1. **National Judicial Appointments Commission (NJAC):** Recently, the Vice President stated that judicial appointments would differ if the Supreme Court hadn't struck down the NJAC Act, in 2015.
   - **About Collegium System:** Evolved through First, Second, and Third Judges Cases.
     - SC interpreted Articles 124(2) and 217(1) to give the judiciary primacy in judicial appointments.
     - The SC collegium consists of the CJI and four senior-most judges.
     - The HC collegium consists of the CJI and two senior-most judges of that court.
   - **Enactment of NJAC:** Constitution (99th Amendment) Act, 2014 and NJAC Act, 2014 replaced the collegium system, passed by Lok Sabha (367-0) and Rajya Sabha (179-1), ratified by 16 states, and received Presidential assent.
   - **Composition of NJAC:** CJI as ex officio chairperson → Two senior-most SC judges as ex officio members → Union Law Minister as an ex officio member → Two eminent persons from civil society nominated by a panel of PM, CJI, and Leader of Opposition → One eminent person to be from SC/ST/OBC/minorities or women.
2. **Five Eyes Alliance:** U.S. President Donald Trump's foreign policy is affecting U.S. soft power, including the Five Eyes Alliance.
   - Since World War II, U.S. soft and hard power grew through alliances like the "Five Eyes" (1946) for intelligence sharing and NATO (1949).
   - **About Five Eyes Alliance:** Five Eyes is a **secret agreement between Australia, Canada, New Zealand,** the **United Kingdom and the USA.**
     - This secret agreement allows the intelligence agencies of these five nations to spy on the world.
     - Established after World War II, the countries in the grouping regularly share intelligence and coordinate their security efforts to protect their national interests.
     - **Founded**: In 1941 through 'Atlantic Charter'**.**
3. **Public Accounts Committee (PAC):** Recently, the Parliamentary Public Accounts Committee (PAC) has raised concerns about issues faced by MSMEs and exporters under the GST regime.
   - **About PAC:** It is a committee of selected members of parliament, constituted by the Parliament of India.

- **Established:** 1921 with the purpose to audits the revenue and expenditure of the Government of India to ensure efficient and legal use of public funds.
- **Key Functions:** Examines the CAG audit report on government expenditure.
  - Ensures money sanctioned by Parliament is spent properly.
  - Investigates financial irregularities, losses, and inefficiencies in government spending.
- **Membership:** 22 members (15 Lok Sabha, 7 Rajya Sabha).
  - Chairperson: A Lok Sabha MP, traditionally from the Opposition.
  - Term: One year.
  - Ministers cannot be members of the PAC.

4. **Financial Action Task Force (FATF):** RBI Governor urged a balanced approach to anti-terror financing (FATF), cautioning against measures that could stifle investments and financial inclusion, while emphasizing stakeholder cooperation.
   - **About Financial Action Task Force (FATF):** It is an intergovernmental policy-making & standard-setting body.
   - **Objective:** Establishes international standards and promotes national & global policies to combat money laundering and terrorist financing.
   - **Established:** 1989 (G7 Summit, Paris) to address money laundering.
   - **Expanded Mandate:** 2001 (Included terrorism financing).
   - **Headquarters:** Paris, France.
   - **Membership:** 39 countries, including U.S., India, China, Saudi Arabia, U.K., Germany, France & EU.
   - **Affiliated Countries:** 180+ nations via FATF-style regional bodies (FSRBs).
   - **India's Membership:** Since 2010. Also a member of Asia Pacific Group (APG) & Eurasian Group (EAG).
   - **Eligibility Criteria:** A country must be strategically important (large population, GDP, banking & insurance sector) and adhere to global financial standards.
   - **Functions of FATF:** Researches & analyses global money laundering & terror financing methods.
     - Promotes AML/CFT standards and monitors compliance among member nations.
     - Publishes reports on new money laundering, terror financing & proliferation financing

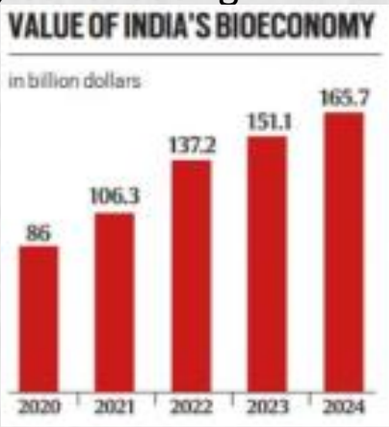
- -techniques. Holds non-compliant countries accountable by imposing monitoring and sanctions.

- **FATF Black List:** Countries with high-risk terror funding & money laundering, labeled as Non-Cooperative Countries or Territories (NCCTs).
  - **Current Blacklist:** North Korea, Iran, Myanmar.
- **Grey List:** Countries flagged for insufficient AML/CFT measures, serving as a warning before blacklisting.
- **Consequences of FATF Blacklisting:** No financial aid from IMF, World Bank, ADB, and EU.
- Economic & financial restrictions, including sanctions and international trade limitations.

5. **Majorana 1:** Recently, Microsoft announced a new quantum computing chip called Majorana 1, claiming it could enable industrial-scale quantum computing within years, not decades.

- **About:** Majorana 1 is a quantum chip leveraging a "topoconductor" (topological superconductor) to create stable, scalable qubits based on Majorana particles, aiming for a future of practical, fault-tolerant quantum computing.
- Named Majorana 1 because it consists of Majorana particles, a unique type of subatomic particle.
- Majorana particles are their own anti-particles, unlike other fermions where particles and anti-particles are distinct (e.g., electron vs. positron).
- If two Majorana particles meet, they annihilate each other in a flash of energy.
- A major open question in physics is whether neutrinos are also Majorana particles.
- **About Neutrinos – Abundance and Importance:** Second-most abundant subatomic particles after photons, produced in the Big Bang, radioactive decay, supernovae, and nuclear fusion (e.g., Sun emits 60 billion neutrinos per cm^2 per second).
- **About Beta Decay – Understanding the Process:** Atoms with excess energy undergo beta decay to become more stable. Two types of **beta decay**:
- **Neutron → Proton**: Emits **electron** and **anti-neutrino**.
- **Proton → Neutron**: Emits **positron** and **neutrino**.
- A third type, double beta decay, occurs when two neutrons simultaneously convert to two protons, emitting two electrons and two anti-neutrinos.

6. **Martian Dust:** A new study highlights the health risks of Martian dust for astronauts on future Mars missions.
   - **About:** Martian dust particles are very small (~4% the width of a human hair), making them hazardous as they can penetrate deep into the lungs and enter the bloodstream.
   - **Toxic Components:** Contains silica dust (causes silicosis), iron dust, perchlorates, gypsum, and harmful metals like chromium and arsenic.
   - **Health Risks: Silica dust** can cause **lung diseases** (like silicosis).
     - Radiation exposure on Mars may increase lung disease risks.
     - Perchlorates can affect thyroid function.
   - **Martian Dust Storms:** Occur every Martian year (687 Earth days), peaking in the southern hemisphere's summer. Every three Martian years, they turn into planet-wide dust storms.
   - **Ways to Deal with Martian Dust:**
   - **Nutritional Countermeasures:** Vitamin C to counteract chromium exposure and iodine to mitigate thyroid risks from perchlorates.
   - **Protective Measures:** Air filters & self-cleaning space suits to reduce dust exposure, and electrostatic repulsion devices to remove dust particles.
   - **Significance:** Essential as Mars missions lack rapid return to Earth for medical treatment.
7. **India BioEconomy Report 2024**: The Report released by the Department of Biotechnology, estimates India's bioeconomy value at over $165 billion, contributing 4.2% of GDP.
   - **About India BioEconomy Report:**
   - **Growth:** The value of India's bioeconomy nearly doubled from $86 billion (2020) to $165 billion (2024).
   - The number of companies in bioeconomy increased by ~90% from 5,365 (2021) to 10,075 (2024), expected to double again by 2030.
   - **Sectoral Contributions:**
     - **Industrial sector** (~$78 billion): Major contributor, including **biofuels & bioplastics**.
     - **Pharmaceutical sector** (35% of total value): **Vaccines** were key contributors.



TOP CONTRIBUTING STATES (IN 2024)

State	Value*	Share of total value
Maharashtra	35.45	21.4%
Karnataka	32.4	19.5%
Telangana	19.9	12%
Gujarat	12.9	7.8%
Andhra Pradesh	11.1	6.7%
Tamil Nadu	9.9	6%
Uttar Pradesh	7.7	4.6%

*in billion $. Source: India BioEconomy Report

- **Fastest-growing segment (2024): Research & IT** (biotech software, clinical trials, bioinformatics)

- **Regional Distribution:** Five states (Maharashtra, Karnataka, Telangana, Gujarat, Andhra Pradesh) generated over two-thirds of bioeconomy value.
  - Eastern & Northeastern regions contributed less than 6%.
- **Recommendation:** Establish a National BioEconomy Mission and single-window regulatory mechanism for biotech innovations.
- **About Bioeconomy:** Industrial use of biological resources (plants, animals, microorganisms) and the replication of natural biological processes for production.
  - **Applications:** Traditionally used in healthcare, pharmaceuticals, and agriculture.
    - ✓ Now expanding to biofuels, bioplastics, construction materials, medicines, and chemicals.
    - ✓ **Example:** Ethanol production (fermentation of sugarcane/corn as a biological fuel alternative).
- **Biotechnology's Role:** Development of biomedicines (from bioresources) and synthetic biology (growth of engineered microorganisms).
  - Increasing role in precision biotherapeutics, climate-resilient agriculture, and marine/space biotechnology.
- **About BioE3 Policy (2024):** It's one of the objective to make India a global hub for bio-manufacturing and R&D in biotechnology.
  - **Key Focus Areas:** Bio-based chemicals, enzymes, functional foods, climate-resilient agriculture.