









## Slump calls for a bold reset of economic goals

The recent GDP estimates for the July-September quarter have sent shockwaves through India's economic landscape. Even the most cautious forecasters did not predict such a sharp deceleration in economic momentum. Contrary to expectations of a modest slowdown to around 6.5% growth — down from the first quarter's 6.7% — the actual GDP growth plummeted to a mere 5.4%, the slowest since Q3 of 2022-23. This significant drop not only deviates from the Reserve Bank of India's (RBI) optimistic projections but also casts doubt on the possibility of achieving over 7% growth in 2024-25. The implications of this downturn are multifaceted. The Monetary Policy Committee of the RBI faces the daunting task of reassessing its 7.2% growth forecast for the year. Balancing the dual objectives of controlling inflation and stimulating growth has become increasingly complex. With inflation hitting a 15-month high of 6.2% in October, the RBI is under pressure to maintain a tight monetary stance. However, recent appeals from government ministers to reduce interest rates highlight the growing concern over weakening growth impulses and stagnant investments. While government officials attempt to downplay the alarming GDP figures as a 'one-off' occurrence attributed to temporary urban demand slackness, such optimism may be misplaced. The assumption that rural demand will naturally revive the economy in the second half of the year overlooks the persistent challenges. Factors such as inadequate wage growth and sustained price increases have strained urban consumers, dampening the likelihood of a spontaneous rebound in urban consumption. It is imperative for the government to move beyond a complacent 'all is well' narrative. Proactive fiscal measures are needed to rejuvenate the economy. This includes reconsidering high fuel taxes and GST rates on certain items to alleviate living costs and stimulate demand. The current economic indicators signal not just a temporary hiccup but a call to action for policymakers to implement strategic interventions that can steer the economy back on a robust growth path.

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In the business world, everyone is paid in two coins: cash and experience. Take the experience first; the cash will come later.  
**”**  
HAROLD S. GENEEN

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**SIDHARTH DEB** INSISTS INDIA'S AI SAFETY INSTITUTE MUST LEVERAGE GLOBAL COLLABORATIONS

## The role of an AI safety institution

In October, the Ministry of Electronics and Information Technology (MeitY) convened meetings with industry and experts to discuss setting up an AI Safety Institute under the IndiaAI Mission. Curiously, this came on the heels of Prime Minister Narendra Modi's visit to the U.S., the Quad Leaders' Summit, and the United Nations Summit of the Future. AI appeared high on the agenda in the run up to the Summit of the Future, with a high-level UN advisory panel producing a report on Governing AI for Humanity.

Policymakers should build on India's recent leadership at the G20 and the GPAL, and position it as a unifying voice for the global majority in AI governance. The design of the Safety Institute should prioritise raising domestic capacity, capitalising on India's comparative advantages, and plugging into international initiatives.

Notably, the Summit of the Future yielded the Global Digital Compact that identifies multi-stakeholder collaboration, human-centric oversight, and inclusive participation of developing countries as essential pillars of AI governance and safety. As a follow up, the UN will now commence a Global Dialogue on AI. It would be timely for India to establish an AI Safety Institute which engages with the Bletchley Process on AI Safety. If executed correctly, India can deepen the global dialogue on AI safety and bring global majority perspectives on human centric safety to the forefront of discussions.

### Institutional reform

In designing the institute, India should learn from concerns stemming from MeitY's AI Advisory in March 2024, which proposed that there be government approvals before the public roll-out of experimental AI sys-



tems. Some asked what kind of institutional capability the Indian government had to suitably determine the safety of novel AI deployments. Other provisions on bias, discrimination, and the one-size-fits-all treatment of all AI deployments indicated that the advisory was not based on technical evidence.

Similarly, India should be cautious and avoid prescriptive regulatory controls which have been proposed in the European Union (EU) and China. The threat of regulatory sanction in a rapidly evolving technological ecosystem quells proactive information sharing between businesses, governments, and the wider ecosystem. It nudges labs to only undertake the minimum steps towards compliance. Yet each jurisdiction demonstrates a recurring recognition of establishing specialised agencies — for example, China's Algorithm Registry and the EU's AI Office. However, to maximise the promise of institutional reform, India should decouple institution building from regulation making. The Bletchley process is underscored

by the U.K. Safety Summit in November 2023 and the South Korea Safety Summit in May 2024. The next summit is set for France and this process is yielding an international network of AI Safety Institutes.

The U.S. and the U.K. were the first two to set up these institutes and have already signed an MoU to exchange knowledge, resources, and expertise. Both institutions are also signing MoUs with AI labs and receiving early access to large foundation models. They have installed mechanisms to share technical inputs with the AI labs before their public roll outs. These Safety Institutes facilitate proactive information sharing without being regulators. They are positioned as technical government institutions that leverage multi-stakeholder consortiums and partnerships to assess the risk of frontier AI models to public safety. However, they largely consider AI safety through the lens of cybersecurity, infrastructure security, safety of the biosphere, and other national security threats.

These safety institutes aim to improve government capacity and mainstream the idea of external third-party testing and risk mitigations and assessments. Government-led AI safety institutes aim to deliver insights which can transform AI governance into an evidence-based discipline. The Bletchley process presents

India with an opportunity to collaborate with governments and stakeholders from across the world. Shared expertise will be essential to keep up with AI's rapid innovation trajectories.

### Charting India's approach

India should establish an AI Safety Institute which integrates into the Bletchley network of safety institutes. For now, it should be independent from rulemaking and enforcement authorities and, instead, operate exclusively as a technical research, testing, and standardisation agency. It would allow India's domestic institutions to tap into the expertise of other governments, local multi-stakeholder communities, and international businesses. While upscaling its AI oversight capabilities, India can also use the Bletchley network to advance the global majority's concerns with AI's individual centric risks.

The institute could champion perspectives on risks relating to bias, discrimination, social exclusion, gendered risks, labour markets, data collection and individual privacy. Consequently, it could deepen the global dialogue around harm identification, big picture AI risks, mitigations, red-teaming, and standardisation. If done right, India may become a global steward for forward-thinking AI governance which embraces many stakeholders and government collaboration. The AI Safety Institute can demonstrate India's scientific temper and willingness to implement globally compatible, evidence-based and proportionate policy solutions.

*Sidharth Deb, Manager, Public Policy at The Quantum Hub, a public policy firm based in Delhi. Views are personal.*



**C. CHANDRAMOULI** BELIEVES THE KEY GOAL IS TO ESTABLISH NRIC, BUT UNDERSTANDING IMPLICATIONS IS CRUCIAL

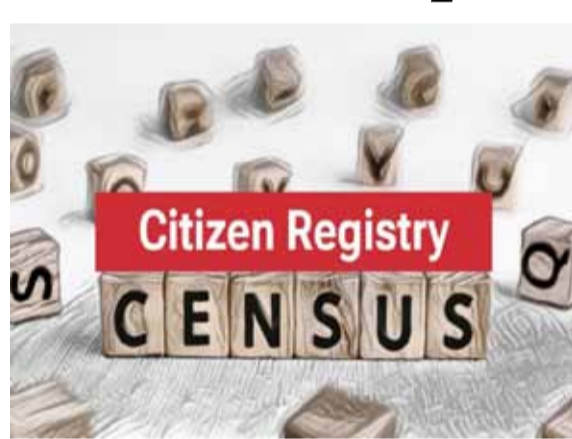
## Census 2025 is a comprehensive citizen registry

The 2025 Census includes an exercise to update the National Population Register (NPR), which is the first step for the establishment of the National Register of Indian Citizens (NRIC). Grasping the full scope and implications of this initiative is essential.

The NRIC draws its mandate from the Citizenship Act 1955. Initially conceptualised after the 1951 Census, the NRIC gained renewed significance following recommendations by the Subrahmanyan Committee in the aftermath of the Kargil war (1999), which highlighted the need for a robust database that includes both citizens and non-citizens. These recommendations eventually led to the addition of Section 14A to the Act, mandating the compulsory registration of all Indian citizens and authorising the issuance of identity cards to officially document their citizenship status. Several pilot projects such as the Multi-Purpose National Identity Card (MNIC) and fishermen identity card have since been implemented with varying degrees of success.

### As a verified registry with more benefits

The NRIC aims primarily to enhance national security by maintaining a verified citizen registry but also offers additional benefits, such as streamlining identity verification, reducing identity fraud and duplication, and enabling targeted welfare programmes that ensure benefits reach only eligible recipients. The NPR serves as the initial step in achieving these objectives by differentiating citizens from non-citizens through a multi-phase process that collects demographic and biometric data on all usual residents.



This multi-phase process includes several key steps. First, a comprehensive database is created by compiling demographic data during houselisting operations in the Census. Next, biometric data is collected to eliminate duplicate records. Public claims and objections are then invited to ensure transparency, followed by a verification and appeals process allowing residents to challenge records, thereby enhancing accuracy and authenticity. Detailed inquiries into citizenship status are conducted to finalize the National Register of Citizens (NRIC), which distinguishes citizens from non-citizens. The process culminates in the issuance of identity cards as mandated by the Citizenship Act.

In the 2011 Census details about individuals, including name, gender, date of birth, marital status, place of birth, nationality, family relationships, residency, and

socio-economic indicators were collected. The 2025 Census is anticipated to follow a similar pattern. Biometric data collection, however, will probably be excluded, as this information is already available in the Aadhaar database.

### Aadhaar versus NRIC

A question often raised in this connection is the need for this exercise when the Aadhaar already exists. It is essential to note that the Aadhaar and the NRIC serve distinct purposes.

Aadhaar is a 12-digit unique identification number issued by the Unique Identification Authority of India (UIDAI) to residents of India, regardless of citizenship. It primarily serves as a biometric-based identity verification tool, linking residents to services such as banking, subsidies, and digital identity. The NRIC aims to establish a comprehensive citizen registry. While Aadhaar is focused on identity verification and can be held by any resident, the NRIC is a citizenship verification system, mandating proof of citizenship. Thus, Aadhaar is broadly inclusive for all residents, whereas the NRIC serves as a definitive record for citizens. They play complementary but distinct roles in India's governance and security infrastructure.

### The Assam exercise and privacy concerns

Assam is the only state where the National Register of Citizens (NRC) has

been updated (2019). Intended to identify illegal immigrants, particularly from Bangladesh, the process raised concerns over its accuracy and fairness due to stringent documentation requirements that left many rural and less-educated residents unable to meet the criteria. Unlike the proposed national NRIC, Assam's NRC was guided by the Assam Accord, which imposed unique conditions. However, Assam's experience highlights the significant humanitarian and administrative challenges that could arise from implementing a nationwide NRIC.

Concerns about data privacy and the potential misuse of demographic and biometric information persist, despite the Supreme Court's guidelines in the Aadhaar case. The need for robust data protection remains critical. Exclusion fears, particularly for communities with limited documentation, must also be addressed. Verifying citizenship on such a large scale poses significant logistical and administrative challenges, underscoring the importance of streamlined procedures and targeted public awareness campaigns.

The NRIC initiative calls for citizens to stay vigilant and actively engaged throughout the process. Given the scale of this effort, transparency and fairness depend on citizens being well-informed, proactive, and diligent in verifying their records. By understanding their rights, providing accurate information, and voicing concerns, citizens can help ensure that the NRIC is inclusive, equitable, and effective.

*C. Chandramouli is the former Registrar General and Census Commissioner, India. Views are personal.*



### BOOKS: REVIEW

## New book highlights contributions of Muslims in India's independence

**B**lood Speaks Too by Syed Shahnawaz Ahmad Qadri is a powerful and deeply impactful book that brings to light the often-overlooked contributions of Muslim freedom fighters in India's struggle for independence. Launched in Hyderabad on December 5, 2024, this English edition expands upon the Hindi and Urdu versions (Lahu Bolta Bhi Hai), providing a meticulously researched account that spans nearly two centuries of resistance and sacrifice. It challenges prevailing biases in historical narratives and celebrates the pluralistic ethos of India's independence movement.

This edition delves into previously marginalized narratives, particularly the contributions of freedom fighters from South India, whose efforts have been overshadowed in mainstream history. By including a comprehensive list of these revolution-



aries, the book ensures a broader geographic representation. Additionally, it offers enriched details on pivotal moments such as the Quit India Movement and the Jallianwala Bagh Massacre, providing new perspectives and insights into these historical events. The inclusion of nearly 150 rare photographs further en-

hances the reading experience, offering a visual journey through India's freedom struggle.

The book, translated in English by Pervez Alam Siddiqui and edited by Abdul Wasey, stands out for its comprehensive documentation of over 2,400 individual accounts of Muslim revolutionaries, creating a ho-



*Blood Speaks Too: The Role of Muslims in India's Independence*  
By Syed Shahnawaz Ahmad Qadri  
504 pages; Rs 800.

listic picture of their involvement. From grassroots fighters to prominent leaders, the stories reveal the depth of Muslim contributions and their critical role in the collective fight for independence. Qadri's analysis also extends to the ideological shifts, alliances, and conflicts that defined the movement between 1857 and 1947, offering readers a nuanced understanding of the political dynamics of the time. Through meticulous use of rare archival materials and personal accounts, the author validates these narratives, challenging the systematic marginalization of Muslim contributions in mainstream historiography.

Written in an accessible and engaging style, the book strikes a balance between scholarly rigor and readability, making it suit-

able for both researchers and general readers. Its narrative style is reminiscent of a historical novel, making complex events and figures approachable and relatable, particularly for younger audiences. By restoring these overlooked stories to their rightful place, Blood Speaks Too not only fills a critical gap in India's historiography but also fosters a sense of unity and mutual respect, emphasizing the collective nature of the independence movement.

Qadri's work serves as a reminder of the diverse forces that shaped India's freedom and underscores the importance of preserving an inclusive historical memory. By shining a light on the sacrifices of Muslim freedom fighters, the book inspires future generations to uphold the pluralistic ideals that form the foundation of modern India. Blood Speaks Too is an essential read for anyone seeking to understand the full breadth of India's independence movement and stands as a testament to the power of unity in the face of adversity. It is not just a book but a movement to preserve the collective spirit of India's past.

## India's Manufacturing Sector Experiences Moderate Slowdown in November

**NEW DELHI:** India's manufacturing sector showed signs of deceleration in November, with the Purchasing Managers' Index (PMI) declining to 56.5, down from October's 57.5, according to the HSBC Final India Manufacturing PMI compiled by S&P Global.

The November figure represents an 11-month low, though remaining firmly within expansionary territory.

Initial flash PMI surveys had projected slightly higher numbers, with an early estimate of 57.6 for November, which was subsequently revised to 57.3.

The final data revealed a more modest reading, indicating a subtle but notable moderation in manufacturing activity.



Pranjal Bhandari, Chief India economist, HSBC, highlighted the sector's nuanced performance.

Despite the slight downturn, international demand remained robust, with new export orders reaching a four-month high.

However, the rate of output

expansion is decelerating, influenced by intensifying price pressures across the manufacturing landscape.

The economic context underscores additional challenges. Input prices for intermediate goods, including chemicals, cotton, leather, and rubber, experienced increases

in November.

Simultaneously, output prices reached an eleven-year peak, reflecting manufacturers' efforts to pass rising input, labour, and transportation costs onto consumers.

This manufacturing slowdown coincides with broader economic trends, as India's real GDP growth declined to 5.4 percent in the July-September 2024 quarter—a seven-quarter low.

This represents a significant reduction from the 6.7 percent growth in the previous quarter and the 8.1 percent recorded in the same period of 2023, primarily attributed to weakened manufacturing growth and contractions in mining and quarrying sectors.

## Boilers Bill 2024 Cleared by Rajya Sabha to Enhance Safety and Modernise Regulations



**NEWDELHI:** In a significant move to enhance safety standards and modernise boiler regulations, the Rajya Sabha on Wednesday cleared the Boilers Bill, 2024.

The bill, which seeks to replace the century-old Boilers Act, 1923, was passed with a voice vote. It aims to address critical issues related to boiler safety, the protection of life and property from explosions, and the uniformity of registration processes across the country.

The new legislation introduces provisions to ensure the safety of individuals working inside boilers and mandates that all boiler repairs be carried out by qualified and competent professionals. By doing so, the bill seeks to minimise risks associated with boiler operations, ensuring a higher level of safety for workers and the surrounding community.

One of the key highlights of the Boilers Bill, 2024, is its focus on decriminalising several offenses related to boiler operations. According to the Commerce Ministry, this move will benefit a wide range of boiler users, especially those in the micro, small, and medium enterprises (MSME) sector. Under the new framework, the number of criminal offenses has been reduced from seven to four, with penalties for

violations focused primarily on severe incidents that result in loss of life or property. The legislation marks a progressive step in the modernisation of India's industrial safety laws.

By updating boiler regulations that have largely remained unchanged for over a century, the government aims to balance safety concerns with the operational realities of industries, fostering an environment that is both secure and conducive to economic growth.

The bill's passage in the Rajya Sabha represents a crucial step toward ensuring boiler safety across various sectors, enhancing protection for workers, and aligning with international safety standards. It is now expected to move forward to the Lok Sabha for further deliberation.

## Holland's MODIFI fintech Rs 50 crore financing for Indian SMEs



**DOMINICK RODRIGUES**  
Mumbai

MODIFI, a global leader in cross-border B2B trade finance and payments solutions, announced bold expansion plans for India in reinforcing its strategic commitment to one of its fastest-growing markets.

MODIFI has earmarked Rs 50 crore to finance over 5,000 SMEs across India in the next 2-3 years, with these efforts being bolstered by partnerships with prominent organisations like the SME Chamber of India and the Maharashtra Industry Development Association (MIDA).

With an impressive 38% y-o-y growth, the Amsterdam-headquartered fintech is eyeing a significant increase in its India business in 2025 where, as part of its strategy, MODIFI will invest a significant part of its recently-raised \$15 million Series C funding to fuel this growth with focus on deepening local operations, said Matthias Hendrichs, Chief Commercial Officer, MODIFI Global.

Having facilitated over \$3 billion in global trade across 1,800+ trading partners in 55+ countries since its inception, India remains pivotal to MODIFI's global expansion journey since opening here in 2019 — making it the first international market outside Europe, Hendrichs said.

He said that in alignment with the government's 'Make in India' initiative, MODIFI's digital financing solutions address the working capital challenges faced by SMEs, and eliminate the need for collateral, streamline access to global markets, and enable businesses to compete internationally with confidence.

"India has always been the cornerstone of our international operations and our remarkable growth here is a testament to the resilience of Indian SMEs and their critical role in the global supply chain. With our latest funding, we are doubling down on our India operations to meet the increasing demand for flexible, digital trade finance solutions," Hendrichs noted.

Replying to questions, Hendrichs said that while India, China and the Middle East remained the three focus markets for MODIFI, "India is our first and key export global market outside of Europe."

## Hyundai Motor's union to hold partial strike in protest against President Yoon



**SEOUL:** Unionised workers at Hyundai Motor will stage a partial strike this week in solidarity with an umbrella labour union's walkout against President Yoon Suk Yeol's short-lived martial law declaration, according to the company's union on Thursday.

Hyundai's 43,000-strong union will hold a four-hour strike each on Thursday and Friday under the guidelines of the Korean Metal Workers' Union (KMWU), a union spokesperson said over the phone. The KMWU is part of the militant Korean Confederation of Trade Unions (KCTU). GM Korea Co.'s 7,300-member union also decided to hold a four-hour walkout on Thursday and Friday, respectively, reports Yonhap news agency. Meanwhile, Bank of Korea (BOK) Gov. Rhee Chang-yong said on Thursday the current political climate surrounding the opposition's move to impeach President Yoon Suk Yeol is unlikely to affect South Korea's sovereign ratings and growth momentum given the country's solid market fundamentals.

Rhee made the point during a press briefing in Seoul, two days after Yoon declared martial law in a surprise late-night address, which was lifted about six hours later after the National Assembly voted to reject it.

## Proposed 25% Steel Duty Hike Faces Criticism for Ignoring MSME Woes

**NEW DELHI:** Proposals to increase steel import duties by 25 per cent to shield domestic manufacturers from surging imports and dumping by China have drawn sharp criticism from small industries and trade experts.

According to Federation of Indian Micro and Small & Medium Enterprises (FISME), the lobby led protectionist tariff and non-tariff measures against import of steel including anti-dumping, safeguard duties, quality standards etc, play out in a triple whammy for MSMEs in India. "Firstly, the steel producers increase the cost of domestic steel by similar measure as extra protection, increasing cost of the



produce of MSMEs. As MSME products do not enjoy a similar higher tariff/ non-tariff wall imports become cheaper and displace their produce from domestic market. Secondly, although MSMEs can technically import duty free inputs for exports, their small volumes make imports

unviable, rendering them uncompetitive for exports also", says Anil Bhardwaj, Secretary General, FISME.

Due to imports restrictions steel producers face little competition from imports (both on quality and price) they export best quality material and sell

poor quality material in domestic market elbowing out MSMEs from quality conscious supply chains also, he added.

Pankaj Chadha, Chairman of the Engineering Export Promotion Council (EEPC) of India, cautioned that such a move would severely impact micro, small, and medium enterprises (MSMEs), which are already grappling with numerous challenges. "MSMEs are excluded from consultations on trade-related issues in the steel sector," Chadha said. "If we're protecting steel producers, we must also safeguard the 8 lakh MSMEs that depend on steel. Ignoring their plight will hurt the downstream industry."

## Bombay High Court Rules in Favor of Arbitration, Dismisses Objection in Loan Default Case

**NEWDELHI:** In a significant ruling, the Bombay High Court reaffirmed that the role of a referral court under Section 11 of the Arbitration and Conciliation Act, 1996, is limited to verifying the existence of an arbitration agreement.

The court emphasised that it is not within the referral court's purview to delve into the substantive validity of the arbitration agreement. This decision came in response to an application filed by Aditya Birla Finance Limited, seeking the appointment of a sole arbitrator to resolve a dispute arising out of a loan agreement with Paul Packaging Private Limited.

The court's ruling aligns with the Supreme Court's established jurisprudence, particularly its



interpretation of Section 11(6) of the Arbitration Act. The referral court is tasked only with ensuring that an arbitration agreement exists and that its formal validity is in order. The substantive validity or any issues regarding the agreement's effectiveness are to be decided by the arbitral tribunal itself.

The dispute began when

Aditya Birla Finance Limited entered into a loan agreement with Paul Packaging Private Limited on September 13, 2018, involving a sanctioned loan of Rs. 6.75 crore.

While the respondent made payments initially, it later defaulted on its equated monthly instalments (EMIs), breaching the terms of the loan agreement.

## Freshworks Appoints Srinivasan Raghavan as Chief Product Officer

**FW DESK**  
San Mateo (Calif)

Freshworks Inc. (NASDAQ:FRSH) today announced Srinivasan Raghavan as its new Chief Product Officer (CPO) with over two decades of leadership experience in the SaaS industry. Srinivasan will lead and scale the Freshworks' product strategy and vision for its people-first AI service software used to deliver exceptional customer experiences (CX) and employee experiences (EX). He joins the Freshworks executive management team, reporting directly to Chief Executive Officer and President Dennis Woodside.



# AI-focused Partnerships of Global Pharmaceutical Companies



**DR. ANIL KUMAR ANGRISH**

that it is worthwhile to invest to become a 'digital pharma player'. Authors stated that all major pharmaceutical companies had at least one research collaboration with AI specialists to gain access to AI technologies. In that background, collaborative arrangement between tech giants and pharma research organizations (established as well as new) can act as a major contributor for the successful implementation of digital tools.

Almost all largest pharmaceutical companies have AI partnerships and collaborations. To leverage the potential of AI, these pharmaceutical companies have either partnered with or acquired AI companies. By June 2023, Novartis had AI partnerships with organizations such as IBM, Microsoft, MIT, Intel, Quantum black, Benevolent AI and XtaPi. Some of these AI firms/organizations had collaboration with other pharmaceutical companies as well, e.g., Microsoft and Benevolent AI had AI partnerships with AstraZeneca whereas IBM, MIT and XtaPi had AI partnerships with Pfizer. At the same time, AstraZeneca had AI partnerships with Berg, Illumina, Tencent and Schrödinger. Same was the case for Pfizer that had AI partnerships with other AI firms namely CytoReason, Tempus, Iktos, Atomwise and InSilico. By June 2023, Merck had AI partnerships with Cyclica, Iktos, Schrödinger, AbSci,



Aera, Tencent, Roche, another prominent pharmaceutical company had multiple AI collaborations with organizations such as Owkin, Flatiron, Synapse, EarlySign, PathAI in addition to pharma/healthcare companies such as BMS and GNS Healthcare. GSK had AI partnerships with Insilico, Tempus, PathAI, Exscientia in addition to Cloud Pharmaceuticals. Johnson & Johnson had AI partnerships with Iktos, XtaPi, InSilico, Winterlight Labs and Benevolent AI. Bayer collaborated with Exscientia, Cyclica, Atomwise, Sensyne Health for leveraging opportunity in AI. Moderna's AI partnership with IBM, Amgen's collaboration with Generate Biomedicine and Owkin, Novo Nordisk's AI partnership with Microsoft and InSilico, and AbbVie's AI partnership with AiCure, Atomwise, Anima Biotech and HotSpot were other notable AI partnerships.

An interesting theme is that Big Tech companies have AI partnerships with top global

pharmaceutical companies, and at the same time, those global pharmaceutical companies have AI partnerships with many other AI firms/organizations. Notable AI partnerships of Big Tech with top global pharmaceutical companies include Sanofi and Google, Novo Nordisk and Microsoft, Moderna and IBM in addition to earlier listed AI partnerships of Microsoft and IBM with Novartis, Microsoft and AstraZeneca, and IBM with Pfizer, to name a few.

AI is being leveraged by top global pharmaceutical companies across the value chain. For example, Pfizer partnered with various AI companies for drug discovery and the list of collaborators include MIT in the year 2014, IBM (2016), XtaPi (2018), InSilico Medicine (2020), Iktos (2021), Atomwise (2022) and CytoReason (2022). Pfizer collaborated with Concerto healthAI in 2017 for collecting and analyzing clinical data using advanced analytics and AI algorithms to accelerate

the development of targeted therapies. For clinical development, Pfizer collaborated with Saama in 2020 and tempus in 2022. Pfizer partnered with Catalia Health and Complexica in 2019 and 2021 respectively for patient monitoring and support.

From 2011 to 2021, Novartis had multiple AI-based partnerships and collaborations which included partnering companies like Microsoft, MIT, Intel and Dyno Therapeutics for drug discovery. Novartis collaborated with Quantumblack to develop advanced analytics tools to help unlock insights from complex data sets, new targets for drug development, and streamline clinical trials. With Tencent, Novartis collaborated to develop and deploy innovative digital health tools, including disease management and patient monitoring solutions. BenevolentAI and Novartis came together in which AI and Machine Learning (ML) technologies were to be used to stratify patients and for better understanding of patient and disease heterogeneity, thereby allowing for more precise drug targeting for individuals who require it.

AstraZeneca opted for the multitude of partnerships and collaborations in different phases of drug development process. In 2018, AstraZeneca collaborated with Alibaba.com to capitalize on their expertise in AI and the internet to focus on smart health services which included patient education,

prevention and management of chronic diseases. AstraZeneca also partnered with Microsoft to launch the AI Factory for Health for serving as a robust accelerator program for startups. This was positioned as a collaborative innovation hub to bring together startups, research entities, and various industry stakeholders. Partnerships of AstraZeneca mainly focused on drug discovery, clinical development, commercialization, and patient monitoring & support.

Roche partnered with Syapse to use AI technology to identify potential therapeutic targets in the field of precision oncology using Real world data. Roche acquired Flatiron health which became a standalone unit later. This allowed Roche to cache of more than 2 million cancer patients' electronic health records, an information trove to help the company gain regulatory and payer approval for drugs among other uses. Medial EarlySign, a pioneering company developing AI based clinical predictive analytics had announced the signing of a partnership with Roche to focus on innovative, evidence-based solutions for early detection of lung cancer.

GSK partnered with various AI companies across the value chain. In 2017, GSK collaborated with Exscientia to utilize its AI-driven platform in conjunction with own expertise to identify new and specific small molecules for up

to 10 disease-related targets, InSilico medicine to leverage the target identification of multitude of therapy area and Cloud Pharmaceuticals to design novel small-molecule agents to GSK-specified targets. GSK collaborated with Tempus to enhance the design of clinical trials, accelerate patient enrolment, and identify potential drug targets. GSK also collaborated with PathAI to draw new insights which can be rapidly integrated into clinical trials. The company collaborated with NVIDIA that was expected to contribute its deep expertise in GPU optimization and high-performance computational pipeline development.

Johnson & Johnson, another prominent pharmaceutical company, partnered with different AI companies, e.g., partnership with Iktos in 2019 to incorporate Iktos' virtual design technology into multiple small molecule drug discovery projects. Collaboration of J&J with BenevolentAI aimed at providing tailored solutions for Parkinson drug development. Partnership with XtaPi was aimed to utilize its advanced end-to-end platform called Inclusive Digital Drug Discovery & Development (ID4) that combined cloud-based computations and cutting-edge wet lab capabilities. Main aim was to reduce the time taken for the Design-Make-Test-Analyze (DMTA) cycle in drug development.

Eli Lilly collaborated with

specialists in AI such as Atomwise, Schrödinger, Genesis Therapeutics and Biologic Design to use to use AI algorithms and software for drug discovery. Collaborators of AbbVie include Atomwise, AnimaBiotech, Hotspot and AiCure for target areas such as drug design and therapy adherence. The collaboration between Novo Nordisk and Microsoft combined Microsoft's computational services, Cloud, and AI capabilities with Novo Nordisk's expertise in drug development and data science.

Most of these AI-partnerships of prominent pharmaceutical companies reveal that there is a growing recognition of the potential synergy between AI technologies and the pharmaceutical industry. From AI partnerships of top global pharmaceutical companies, it gets reflected that there is widespread adoption of multiple AI solutions at various stages of the drug discovery and clinical development, manufacturing and supply chain, commercialization, and patient support.

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**DISCLAIMER:** Views are personal and do not represent the views of the Institute.







An Sikh priest carries the Guru Granth Sahib (Sikh holy book) during a religious procession on the eve of Sikh Guru Tegh Bahadur's martyrdom day, at Sri Darbar Sahib on Thursday. PHOTO: PRABHJOT GILL

## Diljit Dosanjh shares his hilarious schedule from 'a day in Punjab'

**MUMBAI:** Punjabi sensation Diljit Dosanjh has shared a glimpse of "a day in Punjab", where he is seen making food and playing cricket. Diljit took to Instagram, where he shared a reel video. In the clip, he is first seen starting his day with exercise, having paranthas for breakfast, gorging on fresh fruits, playing cricket and then making chicken in an earthen pot on a "chulha". What makes the video special is the hilarious commentary by Diljit in Punjabi.



For the caption, he wrote: "Day in PANJAB (sic)." He will be performing in Bengaluru, Indore and Chandigarh. His tour will conclude on December 29 in Guwahati. On November 30, Diljit was in Kolkata and took to Instagram to share pictures from his visit to Kolkata. In the pictures, Diljit can be seen roaming around Kolkata, buying

flowers, sitting in the iconic ambassador taxis of Kolkata, which was once an English presidency. He wrote in the caption, "Kolkata 24". Diljit was seen dressed in a

printed T-shirt, regular cargo pants and a yellow coloured turban. Prior to this, in Ahmedabad, Diljit paused his performance after he spotted the fans watching the show from the

balcony of the hotel. A video which went viral on the Internet showed Diljit questioning those fans watching his show from a hotel balcony without tickets. He then asked his team to stop playing the music. He then pointed in the front, and said, "Yeh jo hotel ki balcony mein baithe hai, aap ka toh bada accha bhi hoya. Yeh hotel wale game kar gaye (Those who are sitting in the hotel balcony this is good for you. The hotel outsmarted us). Without tickets, huh?" Talking about his acting, Diljit was last seen in the romantic comedy film "Jatt & Juliet 3" directed by Jagdeep Sidhu. It is a spiritual successor to Jatt & Juliet and Jatt & Juliet 2. It also stars Neeru Bajwa, reprising their roles from the previous films, alongside, Jasmin Bajwa, Rana Ranbir, B. N. Sharma, and Nasir Chinyoti.

## Dharmendra shares fond memory with 'Guddi' Jaya Bachchan

**MUMBAI:** Veteran actor Dharmendra recently took to social media to share a cherished memory with Jaya Bachchan, fondly addressing her as "Guddi." The heartwarming post featured a photograph of the two icons together. On Sunday, he shared a photo of himself and Jaya posing together. In the caption, he referred to the actress as his "loving doll" and a "world-class artist." Sharing the image, Dharmendra wrote, "Guddi will always be my loving doll. She is a world-class artist, and she always talks highly about me. (From Guddi to Rocky Aur Rani Ki Prem Kahani)." In the photo, the actor is seen sitting while Jaya stands behind him. Their bond has stood the test of time, evolving beautifully over the decades. Dharmendra's reference to "Rocky Aur Rani Ki Prem Kahani," their recent collaboration, highlights the continuity of their connection as the two reunited on-screen to deliver memorable performances. Fans quickly responded to



the post, celebrating the legacy of the two icons who continue to inspire generations with their artistry. One fan commented, "I love Guddi, especially @jaya\_bhaduri ji," while another wrote, "Super jodi." Speaking of "Guddi," the 1971 Indian Hindi drama was directed by Hrishikesh

Mukherjee and written by Gulzar. It starred Dharmendra, Jaya Bachchan, and Utpal Dutt. The film was Jaya's debut and career-defining project, featuring her as a school-girl harbouring a crush on and an obsession with actor Dharmendra, who portrayed himself. Dharmendra and Jaya have also worked together in iconic films, including "Sholay." Most recently, they appeared in Karan Johar's "Rocky Aur Rani Ki Prem Kahani." The film featured Ranveer Singh and Alia Bhatt as the lead couple, with Dharmendra, Jaya, Shabana Azmi, Tota Roy Chowdhury, Chumi Ganguly, Aamir Bashir, and Kshitee Jog playing supporting roles. In the movie, Jaya Bachchan portrayed Dhanlakshmi Randhawa, Rocky's grandmother, while Dharmendra played Kanwal Lund, Rocky's grandfather. Produced under Dharma Productions and Viacom18 Studios, the film marked Johar's directorial comeback after "Ae Dil Hai Mushkil" in 2016.

## Memorandum submitted to Sri Akal Takht for Amritsar to be 'Holy City'



Public support gathered outside Sri Harmandir Sahib with former IAS officer Dr. Raju

**FW DESK Amritsar**  
The former IAS officer and member of the National Minority Commission, Dr. Jagmohan Singh Raju who is striving to get the status of 'Holy City' (Dharam Nagari) for Guru Amritsar intensified his efforts along with hundred of supporters outside Harmandir Sahib on Saturday. Nearly 400 supporters and devotees strengthened this mission and affirmed that they will put pressure on the State Govt favouring the Amritsar for the status of Holy City like other religious cities in the country. Earlier, while leading this campaign, Dr. Raju submitted a memorandum to office of the Shri Akal Takht's Jathedar Sahib wherein he put forward his demands to which he also consented for this noble cause. Addressing the media, Dr. Raju said that it is a

matter of utter disappointment for Sikhism and city residents that the sanctity of the world famous Amritsar has not been recognized as a holy city. On the lines of Vatican, Jerusalem, Mecca, the pilgrimage of the Sikhs, Amritsar should also be given this status. Despite reminding the state government from time to time his efforts have been failed. He said that he has also put pressure on the Punjab Govt through the National Minority Commission, but the attitude of the Govt in this regard has been disappointing. In the recommendations given to the commission, he advocated for the holy city that there should be a complete ban on the consumption and sale of alcohol and tobacco within a radius of about one mile of the historic Gurudwaras of the city. Smoking and drinking alcohol should be banned in public areas. Like October 2, holy days like Gurburab should be declared dry days. He also demanded that liquor

**THE STATE GOVERNMENT FROM TIME TO TIME HIS EFFORTS HAVE BEEN FAILED. HE SAID THAT HE HAS ALSO PUT PRESSURE ON THE PUNJAB GOVT THROUGH THE NATIONAL MINORITY COMMISSION, BUT THE ATTITUDE OF THE GOVT IN THIS REGARD HAS BEEN DISAPPOINTING**

shops should be opened on alternative days. In this regard, the commission has also issued a notice to the Punjab Govt, on which the Govt has not given any reply. On March 29 last year, Raju had filed a petition in the Punjab and Haryana High Court in this matter, on which the Bhagwant Mann government had also given an undertaking that the proposal is under consideration. On the basis of the undertaking, the court also disposed of the case. When the Govt did not take any action for the last 16 months, Dr. Raju filed a contempt petition against the Govt. The High Court has directed the Punjab Govt to file a compliance report before December 10. Raju reiterated that the Govt will have to clarify its stand in this regard. If the Govt ignores this issue, then he will strengthen his campaign with public support. Amritsar can also be given the status of Holy City on the lines of Haridwar, Ayodhya, Dwarka in the country, where smoking and alcohol can be completely banned around religious places. The state Govt and the municipal corporation can issue an ordinance for this execution.

## Uber launches app for Shikara booking service on famous Dal lake



**FW DESK Srinagar**

Uber has introduced a water transport service on the famous Dal Lake in Srinagar, Jammu & Kashmir, enabling tourists and locals to book rides on the region's iconic shikaras through its app. This marks Uber's first water transport venture in India, joining similar services it operates in cities like London. Travelers can reserve rides on the traditional wooden boats, known for their vibrant canopies and intricate decorations, at least 12 hours and up to 15 days in advance. Dal Lake is home to around 4,000 shikaras, which have long been a staple for both local commuters and tourism. While Uber will facilitate bookings, it will not charge a fee, ensuring that operators receive the full fare paid by passengers. The move has received mixed reactions from shikara operators. Wali Mohammad Bhatt, president of the Shikara Owners Association, welcomed the development, highlighting fixed pricing and convenience for customers as key benefits. However, some operators were skeptical, believing it would have little impact on their established customer base. Srinagar's Dal Lake, surrounded by houseboats and the Himalayas, remains one of Kashmir's most prominent attractions, and Uber's new service may further boost the region's recovering tourism industry.

## Gita Mahotsav becomes a platform to showcase Haryana's vanishing folk arts

**GULSHAN KUMAR Chandigarh**

The International Gita Mahotsav has become a platform to preserve many genres of folk art and culture of Haryana which are on the verge of extinction. Folk arts like Dheru Gayan Gatha, Baaazigar Kala and Kachhi Ghodi are being performed on the banks of the Brahma Sarovar. Through this festival, not only is the government trying to keep the folk culture alive, employment opportunities are also being provided to folk artists. The North Zone Cultural Art Centre, Patiala, Haryana Art and Cultural Affairs Department, Haryana Arts Council



and Kurukshetra Development Board along with the state government are working to preserve the folk culture of not just Haryana but also of other states and provide a platform to the artists through the International Gita Mahotsav. A folk artiste said only a few of them are left in Haryana who

are carrying forward the Jogi Nath Been Sapera tradition by playing Been, Tumba, Dholak and Khanjari. He said the fellow artistes in his group are also working with him to keep this art alive. All of them are entertaining people by playing Been, Tumba, Dholak, Khanjari dressed

in traditional costumes. The state government is continuously working to provide platforms like International Gita Mahotsav to encourage such artists. On the seventh day of the Ship and Saras Mela, folk artists from various villages of Haryana made the tourists dance by presenting Dheru Gatha singing on the northern bank of the Brahma Sarovar. These folk artistes praised the saga of Guru Gorakh Nath ji and of Jahveer Gugga Peer through Dheru Gatha singing. Expressing gratitude to the government and administration, an artiste said through the International Gita Mahotsav, an effort is being made to keep the folk arts alive.

## Sonia Mann Arrested for Speaking Out Against Industrial Waste in Sutlej River



**KULBIR SINGH KALSI Ludhiana**  
Renowned actress and social activist Sonia Mann was arrested on Tuesday during a protest against the alarming industrial pollution affecting Budha Nallah and the Sutlej River. The protest highlighted the hazardous release of untreated wastewater from Ludhiana's industries into Budha Nallah, leading to widespread environmental and health crises. Sonia Mann, known for her outspoken stance on social issues, joined concerned citizens in demanding immediate action against the contamination. Protesters accused industries of discharging untreated waste directly into water bodies, a

practice that has severely polluted drinking water sources, spread skin diseases and even contributed to cases of skin cancer in nearby communities. The protest turned intense as activists raised slogans demanding government accountability. Police intervened, detaining Sonia Mann and others at Dogri police station for an entire day, citing disruption of public order. Before her arrest, Sonia Mann stated, "The pollution of Budha Nallah is not just an environmental issue—it's a humanitarian crisis. The contaminated water flowing into the Sutlej River is poisoning our people and future generations. We need accountability and immediate action to stop this catastrophe."

## Jalandhar Players Shine at Punjab Badminton Championship

**DC Himanshu Aggarwal Honors Winners, Urges Youth to Prioritize Sports**

**FW DESK Jalandhar**  
The Punjab State Senior Badminton Championship concluded on a high note at the Raizada Hansraj Badminton Stadium in Jalandhar, with local players dominating the event. Jalandhar's Manya Ralhan and Mridul Jha emerged as standout performers, each claiming double crowns in their respective categories. Ralhan triumphed in both the Women's Singles and Doubles, while Jha secured victories in the Men's Singles and Mixed Doubles. Additionally, Adhyan Kakkar from Amritsar earned titles in both the Men's Doubles and Mixed Doubles, making it a memorable competition for the region. DBA Secretary Ritin Khanna shared that approximately 200 players participated in five events, including Singles, Doubles and Mixed Doubles. This year's championship marked a milestone for the Punjab Badminton Association as it intro-



duced cash prizes totaling Rs. 2 lakhs for the first time in its history. The winners were presented with their awards by the Chief Guest, Dr. Himanshu Aggarwal, IAS, Deputy Commissioner of Jalandhar. In addition, Inayat Gulati from Jalandhar and Jagshar Khangura from Patiala were recognized with cash prizes of Rs. 11,000 each for their exceptional achievements. The victorious players will represent Punjab at the upcoming National Championship in Bengaluru later this month. Speaking at the ceremony, Dr.

## Kalagram reverbrates with folk tunes

**Himachali singers Kaku Thakur & Geeta Bhardwaj steal show**

**KULBIR SINGH KALSI Chandigarh**  
Undeterred by the traffic restrictions imposed by the Chandigarh Administration, ahead of PM Narendra Modi's visit to city, thousands of Mela enthusiasts on Tuesday thronged the Crafts Mela and enjoyed the haunting folk tunes of various regions. In the regular morning and evening sessions of the high-octave event, the stage performances included Rajasthani folk singing by Murlil Rajasthani, which was followed by folk dances, including Jhoomar (Pb), Sirmauri Naati (HP), Badhai (MP), Rakhi pada (Arunachal), Panthi bhapang badan by Yusuf Khan. Jaabro (Ladakh), Balti (Ladakh) Kalbelia (Rajasthan), and Dhamaali (JK&K). The star performers of the day were Sukhi Brar and Naqqal Goni Khan, who took the stage by storm. 'Kachi Ghori (Raj), Behurupiya, Nachar and Baajigar (Pb) Nagada and Been Jogis(Har) were the regu-



lar ground performances. The daily quiz contest for children attracted more than 200 participants. The On-the-spot photog-

raphy competition on the theme "Glimpses from Crafts Mela" organised by the Chandigarh Lalit Kala Akademy also elicited an overwhelming response from the participants. The star singers of the evening were well-known singers of Himachal Pradesh, Kaku Ram Thakur and the reigning queen of Pahadi folk singing, Geeta Bhardwaj, brought live the divine folk music from the hills.