

NEWS TODAY

Indian private space-tech company Pixxel launched India's first private satellite constellation 'Firefly'

First three satellites of the Firefly constellation were successfully launched aboard **SpaceX's Transporter-12 mission** from Vandenberg Space Force Base, California.

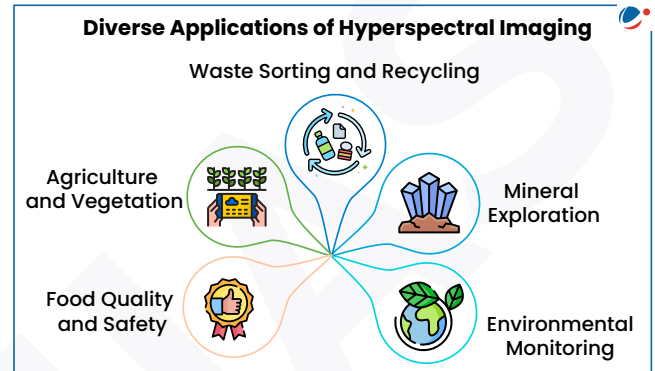
➤ Firefly is Pixxel's flagship **Hyperspectral Imaging (HSI) satellite constellation**, featuring **six of the highest-resolution commercial hyperspectral satellites** to date.

About Hyperspectral Imaging (HSI) Satellites

- HSI **analyses a wide spectrum of light** instead of just assigning primary colours (red, green, blue) to each pixel, **effectively spectrally fingerprinting the Earth**.
- HSI provide **more information on what is imaged**. For instance, while a **typical satellite can identify a forest** from space, **HSI can distinguish between different types of trees** and determine health of each individual tree.

About Satellite Constellation

- It is a network of **identical artificial satellites** with the same purpose and shared control, designed to work as a system.
 - ⊕ They communicate with global ground stations and, at times, **interconnect to complement each other's functions**.
- **Starlink**, with 2,146 active satellites, is the **largest satellite constellation**.
- **Types:** Based on **orbital altitude** there are three types:
 - ⊕ **Geostationary Orbit (GEO):** At an **altitude of 36,000 km**, it synchronizes with Earth's rotation.
 - ⊕ **Medium Earth Orbit (MEO):** At **altitude of 5,000 to 20,000 km**, traditionally serving navigation purposes.
 - ⊕ **Low Earth Orbit (LEO):** At **altitude of 500 to 1,200 km**, primarily support research, telecommunication and Earth Observation needs.



Prime Minister commissioned three frontline naval combatants – INS Surat, INS Nilgiri and INS Vaghsheer

This **first tri-commissioning** of indigenously developed destroyer, frigate and submarine marks a significant step towards realizing India's vision of becoming global leader in naval indigenisation and maritime security.

About three frontline naval combatants

- **INS Surat:** 4th and final ship of the **P15B Guided Missile Destroyer Project**.
- **INS Nilgiri:** 1st ship of the **P17A Stealth Frigate Project** designed by the **Indian Navy's Warship Design Bureau**.
- **INS Vaghsheer:** 6th and final submarine of the **P75 Scorpene Project** built by **Mumbai-based Mazagon Dock Limited**.
 - ⊕ It is an **indigenously constructed submarine** of the **Kalvari-class** based on **French Scorpene-class** design.

India's Naval Indigenization efforts

- **Policies:**
 - ⊕ **Indian Navy's Maritime Capability Perspective Plan (MCP):** Targets a force of **200 ships by 2027** with a vision of transforming it from a **buyer's navy to a builder's navy**.
 - ⊕ **Indian Naval Indigenisation Plan (INIP) 2015-2030:** Encourages **domestic industries** including **MSMEs** to participate in ship construction.
- **Navy's expansion of Make in India initiative:** Of the **40 naval vessels** included in the Navy in the **past decade**, **39** have been **built in Indian shipyards**.
 - ⊕ E.g. **INS Vikrant** (aircraft carrier), **INS Arihant** and **INS Arighat** (nuclear submarines).
- **R&D initiatives:** **Underwater Domain Awareness (Samudrayaan project)**, Scientific partnerships with **Indian Ocean Rim** countries and development of **autonomous systems** for high-risk environments like mine detection.



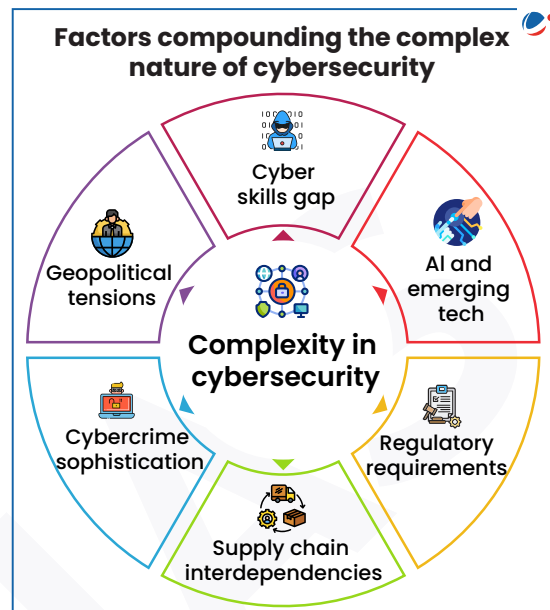
World Economic Forum, in collaboration with Accenture, released the 'Global Cybersecurity Outlook 2025' Report

Report highlights the **growing complexity of the cyber landscape** (refer to the infographic) and its wide-ranging implications for organizations and nations.

- The report also highlighted that **cybercrime disrupted global economies, costing \$12.5 billion in 2023.**

What factors are increasing the complexities of cybersecurity?

- **Supply Chain Vulnerabilities:** Increasing complexity of supply chains and limited oversight create risks, with third-party software flaws enabling cyberattack propagation throughout the ecosystem.
- **Geopolitical Tensions:** Conflicts drive advanced cyber strategies, threatening critical infrastructure like energy and telecommunications.
- **AI-Driven Threats:** Generative AI enables cost-effective, scalable malware deployment and sophisticated multilingual social engineering (manipulating people to gain control over a computer system) attacks.
- **Cyber Skills Gap:** A growing 8% skills gap leaves two-thirds of organizations unable to address security needs effectively.
- **Convergence of Cybercrime and Organized Crime:** Rising cyber-enabled fraud has drawn violent organized crime groups into the cyber domain, amplifying the scale and social impact of cybercrime.
- **Climate-Linked Cyber Risks:** Energy grids face heightened risks due to reliance on evolving energy systems.
- **Quantum Vulnerabilities:** Quantum computing pose the **ability to break public-key encryption** critical for securing digital systems.



The report underscores Overcoming cyber challenges demands a shift in perspective, recognizing cyber resilience as a collective responsibility. Leaders must treat cybersecurity as a strategic investment to counter emerging threats.

Israel And Hamas Agreed on a Gaza Ceasefire and Hostage Release Deal

Ceasefire agreement comes after 15 months of warfare between Hamas and Israel.

Background of Current Conflict

- **On October 7, 2023,** Hamas launched an attack on Israel under Operation **Al-Aqsa Storm**, coinciding with the 50th anniversary of the Yom Kippur War.
- It **prompted Israel to declare war against Hamas** and subsequent military operations in Gaza.

Historical Context

The current conflict between Hamas and Israel could be traced to splitting of Palestinian territory and recognition of Israel state by Arabs:

- **Splitting of Palestine**
 - ⊕ **During WWII, large numbers of Jews migrated to Palestine** and demanded statehood.
 - ⊕ In 1947, the **UN proposed splitting Palestine between Arabs and Jews** which led to 4 major wars between Arab and Israel as:
 - ◆ **Jews accepted** and declared Israel's independence in 1948.
 - ◆ **Arabs rejected** the plan, leading to multiple wars.
- **1978 Camp David Accords and Recognition of Israel**
 - ⊕ **Yom Kippur or Ramadan War of 1973** was the **4th Arab-Israeli war** fought between Israel and Arabs (led by Egypt and Syria).
 - ⊕ It led to **Camp David Accords in 1978** which marked the **first instance of an Arab country recognising Israel** as a state (Israel returned the Sinai Peninsula to Egypt).
- **1993 Oslo Accord and Hamas Opposition of recognition of Israel**
 - ⊕ Hamas violently opposes **Oslo Peace Accords** under which PLO formally **recognised Israel** and Israel allowed **Palestinians some form of limited self-governance in Gaza and the West Bank.**
 - ◆ Founded in 1964, the **Palestine Liberation Organization (PLO) sits at the UN as a non-member state, of Palestine.**
 - ◆ Hamas is a **Militant organization** that **politically controls Gaza Strip and does not recognise Israel's statehood.**



Ministry of Commerce & Industry marks 9 years of Startup India Initiative

Startup India Initiative was launched as a flagship initiative of Department for Promotion of Industry and Internal Trade (DPIIT) in 2016.

Key-features of Startup India Initiative

- **Objective:** To catalyse startup culture and build a strong and inclusive ecosystem for innovation and entrepreneurship in India.
- **Core Features:**
 - ⊕ **Ease of Doing Business:** Simplified compliance, self-certification, and single-window clearances.
 - ⊕ **Tax Benefits:** Tax exemptions for 3 consecutive financial years.
 - ⊕ **Funding Support:** ₹10,000 crore Fund of Funds for Startups (FFS) supports early-stage funding.
 - ⊕ **Sector-Specific Policies:** Like biotechnology, agriculture, and renewable energy.
- **Flagship Schemes under Startup India**
 - ⊕ **Startup India Seed Fund Scheme (SISFS):** Four-year period scheme supporting startups in areas like proof of concept, prototype development, commercialisation etc.
 - ⊕ **Credit Guarantee Scheme for Startups (CGSS):** Offers credit guarantee for loans provided to eligible startups.
 - ⊕ **FFS Scheme:** To enhance access to domestic capital for Indian startups.

Key Achievements

- **Increase in Startups:** DPIIT-recognised startups increased from 500 (2016) to 1.59 lakh (2025).
- **Startup Ecosystem:** India became **third-largest startup ecosystem in the world** with over 100 unicorns.
- **Employment Generation:** Of over 16.6 lakh direct jobs as of October 31, 2024.
- **Women Empowerment:** 73,151 recognised startups have at least one woman director.

Other Initiatives Under Startup India

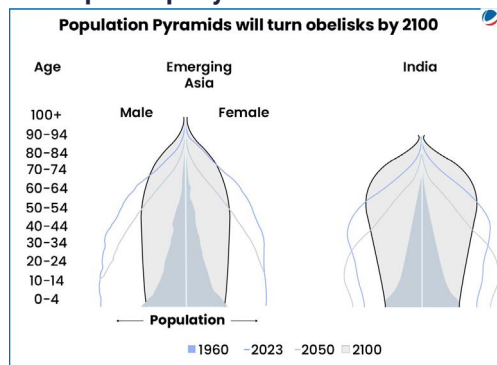
- **Bharat Startup Knowledge Access Registry (BHASKAR) platform** launched in 2024, connects entrepreneurs, investors, mentors, policymakers, and other startup ecosystem players on a single platform.
- **MAARG mentorship platform** to facilitate intelligent matchmaking between mentors and startups.
- **Startup India Hub portal** serves as a comprehensive digital platform for entrepreneurial ecosystem stakeholders.
- **States' Startup Ranking framework** to strengthen regional startup ecosystems, capacity-building workshops.

McKinsey Released report on Demographic Transition and Depopulation

Report titled '**Dependency and depopulation? Confronting the consequences of a new demographic reality**' provides comparative analysis of demographic dynamics of first wave (developed) and later wave (developing) countries.

Key Highlights of Demographic Transition

- **Depopulation:** 2/3rd of humanity lives in countries with **fertility below the replacement rate** of 2.1 children per family.
 - ⊕ **Age structures are inverting from pyramids to obelisks** as the number of older people grows and the number of younger people shrinks.
 - ⊕ By 2100, **populations in some major economies will fall by 20%-50%** (UN).
- **Falling Support Ratios:** Support ratios are falling (from 6.5 today to 3.9 in 2050).
 - ⊕ The **support ratio** is the number of people aged 15-64 years (working age), relative to the number of 65 years and older.
 - ⊕ In **advanced economies and China**, retirement systems might need to channel 50% of labor income to fund a 1.5-time increase in the gap between the aggregate consumption and income of seniors.
- **India's Diminishing Demographic Dividend**
 - ⊕ India has **33 years** to capitalize demographic dividend (as it reaches **support ratios at par developed countries**).
 - ⊕ The **dividend added 0.7 percentage points per year to GDP per capita growth**. Through 2050, it will shrink to just **0.2% points per year**.



Also In News



US Entity List

US removed **three Indian entities** from its restrictive Entity List.

- These entities are **Bhabha Atomic Research Centre (BARC), Indira Gandhi Atomic Research Centre (IGCAR) and Indian Rare Earths Limited (IREL)**.
- This step could **potentially revitalize the Indo-US Nuclear Cooperation Agreement of 2008**.

About US Entity list

- Includes names of **certain foreign persons** (including businesses, research institutions, government organizations, etc.).
- Such persons are subject to **specific license requirements for trade in specified items** that could support terrorism, weapons of mass destruction (WMD) programs, etc.



Bharat Ranbhoomi Darshan

Ministry of Defence launches **Bharat Ranbhoomi Darshan website and app** as part of its '**Battlefield Tourism**' plan.

- It will be a **one-stop destination** for information and clearances for **battlefield visits**, featuring virtual tours and historical narratives.
- **Indian Army**, in conjunction with **Ministry of Tourism**, has **shortlisted** some other **border sites** that have witnessed military action in the past.
 - ⊕ These include Kibithoo and Bum La Pass (Arunachal Pradesh), Rezang La and Pangong Tso (Ladakh), and Doklam (site of 2017 conflict).



Body Mass Index (BMI)

Endocrinologists from the Diabetes Foundation India updated India's obesity guidelines after 15 years, replacing "overweight" with Obesity Grades I and II.

➤ The 2009 guidelines were based solely on BMI criteria.

About BMI

- It is a **statistical index** used to determine a **person's healthy weight range for their height**.
- It is **calculated** by taking a person's weight (in kilograms) divided by their height (in m²).
- **Limitations:**
 - ⊕ Does **not differentiate** between lean body mass and fat mass, based on **gender** despite **physiological differences**,
 - ⊕ Does **not measure** the distribution of body fat.

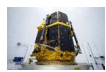


Kampala Declaration

African Union (AU) Extraordinary Summit on the Post-Malabo Comprehensive Africa Agriculture Development Programme (CAADP) adopted the **10-year CAADP Strategy and Action Plan**, and the **Kampala CAADP Declaration on Building Resilient and Sustainable Agrifood Systems in Africa**.

About Kampala Declaration

- Kampala declaration is the **successor to the Malabo Declaration** on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods, adopted in **2014**.
- Implementation period will be **2026-2035**.
- It **set forth six commitments** that should transform and strengthen the agri-food system on the continent.



Blue Ghost and RESILIENCE

SpaceX Falcon9 launched U.S.-based Firefly Aerospace's **Blue Ghost Mission 1** and Japan-based ispace's **RESILIENCE** lunar lander.

About Blue Ghost Mission

- It will deliver **10 S&T instruments** to the lunar surface as part of **NASA's Commercial Lunar Payload Services (CLPS) initiative**.
- It will conduct several **first-of-its-kind demonstrations**, including testing regolith sample collection, Global Navigation Satellite System abilities, radiation tolerant computing, and lunar dust mitigation.

About RESILIENCE

- It is part of ispace's **Hakuto-R Moon Mission 2** which also includes **TENACIOUS** micro rover.
- Its **commercial customer payload** includes **Water electrolyzer equipment, Deep space radiation probe** etc.



Melanistic Royal Bengal Tiger

A **Melanistic Royal Bengal Tiger** was poached in the **Simlipal Tiger Reserve (STR)**, Odisha.

➤ **STR** harbours the **only population of melanistic tigers in the world**.
About Melanistic Royal Bengal Tiger

- Also known as **Black tigers**, however, they are **not a separate subspecies**.
- They have **more black pigmentation** or **thick stripes** on their body due to a **single mutation** in the gene **Transmembrane Aminopeptidase Q (Taqpep)**.
- They are also described as being **pseudo-melanistic**, as they are **not entirely black**.
 - ⊕ Melanism causes an **increased production of melanin** (produced by melanocytes, and gives colour to hair, skin, and iris).



Shikari Devi Wildlife Sanctuary

Government of India has designated areas around Shikari Devi Wildlife Sanctuary as **Eco-Sensitive Zones (ESZs)**.

About Shikari Devi Wildlife Sanctuary

- **Location:** Middle altitudinal range of the **Himalayas** in Mandi District, Himachal Pradesh.
- **Named after the goddess Shikari Devi**, to whom a temple is dedicated in the sanctuary.
- **Streams:** Juni Khud, a tributary of Beas River.
- It is recognised as an **Important Bird Area** by Birdlife International.
- **Vegetation:** Alpine pastures and Temperate Deciduous Forest.
- **Fauna:** Asiatic Black Bear, Leopard, Barking Deer, Giant Flying Squirrel etc.



Siachen Glacier

4G and 5G Services deployed to Siachen Glacier.

About Siachen Glacier

- It is a **Piedmont glacier**.
- Located in **Karakoram Range** (between **Saltoro Ridge** to the west and the **main Karakoram Range** to the east).
- Originates near **Indira Col West** and demarcates **Central Asia** from the **Indian subcontinent**.
- **World's second-longest non-polar glacier** (after Fedchenko Glacier in Tajikistan).
- Source for the **Nubra River**, a tributary of the **Shyok** (part of the **Indus River system**).
- Known as the **highest and coldest battlefield**.
- In 1984, India took its control under **Operation Meghdoot**.

Personality in News



Thiruvalluvar

15th January is celebrated as **Thiruvalluvar Day**.

About Thiruvalluvar

- He was a great **Tamil philosopher, poet and thinker**, thought to have lived in **Mylapore, Chennai**.
- Known for his Tamil literary work '**Tirukkural**', a collection of couplets on **matters like ethics, politics, economics and love**.
 - ⊕ Tirukkural has been classified under **three major headings: aram (righteousness), porul (wealth), ibam (enjoyment)**.
- **Thiruvalluvar Statue** was created by Indian sculptor V. Ganapathi Sthapathi in **Kanyakumari, Tamil Nadu**.
- India's **first Thiruvalluvar Cultural Centre** will soon be inaugurated in Singapore.

Values: Righteousness, Compassion, and Justice.



AHMEDABAD



BENGALURU



BHOPAL



CHANDIGARH



DELHI



GUWAHATI



HYDERABAD



JAIPUR



JODHPUR



LUCKNOW



PRAYAGRAJ



PUNE



RANCHI