MOVING
THE NEEDLE

### THE JOURNEY FROM POLICY TO IMPLEMENTATION

JULY 2024

Dear readers,

As we continue "Moving the Needle," our July edition is where we explore pivotal developments that are driving innovation and transformation including our 5-pointer strategy to strengthen India's service sector towards Viksit Bharat as well as our take on how Chabahar Port Development stands as a strategic investment for regional trade.

Aimed to provide you with actionable intelligence to stay ahead in a rapidly changing world, the issue also talks of the emergence of decacorns, breakthroughs like 3D-Printed rocket engines, use of AI in affordable healthcare provision, and how these are revolutionizing the way world works, making the Indian ecosystem ripe for economic growth with an entrepreneurial appetite & affinity for exploration & innovation.

As part of our Expert Speak section, we are also privileged to feature an exclusive Q&A session with Mr. Neelkanth Mishra, who, as Part-time Chairman of UIDAI, offers profound perspectives on the future of digital identity and its impact on our collective future.

Read on to uncover the opportunities that lie at the intersection of ambition and action!
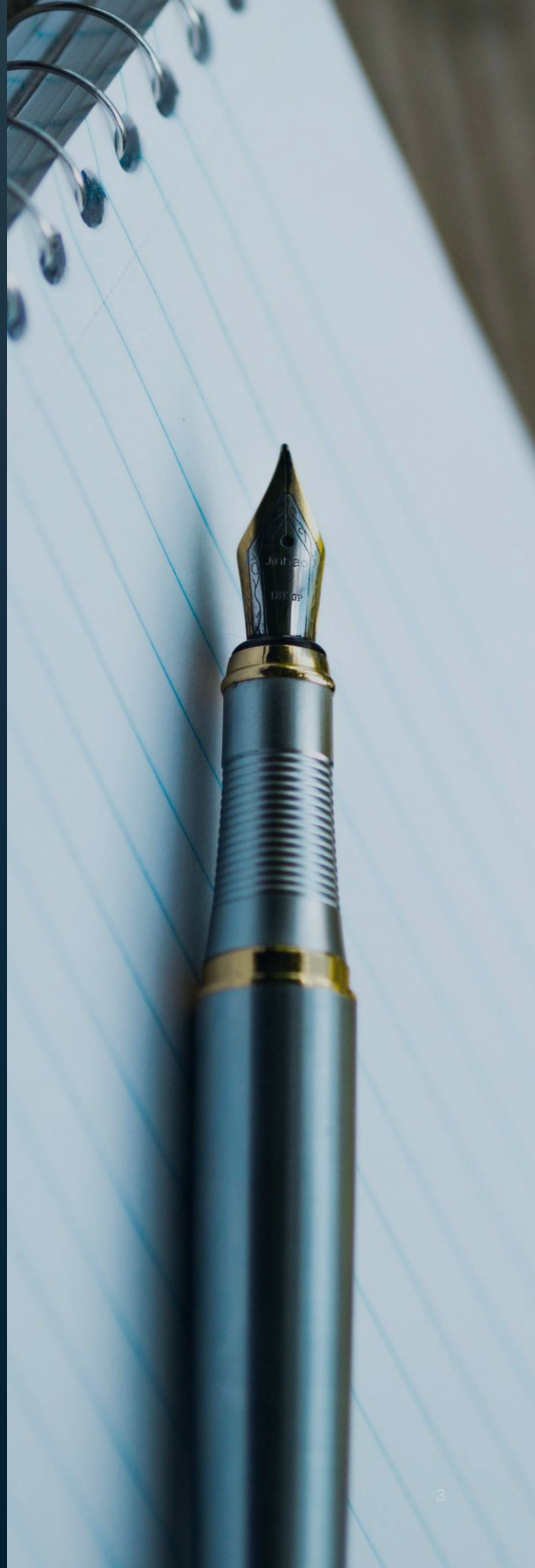
1 Primus Outreach

#PolicySquare
To understand the more fundamental questions in policy making

#LeadersSpotlight
To highlight opinions of sector/segment leaders

#PrimusPodcast
To bring together policymakers & thinkers in areas of critical importance

Policy Square, Leaders Spotlight and Primus Podcast are initiatives by Primus Partners wherein key constituents of the public policy ecosystem as well as the sector experts – senior policy-makers, civil society members, business executives etc. – are interviewed on critical issues and policies of national importance to explore their impact on the country and industry at-large.

The motivation for these initiatives series is driven by Primus Partners' rich policy-sectoral-regulatory knowledge base, as well as experience of delivering projects across multiple domains and geographies, with an aim to leverage this knowledge, and create a platform to table in–depth discourse.

With this initiative, we have attempted to engage with experts at various levels within the country's ecosystem. Each expert has brought in a new perspective – all towards enabling India's growth both in absolute and relative terms.

Policy Square
Conversation on
The journey and vision of NIHFW
With
Dr. Dheeraj Shah
Director, National Institute of Health and

#PolicySquare
Latest episode features:
Dr. Dheeraj Shah, Director of the National Institute of Health and Family Welfare (NIHFW)

2 Economy

Our 5-pointer strategy for Strengthening India's service sector towards Viksit Bharat

India's service sector contributes to over 50% of India's GDP and has attracted significant foreign investment encompassing a diverse range of industries, including information technology, telecommunications, banking, finance, and tourism. Despite lockdowns and geopolitical uncertainties, India's services exports remained resilient, positioning the country among the top 10 services-exporting nations in 2021. This resilience was driven by increased demand for digital support, service-oriented businesses, and infrastructure modernization. Sectors such as e-commerce, digital education, and telemedicine experienced

significant growth compensating the declines in traditional service areas like tourism and hospitality during that period.

The rise of digital services along with advancements in cybersecurity, cloud computing, is transforming traditional industries and creating opportunities for entrepreneurship. Today, government support with initiatives like the BharatNet project, Digital India program has bridged the digital divide between urban and rural areas, connecting the unconnected and creating numerous employment opportunities. This has also paved the way for a digitally-driven services sector.

Our 5-pointer strategy for further strengthening the services includes- Firstly, enhancing skill development courses through skill universities to equip the workforce with expertise in emerging technologies like AI, blockchain, and cybersecurity. Secondly, following Niti Aayog's National Strategy for Artificial Intelligence, which outlines a comprehensive roadmap for leveraging AI in sectors like healthcare, agriculture, and education, a scheme similar to the Production-Linked Incentive (PLI) can be introduced for the services sector. This would boost capital expenditure in critical areas such as education, healthcare, and hospitality. Thirdly, most of India's start-ups are in the information technology and knowledge-based sectors, where intellectual property and patents are crucial.

One of the surveys noted that India's patent grants are much lower than those in China, the USA, Japan, and Korea, primarily due to low R&D expenditure, which was 0.7% of GDP in 2020. Therefore, increasing expenditure on research and development (R&D) and streamlining the patent application process is essential. Fourthly, startups are emerging as a pivotal force for economic growth and employment, with India establishing itself as the world's third-largest startup hub.

Today tech startups are emerging as powerful engines of job creation in India, directly employing over 10.34 lakh individuals in 2023. Besides regulatory support, investing in digital infrastructure such as technology hubs will create a favorable environment for startups. Initiatives like co-working spaces, incubators, and accelerators can offer startups access to resources, mentorship, and networking opportunities. Finally, India's tourism sector, one of the fastest-growing economic segments in the country, is projected to surpass $59 billion in revenue, with Foreign Tourist Arrivals (FTAs) expected to reach 30.5 million by 2028.

To achieve this, enhancing infrastructure development, including transportation networks, accommodation facilities, and tourist attractions, is crucial to attract and accommodate a growing number of visitors. Exploring additional growth opportunities like the Indian MICE market (Meetings, Incentives, Conferences, and Exhibitions), which currently holds less than 1% market share, initiatives such as 'Meet in India', the National Advisory Council for MICE, and the India MICE Board are expected to double MICE tourism in the next five years.

Thus, the services sector is poised to propel India into a global hub for education, healthcare, and intellectual capital, establishing itself as a thriving startup hub in the process. By leveraging advancements in digital technology and fostering innovation across industries such as IT, tourism, healthcare, and more, India can attract global investment in the services sector. This will boost output and employment, driving the country towards its vision of Viksit Bharat (Developed India).

3 Geopolitics

COP29: Focusing on Climate Finance

Azerbaijan's COP29 Presidency will act as a crucial enabler in the run-up to three fundamental aspects of the Paris Climate Agreement 2015. The first aspect is the updated Nationally Determined Contributions (NDC) that parties to the 2015 Agreement are set to unveil in 2025. The second one is the roadmap for emission reduction by 45% by 2030 to keep global warming to no more than 1.5°C by the end of the century. The third and crucial one focuses on enhanced climate finance by developed countries from a floor of USD 100 billion per year.

In a recent letter to Paris Accord parties, the COP28, COP29, and COP30 Troika—comprising the UAE, Azerbaijan, and Brazil— unveiled their 'Roadmap to Mission 1.5° C' with a promising focus on NDCs. The letter underscores their unwavering commitment to supporting parties' NDCs and priorities by implementing the COP28 UAE Consensus & Catalysing to mobilise and provide technical and financial resources to further stimulate ambition in NDCs.

With 90% of Azerbaijan's economy dependent on oil exports, it is speculated that Baku's Action Agenda for COP29 could continue in the pathway lit by the UAE for petrostate presidencies with watered-down language such as 'Transitioning away from fossil fuels', 'Transitional Fuels in facilitating energy transition', and' Low-carbon hydrogen production.

UAE's COP28 brought in landmark language on fossil fuels—the most significant contributor to global warming. It called for 'Transitioning away from fossil fuels in the energy systems, in a just, orderly and equitable manner'. However, geopolitical tensions have increased the global appetite for fossil fuels. The Ukraine-Russia war has led to the EU signing an agreement with Baku to double gas imports from the country to 20 billion cubic metres by 2027. When asked about Azerbaijan's green transition plans—with 2024 being their COP Presidency year, President Ilham Aliyev responded with "Europe needs more gas".

Amidst these global developments, developing countries have begun to speak in chorus on the need for all future COP Presidencies to focus on Climate Finance—focusing on adaptation efforts over mitigation.

Faced with the severe impact of climate change, developing countries require a staggering $5.9 trillion for the pre-2030 period to implement their NDCs. Further, they annually require a substantial $215-387 billion up to 2030 as adaptation finance. Lastly, they annually require a significant $4.3 trillion to be invested up to 2030 in clean energy projects. These figures underscore the urgent need for financial support from developed nations.

Developing Countries have repeatedly reiterated the need for developed countries to fulfil their Climate Finance commitment. In 2009, at COP15 in Copenhagen, developed countries had agreed to mobilise $100bn annually by 2020 in climate finance. While this has hardly been fulfilled, a recent OECD report said that developed countries fulfilled this commitment in 2022, although 69% of this was in the form of loans.

While developed countries have complied with their annual commitment just once in the last four years, they will soon face the revision cycle to set a new goal. As per the Paris Accord 'prior to 2025 the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement shall set a new collective quantified goal from a floor of USD 100 billion per year, taking into account the needs and priorities of developing countries'.

In line with this, negotiating a Climate Finance goal for the developed countries was a significant topic of discussion at the recently concluded UN Bonn Climate Change Conference. At this mid-yearly climate conference, which sets the stage for the COP Presidency, developed countries have conveyed that countries such as China and Petrostates, which have hitherto defined themselves as developing countries under the Paris Accord, should contribute to climate finance due to their high emissions and higher economic capacities.
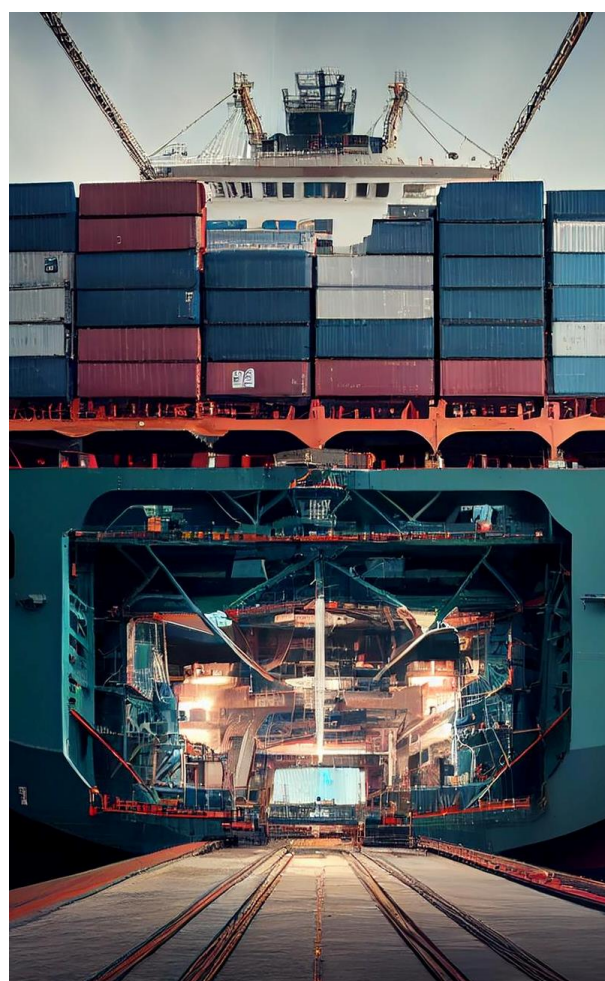
Further, the G7 Apulia Leaders' Communiqué 2024 underlined the importance of including countries capable of contributing to any international public finance mobilisation.

With this, the Global North is readying itself to pressure nations classified as developing but that are more economically advanced to contribute to Climate Finance. During these discussions, countries such as China, Singapore, UAE, Saudi Arabia and many other wealthier Middle Eastern nations will be put in a tough spot by their G7 allies/partners.

So far, COP has balanced the interests of the Global North and Global South, considering nuanced positions on subjects like historic emissions, the Industrial Revolution, colonisation, etc. This reference point and a pragmatic stocktaking of new prosperous countries must continue to guide COP29 decision-makers in their quest to negotiate a new climate finance agreement.

Without a new collective quantified goal based on a floor of USD 100 billion per year in climate finance from developed countries, developing countries will struggle to progress further on their NDCs and face the danger of reversing a decade's worth of efforts in fighting climate change.

4 Infrastructure

On May 13, 2024, India and Iran signed a historic 10-year agreement to develop and operate the Chabahar Port, a crucial maritime hub strategically in southeastern Iran. This milestone signifies India's unwavering commitment to enhancing regional connectivity and fortifying economic ties with Central Asia and beyond. The agreement goes much beyond the initial framework established in 2016, demonstrating the resilience and long-term vision underlying this crucial partnership

The Chabahar Port, strategically located on the Gulf of Oman, serves as a gateway to the landlocked regions of Afghanistan and Central Asia. Its unique geographic advantage, including a deep draft and direct access to the Indian Ocean, positions it as an indispensable maritime trade route circumventing Pakistan. The port presents India with an alternative and more efficient trade corridor, reducing transportation time by 20 days and slashing costs by a remarkable 30% compared to traditional routes.

India's significant investment of USD 370 million, which includes USD 120 million dedicated to port development and an additional USD 250 million earmarked for associated infrastructure, demonstrates its recognition of Chabahar's strategic significance. The port's seamless integration into the International North-South Transport Corridor (INSTC) further highlights its value as an important transit hub, connecting India, Iran, Russia, and Central Asia, thereby facilitating

seamless trade and commerce across the entire region.

However, Chabahar's significance extends beyond economic considerations; it holds profound geopolitical consequences. By circumventing Pakistan, India gains direct access to the lucrative markets of Afghanistan and Central Asia, counterbalancing China's growing influence in the region through ambitious initiatives such as the China-Pakistan Economic Corridor (CPEC) and the Gwadar Port. Furthermore, the port fortifies India's energy reducing its reliance on conventional maritime chokepoints vulnerable to geopolitical volatility.

Beyond its commercial advantages, Chabahar has demonstrated its humanitarian value during times of crisis. During the COVID-19 pandemic, the port played an important role in facilitating the delivery of essential food supplies like wheat and pulses, from India to Afghanistan, showcasing its importance as a lifeline for the region.

.Undoubtedly, the path to Chabahar's development has been laden with challenges, primarily stemming from the complex geopolitical landscape and the U.S. sanctions imposed on Iran. Despite recent warnings from Washington of potential sanctions looming over the project, India remains steady, emphasizing the broader regional significance of the endeavour and the shared goal of promoting connectivity and trade.

As India navigates these challenges, it is imperative to maintain a strategic vision and encourage collaborative partnerships with regional stakeholders. The development of the Chabahar Port stands as a testament to India's proactive approach to pursuing strategic economic relations and diversifying its trade routes. By leveraging the port's potential as a transshipment hub and nurturing regional connectivity, India can unlock new avenues for economic growth, deepen its ties with Central Asia, and assert its influence in the evolving geopolitical landscape of the region.

In addition, the Chabahar project aligns seamlessly with India's broader vision of enhancing its logistical capabilities and reengineering its trade corridors. Initiatives such as the International NorthSouth Transport Corridor, the India-Middle

East-Europe Economic Corridor, and the development of ports like Sittwe in Myanmar highlight India's commitment to creating a robust and resilient network of transportation routes and safeguarding its economic interests and global competitiveness.

In conclusion, the Chabahar Port development represents a strategic investment for India, offering multiple benefits that extend far beyond commercial gains. By navigating the challenges with diplomatic acumen and encouraging regional cooperation, India can harness the full potential of this ambitious project, bringing in a new era of prosperity and connectivity for the entire region

5 Technology

Revolutionizing space exploration with 3D-Printed rocket engines
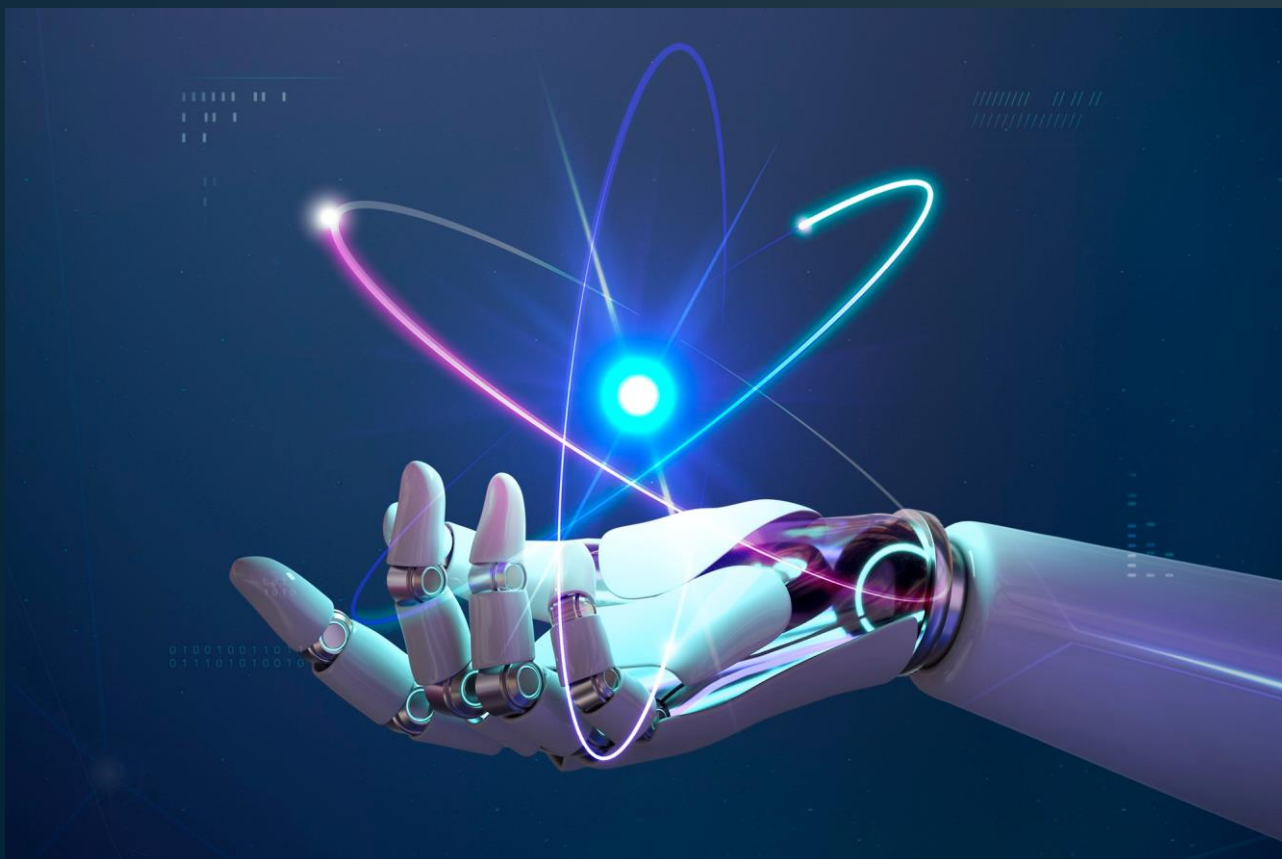
The aerospace industry is on the brink of a major transformation because of the advent of 3D-printed rocket engines. This innovative technology promises to make rockets lighter, faster and more cost-effective, significantly altering how businesses approach space exploration. The shift from traditional manufacturing to advanced 3D printing, or additive manufacturing, is set to democratize space travel, making it more accessible for private companies and opening new avenues for innovation.

The Game-Changing Technology

- 3D-printed rocket engines represent a significant shift from conventional manufacturing methods. Traditional rocket engines are composed of hundreds of intricate parts, requiring extensive time and resources to assemble. In contrast, 3D printing allows for the creation of complex engine parts in a single piece, drastically reducing assembly time and potential points of failure.

- This advanced technology involves building an object layer by layer from a digital model, using materials such as metal powders. The result is a high-precision, robust engine that can be produced quickly and cost effectively.

Lighter, Faster, Cheaper Rockets

- One of the most significant advantages of 3D-printed rocket engines is their reduced weight. Traditional engines often require heavy materials and extensive structural support to withstand the stresses of launch. With 3D printing, engineers can design parts that are lighter and stronger, optimizing material usage and minimizing weight without compromising performance.

- Speed is another critical factor. The traditional manufacturing process for rocket engines can take months, involving numerous stages from casting to machining and assembly. Whereas 3D printing can produce an entire engine in a matter of days. This rapid production capability not only accelerates the development cycle but also allows for faster iteration and testing, leading to more efficient and effective designs.

- Cost savings are equally transformative. The streamlined production process reduces labour and material costs significantly. Additionally, the ability to print on demand eliminates the need for large inventories of spare parts, further reducing expenses. For businesses looking to launch satellites or other payloads, these cost reductions make space more accessible and viable as a commercial endeavour.

Impact on the Aerospace Industry

The implications of 3D-printed rocket engines extend far beyond cost and speed. By lowering the barriers to entry, more companies can participate in space exploration, leading to a new era of competition and innovation. Startups and small enterprises, previously deterred by the high costs and complexities of space missions, can now envision reaching orbit.

produced quickly and cost-effectively.

Moreover, the flexibility of 3D printing allows for customized solutions tailored to specific mission requirements. Companies can design and print engines optimized for their unique payloads, enhancing mission efficiency and success rates. This adaptability is particularly valuable in the rapidly evolving field of satellite technology, where customization can lead to significant competitive advantages.
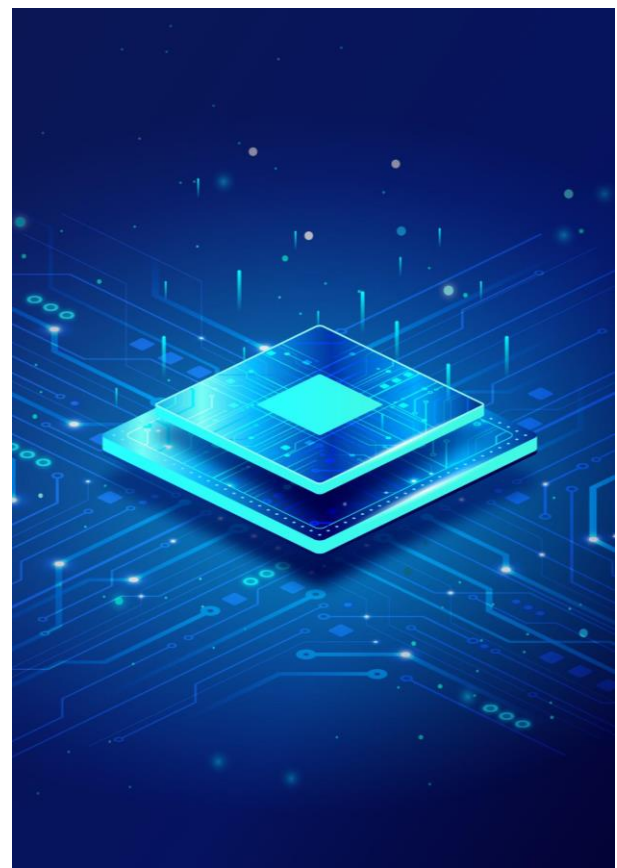
Exploring New Opportunities

The breakthrough in 3D-printed rocket engines is poised to democratize access to space. Private companies and institutions can now contemplate launching satellites or conducting experiments in space. This democratization could spur a wave of new ventures, from telecommunications and earth observation to scientific research and space tourism

We are talking about a future where launching a satellite is as straightforward as deploying a new software application. The potential for innovation and growth is boundless, with space becoming an integral part of our economic infrastructure. The success of 3D-printed rocket engines is not just a technological achievement; it is a catalyst for a new era of space exploration.

The pioneering work in 3D-printed rocket engines marks a significant milestone in the aerospace industry, by offering lighter, faster and cheaper

alternatives to traditional rockets. As we look to the stars, the innovation in 3D-printed rocket engines stands at the forefront of this exciting new frontier for a future where space is within reach for all.

6 Aerospace & Defence

As the A&D industry navigates intricate global landscapes, the synergy between technological advancement and strategic collaboration emerges as a beacon of progress and stability. The recent collaboration between Jeh Aerospace and GS Precision to establish a dedicated production facility in Hyderabad, offers a compelling model for addressing these needs. By bringing together the expertise and experience of two industry leader, this partnership, characterized by its focus on technological advancement, strategic alignment, and sustainability, provides valuable insights for the A&D industry.

Key Insights from the Jeh Aerospace-GS Precision Partnership

- **Strategic Partnerships for Enhanced Agility**

  Jeh Aerospace's integration with GS Precision showcases how strategic collaborations can enhance agility and innovation. This partnership's success lies in combining advanced precision machining with robust manufacturing capabilities, allowing for rapid adaptation to market changes. For the wider A&D industry, fostering similar alliances can facilitate quicker response times and greater flexibility, essential for staying competitive in a dynamic market.

- **Leveraging Technology for Efficiency**

The partnership underscores the critical role of advanced manufacturing technologies. By embracing precision CNC machining and additive manufacturing, they have streamlined operations, reduced costs, and improved product quality. A&D firms should invest in cutting edge technologies to drive efficiency and maintain a competitive edge. Policies that support R&D and the adoption of new technologies can amplify these benefits across the industry.

- **Building robust supplier relationships**

The collaboration highlights the importance of strong, diversified supplier relationships in mitigating risks and ensuring supply chain continuity. In light of geopolitical tensions, diversifying supply bases is crucial. A&D companies should expand their supplier networks and strengthen local manufacturing capabilities to buffer against disruptions and enhance resilience.

- **Commitment to Sustainable Practices**

Sustainability is increasingly vital in A&D manufacturing. This partnership's focus on ecofriendly practices, such as reducing material waste and energy consumption, aligns with global sustainability goals. A&D firms must integrate green practices into their operations to meet regulatory demands and enhance their market position. Supporting policies could include incentives for sustainable technologies and processes, promoting long-term environmental responsibility in the industry.

Broader Implications for the A&D Industry

- **Encouraging Strategic Alliances**

The Jeh-GS partnership exemplifies how alliances can drive technological progress and operational flexibility. Industry players, especially smaller firms, should seek partnerships that leverage complementary strengths. Government and industry bodies can facilitate these collaborations through networking platforms and targeted incentives.

- **Investing in technology and skills**

Continual investment in technology and workforce development is essential. Emphasis should be placed on integrating advanced digital technologies and implementing training programs to further enhance the skills of the workforce. Jeh Aerospace has played a pivotal role in unlocking India's manufacturing potential for prominent Original Equipment Manufacturers (OEMs) by harnessing India's talent pool. Public-private partnerships and targeted funding can accelerate technological adoption and skill enhancement across the industry.

- **Enhancing Supply Chain Resilience**

Geopolitical tensions necessitate more resilient and diversified supply chains. A&D firms should pursue multi-regional sourcing strategies and bolster local production. Policies that incentivize diversification and local manufacturing can help build robust supply networks capable of withstanding global disruptions.

- **Prioritizing Sustainability**

Environmental sustainability should be a core focus for the industry. Companies should adopt energy-efficient technologies and reduce their carbon footprint. Governments can support these efforts with clear guidelines and incentives for green practices, ensuring the sector contributes to broader environmental goals.

Such strategic collaborations underscore the transformative power of partnerships in fostering agility and innovation within the sector. By prioritizing technological advancement, robust supplier networks, and sustainable practices, the industry can navigate geopolitical uncertainties and market complexities with resilience. This proactive approach not only ensures competitive edge but also sets a precedent for a forward-thinking, adaptive A&D industry poised for sustained growth and global leadership.
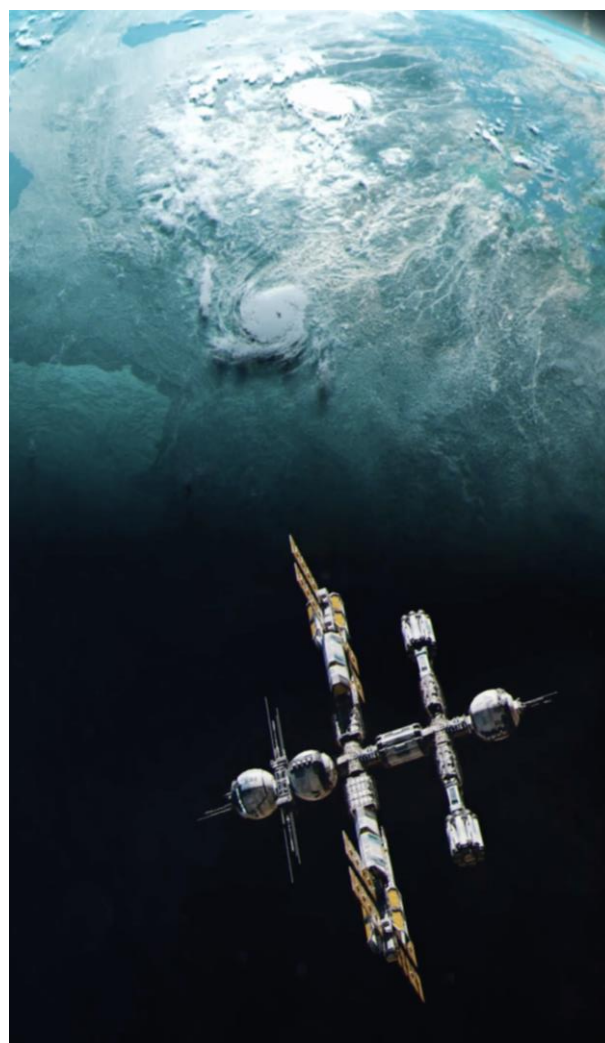
7 Healthcare

Integrating digital health solutions for accessible and affordable healthcare

In a world facing significant healthcare challenges—escalating costs, unequal service distribution, and a growing demand for quality care—the digital revolution offers a promising solution. Digital health solutions are not mere trends; they are transformative forces reshaping healthcare delivery, making it more accessible and affordable for all.

Imagine a healthcare system where the quality of care is not dictated by distance or economic status. Digital health encompasses a range of technologies, from telemedicine to electronic health records (EHRs) and artificial intelligence (AI). Each plays a crucial role in enhancing patient care and streamlining processes.

Electronic Health Records (EHRs) are the cornerstone of digital health, revolutionizing how patient information is managed. These systems not only provide healthcare professionals with seamless access to up-to-date patient data, ensuring better coordination and reducing the risk of medical errors, but they also empower patients by allowing them access to their medical records. This dual access fosters a collaborative healthcare environment where consent-based sharing of medical records becomes the norm. The accessibility of consent-based medical records to both medical service providers and patients through EHRs epitomizes the future of patient-centred care, making healthcare more efficient, transparent, and responsive to individual needs.

The empowerment extends further with mobile health apps and wearable devices, transforming passive patients into active participants in their health management. These tools offer real-time data on health metrics, helping individuals monitor their conditions and adhere to treatment plans. For instance, a diabetic patient can use an app to track blood sugar levels, receive medication reminders, and access educational content, all contributing to effective disease management and improved health outcomes.

Additionally, AI is revolutionizing healthcare by enhancing early diagnosis and preventive care through its ability to analyse large datasets and identify patterns. AI-driven diagnostic tools are increasingly adept at detecting conditions like cancer early, improving treatment success rates and reducing costs. For example, Stanford Medicine, in collaboration with Microsoft, deployed AI solutions that include conversational and generative AI to support clinicians. This initiative aims to reduce physician burnout and streamline administrative tasks, ultimately enhancing patient care. These advancements highlight AI's significant impact on improving healthcare outcomes for patients, professionals, and systems alike. Another promising advancement is the emergence of remote patient monitoring (RPM). This technology enables healthcare providers to monitor patients' vital signs and health data remotely, allowing timely interventions and reducing the need for frequent hospital visits. RPM is particularly beneficial for managing chronic conditions such as hypertension and heart disease, where continuous monitoring can significantly enhance patient outcomes.

significantly enhance patient outcomes. It stands as a testament to advances in healthcare accessibility.

The integration of digital solutions in healthcare does present challenges, such as data security, privacy, user-friendliness, managing interoperability nuances, and adapting to evolving patient needs. These issues must be addressed effectively for long-term success. However, the integration of digital health solutions is more than a necessity; it is a transformative strategy to ensure that high-quality healthcare is accessible and affordable for all.
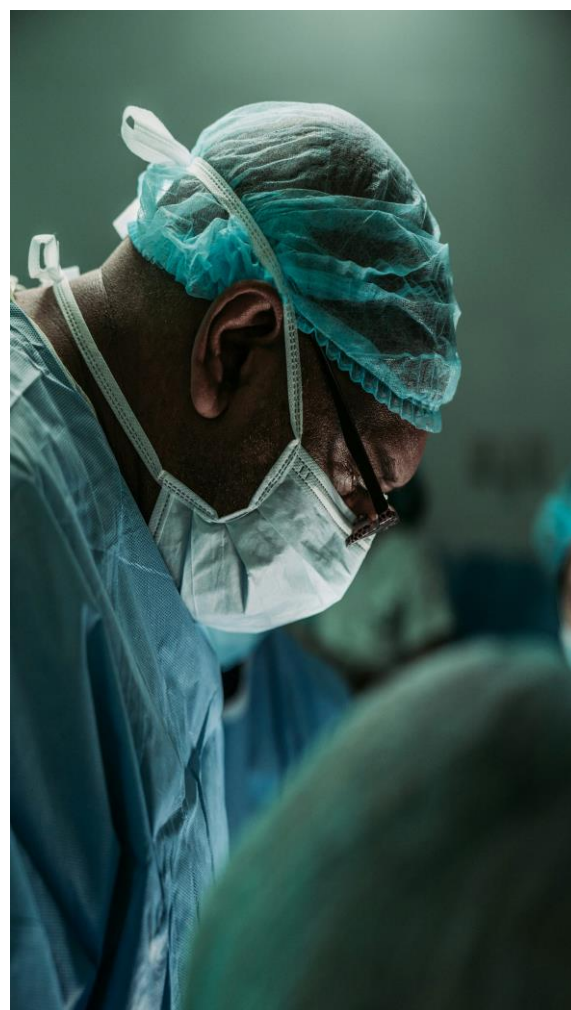
8 Financial Services

The banking sector in India is grappling with a significant increase in fraud cases. According to data from the Reserve Bank of India (RBI) from their annual report 2023-24, fraud cases have surged by nearly 300% in the last two years, reaching 36,075 in FY24. However, the total amount involved in these fraud cases has surprisingly decreased from ₹45,358 crore to ₹13,930 crore in 2023-24. This paradoxical trend, coupled with a rise in fraud instances in the digital payments segment, raises questions about the evolving nature of banking fraud in India.

The Paradox of Fraud: More Cases, Less Money Involved

The significant increase in the number of fraud cases indicates a growing challenge for banks in safeguarding against fraudulent activities. This rise can be attributed to several factors, including increased digitization, higher transaction volumes, and more sophisticated fraud techniques. The decline in the total amount involved suggests that while frauds are becoming more frequent, they may involve smaller sums of money. This could be due to enhanced detection mechanisms that catch frauds early before large amounts can be siphoned off.

Digital Dangers: Fraudsters Exploit Online Payment Systems

The rise in fraud cases in the digital payments segment is particularly concerning. As more consumers and businesses adopt digital payment methods, the risk landscape is changing. Cybercriminals are increasingly targeting digital

transactions, leveraging vulnerabilities in online payment systems. The growth of digital payment platforms and increased internet penetration in India have provided more opportunities for fraudsters. Phishing attacks, malware, and social engineering are some common tactics used to exploit these platforms.

Fortifying Defences: Advanced Tech to Combat Banking Fraud

Banks should enhance their efforts to combat fraud by investing in advanced technologies like artificial intelligence (AI) and machine learning (ML) to better detect and prevent fraudulent activities. It is crucial to improve customer awareness and education on safe banking practices, as many fraud cases can be mitigated if customers remain vigilant and informed about potential threats. Strengthening regulatory measures and compliance requirements is essential to ensure that banks adhere to robust security standards and protocols.

The RBI's annual report for 2023-24 states that the current payments system (including card networks, banks, and PPI entities) mainly uses SMS-based one-time passwords (OTP) for additional authentication. With advancements in technology, there are now innovative solutions to reduce fraud and make payments smoother. Therefore, a new risk-based authentication method using behavioural biometrics, location/history of payments, digital tokens, and in-app notifications will be considered. Currently, centralized payment systems like RTGS and NEFT only use the account number and IFSC for fund transfers. To reduce

fraud and improve the payment experience, real-time payee name validation before fund transfers will be explored. This will comply with the new 'Digital Personal Data Protection Act, 2023'.

ANATOMY OF BANKING FRAUDS

	AMOUNT (In ₹ cr)	PSU banks	Pvt banks
FY20	1,85,468	1,48,224	34,211
FY21	1,32,389	77,879	45,515
FY22	45,358	32,288	10,653
FY23	26,127	18,750	6,159
FY24	13,930	10,507	3,170

	NUMBER OF FRAUDS	PSU banks	Pvt banks
FY20	8,703	4,410	3,065
FY21	7,338	2,888	3,705
FY22	9,046	3,044	5,312
FY23	13,564	3,392	8,979
FY24	36,075	7,472	24,210

9 Impact

From Unicorns to Decacorns: government initiatives fuel India's expanding and innovative startup ecosystem

India has strongly instituted itself as the global hub for startups and innovation, ranking as the 3rd largest ecosystem with over 1,17,254 DPIIT-recognized startups across 763 districts as of December 2023. This impressive standing is bolstered by India's 2nd place ranking in innovation quality among middle-income economies, particularly excelling in scientific publications and university quality.

The country's startups are diversified across 56 sectors, with significant representation in IT services (13%), healthcare and life sciences (9%), education (7%), agriculture (5%), and food & beverages (5%).

Several government initiatives have been instrumental in driving this growth, including Make in India (2014), Digital India (2015), Startup India (2016), Atal Innovation Mission (2016), and Fund of Funds for Start-ups (2016). Between 2015 and 2022, the ecosystem experienced a 15x increase in total funding, a 9x increase in investors, and a 7x increase in incubators.

Traditional sectors such as E-commerce, Fintech, Supply Chain & Logistics, and Internet Software & Services dominate the landscape. However, unconventional sectors like Content, Gaming, Hospitality, and Data Management & analytics

are rapidly gaining traction. New entrants into the unicorn space include NBFCs, Conversational Messaging, Cryptocurrency Exchanges, D2C brands, and Cloud Kitchens.

Bengaluru, the epicenter of India's high-tech industry, leads as the unicorn capital, followed by Delhi (NCR) and Mumbai. While Tier I cities dominate, the startup ecosystem is expanding to encompass even the most remote districts. As of October 2023, India boasts 111 unicorns valued at $349.67 billion. Since FY 2017-18, the number of new unicorns has grown by 66% annually. In 2021, 45 unicorns were added, and in 2022, 22 more joined the ranks, with Zepto being the sole unicorn of 2023.

In the healthcare sector, NOIDA-based Innovaccer has become India's first healthcare unicorn, valued at $1.3 billion. Pharmeasy, an online pharmacy and diagnostics brand, joined the unicorn club with a valuation of nearly $1.5 billion. Tata 1mg, Cure.fit, and Pristyn Care have also achieved unicorn status, bringing the total number of healthcare unicorns in India to five, with a combined valuation of $12.79 billion. The healthcare sector is poised for further growth, with promising startups like Practo and HealthifyMe on the horizon.

Social commerce in India has seen significant growth, generating $554 million in revenue as of July 2021, a 7 times growth from the preceding year. This sector has unlocked Tier 2 and Tier 3 markets, reaching low-margin categories in FMCG and groceries, areas traditionally underserved by large ecommerce platforms.

Meesho, backed by Facebook, is the first Indian social commerce unicorn, valued at $2.1 billion. It supports about 13 million individual entrepreneurs and serves 45 million customers nationwide. The social commerce segment is rapidly expanding, with startups like SimSim, GlowRoad, CityMall, and Bulbul attracting significant attention from both customers and investors.

India's vibrant startup ecosystem, driven by robust government initiatives and diversified across both traditional and unconventional sectors, has firmly positioned the country as a global leader in innovation. With a notable increase in funding, investors, and incubators, the ecosystem is thriving, particularly in high-tech hubs like Bengaluru, Delhi (NCR), and Mumbai. The rise of unicorns, especially in healthcare and social commerce, underscores India's capacity for large-scale innovation and economic growth. As the global focus shifts towards decacorns, India's contribution with companies like Flipkart, BYJU's, Nykaa, and Swiggy highlights its pivotal role in the evolving startup landscape, signalling continued expansion and influence.

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10 Expert speak

Neelkanth Mishra
Chief Economist, Axis Bank &
Part-time Chairman, UIDAI
(Aadhaar)

Neelkanth Mishra is Chief Economist, Axis Bank. He is also the Head of Global Research and a Whole Time Director of Axis Capital. He has been consistently rated the best analyst in India in investor polls over the years. A highly respected expert and media columnist on global and Indian macroeconomic trends, he joined Axis in May 2023 after a long and distinguished two-decade career at Credit Suisse, where he was Co-Head of Asia Pacific Strategy and the India Strategist. He is a part-time member of the Indian Prime Minister's Economic Advisory Council, part-time Chairman of UIDAI (Aadhaar) & a part-time member of Telecom Regulatory Authority of India (TRAI).

1. Future of Digital Identity: With the rapid evolution of technology and increasing digitalization, how do you envision the future of Aadhaar and digital identity management in India over the next decade?

Digital technology is changing at an accelerated pace and becoming an increasingly integral part of people's lives globally. This change is particularly rapid in India, as the government pushes digitization to help improve ease-of-living. As a platform forming the base of Digital Public infrastructure ("India Stack"), Aadhaar must stay ahead of these changes, deepening integration for service and benefit delivery.

Increased Integration: The number of schemes and initiatives using Aadhaar is already over 2000 and growing. There are many services, however, which do not yet use Aadhaar, and UIDAI is continuously working

towards expanding this set.

By improving digital integration and minimizing use of physical cards and copies, we also expect to reduce misuse and fraud not only in government but also private sector services in banking, telecommunications, healthcare and welfare distribution, among others. The dramatic reduction in the cost of Know-Your-Client (KYC) and secure authentication have not only helped improve access to banking services but they have also speeded up the spread of services like telephony. We must continue to innovate to reduce these costs further.

Biometric Advancements: Advances in biometric technology can enable more accurate and diverse methods of authentication (e.g., facial recognition), and enhance reliability and security, e.g. use of AI and machine learning for fraud detection, risk assessment, and personalized user experiences.

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As a resident-centric, technology driven organization, continuous technology up-gradation is our key priority.

Consent Management: As data grows, and its uses proliferate, future systems and policy frameworks must give users greater control over their personal data/information on how it can be used, by whom and for how long. The new digital privacy legislation in India will help empower individuals to easily understand and navigate their digital footprints. We must stay aligned to that.

2. Data Privacy and Security: Ensuring data privacy and security is crucial for a project as vast as Aadhaar. What are the most critical measures UIDAI has or is undertaking to safeguard Aadhaar data, and how do you ensure these measures remain robust in the face of evolving cyber threats?

Protection of personal data has been a priority for UIDAI from the time it was designed. Deep-rooted and comprehensive measures have been undertaken and continue to be taken to protect the personal data of Aadhaar number holders; even a rogue actor within UIDAI would find it difficult to violate privacy norms. A multi-layered security infrastructure has been built with a defense-in-depth concept to protect the CIDR (Central Identities Data Repository).

From the first step in the enrolment process to data updates and authentication requests, UIDAI uses advanced encryption technologies for protecting data during transmission as well as in storage. Our Information Security Management System is ISO

:2013-certified; UIDAI is also certified ISO/IEC 27701:2019 (Privacy Information Management System). Further, CIDR is declared a protected system, and the National Critical Information Infrastructure Protection Centre provides security inputs on an ongoing basis to maintain its cybersecurity posture.

An independent audit agency is engaged for the creation of the Governance, Risk, Compliance and Performance framework for the Aadhaar ecosystem and oversight for adherence to the same.

To further strengthen security of personal data, the Ministry of Electronics and Information Technology has recently issued Guidelines for periodic Cybersecurity Audit of Government applications, platforms and databases that contain personal data, including Aadhaar through qualified Cybersecurity auditors.

3. Impact of Aadhaar: Aadhaar has significantly transformed India's governance and service delivery mechanisms. From your perspective, what has been the most impactful outcome of Aadhaar, and how has it contributed to socio-economic development in the country?

The most important change enabled by Aadhaar has been to provide a standard and widely available proof of identity to residents. While over a billion Indians have used it for online authentication over 124 billion times, the cumulative number could be many times the online count, as surveys point to nearly three-fourths of Aadhaar usage still being

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through physical cards and printouts. Aadhaar has thus significantly improved ease of living, and ease of doing business.

By bringing down the unit costs of secure online Know-Your-Client (KYC), it has enabled services that were earlier unaffordable due to high unit costs, like bank accounts with low average balance and telecom connections with low revenues per user. Studies quoted by the World Bank have found that at the current per capita GDP, India's financial inclusion is several decades ahead of where it would have been without the India Stack, of which Aadhaar is a critical element.

As a digital backbone, Aadhaar has facilitated smooth delivery of services and benefits, improved accountability and curbed leakages.

The role of Aadhaar in DBT is well known. By the end of May 2024, over 2000 schemes and initiatives have been notified under Section 7 of the Aadhaar Act. It has facilitated removal of 100 million duplicate, fake, or nonexistent beneficiaries from various DBT programs. It has also speeded up the rollout of nation-scale programs, like in vaccination, or in cash transfers undertaken during the Covid pandemic.

Use of Aadhaar for initiatives like Health ID, Biometric Attendance, Digital Life Certificate, 'Parivar Pehchan Patra', Property registration, Prisoner authentication and Vehicle registration etc has redefined daily lives of Aadhaar number holders. India is now widely perceived as a leader in digital public infrastructure, facilitating population

scale transformation to achieve inclusive economic growth.

4. Innovative Strategies: Under your leadership, UIDAI has implemented several innovative strategies to enhance Aadhaar's utility and security. Could you elaborate on one such strategy that you believe has had a significant impact on the Aadhaar ecosystem?

All the strategies of UIDAI have been formulated keeping the ease of living of the Aadhaar number holder at the centre: whether its e-KYC for identity verification, AePS for last mile banking, authentications for smooth service and benefit delivery, or Aadhaar enabled DBT for direct fund transfer.

Adhaar e-KYC service continues to play a key role in the banking and non-banking financial services sectors by providing a transparent and improved customer experience and helping in ease of doing business by improving security and reliability for financial services. Traditional KYC processes were paper-intensive, time consuming and costly. Aadhaar based e-KYC allows instant and paperless verification, reducing on-boarding time and costs for financial institutions.

From opening of bank account in less than 2 minutes, to availing a loan in less than 5 minutes, from faster issuance of insurance policies to easy investments in mutual funds, Aadhaar enabled services like e-KYC, biometric authentication and Aadhaar based e-Sign have accelerated financial inclusion.

Our priority now is to improve the usage of Aadhaar based face authentication for service delivery. The AI/ML based face authentication solution developed in-house by UIDAI is now being used by state government departments, ministries in the central government and some banks. We are working on several new use cases that can significantly reduce the friction in authentication.

Among many usages, it's being used for registering beneficiaries under Ayushman Bharat Pradhan Mantri Jan Arogya Yojana; for authentication of beneficiaries in the PM Kisan scheme, for generating digital life certificates at home by pensioners and for hassle free air travel. It's being used for marking staff attendance at several government departments and for opening bank accounts at a few leading banks via their business correspondents.

Face authentication eases usage, faster authentication and it is preferred as an additional mode to strengthen authentication success rate along with fingerprint and OTP authentications. We use technology to protect against video replay attacks and static photo authentication attempts by anti-social elements.

Face authentication is also working as a robust alternative, helping senior citizens and all those who have issues with the quality of their fingerprints due to several reasons including manual work or health issues.

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