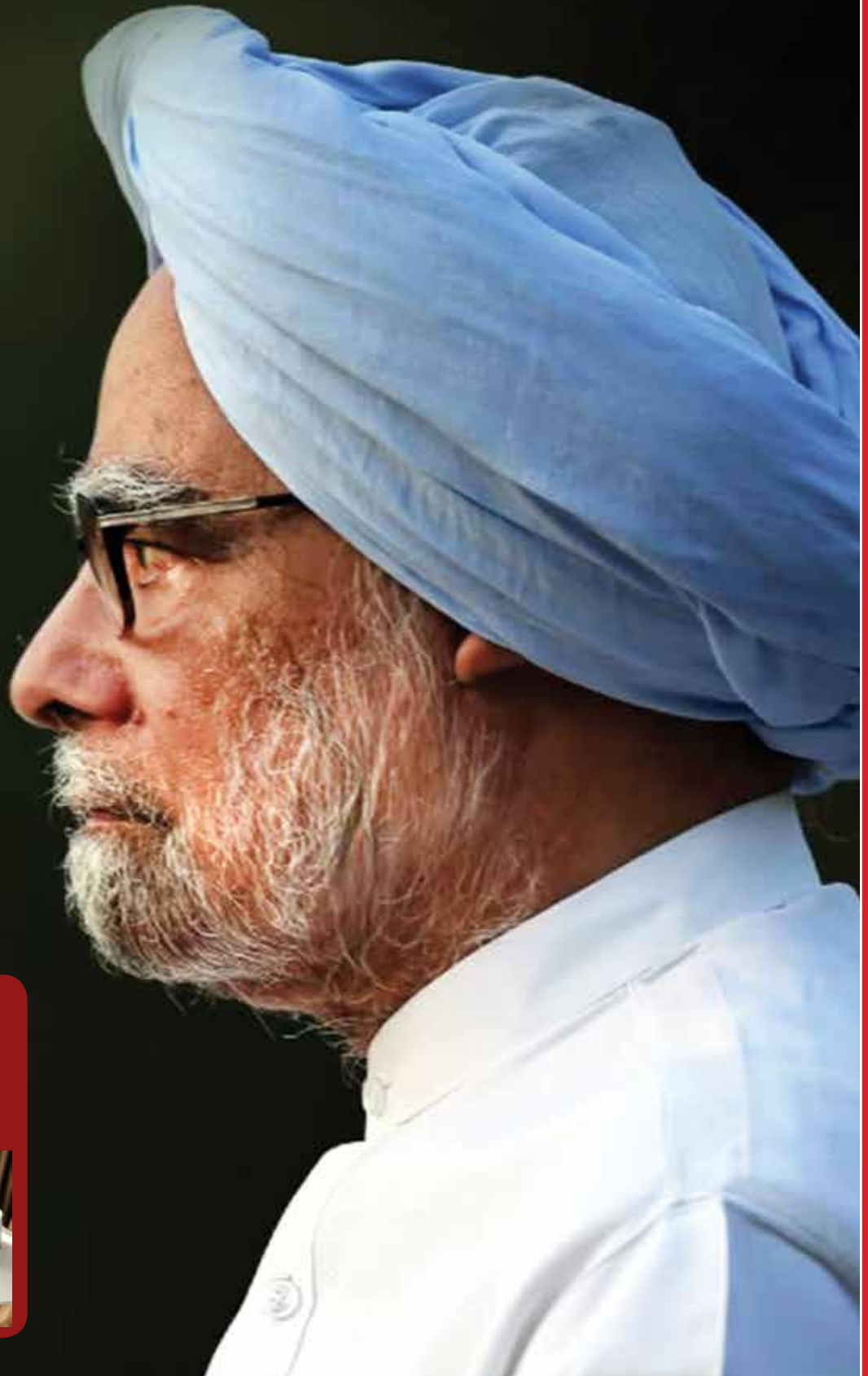


# Politics & Democracy

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January 2025  
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**A Visionary  
Leader who  
transformed  
India's  
economic  
and political  
landscape**

**Ed-Tech  
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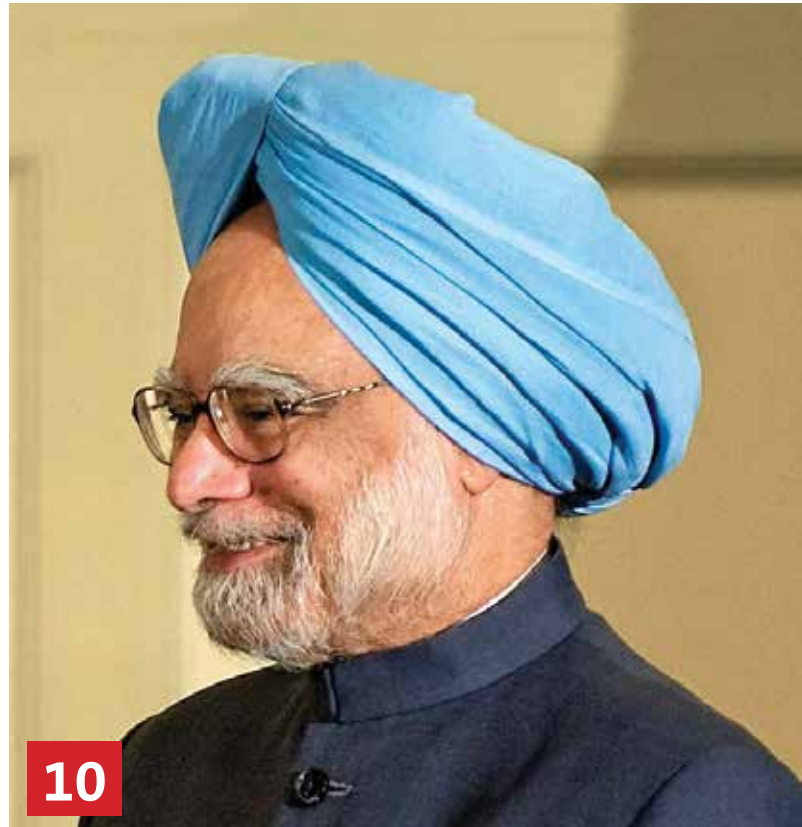
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Artificial Intelligence (AI) is certainly not a dream of the past anymore and it has become a part of everyday things, in particular the technology we use. In recent years, the improvements in AI have resulted in the development of new systems like Microsoft's Copilot joining over a billion of average daily active users, coming to Windows PCs, and flagship smartphones.

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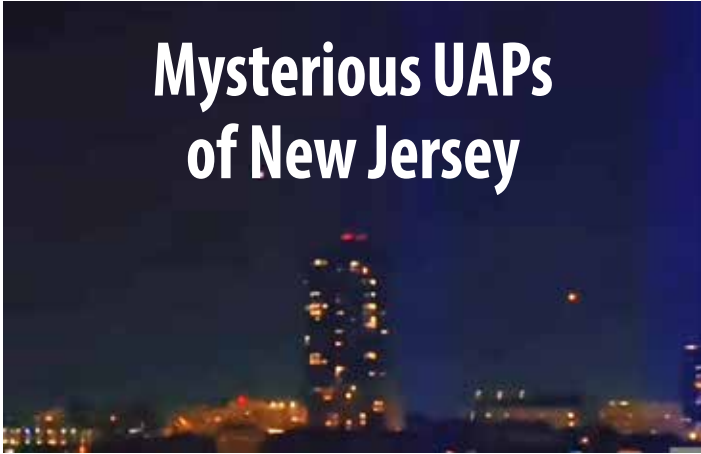
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## Mysterious UAPs of New Jersey



**U**S aviation authorities have imposed a temporary ban on drone usage in nearly two dozen New Jersey cities until mid-January due to numerous mysterious drone sightings since November. While officials assert these drones do not pose a threat to public safety, speculation about their origins persists. Homeland Security Secretary Alejandro Mayorkas confirmed the sightings include both drones and manned aircraft. Lawmakers have called for stricter regulations, and the FBI is investigating, urging residents to share any relevant footage or information.

## China's HMPV Outbreak

**C**hina is experiencing a surge in Human Metapneumovirus (HMPV) cases, raising global health concerns. The virus, which causes flu-like symptoms, has led to overcrowded hospitals, reminiscent of the COVID-19 outbreak. While neighboring countries are monitoring the situation closely, neither the World Health Organization nor Chinese authorities have declared a state of emergency. Symptoms of HMPV include cough, fever, and shortness of breath, with severe cases potentially leading to bronchitis or pneumonia. Public health officials urge vigilance but advise against panic.



## Adani praises Gukesh for making history

**I**ndian teenager Gukesh Dommaraju, at just 18, has made history by becoming the youngest world chess champion after defeating China's Ding Liren in a thrilling match in Singapore. Gukesh secured the title with a score of 7.5 to 6.5, capitalizing on a critical mistake from Ding. This victory marks him as the second Indian to hold the world title, following Viswanathan Anand. Gautam Adani praised Gukesh's achievement, calling it a testament to India's rising youth and potential in global chess.



## Ashwin Retires from International Cricket

**R**avichandran Ashwin has announced his retirement from international cricket following the third Test of the Border-Gavaskar Trophy in Brisbane. The 38-year-old spinner, India's second-highest wicket-taker with 537 Test wickets, expressed that it was an emotional decision, stating, "This will be my last day as an Indian cricketer." Ashwin plans to continue playing in domestic leagues like the IPL. His retirement comes amid discussions about team selection and his recent struggles in the series against Australia. Ashwin will return to India shortly after the announcement.



## PM Modi's Christmas Celebration



**P**rime Minister Narendra Modi attended Christmas celebrations hosted by the Catholic Bishops' Conference of India (CBCI) in New Delhi, marking the first time a Prime Minister has participated in such an event at the CBCI headquarters. He wished the Christian community a Merry Christmas and congratulated the CBCI on its 80th anniversary. Modi emphasized the importance of compassion and service, recalling efforts to rescue Indians in crisis abroad. He highlighted India's humanitarian contributions during the COVID-19 pandemic and reiterated the need for unity and hope in society.



## Amit Shah goes after Kejriwal

**U**nion Home Minister Amit Shah criticised Delhi Chief Minister Arvind Kejriwal for allegedly extravagant spending on his official residence, calling it a "Sheesh Mahal." Speaking at a public event, Shah shared an anecdote about children who noted Kejriwal's opulent lifestyle, contrasting it with his initial promises of simplicity. This follows Prime Minister Modi's earlier remarks branding AAP as a "disaster" for Delhi. Kejriwal dismissed these accusations as personal attacks, asserting that the BJP has failed to deliver significant improvements in the capital over the past decade.



## ISRO's PSLV-C60 Launch

**T**he Indian Space Research Organisation (ISRO) successfully launched the PSLV-C60 rocket on December 30, 2024, carrying the Space Docking Experiment (SpaDeX). This mission involves two spacecraft, SDX01 (Chaser) and SDX02 (Target), which will perform autonomous

docking maneuvers. This achievement positions India among global leaders in docking technology, essential for future human spaceflights and the proposed Bharatiya Antariksh Station. The SpaDeX mission is a crucial step towards India's ambitions in lunar exploration and advanced space capabilities.

## Dr. Manmohan Singh Passes Away

**F**ormer Prime Minister Manmohan Singh passed away at the age of 92 at the All India Institute of Medical Sciences (AIIMS) in New Delhi on December 26, 2024. He was admitted in critical condition after experiencing a sudden loss of consciousness at home.

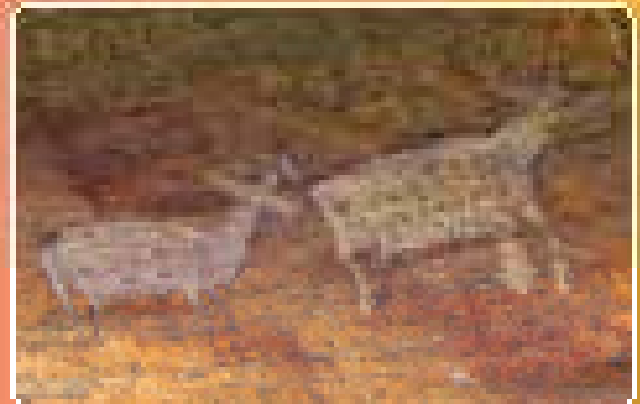
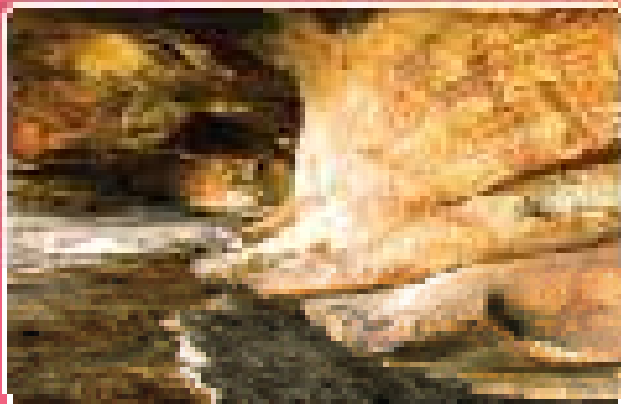
Despite resuscitative efforts, he was declared dead at 9:51 PM. Singh, who served as India's 13th Prime Minister from 2004 to 2014, is survived by his wife Gursharan Kaur and three daughters. His death has prompted widespread condolences from leaders across the political spectrum.





# Rock Painting

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# A Visionary Leader who transformed India's economic and political landscape

Dr. Manmohan Singh is one of India's most distinguished statesmen in modern history, fingerprinted by India's economic liberalisation and skillful governance. Dr. Singh was an intellectual giant, an economic maverick, and possessed the most humble character, all of which contributed to India's economic and political renaissance. As an economist, as finance minister, or as a two-term prime minister, whatever he has done has shaped India's growth story. During critical economic crises, he was held in high regard by his people and on the international stage as a fervent proponent of inclusionary development.

## The Journey of Dr. Manmohan Singh

As an academic economist, Dr. Manmohan Singh had a real grasp of issues of fiscal policies and macroeconomics. Singh was born in Pakistan in 1932, in Gah (now part of Pakistan), and attended Cambridge and Oxford Universities, and Punjab University. Before becoming an active policymaker, he had held several important academic as well as administrative positions. In 1991, Singh was the architect of the 1991 economic reforms which dismantled the so-called 'License raj', liberalized trade, and allowed the Indian economy to open up to foreign investments, boosting growth over the ensuing decade. This transition in being from academia to public service is an indication of the man eyeing national development.

## The Economic Reformer

Dr. Singh's greatest contribution to India is undoubtedly his stewardship during the circumstances of the 1991 economic crisis when India faced a very harsh balance of payments crisis. Singh was the Finance Minister of Prime Minister P.V. Narasimha Rao, and under him, transformative reforms were brought out to stabilize the economy. He took down stringent trade restrictions, cut tariffs,

reserves, and greater investor confidence.

Dr Singh's reforms were the foundation for a competitive, open market economy. His vision was not short-term, he wanted to make India a global economic superpower. His policies influenced India's

economic strategies so much that they

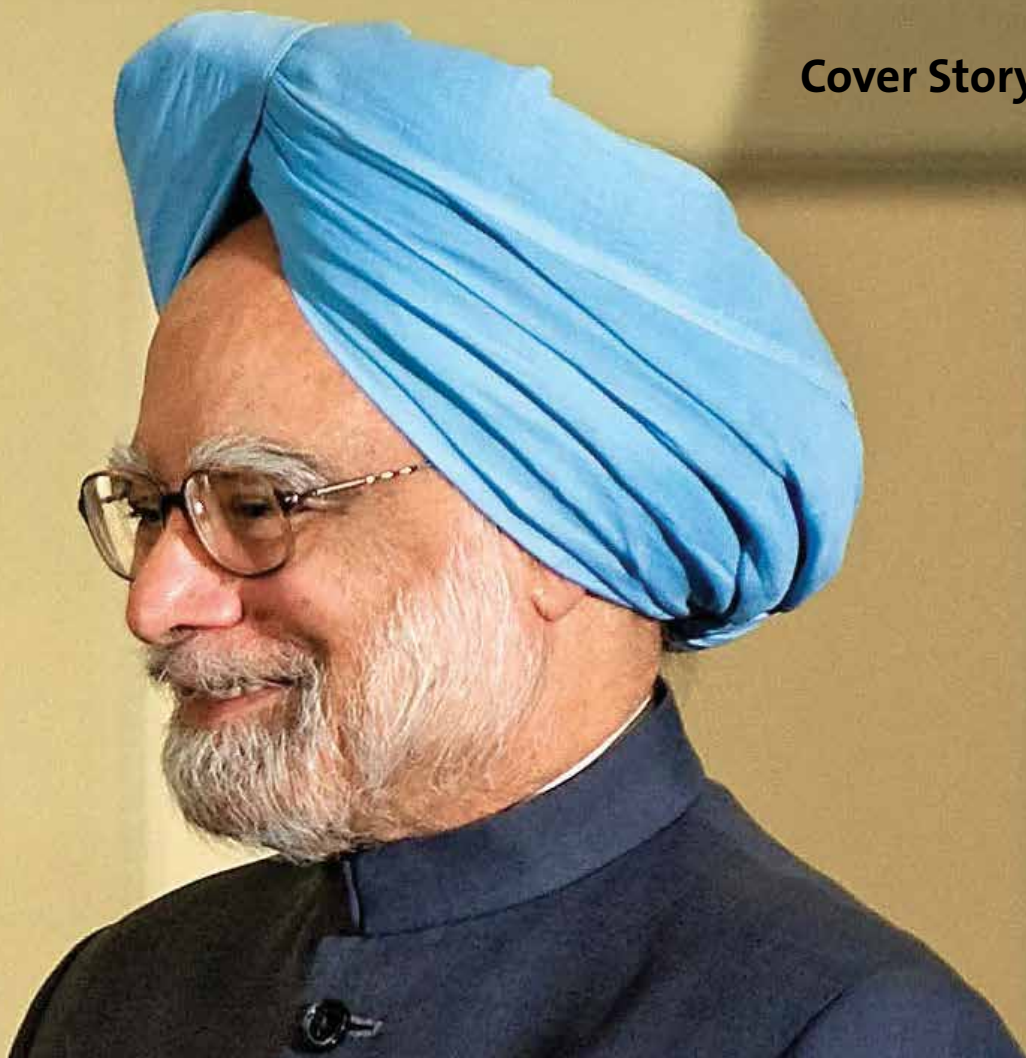
deregulated industries, and invited foreign investment. They revitalised the economy, bringing rapid GDP growth, a buildup in foreign







Narendra  
Modi:  
Dr. Singh's  
life was a  
reflection  
of his  
honesty and  
simplicity.



influence to date. By the mid-1990s India was growing at annual rates in GDP of over 6 percent, and we had foreign exchange reserves which increased from just about \$ 1 billion in 1991 to over \$ 20 billion in 1995.

Along with this Singh set the ball rolling for not just sectors such as IT and telecom but for other modern-day sectors too. Infosys, Wipro, and TCS grew as global IT companies, generating millions of jobs and hauling in export revenue too.

Singh also loosened the financial reins on India. Capital markets were reformed, and Private banks were encouraged. To make the stock market more transparent and

more governable, the Securities and Exchange Board of India (SEBI) was empowered.

### **Leadership as Prime Minister: The issue of Balancing Growth with Social Welfare**

In India, Dr. Manmohan Singh was honoured to be its Prime Minister for two consecutive times, from 2004 to 2014. He worked to keep the economy growing while facing up to social inequalities. Under him, India has had economic growth rates consistent at greater than 9% in some years.

- The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) which was implemented, brought millions of rural households' employment.



**ECONOMIST MONTEK SINGH AHLUWALIA:**

In his period, 138 million people were pulled above the poverty line for the first time.

The Right to Information (RTI) Act was given to the citizens to bring the government under its orbit and make the system transparent. The National Rural Health Mission (NRHM) was undertaken to improve health services to rural people.

- The Jawaharlal Nehru National Urban Renewal Mission (JNNURM) is introduced to bring about improvements in urban infrastructure as well as urban governance through cities.

- Singh was a key leader who helped India to navigate through the 2008 global financial crisis. Prime Minister for two consecutive terms from 2004 to 2014. His tenure was marked by efforts to sustain economic growth while addressing social inequalities. Under his leadership, India achieved consistent economic growth rates, sometimes even crossing 9% annually.

**First Term (2004–2009):**

- The implementation of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) provided employment opportunities to millions of rural households.

- The Right to Information (RTI) Act empowered citizens to hold the government accountable and increased transparency in governance.

- The National Rural Health Mission (NRHM) sought to improve



healthcare delivery in rural areas.

- Introduction of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) aimed at improving urban infrastructure





and governance in cities.

### **Second Term (2009–2014):**

- Singh's leadership played a vital role in steering India through the global financial crisis of 2008.

Fiscal stimulus packages of the government maintained economic stability. However expanded efforts to improve education, such as the Sarva Shiksha Abhiyan and the Mid Day Meal Scheme were also made.

- Initiatives like Aadhaar have been launched in order to bring about standardisation in the distribution of welfare.

- In order to provide food grains to millions of people living beneath the poverty line, the Food Security Act was passed on two consecutive terms from 2004 to 2014. His tenure was marked by efforts to sustain economic growth while addressing social inequalities. Under his leadership, India achieved consistent economic growth rates, sometimes even crossing 9% annually.

### **Strategic Alliances with Foreign Policy**

Dr. Singh's tenure as Prime

Minister also marked some strong developments in foreign relations. Then he played a key role in increasing India's relations with global powers — but in particular with the United States. The landmark achievement in this regard was the Indo-US Civil Nuclear Deal, which was signed, in 2008. India's nuclear isolation came to an end and doors to civilian nuclear cooperation were opened.

Under the 'Look East Policy', Singh also enhanced ties with ASEAN countries through trade, infrastructure, and cultural exchange. There were relations with Japan and major investments by Japan in India's infrastructure, the Delhi-Mumbai Industrial Corridor for instance.

Moreover, Singh encouraged dialogue with Pakistan, to discuss cross-border terrorism, while agreeing to peaceful coexistence.



### SONIA GANDHI

In Dr Manmohan Singh's passing, we have lost a leader who was the epitome of wisdom, nobility and humility, who served our country with all his heart and mind. A luminous and beloved guiding light for the Congress party, his compassion and vision transformed and empowered the lives of millions of Indians.

In addition, his government prioritised Africa, through trade and investment cooperation, for example, through the India Africa Forum Summit.

### Inclusive Development Commitment

Among other things, Dr. Singh's leadership gave its focus to inclusive growth. But his government also launched large-scale flagship schemes around education, health, and rural livelihood, expanding the scope of government in ways that often reflected the particular preferences of most of his coalition. His vision of empowerment of youth is seen in Sarva Shiksha Abhiyan, a network of elementary education; and the National Skill Development Mission.

Since the late Singh's leadership, huge strides have been achieved in combating poverty levels. India's Human Development Index (HDI) has also registered a number of improvements; millions of people were lifted out of poverty. He left a legacy of programs to empower women and



marginalised communities that only strengthened his pro-poor image.

On top, Singh's government also worked on improving agricultural productivity through such measures as the National Food Security Mission and extending credit to the farmers better.

### Challenges and Criticism

Though his achievements weren't lacking, Dr. Singh's tenure was no cakewalk either. Then his second term was marred by a series of high-profile corruption scandals, including the 2G spectrum scam and the Commonwealth Games scandal. Being this tainted cost his government its image and eroded public trust.

Singh was also criticised for being seen as a 'silent' Prime Minister, routinely alleged by opponents as not being able to assert control

over his party and coalition allies. But his supporters say his focus on governance, rather than dramatics, overcame such theatrics.

But Dr. Singh acknowledged those criticisms, saying institutional transparency and accountability were important.

### Legacy and Influence

Dr. Manmohan Singh's office was not the only place where his legacy reached. His economic reforms have left an impact on financial and industrial policies for India, and his interest in inclusive development continues to be a major tenet of policymaking.

Singh is remembered as a leader who kept India's dignity on the world stage. He was very intellectually sound; he was very diplomatic and unbelievably committed to the progress of the country.





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# The Power of Giving: India's Top 5 Philanthropists Transforming Lives in 2024

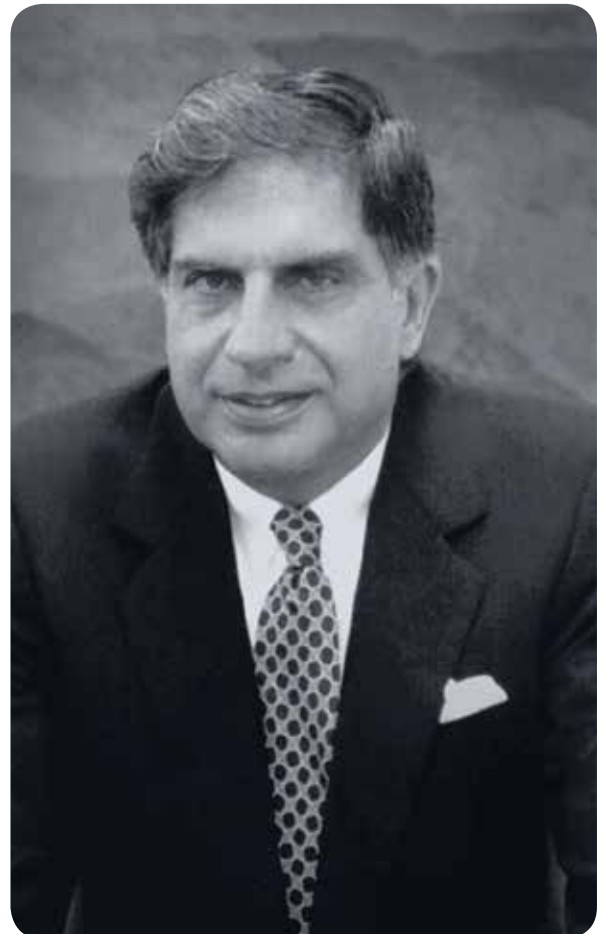
Indian philanthropy in 2024 was crowned as an ambitious year of extraordinary generosity, compassion, and commitment to social change. Today the nation continues to evolve and a group of visionary people began to show that true wealth does not lie in accumulation but in the profound effect of giving. These philanthropists are transcending traditional boundaries, utilising strategic and meaningful contributions, promising to turn India on its head socially.

Indian culture has always hidden a spirit of giving but these five are the saints who elevated philanthropy to unheard heights. This diversity is represented in the contributions span from education and technology, to environmental sustainability and social empowerment, tracing a holistic approach to what makes lasting societal change.

## Ratan Tata: A Legacy of Compassion Beyond Wealth

In the 1960s, Ratan Tata joined Tata Group, a conglomerate founded by his great-grandfather (Jamshedji Tata). However, he first worked on the shop floor of Tata Steel, which brought with it invaluable firsthand experience in an actual manufacturing community. This early exposure to what the core of business operations is made a solid backbone for his future leadership positions. Ratan Tata was a man who started from where he was to become the chairman of Tata Group in 1970 and went on to chair Tata Group in 1990. During his tenure, the company made a series of strategic decisions that not only extended the company's global reach but also prioritised ethical business practices.

During his tenure Tata Group took over several world-famous companies, Jaguar Land Rover and Corus Steel, to strengthen his portfolio. Ratan Tata was about corporate social responsibility, his vision also went beyond the mere profit. You can see the philanthropy in his support of education, healthcare, and ongoing rural development initiatives. Such projects that uplift marginalised communities all over India have been largely funded by the Tata Trusts, which are present with a majority stake in Tata Group's equity. Ratan Tata's decisions that align with business and philanthropy have made him a trendsetting and respected business and philanthropy mogul who has influenced millions of people to follow in his footsteps.







## Abhishek Lodha: A Redefinition of Corporate Philanthropy

**F**rom being a small real estate player, the Lodha Group today is one of India's leading real estate developers, a fact attributable to Abhishek Lodha. Returning to India with a vision to innovate in the real estate sector, once he completed his education at Harvard Business School. At Lodha Group, projects are launched under his guidance, which emphasises sustainability, greenery, and community living. Built with modern architectural standards, but with a commitment to environmental responsibility, his approach sets new standards for the industry.

Not only is Lodha involved with corporate responsibilities but he is also a man involved with philanthropy and the Lodha Philanthropy Foundation is where he is involved in more ways than what eyes could see. A strategic initiative for this foundation is looking at addressing the pressing social problems of education, healthcare, and women's empowerment. According to Abhishek Lodha, businesses have an important role to play in the development of society and encourage other corporate leaders to be philanthropic too in their business ethos. His work shows how corporate success can be in alignment with social responsibility, and programs that achieve both economic growth and achieve a positive impact on society.

## Shiv Nadar: Future Technology and Education as Catalysts of Change

**H**CL Technologies is a company founded by Shiv Nadar in 1976 and has since then proved to be legendary, becoming one of India's best-known entrepreneurs. He began his career with a vision of building a technology company that would bring disruptive innovations to the software solutions powering how businesses work. Nadar lent his relentless pursuit of excellence to making HCL the first software development and IT services company in India with a strong contribution to the IT infrastructure in the country.

Born and raised in Mumbai, Nadar is involved much more in philanthropy through the Shiv Nadar Foundation, which he created in 1994. Education and skill development are strategic to societal change, the foundation believes. Nadar thinks that access to good education is transformative for people and constitutes power. He has initiated the establishment of Shiv Nadar University, and several scholarship universities to facilitate underprivileged students. Shiv Nadar is investing in education with the hope of giving rise to the next generation of leaders and building an atmosphere conducive to innovation.





## Krishna Chivukula: Alumni Giving Back

**D**r. Krishna Chivukula's career has been in aerospace engineering and academia for several decades. He obtained his MTech from IIT Madras and spent most of his career with several global aerospace companies; at these companies, he made important contributions towards progress in technology and engineering practice. He fast progressed into pulling leadership positions in the industry, which influenced major projects.

Chivukula has had a good connection with IIT-Madras not only in his professional life but also. He has contributed back to his alma mater big time, based on his experiences. The engineering education he supported has been carried out in recognition of his dedication to enhancing educational resources to ensure innovation, excellence, and a productive engineering education for future generations. And Chivukula's journey is illustrative of what the accomplished can do to use their success to make lasting contributions to their communities and institutions.

## Nikhil Kamath: Young Philanthropy's New Face

**A**t 25, Nikhil Kamath co-founded India's largest stock brokerage firm, Zerodha, at the age of just 25. From an early age, he showed his entrepreneurial spirit when he was looking for solutions in the financial sector. Kamath's theme was democratising access to financial markets with technology-driven platforms so even the smallest of investors can participate and compete at this level.

The more Zerodha grew, the more Kamath began to look for ways to pay back to society. Taking the stand as an entrepreneur, he founded an organisation named the RAIN Matter Foundation with a strong emphasis on climate action and sustainability initiatives, which would be able to tackle some of the reasons for the environmental challenges of today in India. Besides serving as one of the youngest signatories of The Giving Pledge, an initiative encouraging billionaires to commit half of their wealth to charity, Kamath is helping to redefine financial services and is helping to inspire the younger generations to get involved on the philanthropic front. Raining into these projects through the RAIN Matter Foundation, Kamath has invested in renewable energy, waste management, and biodiversity conservation projects. That belief that businesses should be actively involved in solving problems in our society has a lot in common with how a growing number of young entrepreneurs see their role in the world today.







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**PM Modi**

Hybrid system of online and offline learning should be developed to avoid overexposure of technology of school-going children.

# Ed-Tech and Online Education

## The Rise of Ed-Tech

Ed Tech platforms are in the limelight because of their unique solutions for the needs of the learners.

These platforms are designed for a different learning pace; therefore, they are embedded with interactive videos, gamified learning, and adaptive assessments. Companies like PW, Unacademy, and Khan Academy have





and cultural context, making them inclusive and relatable.

Additionally, they facilitate collaboration with global educators and the safe design of experiments that allow learners to learn about diverse perspectives and best practices. Also, many Ed-Tech platforms are also affordable compared to traditional education which makes them all the more appealing. Quality learning experiences are accessible to a broader audience through monthly subscriptions, freemium models, and pay-per-course options. Perhaps more importantly, education costs are steadily increasing; this affordability

There is the flexibility to come back and review the concepts whenever you wish in the form of recorded lectures and downloadable resources. In addition, the use of artificial intelligence and machine learning has also helped to personalise learning paths by identifying those parts of learning paths which need more support from students. But the shift has also revealed digital divides.

Closing this gap is a major challenge that requires collaboration from governments, private sectors, and non-profits to address. Some of the steps in the right direction are efforts to offer affordable internet,



turned personalised learning experiences into household names. These platforms offer a wide array of courses, starting from school to professional certifications, meaning that no matter what background one hails from, there is something for everybody.

Ed-Tech breaks geographical barriers and is one of the key advantages of this arena. Quality education, which was previously restricted to urban centers is available for remote area students. Second, the content on these platforms is very often based on the local languages

comes at the right time.

## Online Education: The New Way

Schools around the globe raced to digital learning almost immediately during the global pandemic, which accelerated the shift to online education. To adapt schools, colleges, and universities used platforms like Zoom, Google Meet, and Microsoft Teams to conduct virtual classes. It brought out the potential and the challenges of Online education. On the good side, online education has allowed a student to learn at his or her own pace.

free devices, and community digital centers. In addition, thanks to online education, there is now the idea of microlearning (learning in chunks or bite-sized pieces). With professional and technical courses, this approach has been effective at retaining information and keeping on an interesting note to learners. Additionally, microlearning is even more accessible through mobile apps.

## Gamification in Learning

ED-Tech has seen gamification applied to develop boring learning processes into very engaging experiences. Rewards, badges, and

leaderboards are game-like elements in educational platforms that help enable learners to achieve goals. Games that track progress and give players instant feedback are also more appealing to kids having a hard time with mathematics.

Besides being gamified, which leads to learning how to learn, it also encourages the development of thinking solving problems, and making decisions. In STEM (Science, Technology, Engineering, and Mathematics) education, where understanding by actually working with the subject often trumps rote memorisation these elements are especially useful.

With its continued evolution, gamification has enormous potential to revolutionise learning in all age groups and for all subjects. Even more, gamification has been used in corporate training programs to allow employees to acquire new skills in a fun way. Gamified modules simulate real-world scenarios and challenges and are incredibly relevant and practical, making it easy to implement gamified modules in day-to-day tasks.

### Teachers and Educators

Ed-Tech has integrated the role of teachers from traditional 'instructors' to 'facilitators of learning'. Now, educators are using digital whiteboards, online quizzes, and virtual labs to make learning better. The professional development programs dedicated to digital skills have become important and teach teachers how to adapt to the new landscape.

Ed-Tech tools provide data-driven insight into the performance of students. Attendees can evaluate their learning outcomes to highlight the gaps and then teachers can analyse metrics such as attendance, participation, and assessment results to understand the teaching gaps that fit well with their teaching style.

While these are good things, the importance of maintaining the



emotional and social elements of education also means that these technologies need to find a good balance between devices and interaction with people. The transition has not been smooth, however. Teachers need to deal with rapid digitisation, maintaining virtual classrooms, and the engagement of students. Training workshops and access to technical resources are all important support systems that help educators confront these challenges effectively.

### Hybrid learning

There are hybrid learning models which are the combination of online and offline education. This approach offers the best of both worlds: flexibility in online and hands-on physical classrooms. With schools increasingly picking up diversely

different students, they tend to go for hybrid systems to be more inclusive when it comes to education.

For example, hybrid models ferret out problems and offer attendance options (virtually, or physically depending on the reason for absence) to keep courses ongoing when a learner cannot be physically present.

These include collaboration and peer learning, which are facilitated through offline practical sessions and group activities. The balanced approach covers the limitedness of both online and traditional education. Besides, hybrid learning helps an institution optimize its resources: digital tools contribute to better learning outcomes while allowing better use of the physical infrastructure. This model also acts like a safety net in case of any





face-to-face communication creates a community and emotional connection that cannot be rivaled by any online platform.

Also, it is becoming an issue of screen fatigue and reduced attention spans. Another important aspect is to make sure that online education is good. Without proper



emergencies, be it pandemics or natural calamities, and sees that education does not collapse.

## Challenges in implementing Ed-Tech

It's true that while online education and ed-tech present so many opportunities, implementation does, but more than that, that's where the real work comes in. The digital divide, along with being a challenge, at the same time also makes for a hurdle, as it creates a disadvantage to the underprivileged communities. However, access to high-speed internet, devices, and basic digital literacy remain highly uneven across rural and economically vulnerable populations.

The disadvantage of virtual learning environments is the lack of personal contact. In the hundreds of platforms,

accreditation and standardisation, learners are susceptible to courses that are not credible at all or give less than what they promise.

These developments both require regulatory frameworks and quality assurance mechanisms to evolve to address these concerns. Another is the issue of cybersecurity. As more data is put out there in the online world, it is critical that students remain private and secure. Robust measurements must be adopted by ed-Tech platforms to protect sensitive information and prevent acquisitions.

Skills Development Opportunities  
Skill development has been a huge area of ed-tech, bridging the gap between academic knowledge and industry needs. In the sharing of skills, coding, data science, digital

marketing, and other booming skills are being taught by many courses on platforms that have given individuals great opportunities to improve their employability. These days, doing a certification from reputed institutions and EdTech Companies is now accepted by employers, increasing the learner's edge.

Lifelong learning has become a bedrock of professional growth. People on a career path can upskill or reskill through flexible online programs without affecting their careers. Democratisation of education has led the way to skills development and an adaptable workforce. Another type of course, internship opportunities, and project-based learning modules in Ed-Tech platforms provide further practical knowledge. Once theoretical concepts have been applied to real-world problems, learners are ready to hit the job market or have the confidence to do so.

## The Road Ahead

Ed-Tech and online education seem to be moving towards what looks like a promising future with continuous innovations being made in the business. Looking at artificial intelligence, virtual reality, and augmented reality, it's set to change that for the better, creating a more immersive and effective learning experience. What if virtual field trips to historical landmarks or virtual labs are as cool as a classroom experiment?

These advancements in technology could fundamentally change the way education is developed. Building on the interactive nature of the internet, the collaboration between Ed-Tech companies, educational institutions, and policymakers will need to be the focus of how to address challenges, and fully realise the potential of digital education. Ed-Tech revolution can make society more equitable and empowered if it creates inclusivity, affordability, and quality standards.

# Extraordinary Airports Around the Globe

## Where Innovation Takes Flight

Airports are often seen merely as transit points, but some airports around the world transcend this expectation, offering passengers experiences that are truly one-of-a-kind. From breathtaking designs to ingenious technology, these airports are changing the way we think about air travel. Let's delve into an indulging story of airports that are breaking the mold and offering travellers more than just a place to board their flights.

**A**irports have evolved beyond mere transit points—they've transformed into major travel hubs that blend art, culture, and convenience. In recent years, airports around the world have become more immersive, offering luxury shopping, fine dining, and entertainment options to passengers. As air travel continues to expand, airports are becoming a key component in enhancing the overall journey, making layovers and waiting times an exciting part of the travel experience.

Technology and sustainability are reshaping airports into futuristic hubs that prioritize comfort and convenience. From automated check-ins to biometric screening, innovation simplifies travel while luxury amenities enhance the experience. Meanwhile, a growing emphasis on sustainability is driving airports to adopt green building practices, energy-efficient designs, and eco-friendly materials, offering travellers a more environmentally conscious journey. These advancements are transforming airports into seamless, eco-friendly spaces that elevate the travel experience.



### Changi Airport, Singapore

#### Did You Know?

Changi Airport is the only airport in the world with a butterfly garden, housing over 1,000 butterflies from 40 different species.

**S**ingapore's Changi Airport has won Skytrax's best airport award 12 times, Changi Airport in Singapore is a destination in itself. Known for its innovative amenities and exceptional passenger experience, Changi stands out for its emphasis on leisure alongside travel.

Changi boasts an indoor butterfly

garden, the world's tallest indoor waterfall, and even a free movie theater. Travellers can also shop at luxury boutiques or explore art galleries. The recent addition of Jewel Changi, a multi-dimensional lifestyle complex, takes it to new heights with more attractions, including a Canopy Park with walking trails and mazes.



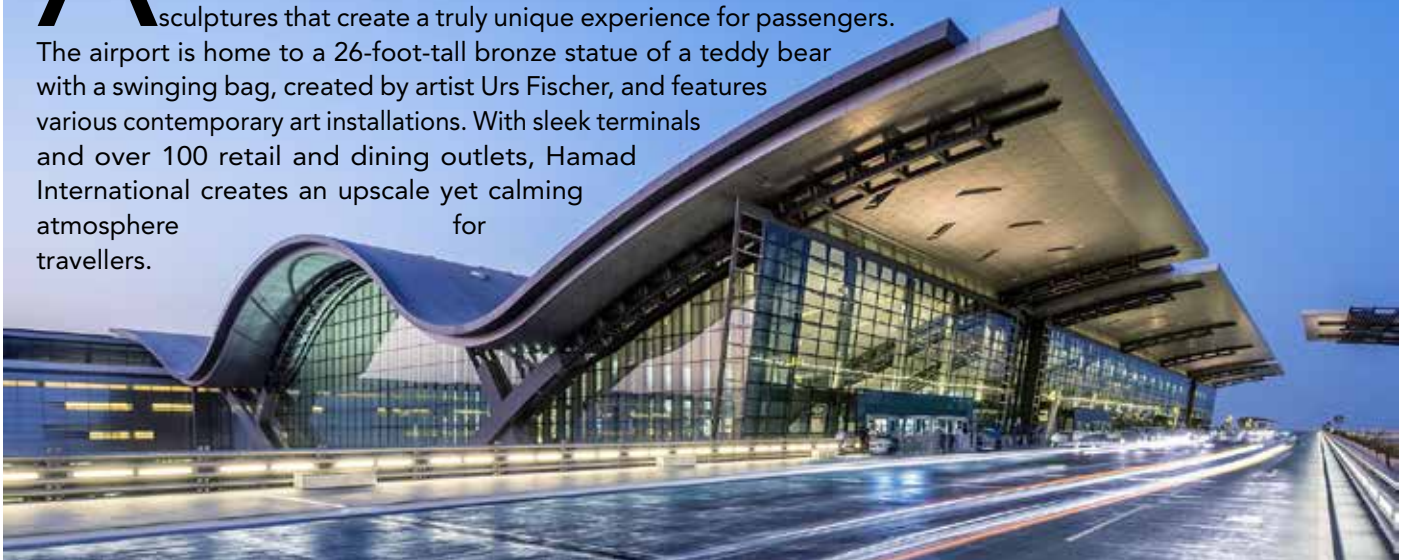
# Hamad International Airport, Qatar

## Did You Know?

Hamad International Airport is the first airport in the world to be fully outfitted with automatic baggage handling systems and the first to use a smart check-in system.

**A**s one of the most modern airports globally, Hamad International in Doha sets a new standard for luxury and art in air travel. Its striking design is complemented by an impressive collection of artwork and sculptures that create a truly unique experience for passengers.

The airport is home to a 26-foot-tall bronze statue of a teddy bear with a swinging bag, created by artist Urs Fischer, and features various contemporary art installations. With sleek terminals and over 100 retail and dining outlets, Hamad International creates an upscale yet calming atmosphere for travellers.



# Incheon International Airport, South Korea

Located in Seoul, Incheon is frequently praised for its blend of technology, comfort, and cultural offerings. It provides travellers with a holistic airport experience that goes beyond just catching a flight.

Incheon offers a Korean cultural experience for its passengers, with free traditional tea ceremonies, cultural performances, and even a museum showcasing Korean history. The airport also boasts a golf course, a library, and even an indoor ice-skating rink for travellers looking for something extra during layovers.



## Did You Know?

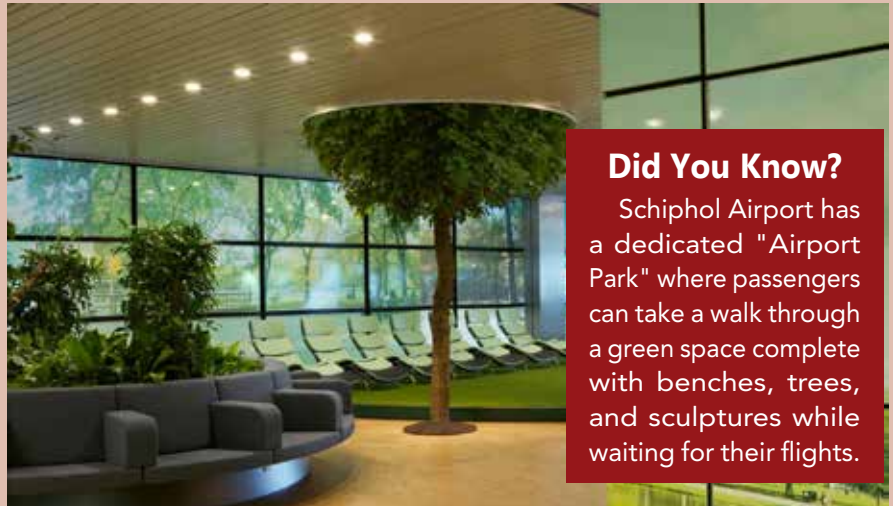
Incheon is the only airport in the world with a free, 24-hour airport sleep lounge, providing travellers with comfortable resting pods during long layovers.



## Amsterdam Schiphol Airport, Netherlands

**S**chiphol Airport stands out for its exceptional efficiency and the unusual feature of an airport that feels more like a city. It's not just about catching flights; it's about enjoying an immersive experience that includes a museum and a fully functioning library.

Schiphol features a Rijksmuseum annex, where passengers can explore Dutch masterpieces while waiting for their flight. Travellers can also enjoy a large shopping area, a variety of art installations, and a library that lets visitors immerse themselves in Dutch culture.



### Did You Know?

Schiphol Airport has a dedicated "Airport Park" where passengers can take a walk through a green space complete with benches, trees, and sculptures while waiting for their flights.



## O'Hare International Airport, Chicago, USA

**O**ne of the busiest airports in the world, Chicago's O'Hare International has become a hub for

innovation, especially in its efforts to modernize and integrate art into the airport experience.

O'Hare features a unique blend

### Did You Know?

O'Hare is home to the "Airport Transit System," a state-of-the-art underground train system that connects terminals in less than 10 minutes, enhancing travel efficiency and ease for passengers.

of art and technology, such as the installation of the famous "The Sky's the Limit" exhibit, a vast series of colorful glass panels above the terminals. Additionally, it has been a pioneer in biometric technology for seamless passenger processing, with efforts aimed at streamlining security checks.

## Etihad Opens Dedicated U.S. Preclearance Lounge at Zayed International Airport

**E**tihad Airways unveiled its new U.S. Preclearance Lounge at Zayed International Airport, elevating the travel experience for passengers heading to the United States. Conveniently located just steps from the U.S. Customs and Border Protection Preclearance facility, the lounge offers a peaceful haven for eligible guests to relax after completing their U.S. entry formalities and before boarding their flight. The elegantly designed space features a curated selection of beverages and light dining options, perfectly complementing Etihad's premium service. For added convenience, select flights allow direct boarding from the lounge, ensuring a seamless and effortless journey.

The U.S. Preclearance Lounge is now open to eligible guests traveling in The Residence, First or Business Class, along with Platinum and Emerald Etihad Guest members. Access can also be

purchased, subject to availability.

To kick off their journey in style, eligible guests are invited to enjoy the renowned First or Business Class Lounge in the main terminal before heading to the U.S. Customs and Border Protection (CBP) Preclearance facility.

One of the standout features of flying with Etihad to the U.S. is the exclusive CBP Preclearance facility in Abu Dhabi. This allows passengers to complete all U.S. customs and immigration formalities before they board, arriving in the U.S. as domestic passengers. This means a smoother arrival, with the option to quickly collect luggage or seamlessly transfer to connecting flights.

Etihad currently operates nonstop flights to Boston, Chicago, New York, and Washington D.C., and will further expand its U.S. presence with new services to Atlanta in July 2025, strengthening its footprint in North America.

**John Wright, Chief Operations & Guest Officer at Etihad Airways**



This new lounge marks another milestone in our commitment to delivering exceptional experiences for our guests. By combining our premium lounge service with the convenience of U.S. Preclearance, we're offering our guests an elevated journey through Abu Dhabi before they even board their flight. Zayed International is the only Middle East hub to offer this time-saving service.

## Qatar Airways Launches 11th Saudi Destination in Abha

**Q**atar Airways, named the World's Best Airline by Skytrax in 2024, has resumed flights to Abha International Airport (AHB). The airline will operate two weekly flights, enhancing connectivity to its global network of over 170 destinations. With this resumption, Qatar Airways now serves 11 destinations across Saudi Arabia, including Abha, AlUla, Dammam, Jeddah, Medina, NEOM, Qassim, Riyadh, Tabuk, Taif, and Yanbu.

By connecting Abha to its expansive global network, Qatar Airways is offering business and leisure travelers from the Aseer region a gateway to unparalleled travel opportunities. With seamless

connectivity to over 170 destinations worldwide through Hamad International Airport, the World's Best Airport as voted by Skytrax in 2024, passengers can expect an exceptional flying experience. Whether for business meetings or leisure adventures, Qatar Airways provides world-class services that cater to every need. Since its inaugural flight to Jeddah on 29 January 1997, Qatar Airways has been committed to strengthening its presence in Saudi Arabia. The airline's continued investment in the Kingdom reflects its unwavering dedication to offering top-tier travel experiences, ensuring that travelers enjoy convenience, comfort, and seamless connections on every journey to and from the Kingdom.

**Qatar Airways' Group Chief Executive Officer, Engr. Badr Mohammed Al-Meer**

We are delighted to resume flights to Abha, our 11th gateway in Saudi Arabia. With over 140 weekly flights, we connect more than 36,000 passengers weekly between Saudi Arabia and Doha. This highlights our commitment to enhancing connectivity, supporting tourism and strengthening economic and cultural ties between our two nations.

## Introducing The British Airways Club: Earn More Tier Points Than Ever Before

**B**ritish Airways has announced major changes to its loyalty programme, now rebranded as The British Airways Club, launching on April 1, 2025. Members will earn Tier Points based on the cost of flights and ancillary spends like seat selection and excess baggage, with 1 Tier Point for every £1 spent. A new feature also allows members to earn Tier Points and Avios by contributing to Sustainable Aviation Fuels (SAF), with up to 1,000 Tier Points available annually.

Additionally, British Airways Holidays will offer limitless Tier Points on holiday packages, allowing members to earn elite status more quickly. Later in 2025, members will be able to earn Tier Points through credit card spending, and new milestone benefits will reward members at various points between Tiers, starting with Bonus Avios for Bronze and Silver members. Customers with bookings after April 1, 2025, will have their Tier Points converted based on the new system, ensuring they earn the same or more than before. To celebrate, British Airways is offering bonus Tier Points for bookings made before February 14, 2025, for travel from April 1, based on the cabin class. As part of its transformation, British Airways has already introduced several changes, including a shift to earning Avios based on spend rather than distance, resulting in more Avios for most customers.

The airline has also expanded its 'Pay with Avios' option and launched over 10 Avios-only flights. Additionally, Members can now enjoy discounts on wine, beer, and spirits through The Wine Flyer, based on their Tier status. These updates are part of British Airways' £7bn transformation, which includes a new website, app, improved aircraft, and a revamped First suite.

### Colm Lacy, British Airways' Chief Commercial Officer

The changes we have announced today underline our continued investment in our loyalty programme and in our



customers. Based on our Members' feedback, we've built on the changes we've already made – including how customers collect Avios and their membership year – in a way that we believe better rewards their loyalty and reflects their changing travel needs.

While we have announced a number of positive changes today, I particularly wanted to highlight better rewarding our customers who book through British Airways Holidays and making this a permanent part of our proposition, removing the limit on earning. We know that many of our customers make their holiday plans during our annual January sale period, so it's great to be able to announce this today.

### Mr. Vinay Malhotra, Head of Global Sales, IndiGo

We are pleased to announce the culturally rich and vibrant city of Bikaner as the 90th domestic destination in our 6E network and the 5th in Rajasthan. IndiGo will now operate over 460 weekly flights from the state of Rajasthan, connecting 20 destinations directly across the country. This new route aims to promote tourism as well as trade by offering increased access to Bikaner's rich cultural heritage and iconic historical sites. As India's leading carrier, we remain committed towards delivering on our promise of providing affordable, on-time, courteous, and hassle-free travel experiences across an unparalleled network.



## IndiGo Expands Domestic Network: Bikaner Joins as 90th Destination

**A**s heritage tourism gains momentum, Rajasthan is emerging as a leading tourist hotspot in India. The state has ingeniously transformed its heritage buildings into self-sustaining tourist attractions. The introduction of these flights coincides with Rajasthan's investment in new projects to cater to the increasing number of tourists. Bikaner, known for its heritage sites, palaces, and forts, is often referred to as the 'Red City' due to its red sandstone havelis. The new Delhi-Bikaner connection offers convenient access to this growing tourist destination while boosting the economies of both cities. Delhi, India's dynamic capital, combines historic landmarks like the Red Fort and India Gate with modern attractions and diverse cuisine. Bikaner, in Rajasthan, is known for its rich heritage, stunning sites like Junagarh Fort, and vibrant camel festival. Its mix of tradition and culture makes it a must-visit destination.



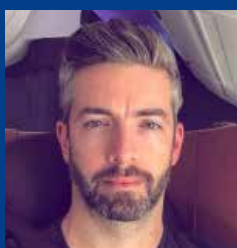


## Cathay Pacific Triumphs at TheDesignAir Awards 2024

**H**ong Kong's home airline also received Best New Business Class, 2024 for its recently launched Aria Suite and Best New Premium Economy, 2024. Both the Aria Suite and the new Premium Economy cabin products were launched onboard the airline's retrofitted Boeing 777-300ER aircraft.

### TheDesignAir Founder and Director Jonny Clark

Cathay Pacific's Aria Suite launch impressed our judges with a residential, passenger-centric approach to design. From



airborne art galleries to intuitive seat design and soft trim and finish details across both Business class and Premium Economy, there is a new lease of life in the airline's fleet as the 777-300ER retrofit takes place. This, partnered with the airline's tireless approach to design across the entire passenger experience, has helped the airline secure Design Airline of the Year, Asia this year.

TheDesignAir Awards uses an esteemed judging panel and a blend of public voting for its design airline votes. Airlines are evaluated based on a range of criteria, including ground products, uniforms, service design, seat and livery, and digital and physical branding. Cathay Pacific excelled across all these categories, demonstrating its dedication to providing a superior customer experience.

Cathay Pacific's recent accolades at TheDesignAir Awards 2024 further cement its reputation for excellence in customer experience and design. In addition to being named Design Airline of the Year, Asia, the airline also won

### Cathay General Manager Customer Experience and Design Vivian Lo



We at Cathay Pacific are honoured to be recognised with these awards from

TheDesignAir. Receiving these three awards is a testament to our unwavering dedication to meticulous design and exceptional customer experience across everything that we do, whether in the air, on the ground or online.

Human-centric design is at the heart of our newly launched Aria Suite Business class and our all-new Premium Economy cabin products, both of which have been thoughtfully crafted and masterfully designed with our customers' comfort in mind. To have them both recognised is a great honour, and these awards will serve as further motivation for us to continue to elevate the experience we provide to our customers.

awards for Best New Business Class (Aria Suite) and Best New Premium Economy. These honors follow a series of other significant achievements this year, including being ranked among the top five airlines globally at the 2024 Skytrax World Airline Awards and securing a spot in the top three best premium airlines in the world according to Airline Ratings. Cathay Pacific's Economy Class was also recognized as the world's best by Skytrax. These prestigious awards underscore the airline's ongoing commitment to elevating its customer experience and advancing design excellence, in line with its vision of becoming one of the world's leading service brands.

# Climate Crisis

This is not a distant concern about the climate crisis, it's now, it's here and it's affecting each part of our planet. These days, there is no longer any doubt about the effects of global warming, from rising sea levels to devastating wildfires, extreme weather events, and ecosystems in peril. The science is clear, yet too often governments, industries, and individuals have responded slowly or insufficiently. We are at this critical crossroads on planet Earth, as humanity, and the choices we make today will determine the future of our planet and generations past us. It becomes more important than ever to understand the key elements of the climate crisis, what impact it will bring, and how to take action to solve it.

## What Is the Climate Crisis?

Simply put, the climate crisis is the rapid, unprecedented, and largely human-driven changes in the Earth's climate system. Burning fuels, chopping down trees to clear for





agriculture or settlement, turning to industrial agriculture (to feed humans), or urbanisation are all activities that release greenhouse gases (GHGs) like Carbon (CO<sub>2</sub>) and Methane (CH<sub>4</sub>) into the atmosphere. The problem is that these trapped gases are what lead to global warming, and now the planet's average temperature is reaching unprecedented highs because of it.

In 2015, the Paris Agreement set countries the aim to keep global warming well below 2°C (1.5°C) and to drive efforts to limit the temperature

increase even further to 1.5°C. But as we trudge along on this path, it's becoming more and more apparent these targets are getting further and further out of sight.

## The Science of Climate Change

The evidence of climate change is overwhelming, with numerous studies, reports, and observations pointing to the same conclusion: Human activity is the main driver of the planet's warming. The latest scientific findings are synthesised each time by the Intergovernmental



**PM Modi:** "Our current challenge is how we perceive progress. For example, a country's development is often judged by its steel consumption and energy usage. Based on these criteria, we calculate the country's economy. If we continue to rely on these parameters, we will consume more electricity and steel, resulting in increased carbon emissions. This means we need to change our mindset. We need to make lifestyle choices and measure progress in ways that are climate-friendly. Currently, all our measures of progress are detrimental to the climate."



Panel on Climate Change (IPCC), which publishes regular reports, each more alarming than the one before.

## Rising Global Temperatures

The most obvious symptom of climate change is the increase in global temperatures. The Earth's average surface temperature has been rising from approximately 1.2°C since the late 19th century. This might seem small, but it's enough to cause great disturbances in the weather systems and the environment. That precise moment of 1.2 degrees was



the moment when we started seeing more frequent and intense heatwaves and the past decade has been the hottest period on record.

Melting ice and rising sea levels

Polar ice caps and glaciers are melting at shockingly quick speeds. Global sea levels have risen by 8 to 9 inches since 1880, and that rate of increase has been accelerating in recent decades, according to NASA. It's threatening coastal communities, islands, countries, and low-lying countries like the Maldives, Bangladesh, and parts of the U.S. East Coast. Extreme Weather Events Another hallmark of climate change is more frequent, more intense extreme

The climate crisis is more than a purely environmental question, it is an immense social and economic problem. Climate change bears an impact disproportionately on vulnerable populations, and further exacerbates inequalities and injustices.

### **Displacement and Migration**

Millions of people are being forced to leave their homes because of rising sea levels and extreme weather events. According to the United Nations, somewhere up to 200 million people could become displaced due to climate impacts by 2050. As they are often referred to, these climate refugees are already experiencing hostility, discrimination, and lack



**S Jaishankar:** "We are working towards achieving a committed reduction in emissions, including transition to alternate fuels, adoption of electric vehicles, and building climate-resilient infrastructure."



weather events, including hurricanes, droughts, floods, and wildfires. In 2020 alone the U.S. saw 22 weather-related disasters costing more than \$1 billion dollars each. In Australia, the U.S., and the Amazon, wildfires have burned millions of acres of land; in Pakistan and Sudan, the flooding has displaced thousands of people. They are not random events; instead, they are actually becoming linked to the changing climate patterns triggered by global warming.

### **The Social and Economic Cost of Climate Change**

of resources in their new locations. Most of these displaced populations come from developing countries least responsible for causing global warming but have suffered its side effects most.

### **Health Risks**

Public health is also exposed to serious threats by climate change. Heat-related illnesses can rise with temperature and can become a problem for the elderly and children. Warm climates also accelerate the spread of some diseases, transmitted by insects, such as malaria, dengue,

and Zika virus. Between 2030 and 2050 around 250,000 more deaths are estimated due to climate change, mostly from heat stress, malnutrition, and disease but even more importantly from air pollution affecting all humans.

### **Economic Costs**

It is already too costly economically to deal with climate change. Extreme weather damage, depression in agricultural yield, loss of biodiversity, and damage to the supply chain are all leading to a slowdown of the economy on the global level. The Global Commission on the Economy and Climate says taking action to avert dangerous warming has the potential to bring in \$26t in economic benefits by 2030, and forgo \$23t if we sit idle.

### **The Role of Fossil Fuels**

Coal, oil, and natural gas are the predominant sources of greenhouse gas emissions contributing over 70 percent of global emissions. The rise of climate change awareness has not prevented the fossil fuel industry from reaping billions of dollars in annual subsidies, hindering a transition to clean energy.

### **The Influence of Big Oil**

Over the same decades, major

fossil fuel companies have been funding climate change denial and lobbying against so-called 'green' regulations that would reduce their profits. While the evidence of climate change is growing, these companies are still exploring new oil and gas reserves to help lock us further into a carbon-intensive future. The ability of governments to take on aggressive emission reductions has largely been constrained by the economic and political power of the fossil fuel industry.

## The Transition to Renewable Energy

The good news is that renewable energy sources like solar, wind, and hydroelectric power are increasingly cost-competitive against fossil fuels. It is now cheaper to build new solar or wind farms than to keep operating coal plants in many places around the world. Unfortunately, it's not happening fast enough when it comes to the transition to clean energy. To make this transition happen, however, governments must invest in renewable energy, energy storage, and always-necessary infrastructure.

## The Policies

National Commitments, Global Efforts The climate crisis is a matter for the whole world, for both individual countries and the international community of states. But over the past few decades, perhaps too many global pacts failed to rise to the commitments needed to avoid catastrophic climate outcomes.

## The Paris Agreement

Almost every country on Earth signed the 2015 Paris Agreement to limit global warming to 1.5°C above pre-industrial levels and increase resilience to the impacts of climate change. Despite such progress, some countries have not made it to the target level, say large emitters such as China, India, and the U.S., and even those who have completed the mission have backtracked on their commitments. But climate talks 2025,



at COP30, will be a critical moment of international cooperation.

## National and Local Efforts

Other than global agreements, national governments are also important in fighting climate change. Denmark, Sweden, and Costa Rica have led the way when it comes to reducing emissions and transitioning to renewable energy. Yet at the same time, local governments, cities, and communities have been among the leaders in taking on the climate crisis, from expanding public transportation and developing sustainable urban planning.

## Carbon Pricing and Green New Deals.

Many economists argue that carbon pricing: carbon taxes, cap, and trade, for example, are the best way to incentivise emissions reductions. Similar programs, such as the Green New Deal hemispheric initiative in the United States, also involve large-scale investments in green infrastructure, establishing renewables-based jobs, and decreasing emissions across the economy Huggul (2018).

## What Can We Do?

There's no climate crisis too big for us alone to solve; it requires collective action, and we're all part of it. Helping to fight climate change doesn't need to be limited to reducing

personal carbon footprints, there are many ways, from advocating for systemic change to volunteering for a sustainable nonprofit or environmental protection organisation.

## Personal Actions

The actions of one person may seem small, but when many people take these same actions, they can make a huge difference. Smaller steps, such as lessening meat consumption, utilizing public transportation, buying from sustainable brands, and less waste go a long way in cutting carbon emissions. Not only that, but investing in energy-efficient home appliances, encouraging renewable energy companies, and advocating for climate-friendly policies can all help to drive a cultural change as well.

## Advocacy and Voting

Advocating for stronger climate policies at the local, national, and international level is one of the most powerful tools we have to combat climate change. It's critical that we vote in leaders who are committed to environmental justice and climate action, because not only do they know the problems, but they're also committed to solving them. But climate strikes, grassroots movements, and digital campaigns also raise awareness and urge change.

## Automobile

The fast development of technology in the automotive industry is bringing rampant changes. It is no longer about just being a transport; modern cars are becoming high-tech machines filled with high-tech gimmicks to make them more convenient, safer, and more environmentally friendly. With its interaction with the environment, autonomous driving will become the future of the car and change how people travel. In this article, we will look at the most exciting and impactful trends that are taking shape in the automotive industry.

# Future Trends in Car Technology

## Autonomous Vehicles

**The Road to Self-Driving Cars** The automotive innovation at the forefront is Autonomous vehicles (AV). The self-driving cars of today rely on sensors, AI, and advanced algorithms to drive down the roads without a human. Tesla, Waymo, and General Motors are making real progress in this realm, with some pilot programs already underway in a number of cities.

- **How They Work:** Typically, AVs must use LiDAR or radar to sense their environment, along with cameras and ultrasonic sensors. This data is processed in real-

time by AI systems, with AI systems making decisions approximately similar to human drivers.

- **Challenges and Progress:** Level 4 and Level 5 autonomy (full automation) are still in development, while Level 2 and Level 3 vehicles, which provide advanced driver assistance, are already available on the market. Major hurdles to widespread acceptance of such systems continue to be, among other things, regulatory, ethical, and safety issues.

- **Impact on Society:** Autonomous vehicles will eliminate accidents because of human error, make riding easier for the





elderly and disabled, and improve traffic flow. But they also question how job displacement in their driving-related industries will affect the economy.

- **Future Potential:** Thanks to swarm intelligence research into autonomous vehicles that communicate and coordinate with each other as they navigate traffic, urban transportation could be revolutionised.

**Electric Vehicles (EVs): Driving Sustainability**

Electric vehicles are at the forefront

technology: solid-state batteries, for instance. These are innovations that will lead to longer-lasting, quicker charging batteries.

- **Charging Infrastructure:** For everyday use, EVs are getting more practical, thanks to the expansion of fast-charging networks, including ultra-fast chargers that can do one in minutes.

- **Market Growth:** Meanwhile, major automakers like Ford, GM, and Volkswagen are rolling out a broad range of EVs, and startups like Rivian

sources. Bidirectional charging technology, for example, allows EVs to store and return energy to the grid, and thus contribute to a more stable, fairer, more sustainable power supply.

## **Connected Cars: Internet of Things (IoT) Vehicles**

Vehicles are becoming smart devices on wheels, or connected cars. These cars integrate with the Internet of Things (IoT) allowing for easy connectivity and real-time data sharing.

- **Vehicle-to-Everything (V2X)**



of greener future. Continuing to be mainstream, the EVs have been rising with governments and the manufacturers themselves making a commitment to reduce carbon emissions.

- **Battery Technology:** Issues such as range anxiety and inadequate charging times are being addressed today through advances in battery

and Lucid Motors are unleashing futuristic ideas and signatures.

- **Environmental Impact:** Transition to EVs reduces greenhouse gas emissions and reduces dependency on fossil fuels as a means to achieve global sustainability goals.

- **Integration with Renewables:** More and more they are also being combined with renewable energy

**Communication:** Decentralised, this technology allows cars to communicate with each other, other vehicles and infrastructure along the way, and pedestrians. With V2X, safety is enhanced by alerting about a possible collision and optimising traffic signals.

- **Infotainment Systems:** Modern cars have some advanced

infotainment systems equipped with voice assistants, real-time navigation, and app integration. Third parties such as Apple CarPlay, Android Auto, and (indirectly) also Apple's own proprietary systems like Tesla's interface are leading the way.

- **Over-the-Air (OTA) Updates:** Manufacturers can refer to OTA to strengthen software, update features, and repair bugs that will cut down on physical recall.

- **Data Security:** The need for strong cybersecurity is present because of the ever-increasing

- **Automatic emergency braking**
- **Sensor Fusion:** The ADAS system provides accurate and reliable information to drivers by combining data from multiple sensors to make rational decisions.

- **Insurance Benefits:** ADAS-equipped vehicles generally make them good candidates for lower insurance premiums and their corresponding safety profiles.

- **New Developments:** With the introduction of AI ADAS, we see features such as hands-free driving on highways and proactive crash

- **Driving Behavior Analysis:** Driving patterns can be monitored and analysed by machine learning algorithms for feedback to increase safety and efficiency.

- **AI in Navigation:** Now, advanced AI algorithms can predict road conditions, find the best route, and even offer basic eco-driving tips to cut fuel use.

## **Eco-Friendly Materials**

With sustainability becoming a top priority, automakers have turned their backs on eco materials and methods.

- **Recycled and Bio-Based Materials:** Car interiors and exteriors are being made with recycled plastics, natural fibers, and bio-based composites.

- **Energy-Efficient Factories:** Automakers are starting to adopt renewable energy sources and energy-efficient processes in production in order to cut the environmental impact.

- **Circular Economy:** The idea of a circular economy, where materials are recycled and used in new production from materials recovered from end-of-life vehicles, is becoming a real thing.

- **Innovative Materials:** But lightweight, strong materials such as graphene are being used to boost vehicle efficiency, increasing efficiency by reducing overall weight without neglecting to pay attention to safety.

## **Flying Cars**

Flying cars are inching closer to becoming a reality once the stuff of science fiction. Companies involved in urban air mobility are developing prototypes.

- **Technological Innovations:** These are electric propulsion systems, VTOL capability, and autonomous navigation, all rolled into one.

- **Potential Applications:** By providing access to remote areas, they can reduce congestion and shorten commuting times in urban areas allowing for a revolution in urban transportation!

- **Regulatory and Infrastructure Challenges:** Fundamental hurdles that



connectivity.

- **Enhanced Navigation:** These days, AI-enabled connected systems are offering predictive navigation, which adapts routes in real-time by considering various factors such as traffic conditions and Earth conditions.

## **Advanced Driver-Assistance Systems (ADAS)**

Enhanced Safety Features like ADAS technologies are what bridge traditional cars to full autonomy, it provides features that help the drivers or make the cars safer.

- **Key Features:**
  - \* Adaptive cruise control
  - \* Lane-keeping assist
  - \* Blind-spot detection

avoidance through predictive analytics available.

## **Artificial Intelligence and Machine Learning**

Intelligent vehicles are now driven through a new era of intelligent vehicles being driven by AI and machine learning, which are learning and adapting over time.

- **Personalised Experiences:** Cars are made more intelligent using AI to adjust such preferences as seat adjustments and climate control, music choices, and so forth.

- **Predictive Maintenance:** When vehicle data is analysed, AI can predict maintenance needs before breakdowns or repair costs.



need to be accomplished are air traffic management, safety regulations, and development of the infrastructure.

- **Integration with Smart Cities:** Maybe flying cars could become a key element of smart city systems, working alongside other forms of transport as well as urban planning ideas.

## Hydrogen Fuel Cells

Fuel cell vehicles (FCVs) are

They're also being considered for buses, trains, and even ships, which could expand their potential impact on global transportation.

## Augmented and Virtual Reality (AR and VR)

AR and VR technologies are changing both the design process and user experience in cars.

- **AR Displays:** Heads-up displays (HUDs) project real-time information

and practice advanced driving skills without the risk of losing their life.

Shared Mobility and Subscription Access to cars is changing thanks to the rise of shared mobility and subscription-based services.

- **Car Sharing:** Renting vehicles on demand creates platforms like Zipcar and Turo that take away the need for car ownership.

- **Subscription Models:** For a



evolving into a companion technology to electric vehicles.

- **How They Work:** Hydrogen gas and oxygen combine with FCVs to produce electricity; just water vapor is emitted as their byproduct.

- **Advantages:** For long-haul transportation, hydrogen fuel cells have faster refueling times and longer ranges than traditional EVs, so they are applicable.

- **Current Challenges:** Barriers to wide adoption include limited hydrogen refueling infrastructure and high production costs.

- **Applications Beyond Cars:**

such as navigation, and hazard alerts, directly onto the windshield reducing drivers' distraction.

- **VR in Design:** VR is used by automakers to prototype, where designers can see and tweak models before production.

- **Immersive Experiences:** The VR is being used to work out ways in car entertainment systems to provide passengers with engaging, immersive experiences.

- **Enhanced Training:** Driver training and simulation is also being used through the application of VR, where pilots are able to learn

monthly fee, automakers are offering flexibility and convenience through a subscription service: access to multiple vehicles.

- **Impact on Urban Mobility:** The optimisation of the daily use of goods and services, motivated by shared mobility, effectively reduces traffic congestion and environmental impact, by making resources more efficient.

- **Future Trends:** AI in shared mobility platforms is optimising vehicle allocation, reducing waiting time, and personalising user experiences.



# Sustainable Living

# A Greener Tomorrow

Recently, the idea of a sustainable lifestyle has become more and more known, especially by people and clubs who are already aware of environmental problems. A sustainable lifestyle encompasses many practices and choices that cause no harm to the planet while ensuring health and well-being.

**I**t's a need due to rising climate change, resource depletion, and pollution. Choosing what we want to consume, how to produce, and how to handle waste can greatly decrease our ecological footprint. With an Eco-conscious approach, our products in whatever form be it food, household, or office stationery are always sustainable living.

## Eco-Friendly Products

Eco-friendly products are products that are made with the minimum impact on the environment from production to the power of disposal. A lot of these products are made using materials that are sustainable, from an ethical manufacturing perspective, and utilising eco-friendly packaging. The consumer has faith that using eco-friendly products means helping perpetuate sustainable practices and a healthy planet.

## Sustainable Fashion

When people talk about the harmful effects of the fashion industry, they aren't being wrong. However, sustainable

fashion is the way to go.

## Recycled Clothing

Recycled Clothing uses less waste and uses fewer resources. If you have the cash and want to spend it, look out for clothes made from recycled plastics or fabrics. Today, many brands have created collections that go the extra mile by repurposing post-consumer waste into pleasing apparel. Not only does this avoid the waste of materials going to landfills, but it also helps to reduce the demand for new raw materials.


It could be denim made from old jeans or t-shirts formed out of recycled plastic. Textile recycling reduces waste going to landfills and the production of using new virgin materials is much less water and energy-intensive than making new fabrics from virgin materials.

## Organic Cotton

Organic cotton product is grown without harmful pesticides or fertilizers, are considerably more environmentally friendly than conventionally grown cotton,







and are safer for consumers. Growing organic cotton helps encourage biodiversity and healthy soil, using far less water than conventional cotton. When you buy apparel, try buying products that are labeled organic or purchased sustainably.

Organic cotton offers added benefits beyond environmental impact, farmers who aren't exposed to toxic chemicals work better. Growing an organic cotton fiber industry fosters a more equitable fashion industry.

### **Second-Hand Clothing**

Besides reducing our demand for new production, thrift shopping or buying vintage items extends the life cycle of garments. Secondhand runs often find the awesome at cheap prices and thus contribute to a circular economy. Used clothing reselling has also jumped on online platforms making it so easy to find preloved items.

The good news is, second-hand clothes are cheaper but even more they use less carbon footprint than the ones manufactured to make new clothes. It is a great way to facilitate your personal style while caring about the environment.

### **Eco-Friendly Home Goods**

One of the cornerstones of living sustainably is making your home an eco-friendly one.

### **Biodegradable Cleaning Products**

Cleaning supplies made from natural ingredients that are easy to break down should be your choice that won't harm the ecosystem. Current cleaning products often contain harmful chemicals that pollute waterways and damage aquatic life. That is why by using biodegradable alternatives, you can have a clean home while still preserving nature.

Today, many companies are offering you kits to mix your own cleaners at home with refillable containers, and you are on top of your waste!

### **Reusable Kitchenware**

Instead, choose to switch to reusable stainless-steel straws, bamboo utensils, and glass food storage containers, rather than their disposable counterparts. Such products use less single-use plastic waste and are stronger than their disposable fellows. The good news is that investing in good quality reusable kitchen utensils will help the planet as well as pay for itself.

For example, shopping for beeswax wraps instead of plastic wrap can seriously cut down on plastic waste while keeping food fresh. Also, paper napkins contribute to less waste production if you replace them with cloth napkins.

### **Sustainable Technology**

Simply making considered choices in electronics is one way to have a sustainable lifestyle.

### **Modular Smartphones and Laptops**

Devices for repairability have components that users can replace instead of discarding the entire unit when parts go bad. This is about longevity, it reduces e-waste. Check for designs that are modular, so that repairing or upgrading is easy or, for that matter, it can prolong the life of your devices.

Examples include phones whose batteries or screens the user can replace without dipping into the paid expertise. This would not only save money but it would reduce e-waste immensely.

### **Energy Efficiency in Gadgets**

Other electronics make more use of the energy created, use renewable energy sources – like solar chargers – or have characteristics to minimise the usage of energy when it's in use and when it's resting, characteristics common to many modern appliances.

Wall outlet-based smart plugs assist you monitor energy usage and automate your devices to take care of themselves automatically when not in use to further improve residence power effectiveness.

## Recyclable Materials

Minimise environmental impact resulting from tech products' end-of-life cycle by choosing tech products made from recyclable materials. Before upgrading your devices, make sure you dispose of the devices safely, especially by going for the services of a certified e-waste recycling program for proper recycling to avoid harmful materials from being dumped into landfills.

Today, many manufacturers are designing products that can be recycled in a fairly easy process at recycling facilities and not just as waste.

## Eco-Conscious Personal Care

If you are not very particular about the kind of products you use for personal care, they can very much be damaging to the environment.

## Organic Skincare Products

Items that don't contain synthetic chemicals and are made from natural ingredients are better for your skin and even better for the planet. The majority of conventional skincare products have ingredients that are dangerous and will pollute water systems when washed down drains. What you're buying when you buy organic is safer ingredients for your body as well as more sustainable farming methods.

Look at the cruelty-free or vegan labels of your skincare products when choosing, or try to look for ethical sourcing with environmental consciousness in mind.

## Plastic-Free Toiletries

But what if we considered options like bamboo toothbrushes, or shampoo bars, that do not generate any plastic waste at all? Most days most personal care brands today offer packaging-free options or even use biodegradable materials to help you reduce your plastic waste to a great extent.

Solid deodorants in recyclable packaging can also minimise plastic pollution and keep body odor at bay.

## Natural Deodorants

For deodorants, stick with organic ingredients that you know the package of was made to be recycled. The compounds of aluminum and artificial fragrances as well as artificial fragrances, all major hazards to health and the environment, are included in most of the conventional deodorants.

Baking soda or cornstarch are the active ingredients found in natural deodorants rather than harsh chemicals and are therefore safer for users, and the ecosystems that the deodorant washes into drain down the shower.

## Sustainable Food Choices

Sustainability is partly dictated by the food people consume.

## Organic Produce

Buying organic fruits and vegetables is good for the environment. By the way, organic farming practices are practices that maintain soil health, biodiversity, and a reduction in the use of chemicals thus they do positively promote ecosystems.

Buying organic produce most of the time, acts as a boost to those local farmers who are using sustainable farming methods, not all big

industrialised agriculture, which can destroy local ecologies with pesticide runoff and monoculture farming.

## Plant-Based Diets

This is because eating less meat reduces emissions caused by livestock farming. These days, everywhere you turn we're being encouraged to switch to plant-based diets that are not just good for your health but for our environmental footprint as well.

Some resources use less when being used by plant-based diets instead of producing meat. Small changes, like 'Meatless Mondays' can result too, with meaningful environmental dividends over time.

## Locally Sourced Foods

Lessening quantity of transportation emissions can be bought from local farmers and help to stimulate the local economy. Buying fresh produce at farmers' markets is a very good way to buy fresh produce right off the grower's hand, and interaction socially in the community supports in the best way.

Food is grown during the year locally and locally eaten-seasonal eating foods contribute to a food that is optimised for flavour which has





lower carbon emissions in the food from being moved around the food over greater lengths of time.

### Zero-Waste Lifestyle

This means a change towards a no-waste system, generating less waste and consuming thoughtful.

### Compostable Bags

Instead of plastic, plastic bags, use compostable trash bags made from renewable plant-based materials. Compostable trash bags such as these decompose naturally in a composting environment and will help reduce landfill contributions, helping improve soil health when composted properly.

Keeping kitchen scraps at home, including vegetable peels and coffee grounds, helps reduce waste by sending organic matter away from landfills where it would otherwise be decomposed and trapping methane—a potent greenhouse gas released during the decomposition process that has no oxygen.

### Bulk Buying

If you buy in bulk, you won't have packaging waste. And it can even save you some money. There's a good chance that most grocery stores have bulk bins with grains, nuts, spices, etc.

you can fill your own containers with, no packaging necessary.

Buying in bulk not only decreases single-use packaging but also enables you to regulate portion sizes which in turn helps to decrease food waste by only buying what you will use at the time.

### DIY Projects

Avoid unnecessary packaging and create your own cleaning supplies or personal care products using only simple ingredients to produce. Homemade cleaners have their recipes: vinegar, baking soda,

pounds invested by many cities in extending public transit networks, using public transit, for example, results in decreased traffic congestion and contributes to lowered levels of air pollution in cities.

### Biking and Walking

Ride or walk your bike where you can. This method not only minimises gas fumes, it helps create healthier, happier humans and the creation of your community, making you and your neighbor run into each other while running.

Ultimately, bike-sharing initiatives,



essential oils... effective alternatives, but friendly to the environment and your health.

DIY projects provide a way to blow off steam creatively while giving you exposure to what goes into everyday products you use and that's a good thing, right?

### Eco-Friendly Transportation

Carbon emissions result from transportation choices too.

### Public Transit

Buses or trains use less personal carbon footprint than those who drive alone. Public transport systems are generally more efficient by energy PER PASSENGER MILE compared to personal vehicles, which makes them a good fit for an environmentally aware commuter.

Recent years have seen billions of

as well as increasing pedestrian accessibility all over the world, have enabled alternative modes of transportation.

### Electric Vehicles (EVs)

Increased focus on the transition to electric cars has helped reduce dependence on fossil fuel while decreasing carbon emissions associated with conventional combustion engine automobiles! With continuous developments in charging infrastructure worldwide; it will find broader usage cases over the course of time.

Meanwhile; several governments incentivise customers with tax credits etc; to encourage them towards these greener technologies, as it was making owning an EV easier than before.



# THE INDIAN ERA OF CHESS



While the world was transforming during the COVID-19 pandemic, the world of chess also underwent a transformation as playing on-board chess was almost impossible, shift to online play resulted in an explosion of chess activities not only in India but almost all over the world.

**T**he popularity of all kinds of games did increase during that time but none seemed to meet greater success than chess. This game has experienced a remarkable surge in popularity since then. Before the pandemic, the gaming platform 'chess.com' had almost 30 million users, which exploded to more than 55 million within a year and currently ranges to around 11 million daily active users.

The online mode of chess proves to be more convenient for the players because the platforms online allow players to play at their convenience. It also allows players to find opponents immediately in any part of the world. One can also record and review their games which helps them to identify patterns, strengths, and weaknesses in their play. Also, online chess platforms are often free which makes them more

accessible to a wider set of audience.

## THE 'VISHY' INFLUENCE

Until the year 1998, India had only one chess Grandmaster (GM), Vishwanathan Anand, who achieved this title in 1988 at the age of 18 but today in 2024, India has 85 chess GMs with P. Shyaamnikhil securing the 85th GM title by winning his third and final GM norms at the Dubai Police Masters Chess Tournament. Today India has a robust chess ecosystem, including its governing body, the All India Chess Federation which is considered as one of the best in the world. Among the world's top 30 players, five of them are Indian. Much of India's chess success can be attributed to the legendary five-time World Champion, Viswanathan Anand, who has been instrumental in inspiring the new generation of talented young Indian chess players

and has been contributing significantly to India's emergence as the global chess powerhouse. Also, several Indian GMs are dedicated to giving back to society by establishing chess academies and mentoring young talent which helps to strengthen the upcoming generation of Indian chess.

## THE INDIAN WAVE

India's current rate of producing Grandmasters is unprecedented. The recent strong performance at the 45th Chess Olympiad held in Budapest demonstrated the ability of Indian chess to move beyond the legendary era of Vishwanathan Anand. The state of Tamil Nadu is considered to be the 'Mecca of Chess' in India because of giving rise to grandmasters like Vishwanathan Anand, R. Praggnanandhaa, Gukesh D, A. Chithambaram, Vaishali Rameshbabu, Savitha Shri B and a lot many.



Upcoming stars like Praggnanandhaa rapidly climbed the chess ladder, breaking records and captivating the world with his exceptional talent and strategic brilliance. At a young age, Praggnanandhaa clinched the World Youth Chess Championship titles in the under-8 and under-10 categories and he also achieved the title of International Master at the age of 10, breaking the world record. He then went on to become a Grandmaster at the age of 12 cementing his status as a young talent.

### THE 18-YEAR-OLD CHAMP

Gukesh Dommaraju, an 18-year-old lad born and brought up in Chennai is the current World Chess Champion, rising as the new face of chess in India. At 17, he broke the record for the youngest player to achieve a FIDE rating exceeding 2750. He got the title of Grandmaster at the age of 12 and is also the third-youngest Grandmaster in the history of chess. He also defeated Ding Liren of China to become the 18th World Chess Champion, the second Indian to claim the title after Vishwanathan Anand.

Gukesh's most striking qualities are his maturity and authenticity which he has received from his parents who believed in their son's ability and allowed him to pursue his passion for chess. Gukesh's father

quit his medical career as an ENT surgeon to travel with his son for the tournaments. In the September 2023 rating list, for the first time in 37 years, Vishwanathan Anand was not the top-ranked Indian player, having been surpassed by Gukesh.

### WORLD CHESS CHAMPIONSHIP 2024

This memorable event for India was held in Singapore from November 25th to December 13th, marking a historic moment with the crowning of Gukesh D. as the new World Champion. Though the tournament started with a loss for him he revealed that it was like a dream being fulfilled for him, saying, "The game did not go great, but as I said, in 2013 I was outside the glass box. I did not get a seat in the audience to watch the match, so at that time I just looked at Vishy sir and Magnus and I thought, it'll be really cool to be there one day and to actually be there and sit there and to see the Indian flag next to me. It was probably the best moment."

The fateful blunder by Ding Liren in the final classical Game 14 in an otherwise drawn game, and viewers around the world jumped off their seats in disbelief. Jubilation erupted all across the live streams yet Gukesh kept a straight face. Moments later, after the victory emotions were captured with him and his father

together. In the press conference after the match, Gukesh said, "I'm living my dream."

Vishwanathan Anand posted on social media saying, "It's a proud moment for chess, a proud moment for India, a proud moment for WACA, and for me, a very personal moment of pride."

The chess legend Garry Kasparov himself congratulated Gukesh by saying, "My congratulations to D Gukesh on his victory today. He has submitted the highest peak of all: making his mother happy!"

### FUTURE OF CHESS IN INDIA

Gukesh's victory underscores India's growing sporting prominence. The landscape is changing, whether it's Neeraj Chopra winning the historic gold at the Olympics, track and field athletes shining at the highest level, or Gukesh becoming the World Champion. As Vishwanathan Anand said, "The ecosystem develops slowly. We help build on that, and it's a long-drawn process. Many of the people who became Grandmasters are working with youngsters, whom we are working with in WACA. So you can see a clear progression there."

Despite cricket's enduring popularity, Indian sports fandom is evolving with time. Ninety percent of fans now follow multisport, with Kabaddi, Football, and Chess emerging as prominent contenders catering to around 120 million and 85 million fans respectively. The rise of digital platforms has also changed the sports content consumption habits of the viewer. 93% of new-generation fans consume sports content which is more than any other generation. Out of the 655 million Indian sports fan base, 36% are women while 59% are from rural areas showcasing the increasing popularity of sports among diverse groups and in various regions. This evolving social perception of sports as a respectable career will inspire a new generation of athletes in India.



# Artificial Intelligence in daily computing

Artificial Intelligence (AI) is certainly not a dream of the past anymore and it has become a part of everyday things, in particular the technology we use. In recent years, the improvements in AI have resulted in the development of new systems like Microsoft's Copilot joining over a billion of average daily active users, coming to Windows PCs, and flagship smartphones. The current developments in AI and their practical implementation in the devices are fascinating, which makes it possible to increase productivity, and creativity and provide a pleasant experience of using these devices. The sort of evolution of AI technologies has changed some industries like personal computing and mobile devices. Microsoft is leading the charge in avoiding the traditional method (of code and syntax) by combining sophisticated AI into hardware through Copilot+ PCs, powered by new Neural Processing Units (NPUs). What these innovations are promising is to change the way that users interact with their devices and tasks will seem a lot more efficient and intuitive. In addition, flagship smartphones as well also have associated AI-driven features that promote user engagement and productivity.



Sam Altman (CEO of OpenAI): "AI will continue to get way more capable" and will become ubiquitous as time goes on, People are using it to create amazing things. If we could see what each of us can do 10 or 20 years in the future, it would astonish us today."



## Setting the Stage for AI Integration

Now that we are entering an age where AI rules, Microsoft and smartphone manufacturers are using the technique to develop smarter gadgets. Copilot+ PCs represent a historic milestone in personal computing. In addition to being used to perform traditional computing tasks, these devices are tuned to enrich user interaction with advanced AI features.

♦ Neural Processing Units (NPUs): The NPU at the heart of Copilot+ PCs can do more than 40 trillion operations per second (TOPS). With this much processing power, you can have real-time AI use such as image recognition, Natural language processing, and so on.



- ♦ **AI-Powered Features:** With Copilot integration of AI into Windows 11 users are able to automate tasks, generate content, and communicate with their devices in a natural language way. Recall is such a feature that lets users search past interactions using conversational queries; features of this move toward more intuitive computing.

- ♦ **Flagship Smartphones:** Also, AI is making its way into leading smartphones, as smartphone brands embed AI functionality in their devices. Smartphones are learning to become even more intelligent with better image quality, as virtual assistants better understand the context around them than ever before.

**Microsoft Copilot: A New Era of Productivity**

Copilot is an AI-powered assistant for Microsoft work that supports other Microsoft products and services. Its target is to improve productivity by automating repetitive tasks and suggesting intelligent tasks based on user behavior.

They have many different versions of Copilot for various user needs:

- **Copilot:** General user version of the same available in a lightweight version.

- **Copilot Pro:** For people who need advanced features.

- **Microsoft 365 Copilot:** A business application add-on using organizational data to provide tailored responses.

- **Copilot Studio:** It allows you to create customized AI assistants for your specific workflow.

- **Enhanced Features:** Features such as Copilot Voice and Copilot Vision to listen to and show the assistant content have also been added lately.

- **Integration with Windows 11:** Copilot is now integrated into the operating system of Windows, and can be used to search files and answer voice commands on the taskbar.

## Copilot+ PCs: Redefining Personal Computing

Copilot+ PCs represent a giant leap forward in personal computing capabilities. Built for AI workloads that demand performance these devices come with NPUs that turbocharge performance.

### AI Features Powered by NPUs:

- **Windows Studio Effects:** A set of video and audio enhancements built with NPU feature sets like background



blur and voice isolation.

- **Super Resolution:** A brilliant power of local processing is demonstrated by this feature as users can upscale images to nearly 4K without losing detail.

- **Improved User Experience:** As AI integrates, users may search for files with language that matches naturally, as opposed to remembering precise names or misspellings.

Designed with features like Click to Do overlay that surfaces contextual suggestions based on what's in sight, these workflows streamline.

- **Battery Efficiency:** Furthermore,

devices using NPUs do well and save power because NPUs are able to do the work well without using the power-hungry CPU.

- **Task Automation:** Simple commands issued to Copilot can automate mundane tasks like scheduling meetings or allowing you to generate reports.

- **Content Generation:** Users in Word and Excel among other applications can utilize Copilot's capability to generate content by asking it to draft an email or generate data visualization on input data.

- **Real-Time Collaboration:** Live document collaboration that relies on AI allows team members to collaborate regardless of where they're located so that teams can continue fostering positive relations even when working remotely. When we are in a collaborative session, Copilot can offer edits or indicate where improvements are needed.

**AI Kicks Off with Smartphones That Are Flagship**

AI technologies are being rapidly adopted by smartphone manufacturers to their flagship models and are improving user experience in several modes of functionalities.

- **Camera Enhancements:**

Features of modern smartphones improve photography using AI algorithms. Scene recognition, night mode enhancements, and real-time image processing are no longer features, but rather expected.

- **Virtual Assistants:**

Things are increasingly getting contextually complex for smartphone virtual assistants. Now, they can perform tasks based on voice commands better than ever.

- **Security Features:**

Facial recognition technology and anomaly detection systems protecting user data from hackers are also being carried out by AI to improve security measures on smartphones.

**AI Technology: Future Directions**  
As we look ahead, the potential

applications of AI in both personal computing and mobile technology appear limitless:

- Continued Integration with Everyday Tasks:

Going forward, we'll see even more AI baked into applications you use every day and take care of tasks that you'd otherwise need to remember to do yourself.

- Expansion of NPU Technology:

With more devices adopting NPUs, we can look forward to a wider variety of applications that utilize this technology to optimize performance from a greater variety of applications on different software platforms.

- AI Ethics and Security Considerations:

It's an increasing responsibility when it comes to AI with data privacy and security in the hands of humans. As part of harnessing the power of AI, manufacturers must make sure user data remains secure.

### Challenges and Considerations

While the integration of AI into Windows PCs and flagship smartphones presents numerous benefits, it also raises several challenges:

#### Data Privacy Concerns:

With that increased reliance on cloud-based services, there comes a responsibility that the user data is secure. In order to create trust with consumers, companies need to implement robust security measures and be transparent about the company's usage of data.

#### Ethical Implications of AI:

Questions of bias in the use of algorithms and the way those decisions are made are raised by the use of AI. So, developers have to make sure that their systems are fair, and that they're not adding to biases that would already exist in training data.

#### User Adaptation:

The learning curve for new features becomes more rapid as technology

changes. Educational resources are what companies should commit to in order to help users adjust efficiently to any new tools and functionalities.

### Modern Applications of AI

#### Accessibility

Assistive Technologies: AI speech recognition software and text-to-speech tools are among the AI-powered tools that can make it easier for people with disability to interact with technology. Take for example voice-activated assistants that can get



tasks done by hand making devices more accessible for people who have mobility issues.

Real-Time Translation: Real-time captioning and sign language translation can facilitate communication between people who are deaf or who are hard of hearing, using AI. AI applications that turn spoken language into text can give access to spoken content in real time

in multiple environments.

### Education

Personalized Learning: With performance data, AI can analyze performance and tailor education experience to individual student needs. Thus, differentiated instruction gives students the opportunity to get concepts, as they learn at their own pace.

Administrative Efficiency: With AI, administrative tasks like gradebook, scheduling, and student records, can be automated freeing up more time to educate and less time for paperwork.

Enhanced Engagement: In educational tools, using AI to drive gamification makes the learning process more interesting and therefore more engaging. The better retention of this kind of information is common from this approach.

### Healthcare

Diagnostic Support: AI algorithms can speed things up and make things more accurate through healthcare professionals in analyzing medical images (such as X-rays, and MRIs) and patient data better than manual ways. It means conditions like cancer or heart disease will be caught sooner.

Predictive Analytics: AI analyzes enormous amounts of health data to determine commonalities that indicate a patient's future outcome or potential health risks and deploy interventions before anything becomes a big issue.

Personalized Treatment Plans: AI can process genetic information as well as clinical data and recommend personalized treatment based on the patient profiles, as well as improving treatment efficacy.

Operational Efficiency: In healthcare settings, AI can help optimize the scheduling, manage inventory, and manage the workloads, the healthcare providers can actually leverage the resource more efficiently.





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