



DATE: 15 SEPTEMBER 2026

1 Act East Policy (Source: The Indian Express)

It is a diplomatic initiative to promote economic, strategic, and cultural relations with the vast Asia-Pacific region at different levels.

- The '**Act East Policy**' announced in 2014 is the upgrade of the "**Look East Policy**".

Objectives

- It aims to promote economic cooperation, cultural ties, and develop a strategic relationship with countries in the Indo-Pacific region with a proactive and pragmatic approach, thereby improving the economic development of the North Eastern Region (NER), which is a gateway to the Southeast Asia Region.

Key Pillar

- It involves intensive and continuous engagement with Southeast Asian countries in the field of connectivity, trade, culture, defence and people-to-people contact at bilateral, regional and multilateral levels.

2 MERCOSUR Grouping (Source: PIB)

- **Established:** 1991 through the Treaty of Asunción (entered into force in 1995).
- **Headquarters:** Montevideo, Uruguay.
- **Nature:** A regional trade bloc and customs union in South America aimed at promoting free trade and regional integration.
- **Objectives**
 - Promote free trade and fluid movement of goods, people, and currency among member states.
 - Establish a common external tariff (CET) and adopt a common trade policy toward non-members.
 - Coordinate macroeconomic and sectoral policies (e.g., agriculture, industry, transportation).
 - Strengthen regional competitiveness and collective bargaining power in global trade negotiations.
- **Members**
 - **Founding Members:** Argentina, Brazil, Paraguay, Uruguay
 - **Venezuela:** Admitted in 2012 but suspended in 2016 for violating democratic norms.
 - **Associate Members:** Chile, Peru, Colombia, Ecuador, Guyana, and Suriname.
 - **Observer States:** Mexico, New Zealand.

3 Quantum Technology (Source: The Indian Express)

Quantum Technology

Harnessing the laws of the quantum world for a smarter, safer and stronger future



What is Quantum Technology?
Quantum technology uses the principles of quantum mechanics – the behaviour of matter and energy at the smallest scales (atoms and sub-atomic particles) – to develop new capabilities in computing, communication, sensing and materials.

Key Quantum Principles

Superposition



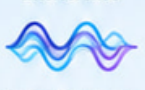
A quantum particle can be in multiple states at the same time.

Entanglement



Particles can be correlated, so that a change in one affects the other instantly, even across distance.

Quantum Interference



Probability waves can reinforce or cancel each other.

Quantization



Energy exists in discrete packets (quanta), not continuous values.

Why is it Important?

- Solves complex problems beyond the capability of classical computers.
- Enables ultra-secure communication.
- Provides ultra-precise sensing for critical applications.
- Drives innovation in medicines, materials, energy and climate solutions.
- A key technology for future economic growth, strategic autonomy and national security.

Major Areas of Quantum Technology

Quantum Computing



- Uses qubits (quantum bits) instead of classical bits.
- Can perform many calculations simultaneously.
- Applications: drug discovery, materials design, climate modelling, cryptography, optimisation problems, artificial intelligence.

Quantum Communication



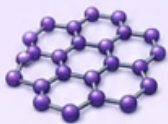
- Uses quantum entanglement and quantum key distribution (QKD).
- Provides theoretically unbreakable secure communication.
- Applications: secure government and defence communication, financial networks.

Quantum Sensing & Metrology



- Uses quantum properties to measure time, gravity, magnetic and electric fields with extreme precision.
- Applications: navigation, mineral exploration, medical imaging, earthquake prediction, climate monitoring.

Quantum Materials & Devices



- Development of new materials with unique quantum properties (e.g., superconductors, topological materials).
- Applications: advanced electronics, energy-efficient devices, quantum internet infrastructure.

Global Scenario



- United States** – National Quantum Initiative (NQI)
- China** – large investments, quantum satellites (e.g., Micius)
- European Union** – Quantum Flagship
- United Kingdom** – National Quantum Technologies Programme
- Japan** – Quantum Innovation Strategy

Quantum technology is a strategic area with intense global competition, with countries investing heavily for scientific leadership and economic advantage.

India's Initiatives



- National Quantum Mission (NQM)** – ₹6,003 crore (2023–2031).
- Focus on quantum computing, communication, sensing & materials.
- Satellite-based QKD (QKD from space/ground).
- Development of indigenous quantum computers (e.g., 50-qubit prototype).
- Centres of Excellence in leading institutes (IISc, IITs, TIFR etc.).
- Collaboration with industry and global partners.
- Aim: make India a global hub in quantum technology and build a self-reliant ecosystem.

Challenges

- Technological complexity and need for specialised infrastructure.
- High cost of research and development.
- Shortage of skilled manpower.
- Cybersecurity risks during transition.
- Need for strong industry-academia-government collaboration.
- Ethical, legal and regulatory issues.

Way Forward

- Sustained funding and long-term policy support.
- Development of skilled workforce and research ecosystem.
- Public-private partnerships and industry participation.
- International collaboration with like-minded countries.
- Focus on real-world applications and commercialisation.
- Ensuring responsible and ethical use of quantum technologies.

From the quantum world to a better tomorrow

Innovate | Secure | Empower