

## Today's Prelims Topics

### UNESCO's Memory of the World Register

#### Context

The Shrimad Bhagavad Gita and Bharat Muni's Natyashastra have been inscribed in UNESCO's Memory of the World Register.

#### About UNESCO Memory of the World (MoW) Register

- The Memory of the World Programme was established by **UNESCO in 1992**.
- **Aim: Preservation and accessibility** of the **documentary heritage** of humanity (manuscripts, oral traditions, audio-visual materials, library and archive holdings, etc.).
- The **Memory of the World Register** is a list of documents that hold **global significance** in terms of history, culture or social impact.
  - **Total number of inscribed collections** - 570.
- With the inclusion of the Gita and Natyashastra, India now has **14 entries in Unesco's Memory of the World Register**.

#### Bhagavad Gita

- It is a philosophical discourse that occurs on the **battlefield of Kurukshetra**, where Arjuna faces moral and emotional conflict before a war.
- It contains **700 verses in 18 chapters**, and is embedded within the **Bhīshmaparva (adhyāya 23-40) of the epic Mahabharata**.
- It was written by **Maharishi Vedvyas Ji**.

#### Natyashastra

- It is a foundational guide to Indian **theatre, poetics, aesthetics, dance and music**.
- It lays down an elaborate framework for various art forms, covering nāṭya (drama), abhinaya (performance), rasa (aesthetic essence), bhāva (emotion), and saṅgīta (music).
- It was written by **Bharat Muni**. It is also known as Nāṭyaveda or Gāndharvaveda.
- It comprises 36,000 verses. It is believed to be derived from an **oral tradition**.
- It's also known as the **fifth veda**.

#### Source:

- [Indian Express - Memory of world register](#)

## India's Fight Against Anemia

### Context

According to NHFS-5, 67.1% of children and 59.1% of adolescent girls in India are anemic.

### About Anaemia

- It is a blood disorder that occurs when the body doesn't have enough healthy red blood cells or hemoglobin.
- This prevents the body from delivering enough oxygen to organs and tissues.
- **Vulnerable Population:** Children under 5 years of age, menstruating adolescent girls, women and pregnant and postpartum women.

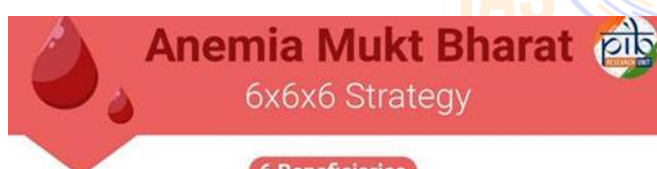
Groups	Anaemia Rate (%)
Men (15–49 years)	25%
Women (15–49 years)	57%
Adolescent boys (15–19 years)	31.1%
Adolescent girls (15–19 years)	59.1%
Pregnant women (15–49 years)	52.2%
Children (6–59 months)	67.1%

### Causes of Anaemia

- **Iron-Deficiency Anaemia:** Only 9% of anaemic cases could be attributed to iron deficiency.
- **Unknown Causes:** 22% of cases were linked to unmeasured or unknown factors, which could include:
  - Deficiencies in **Vitamin B12** or **folate**.
  - **Hemoglobinopathies** (genetic disorders affecting haemoglobin).
  - **Undetected blood loss**.
  - **Unhygienic environments** or **air pollution**.

### Anemia Mukh Bharat

- It was launched in **2018 with a 6x6x6 strategy** under which there are six interventions to reduce the prevalence of anemia (nutritional and non-nutritional) in six age groups.



Prophylactic Iron Folic Acid Supplementation
Periodic de-worming
Intensified year-round behaviour change communication campaign
Testing of anemia using digital invasive hemoglobinometer and point of care treatment
Mandatory provision of Iron Folic Acid fortified foods in public health programs
Addressing non-nutritional causes of anemia in endemic pockets

**UPSC PYQ**

**Q.** Consider the following statements in the context of interventions being undertaken under Anaemia Mukt Bharat: **(2023)**

1. It provides prophylactic calcium supplementation for pre-school children, adolescents and pregnant women.
2. It runs a campaign for delayed cord clamping at the time of childbirth.
3. It provides for periodic deworming to children and adolescents.
4. It addresses non-nutritional causes of anaemia in endemic pockets with special focus on malaria, hemoglobinopathies and fluorosis.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

**Answer: C**

**Source:**

- [PIB - Anaemia](#)



## Places in News

### Aral Sea

- The dried-up Aral Sea has become the hazardous **Aralkum Desert**, which ranks as a major global dust source.



- **Location:** Between **Kazakhstan (north)** and **Uzbekistan (south)** in Central Asia.
- It was fed by **Amu Darya and Syr Darya rivers**.
- Historically, it was the **4th largest inland water body** in the world by surface area.
- From **68,000 sq km in 1960**, it shrank by over **90%** by 2010.
- **Why the Aral Sea Dried Up?**
  - Diversion of the **Amu Darya and Syr Darya** rivers during the Soviet era.

**Source:**

- [Economic Times - Aral Sea](#)

### Ras Isa oil Port

- A recent U.S. strike on Yemen's Ras Isa fuel terminal has killed around 74 people.



- **Location:** Red Sea coast of Yemen.
- It is a strategic oil port of Yemen.
- It plays a vital role in Yemen's maritime trade and energy exports.
- **Yemen Bordering Countries:** Saudi Arabia & Oman.
- **Major ports of Yemen:** Aden, Al Hodeidah, Mocha etc.

**Source:**

- [Indian Express - Ras Isa](#)

## News in Shorts

### Financial Intelligence Unit – India (FIU-IND)

- The Financial Intelligence Unit and Reserve Bank of India (RBI) have signed a MoU for effective implementation of the Prevention of Money Laundering Act and Rules framed.

#### About FIU

- It was established by the Government of India in **2004**.
- FIU is a central national agency in India responsible for receiving, processing, analyzing and disseminating information about suspicious financial transactions.
- It also plays a role in coordinating national and international efforts to combat financial crimes, working with other FIUs and law enforcement agencies.
- It operates independently and reports directly to **the Economic Intelligence Council (EIC), led by the Finance Minister**.

#### Source:

- [PIB - FIU](#)

### First Coal PSU to Use Paste Fill Technology

- **South Eastern Coalfields Limited (SECL)** will be the **first coal PSU in India** to adopt **paste fill technology** in underground coal mining.
- **Target Mine:** Singhali Underground Coal Mine in **Korba area**, Chhattisgarh.

#### What is Paste Fill Technology?

- **Paste filling** is an underground mining method used to fill mined-out voids.
- The **paste mixture** includes: **Fly ash** (from thermal power plants), **Crushed overburden** (from opencast mines), **Cement, Water and Binding chemicals**.
- After coal extraction, the **underground voids are filled** with this paste. **No surface land** needs to be acquired or disturbed.
- **Environmental and Structural Benefits:**
  - Prevents land subsidence.
  - Improves mine stability and safety.
  - **Recycles industrial waste** (fly ash and overburden)
  - Reduces environmental degradation.

#### Source:

- [PIB - Paste Fill technology](#)

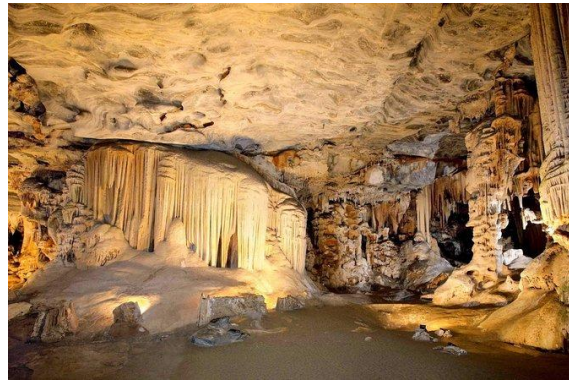
### Cradle of Humankind

- Recently Cradle of Humankind caves were reopened to the public after being closed for three years due to flooding.



### About Cradle of Humankind caves

- It is a **UNESCO World Heritage Site** (declared in **1999**), located in **Johannesburg, South Africa**.
- It is called the **“Cradle of Humankind”** because it provides critical evidence about human evolution. It has provided some of the **oldest hominin fossils**.
- There are over a **dozen limestone cave sites** within this region.
- **Important Sites:**
  - Sterkfontein, Swartkrans, Kromdraai, Makapan Valley and Rising Star Cave (location of the **Homo naledi**).



Source:

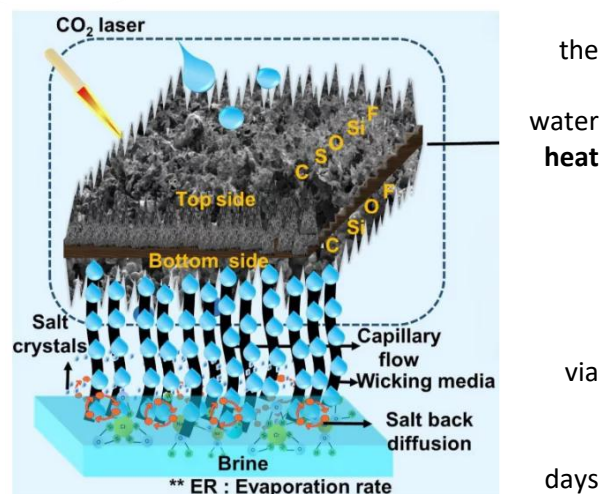
- [The Hindu - Cradle caves](#)

### DSLIG evaporator

- Scientists at IIT Bombay have created a new material to clean salty water called **DSLIG** (Dual-Sided Superhydrophobic Laser-Induced Graphene).

#### What is DSLIG ?

- DSLIG is made from **two polymer layers:**
  - **PVDF (Polyvinylidene fluoride)** – hydrophobic.
  - **PES (Polyether sulfone)** – provides mechanical stability.
- **Graphene layer is engraved on PVDF using laser-induced technology.**
- This makes the surface **superhydrophobic** (like a lotus leaf). **It repels water on both sides.**
- **Lotus Effect (Superhydrophobicity):** It is inspired by lotus leaves.
  - Prevents water droplets from spreading—droplets roll off the surface.
  - It helps prevent salt crystal deposition, which is a major issue in traditional desalination.
- **Working Principle:**
  - **Interfacial Evaporation:**
    - Evaporator is placed on water surface.
    - It heats a thin layer of at the interface → **reduces loss** vs heating full water volume.
  - **Dual Heating Mode:**
    - It uses **solar energy** (low carbon footprint) and also supports **electric heating Joule effect**.
    - This ensures **consistent performance** on cloudy or at night.



### Other Desalination Technologies

- **Thermal Desalination Technique:** Saline water is heated and the resulting water vapor is condensed to produce freshwater. These techniques **mimic the natural water cycle**.

- **Membrane-Based Desalination Techniques:** In this method semi-permeable membrane is used to filter out dissolved salts and impurities from saline or brackish water by applying pressure or electric potential.

Source:

- [The Hindu - DSLIG](#)

### Intermediate-Mass Black Holes (IMBHs)

- Indian scientists detected an Intermediate-Mass Black Hole (IMBH) using the **Devasthal Optical Telescope (DOT)**.

#### About Intermediate-Mass Black Holes (IMBHs)

- IMBHs are the 'missing link' in the black hole family:
  - They are smaller than **supermassive black holes** & larger than **stellar-mass black holes** (a few times the Sun's mass).
  - Estimated mass range: **100 to 100,000 solar masses**.
  - They are believed to be **seeds of supermassive black holes**. Their discovery helps understand **black hole growth and galaxy evolution**.
- It was detected **using a technique called Spectrophotometric Reverberation Mapping**.

#### Devasthal Optical Telescope (DOT)

- DOT is India's Largest Optical Telescope, commissioned in **2016**.
  - **Size:** 3.6 metres in diameter.
- It is located at **Devasthal Observatory**, near **Nainital**, Uttarakhand.
- It is managed - **ARIES** – *Aryabhata Research Institute of Observational Sciences*
  - ARIES is an autonomous institute under the **Department of Science Technology (DST), Government of India**.



and

Source:

- [PIB - DOT](#)

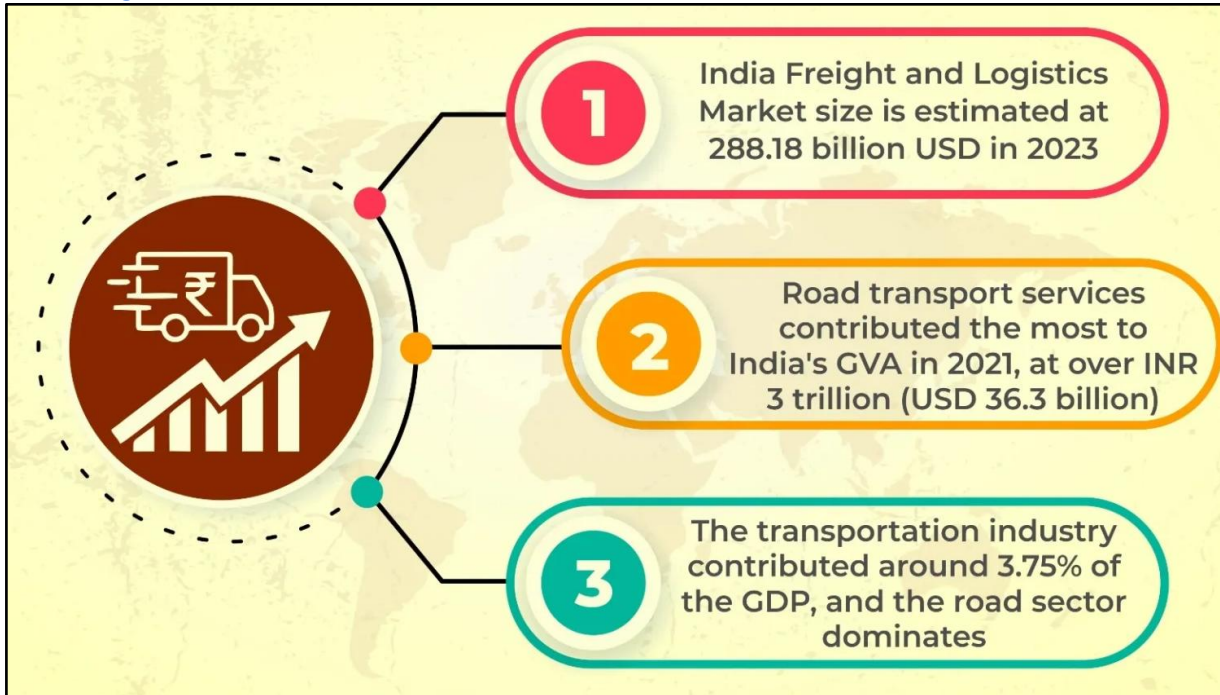
## Editorial Summary

### Steering the decarbonisation of India's logistics sector

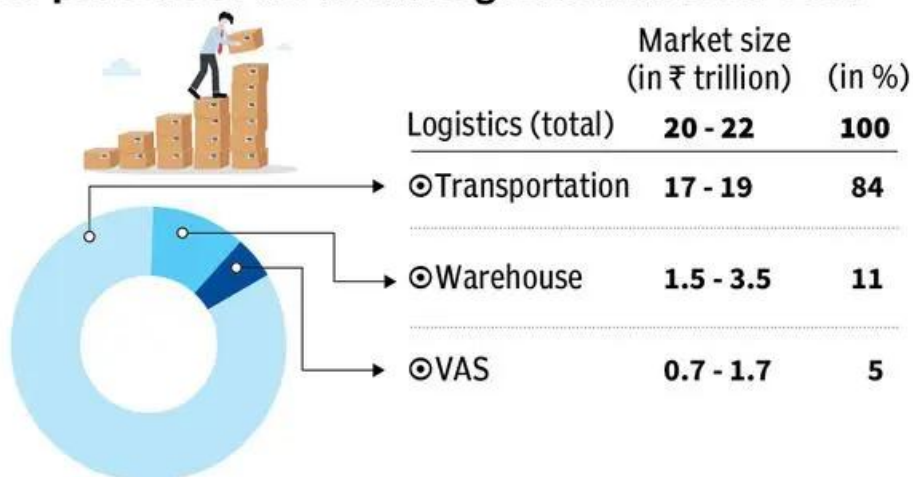
#### Context

India's logistics sector, which is one of the most carbon-intensive in the world, needs to undergo a green transformation.

#### India's Logistic Sector: Facts

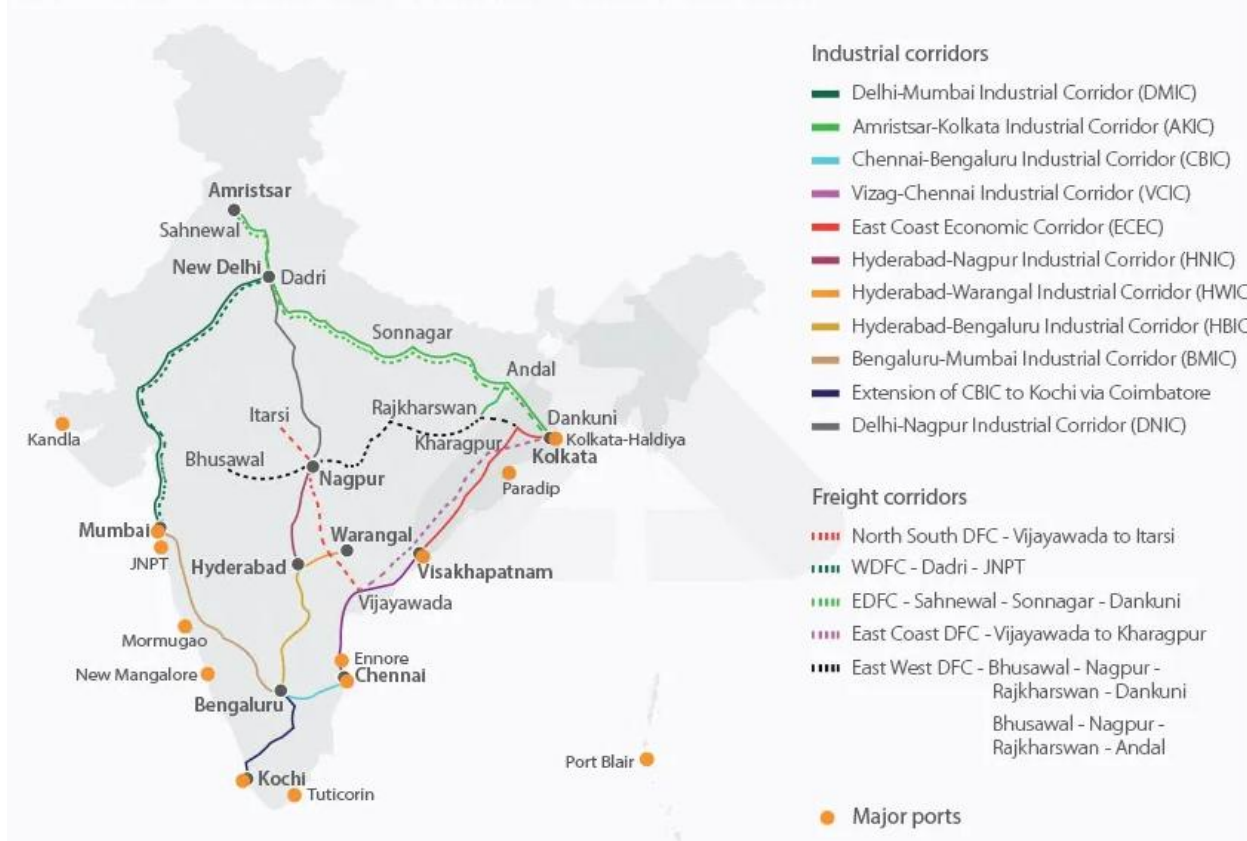


#### Transportation constituted to more than 80 per cent of the Indian logistics market in FY24





Logistics Infrastructure in India: Industrial and Freight Corridors and Port Connectivity



### Why Does the Logistics Sector Need to Reduce Its Emissions?


- **High Carbon Footprint:** India's logistics sector is among the most carbon-intensive globally, contributing approximately **13.5% of the country's total greenhouse gas emissions**.
  - Road transport alone accounts for **over 88% of these emissions**, primarily due to oil combustion. Reducing these emissions is crucial to mitigating climate change.
- **Alignment with Net Zero Goals:** India has committed to achieving **net zero carbon emissions by 2070**.
  - Decarbonising logistics — covering transportation, warehousing, and supply chains — is essential to meeting this long-term climate goal.
- **Environmental Sustainability for Inclusive Growth:** The vision of *Viksit Bharat 2047* hinges on **inclusive and equitable development**, which cannot be achieved without a **clean and sustainable logistics ecosystem**.
  - Growth must not come at the cost of environmental degradation.
- **Global Competitiveness and Resilience:** A **low-emission logistics sector** is more energy-efficient, cost-effective, and resilient to fuel price volatility.
  - It enhances India's **economic competitiveness** and ensures long-term sustainability of supply chains.
- **Global Regulatory Pressures and Standards:** With international bodies like the **IMO aiming to cut shipping emissions by 50% by 2050**, India must **align with global green logistics standards** to remain a trusted trade partner and avoid carbon-related trade penalties.


- **Technological and Policy Momentum:** India is already taking steps — from **electrifying highways** to promoting **inland waterways** and **green warehouses**. Continuing this momentum is vital to ensure a **future-ready logistics network** that supports rapid yet sustainable growth.


#### How Can India's Logistics Sector Reduce Its Emissions?


- **Shift Freight from Road to Rail:** Rail emits significantly less CO<sub>2</sub> per ton-km than road transport.
  - Increase the share of rail in total freight movement through better connectivity, faster logistics hubs, and dedicated freight corridors.
  - **Example:** *China*, where nearly **50% of freight moves by rail** due to heavy investments in an expanded rail network.
- **Electrify Road Freight Transport:** Road transport accounts for 88% of logistics emissions.
  - Electrify trucks, establish e-highways, and adopt battery swapping or fast charging infrastructure.
  - **Example:** The **Delhi-Jaipur e-highway pilot** with **overhead electric wires** for trucks — a potential game-changer in decarbonising road freight.
- **Green Coastal and Inland Waterways:** Water transport has lower emissions than road or air and is ideal for bulk freight.
  - Promote **LNG-powered vessels**, **electric/biofuel barges**, and **solar-assisted electric boats**.
- **Adopt Sustainable Aviation Fuels (SAFs):** Aviation is hard to decarbonise but vital for time-sensitive logistics.
  - Encourage SAFs, improve fuel efficiency, and integrate aviation with cleaner ground transport to offset emissions.
- **Green Warehousing:** Warehouses consume high energy for lighting, cooling, etc.
  - Shift to **solar, wind, or geothermal energy**, install smart energy systems, and use energy-efficient construction materials.
- **Integrated Policy and Investment Push:**
  - Scale up investment in multimodal logistics parks.
  - Provide subsidies for clean transport tech.
  - Implement carbon pricing and emission tracking for freight operators.


### GOVERNMENT INITIATIVES TARGETING INDIA'S LOGISTICS AND SUPPLY CHAIN " INDUSTRY


- 


**IMPLEMENTATION OF GST**  
Unified tax system removed inter-state check posts: improving goods movement
- 


**INFRASTRUCTURE STATUS TO LOGISTICS**  
Allowed easier access to finance and encouraged private sector investment
- 


**DEDICATED FREIGHT CORRIDORS (DFCs)**  
High-speed rail corridors for cargo; 1724 km completed by Jan 2023 connecting major cities like Delhi, Mumbai, Chennai, and Howrah
- 

**MULTI-MODAL LOGISTICS PARKS (MMLPs)**  
35 parks planned with ₹50,000 crore investment, integrating road, rail, air, warehousing, and customs-n one location
- 

**PARIVAHAN PORTAL**  
Digital platform for vehicle and license-related processes via SARATHI, VAHAN, and the mParivahan app
- 

**E-WAY BILL SYSTEM**  
Mandatory electronic documentation for consignments above ₹50,000, enabling faster, paperless inter-state movement
- 

**PM GATISHAKTI NATIONAL MASTER PLAN**  
Launched in 2021, integrates infrastructure planning across ministries to improve multi-modal connectivity and reduce logistics costs
- 

**NATIONAL LOGISTICS POLICY (NLP), 2022**  
Aims to reduce logistics costs, create a unified e-logistics market, and enhance MSME competitiveness
- 

**LOGISTICS EFFICIENCY ENHANCEMENT PROGRAMME (LEEP)**

Source: [The Hindu: Steering the decarbonisation of India's logistics sector](#)

## How Technology affects Balance of Power

### Context

- In the ongoing global power competition, particularly between the US and China, technology plays a central role.
  - While traditional thinking emphasizes dominance in leading sectors (like electric vehicles or semiconductors), Jeffrey Ding's book *Technology and the Rise of Great Powers* challenges this view.

### Ding's Core Arguments: Technology and Balance of Power

- **Role of General Purpose Technologies (GPTs):** General Purpose Technologies (e.g., electricity, AI, computing) impact productivity **across multiple sectors**, unlike niche sectoral innovations.
  - A country's rise is better explained by **diffusion and adoption of GPTs** rather than dominance in any single sector.
- **Historical Evidences:**
  - **Britain** gained early power not from textiles alone but from diffusion of **iron-based machinery and engineering skills**.
  - **Germany** dominated leading sectors (chemicals) during the Second Industrial Revolution, but **USA surpassed it** through faster GPT diffusion like electricity.
  - **Japan** led in electronics but failed to diffuse **computerisation**, allowing the **USA to retain dominance** during the Third Industrial Revolution.
- **Diffusion vs. Innovation:** Great power status is not about inventing tech first but about how **widely and effectively a nation can spread GPTs**.
  - E.g., success in AI will depend not on who invents it, but on who **integrates it across education, healthcare, manufacturing, etc.**
- **Institutional Requirements:** Diffusion requires:
  - **Widespread skilling**, not just elite technical talent.
  - **Robust institutions** for standardisation, interoperability, and regulation.
  - **Linkages between frontier innovation hubs and rural/small-town economies.**
- **Policy Implications:** States focusing only on promoting **sector-specific champions** may see limited gains.
  - Lasting power needs **systemic, foundational investments** in human capital, infrastructure, and institutions to spread GPTs.

### Lessons for India

- **Prioritise Diffusion over Dominance:** India should shift focus from chasing dominance in individual sectors (e.g., semiconductors, EVs) to **diffusing GPTs like AI, digital tech, and clean energy** across sectors like healthcare, agriculture, logistics, and education.
- **Focus on Systemic Capacity Building:** Encourage **foundational investments**: broadband access, digital public infrastructure (like UPI, ONDC), and skilling programs.
  - Build institutions that can integrate and scale new technologies across government and industry.
- **Empower the 'Long Tail':** Innovation should not be confined to metropolitan tech clusters.
  - Enable **engineers in small towns, MSMEs, and informal enterprises** to adopt and adapt GPTs.
  - Foster **localised R&D**, regional innovation hubs, and better linkages between academia and industry.
- **Develop Human Capital for GPTs:** Move beyond sector-specific skilling (e.g., coding bootcamps for IT jobs) to **broad-based education** in digital literacy, problem-solving, and engineering principles that facilitate widespread technology adoption.
- **Institutional Adaptability:** Institutions should be **flexible, tech-friendly, and interoperable**.

- Promote regulatory reforms, digital governance tools, and better IP management to enhance GPT adoption.
- **Think Beyond Headline Projects:** Avoid chasing big-ticket industrial projects only for visibility.
  - Invest in **quiet, widespread transformations:** public health records, smart agriculture tools, logistics digitalisation, etc.

**Conclusion: “Diffusion is Destiny”**

According to Ding’s thesis, **true technological leadership lies not in winning the innovation race in a few sectors, but in transforming the entire economy** through broad-based adoption of transformative technologies. For India, this means investing in its **capacity to absorb, adapt, and scale technologies**—not just invent them.

Source: [Indian Express: Diffusion is Destiny](#)

