

1. **BharatGen** : Recently, BharatGen, India's first indigenously developed, government-funded AI-based **Multimodal Large Language Model (LLM)** for Indian languages, was launched at the BharatGen Summit 2025.
 - The launch marks a key step towards technological self-reliance and inclusive digital innovation.
 - **About BharatGen:** Aims to build foundational models in language, speech, and computer vision tailored to India's rich socio-cultural and linguistic diversity.
 - **Led by IIT Bombay under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)**, the project brings together top institutions like IITs and IIM Indore.
 - A strong focus is placed on developing processes to gather and utilize India-specific datasets, ensuring sovereign control over digital resources.
 - **Features:** Multilingual & Multimodal Capabilities
 - ✓ Training on Bhartiya Datasets
 - ✓ Open-Source Development
 - ✓ A Thriving Generative AI Research Ecosystem
 - **About LLMs** : These are powerful, general-purpose AI systems trained on vast amounts of text data to understand and generate human language.
 - They can perform a wide range of language tasks such as text generation, classification, and answering questions by recognizing complex patterns and structures in language.
2. **Scheme to Promote Manufacturing of Electric Passenger Cars in India (SPMEPCI)**: Recently, in a significant push to boost India's electric vehicle (EV) goals, the **Centre officially notified new guidelines** under the **Scheme to Promote Manufacturing of Electric Passenger Cars in India (SPMEPCI)**.
 - **New Guidelines:** Import up to 8,000 fully built electric cars annually at 15% customs duty (for five years) with a minimum **Cost, Insurance, and Freight (CIF)** value of USD 35,000 per vehicle.
 - Minimum investment of ₹4,150 crore within 3 years required to qualify.
 - Domestic Value Addition (DVA) targets: 25% in 3 years, 50% in 5 years.
 - Duty concession capped at ₹6,484 crore or actual investment, whichever is lower.
 - Eligible companies need ₹10K crore in global automotive revenue & ₹3K crore in fixed assets.

- **About SPMEPCI:** A central government initiative to encourage domestic and global EV manufacturers to set up production in India through tax benefits and investment-linked incentives.
 - Launched in March 2024(officially notified in June 2025)
 - **Nodal Ministry:** Mo Heavy Industries (MHI) & implemented by Project Management Agency (PMA).
 - **Objectives:** Attract Foreign Direct Investment (FDI) in electric vehicles (EVs).
 - ✓ Establish India as a global EV manufacturing hub.
 - ✓ Generate employment, promote clean technology, and enhance self-reliance in the EV sector.
 - ✓ Reduce crude oil import dependence and support climate goals, including net zero by 2070.
- 3. **Technology for Resilient, Open and Unified Security and Trust (TRUST) framework:** Recently, the U.S.-India partnership under the **Technology for Resilient, Open and Unified Security and Trust (TRUST) framework** has aimed to position India as a net security provider in the Indo-Pacific by strengthening digital infrastructure and safeguarding it against geopolitical risks.
 - Subsea cable infrastructure has emerged as a key area of this collaboration.
- **About India-US TRUST Initiative:** Launched recently in 2025 to boost cooperation in critical minerals, advanced materials, and pharmaceuticals.
 - The initiative **aims to simplify regulations & ease export controls** to promote innovation and trade.
 - The partnership focuses on **expanding collaboration in advanced technology sectors**.
 - The initiative **moves forward from the Minerals Security Finance Network (MSFN) under the MSP**.
 - ✓ It sought to bring together development finance institutions (DFIs) and export credit agencies (ECAs) from the participating nations to “create synergies and increase impact”.

India joined the **Minerals Security Partnership (MSP)** in 2023. The MSP is a US-led collaboration of **14 countries** that aims to catalyse public and private investment in critical minerals supply chains. Members - US, India, Australia, Canada, Estonia, Finland, France, Germany, Italy, Japan, the Republic of Korea, Sweden, the UK, and EU.

4. **Japan's AI law** : Recently, Japan enacted the **Act on the Promotion of Research, Development, and Utilisation of Artificial Intelligence-Related Technologies**, marking a major shift in its AI policy framework.
- **About AI law**: The Act comes with a clear ambition: to make AI the foundation of Japan's economic revival and digital leadership.
 - This law is **different from the dominant regulatory approaches** shaping the global AI landscape.
 - It focuses on a pivot toward **coordination, and voluntary responsibility** rather than the European Union's risk-based regimes.
 - It **avoids rigid risk classifications and binding obligations** like those in the European Union's AI Act.
 - The government issues guidelines aligned with **international norms to prevent AI misuse, privacy violations, and intellectual property breaches**, without enforcing hard rules.
 - Japan commits to active participation in global AI governance initiatives such as the G7 Hiroshima Process, OECD, and UN AI advisory body.
 - The **law is flexible**, allowing future amendments to adapt to evolving AI technologies and standards.
 - The approach **aims to foster economic growth and technological leadership** through a trust-based, innovation-first ecosystem.
5. **SHUKR Gene** : Recently, the CSIR-Centre for Cellular and Molecular Biology (CCMB) discovered a gene named **SHUKR (meaning "sperm" in several Indian languages)** in the **plant Arabidopsis thaliana** a model flowering plant.
- The CCMB team uncovered clues to Darwin's "abominable mystery" through this common plant.
 - **About SHUKR**: Gene found in flowering plants & essential for pollen development.
 - It functions during the sporophyte stage, aiding the production of healthy and viable pollen necessary for plant reproduction.
 - When SHUKR is absent or nonfunctional, plants produce poor-quality pollen, leading to reduced or failed reproduction.

- The gene **regulates F-box genes** that help **remove old proteins and replace them with new ones**, supporting proper pollen growth.
 - SHUKR and related F-box genes evolve rapidly, helping plants adapt to environmental stresses like heat, cold, and drought.
 - Originating around 125 million years ago in eudicots, **SHUKR is present in most flowering plants today.**
 - Its discovery reveals a close connection between pollen formation and the overall plant development, revising previous assumptions of separation.
 - Given that **climate change causes heat-related damage to pollen, SHUKR holds potential for breeding crops resilient** to such stresses.
 - **Darwin's "abominable mystery":** He was puzzled by the sudden rise and rapid spread of flowering plants about 130 million years ago, calling it an "abominable mystery."
 - The SHUKR gene discovery offers a genetic reason for this rapid adaptation and reproduction in flowering plants.
- 6. Mount Etna:** Recently, Sicily's iconic Mount Etna erupted dramatically, releasing a massive plume of smoke and ash soaring several kilometers into the sky.
- **About Mount Etna :** Located on **Sicily's east coast in Italy.**
 - An **active stratovolcano** with a classic cone shape formed by layers of lava, ash, and volcanic rock.
 - **Europe's tallest active volcano**, rising about 3,329 meters (10,922 feet) above sea level.
 - One of the world's most active volcanoes, with eruptions recorded since around 1500 BCE.
 - Designated a **UNESCO World Heritage Site in 2013** for its geological importance and natural beauty.
 - Features five main craters and multiple vents on its slopes that fuel eruptions.
 - **About Stratovolcano:** Also known as composite volcanoes, they are tall, steep, & cone-shaped.
 - Built from alternating layers of lava and ash.
 - Contain viscous magma with trapped gases, leading to explosive eruptions.
 - Commonly found at tectonic plate boundaries, where oceanic plates subduct beneath continental plates.

- o Magma rises through cracks caused by subduction, resulting in eruptions.
- o Make up about **60% of the world's individual volcanoes** and **around 85% are located along the Pacific Ocean's "Ring of Fire."**

7. Trends -Artificial Intelligence Report: Recently, renowned venture capitalist Mary Meeker, known as the "Queen of the Internet," released her latest trends report titled "**Trends — Artificial Intelligence,**" focusing exclusively on developments in AI.

- **Key Highlights:** Describes AI growth as "unprecedented," with tools like ChatGPT reaching 100 million users in under 3 months.
 - o While user adoption is high and usage costs are falling, **monetization remains low**, with average revenue per user at just \$23.
 - o **Key risks include** hallucinations, algorithmic bias, misinformation, and inadequate regulation, highlighting the urgent need for ethical safeguards.
 - o **India has emerged as a major AI user base—second-largest for ChatGPT** and third-largest for China's DeepSeek AI.
 - o A **global divide is emerging** between closed-source AI models (like GPT-4) and open-source models, shaping access, innovation, and control.

8. Transgender's Rights: Recently, in a landmark move for gender inclusivity, the Kerala High Court directed the Kozhikode Corporation to reissue a child's birth certificate, recognizing the transgender couple as the child's parents.

- **Court Ordered :** Removal of gendered labels "Father" and "Mother" from the child's birth certificate.
 - o To list both transgender petitioners simply as "Parents," without specifying their gender.
- **Timeline of Reforms for Transgender Persons:**
 - o **Election Commission's Directive (2009):** Registration forms updated to include an "others" option.
 - o **National Legal Services Authority vs. UOI case (2014):** SC recognized transgender people as the "**Third Gender,**" emphasizing it as a human rights issue.
 - o **Transgender Persons (Protection of Rights) Act, 2019:** Enacted to protect transgender rights.