● POLITY            ● ECONOMICS            ● TECHNOLOGY            ● ECOLOGY
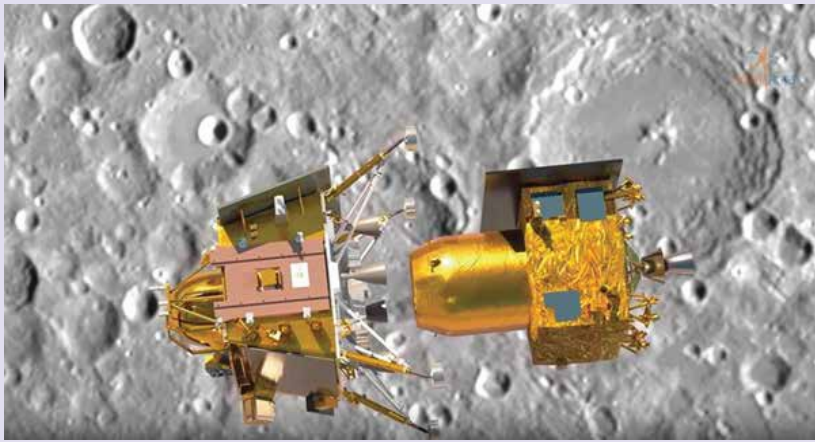
**SCIENCE AND TECHNOLOGY**

## CHANDRAYAAN-3 SPACECRAFT

**CONTEXT:** Chandrayaan-3 separates; Lander module on descent path, rover to explore lunar surface, propulsion module carries scientific payload for extended operation.

**BACKGROUND:** Chandrayaan-3 combines lander, rover, and propulsion modules for lunar exploration. Lander to softly touch down, deploy rover for chemical analysis. Propulsion module carries the SHAPE payload, aiming to assess exoplanet habitability. Lander and rover operate for one lunar day, while the propulsion module continues its orbit, aiding Earth and exoplanet study.

**HIGHLIGHTS:** Chandrayaan 3's lander successfully separates from the propulsion module for imminent Moon soft landing on Aug 23. Mission aims to achieve lunar roving and soft landing, addressing the predecessor's goals. Global interest stirs as India and Russia prepare for South Pole lunar landings with Chandrayaan-3 and Luna-25 missions next week.



**SOCIAL JUSTICE**

## P IS FOR POLICY, PRESCHOOL, AND POTENTIAL

**GIST:** Detailed guidelines for the universal right of children from three to six years to access learning, which States are now beginning to implement, albeit in a fragmented manner.

- With the 2020 National Education Policy (NEP) stipulating that early childhood education (ECE) for children from three to six years be taken care of by anganwadis, States like Haryana are developing plans to make preschool-based learning available here.

- The premise of preschool itself is that over 85% of a child's brain development occurs by the age of six, and the mind and body need to be stimulated in ways that encourage growth.

- As per the NEP, free preschool education can be imparted in four ways: through

  ○ anganwadis either located within government schools, or
  ○ as stand-alone entities,
  ○ through government schools that have a preschool, or
  ○ through stand-alone preschools.

- The system 10+2 set up by NEP 1986 previously, was replaced by 5+3+3+4. The previous system started with Grade 1 and never included children of preschool in the education system, which states that it wasn't considered necessary.

- However, as per the NEP 2020 for preschools, education for children of age 3 - 6 years will be considered mandatory. The first 5 years of education will include 3 years of preschool education and 2 years of primary education. The ages in the structure will be divided as 3-8, 8-11, 11-14 and 14-18 years.

- All the stages of education are named differently according to their purpose. The first stage of 3-8 years will be known as the foundational stage, followed by 8-11 years as preparatory stage, which is succeeded by the middle stage of 11-14 years, and the last stage of 14-18 years as secondary stage according to NEP 2020 for preschool.

- Early childhood education, given at the age of 3-5 was never considered a part of schooling. However, the new NEP 2020 for preschool makes it a part of formal schooling.

- The program named as mid-day meal, which was available till primary education, will be extended to the batch of pre-schools too.

- All students upto Class 5 will be taught in their regional language or mother tongue.

- Researches show that the past few years have seen a commendable growth in the importance of early childhood education. It impacts a child's development in the right way and builds the necessary personality after years.

- All these changes made by NEP 2020 for preschool ensures that children get a quality education by the end of 2030 so that they are able to live a standard life and build a good career for themselves. It will ensure the development and growth of the country in the right way as well. Students will be prepared in advance to enter a higher stage of education.

- It is expected that NEP 2020 will be implemented properly throughout the country by 2040. In order to make everything stated in the policy real, it will take time and hardwork and many qualified teachers. The government will ensure that it is implemented smoothly.

- Investment in early childhood education is similar to investment in the future of the country. NEP 2020 for preschool ensures that quality education is provided to all the students including underprivileged as well, only then the policy will be implemented to its full use and will flourish.
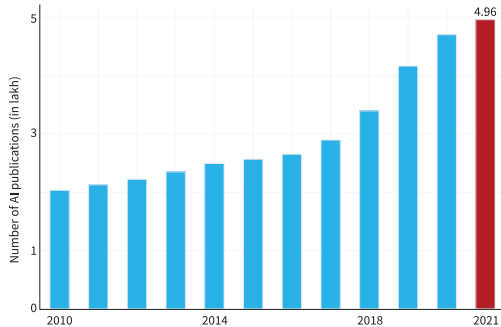
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**D**AILY **N**EWS **A**NALYSIS
**Page 01**

**SCIENCE AND TECHNOLOGY**

# INDIA TOPS AI PROJECTS IN GITHUB

**CONTEXT:** India leads in GitHub AI projects, showcasing significant contributions and expertise in artificial intelligence development.
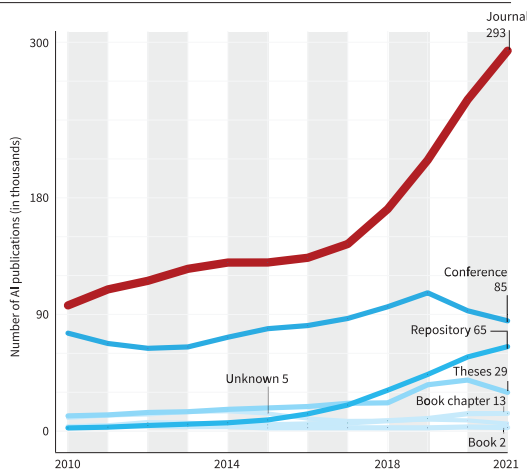
## Publication count

The chart depicts the global count of AI publications. Between 2010 and 2021, AI publications increased significantly, rising from 2 lakh in 2010 to nearly 5 lakh by 2021
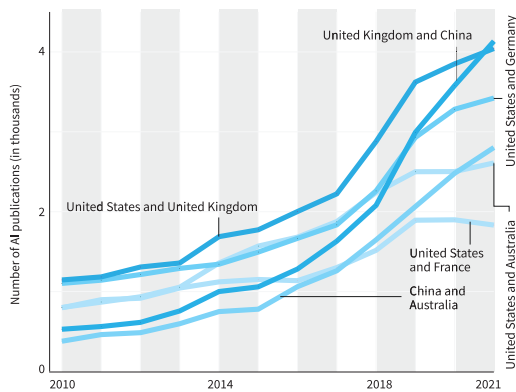


Number of AI publications (in lakh) — 4.96 (2021)
Years: 2010, 2014, 2018, 2021

## Types of publications

The chart illustrates the categories of AI publications worldwide over the years. In 2021, journal articles constituted 60% of all AI publications, followed by conference papers and repository submissions. The remaining was a mix of books, book chapters, theses, and unidentified document types
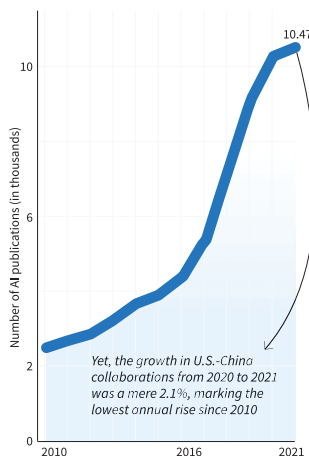


Number of AI publications (in thousands)
Journal 293
Conference 85
Repository 65
Theses 29
Unknown 5
Book chapter 13
Book 2
Years: 2010, 2014, 2018, 2021

## Collaboration

International partnerships among scholars, industry specialists, and others play a vital role in advancing STEM fields. They foster quick sharing of new concepts and team expansion. The chart shows major international AI partnerships from 2010 to 2021, excluding the U.S.-China partnership



Number of AI publications (in thousands)
United Kingdom and China
United States and United Kingdom
United States and France
China and Australia
United States and Germany
United States and Australia
Years: 2010, 2014, 2018, 2021
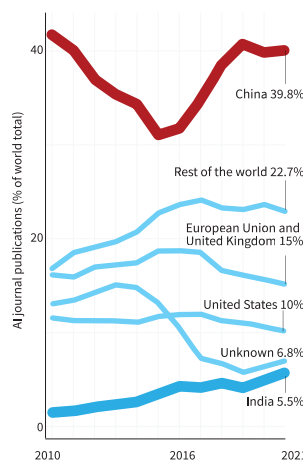
## Most collaborations

Over the last 12 years, the predominant collaborations have been between the United States and China, witnessing an approximate fourfold increase since 2010



Number of AI publications (in thousands) — 10.47

*Yet, the growth in U.S.-China collaborations from 2020 to 2021 was a mere 2.1%, marking the lowest annual rise since 2010*

Years: 2010, 2016, 2021

*CSET\* tallied collaborations across countries by identifying unique pairs of nations among authors for each paper. For instance, a publication with four authors from the U.S. and four from China is recorded as a single U.S.-China collaboration*
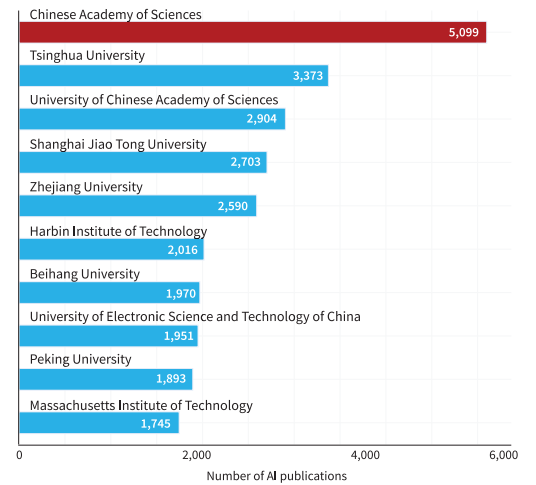
## Journal publication share

The chart shows the distribution of AI journal publications over the last 12 years, sorted by geographic region



AI journal publications (% of world total)
China 39.8%
Rest of the world 22.7%
European Union and United Kingdom 15%
United States 10%
Unknown 6.8%
India 5.5%
Years: 2010, 2016, 2021

*This year's AI Index includes India, acknowledging its rising significance in the AI landscape. However, China has consistently held the top position*
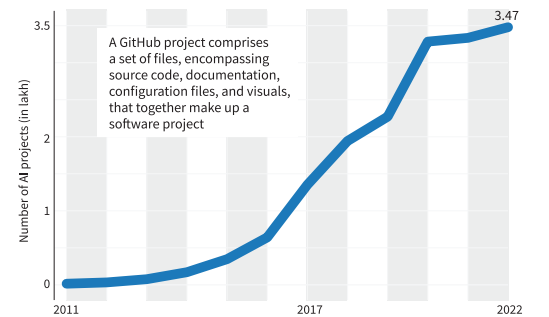
## Top ten institutions:

Since 2010, the institution with the highest overall AI paper output has been the Chinese Academy of Sciences. In fact all the top nine, out of the ten institutions, in terms of the number of AI publications released were from China, with Massachusetts Institute of Technology featuring last. The chart shows total AI publications released by each in 2021
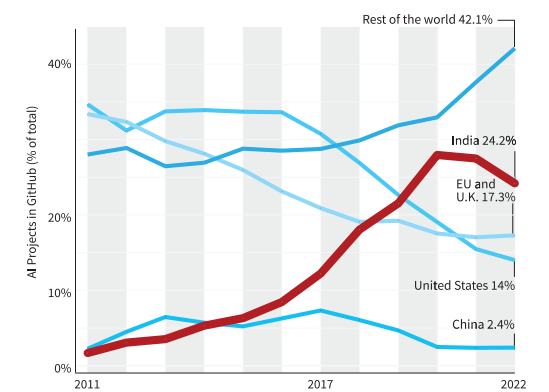


| Institution | Number of AI publications |
|---|---|
| Chinese Academy of Sciences | 5,099 |
| Tsinghua University | 3,373 |
| University of Chinese Academy of Sciences | 2,904 |
| Shanghai Jiao Tong University | 2,703 |
| Zhejiang University | 2,590 |
| Harbin Institute of Technology | 2,016 |
| Beihang University | 1,970 |
| University of Electronic Science and Technology of China | 1,951 |
| Peking University | 1,893 |
| Massachusetts Institute of Technology | 1,745 |

## GitHub AI projects

Since 2011, there has been a consistent rise in the number of AI-related projects on GitHub, escalating from 1,536 projects in 2011 to 3,47,934 by 2022

A GitHub project comprises a set of files, encompassing source code, documentation, configuration files, and visuals, that together make up a software project



Number of AI projects (in lakh) — 3.47
Years: 2011, 2017, 2022

## India top contributor

In 2022, a significant portion of AI projects on GitHub, amounting to 24.2%, came from software developers in India. Following India, the European Union and the United Kingdom contributed 17.3%, while the United States was responsible for 14% AI projects



AI Projects in GitHub (% of total)
Rest of the world 42.1%
India 24.2%
EU and U.K. 17.3%
United States 14%
China 2.4%
Years: 2011, 2017, 2022

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**DAILY NEWS ANALYSIS**
**Page 02**

**POLITY AND GOVERNANCE**

# IS THERE A NEED TO REPLACE THE IPC, THE CRPC AND THE EVIDENCE ACT?

**CONTEXT:** On August 11, 2023, Union Home Minister Amit Shah introduced three Bills in the Lok Sabha; the Bharatiya Nyaya Sanhita Bill to replace the Indian Penal Code, 1860, the Bharatiya Nagarik Suraksha Sanhita Bill to replace the Code of Criminal Procedure, 1973 and the Bharatiya Sakshya Bill to replace the Indian Evidence Act, 1872.

## Detention without charge

There is a debate going on across the world in terms of criminal justice jurisprudence, which talks about keeping someone in detention without being charged. In Scotland, the amount of time for which you can keep someone in detention without bringing charges against them is six hours. However, in our country, it was 60 days and the new Bill proposes 90 days. So, it seems we are going in the opposite direction. The new CrPC seems to have formalised this principle not just for acts related to terrorism, but for any IPC offence.

## Right to handcuffing

As far as handcuffing is concerned, We don't think anyone understands how big of a concern it is for the police. It is alright for the Supreme Court to say in the D.K. Basu vs State of West Bengal (1996) case that people should not be handcuffed. But if you see the practice in many democratic countries, there are stringent provisions about handcuffing. I have seen heads of state being handcuffed. In India, even if a man is a member of the mafia, you can't handcuff him. And then why should you force me (the police) to touch somebody? He may be suffering from some skin disease. One doesn't know how filthy or dirty he [the accused] is, so I don't want to hold him by his hand.

### Main Features of the Bharatiya Nyay Sanhita Bill, 2023

- The bill defines terrorism and offenses such as separatism, armed rebellion against the government, challenging the sovereignty of the country, which were earlier mentioned under different provisions of law.
- It repeals the offense of sedition, which was widely criticized as a colonial relic that curbed free speech and dissent.
- It prescribes capital punishment as the maximum sentence for mob lynching, which has been a menace in recent years.
- It proposes 10 years imprisonment for sexual intercourse with women on false promise of marriage, which is a common form of deception and exploitation.
- The bill introduces community service as a form of punishment for specific crimes, which can help in reforming offenders and reducing overcrowding in prisons.
- The bill fixes a maximum limit of 180 days to file a charge sheet, which can speed up the trial process and prevent indefinite delays.

The fact that they have attempted to define terrorism, is a step in the right direction. It is good that organised crimes have been defined. Once the trial concludes, the judgment has to be given within 30 days and only two adjournments are allowed. I think these are welcome changes with the intention of expediting the criminal justice system.

Some provisions that say if you can't finish the trial within six months in petty offences, then that person will not be tried. So that is welcome. But this pertains to only petty offences and has not been linked with serious offences.

**INTERNAL SECURITY**

# INS VINDHYAGIRI

President Droupadi Murmu launched Vindhyagiri, the last in the series of three Project 17A (Alpha) frigates built by the Indian Navy at the Kolkata-based Garden Reach Shipbuilders and Engineers (GRSE).



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# 'FLOODWATCH'

**CONTEXT:** The Central Water Commission launched an app, called 'Floodwatch', which can forecast the chances of floods a day in advance.

The app will also provide State-wise/basin-wide flood forecast up to 24 hours or flood advisory, up to seven days, that can be accessed via selecting specific stations

The app has a map of India coloured circles at water stations across the country indicating the current risk of flooding. A 'Green' circle indicates 'normal'; Yellow, above normal; Orange, 'severe'; and Red, 'extreme'.

## ECONOMICS AND DEVELOPMENT
# PM VISHWAKARMA SCHEME

### PM Vishwakarma

Central Sector Scheme to support traditional artisans and craftspeople of rural and urban India

**Cabinet Decision**
16 August 2023

- Financial outlay of Rs.13,000 crore
- Eighteen traditional trades to be covered in the first instance
- Artisans and craftspeople to be provided recognition through PM Vishwakarma certificate and ID card
- Credit Support upto Rs.1 lakh (First Tranche) and Rs.2 lakh (Second Tranche) with a concessional interest rate of 5%.
- Scheme to provide Skill Upgradation, Toolkit Incentive, incentive for Digital Transactions and Marketing Support.

1/2

## ECONOMICS AND DEVELOPMENT
# E-COURTS PROJECT

**CONTEXT:** The Union Budget 2023-24 had announced the launch of Phase 3 of the e-courts project with an outlay of ₹7,000 crore. The first two phases of the project were planned and executed with an overall budget of ₹639.411 crore and ₹1,670 crore, respectively. The e-courts project aims to develop a hybrid model, allowing for physical and virtual courts to co-exist.

The third phase of the e-courts project would see technology make inroads into the working of the judiciary, especially the lower courts. Phase 3 of the project sought to interlink courts across the country, besides setting up the infrastructure of paperless court, digitisation of court records, and opening of advanced e-Sewa Kendras in court complexes.

The Policy and Action Plan document of the e-committee of the Supreme Court headed by the Chief Justice had described the e-court plan as an "integrated mission mode project" to help in the judiciary's efforts to "transform itself by implementing tools and means of Information and Communication Technology".
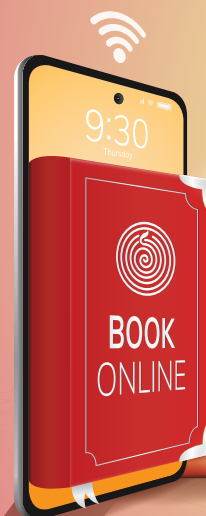
## ECONOMICS AND DEVELOPMENT
# PRICE WATCH

**CONTEXT:** Headline inflation is expected to average well above 6% in the second quarter' as the incidence of supply shocks was not over and the elevation in vegetable prices had extended into the first half of August.

**Supply side shocks**

1. Low rainfall emerging out of an El Nino scenario.

2. Outlook on crude oil prices that is marred by 'engineered' supply shortfalls with production cuts by key OPEC+ suppliers

`NSO data showed retail inflation was estimated to have accelerated sharply to a 15-month high of 7.44 % in July. The RBI's Monetary Policy Committee in July 2023 forecasted inflation to average 6.2 % in the ongoing July to September quarter.

The vulnerability of the economy to recurring incidence of vegetable price shocks, especially ahead of and during the monsoon, warrants major reforms in perishable supply chains covering transportation networks, warehousing and storage technologies, and value addition processes that damp the amplitude of these swings. Stable prices for consumers, assured supplies and remunerative proceeds for farmers will follow when these reforms lead to efficiency and productivity gains while preserving the quality of output and building up insulation against food inflation from climatic events.

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