Technology And Innovation Report 2021: UNCTAD

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Why in News

India was the biggest **'overperformer'** in __frontier technologies__ than the country's per capita __Gross Domestic Products (GDP)__ would suggest, according to a recent country-readiness index of the **Technology And Innovation Report 2021.**

> The report was released by the __United Nations Conference on Trade and Development (UNCTAD).__

Key Point

- **About the Report:**
  - The report examines the likelihood of frontier technologies widening existing inequalities and creating new ones.
  - It also addresses the **national and international policies**, instruments and institutional reforms that are needed to create a more equal world of opportunity for all, **leaving no one behind.**

- **Key Takeaway:**
  - **Frontier Tech Market:** The report shows that frontier technologies already represent a USD 350 billion market, which could grow to **USD 3.2 trillion by 2025.**
  - **International Cooperation:** It calls for strengthened international cooperation to build innovation capacities in developing countries, facilitate technology transfer.
  - **Inclusive:** Envisages increase women's participation in digital sectors, conduct technological assessments and promote an inclusive debate on the impact of frontier technologies on sustainable development.
  - **Humans and Machines At Work:** Technological change affects inequalities through its impact on jobs, wages and profits in following ways:
    - **Automation** taking jobs
    - **Job displacement** can also be accompanied by **job polarization**, which refers to an expansion in high- and low-wage jobs combined with a contraction in middle-wage jobs.
    - Frontier technologies are being used to provide services via digital platforms that have spurred the creation of a **'gig economy'.**
- **India Specific Findings:**
  - India's actual index ranking is 43, while the estimated one based on per capita income is 108.
  - This meant that **India overperformed** other countries by 65 ranking positions. India was followed by the Philippines, which overperformed by 57 ranking positions.
  - India performed well in research and development.
        This is reflected in its abundant supplies of qualified and highly skilled human resources available at a comparatively low cost.
  - However countries such as **the United States, Switzerland** and the **United Kingdom** were **"best prepared"** for frontier technologies.

- **Challenges for Developing Countries:**
  - **Demographic Changes:** Low-income- and lower-middle-income countries have expanding and younger populations which will increase the supply of labour and depress wages, reducing the incentives for automation.
  - **Lower Technological and Innovation Capabilities:** Low-income countries have fewer skilled people and depend to a large extent on agriculture which tends to be slower to take advantage of new technologies.
  - **Slow Diversification:** Developing countries typically innovate by emulating industrialized countries, diversifying their economies, and absorbing and adapting new technologies for local use, but this process is slowest in the poorest countries.
  - **Weak Financing Mechanisms:** Most developing countries have increased their R&D expenditures, but these are still relatively low. There is very little private funding of industrial technologies for productive applications.
  - **Intellectual Property Rights and Technology Transfer:** Stringent intellectual property protection will restrict the use of frontier technologies that could be valuable in SDGs related areas such as agriculture, health and energy.
- **Suggestions:**
  - The Report argues that frontier technologies are essential for **sustainable development**, but they also could accentuate initial inequalities.
      - It is up to policies to reduce this risk and make frontier technologies contribute to increasing equality.
  - A balanced approach building a robust industrial base and promoting frontier technologies is a must for success in the twenty-first century.

Frontier Technologies

- Frontier technologies are defined as **potentially disruptive technologies** that can address large-scale challenges or opportunities.
- They include **artificial intelligence (AI), the internet of things, big data, blockchain, 5G, 3D printing, robotics, drones, gene editing, nanotechnology and solar photovoltaic.**
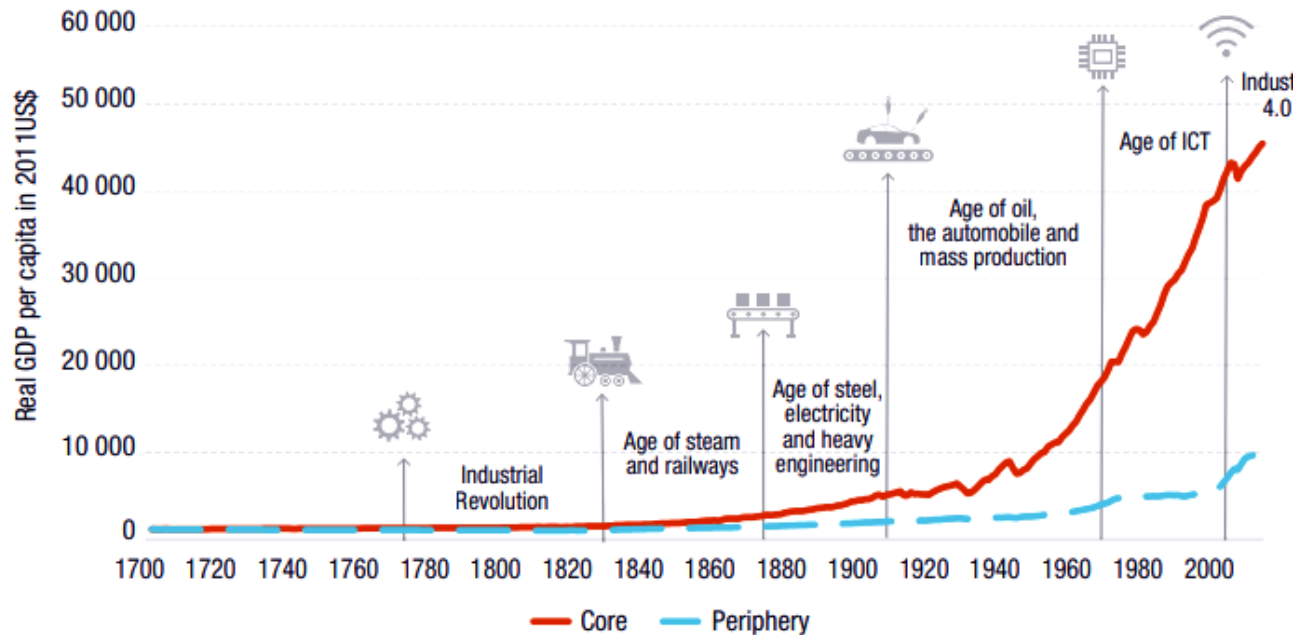
United Nations Conference on Trade and Development

- The United Nations Conference on Trade and Development (UNCTAD) was established in 1964 to promote development-friendly integration of developing countries into the world economy.
- UNCTAD is a permanent intergovernmental body headquartered at Geneva in Switzerland.
- Some of the **reports published by it are:**
    - **Trade and Development Report**
    - **World Investment Report**
    - **The Least Developed Countries Report**
    - **Information and Economy Report**
    - **Technology and Innovation Report**
    - **Commodities and Development Report**

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