

DAILY PT POINTERS

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The Hindu-Space(GSIII)-Page 1

Upper stage of rocket returns to earth after 7 years: ISRO

The Hindu Bureau
BENGALURU

The Indian Space Research Organisation (ISRO) on Tuesday said that the upper stage of the Polar Satellite Launch Vehicle C-37 (PSLV C-37 mission) re-entered the earth's atmosphere on October 6.

The PSLV-C37 mission was launched from Sriharikota on February 15, 2017, with Cartosat-2D as the main payload, and another 103 satellites as co-passengers.

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The Hindu-Science and Tech(GSIII)-Page 1

Hopfield and Hinton, machine learning pioneers, win Nobel Prize in Physics

Vasudevan Mukunth
CHENNAI

The 2024 Nobel Prize in Physics has been awarded to John Hopfield and Geoffrey Hinton “for foundational discoveries and inventions that enable machine learning with artificial neural networks”, the Royal Swedish Academy of Sciences announced on Tuesday.

While many areas of research have used machine learning models and artificial neural networks (ANNs) to process data, these terms have entered the household, thanks to the explosion of chat AI apps including ChatGPT



Professor John Hopfield (left) and Professor Geoffrey Hinton. AP

laureates concerns the theoretical foundations of machines that can learn without humans teaching them and can use their knowledge to answer questions. ANNs are collections of neurons, or more broadly nodes capable of processing data, connected in specific ways. A connec-

allows information to flow between them. In a recurrent neural network, information can flow both ways. Professor Hopfield of Princeton University in the U.S. is credited with developing the Hopfield network, a type of recurrent neural network. Its neurons learn and process in-

bian learning – an idea in neuropsychology that if one neuron repeatedly triggers a second, the connection between the two becomes stronger.

The rules of a Hopfield network are based on the physics of a group of atoms, each producing its own small magnetic field. The processes the network performs to complete an incomplete pattern or to denoise an image are the same ones that, by analogy, would reduce the total energy of the magnetic atoms.

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NEED BOOTS

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The Hindu-Economy(GSIII)-Page 8

Why is the textile industry struggling to perform better?

What caused the slump in the Indian textile sector in the last two financial years?

M. Soundariya Preetha

The story so far:

Union Minister for Textiles Giriraj Singh recently said that the Indian textile and apparel sector is aiming for a total business of \$350 billion annually by 2030, which is to generate 3.5 crore jobs. However, the industry went through a tumultuous phase during the last two financial years, casting a shadow on the possibility for 10% CAGR.

What is the status now?

The size of the Indian textile and apparel industry was estimated to be \$153 billion in 2021, with almost \$110 billion contributed by domestic business. In FY22, India was the third largest textile exporter globally, enjoying a 5.4% share. India is also said to have the second largest manufacturing capacity, with a robust capability across the value chain. The sector's contribution to GDP is close

manufacturing Gross Value Added (GVA) in FY23. About 105 million people are employed by the textile and garment units, directly and indirectly. For an industry that has 80% of its capacity spread across MSMEs and is sensitive to international developments as it is strongly linked to global markets, FY2021-2022 saw tremendous growth with \$43.4 billion exports.

However, slowdown in demand that started in 2022-2023 only worsened in FY24 with a slump in exports and domestic demand. This impacted manufacturing clusters severely. For instance, Tamil Nadu, which has the largest spinning capacity in the country, saw the closure of nearly 500 textile mills in the last two years. In Tiruppur, which is a knitwear production destination, many units saw a 40% drop in business in FY23.

Why did exports slump?

Geopolitical developments and a slump in demand in buying countries hit the

high raw material prices of both, cotton and Man Made Fibres (MMF), and the growing import of fabrics and garments.

The imposition of a 10% import duty on cotton has made Indian cotton more expensive compared to international prices. In the case of MMF, introduction of quality control orders has disturbed raw material availability and price stability. The industry is repeatedly demanding removal of the import duty on cotton at least during the off-season months of April to October. "This is an industry in which the stakeholders compete in the international market with countries that heavily support their domestic production capabilities. So, India needs schemes that run for at least five years and boost investments. Raw material should be available for the domestic industry at internationally competitive prices," says a spokesperson of a leading industry association.

What are the other challenges?

also staring at disruptions in its traditional business systems. Direct retailing to customers through e-commerce is a trend that is catching on among garment and home textile manufacturers, with more startups entering this space. A report by Wazir Advisors notes that "(Foreign) brands are fast-tracking the adoption of ESG sustainability across the supply chain." They are defining their sustainability targets and want to source from vendors who will meet these targets.

Further, there is a rise in comfort wear, loungewear, and athleisure as the emphasis on comfortable clothing has increased among consumers. "Even in the domestic market, much has changed in the way business is done. Customers in rural and semi-urban areas prefer to shop in multi-brand outlets or hyper markets. They do not want to step into outlets of less known brands," said Palanisamy, a basic garment producer in Tiruppur.

What next?

The industry is looking at a \$100 billion investment across various segments of the value chain by 2030 to augment production capacities and meet the \$350 billion target. Labour constitutes roughly 10% of the production cost in the textile sector. The average daily wage of a trained textile worker is reported to be ₹550 a day. The industry has no option but to look at technology and skilling of its workforce to improve productivity and

THE GIST



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Apart from policy issues, the industry is also staring at disruptions in its traditional business systems. Direct retailing to customers through e-commerce is a trend that is catching on among garment and home textile manufacturers, with more startups entering this space.

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- The size of the Indian textile and apparel industry was estimated to be \$153 billion in 2021, with almost \$110 billion contributed by domestic business. In FY22, India was the third largest textile exporter globally, enjoying a 5.4% share. India is also said to have the second largest manufacturing capacity, with a robust capability across the value chain. The sector's contribution to GDP is close to 2.3% (FY21) and 10.6% of total manufacturing Gross Value Added (GVA) in FY23.
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The Hindu –GS 3(Science and Tech)-Page 9



Global Digital Compact: advancing digital innovation in a sustainable fashion

The GDC is a diplomatic instrument which focuses on the potential of digital technologies, with the specific intention to harness and regulate them for the common good. The GDC rests on the idea that digital technologies are dramatically changing our world.

North Korea
 will recently concluded Summit of the Future' organised by the United Nations, member countries adopted the 'Global Digital Compact' (GDC). This ambitious instrument is perhaps the first of its kind in the international arena focusing on the potential of digital technologies, with the specific intention to harness and regulate them for the common good.

What is the GDC?
 The GDC is a binding but non-legal diplomatic instrument with a set of shared goals for governments, institutions, firms, and other stakeholders to work towards. Once these goals are achieved, the terms of the compact may become self laws in each country.

Finally, the UN hopes that the instrument may also contribute to the 'Global Compact' (a voluntary initiative based on UN Sustainable Development Goals) and the 'Global Compact for Safe, Orderly and Regular Migration' covering all dimensions of international migration in a holistic and comprehensive manner.

The GDC rests on the idea that digital technologies are dramatically changing our world. While they offer potential benefits for societies and for our planet — by enabling Sustainable Development Goals (SDGs) — they also pose serious

proposed global cooperation in the governance of data and digital technologies.

To meet the compact's goals, 117 member countries have committed to establish two panels — an 'Industry and International Scientific Panel on Artificial Intelligence' and a panel for 'Global Digital Governance'.

These goals include closing the digital divide, including everyone in the digital economy, keeping our data safe, and advancing responsible and ethical data governance. In the case with the compact, principles are based on 'inclusive participation in economic and digital technologies, sustainability, and trustworthiness' technologies that function within a free and competitive market.

Digital goals and services
 To address the digital divide, the GDC proposes 'digital public goods' that will include open resources, open data, and open AI models, plus advances to privacy and self protection.

This is an acknowledgment of digital public goods' ability to be social change as well as a 'digital public infrastructure' that allows services such as health care to be used for the development and use of shared digital systems according to specific present and needs of stakeholders. To this end, the GDC seeks to form partnerships, including with non-state entities.

What are the GDC's focuses?

protection of intellectual property.

Second, the GDC adds to existing frameworks of internet governance, but focuses on digital technology companies and regulators to keep their users safe and their users' trust. This is not an explicit effort to force self-regulation has already proved to be ineffective in practice.

Third, the compact recognises that people's data governance is essential to order, innovation and trust in our economic growth. The agreement notes that the increasing collection, storage, and processing of data — particularly in the cloud — may amplify risks in the absence of effective personal data protection and privacy laws.

Fourth, the Compact stresses on advancing SDGs within a paradigm where governments and private entities track, collect, and analyse data to measure progress, while addressing the sustainability of investments in the infrastructure. For this the Compact proposes to give corporate entities more power in data and internet governance.

However, it fails to establish the corresponding measures required to ensure that digital public goods.

The GDC and the UN
 In many sections the GDC makes useful statements that bypass the complexity of underlying issues, wanting the majority of nations will be enough to achieve its objectives. But this stance may also reflect the UN's wish to remain a mediator in its

resolutions or even strategies.

Similarly, the GDC does not have 'data flow with limits' that many countries have refused to accept. It is also because it goes against the spirit of digital sovereignty. Some even have specific laws that require data about their citizens to remain within their borders.

Finally, the compact offers various objectives and proposed actions with the relevant SDGs. This is a welcome move because it is becoming clear that digitalisation should play a prominent role in realising the SDGs. At the same time, when the idea was adopted in 2022, the current AI revolution hadn't started. Given the unbridgeable need of attention in realising the SDGs, it is doubtful whether an action plan for the GDC could make a difference.

The UN member states are striving to find ways to work with and regulate digital public goods, covering the digital economy. The global governance of digital technologies has a long way to go to be captured as 'trust' by a single entity like the GDC. We need multilateral, as well as regional, approaches to work with cross-border public goods, and the local levels. By agreeing to existing modes of digital governance as well as by creating SDGs with digitalisation, the GDC is positioning itself as an instrument of internationalism rather than as a provider of uniform self. The GDC can help with capacity building and with South-South and North-South collaborations in the development of digital public goods.

- In the recently concluded 'Summit of the Future' organised by the United Nations, member countries adopted the 'Global Digital Compact' (GDC). This ambitious instrument is perhaps the first of its kind in the international arena focusing on the potential of digital technologies, with the specific intention to harness and regulate them for the common good.
- The GDC is not a binding law but a diplomatic instrument with a set of shared goals for governments, institutions, firms, and other stakeholders to bear in mind. Once there is greater adherence, the terms of the compact may become soft laws in each country.
- The GDC rests on the idea that digital technologies are dramatically changing our world. While they offer potential benefits for societies and for our planet — by enabling Sustainable Development Goals (SDGs) — they also pose serious challenges and concerns.

The Hindu –GS 3(Science and Tech)-Page 12

India has eliminated trachoma, says WHO

Bindu Shajan Perappadan
NEW DELHI

The World Health Organization (WHO) has now recognised that India has successfully eliminated trachoma, a bacterial infection that affects the eyes, as a public health problem.

In a citation shared by

- The World Health Organization (WHO) has now recognised that India has successfully eliminated trachoma, a bacterial infection that affects the eyes, as a public health problem.
- Trachoma is the leading infectious cause of blindness worldwide. It is caused by an obligate intracellular bacterium called *Chlamydia trachomatis*. The infection is transmitted by direct or indirect transfer of eye and nose discharges of infected people, particularly young children who harbour the principal reservoir of infection. These discharges can be spread by particular species of flies.

HEADLINES OF THE DAY

The Hindu –Health(GSII)

India makes pledge of \$300 million for WHO programme

Bindu Shajan Perappadan
NEW DELHI

India, the sixth largest global contributor of core funding to the World Health Organisation (WHO), has now committed to give more than \$300 million for the organisation's core programme of work from 2025 to 2028. The biggest chunk of \$250 million will be spent on the Centre of Excellence for Traditional Medicine.

So far, WHO has received contribution pledges for over \$2.2 billion towards a \$7.1 billion funding gap.

Over the next four years, WHO has the mandate to use these funds to save at least 40 million lives through various programmes, such as increasing the number of vaccines delivered to priority countries, supporting 55 countries in educating and employing 3.2 million health workers, and prequalifying 400 health products per year.

India has committed the

largest amount of funds so far in southeast Asia. Apart from the traditional medicine centre, \$38 million is being given for a new premises for WHO's regional office, \$10 million for digital health, and \$4.6 million for thematic funding.

'Health for all'

"The funds being sought are not additional resources, but those needed by the organisation for its core work, to deliver on its mandate to promote, provide and protect health and well-being for all," WHO's regional office said in a statement. It added that countries in WHO's South-East Asia Region and key partner organisations have pledged over \$345 million in financing for the organisation's core programme of work from 2025 to 2028.

"Indonesia and Bhutan committed to provide a pledge amount in the coming weeks," WHO said, adding that this investment round will see several events this year, culminating in a grand pledging ceremony in November on the sidelines of the G-20 summit in Seoul.

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HEADLINES OF THE DAY



PIB-Science and Tech(GSIII)

Department of Atomic Energy



DAE Inaugurates MACE, Asia's Largest and World's Highest Imaging Cherenkov Observatory, at Hanle, Ladakh

MACE project plays a significant role not only in advancing scientific research but also in supporting the socio-economic development of Ladakh: DAE Secretary and Chairman, Atomic Energy Commission Dr. A.K. Mohanty

Posted On: 08 OCT 2024 3:32PM by PIB Mumbai

: Mumbai, October 8, 2024

- The **Major Atmospheric Cherenkov Experiment (MACE) Observatory** has been inaugurated by Dr. Ajit Kumar Mohanty, Secretary DAE & Chairman of the Atomic Energy Commission, at Hanle, Ladakh, on 4th October 2024. MACE is the largest imaging Cherenkov telescope in Asia. Located at an altitude of ~4,300 m, it is also the highest of its kind in the world.
- The telescope is indigenously built by BARC with support from ECIL and other Indian industry partners. The inaugural of MACE Observatory was a part of the Platinum Jubilee year celebrations of the DAE. The event commenced with the unveiling of commemorative plaques by Dr. Mohanty at the MACE site at Hanle, Ladakh, thereby officially inaugurating the MACE Observatory.

HEADLINES OF THE DAY

PIB-Governance(GSII)



- **The total gross enrolments under the Atal Pension Yojana (APY) have crossed 7 crore, with an enrolment of over 56 lakh in the current Financial Year 2024-25.** The scheme is in its 10th year of rollout, and has achieved a big milestone by bringing in the most vulnerable sections of society under the coverage of pension has been made possible with the untiring efforts of all the Banks and SLBCs/UTLBCs.
- APY is open to all bank account holders in the age group of 18 to 40 years who are not income taxpayers and the contributions differ, based on the pension amount chosen.