Mn during April-September in FY24-25 from USD 301 Mn during the same period in FY23-24.

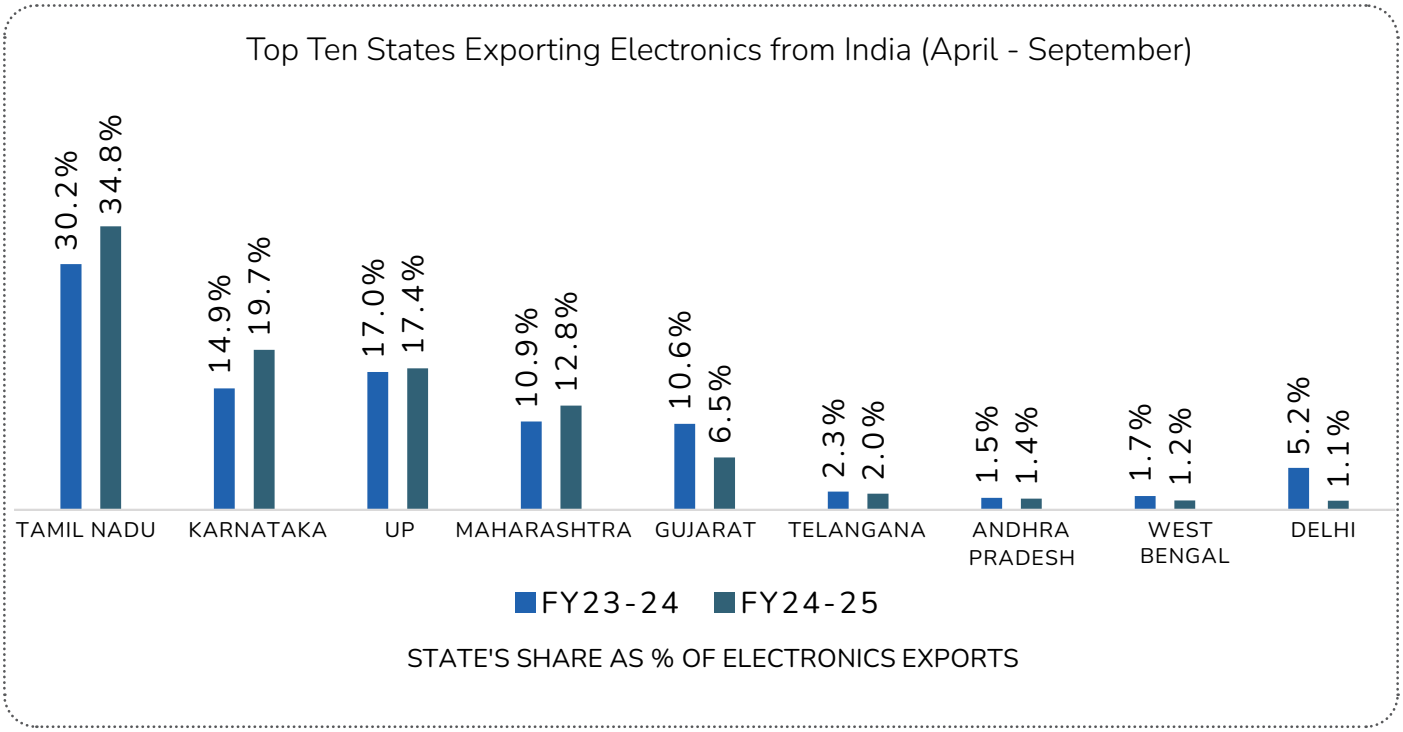
LAPTOP & TABLETS IMPORT



Source: Department of Commerce

Fig. 3 shows the import of laptops and tablets which has increased to USD 3,471 Mn between April-September in FY24-25 from USD 3,165 Mn during the corresponding months of FY23-24

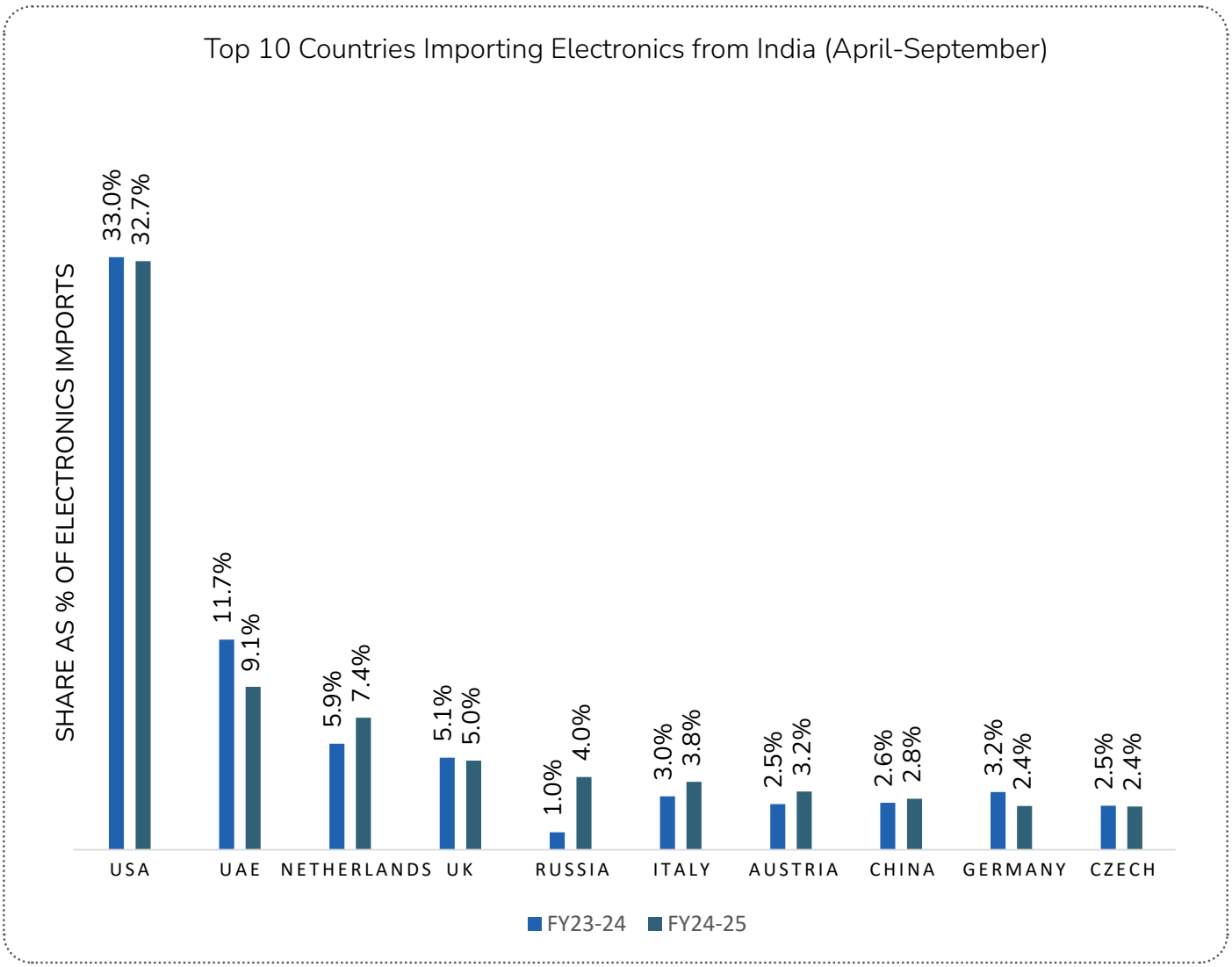
TOP 10 STATES EXPORTING ELECTRONIC GOODS



Source: Department of Commerce

Fig 4 depicts the total exports from different states and union territories (UT) of India during FY23-24 and FY24-25 from the month of April to September. The top five states are contributing more than 84% of total electronic goods exported from India. Tamil Nadu tops the list of states followed by Karnataka, Uttar Pradesh and Maharashtra. The electronic goods export from Tamil Nadu in FY24-25 was 34.8% of the total export while Karnataka, Uttar Pradesh and Maharashtra contributed for 19.7%, 17.4% and 12.8%, respectively.

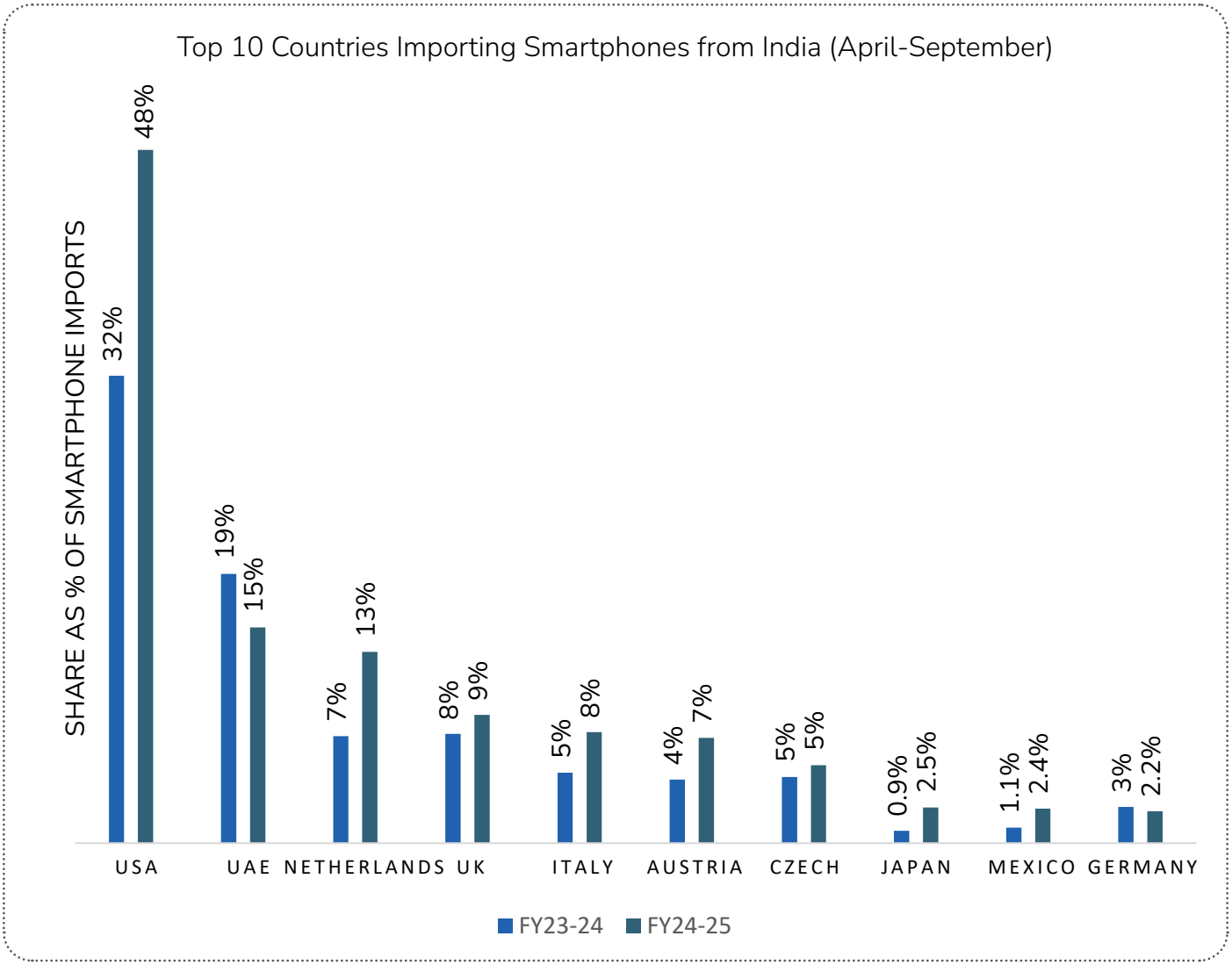
TOP 10 ELECTRONIC GOODS EXPORTING DESTINATION FROM INDIA



Country's Share as % of Electronics Imports
Source: Department of Commerce

Fig 5 shows the total electronics goods exports from India to various countries and territories during April-September in FY24-25. The USA continues to be the primary export destination followed by the UAE, Netherlands, the UK, and Russian Federation. The export to the USA was more than 32% whereas to the UAE it was slightly more than 9%. Around 7% of total electronic goods were exported from India to Netherlands, 5% to the UK and 4% to Russian Federation.

MAJOR EXPORT DESTINATION OF MOBILE PHONES



Country's Share as % of Smartphone Imports
Source: Department of Commerce

Fig 8 shows the total export of smartphones to countries from India during April-September in FY24-25. The USA was at top of the list in exporting smartphones from India followed by the UAE, Netherlands, the UK, Italy and Austria. About 48% of smartphones were exported to the USA from India while 15% to the UAE and 13% to Netherlands.

GOVERNMENT ANNOUNCEMENTS

IndiaAI and Meta Unveil Major Initiatives to Advance Open-Source AI Innovation and Skilling in India

IndiaAI at MeitY and Meta have launched transformative projects to drive AI innovation and skill development, establishing the Center for Generative AI, "Srijan," at IIT Jodhpur and introducing the "YuvAi" skilling program for youth. Supported by Meta, the Srijan center aims to foster cutting-edge research in AI, focusing on responsible and ethical development.

The YuvAi initiative will empower 100,000 students and developers to leverage open-source large language models (LLMs) in real-world applications, with emphasis on sectors like healthcare, education, and smart cities. This collaboration aligns with IndiaAI's mission to create a robust ecosystem for AI and enhance India's tech sovereignty.

S. Krishnan, Secretary, MeitY, underscored the importance of these efforts in positioning India as a leader in AI innovation, while Meta's Shivnath Thukral highlighted the partnership's role in nurturing indigenous solutions for India's unique challenges.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2068251

MeitY and MHI Launch Joint Initiative to Advance Indigenous EV Technologies

The Ministry of Electronics and Information Technology (MeitY) and the Ministry of Heavy Industries (MHI) announced a Joint Call for Proposals to boost the development of indigenous electric vehicle (EV) sub-systems. At the launch event in New Delhi, MeitY Secretary S. Krishnan highlighted the role of industry, academia, and innovators in advancing homegrown EV technology.

This initiative aims to support key areas, including EV chargers, battery management, telematics, and safety systems, with MeitY providing financial backing and MHI offering standardization and testing support. Targeting universities, startups, and research institutions, the project aligns with the government's Atmanirbhar Bharat vision, aiming to strengthen India's EV ecosystem and encourage sustainable mobility solutions.

Dr. Hanif Qureshi, Additional Secretary at MHI, noted that the joint initiative is crucial for fostering EV technology innovation in India. Interested applicants can find proposal details on the MeitY website.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2066784

IndiaAI Mission Advances Responsible AI with Eight New Projects

The IndiaAI Mission has selected eight projects focused on fostering Safe and Trusted AI, advancing India's leadership in responsible AI development. Selected under a recent Expression of Interest (EoI) initiative, these projects aim to create indigenous tools and frameworks, establishing guidelines for ethical, transparent, and trustworthy AI applications.

Key themes include AI bias mitigation, machine unlearning, privacy enhancements, synthetic data generation, and algorithm auditing, all crucial for ethical AI development. IndiaAI's mission supports advancing these technologies with tools tailored to India's unique needs, using Indian datasets to ensure safe AI deployment.

With over 2,000 proposals submitted from top institutions, startups, and research organizations, a multi-stakeholder committee selected eight projects that best meet India's vision for AI safety and transparency. This initiative aligns with India's Digital India goals, strengthening technological self-reliance while promoting inclusive AI solutions for society.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2065579

Telecom Minister Scindia Urges Telcos to Focus on 9 Key Areas

Union telecom minister Jyotiraditya Scindia has urged telecom leaders to prioritize nine key areas over the next six months, with a primary focus on providing connectivity for all. During a meeting at India Mobile Congress, attended by executives from Bharti Airtel, Reliance Jio, Vodafone Idea, Qualcomm, and Mediatek, Scindia called for the formation of a task force to address these priorities.

Key areas include expanding fiber-to-home connections, securing networks, establishing telecom manufacturing zones, and promoting green energy initiatives. No discussions were held on adjusted gross revenue or satellite spectrum issues.

Source: https://www.business-standard.com/amp/industry/news/work-on-9-priority-areas-including-connectivity-for-all-scindia-to-telecos-124101601254_1.html

PM Modi Inaugurates IMC 2024, Highlights India's Digital Revolution and 5G Leadership

Prime Minister Narendra Modi inaugurated the 8th edition of India Mobile Congress (IMC) 2024 in New Delhi on October 15, emphasizing India's success in democratizing digital technology. Modi also inaugurated the World Telecommunication Standardisation Assembly (WTSA) 2024, organized by the International Telecommunication Union, underscoring the global significance of the event.

"India has not only embraced telecommunications but has used it as a tool for equity and opportunity," Modi remarked. He highlighted India's journey under the Digital India initiative, focusing on reducing device costs, expanding digital connectivity, making data accessible, and prioritizing a 'digital-first' approach. Modi noted that India has laid optical fibre networks spanning a distance equivalent to eight trips to the moon, and in just two years, 5G has reached every district.

The event also saw remarks from Reliance Jio chairman Akash Ambani, who emphasized the transformative potential of AI in making India a global technology leader. Industry leaders like Xiaomi, Qualcomm, and Ericsson showcased cutting-edge advancements, including Meta's Ray-Ban XR glasses, Qualcomm's AI-driven processors, and next-gen 5G use cases.

Source: https://www.indiatoday.in/technology/news/story/pm-narendra-modi-inaugurates-imc-2024-says-india-has-democratised-digital-technology-2617067-2024-10-15

India Drives Global Telecommunications Standards at ITU-WTSA 2024

The ITU-World Telecommunication Standardization Assembly (WTSA) 2024 concluded with India at the forefront of shaping the future of global telecommunications and digital innovation. The event saw record participation, with 3,700 delegates from over 160 nations, and introduced eight new resolutions, including India's key proposals on AI in ICT, metaverse standardization, and digital public infrastructure.

Union Minister Jyotiraditya Scindia emphasized technology's role in fostering equity, while ITU Secretary-General Doreen Bogdan-Martin lauded India's leadership. India also secured maximum leadership roles in ITU-T Study Groups and promoted gender inclusion, reaffirming its global prominence in digital transformation.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2067905

India to Lead Global Telecom Connectivity and Innovation: Piyush Goyal

Union Commerce and Industry Minister Piyush Goyal highlighted India's emerging role as a global provider of telecom services and digital connectivity at the World Telecommunication Standardization Assembly and India Mobile Congress in New Delhi. Goyal emphasized that India's robust telecom infrastructure, driven by the Digital India initiative, has positioned the country as a "Trusted Partner of the World."

India's seamless broadband connectivity, spanning urban and rural areas, showcases its leadership in democratizing technology, he said. Goyal called on Indian companies to support emerging economies with high-quality, secure telecom solutions, aligning with global Sustainable Development Goals for affordable digital access.

Goyal credited Prime Minister Narendra Modi's vision for India's digital growth, particularly in enabling uninterrupted services during the COVID-19 pandemic. As India advances 5G and prepares for 6G, Goyal emphasized that India is not only enhancing domestic connectivity but is poised to support global telecom infrastructure needs and innovation.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2065022

Maharashtra to Establish Cutting-Edge Centers of Excellence in AI and Robotics

The National Institute of Electronics and Information Technology (NIELIT) and the Maharashtra State Board of Technical Education signed a Memorandum of Understanding (MoU) on October 11 with an aim to make Maharashtra a hub for advanced technical education with the establishment of Centers of Excellence (CoEs) in Artificial Intelligence, Robotics, IoT, Industry 4.0, and 3D Printing.

This initiative aims to enhance capacity building and R&D at government polytechnics and engineering colleges across the state. Union Minister Ashwini Vaishnaw highlighted the alignment of this initiative with the National Education Policy, which emphasizes practical, industry-ready skills.

This project will empower students with opportunities in cutting-edge technologies and strengthen Maharashtra's position as a leader in technical education and innovation.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2064184

India and U.S. Sign MoU on Critical Mineral Supply Chains at 6th India-US Commercial Dialogue

Union Commerce Minister Piyush Goyal and U.S. Secretary of Commerce Gina Raimondo co-chaired the 6th India-US Commercial Dialogue in Washington D.C., focusing on trade, investment, and new technologies.

A key highlight was the signing of an MoU to "Expand and Diversify Critical Mineral Supply Chains," strengthening cooperation in exploration, extraction, and recycling. Goyal also met U.S. Trade Representative Katherine Tai to discuss enhancing two-way trade and bilateral cooperation.

Goyal emphasized India's push to become a global manufacturing hub, underlining investment opportunities and supply chain resilience during his keynote at CSIS.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2062127

Commerce & Industry Minister Piyush Goyal Meets U.S. Business Leaders, Invites Investment in India

On his U.S. visit, Commerce and Industry Minister Piyush Goyal met with key investors, including executives from BlackRock, Tillman Holdings, and Janus Henderson Investors. He discussed India's potential as a global manufacturing hub and invited increased investment and trade collaborations.

During a luncheon with USISPF members, Goyal emphasized the government's efforts to improve ease of doing business and infrastructure.

He also engaged with Indian diaspora leaders and the Gems and Jewellery industry, highlighting India's global strengths and opportunities for mutual growth.

Source: https://www.hindustantimes.com/business/piyush-goyal-meets-top-american-investors-in-new-york-before-india-us-bilateral-meet-101727845565087.html

Government Forms Committee to Establish Repairability Index for Mobile and Electronics Sector

In a significant move towards enhancing consumer rights and promoting sustainability, the Department of Consumer Affairs (DoCA), Government of India, has established a committee led by Bharat Khera, Additional Secretary of DoCA, to develop a robust Repairability Index for the mobile and electronics sector. This initiative aims to empower consumers by providing transparent repair information and encouraging sustainable practices within the tech industry.

The Repairability Index will serve as a consumer-centric metric, allowing individuals to make informed purchasing decisions based on a product's repairability. By standardizing how repairability is assessed, consumers can easily compare products, fostering an ecosystem of informed choices.

Key elements of the proposed Repair Ecosystem include comprehensive access to repair information, timely availability of spare parts, affordable tools, modular design, and economic feasibility.

Source: https://www.indiatvnews.com/technology/news/government-forms-panel-to-develop-repairability-index-for-mobiles-and-electronics-2024-09-24-953835

National IPR Conference Highlights Enhanced Collaboration and Capacity Building for Enforcement

The three-day National Conference on Enforcement and Capacity Building in Intellectual Property Rights (IPR) at NACIN, Palasamudram, Andhra Pradesh, emphasized strengthening India's IPR enforcement through enhanced collaboration and capacity building.

Inaugurated by Surjit Bhujbal, Member (Customs), CBIC, the event focused on leveraging technology, augmenting Customs officers' skills, and devising strategies against IPR violations.

Participants, including government officials, right holders, and international experts, discussed themes such as inter-agency coordination, public-private partnerships, and tackling piracy and counterfeiting in e-commerce. The World Customs Organization (WCO) conducted a special session on global IPR enforcement strategies.

The conference also showcased NACIN Palasamudram's state-of-the-art Immersive Training Centre, designed to train stakeholders on IPR laws. The facility aims to enhance understanding and practical application of IPR enforcement, reinforcing India's commitment to robust IP protection.

Source: https://observervoice.com/india-hosts-national-conference-to-strengthen-intellectual-property-rights-ipr-enforcement-71389

India-Japan Finance Dialogue Strengthens Bilateral Cooperation

The 2nd India-Japan Finance Dialogue was held in Tokyo on September 6, 2024, co-chaired by Japan's Vice Minister of Finance for International Affairs, Atsushi Mimura, and India's Secretary of Economic Affairs, Ajay Seth. Delegates from both nations, including officials from finance ministries, central banks, and regulatory bodies, discussed macroeconomic developments, financial digitalization, and regulatory cooperation.

The dialogue also featured a session with Japan's financial industry to explore expanding investments in India. Both sides agreed to continue discussions to enhance financial cooperation and strengthen bilateral ties, with plans to hold the next meeting in New Delhi.

Source: https://www.thestatesman.com/business/india-japan-finance-dialogue-held-in-tokyo-to-discuss-macroeconomic-situation-1503341281.html

Cabinet Greenlights New Semiconductor Plant by Kaynes Semicon Pvt. Ltd. under ISM

Union Cabinet, chaired by Prime Minister Narendra Modi, approved a new semiconductor unit by Kaynes Semicon Pvt Ltd in Sanand, Gujarat. The project involves an investment of INR 3,300 crore and is expected to produce 60 lakh chips per day. These chips will cater to diverse sectors including automotive, electric vehicles, consumer electronics, telecom, and mobile phones.

This approval is part of the larger Programme for Development of Semiconductors and Display Manufacturing Ecosystem, launched in December 2021 with a budget of INR 76,000 crore. The project aims to establish a strong domestic semiconductor ecosystem.

This new approval adds to previous clearances for semiconductor units in Sanand, Dholera, and Morigaon. Notably, Tata Electronics is setting up a fab unit in Dholera, Gujarat, and CG Power is building a unit in Sanand, Gujarat.

Together, the four semiconductor units under construction will bring in investments totaling nearly INR 1.5 lakh crore and have a combined production capacity of 7 crore chips per day, signaling robust momentum in India's semiconductor industry.

Source: https://www.indiatoday.in/business/story/government-approves-rs-3300-crore-semiconductor-unit-kaynes-semicon-pvt-ltd-gujarat-sanand-2592324-2024-09-02

BIS Hosts Twin Conventions to Bridge Academic Research and Standardization

The Bureau of Indian Standards (BIS) has successfully organized twin conventions in Udaipur and Dharmashala to enhance collaboration between academic research and national and international standardization. The convention in Udaipur focused on Civil Engineering, featuring insights from Director General Pramod Kumar Tiwari about academia's critical role in standardization.

Concurrently, Dharmashala hosted a convention for Chemical Engineering and Chemistry, led by Dy. Director General Chandan Bahl. These conventions aim to foster partnerships with 92 educational institutions, encouraging their active involvement in BIS Technical Committees and contributing to the development of national standards.

Source: https://government.economictimes.indiatimes.com/news/governance/bis-hosts-conventions-to-align-academic-research-with-global-standards/112924513

BIS Launches Student Hackathon to Promote Indian Standards

The Bureau of Indian Standards (BIS) initiated a Hackathon aimed at student teams from institutions with a Memorandum of Understanding (MoU) with BIS. The event encouraged creativity and problem-solving by addressing real-world challenges related to Indian Standards.

Participants were tasked with designing a platform for online activities and games to raise awareness about the importance of standards in ensuring quality and safety. This initiative aims to engage a broader audience and enhance understanding of quality standards in India.

Source: https://money.rediff.com/news/market/bis-hackathon-boosting-awareness-of-indian-standards/14537120240820

MeitY Empowers Over 3600 Tech Startups with INR 212 Crore Funding

The Ministry of Electronics and Information Technology (MeitY) is driving innovation and fostering growth in India's startup ecosystem, supporting more than 3,600 tech startups with INR 212 crore in funding.

Through initiatives like the Technology Incubation and Development of Entrepreneurs (TIDE 2.0), Startup Accelerator of MeitY for Product Innovation, Development, and Growth (SAMRIDH), and the Next Generation Incubation Scheme (NGIS), the ministry enables startups at various stages to scale and secure further investment.

MeitY has established 42 Centres of Excellence (CoEs) to nurture cutting-edge technologies and empower innovation. These efforts align with the Startup India initiative, with over 1.43 lakh DPIIT-recognized startups operating in the country.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2040941

India Accelerates Semiconductor Manufacturing and Digital Transformation

India's semiconductor market, valued at $38 billion in 2023, is set to reach $109 billion by 2030. The government's INR 76,000 crore Semicon India programme supports domestic manufacturing of semiconductors and displays, offering 50% fiscal support for fabs and design initiatives. The modernization of the Semi-Conductor Laboratory in Mohali has also been approved.

Under the Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS), investments of INR 8,803 crore have been made, while the Production Linked Incentive (PLI) scheme has attracted INR 8,390 crore. India is also enhancing talent development, training 85,000 engineers to drive future semiconductor innovation.

Source: https://cxotoday.com/news-analysis/the-growth-of-the-indian-semiconductor-industry/#:~:text=The%20government's%20Production%20Linked%20Incentive,to%20smaller%20startups%20as%20well

Government Schemes Boost Electronics Manufacturing in India

Under the Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS), an incremental investment of INR 8,803.14 crores has led to production worth INR 18,083.55 crores as of June 2024. Launched in April 2020, SPECS offers a 25% capital expenditure incentive to promote manufacturing in electronic components, solar photovoltaic (SPV) technologies, and e-waste recycling, among others.

Meanwhile, the Production Linked Incentive (PLI) Scheme for Large Scale Electronics Manufacturing, also introduced in 2020, has attracted INR 8,390 crores in incremental investments, leading to INR 5,14,960 crores in production, particularly in mobile phones and electronic components. These initiatives aim to boost domestic manufacturing and attract significant investments.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2037597

Strong Investment Momentum under PLI Schemes for Electronics and IT Hardware

As of June 30, 2024, the Production Linked Incentive (PLI) Schemes for Large Scale Electronics Manufacturing and IT Hardware have attracted significant investments. The Ministry of Electronics and Information Technology (MeitY) reported that 32 companies under the PLI Scheme for Electronics Manufacturing have made a cumulative investment of INR 8,282 crore. Of these, INR 3,136 crore came from Greenfield companies, while Brownfield companies invested INR 5,146 crore.

Similarly, 27 companies approved under the PLI 2.0 for IT Hardware have invested INR 464.66 crore, with Greenfield companies contributing INR 78.57 crore and Brownfield companies INR 386.09 crore.

The PLI Schemes, launched under the National Policy on Electronics (NPE) 2019, aim to boost domestic production, with substantial production targets across both sectors. Electronics companies have committed to producing goods worth INR 10,70,000 crore, while IT Hardware companies target INR 3,51,647 crore in production under PLI 2.0.

Additionally, the PLI Scheme for Electronics Manufacturing was extended by one year to mitigate COVID-19 impacts, allowing companies flexibility in meeting production targets until 2025-26.

Source: https://www.manufacturingtodayindia.com/mobile-and-component-makers-invest-%E2%82%B98282-crore-under-pli-scheme

Government Launches Various Initiatives to Strengthen India's Cybersecurity

With over 936 million internet users, India is a global digital leader. To protect this vast online community, the Government has launched several cybersecurity initiatives. The Indian Computer Emergency Response Team (CERT-In) plays a key role by responding to cyber incidents and issuing security advisories. CERT-In collaborates with law enforcement and service providers to combat phishing, fraud, and cybercrime while managing platforms like Cyber Swachhta Kendra for malware detection.

To enhance public safety, the government has introduced the Cyber Crime Coordination Centre (14C) and a toll-free helpline (1930) for reporting financial fraud. Additionally, the Digital Personal Data Protection Act, 2023 ensures personal data privacy and security. These efforts reinforce India's commitment to a secure digital landscape.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2037115

Government Ensures Safe and Trusted AI through Legal Safeguards

Union Minister of State for Electronics and Information Technology in a written reply in Lok Sabha said that the Government is implementing robust measures to ensure the safety and trustworthiness of Artificial Intelligence (AI).

Under the Information Technology (IT) Rules, 2021, intermediaries, including social media platforms, are legally bound to remove prohibited misinformation, deep fakes, and false information. These rules were updated in 2022 and 2023 to strengthen accountability.

Platforms failing to comply lose their safe harbor protection under the IT Act. Additionally, the Digital Personal Data Protection Act, 2023, mandates data fiduciaries to protect personal data, ensuring users' rights.

Source: https://www.communicationstoday.co.in/govt-taking-measures-to-ensure-safe-and-trusted-ai/?__cf_chl_rt_tk=wbxt3W6SBP2icXYJyzgtOywRl.bqDUK7NaINBHNohBk-1729147656-1.0.1.1-1UZWKeHHp1LwkhlP2A9rNIYcfosdC72PAf.680N42NU

65 STPI Centers Established Nationwide; 20 More Approved

The Government has established 65 Software Technology Parks of India (STPI) centers across the country, with 20 additional centers recently approved. STPI, under the Ministry of Electronics and Information Technology (MeitY), facilitates software exports and IT growth.

Alongside STPIs, MeitY launched the Electronics Manufacturing Clusters (EMC) Scheme in 2012 to boost electronics manufacturing infrastructure. Nineteen Greenfield EMCs and three Common Facility Centers were approved across 15 states.

In 2020, the EMC 2.0 Scheme was introduced to further strengthen the electronics manufacturing ecosystem. Six new projects under EMC 2.0 have been approved to date.

Source: https://tele.net.in/stpi-sets-up-65-centres-across-india-20-new-stpi-centres-get-approval-from-government/

Over 18.56 Lakh Enrollments on 'FutureSkills PRIME' for IT Reskilling and Upskilling

The Indian government is driving initiatives to position India as a global technology leader. As part of this effort, over 18.56 lakh candidates have signed up for 'FutureSkills PRIME,' a program launched by the Ministry of Electronics and Information Technology (MeitY) to reskill and upskill IT professionals in emerging technologies like Artificial Intelligence.

Out of these, more than 3.37 lakh have completed their courses. Startups are also being supported under the Centers of Excellence for Artificial Intelligence to develop AI-based tools for the manufacturing sector.

Additionally, the 'YUVAi' program aims to equip students from classes 8 to 12 with AI skills, focusing on thematic areas such as agriculture, healthcare, and smart cities. These efforts highlight India's commitment to fostering a tech-savvy workforce for the future.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2036445

BIS Approves 82 R&D Projects for Technical Institute Faculty

The Bureau of Indian Standards (BIS) has approved 82 Research & Development (R&D) projects for faculty members from leading technical institutions, including IITs and NITs. Each project, with a budget of up to ten lakh rupees and a six-month completion timeline, emphasizes practical field studies in areas such as Artificial Intelligence, Blockchain Technology, and Renewable Energy.

BIS aims to enhance standardization while safeguarding consumer interests and ensuring product quality. In addition to these projects, 99 more are in the allotment process, and 66 are available for application, fostering innovation in India's academic research landscape.

Source: https://www.deccanchronicle.com/nation/bis-sanctions-82-projects-to-faculty-members-of-various-prominent-technical-institutions-1811970

Customs Duty Reforms to Boost Domestic Manufacturing and Exports

Finance Minister Nirmala Sitharaman announced reforms in customs duties to boost domestic manufacturing, enhance export competitiveness, and simplify taxation. Key proposals include exemptions for 25 critical minerals and three cancer drugs—TrastuzumabDeruxtecan, Osimertinib, and Durvalumab.

The seafood and leather sectors will benefit from reduced duties on inputs to promote exports. Customs duties on gold, silver, platinum, ferro nickel, and blister copper are also reduced. Mobile phones, PCBs, and chargers will see reduced rates to 15%.

The Minister highlighted a three-fold increase in mobile phone production and announced plans for a comprehensive review of the customs duty structure.

Source: https://manufacturing.economictimes.indiatimes.com/news/industry/custom-duty-reforms-to-boost-domestic-manufacturing-fm/111960772

Global INDIAai Summit 2024 in New Delhi

The Global INDIAai Summit 2024, with over 1,000 delegates, including AI experts and practitioners, was organized in New Delhi. Union Minister Ashwini Vaishnaw inaugurated the summit, alongside dignitaries from Japan and India, including Hiroshi Yoshida and Jitin Prasada. The summit featured 12 sessions, focusing on AI advancements and innovation, with more than 100 global experts participating.

Startups showcased AI solutions, and Vaishnaw emphasized India's commitment to democratizing AI, making it accessible to all. He also highlighted India's focus on public AI platforms to foster collaborative innovation. Japan's Hiroshi Yoshida praised India's leadership as the Chair of the Global Partnership on Artificial Intelligence (GPAI), stressing responsible AI practices.

The summit's discussions covered vital AI topics, including Large Language Models, AI in healthcare, and real-world AI solutions, marking a significant milestone for India's AI ambitions.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2030512

PM Modi Urges Semicon Industry to Invest in India, Highlights Growth Potential

Prime Minister Narendra Modi called on global semiconductor industry leaders to invest in India during his address at the Semicon India 2024 summit. Speaking in Greater Noida, Modi emphasized India's strategic position in the global semiconductor ecosystem, stating, "When the chips are down globally, you can bet on India."

He highlighted India's growth as a semiconductor hub, noting that the country is one of only eight nations advancing a global semiconductor initiative. Modi pointed to India's talent, contributing 20% of the global semiconductor design workforce, and the government's focus on training 85,000 engineers and technicians for the industry.

Modi also underscored India's role in technology-driven global growth, particularly in collaboration with the U.S., and its efforts to expand the electronic sector. He cited India's $150 billion electronics market and its status as the second-largest exporter of 5G phones.

In his remarks, Modi emphasized that balancing technology and democracy is crucial for advancing the semiconductor sector globally. He assured industry leaders of a supportive, stable policy environment under the "Make in India" and "Make for the World" initiatives.

Source: https://money.rediff.com/news/market/pm-modi-calls-for-chip-investment-in-india-semicon-2024/15552020240911

Celebrating a Decade of Make in India: Transforming Electronics and Semiconductor Landscape

On the 10th anniversary of the Make in India initiative, S. Krishnan, Secretary of the Ministry of Electronics and Information Technology (MeitY), underscored the program's pivotal role in revolutionizing the electronics sector.

Since 2014-15, production has surged from INR 1.9 lakh crore to INR 9.52 lakh crore, with exports witnessing an impressive growth rate of 22.7%. Today, an astonishing 99.2% of mobile phones sold in India are domestically manufactured, reflecting a remarkable transformation from just 26% a decade ago.

The mobile phone export sector has also flourished, rising from INR 1,566 crore in 2014-15 to approximately INR 1,20,000 crore in 2023-24, marking a 77-fold increase. This success is largely attributed to the government's Production-Linked Incentive (PLI) scheme, which has generated over 1.2 million jobs in the electronics sector.

Additionally, the India Semiconductor Mission aims to establish a robust semiconductor manufacturing base, a crucial step for the future of India's electronics industry.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2059081

BIS Partners with IISc Bengaluru to Establish Standardization Chair

The Bureau of Indian Standards (BIS) has signed a Memorandum of Understanding (MoU) with the Indian Institute of Science (IISc), Bengaluru, to establish the 'BIS Standardization Chair Professor,' formalized on July 3, 2024.

This collaboration aims to enhance academic involvement in standardization and integrate it into academic curricula. Key initiatives include incorporating standardization topics into courses, engaging in national and international standardization efforts, and co-hosting events like seminars and workshops.

BIS Director General Pramod Kumar Tiwari emphasized the partnership's potential to drive research and innovation in standardization, fostering the development of reliable products and services in India.

Source: https://www.psuconnect.in/news/bureau-of-indian-standards-signs-mou-with-iisc-bengaluru-to-promote-standardisation/43508

Pralhad Joshi Inaugurates Electric Vehicle Testing Facility in Bengaluru

Union Minister Pralhad Venkatesh Joshi laid the foundation stone for a new Electric Vehicle (EV) Testing Facility at the National Test House (NTH) RRSL Camp in Bengaluru. This facility aims to bolster the EV ecosystem in South India by providing crucial testing services for EV batteries and chargers.

Equipped with advanced testing equipment, the facility will conduct various assessments, including safety, performance, and durability tests. This initiative aligns with India's commitment to sustainable energy solutions and supports the growing EV industry, ensuring vehicles meet stringent quality standards before reaching consumers.

Source: https://www.cnbctv18.com/auto/union-minister-pralhad-joshi-launches-cutting-edge-ev-testing-facility-in-bengaluru-19464006.htm

DoCA Engages Automobile Sector to Launch Right to Repair Portal India

The Department of Consumer Affairs (DoCA) has initiated the Right to Repair Portal India to enhance consumer access to repair information, promoting product reuse and reducing e-waste.

Secretary Nidhi Khare led a meeting with automobile associations and partner companies to onboard them to the portal. Emphasizing the need for accessible repair manuals and videos, Khare advocated for a robust ecosystem for third-party repairs and standards.

Key discussions included improving roadside assistance, establishing a repairability index, and addressing issues with repair costs and availability of genuine spare parts. The meeting concluded with a collaborative approach to enhance post-sale services.

Source: https://www.business-standard.com/industry/auto/govt-meets-auto-industry-asks-firms-to-onboard-right-to-repair-portal-124070600638_1.html

PLI Scheme for White Goods: 38 Companies Commit ₹4,121 Crore in Third Round

The third application window for the Production-Linked Incentive (PLI) Scheme for White Goods (Air Conditioners and LED Lights) attracted 38 companies, committing INR 4,121 crore in investments. Concluding on October 12, 43% of applicants were MSMEs, signaling their growing confidence in contributing to India's manufacturing ecosystem.

Notably, 21 applicants targeted AC components, pledging INR 3,679 crore, while 18 focused on LED light components with INR 442 crore committed. Investments span 54 districts across 18 states, including emerging hubs like Sri City, Andhra Pradesh, and Neemrana, Rajasthan.

The scheme aims to build a robust domestic manufacturing ecosystem, with companies like Daikin, LG, Voltas, and Dixon participating. Expected outcomes include investments totaling INR 11,083 crore, 80,486 jobs, and production worth INR 1.82 lakh crore.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2064740

MeitY and MHI Launch Joint Call to Boost Indigenous EV Sub-Systems Development

The Ministry of Electronics and Information Technology (MeitY), in collaboration with the Ministry of Heavy Industries (MHI), unveiled a joint call for proposals aimed at advancing indigenous Electric Vehicle (EV) sub-systems. Announced at Electronics Niketan, New Delhi, the initiative seeks to bolster India's EV ecosystem and promote the vision of Atmanirbhar Bharat in electric mobility.

MeitY Secretary S. Krishnan emphasized the role of innovators, researchers, and industry in developing cutting-edge indigenous EV technologies. Additional Secretary, MHI, Dr. Hanif Qureshi highlighted that the initiative will enhance India's capabilities in EV innovation.

The focus areas include EV chargers, battery management systems, telematics, and functional safety. Selected proposals will receive funding from MeitY, with MHI providing standardization and testing support. This program aims to develop sub-systems with high commercialization potential, propelling India's EV industry toward global leadership. Proposals can be submitted via the MeitY website.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2066784

DPIIT Partners with HCLSoftware to Boost India's Manufacturing Startups

The Department for Promotion of Industry and Internal Trade (DPIIT) has joined hands with HCLSoftware to advance India's startup manufacturing ecosystem. Announced on October 23 at Vanijya Bhawan, New Delhi, this partnership is part of DPIIT's Manufacturing Incubation Initiative under the Startup India program.

The collaboration aims to position India as a global manufacturing hub, leveraging HCL SYNC to provide startups with international market exposure. To date, DPIIT has signed over 80 MoUs with industry stakeholders to foster innovation.

Key objectives include developing Indian intellectual property, enhancing product quality, and creating a robust manufacturing ecosystem. DPIIT Joint Secretary Sanjiv Singh emphasized the importance of corporate involvement in nurturing startups, aligning with the 'Make in India' initiative.

HCLSoftware's Kalyan Kumar reiterated the company's commitment to empowering startups with cutting-edge solutions, driving innovation, and supporting India's manufacturing ambitions.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2068012

Piyush Goyal Urges Industry to Champion Tourism, Skills, and AI Development

Union Minister of Commerce & Industry, Piyush Goyal, called on industry associations to promote tourism, engage startups, and support youth and women entrepreneurs during the Indian Chamber of Commerce (ICC) Annual Plenary Session. Highlighting tourism's economic potential, he urged industry bodies to leverage their global offices to showcase India's tourism and enhance citizens' language skills to unlock jobs in interpreting and tour operations.

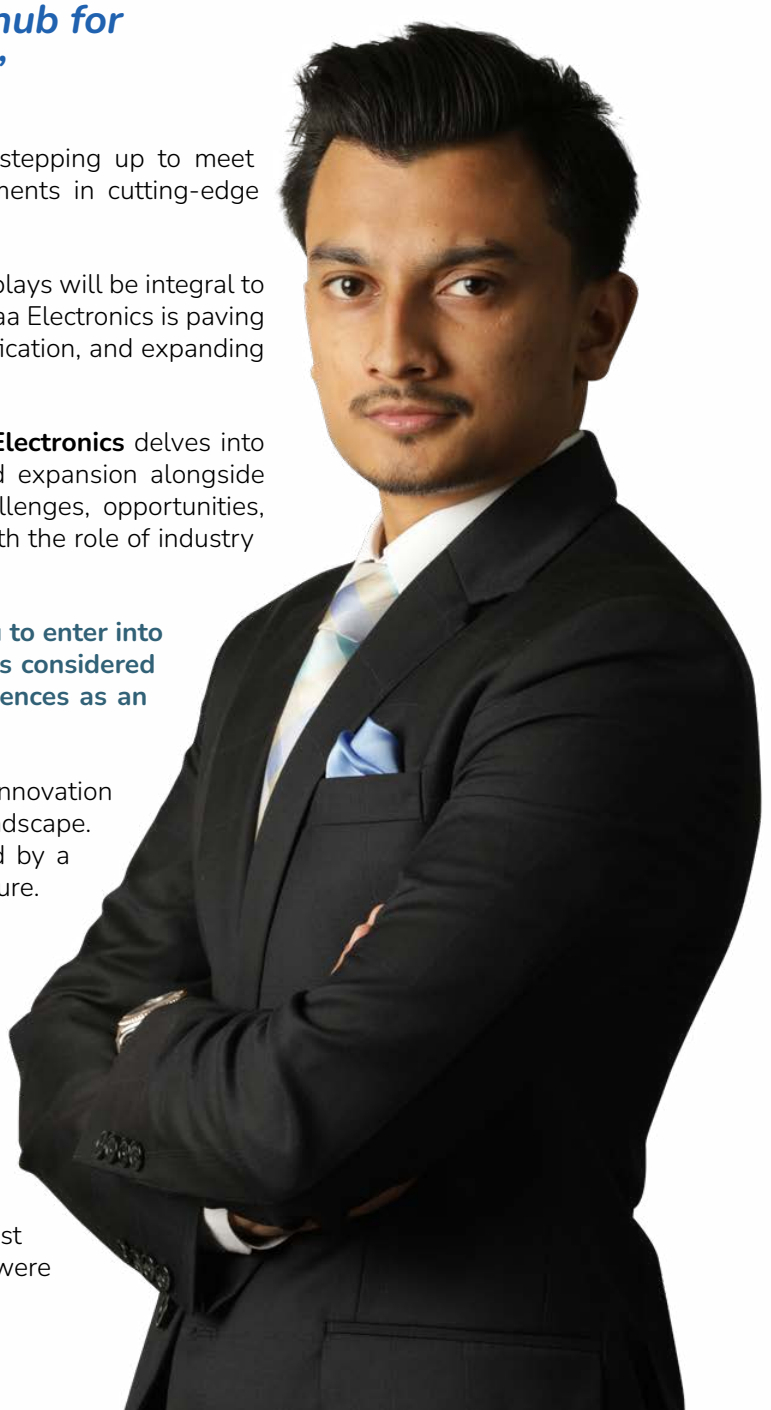
Goyal stressed the need for bridging the skill gap to meet job demands, aligning with Prime Minister Modi's vision of "Reform, Perform, Transform." He emphasized India's progress in AI, machine learning, and clean energy, urging associations to share these developments globally as India advances toward becoming the third-largest economy.

He also encouraged collaboration with the government to empower youth through skill development and employment generation, underscoring inclusiveness as key to India's success on its journey to "Viksit Bharat 2047."

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2066250

Government Support Propelling India's Electronics Industry

"As the demand for high-quality displays continues to rise, India has positioned itself as a hub for display manufacturing and innovation."



From smart TVs to digital signage, Indian companies are stepping up to meet both domestic and international demand, driving advancements in cutting-edge technologies like AI, IoT, and 5G.

As India's electronics industry gears up for a future where displays will be integral to sectors such as education, commerce, and entertainment, Ekkaa Electronics is paving the way with a focus on superior technology, product diversification, and expanding its market reach.

In an interview with *IGNITO*, **Sagar Gupta, Director, Ekka Electronics** delves into the journey of the Indian display sector, exploring its rapid expansion alongside the broader electronics industry. He discussed various challenges, opportunities, and policy support that have catalyzed this growth, along with the role of industry leaders and the government in fostering a thriving ecosystem.

You started at a very young age of 22, what prompted you to enter into manufacturing that too electronics manufacturing which is considered as a tech man game. Could you please share your experiences as an entrepreneur in this dynamic sector electronics.

Gupta: Starting Ekkaa Electronics was driven by a passion for innovation and a desire to contribute to India's burgeoning tech landscape. The decision to enter electronics manufacturing was fuelled by a combination of youthful ambition and a clear vision for the future.

The journey began with a deep interest in electronics and a recognition of the sector's potential for growth and impact. Despite the challenges, including the steep learning curve and the need for substantial technical expertise, the drive to create cutting-edge products kept me motivated. The early days were marked by extensive research, networking with industry experts, and a relentless pursuit of excellence.

One of the key experiences was understanding the importance of quality and precision in manufacturing. Establishing a robust supply chain and investing in state-of-the-art technology were

crucial steps. Collaborating with a talented team and fostering a culture of continuous improvement helped in overcoming initial hurdles.

The dynamic nature of the electronics sector demands constant adaptation and innovation. Staying ahead of technological advancements and market trends has been both challenging and rewarding. The journey has been a testament to the power of perseverance, strategic planning, and the willingness to embrace new ideas.

Now when I look back, I feel that my entrepreneurial path in electronics manufacturing has been a blend of passion, learning, and resilience.

What is your vision for Ekkaa Electronics in the next five years and so on?

Gupta: In next five years, we aim to further solidify our position as a leading player in the electronics manufacturing sector, both in home and in abroad, by significantly expanding our manufacturing capabilities and investing in cutting-edge technology.

Our immediate focus is on establishing a state-of-the-art manufacturing facility in Noida, which will enhance our production capacity and enable us to meet the growing demand for high-quality electronic products. This facility will not only cater to the domestic market but also position us as a key exporter, contributing to India's goal of becoming a global electronics manufacturing hub.

Additionally, we are committed to driving innovation in product development. We also plan to diversify our product portfolio to include advanced consumer electronics such as smart TVs, multimedia speakers, and wearable technology. By leveraging the latest advancements in AI and IoT, we aim to create products that offer superior performance and user experience. Our goal is to increase the value addition in our products from 5% to 40%, thereby enhancing our competitiveness and reducing dependency on imports.

Our long-term vision is to foster a culture of continuous improvement and sustainability. We are dedicated to adopting environmentally friendly manufacturing practices and promoting the use of renewable energy sources in our operations. Furthermore, we plan to invest in skill development programs to nurture a highly skilled workforce that can drive innovation and excellence.

As we are coming up with Interactive Smart Board and Digital Commercial signage display, we also paving the path to become Digital Education Technology partner with the State Governments. By staying ahead of technological trends, and maintaining a customer-centric approach, we envision Ekkaa Electronics as a pioneer in the global electronics industry, setting new benchmarks for quality and innovation.

How did the idea of establishing Ekkaa Electronics evolve? What motivated you to venture into the electronics industry, particularly in a competitive market like India?

Gupta: The idea of establishing Ekkaa Electronics evolved from an innate passion for technology and a keen interest in the transformative potential of electronics. During my early years, I was fascinated by how electronic devices could simplify and enhance everyday life. This curiosity led me to pursue studies in electronics engineering, where I gained a comprehensive understanding of the field. The decision to venture into electronics manufacturing was further influenced by the rapid technological advancements and the growing demand for innovative electronic products in India.

> ***"Motivation to enter the electronics industry stemmed from a desire to contribute to India's self-reliance in technology. Observing the heavy reliance on imported electronic components and products, I saw an opportunity to make a significant impact by establishing a domestic manufacturing unit. The vision was to create high-quality, affordable electronic products that could compete with international brands."***

Despite competitive nature of the market, the challenge was seen as an opportunity to innovate and excel. The initial phase involved extensive market research, understanding consumer needs, and identifying gaps in the market. Collaborating with industry experts and building a skilled team were crucial steps in laying the foundation for Ekkaa Electronics. The journey has been marked by continuous learning and adaptation, with a focus on quality, innovation, and customer satisfaction.

What were some of the key challenges you faced while building such a significant entity in the electronics sector? How did you overcome them?

Gupta: Building Ekkaa Electronics into a significant entity in the electronics sector presented several key challenges. One of the foremost challenges was navigating the complexities of the supply chain. The electronics industry is heavily dependent on a global supply chain, and disruptions, such as semiconductor shortages and logistical delays, posed significant hurdles.

To mitigate these issues, we established strong relationships with multiple suppliers and invested in inventory management systems to ensure a steady flow of essential components. Additionally, we adopted a flexible procurement strategy, allowing us to adapt quickly to market fluctuations and maintain production continuity.

Another major challenge was the intense competition within the electronics market. Competing with established international brands required us to differentiate our products through innovation and quality. We focused on

extensive research and development to create cutting-edge products that met the evolving needs of consumers. By leveraging advanced technologies such as AI and IoT, we were able to introduce unique features that set our products apart. Furthermore, we implemented stringent quality control measures to ensure that every product leaving our facility met the highest standards of excellence.

Lastly, attracting and retaining skilled talent was a critical challenge. The rapid pace of technological advancements in the electronics sector demands a highly skilled workforce. To address this, we invested in comprehensive training programs and fostered a culture of continuous learning and development. We also established partnerships with academic institutions to create a pipeline of talented graduates ready to join our team. By providing opportunities for professional growth and creating an engaging work environment, we were able to build a dedicated and innovative team that drives our success.

Currently, your product line includes LED TVs ranging from 24" to 98". Could you share Ekkaa Electronics' plans regarding diversifying into other product categories?

Gupta: We plan to diversify into several new product categories, starting with smart home devices. This includes smart speakers, Interactive Smart Board in all TVs from 55" as well as digital commercial signage in all TVs of 33" onwards, home automation systems, and security solutions that leverage the latest advancements in AI and IoT. Our goal is to create an integrated ecosystem of smart devices that enhance convenience, security, and energy efficiency for our customers.

We are also exploring the wearable technology segment and CMS Software. We recognize the growing demand for health and fitness tracking devices, and aim to introduce a range of smartwatches and fitness bands that offer advanced health monitoring features. These products will be designed to provide accurate and real-time data, helping users to maintain a healthy lifestyle. By incorporating innovative features and ensuring high-quality standards, we aim to establish a strong presence in the wearable tech market.

Furthermore, we are looking to expand into the audio and multimedia segment. This includes developing high-quality headphones, earphones, and multimedia speakers that cater to both casual listeners and audiophiles. Our focus will be on delivering superior sound quality, ergonomic design, and durability.

Before launching Ekkaa Electronics, several established players were already there in the television segment. How did you navigate the competition and position Ekkaa Electronics as a unique brand?

Gupta: Differentiating Ekkaa Electronics from established players required a strategic approach. So, our primary focus was on innovation and quality. We invested in research and development to create LED TVs that offered superior picture quality, advanced features, and energy efficiency. By incorporating the latest technologies and ensuring stringent quality control, we were able to deliver products that met and exceeded customer expectations.

To position Ekkaa Electronics as a unique brand, we emphasized our commitment to customer satisfaction and after-sales service. We established a robust customer support system and offered extended warranties, which helped build trust and loyalty among our customers. Additionally, we leveraged digital marketing and social media to engage with our audience, gather feedback, and continuously improve our offerings based on customer insights.

Apart from that, we adopted a competitive pricing strategy without compromising on quality. By optimizing our supply

chain and manufacturing processes, we were able to offer high-quality products at affordable prices. This approach not only made our products accessible to a broader audience but also positioned Ekkaa Electronics as a brand that delivers exceptional value.

As someone deeply involved in the electronics industry, how do you view the government's support for the sector? Are there any additional measures you believe are necessary for further growth?

Gupta: The government's support for the electronics sector has been instrumental in fostering growth and innovation. Initiatives such as the 'Make in India' campaign and the PLI scheme have provided significant incentives for domestic manufacturing. These policies have not only attracted investments but also encouraged the development of a robust supply chain within the country. The focus on skill development and infrastructure improvements has further strengthened the industry's foundation.

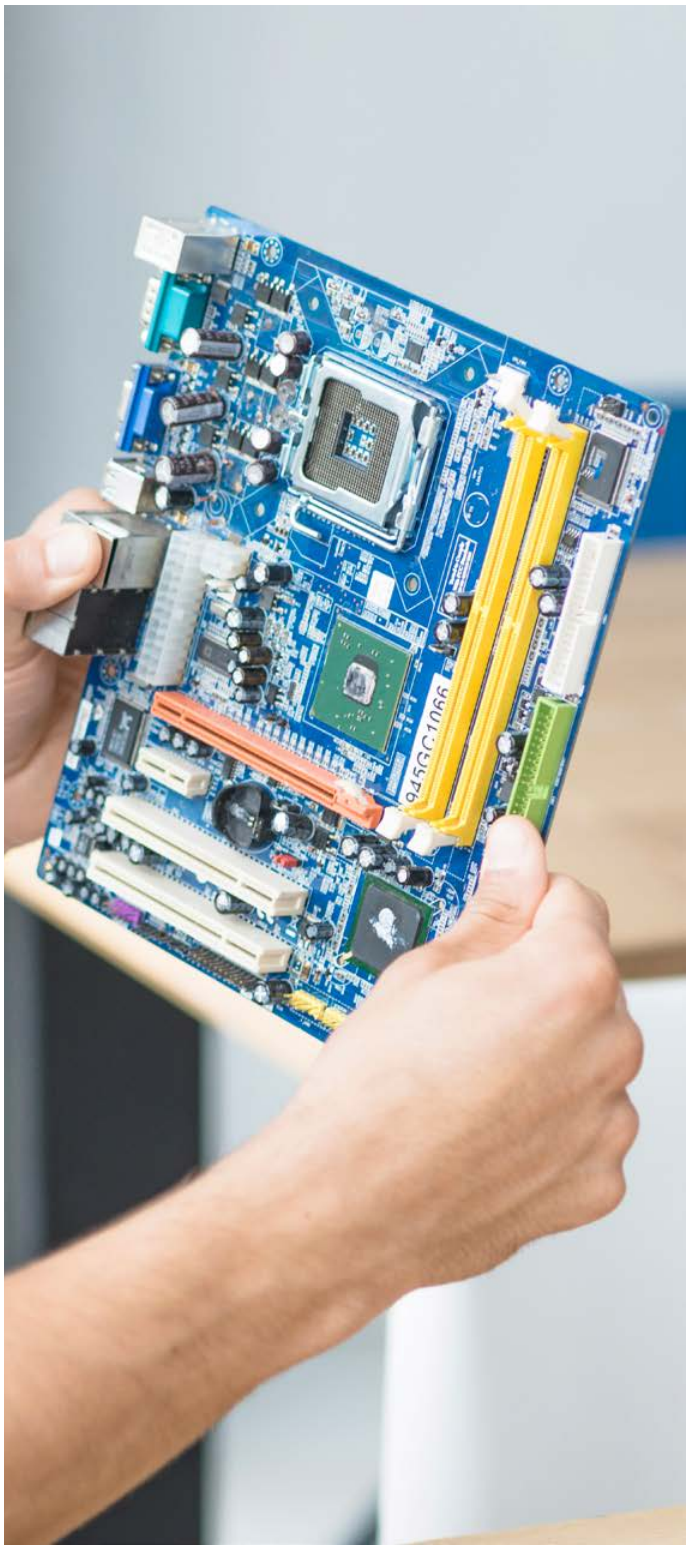
> ***"However, for sustained growth, additional measures are necessary. Enhancing research and development capabilities through increased funding and collaboration between industry and academia is crucial. Simplifying regulatory processes and providing tax incentives for R&D activities can spur innovation. Additionally, addressing challenges related to the availability of raw materials and components through strategic partnerships and investments in local production can reduce dependency on imports."***

Looking ahead, how do you see India's electronics industry evolving in the next 5 to 10 years, particularly in terms of innovation, manufacturing, and market demand.

Gupta: Looking ahead, India's electronics industry is poised for significant evolution over the next 5 to 10 years, driven by innovation, enhanced manufacturing capabilities, and increasing market demand. The proactive government policies are expected to attract substantial investments in research and development, fostering a culture of innovation. We anticipate a surge in the development of advanced technologies, including AI, IoT, and 5G, which will drive the creation of cutting-edge electronic products.

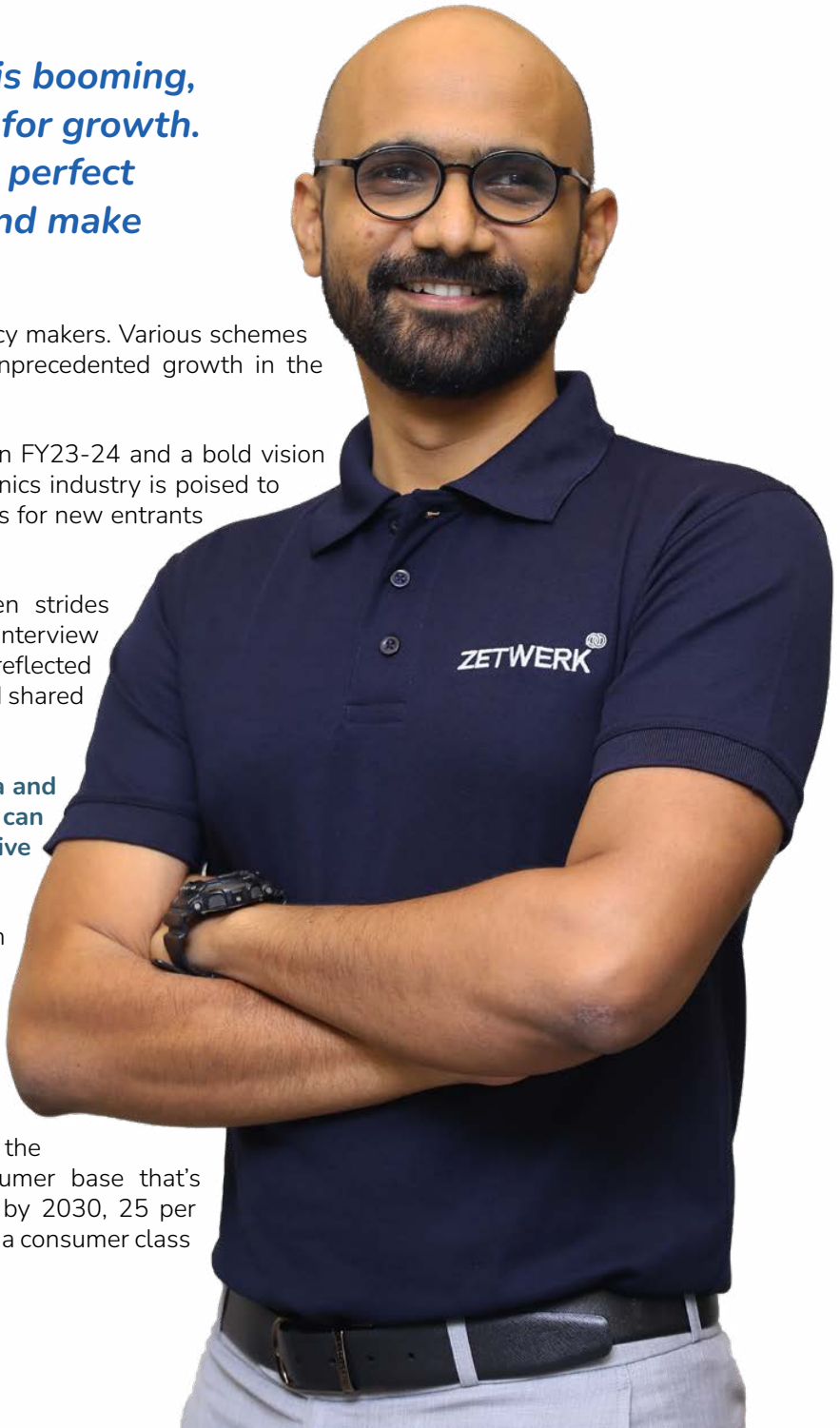
In terms of manufacturing, India is set to become a global hub for electronics production. The establishment of state-of-the-art manufacturing facilities and the enhancement of supply chain infrastructure will play a crucial role in this transformation. The focus will be on increasing the domestic production of electronic components, reducing dependency on imports, and boosting exports. By 2026, the electronics manufacturing sector is projected to reach a production value of $300 billion, significantly contributing to the country's GDP. This growth will also create numerous employment opportunities, further strengthening the economy.

Market demand for electronic products in India is expected to rise exponentially, driven by a tech-savvy young population and increasing disposable incomes. The proliferation of smart devices, wearable technology, and home automation systems will cater to the evolving needs of consumers. Additionally, the push towards digitalization and the adoption of smart infrastructure will further fuel demand.



Next Shift Will be from 'Make in India for India' to 'Make in India for World'

"The Indian electronics industry is booming, offering incredible opportunities for growth. With its global potential, it's the perfect time for new players to step in and make their mark."



Electronics has become a priority sector for the policy makers. Various schemes such as PLI, SPECS, EMC, MSIPS have yielded unprecedented growth in the electronics manufacturing over the last 10 years.

With electronics output reaching USD 115 billion in FY23-24 and a bold vision to achieve USD 500 billion by 2030, India's electronics industry is poised to make global footprints. This also opens up the gates for new entrants aspiring to contribute to the growth of the industry.

Zetwerk, a manufacturing unicorn, has also taken strides forward in this revolutionizing industry. During the interview with *IGNITO*, **Rahul Sharma, Co-founder, Zetwerk,** reflected on the rapid evolution of the electronics industry and shared insights on its future trajectory.

How promising is the electronics industry in India and what made you double down on it. Also, if you can share your thoughts about making it more lucrative for global players to attract more investment?

Sharma: The Indian electronics industry has been growing at an incredible rate in recent years and has touched the USD 115 billion mark, moving towards USD 500 billion by 2030, and this kind of growth has certainly caught the attention of global champions.

India's electronics industry is appealing to global players for several reasons. First and foremost is the local demand. India's population creates a consumer base that's unmatched anywhere else, even in China (where, by 2030, 25 per cent of the population will be seniors, contributing to a consumer class

that grows significantly as almost half of the country's consumer class growth will come from individuals aged 60 or older). By contrast, India will be home to 357 million young consumers below 30, representing one-fifth of the world's youth consumer market. This makes India an attractive destination for companies looking to tap into that demand.

Secondly, there's a global shift happening as companies try to diversify away from China. Thirdly, India has something no other country can match — the availability of labour and the ability to scale operations quickly. India is expected to add 22 per cent of the world's working-age population by 2031. On top of that, the government has been very supportive, offering various incentives like the PLI scheme, state-level benefits, and subsidies for building out the supply chain infrastructure. When you put all of these factors together, India is at a turning point for global electronics manufacturing. In the future, companies will need to be in India to serve the Indian market and once you're manufacturing here, you can easily serve the rest of the world too.

Though the electronics industry has witnessed a significant growth, display manufacturing still remains a major concern. What according to you should be done so that display manufacturing in India can be boosted?

Sharma: I think the government is already making some strides in this area, and we're seeing efforts from industry bodies like ICEA pushing for it. But to really get display manufacturing going in India, we need a bit more momentum from the government to ensure displays are made right here in the country. It's not an easy task though — it demands a huge amount of investment.

> ***"To make this happen, incentives will play a big role. Whether it's through sales incentives, or providing support for CAPEX (25%) and OPEX through PLI varies from 4-6%, these measures can definitely make a difference. Beyond that, investing in technology and forming strong partnerships, not just for manufacturing but across the entire ecosystem, is crucial."***

It's kind of like building the foundation for a house — it takes time and patience. Though progress might seem slow, all the right pieces are falling into place, and I'm confident that display manufacturing in India will happen sooner than we think.

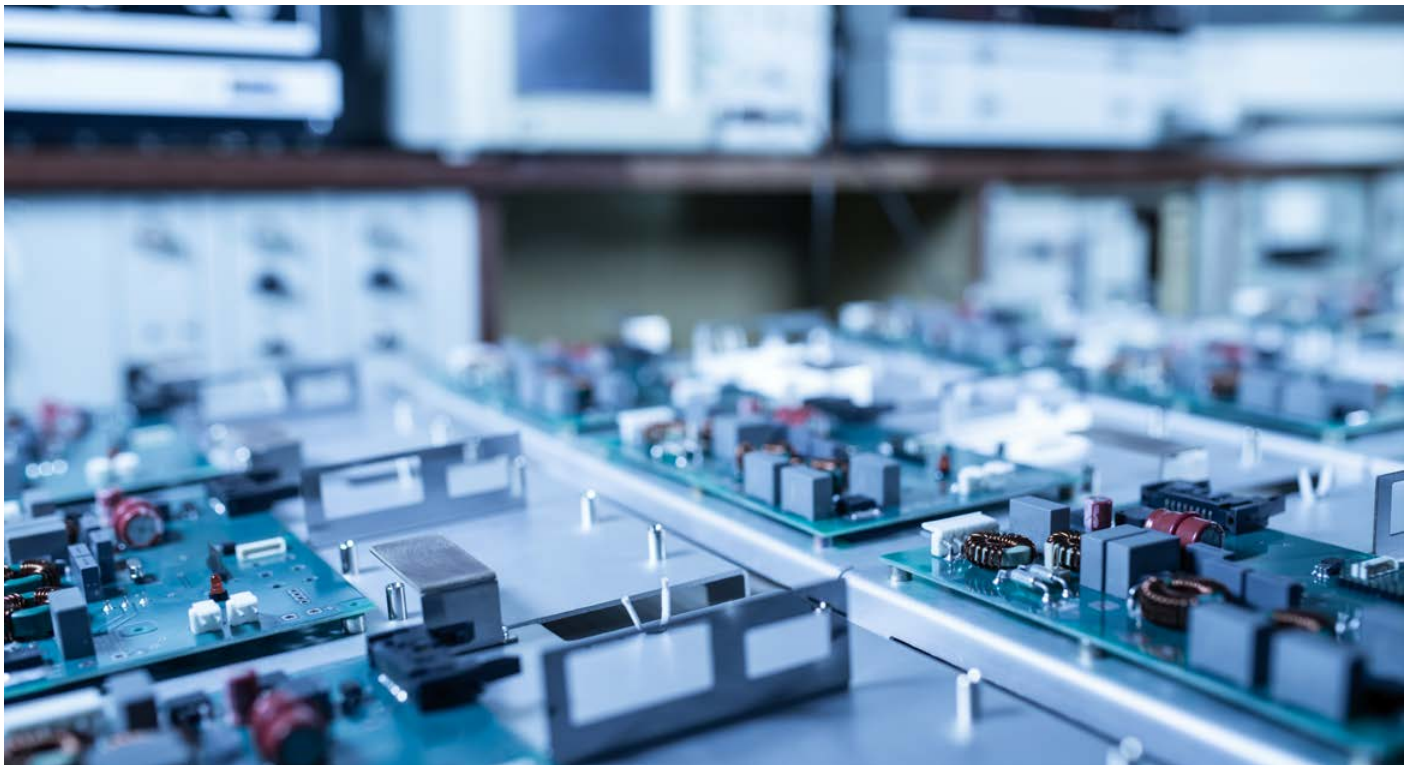
How do you see Indian electronics industry in the next 5 and 10 years, how value addition target can be met especially with respect to components and subassemblies?

Sharma: The industry is growing at an incredible pace. Honestly, a few years ago, no one would have expected it to expand this much. Predicting what will happen in the next five or ten years might be tricky, but I'm confident that we're going to see massive growth in the next three, four, or seven years.

One big shift we'll see is moving from "Make in India for India" to "Make in India for the world." That's definitely going to happen in the near future, but for that, we need to start adding more value to what we produce so that we can cater to a global market.

The good news is that the government's policies are moving in the right direction. Companies are being incentivized to reinvest in backward integration, and we're seeing global value chains come to India.

To make this transition successful, we'll need strong industry support, smart policymaking, excellent execution, and a major push to upskill our workforce, especially when it comes to components and subassemblies.



Zetwerk has expanded across the IT hardware, television, mobile phones, hearable and wearable products segment too. What are the plans for the same?

Sharma: We're definitely the new kid on the block, considering there are already a lot of players in the market. But the good thing is, the market is growing fast, so there's plenty of room for everyone.

We've been really active in the wearables and hearables space, supplying to some of the biggest OEMs. Our focus now is on exports, and we're exploring all the opportunities to make that happen.

As for televisions, we got into that about a year ago, and now we're looking to bring in new customers and form partnerships around new technology so we can offer even better products.

In IT hardware, we've been working in the desktop space, and the plan is to move into laptops over the next one to three years. We're already having some good conversations with customers on that front.

As a manufacturing unicorn, what challenges do you see in the electronics manufacturing sector and how can those be overcome?

Sharma: The electronics industry is well-established, and supply chains have been in place for a long time. But one of the key challenges is helping the industry stay connected and aware of everything happening within the country.

To tackle this, industry bodies like ICEA bring together stakeholders from different parts of the electronics industry to connect with the global value chain. They're doing a great job, but I think more proactive efforts could make a big difference.

> ***"Industry bodies could expand the ecosystem even further, helping companies connect more easily. That way, when someone has a need, they can quickly find someone who has a solution — almost like matchmaking."***

Another big challenge, especially as the industry grows, is the need for a large, skilled workforce. We need to focus on training the youth. Fortunately, the government already has a lot of initiatives in place, but it'll come down to how well we can align investments with ROI through things like subsidies and incentives.

What are your learnings which you would like to share with the new entrants in the electronics and EMS landscape in India?

Sharma: It really depends on the type of industry you're aiming to serve. If you're going into the consumer market, scale is everything. You'll want to focus on sectors that are in their growth phase because breaking into established supply chains is tough. But if you can get into a new supply chain early, it becomes much easier to expand into others down the line.

On the other hand, the industrial sector and exports offer a great opportunity that doesn't require as much capital investment. What you need here is a strong focus on quality and sourcing capabilities. It's less about spending big and more about having the right skills and attention to detail.

GaN and SiC: Transformative Power of Wide-Bandgap Semiconductors and Next Era of Electronics

By:
Dr. Neeraj Agarwal, Associate Director & Research Fellow (Microelectronics & Semiconductor)
India Cellular and Electronics Association

For decades, silicon (Si) has not merely underpinned the semiconductor industry, it has transformed modern life, powering everything from the chips in our computers to the cells in solar panels. Its combination of remarkable electronic properties and cost-effective production has cemented silicon as the standard for mass adoption.

Yet, as technology demands evolve toward higher performance, greater power efficiency, and resilience in extreme environments, silicon alone can no longer meet the industry's ambitions. This has sparked a shift toward third-generation semiconductors, especially Gallium Nitride (GaN) and Silicon Carbide (SiC), materials that stand ready to drive the next paradigm shift in technology.

Unlike silicon, GaN and SiC feature wide bandgaps, enabling operation at significantly higher voltages, temperatures, and frequencies—capabilities that are indispensable for the next wave of advanced applications.

> ***Together, GaN and SiC are not merely supplementing silicon; they are fundamentally redefining what is possible in high-performance electronics, from power conversion and telecommunications to electric vehicles and display technology.***

Comprehending Third-Generation Paradigm

Third-generation semiconductors, such as GaN and SiC, are classified as wide-bandgap (WBG) materials, characterized by energy bandgaps of 3.4 eV and 3.3 eV, respectively, in stark contrast to silicon's 1.1 eV. This significant difference limits silicon's performance in high-voltage and high-temperature environments.

Wide-bandgap materials present several advantages, including:

- Higher breakdown voltages
- Greater thermal stability
- Enhanced switching speeds

These attributes enable GaN and SiC to excel in extreme operating conditions. Their unique properties, such as high energy density capacities for power-intensive devices and operational efficiency at elevated temperatures without the need for additional cooling, render them smaller, lighter, and capable of high-frequency switching for 5G and RF applications. In essence, wide-bandgap-based power electronics can function at temperatures up to ten times higher, voltages up to ten times greater, and switching frequencies up to five times higher than traditional silicon devices.

Transformative Power of GaN and SiC in Shaping Next-Generation Electronics

GaN and SiC are at the forefront of next-generation electronics, leveraging their distinctive properties to drive innovation across various industries.

Elevating Connectivity: Impact of GaN on Telecommunications and Consumer Electronics

Fuelled by the increasing demands of 5G technology, GaN has gained prominence in telecommunications infrastructure. Its high electron mobility and breakdown voltage enable exceptional performance at elevated frequencies, making it ideal for RF amplifiers in 5G base stations. GaN-based devices efficiently handle the high data rates and frequencies required for seamless 5G connectivity and beyond.

In consumer electronics, GaN has revolutionized fast charging with its high switching speeds and thermal efficiency, producing smaller, faster, and more energy-efficient chargers than traditional silicon. As demand rises for larger screens, faster connectivity, and bigger batteries, compact, high-wattage GaN chargers are now preferred. GaN technology is widely adopted in fast and wireless chargers, as seen in products like Apple's 140-watt charger for the MacBook Pro, which reduces charging times while maintaining portability.

> ***GaN is also transforming data centers by delivering efficient power management crucial for dense, high-performance environments. As data centers scale to support cloud computing, AI, and big data, GaN's efficiency and high-frequency switching capabilities are vital for lowering operational costs and promoting sustainability.***

Further, GaN High Electron Mobility Transistors (HEMTs) are advancing electronics, achieving speeds up to 100 times faster than silicon transistors, and enabling high-power amplifiers with exceptional efficiency.

SiC's Dominance in Automotive and Renewable Energy Applications

Conventional silicon devices often suffer from power losses, excessive heat, and high energy demands, especially under harsh conditions, necessitating bulky cooling systems that limit the efficiency and range of electric vehicles (EVs). In contrast, Silicon Carbide (SiC) power transistors operate at higher voltages and temperatures with minimal cooling, drastically reducing weight and energy consumption.

SiC stands out for its wide bandgap and exceptional thermal conductivity, which enhances heat dissipation. While traditional silicon semiconductors can function effectively up to around 175°C, SiC can operate beyond 300°C, with the potential to reach up to 900°C with suitable packaging, making it invaluable for high-power applications. This capability has led major EV manufacturers to adopt SiC-based inverters, minimizing energy losses and extending driving ranges.

Silicon-based power devices like IGBTs and MOSFETs currently dominate applications below 600 volts, but SiC technology is redefining the field, reaching capabilities of 22,000 volts and beyond. Tesla's integration of SiC in the Model 3 exemplifies this shift, showcasing SiC's critical role in enhancing EV performance.

In renewable energy, SiC technology is also gaining traction, especially in solar inverters where it provides approximately 20% cost savings over silicon alternatives. With its resilience in high-temperature and variable environments, SiC maximizes power output and prolongs the lifespan of renewable systems, becoming essential for solar inverters, wind turbines, and energy storage solutions. For industries prioritizing sustainability, SiC offers efficiency gains that make green technologies more viable and cost-effective.

GaN as Disruptors in Display Technology: Optical Revolution of GaN

GaN's transformative impact on display technology is profound. The development of GaN-based blue LEDs revolutionized lighting, leading to the creation of white LEDs by 1996 and earning Shūji Nakamura, Isamu Akasaki, and Hiroshi Amano the 2014 Nobel Prize in Physics.

This breakthrough facilitated LEDs capable of producing up to 50,000 shades of white, which now represent over half of global residential lighting—a figure projected to approach total adoption within the next decade. This transition could drastically reduce CO_2 emissions by approximately 1.5 billion tons.

Furthermore, GaN's potential extends to micro and UV LEDs, driving advancements in display technology and medical applications, despite ongoing challenges related to cost and efficiency.

From CRT to LED, Micro LED, and OLED

The advent of GaN-based blue LEDs marked a pivotal shift from bulky cathode-ray tube (CRT) technology to sleek LED displays, setting the stage for OLED (Organic Light-Emitting Diode) and Micro LED innovations.

LED and OLED Displays: GaN-powered LEDs have facilitated the creation of thinner, brighter, and more energy-efficient displays. OLED technology enhances this with deeper blacks and richer colors, yet it faces challenges like burn-in and limited lifespan—issues that Micro LED technology aims to address.

Micro LED: Utilizing GaN, Micro LED displays deliver superior brightness, energy efficiency, and longevity compared to OLEDs. Comprising tiny individual LEDs as pixels, Micro LEDs are increasingly adopted in AR/VR devices, wearables, and large-format displays, promising enhanced durability and color quality.

Blu-ray Disc: Blu-ray technology revolutionizes digital storage by increasing disc capacity 10 to 50 times, providing 25 GB for single-layer and 50 GB for dual-layer formats—far exceeding the 4.7 GB of standard DVDs. With data transfer rates up to 54 Mbps, Blu-ray discs offer an efficient solution for large data backups.

Beyond Displays: GaN's Role in Lighting and Quantum Dots

GaN-based LEDs extend their applications beyond displays, providing efficient, long-lasting solutions that significantly reduce energy consumption in general lighting. Innovations in GaN have also enabled quantum dots (QDs) to enhance display colors, resulting in more vivid and accurate imagery. These semiconductor-based QDs have revolutionized display quality, further amplifying GaN's impact.

GaN and SiC Growth Projections

The global GaN and SiC markets are poised for exceptional growth in the coming years.

The GaN market is expected to expand from $1.48 billion in 2022 to $6.77 billion by 2030, reflecting a robust CAGR of 24.2%.

The SiC market is projected to reach $6.35 billion by 2030, growing at a CAGR of 30.3% from 2023 to 2030.

This rapid growth highlights the increasing demand for power-efficient, high-performance devices across automotive, telecommunications, and renewable energy sectors.

Addressing Adoption Challenges: Despite their advantages, the adoption of GaN and SiC technologies faces challenges, including high manufacturing costs, complex fabrication processes, and the need for specialized equipment.

> ***Additionally, the unique characteristics of GaN and SiC devices require a re-evaluation of traditional design methodologies, necessitating new skills for engineers. Nevertheless, the momentum behind GaN and SiC is undeniable.***

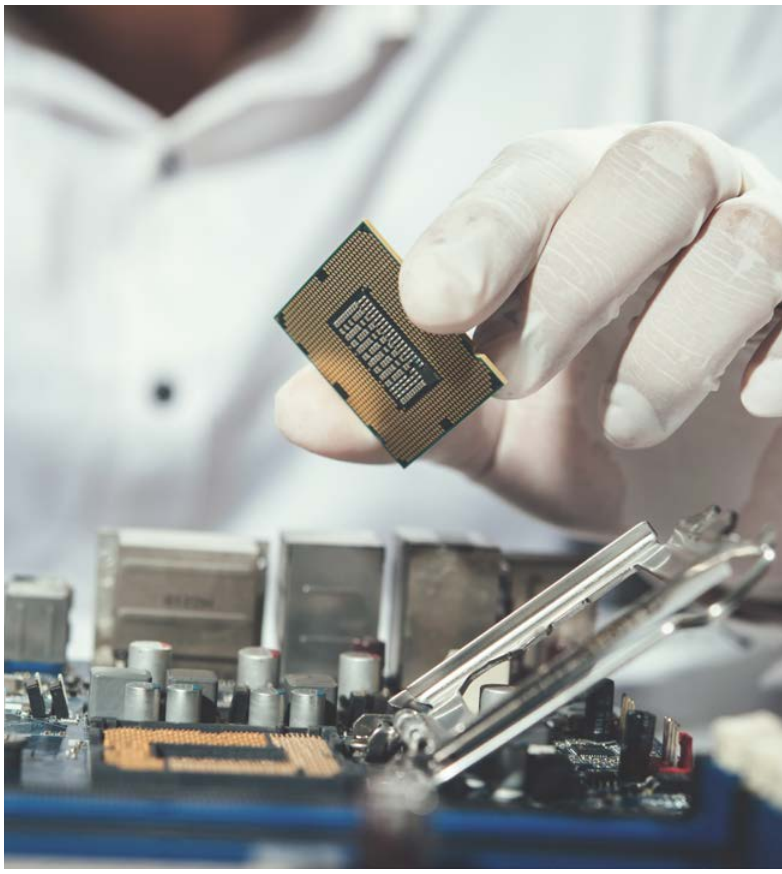
As industries demand higher performance and efficiency, increased investments in research and development are likely to accelerate the evolution of these technologies, fostering broader acceptance and integration.

Paradigm Shift in Semiconductor Technology

The emergence of GaN and SiC represents a transformative shift in semiconductor technology. As industries increasingly prioritize energy efficiency, compactness, and superior performance, these materials are set to redefine power electronics and high-frequency applications. Their broad applicability—from telecommunications and automotive to consumer electronics and display technologies—will be crucial in driving future innovations.

The escalating demand for enhanced efficiency and performance signals that the shift toward GaN and SiC is more than a trend; it represents a revolutionary reimagining of electronic capabilities.

With ongoing advancements and increased investment, GaN and SiC are poised to unlock unprecedented possibilities, ushering in a new era in electronics that promises to reshape our technological landscape.



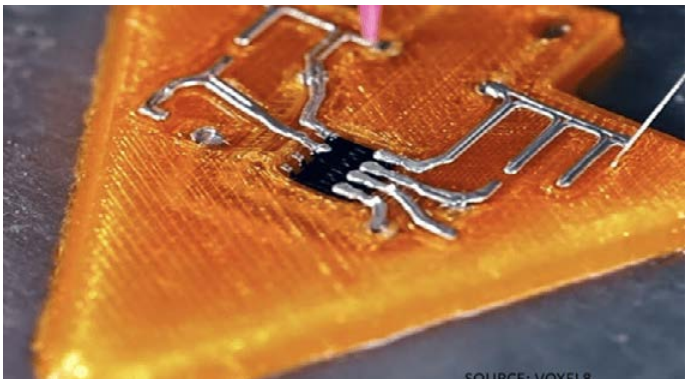
ADDITIVE MANUFACTURING'S IMPACT ON INDIAN MANUFACTURING LANDSCAPE

By:
Jaspreet Sidhu, CEO
National Centre for Additive Manufacturing

Additive Manufacturing (AM), also known as 3D Printing, is increasingly being adopted in the Electronics System Design & Manufacturing (ESDM) industry which includes electronic hardware products and components relating to IT, office automation, telecom, consumer electronics, mobile, aviation, aerospace, defense, solar photovoltaic, nano electronics and medical electronics.

Indian electronics manufacturing industry is on a growth trajectory backed by proactive government policies and technological advancements in the electronics manufacturing landscape. Despite tremendous growth, there is still a lot of space for improvement which could position India as a global hub for electronics manufacturing with higher value addition than current scenarios.

AM, which is a digital manufacturing technology under Industry 4.0/ 5.0, can significantly boost the electronics manufacturing landscape by enabling the production of PCB manufacturing, electronics & photonics components (SMD etc.) and component & product packaging in India. Apart from manufacturing, the technology also facilitates rapid prototyping and quick iterations during design stage, which accelerate the development cycle, reduce time-to-market, and enhance competitiveness.



Moreover, AM allows for on-demand & mass customization in production, minimizing inventory needs and associated costs—an advantage for low-volume, high-complexity electronic parts. AM has entered mass production using polymer 3D printing in 2023 and is capable of printing almost any material through 15+ process technologies. Same AM manufacturing lines can produce multiple different products at the same time. This feature of AM enables industry to diversity product base to multiple sectors, essentially increasing its different market reach.

Manufacturing with localized AM machinery and software can improve value addition and supply chain resilience. The pandemic highlighted vulnerabilities in global supply chains; adopting AM strengthens local manufacturing resilience and continuity.

> ***In terms of sustainability, AM generates less waste compared to traditional subtractive processes, such as milling and cutting. This efficiency contributes to cost savings and supports environmental goals.***

Additionally, the ability to integrate multi-material functions within a single structure opens avenues for innovations like printed circuit boards (PCBs), flexible electronics, and wearable devices. AM enables advanced manufacturing features such as digital twin, digital thread and convergence of other technologies in manufacturing such as Artificial Intelligence for innovation & intelligent decision making, accelerated computing for supply chain management and preventive maintenance etc.

As India aims to lead in emerging technologies such as 5G, electric vehicles, and the Internet of Things (IoT), AM will be essential for developing specialized components like sensors, connectors, and lightweight structures.

The growing adoption of AM in India's ESDM sector can also lead to the establishment of new business models, such as distributed manufacturing and service-based production. These models enable companies, especially small and medium-sized enterprises (SMEs), to offer on-demand production services, reducing the need for large capital expenditures.

This shift democratizes access to advanced manufacturing capabilities and fosters an environment of continuous innovation, as companies can quickly iterate and refine product designs based on market feedback.

AM Empowering Atmanirbhar Bharat Initiative

India's current thrust of improving value addition by facilitating local production of complex components can be supported through AM under "Make in India" initiative, fostering a robust ecosystem for electronics manufacturing. This shift could reduce import dependency by 30-40% over the next decade, while mitigating supply chain risks and ensuring manufacturing continuity.

AM not only supports indigenous innovation for different markets but also creates demand for skilled professionals in design, materials science, and manufacturing processes, contributing to creation of new low paying and high paying jobs. Skill level is dependent on AM technology adopted for production.

AM offers significant cost advantages over traditional manufacturing methods. Its layer-by-layer approach can decrease material waste by up to 90%. Furthermore, by eliminating the need for tooling, molds, and dies, AM facilitates faster production cycles and lowers initial capital investments as no tooling cost is involved. For example, feature phone polymer covers can be directly manufactured using Digital Light Processing (DLP) technology or the mold itself can also be produced with the same machine.

This will enable repeated design change feasible at no cost as design changes are made in CAD level only which gets directly printed from the CAD design. Multiple models can be printed during the same printing batch and designs can be varied between printing batches as well. For increased volume cases number of printers are installed.

AM is not just reshaping how electronic components are produced but also transforming the entire supply chain. By allowing manufacturers to digitally store and share designs, AM eliminates geographical barriers, enabling companies to manufacture components closer to the point of demand.

This flexibility can reduce logistical costs and lead times, making the entire supply chain more responsive and resilient. In sectors like aerospace, defense, medical and electronics, where high precision and quick adaptability are critical, AM enables the production of highly customized and lightweight parts that can be tailored to specific requirements with minimal lead time.

The just-in-time manufacturing enabled by AM minimizes inventory and storage costs, reducing the risks of obsolescence. Studies show that companies integrating AM can lower production costs by 30-50% in low-volume scenarios and decrease lead times by 50-80%, translating into labor and time-to-market savings.

> ***Investment in AM also drives technological advancements across related fields such as materials science and digital design software, further enhancing India's capabilities in electronics manufacturing.***

For instance, the development of conductive materials and multi-material printing techniques is expanding the range of electronic applications that AM can support. As the Indian market for consumer electronics, telecom, and automotive electronics continues to grow, there is an increasing need for lightweight, durable, and efficient components, all areas where AM can make a significant impact.

AM is poised to contribute significantly to India's target of $500 billion in electronics manufacturing by 2030. By accelerating the development of customized components, AM supports rapid prototyping and testing, driving innovation across the sector. The technology's ability to produce complex structures enhances the performance of high-value products like 5G equipment, electric vehicles, and IoT devices.

Localized production of electronic components using AM aligns with the Atmanirbhar Bharat initiative, reducing imports, boosting local manufacturing, and potentially saving billions in foreign exchange. As AM technology advances, it will play a crucial role in scaling up electronics production, attracting foreign investments, and strengthening India's position in the global electronics market.

About the Author:

Jaspreet Sidhu is a seasoned leader in the Additive Manufacturing industry, currently serving as CEO of the National Centre for Additive Manufacturing (NCAM) in Hyderabad. With over 20 years of experience, he has driven strategic growth and innovation across India, Europe, and the Middle East.

Diversifying Suppliers Enables Resilient Supply Chains

"Robust supply chains are critical to the growth of the electronics industry, ensuring consistent access to essential components and mitigating disruptions that can delay production. A resilient, diversified supply network enables manufacturers to scale efficiently and respond quickly to market demands and technological advancements."

In an era marked by rapid technological advancements such as AI, electric vehicles, and the transition to 6G, the global electronics manufacturing landscape is on the cusp of transformative growth.

Pankaj Agarwal, COO of UniBuild.ai, delves into these pivotal shifts in an exclusive interview with *IGNITO*.

He discussed how UniBuild's global platform is simplifying supply chains, fostering resilient manufacturing ecosystems, and positioning India as a significant player in the ESDM sector.

How do you see the evolution of the global electronics manufacturing landscape in the next 5 to 10 years? What role can UniBuild play in the transformation of ESDM sector in India?

Aggarwal: We're witnessing major technological shifts—like advancements in AI, the rise of autonomous and electric vehicles, and more—which are driving up the demand for electronics. As a result, the electronics industry is poised for significant growth. We're also rapidly transitioning from 5G to 6G, and this will bring new inventions, devices, and use cases for electronics. The government has set ambitious goals for the sector, and all industry players are working towards them. The growth we're expecting in electronics will be similar to the boom the automotive industry experienced 20 years ago.

Now, speaking about UniBuild, it's a platform that helps companies improve their global sourcing. A key challenge for any business looking to grow in this sector is establishing supply

chains, which isn't easy. Even with access to technology and government support, setting up supply chains or manufacturing plants takes a lot of time and involves heavy investment in capital equipment.

UniBuild operates in 50 countries and can simplify the sourcing process and supply chain setup for any organization. We can assist with everything from setting up plants to sourcing raw materials, indirect materials, and capital equipment.

By helping companies focus on their core strengths, like technology, we can speed up their time to market. This is especially important for companies investing in India, where it can take years to get operations off the ground. UniBuild can prepare the groundwork before they arrive, making it much easier for them to launch in India.

With India positioning itself as a global hub for electronics manufacturing, what are the key growth drivers that you believe will propel the sector forward? How can the industry overcome challenges such as supply chain disruptions and semiconductor shortages?

Aggarwal: There are several key drivers, like advancements in AI, the electrification of vehicles, and the shift from 5G to 6G. These trends are creating a massive global demand for electronics, which will really fuel the industry's growth.

When it comes to challenges like supply chain disruptions and semiconductor shortages, one of the main issues is that many companies rely on just one or two suppliers or regions for their sourcing. This can lead to disruptions when things go wrong.

> ***Supply chain disruptions are inevitable due to various global events and socio-economic situation, but we can't let that hold us back. The key to a resilient supply chain is diversifying your suppliers across multiple countries. However, not every company, even if they're great at manufacturing, has the expertise to manage this.***

That's where UniBuild comes in. We help companies set up strong, diversified supply chains across 50 countries, making them more resilient. The same goes for semiconductor shortages. For instance, during the shortage two years ago, we helped many companies navigate the crisis.

How is UniBuild creating smart factories in the electronics manufacturing space? Can you share any specific use cases or success stories?

Aggarwal: UniBuild is enabling manufacturers to expand their production capacity across different areas, like plastic or metal parts, without having to make everything in-house. Normally, when a company sets up a factory for electronics, they aim to produce everything themselves, which drives up capital expenses and limits their overall capacity due to these costs.

For example, if a company is making an electronic component, they might also need non-electronic parts, which would require additional investment. UniBuild helps them by offering the option to source those components externally, reducing the need for heavy capital investment.

This has two main benefits: it lowers the capital required, and companies can use government incentives, like the Production Linked Incentive (PLI), more efficiently for core technology rather than spending it on things like a moulding machine. It also speeds up product launches, increases capacity, and improves returns on investment.

We've worked with multiple clients worldwide, providing them with sourcing solutions for machines and manufacturing parts. For example, we supply castings for robotic arms and moulding machines. Instead of investing heavily in equipment, companies source these complex

components from us, allowing them to focus on their core operations.

In the post-pandemic era, supply chain disruptions have been a major concern. How is UniBuild's technology addressing these issues in the electronics manufacturing sector?

Aggarwal: Supply chain disruptions have impacted not just the electronics industry, but many others too. One key realization, even among OEMs, is that larger players are better equipped to handle these disruptions. Smaller, fragmented suppliers often don't have the capacity to absorb shocks when something goes wrong. This has been a big lesson from the pandemic.

Larger suppliers, like those UniBuild works with, can manage disruptions more effectively. If there's an issue in one location, they can shift operations to another. UniBuild ensures supply chain resilience across 50 countries, offering solutions for various products under one roof, which reduces the chances of errors and delays.

In India, many smaller electronics companies don't have much leverage when it comes to supply chains. During shortages, suppliers often prioritize bigger clients, leaving smaller companies struggling. UniBuild helps these smaller players by providing them with more robust supply chain support, so they can overcome these challenges.

What differentiates UniBuild from other companies in the electronics manufacturing space? What are your key competitive advantages?

Aggarwal: The biggest thing that sets UniBuild apart is our scale. We're spread across 50 countries and have 400 plants in various locations. Plus, we're involved in multiple industries—automotive, electronics, wiring harness, lighting, aerospace, health, and medical components—which has given us a deep understanding of various technologies.

> ***The electronics industry is unique, but at the core, it's about manufacturing, setting up plants, and running supply chains efficiently. UniBuild brings robustness to supply chains thanks to our experience across different industries. We can also bring in technology from anywhere in the world, which is crucial in today's market.***

Another advantage is that we provide capital equipment. Many companies in the electronics industry in India source their equipment from abroad, and they often struggle with sourcing and negotiating with the right suppliers. UniBuild makes this easier by having expertise in taxes, legalities, and international sourcing.

We've also developed a world-class IT system—one of the best in the world—that offers complete transparency throughout the entire process, from customer and supplier discovery to registration, KYC, logistics, and payments. These are just some of the factors that make UniBuild stand out.

How is UniBuild planning to expand its footprint, both domestically and internationally? Are there any specific regions or markets that you are targeting for growth?

Aggarwal: We're already present in 50 countries and have our own plants in 44 of them. We're also working with around 40,000 supply chain partners worldwide, with a strong customer base in places like India, Japan, Europe, the Americas, the Middle East, and Africa.

We understand the ins and outs of different markets, including things like taxes, legalities, and logistics, so our expansion is happening quickly. As for targeting specific regions, there's no fixed plan—it really depends on what our customers need. We're here to support them, no matter the region or market.

Does UniBuild collaborate with other major electronics manufacturing players or technology providers? Can you share any examples of partnerships that have contributed to industry advancements?

Aggarwal: While I can't share specific partnership details right now, we do work with a variety of customers across different industries, including electronics. We're partnering with some rapidly growing electronics companies, working closely with them to improve their supply chains.

That being said, there's still a lot of potential in the electronics industry, but it's important to recognize that companies don't need to do everything in-house. Outsourcing and leveraging the existing market ecosystem can help them grow faster.

The problem with trying to do everything yourself is that it ties up a lot of capital in investments. Since the industry evolves so quickly, those investments can become outdated in just a few years. It's better to use the ecosystem and avoid falling into the trap of trying to save money by doing everything internally—it can actually slow down growth.

Instead, companies should focus their investments on technology, rather than spending on things like molding machines for plastic parts, which can easily be sourced externally. That's where UniBuild can make a big difference, helping companies grow smarter and faster.

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Bolstering Electronics Sector Through Indo-US Partnership

By:
Sameer Guduru, PhD, Director
Digital Economy & Aerospace & Defence
USIBC

Electronics has emerged as India's 3rd largest export commodity, growing around 24 percent between April and October 2024, according to the Ministry of Electronics and Information Technology (MeitY), Government of India. The overall value of electronics manufacturing in India has crossed USD 100 billion in 2024. Just to provide a perspective, this number was USD 49 billion in 2017.

Additionally, the electronics exports rapidly grew at 23 percent annually and in 2023, India electronics export value breached USD 30 billion. While the overall market value of electronics manufacturing in India currently stands over USD 150 billion, there is room for accelerated growth. If current trends continue, India is on the right track to achieve the ambitious target of USD 500 billion set by Prime Minister Narendra Modi. However, to achieve these numbers, India needs to boost demand, which according to a report by NITI Aayog, currently stands at only 4 percent of overall global value.

If current trends continue, India is likely to reach around 280bn USD of manufactured electronic goods in 2030, however, Prime Minister Narendra Modi has set ambitious targets of achieving USD 500 billion. To achieve these numbers, India needs to boost demand, which according to a report by NITI Aayog, currently stands at only 4 percent of overall global value.

While India's progress in the sector over the last decade or so has been steady, thanks to mobile phone manufacturing, initiatives like Make in India, production linked incentive (PLI) schemes, there is a much larger scope for further policies to integrate the country further into global value chains. To this extent, the Indo - US partnership has a major role to play in achieving India's 2030 targets. A USD 100 billion market value of trade between US & India by 2030 is although ambitious, is not impossible to achieve.

Already several American majors have ventured into this space and are pursuing manufacturing in India in a big way. Some of the issues that have to be dealt with in optimising the opportunity and increasing the size of the pie are discussed briefly below.

Tariffs on components and sub-assemblies remain a significant issue in determining cost-competitiveness of manufacturing in India for companies compared to other emerging markets. As per ICEA recent report, in the case of mobile manufacturing, countries such as Vietnam and China have comparatively much lesser average tariffs compared to India, viz. India's 6.2% & 7.4% compared to 0.7% & 4% respectively.

> ***One of the reasons for this is the understanding that tariffs lead to higher domestic manufacturing and localisation. However, localisation is only possible, when there is adequate skilled workforce and a large domestic demand. India's manufacturing sector has for decades been plagued with this perennial "chicken & egg" problem, where lack of technology has resulted in a skilled workforce — which in turn has resulted in India being able to attract high end technologies.***

The other key determinant for localisation is exports, however, a larger volume of exports is only possible when there is a large manufacturing base in the first place, but tariffs create hurdles for larger investments.

Hence, keeping the long term in consideration, tariffs should be further rationalised in India, in the medium term, to bring in more investments, ancillary ecosystem and creating local demand, for localisation to be achieved. Especially considering India being a recent entrant, to emerge as a real competitor to other emerging markets tariff rationalisation is a must. This will help bring in larger investments and aid in growth and employment creation, which will have a cascading effect in skilling and training.

The other key element to attracting US investments in furthering manufacturing in India, is in the IT hardware space. While several US hardware majors are already to some extent manufacturing laptops and tablets in India, it is only a fraction of their overall manufacturing capacity. According to estimates, the market value for laptops and tablets is likely to reach USD 8.4 billion by 2028 at a CAGR of 7% per annum.

However, only 30% of this market share is manufactured locally. Considering India being a price sensitive market, currently Chinese manufacturers dominate laptop and tablet segments in India, and outperform others when it comes to scale. India despite PLI schemes still has significant disadvantages in laptop and tablet manufacturing considering a smaller domestic demand and the lack of component ecosystem.

Hence, rationalisation of tariffs, PLIs for components & sub-assemblies, will attract investment and therefore localisation. It is also important to contextualise IT hardware manufacturing as quotas and licensing may further impact the attractiveness of India as a manufacturing destination.

Further, considering China venturing into the high-end manufacturing of raw components, moving away from sub-assemblies, competing at scale with China, will be a difficult proposition for India in the near-term.

Ideally, India may explore the possibility of becoming a leading exporter and replicate the model in mobile phone manufacturing, rather than stifling the possibility of IT hardware manufacturing achieving true potential. It is worth noting here, the supply chain constraints that companies have to address due to quotas, which may lead to demand-supply issues thereby impacting consumers as well as prevent India from integrating into larger global supply chains.

> ***If played well, US players can contribute significantly to IT hardware manufacturing in India, especially considering the increasing demand for data centres, computer hardware and in India's overall digital transformation. Hence for India, given the current circumstances, it is pragmatic to emerge as a leading "friendshoring" destination and cater to what is necessary in landing significant segments of global value and supply chains of IT hardware.***

The other key element going forward to be discussed at a bilateral level is mutual recognition, where components tested and certified in one geography are readily accepted in the other. This requires further discussions on alignment of standards in both geographies and identification of labs that can provide the required certification.

Considering the costs are lower in India, the country can emerge as a testing hub and even attract investments in test centres. This again requires training and ensuring barrier free entry of testing equipment.

Also, considering several Indian electronics emerging players and their ambitions of venturing into the US market, it becomes furthermore essential for standardisation and ease of testing and certification. Hence, it is prudent to establish mutual reciprocity and ease of market access rather than barriers to ease of doing business between both countries.

In conclusion, the US and India both have a lot to offer to each other in the electronics manufacturing space. It is important for India to showcase itself as a country that can provide the required skilled resources for decades to come in a sustained manner, while the US is in the midst of realigning global supply chains.

Considering India's emphasis also on the base technologies, i.e. semiconductors, synergy also in IT hardware manufacturing will help achieve its targets in the long term, provided India creates avenues for US investments in the short-medium term.

About the Author:

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India's Manufacturing Ecosystem Advancing toward Self-Reliance

"In an era where technological advancements are redefining the global manufacturing landscape, industrial automation and digital manufacturing have emerged as critical enablers of efficiency, precision, and scalability."

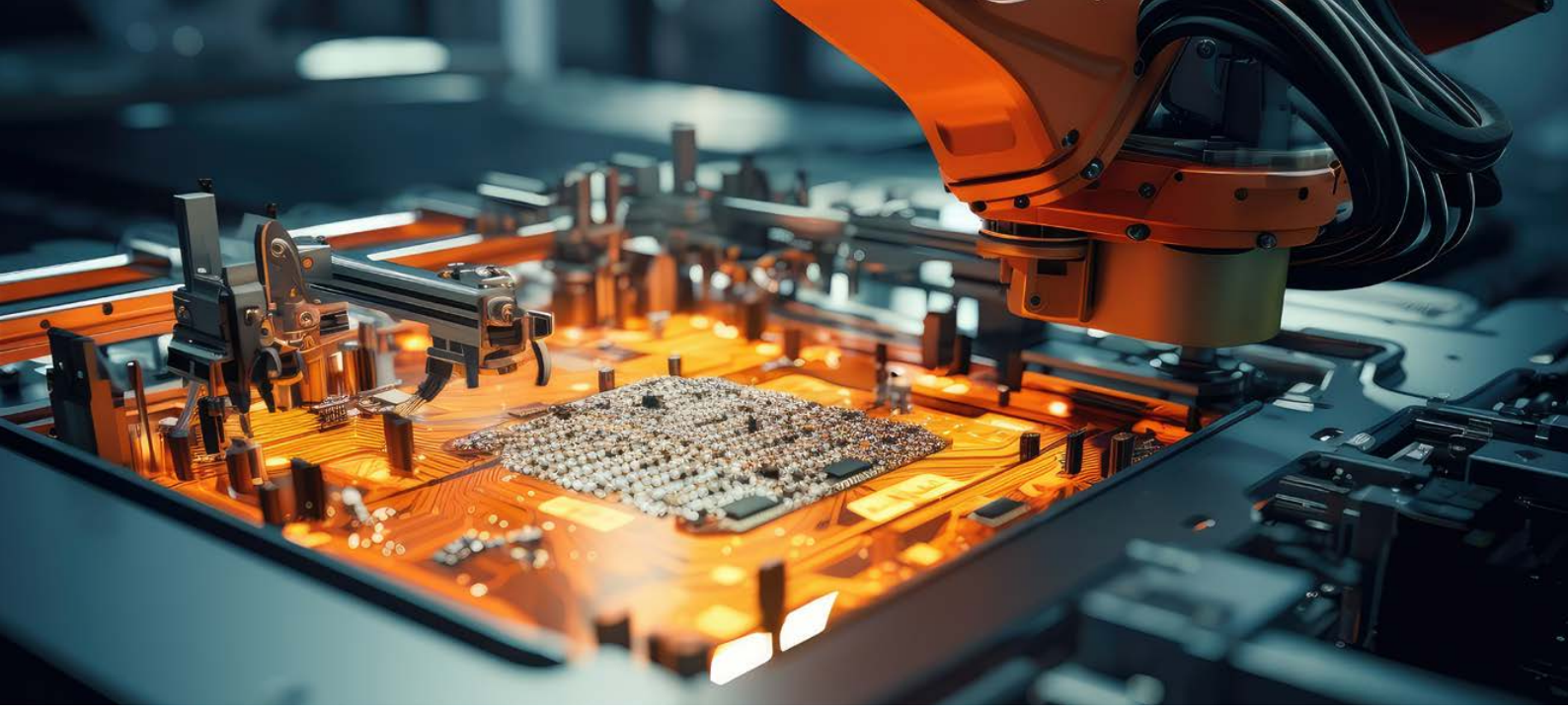
The electronics and semiconductor sectors, marked by their rapid growth and demand for high-volume production, are especially poised to benefit from these innovations. Industrial automation not only streamlines complex production processes but also enhances product quality and reduces operational costs, making it an indispensable component for manufacturers aiming to maintain a competitive edge in the market.

In an interview with *IGNITO*, **Dilip Sawhney, Managing Director of Rockwell Automation India**, shares his insights into the evolving role of automation and digital manufacturing in revolutionizing the electronics and semiconductor industries.

How do you see industrial automation transforming the global manufacturing landscape, especially in high-tech sectors like electronics and semiconductors? What key innovations or technologies are driving this transformation?

Sawhney: Industries like electronics and semiconductors are gaining even more centerstage as technology surrounds every aspect of our lives like never before. This trend places increasingly greater demands on these manufacturers to be more productive, innovative and resilient

Industrial automation is revolutionizing manufacturing, especially in high-tech sectors like electronics and semiconductors. By leveraging technologies such as AI, ML, the Industrial Internet of Things (IIoT), and Robotic Process Automation (RPA), manufacturers can achieve remarkable precision and efficiency. Machine learning enables real-time quality control and predictive maintenance, while IIoT



sensors offer valuable insights into production variables, ensuring high yields and reducing waste. Collaborative robots (cobots) and RPA streamline operations, allowing human workers to focus on more strategic, high-value tasks. Embracing these advancements is crucial for remaining competitive in today's dynamic market.

Digital Twin technology and Edge Computing are transforming manufacturing by enabling real-time simulation and data processing directly at production sites. This supports quick decision-making and allows for virtual testing of changes without disrupting operations.

The addition of 5G connectivity enhances this by providing seamless, high-speed communication essential in precision-driven environments. Advancements in Augmented Reality (AR) and Virtual Reality (VR) improve training and maintenance, reducing downtime and enhancing equipment handling.

These technologies promote sustainable practices by optimizing resource use, minimizing waste, and improving energy management. In high-tech industries, where small errors can lead to significant losses, automation ensures high quality, speeds up production, and allows quick design adaptations. Together, these advancements are setting a new benchmark for efficiency and innovation, helping manufacturers excel in a competitive global market.

How has the demand for automation in electronics and semiconductor manufacturing evolved in India, and what growth potential do you foresee in the near future?

Sawhney: The demand for automation in India's electronics and semiconductor sectors is rapidly increasing, driven by the "Make in India" initiative and the push for self-reliance in semiconductors. As local demand for consumer electronics and smartphones rises, now is the time for India to enhance its manufacturing capabilities and strengthen its global position.

India's electronics market is projected to reach $400 billion by 2025, driving manufacturers to adopt automation for improved quality and efficiency. The PLI scheme aims to attract $10 billion in investments for electronics and semiconductor manufacturing by 2026. The budget for semiconductor and display manufacturing has increased significantly—from INR 2,000 crores ($270 million) to INR 6,903 crores ($1 billion).

> ***"India's manufacturing ecosystem, supported by government initiatives, is advancing toward self-reliance and technological innovation, strengthening the country's position in the global high-tech manufacturing sector."***

How is India positioned to become a leader in automated manufacturing for high-tech sectors?

Sawhney: India has undoubtedly emerged as a breakout leader in terms of its IT prowess as well as adoption of digital technologies at scale for societal good. This, along with the strategic nature of sectors like semiconductor, is supercharging the demand for manufacturing in these sectors in India.

The Indian manufacturing sector is rapidly embracing smart manufacturing technologies. This shift is enabling manufacturers to enhance automation, streamline processes, and achieve better business outcomes. As digital transformation takes centre stage, demand for automation, particularly in the electronics and semiconductor industries, is expected to rise significantly.

By 2025, the automation market in these sectors is projected to reach nearly $2 billion, growing at a CAGR of 18-20%. With a focus on building a robust semiconductor ecosystem, India is positioning itself as a strong competitor in global high-tech manufacturing. The Ministry of Information Technology estimates the semiconductor market could surpass $100 billion by 2030.

Initiatives like the PLI and DLI, along with tax breaks and eased regulations, are essential for supporting manufacturers. The government is also working to establish semiconductor fabrication plants, further enhancing the electronics manufacturing landscape.

Alongside investments and supportive policies, India's digital infrastructure, huge domestic market, the shift in the global value chain, and the availability of large pool of skilled workforce will help India emerge as a leader in high-tech manufacturing.

As automation becomes more prevalent, how do you see the role of human workers evolving in the electronics and semiconductor manufacturing processes? What skills or training will be most crucial for the workforce?

Sawhney: As industrial automation transforms electronics and semiconductor manufacturing, human roles are shifting from routine tasks to essential management and problem-solving of automated systems. This change empowers workers to guide these systems effectively, enhancing productivity and precision.

To succeed, the workforce must grasp automation technologies like robotics, machine learning, and AI. Strong analytical skills are essential for interpreting the abundant data available. Familiarity with data analytics, basic coding, and tools such as Programmable Logic Controllers (PLCs) and Supervisory Control and Data Acquisition (SCADA) systems is crucial for effective troubleshooting and optimization.

> ***The focus will increasingly shift towards high-level problem-solving, requiring strong critical thinking skills. Collaboration is vital in this automated environment. Working effectively with engineers, IT specialists, and data analysts will drive innovation and efficiency.***

In what ways has the shift toward smart manufacturing and Industry 4.0 impacted productivity and efficiency in these sectors? How are companies adapting to this shift?

Sawhney: Smart manufacturing and Industry 4.0 are transforming productivity in the semiconductor and electronics industries through the integration of IoT, AI, robotics, and real-time analytics. AI-driven automation enhances precision, reduces defects, and increases yield while predicting failures to lower downtime and maintenance costs.

Real-time analytics streamline decision-making and eliminate bottlenecks, and robotics enable quick adjustments to shifting demands. Additionally, simulations optimize processes, reducing development time and costs. IoT and blockchain improve supply chain management with real-time tracking, enhancing inventory efficiency.

Manufacturers are shifting towards adoption of smart technologies. They are increasingly using cutting-edge technologies for more intelligent automation and to improve business outcomes, while driving simplification and gaining agility in their production operations.

What role do you see Rockwell Automation playing in the digitalization of manufacturing processes within the electronics and semiconductor industries? Can you share examples of successful implementations?

Sawhney: Rockwell Automation plays a significant role in the electronics and semiconductor sectors through its comprehensive portfolio of automation solutions and services.

- Advanced Automation Solutions: Rockwell offers integrated automation systems that combine hardware and software to enhance manufacturing efficiency and productivity. This includes PLCs, DCS and industrial PCs tailored for semiconductor and electronics manufacturing. Company provides robotics solutions that improve precision and speed in assembly, packaging, and material handling, crucial for high-tech manufacturing environments.
- Smart Manufacturing and Industry 4.0: Rockwell's FactoryTalk software suite enables real-time data collection and analytics, helping manufacturers optimize operations and make data-driven decisions. This supports the transition to smart manufacturing. Rockwell's digital twin solutions allow manufacturers to simulate and optimize their processes before implementation, reducing development time and costs.
- Quality and Compliance: Rockwell provides tools for monitoring and ensuring product quality throughout the manufacturing process. This includes in-process quality checks and compliance with industry standards. Rockwell also facilitate traceability of components and materials, which is essential in industries like semiconductors where compliance and quality control are critical.

In addition, Rockwell provides cybersecurity, sustainability solutions, and training & support services to electronics manufacturers.

Looking ahead, what do you think the next five years hold for industrial automation and its impact on high-tech sectors like electronics and semiconductors? What role will Rockwell Automation play in shaping this future?

Sawhney: In the near future, industrial automation will transform high-tech sectors like electronics and semiconductors. By utilizing AI for predictive maintenance and quality control, companies can significantly reduce downtime and defects. IoT-based real-time data processing will enable manufacturers to quickly respond to changes, enhancing efficiency and decision-making.

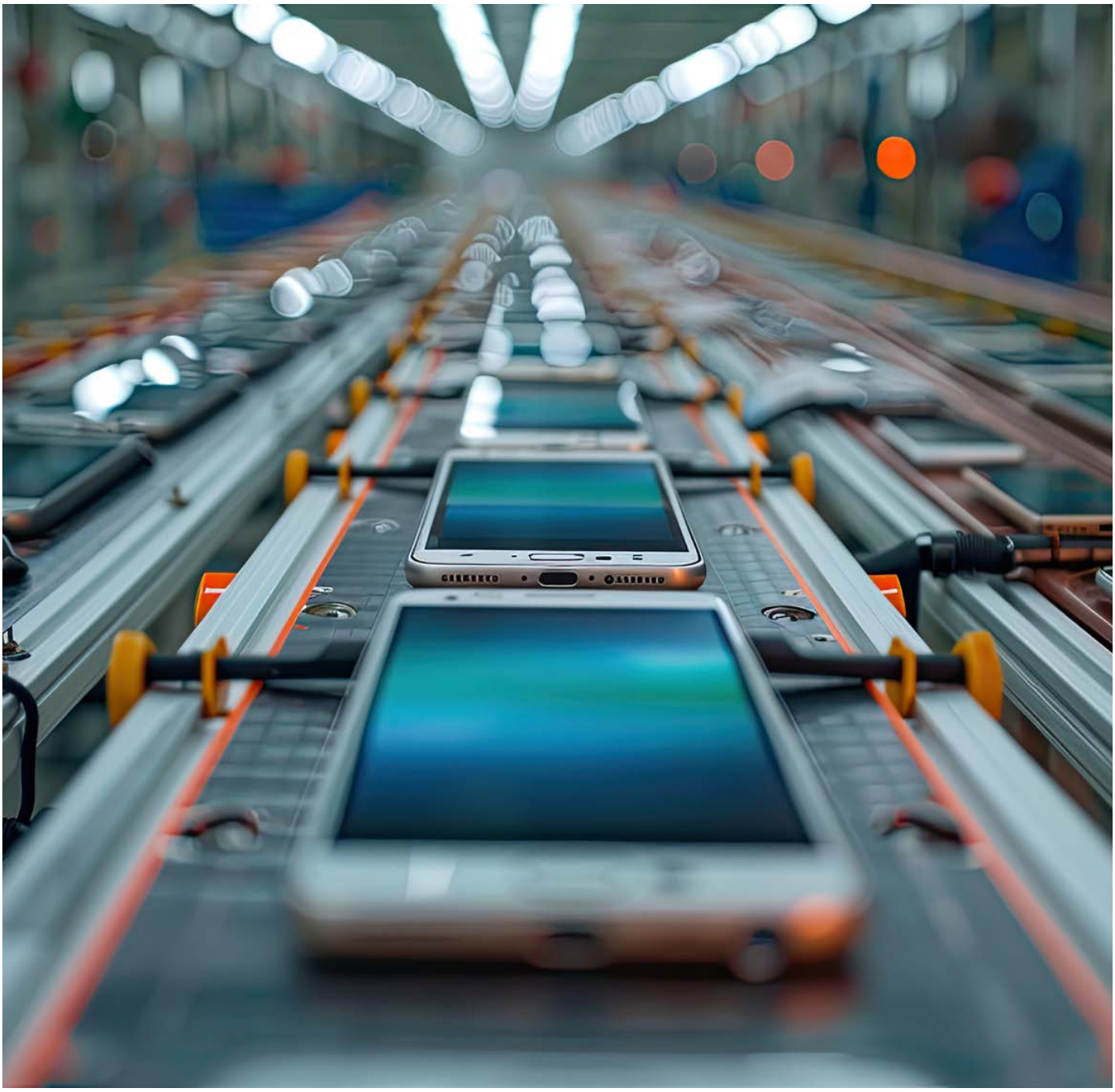
The semiconductor industry is experiencing a remarkable transformation through advanced technologies. AI-driven production design and IoT-based control enhance efficiency, while autonomous logistics using automated mobile robots (AMRs) and collaborative robots (cobots) streamline operations. Integrated edge computing solutions further boost processing speed.

These innovations enable real-time monitoring and centralized data analysis, paving the way for fully autonomous operations that significantly improve productivity and efficiency.

As systems become more interconnected, strong cybersecurity measures will be essential for protecting sensitive data. Manufacturers will prioritize investments in technologies that enhance cyber resilience.

Sustainability will be a key focus, with the World Economic Forum noting that companies adopting sustainable practices can see profits increase by 15%. The shift will be toward automation solutions that reduce waste and energy use. And, the workforce will need new skills to operate advanced technologies, and investing in training can yield significant productivity gains.

Rockwell Automation is well positioned to lead this evolution by providing innovative solutions that improve efficiency, reduce costs, strengthen cybersecurity, and promote sustainability, helping manufacturers thrive in a fast-changing market.



INDUSTRY NEWS

Xiaomi Launches Pad 7 and Pad 7 Pro

Xiaomi has unveiled the Pad 7 and Pad 7 Pro tablets in China, introducing high-performance features and sharp displays. Both models sport an 11.2-inch LCD with 3.2K resolution, 144Hz refresh rate, and HyperOS 2 interface.

The Pad 7 Pro, powered by a Snapdragon 8s Gen 3 chipset, offers up to 12GB RAM and 512GB storage, while the Pad 7 uses a Snapdragon 7+ Gen 3 SoC with up to 256GB storage. Equipped with 8,850mAh batteries, the Pro model supports 67W fast charging, while the standard model charges at 45W.

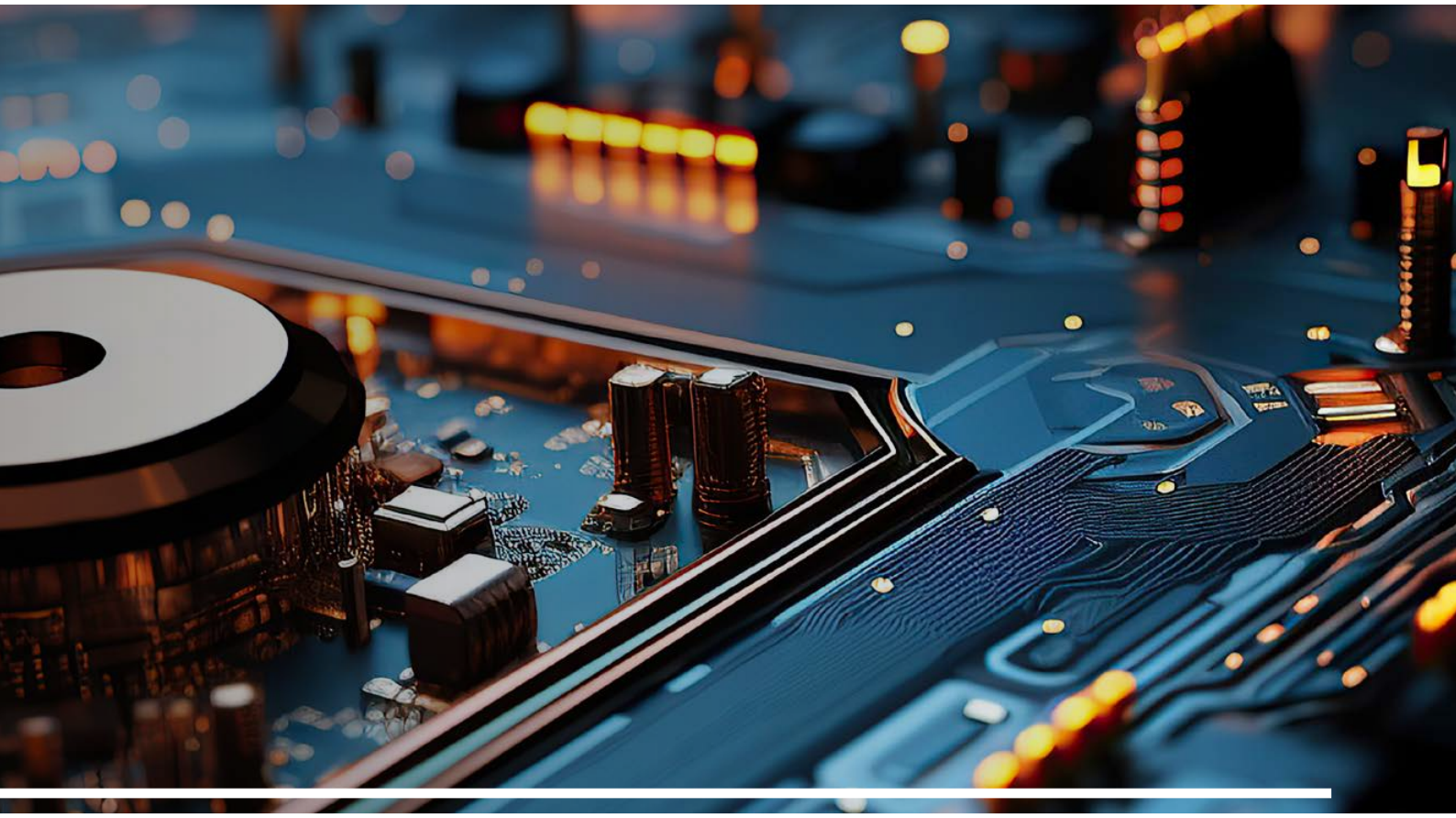
The Pro version also features a 50MP rear and 32MP front camera, whereas the standard model has a 13MP rear and 8MP front camera. Available in Black and Sky Blue, pricing starts at CNY 2,499 (approximately Rs. 28,500) for the Pro model and CNY 1,999 (roughly Rs. 23,500) for the Pad 7.

Source: https://www.gadgets360.com/tablets/news/xiaomi-pad-7-pro-price-launch-specifications-features-6905578

India, Germany Strengthen Ties with AI, Semiconductor, and Skilled Labour Initiatives

India and Germany unveiled a "Roadmap on Innovation and Technology" to bolster cooperation in artificial intelligence, semiconductor development, and clean energy during an Inter-Governmental Commission (IGC) meeting co-chaired by Prime Minister Narendra Modi and German Chancellor Olaf Scholz.

Agreements also included initiatives for skilled labour mobility, with Germany's new strategy aiming to recruit 90,000 skilled workers annually from India, marking the first country-specific labour strategy for Germany. The roadmap features a managerial training program and an MoU on skill development.



Modi highlighted the deepening defence, technology, and green energy partnerships as symbols of mutual trust, calling India-Germany ties a "transformational partnership." Foreign Secretary Vikram Misri noted advancements in defence and counter-terrorism cooperation, further solidifying trust.

Modi also expressed India's readiness to contribute to peace efforts in Ukraine and West Asia, underscoring concerns over rule of law in the Indo-Pacific without directly naming China.

Source: https://www.tribuneindia.com/news/india/india-germany-lay-roadmap-for-ai-semiconductor-collaboration/

Foxconn Invests INR 267 Cr in India Facility to Manufacture iPhone 16 Pro Series

Foxconn, the Taiwanese electronics giant, has invested approximately Rs 267 crore ($31.8 million) in new machinery for its Tamil Nadu factory, preparing to manufacture Apple's iPhone 16 Pro series locally. This marks the first time Apple's high-end Pro series will be made outside China, underscoring India's growing role in global tech manufacturing.

In a regulatory filing, Foxconn's Indian subsidiary announced the acquisition of equipment from Apple Operations Limited to expand its production capabilities. This move aligns with Apple's recent statement that the "Made in India" iPhone 16 Pro and Pro Max models will soon enter the market.

This development highlights India's increasing importance in Apple's supply chain, supporting the company's goal to diversify production and strengthen local manufacturing capabilities.

Source: https://www.moneycontrol.com/news/business/foxconn-buys-equipment-worth-rs-267-crore-for-india-factory-to-locally-make-iphone-16-pro-series-12850417.html

Samsung to Replace Chinese Gear in Vodafone Idea's 5G Rollout

Vodafone Idea (Vi) has partnered with Samsung to replace Huawei and ZTE equipment with 5G gear in key telecom circles, marking Vi's first collaboration with Samsung. The move, part of a broader three-year capex plan worth INR 55,000 crore ($6.6 billion), includes the installation of 75,000 5G sites.

Samsung will deploy both 4G and 5G equipment, replacing Chinese technology that has reached its operational end. Nokia and Ericsson will supply additional 4G equipment to boost Vi's coverage from 77% to 90% within a year.

Vi's Chief Technology Officer, Jagbir Singh, emphasized that equipment swap will prioritize operationally outdated gear, ensuring smoother transitions.

Source: https://www.business-standard.com/amp/companies/news/samsung-to-replace-vi-s-chinese-gear-with-5g-equipment-in-priority-circles-124101601251_1.html

Apple iPad Mini 2024 Launched in India

Apple has introduced the iPad Mini 2024 in India, starting at INR 49,900. Powered by the A17 Pro chip, it features an 8.3-inch Liquid Retina display, offering 30% faster CPU and AI-driven capabilities like image enhancement.

Available in Wi-Fi and Wi-Fi + Cellular models, it supports Wi-Fi 6E, 5G, and Apple Pencil. With a 12MP rear and ultra-wide front camera, 10-hour battery life, and up to 10GB/s data transfers via USB-C, it's perfect for gaming and productivity.

Source: https://economictimes.indiatimes.com/industry/cons-products/electronics/apple-ipad-mini-2024-launched-in-india-under-rs-50000-check-features-availability/accessories-and-add-ons/slideshow/114272198.cms

Qualcomm Eyes Revenue Boost from Connected Cars and AI in India

Qualcomm is targeting significant growth in India by expanding its semiconductor sales for connected vehicles, artificial intelligence (AI) applications, and 5G technology. Currently, revenue from India's automotive sector remains small, but Qualcomm sees immense potential as less than 5% of two-wheelers in India are connected.

The company is collaborating with domestic car brands like Mahindra & Mahindra and Tata Motors to deploy advanced chips, including 5nm technology, which will enable voice-based AI interfaces in affordable cars.

Savi Soin, Qualcomm India's senior vice-president, expects substantial growth in automotive chip sales over the next three years. With the increasing demand for connected features in vehicles, Qualcomm is positioning itself as a key player in the Indian automotive and smartphone markets.

Source: https://www.livemint.com/companies/mobile-chipmaker-qualcomm-connected-cars-ai-apps-india-revenue-market-savi-soin-ai-5g/amp-11729076838297.html

Ericsson Confirms India as Key Revenue Driver Despite 5G Capex Decline

India will remain Ericsson's second-largest revenue market, despite its contribution to global revenue dipping to 5% in Q3 due to reduced 5G spending, said Andres Vicente, Ericsson's head for Southeast Asia, Oceania, and India.

Vicente expressed optimism, citing Vodafone Idea's gradual 5G rollout and rising demand from operators like Jio and Airtel. He noted 5G's spectrum efficiency and cost savings, which will encourage further upgrades from 4G.

Ericsson's $3.6 billion deal with Indian telcos, including INR 14,000 crore from Vodafone Idea, underscores its strong market presence. The company is also exploring future exports from its Pune factory while focusing on 5G deployment and innovation.

Source: https://www.livemint.com/companies/ericsson-vodafone-idea-reliance-jio-bharti-airtel-nokia-samsung-andres-vicente-4g-5g/amp-11729091917339.html

Reliance Jio Unveils Affordable JioBharat V3 and V4 4G Phones at INR 1,099

At the India Mobile Congress 2024, Reliance Jio launched the JioBharat V3 and V4, budget-friendly 4G feature phones priced at INR 1,099. Paired with a INR 123 monthly plan, users get unlimited voice calls and 14 GB of data, offering 40% savings over competitors.

The phones feature a 1000 mAh battery, 128 GB storage, and support for 23 Indian languages. With exclusive Jio services like JioTV, JioCinema, JioPay, and JioChat, these models provide comprehensive digital access. Aimed at bridging the digital divide, JioBharat has already captured 50% of the sub-Rs 1,000 market.

Source: https://economictimes.indiatimes.com/industry/cons-products/electronics/reliance-jio-launches-jiobharat-v3-and-v4-phones-with-4g-features-at-rs-1099/articleshow/114244893.cms

India to Fulfill Entire Mobile Phone Demand Locally by FY24 as Apple, Google Boost Production

India is on track to meet all domestic mobile phone needs through local manufacturing by the end of FY24, with Apple and Google ramping up production. Apple's recent start of iPhone 16 Pro and Pro Max manufacturing, alongside Google's Pixel 8 production, marks the success of India's production-linked incentive (PLI) scheme. Samsung already manufactures all devices locally.

In FY23, India's smartphone market reached $33 billion, with imports at 4.2%. By FY24, imports have dropped to 2.5%, thanks to increased local manufacturing. Industry leaders aim to expand this growth, targeting a $500 billion electronics production milestone.

Apple's price cuts for locally produced iPhones and government policies have further boosted India's manufacturing ecosystem, curbing imports to less than 1% in volume. The PLI scheme continues to drive this push, with global and local players contributing to India's rise as a global electronics hub.

Source: https://economictimes.indiatimes.com/industry/cons-products/electronics/india-set-to-source-entire-mobile-phone-needs-locally-by-fiscal-year-end-as-apple-google-ramp-up-production/articleshow/114097070.cms

India-UAE Task Force Boosts Investments in Key Sectors

The 12th India-UAE High-Level Joint Task Force on Investments, co-chaired by Commerce Minister Piyush Goyal and ADIA's Sheikh Hamed bin Zayed Al Nahyan, focused on expanding bilateral ties.

Key developments included ADIA establishing xa subsidiary in GIFT City, the opening of Invest India's office in Dubai, and collaboration on food parks.

The meeting also highlighted interlinking India's UPI with UAE's AANI for seamless cross-border payments. With over $100 billion in UAE investments across sectors, the task force emphasized strengthening supply chains, infrastructure, and renewable energy to further enhance trade and investment flows.

Source: https://www.livemint.com/news/uaes-investment-in-india-to-reach-100-billion-across-sectors-piyush-goyal-11728309135763.html

With Launch of Agni 3, Lava Targets 10% Market Share in INR 20K-25K Segment

Lava International aims to capture 10% of the Rs 20,000-25,000 online smartphone segment with the launch of its Agni 3 handset. Executive Director Sunil Raina highlighted that the Agni series has seen significant growth since its relaunch.

Priced between INR 19,999 and INR 22,999, the Agni 3 features the MediaTek Dimensity 7300X processor and a unique 1.74-inch rear display for selfies, notifications, and media controls.

Source: https://economictimes.indiatimes.com/industry/cons-products/electronics/apple-making-all-iphone-16-pro-pro-max-models-in-india-will-export-soon/articleshow/113925259.cms

Apple to Open 4 New Stores in India, Expands iPhone 16 Production Locally

Apple is set to expand its presence in India with four new retail stores in Delhi-NCR, Mumbai, Pune, and Bengaluru. This marks Apple's retail growth beyond its first stores in Delhi and Mumbai, launched last year.

Simultaneously, Apple has started manufacturing all iPhone 16 models, including Pro versions, in India—a first for the company. Along with its retail and production expansion, Apple continues its commitment to environmental

sustainability, working with partners like CleanMax to achieve its goal of a 100% carbon-neutral supply chain by 2030.

Source: https://www.digit.in/news/general/apple-to-open-4-new-stores-in-india-start-making-all-iphone-16-models-in-the-country.html#:~:text=Along%20with%20this%2C%20Apple%20has,%2C%20Mumbai%2C%20Pune%20and%20Bengaluru

NICDC's Logistics Data Bank Surpasses 75 Mln Containers Tracked, Boosting India's Supply Chain Efficiency

The Logistics Data Bank (LDB), under NICDC Logistics Data Services Ltd. (NLDSL), has successfully tracked over 75 million EXIM containers, revolutionizing India's logistics sector.

This milestone highlights LDB's impact in improving supply chain visibility and efficiency, essential for India's growth as a global manufacturing hub.

Rajat Kumar Saini, CEO & MD of NICDC, emphasized the significance of digitalization in logistics, which has contributed to India's improved Logistics Performance Index ranking. LDB offers real-time tracking and analytics, driving operational improvements across the country's logistics network.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2061600

India-U.S. CEO Forum Co-Chaired by Piyush Goyal, Gina Raimondo

Commerce and Industry Minister Piyush Goyal and U.S. Secretary of Commerce Gina Raimondo co-chaired the India-U.S. CEO Forum in Washington, D.C. The forum, co-chaired by Tata Sons Chairman N. Chandrasekaran and Lockheed Martin CEO James Taiclet, brought together 16 CEOs.

Key discussions focused on strengthening bilateral economic cooperation in sectors like healthcare, aerospace, and digital infrastructure. Both governments praised the forum's progress since its reconstitution in 2022.

Goyal and Raimondo also discussed critical minerals supply chains and enhancing U.S. investments in India's new industrial cities during a luncheon meeting.

Source: https://www.newsonair.gov.in/union-minister-piyush-goyal-us-commerce-secretary-co-chair-india-us-ceo-forum/

L&T Semicon to Begin Chip Production in Two Years

L&T Semiconductor Technologies, a fabless chip company, is set to start semiconductor production within the next two years, according to CEO Sandeep Kumar. The company will establish its own chip manufacturing facilities once it achieves a threshold revenue between $50 million and $1 billion, depending on the technology.

L&T is currently working on 15 product designs, with six already in progress. "We expect to have full capability by year-end, and production is projected to start in two years," said Kumar. The company aims to reduce India's dependency on foreign firms by focusing on indigenous product development.

L&T has also partnered with IBM for research and development on advanced processors, targeting applications in mobile phones, electric vehicles, and industrial electronics.

Kumar highlighted the strategic importance of retaining chip technology within India, ensuring it remains unaffected by geopolitical risks.

Source: https://economictimes.indiatimes.com/industry/cons-products/electronics/lt-semicon-expects-its-chip-production-to-start-in-2-yrs-to-set-up-unit-later/articleshow/113783327.cms

PSMC Partners with Tata Group to Establish AI-Enabled Semiconductor Facility in India

Powerchip Semiconductor Manufacturing Corporation (PSMC) Chairman Frank Huang has emphasized India's potential to become a major producer of semiconductors, reducing its reliance on imports due to the growing demand for electronics. Huang's remarks came during his visit to India to sign a definitive agreement with the Tata Group for building an AI-enabled semiconductor fabrication plant (Fab) in Dholera, Gujarat.

Huang noted that the partnership aligns with Prime Minister Narendra Modi's vision to make India "semiconductor-ready." While PSMC's largest operations are based in

Taiwan, India is set to become one of the company's top suppliers outside of Taiwan.

He praised the Tata Group as an ideal partner due to its strong capabilities, cost structure, and government support. This collaboration marks a significant step in India's semiconductor ambitions, with PSMC offering technology licensing, design, and engineering support for the Dholera Fab.

Source: https://www.thehindu.com/business/Industry/tata-electronics-taiwans-psmc-complete-technology-transfer-pact-for-indias-first-semiconductor-fab/article68685671.ece

SEMICON India 2024: Catalyzing India's Semiconductor Ambitions

SEMICON India 2024, held from 11th to 13th September in Greater Noida, aimed to strengthen India's position as a global semiconductor hub. With over 250 companies from 24 countries participating, the event facilitated business partnerships across the entire semiconductor supply chain, from equipment manufacturing to fabs.

Akash Tripathi, CEO of the Indian Semiconductor Mission (ISM), emphasized the strategic importance of SEMICON India in fostering business-to-business interactions and addressing India's growing semiconductor needs, driven by five major ongoing projects.

The event also featured the Semiconductor Executives' Summit on September 10, which focussed on best practices and lessons learned from global experiences. Co-located with the Electronica and Productronica Exhibition, SEMICON India highlighted the synergy between electronics and semiconductor manufacturing.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2053280

India's Vision for Global Semiconductor Leadership Outlined by Prime Minister Modi

During his 78th Independence Day address, Prime Minister Narendra Modi highlighted India's ambitions to become a global leader in semiconductor production, emphasizing the nation's potential to produce "Made in India" chips for every device.

The Prime Minister noted India's transformation into a major mobile phone manufacturing hub, with exports now reaching global markets, a testament to the country's growing industrial ecosystem.

Modi stressed the critical role of semiconductors, artificial intelligence, and modern technologies in shaping the future, underscoring the importance of India's ongoing efforts through the Indian Semiconductor Mission. He called on the nation to dream of creating semiconductors domestically, showcasing India's capability to provide comprehensive technological solutions to the world.

With a vision to achieve "Viksit Bharat" (Developed India) by 2047, Modi outlined a roadmap for India's advancement in high-tech sectors, reflecting the country's commitment to becoming a self-reliant leader in semiconductor production and cutting-edge technologies. He affirmed that India possesses both the talent and resources to lead in this critical industry.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2045539

BIS Launches New Department for Environmental Standards at Workshop

The Bureau of Indian Standards (BIS) has established a new Environment and Ecology Department (EED) dedicated to standardization in environmental issues. To kickstart its initiatives, BIS organized a workshop titled "Standardization for Environment and Ecology".

Director General Pramod Kumar Tiwari emphasized the need for comprehensive ecological standards, stating that BIS aims to set benchmarks for sustainability both in India and globally.

Chief Guest Leena Nandan, Secretary of the Ministry of Environment, highlighted the importance of collaboration among stakeholders to develop standards that address societal needs. Over 100 experts attended the workshop.

Source: https://psucornner.com/bis-strengthens-focus-on-eco-standards-new-department-environment-and-ecology-created-workshop-on-standardization-for-environment-and-ecology-organised-to-augment/

Construction of Tata's Semiconductor Unit Begins in Assam

Tata Sons has officially commenced construction on its semiconductor unit in Assam, marking a major step

towards strengthening India's semiconductor ecosystem. With a total investment of INR27,000 crores, the project is expected to create 15,000 direct and 11,000-13,000 indirect jobs, bolstering employment in upstream and downstream industries.

The project aligns with India's Act East Policy, as emphasized by Prime Minister Narendra Modi and reiterated by Union Minister Ashwini Vaishnaw. The Minister highlighted the facility's importance in advancing semiconductor packaging technologies such as Wire Bond, Flip Chip, and I-SIP, all of which are being developed indigenously. These technologies will be critical for key sectors, including automotive (particularly electric vehicles), communications, and network infrastructure.

The semiconductor unit will have the capacity to produce 4.83 crore chips per day. Its establishment in Assam underscores the region's growing significance in India's high-tech manufacturing landscape, especially under the national push for self-reliance in semiconductor production.

In parallel with the construction, India is training an industry-ready workforce, with 85,000 students from 113 academic institutions specializing in semiconductor chip design at the B.Tech, M.Tech, and PhD levels. Nine of these institutions are located in the North-East, further contributing to the region's development.

Source: https://www.newsonair.gov.in/construction-of-tatas-semiconductor-unit-begins-in-assam/

MSMEs Contribute 35.4% to Manufacturing Output, PLI Scheme Boosts Growth

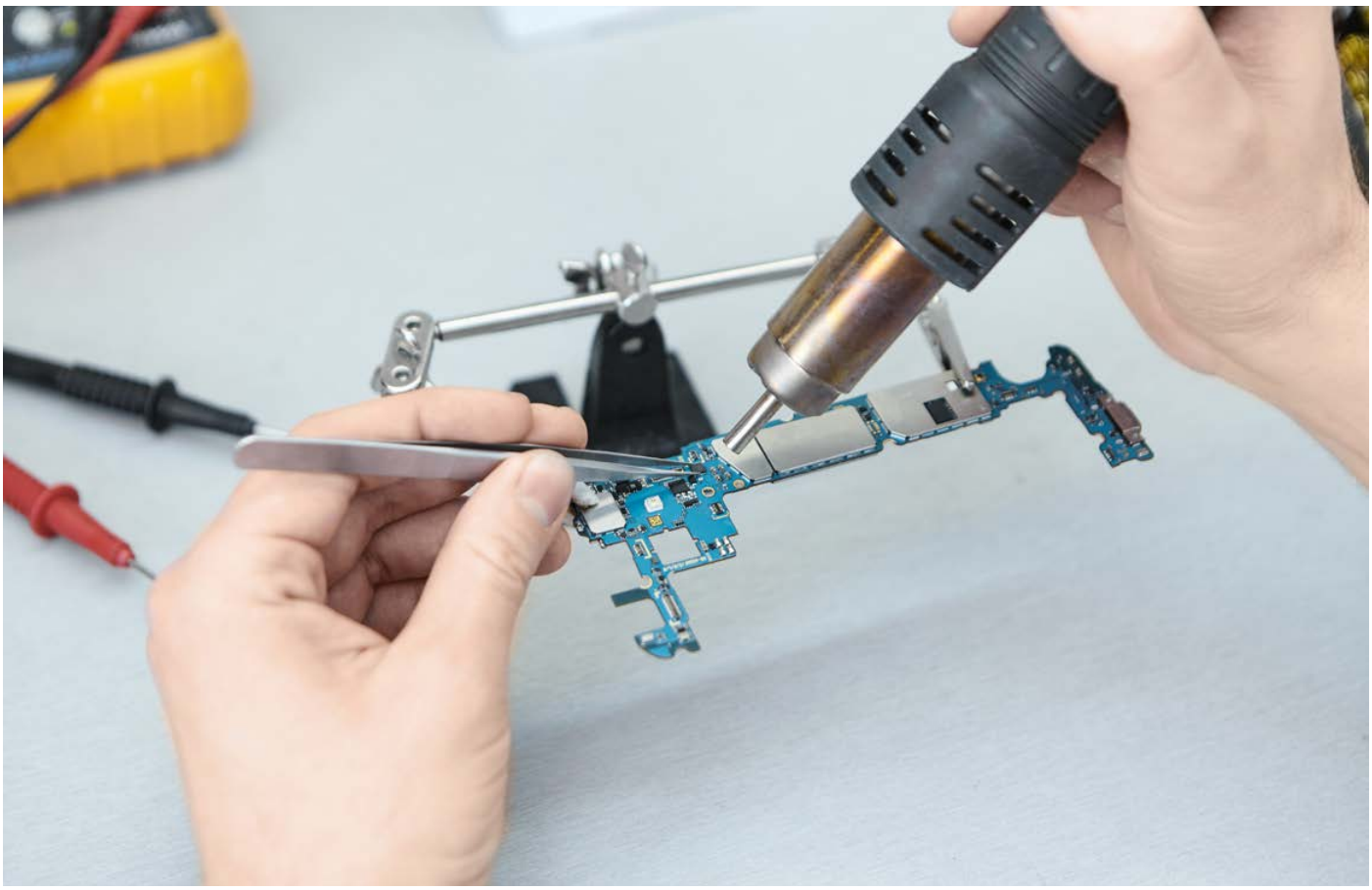
The Economic Survey, presented by Finance Minister Nirmala Sitharaman, highlights the critical role of MSMEs in India's economy, contributing 35.4% to the country's manufacturing output. The survey also reports increased productivity, with Gross Value Added (GVA) per worker rising to INR 1,41,769 and Gross Value of Output (GVO) per establishment growing to INR 4,63,389.

The Udyam Registration portal has formalized 4.69 crore MSMEs, promoting easier registration. The Union Budget 2023-24 allocated INR 9,000 crore to the Credit Guarantee Fund Trust, targeting INR 2 lakh crore in additional credit.

Under the Production Linked Incentive (PLI) scheme for 14 key sectors, INR 1.28 lakh crore has been invested by May 2024, generating INR 10.8 lakh crore in production and over 8.5 lakh jobs. The scheme also boosted exports by INR 4 lakh crore, particularly in electronics, pharmaceuticals, and food processing.

The survey encourages states to establish "Unity Malls" to promote One District One Product (ODOP), showcasing India's unique products both domestically and globally.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=2034923



ICEA Activities

ICEA HOSTED SHRI NARA LOKESH, HON'BLE MINISTER OF IT & ELECTRONICS, GOVT. OF ANDHRA PRADESH

ICEA hosted Shri Lokesh Nara Lokesh, Hon'ble Minister of Information Technology & Electronics and Human Resource Development, Government of Andhra Pradesh, along with key leaders from the electronics industry, to explore groundbreaking opportunities in electronics manufacturing and exports.

The discussion highlighted the importance of competing in GVCs through cost-efficiency and moving beyond Ease of Doing Business (EoDB) to Speed of Doing Business (SoDB). Additionally, we addressed the need to boost women's workforce participation, where electronics manufacturing can play a key role.

ICEA CHAIRMAN MODERATED PANEL DISCUSSION AT INDIA MOBILE CONGRESS

During the 2024 India Mobile Congress, Pankaj Mohindroo, Chairman, ICEA moderated a panel on "Skilling for a Connected Future - Connecting the Unconnected." The panelists included other industry experts – Anjali Hans, Priyanka Anand, Vishal Mathur, Rishikesh Patankar, Neetu Bhagat, Praveen Sirohi—and representatives from AICTE and the Telecom Sector Skill Council (TSSC).

Pankaj Mohindroo emphasized the critical importance of upskilling and reskilling as technologies like 5G, AI, and Open RAN advance at unprecedented rates. He underscored that a robust skilling ecosystem forms the backbone of sectoral growth, calling for more industry-aligned training programs to meet evolving technological demands. He also highlighted the need for enhancing women's participation in the workforce, with an aim to make India's digital economy more inclusive.

His insights complemented discussions on private sector contributions, including initiatives like Ericsson Educate, which fosters hands-on 5G learning. By building industry-centric skills, he noted, India's workforce could powerfully contribute to the Viksit Bharat 2047 vision, advancing telecom and electronics as engines of growth in a globally competitive economy.

ICEA CHAIRMAN MODERATED SESSION AT INDIA-US ICT WORKING GROUP MEETING 2024

Pankaj Mohindroo, Chairman, ICEA, moderated the Electronics and Semiconductors session at the India-US ICT Working Group (ICTWG) Meeting on October 17, 2024, at Sushma Swaraj Bhavan, New Delhi. Key dignitaries, including S Krishnan, Secretary, MeitY; U.S. Ambassador Eric Garcetti; Akash Tripathi, CEO, ISM; and industry leaders, enriched the discussions.

He shared valuable insights on India's role in the global electronics and semiconductor landscape, emphasizing the urgency of adopting a Speed of Doing Business (SoDB) approach. He stressed that in a fast-paced global economy, particularly in electronics, streamlining operations is essential to compete and integrate with Global Value Chains (GVCs).

With his visionary call for $100Bn in bilateral electronics trade within the next decade, ICEA Chairman emphasized the strategic importance of deepening India-US ties. He noted that through initiatives like ICEA-led Indo-US Task Force, this ambitious target could become a reality, fostering growth and innovation in both countries.

JOINT VENTURE BETWEEN AMBER GROUP AND KOREA CIRCUIT

Amber Group inked a Joint Venture with Korea Circuit for manufacturing high-tech PCBs such as Flexible PCBs, HDIs, and PCB Substrate in India. The JV, the first largest investment in this segment, is set to bring the world's leading manufacturing excellence of PCBs to India.

The JV signing ceremony was conducted in the presence of S Krishnan, Secretary, MeitY and Sushil Pal, Joint Secretary, MEITY and Pankaj Mohindroo, Chairman, ICEA.

Commending Amber Group's contribution to strengthening India's electronics supply chains, ICEA Chairman said this achievement benefits the entire electronics industry and encourages more companies to enter into such collaborations in the domain of high-value-added manufacturing.

ICEA ORGANISED 2ND ROUNDTABLE OF THE INDO-US TASK FORCE FOR ELECTRONICS

ICEA successfully hosted the 2nd Roundtable of the Indo-US Task Force for Electronics on October 8, 2024. The strategic forum, presided by S Krishnan, Secretary, MeitY, as the Chief Guest and Amardeep Singh Bhatia, Secretary, DPIIT, as the Guest of Honour, saw participation from over 40 industry leaders from Indian and U.S. companies, to discuss the roadmap for elevating Indo-US electronics trade to USD 100 billion within the next decade.

The task force, established by ICEA last year, is chaired by Dr. R.S. Sharma, Chairperson of ONDC and former Chairman of TRAI, and co-chaired by Virat Bhatia.

The task force aims to strengthen India's role as a trusted electronics partner in the global supply chain, aiming to integrate the capabilities of Indian and American companies to foster innovation, drive trade, and create substantial employment opportunities.

The roundtable set a clear direction for strategic collaborations and identified growth avenues for both countries, reinforcing India's pioneering role in global electronics market.

ICEA CHAIRMAN ATTENDED BOARD OF TRADE MEETING

Pankaj Mohindroo, Chairman, ICEA attended the Board Of Trade (BOT) meeting in Mumbai on September 13. Chaired by Union Minister of Commerce and Industry Piyush Goyal, the meeting saw participation from Ministers of State, Secretaries and industry champions. They deliberations were on how India's trade strategies have been leading to growth in exports.

BOT, a key advisory body under the Director General Of Foreign Trade Delhi (DGFT), Ministry of Commerce and Industry, Government of India, is responsible for issues related to India's import/export policies, procedures, and regulations.

ICEA Chairman stressed on the need to step up the nation's efforts to take a larger share of GVCs and highlighted the growth and significance of the electronics sector.

ICEA AND SID JOINTLY ORGANISED IDMC 2024 AT EP-2024

The 3rd edition of India Display Manufacturing Conference (IDMC) was jointly organized by ICEA and Society for Information Display at the Electronica/Productronica (EP-2024) show in Greater Noida on September 12, 2024.

S. Krishnan, Secretary, MeitY, was the Chief Guest and Akash Tripathi, CEO, India Semiconductor Mission was the Guest of Honour at IDMC 2024. The event also witnessed participation from over 100 industry leaders, investors, innovators, academicians, and experts.

The conference facilitated a platform for the growing display market opportunities, innovation in display technology, supply chain development fostering collaborations, and positioning India as a global hub for display manufacturing. IDMC 2024 was designed to be a key conference to discuss industry progress and explore India's potential as a leader in display manufacturing

ICEA CHAIRMAN ATTENDED 10TH EDITION OF GOOGLE FOR INDIA EVENT

Pankaj Mohindroo, Chairman, ICEA, attended the 10th edition of Google For India event in New Delhi. The event marked two decades of partnership between Google and India, and it highlighted the incredible strides Google has made in India's digital landscape. Google introduced exciting advancements in its Gemini AI, such as search capabilities in 8 Indian languages, real-time weather alerts tailored for farmers, and GeminiLive.

During the roundtable discussion, the dignitaries delved into how AI is transforming key industries. A major focus was AI's role in national security and its potential to fortify global supply chains, particularly in semiconductors and biotechnology, through initiatives like India- U.S. Initiative on Critical and Emerging Technology (iCET).

ICEA CHAIRMAN WAS INVITED AS PANELIST AT NATIONAL TRADE SUMMIT 2024

Pankaj Mohindroo, Chairman, ICEA, was invited as a panelist at the National Trade Summit 2024, organized by the Confederation of All India Traders (CAIT) in New Delhi. During the panel discussion on E-commerce: Opportunities and Obstacles, he along with other panelists explored how the rapidly evolving digital marketplaces are transforming India's trade sector.

He also shared insights on the transition of India's electronics sector from being import-dependent to becoming an export-driven powerhouse and said that by leveraging these platforms, traders can expand their reach and meet the increasing demand.

ICEA HOSTED OECD DELEGATION

ICEA hosted the OECD delegation, Dr. Filipe Silva, Semiconductors Team Lead, Digital Connectivity, Economics and Society Division, OECD at its office in New Delhi. The ICEA team and OECD delegation engaged in a crucial discussion on building India's semiconductor ecosystem. The discussion focused on leveraging global expertise to align with India's ambitions in electronics and semiconductor manufacturing, addressing both domestic and global challenges in the sector.

The delegation included Dr. Lea Samek, Angela Attrey, Dr. Damiano Maria Morando, and Dr. Ashwini-K Aggarwal, PhD, FIETE. Policy recommendations, skill development, and positioning India as a global semiconductor hub was also discussed during the meeting.

ICEA ORGANISED CONFERENCE ON SUB-ASSEMBLIES & COMPONENTS

To catalyse outcome-oriented policy dialogues on deepening the sub-assemblies and components ecosystem in India and facilitating investments and growth, ICEA organized a conference on "Sub-Assemblies and Components: The Next Phase of Growth in India's Electronics Manufacturing".

The event was presided by S Krishnan, Secretary, MeitY, as Chief Guest and Sushil Pal, Joint Secretary of MeitY, as Guest of Honour. The event also witnessed the participation of over 100 industry leaders.

ICEA HOSTED NELSON CUNNINGHAM AND HIS TEAM

ICEA hosted Nelson Cunningham, Senior Advisor in the Office of the Undersecretary for Economic Growth, Energy, and Environment, U.S. Department of State, and his team. Pankaj Mohindroo, Chairman, ICEA, engaged in a discussion with him on advancing collaborations in technology, national security, and electronics manufacturing in India.

Cunningham acknowledged ICEA's efforts in supporting US companies in the mobile and electronics sector in India. He also emphasised the need for a well-defined and sustainable path to further strengthen bilateral ties and ICEA Chairman resonated with his thoughts that ensuring a seamless experience for U.S. companies operating in India is a priority.

ICEA
INDIA CELLULAR & ELECTRONICS ASSOCIATION
Inspire.Enable.Lead

About India Cellular & Electronics Association (ICEA)

ICEA is the leading industry body representing the entire electronics ecosystem in India, including components, subassemblies, EMS, and finished goods across various ESDM verticals such as mobile phones, consumer electronics, and IT Hardware. Our members comprise Fortune 500 companies, including lead brands, EMS companies, and technology providers across multiple sectors, including IT hardware, semiconductors, and hearables & wearables.

It is working closely with the Government of India to achieve its vision of establishing a USD 300 billion electronics manufacturing ecosystem by 2025–2026. ICEA has been instrumental in conceptualizing the roadmap of the Phased Manufacturing Program (PMP), a first-of-its-kind program in India's history that has resulted in a 1300% increase in mobile phone manufacturing, from USD 2.5 billion to USD 36 billion in just six years.

It has also pioneered the Production-Linked Incentive (PLI) scheme for mobile phones, which has set the trend for such schemes in multiple sectors in India. We have closely worked with all key stakeholders, including industry and government, to encourage landmark schemes such as the Modified Electronics Manufacturing Clusters (EMC 2.0) Scheme and the Scheme for Promotion of Electronic Components Manufacturing and Semiconductors (SPECS).

The goal of the organisation is to build a robust electronics manufacturing ecosystem with a specific focus on enhancing design and R&D capabilities and establishing India as the Export Hub for different electronics hardware verticals, such as mobile phones and its components, consumer electronics, IoT devices, strategic electronics, auto electronics, wearable and hearable devices, among others.

Key services areas of ICEA are:

- Policy Advocacy
- Regulatory Framework Consultation
- Advice on Legal Framework
- Compliance Related Advocacy
- Assistance with Financing Schemes
- Tax Related Consultancy and Advice
- Interface between stakeholders to ensure ease of doing business

ICEA long-term vision is to transform India into an electronics manufacturing hub worth USD 300 billion by 2025- 26, with contributions from exports estimated to remain at USD 120 billion. Electronics hardware exports are estimated to be one of the largest export categories in India over the next few years.

Over the past decade, ICEA has partnered with industry stakeholders to work with various state governments, such as Gujarat, UP, AP, Telangana, and Karnataka, to promote investment and outreach activities in multiple countries such as China mainland, Taiwan, Korea, Japan, USA, Germany, Israel, and others to establish a strong ESDM ecosystem to serve India and the world.

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