

NEXT IAS

**DAILY EDITORIAL
ANALYSIS**

TOPIC

**A BUDGET FOR THE DEEP TECH
ECOSYSTEM**

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A BUDGET FOR THE DEEP TECH ECOSYSTEM

Context

- The Union Budget 2026-27 signals a strategic shift from allocating funds for technology growth to **building complete technology ecosystems**, with equal emphasis on **infrastructure, manufacturing, and human capital** for India's deep tech ecosystem.

Union Budget 2026-27 & Deep Tech Ecosystem

- **Semiconductor Mission 2.0 (Full-Stack Thinking):** It focuses on the **entire semiconductor value chain** i.e. equipment, fabrication, and skilled workforce, unlike earlier schemes that focused narrowly on equipment or subsidies.
 - ♦ It promotes **balanced investments** in both **hardware and talent**.
 - Hardware creation (equipment and facilities);
 - Skill development (technicians, engineers, operational know-how);
 - ♦ Such 'full-stack' thinking indicates a government focus on **long-term supply chain resilience and capability building**.
- **Advanced Manufacturing:** The budget maintains the same dual emphasis in advanced manufacturing:
 - ♦ **Duty exemptions** for aviation components incentivize hardware creation.
 - ♦ **Hi-tech tool rooms** set up as digitally enabled service bureaus focus on skill and operational readiness.
- **AI and Data Centers (India as a Global Node):** The government has extended **tax holidays for AI and foreign data centers**, a clear signal to attract global investments.
 - ♦ It aims to benefit data center operators, thermal engineers, and AI compute engineers.
 - ♦ The budget aims to make the country a hub for **technology and data-driven innovation**, by enabling global-grade infrastructure **rooted in India**.
- **Corporate Mitras (Easing Compliance for Founders):** A key founder-focused initiative is the introduction of **Corporate Mitras**, designed to reduce compliance bottlenecks for tech firms.
 - ♦ It provides **affordable, structured governance support**, and demonstrates **empathy toward deep tech founders**, beyond mere financial incentives.
 - ♦ Additionally, changes in **share buyback taxation** encourage promoters to reinvest in their businesses rather than focusing solely on personal capital gains.
- **AI and Workforce:** The budget forms a **formal committee to assess AI's impact on the workforce** for the first time. It demonstrates a proactive approach toward **talent planning, skill development aligned with emerging technologies**.

India's Deep Tech Ecosystem

- **Startup India:** It promotes deep tech startups in AI, robotics, quantum computing, biotechnology, and space tech.
 - ♦ Incentives include funding support, incubation facilities, and mentorship programs.
- **Department of Science & Technology (DST):** DST has initiatives like Technology Development Board (TDB) and National Initiative on Technology Transfer to promote commercialization of deep tech innovations.
 - ♦ Focus areas: AI, photonics, advanced materials, biotech, nanotech.
- **Ministry of Electronics & IT (MeitY):** The *Technology Incubation and Development of Entrepreneurs (TIDE) 2.0* program supports deep tech startups in electronics, IoT, AI, and cybersecurity.
 - ♦ It provides seed funding, mentoring, and incubation.
- **Invest India:** It provides sector insights and policy support for startups in deep tech areas like AI, robotics, quantum computing, and space tech.
 - ♦ Focus on facilitating foreign and domestic investment.
- **National Biopharma Mission (DBT):** It supports biotech deep tech startups through grants, incubation, and commercialization support.

- ◆ Focus areas: vaccine tech, diagnostics, drug discovery.
- **Atal Innovation Mission (NITI Aayog):** AIM provides incubation centers (Atal Tinkering Labs and Atal Incubation Centers) targeting AI, robotics, and other frontier technologies.
 - ◆ It encourages entrepreneurship among students and innovators.
- **ICMR & Deep Tech in Health:** ICMR supports startups in medical AI, diagnostics, and biotech innovations.
 - ◆ Focus on translational research for healthcare deep tech.
- **Space and Defence Deep Tech:** ISRO and DRDO promote startups in satellite tech, AI for defense, robotics, and advanced materials.
 - ◆ Funding and collaboration opportunities for private sector innovators.

Related Issues & Concerns

- **Implementation Complexity:** Full-stack initiatives like **Semiconductor Mission 2.0** require **coordinated execution across multiple ministries and private stakeholders**.
 - ◆ Risk of delays or misalignment between **infrastructure rollout and skill development**.
- **Skill Gap Challenges:** Training programs and workforce readiness may **lag behind the rapid technological advancements** in AI, semiconductors, and advanced manufacturing.
 - ◆ Scaling **technicians, engineers, and AI specialists** will require sustained investment in education and reskilling.
- **Compliance & Governance:** Corporate Mitras aim to reduce compliance friction, but **their effectiveness will depend on awareness, accessibility, and adoption** by smaller deep tech startups.
 - ◆ Over-regulation or ambiguity in tax and governance rules could still **deter early-stage founders**.
- **Fiscal Sustainability:** Duty exemptions, tax holidays, and manufacturing incentives are **fiscally generous**, but may put pressure on government revenues.
 - ◆ Long-term impact will depend on **private sector uptake and economic returns** from these incentives.
- **Equity & Inclusion:** High-tech focus risks **favoring large firms or metropolitan startups**, potentially leaving **tier-II / III cities or smaller founders** behind.
 - ◆ Ensuring **inclusive ecosystem growth** will require additional targeted support.
- **AI & Workforce Transition:** AI committee formation is positive, but **policies to reskill workers and protect employment** will be critical.
 - ◆ Risk of **job displacement** in routine roles if AI adoption outpaces workforce readiness.
- **Global Competition:** Attracting foreign AI/data center investments is promising, but India **competes with Singapore, UAE, and Europe** for talent and investment.
 - ◆ Ensuring **global competitiveness** will require speed, clarity, and ease of doing business.

Conclusion

- Overall, the Union Budget 2026 reflects a **builder-centric vision**:
 - ◆ Incentivizing manufacturing and infrastructure;
 - ◆ Supporting skill development and governance for founders;
 - ◆ Encouraging reinvestment in technology firms;
- It is a clear signal that India is aiming to **build comprehensive technology ecosystems** where hardware, human capital, and innovation coexist and thrive.

Source: BL

Daily Mains Practice Question

- [Q] Discuss the policy measures announced in the Union Budget 2026-27 for India's Deep Tech ecosystem. How do these measures impact emerging fields such as AI, robotics, biotechnology, and quantum computing?

