UnderStand UPSC
What we UnderStand, We Conquer

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# What is drop shipping, and what are the risks for online shoppers?

Drop shipping allows online individuals or agents who do not hold any products to take customer orders and pass them on to other makers or sellers, inserting themselves into the transaction as middlemen; while legal in most jurisdictions, the practice can expose customers to several risks

Sahana Venugopal

While scrolling through Instagram Reels, you naturally pause when an attractive product catches your eye: a sleek laptop bag for travel, a cheap set of popular novels, an ultra-fast wireless charger on sale, beautifully embroidered linen shirts, or leather-bound notebooks with custom gold foil inscriptions. Before you know it, you are entering your credit card number or UPI PIN.

Caught up in your shopping spree, you may not have checked the true origin of the product or other customers' reviews of the seller. What's more, you may not even realise that the "company" you paid is just a decorated webpage created with AI and owned by a person who does not hold a single product.

This is the economy of drop shipping: the business practice that allows almost anyone with an internet connection to sell products that come from others.

Here is what you should know as a customer.

**What is drop shipping?**

This is a business practice where an online individual or agent – who does not hold any product – takes orders from customers and passes them on to another maker/seller who actually holds the product. The product is then delivered to the customers, either by the original maker/seller or a third-party delivery service. To put it simply, the drop shipper inserts itself into the transaction as a middleman. One or even multiple drop shippers might stand between buyers and the original makers of the product they want.

The success of Amazon, the largest e-commerce retailer in the world, can be credited at least in part to drop shipping practices. In its earliest days, Amazon did not commandeer giant international warehouses packed with products; rather, the company was a web-based middleman that fulfilled many customers' orders by sourcing the books they wanted.

Though Amazon's product delivery model has drastically evolved, the company allows drop shipping to take place via its platform. Other channels, such as Shopify, also enable drop shipping and help users manage the logistics. Alternatively, drop shipping might take place through channels such as WhatsApp, Instagram, Facebook, and lesser-known websites.

In essence, if you have ever bought any product online, there's a chance that you placed your order through a drop shipper rather than the original seller.

**How does drop shipping work?**

Drop shippers can work with both domestic and international manufacturers and customers. Some try to fill an existing gap in their local market (such as affordable school textbooks), some capitalise on market trends (such as the popularity of iPhone cases), and others build hype around rarer products (such as foreign luxury fashion). Most importantly, the drop shipper does not need to buy or store any of the products they are selling.

Drop shipping has become a popular source of income for both public-facing Instagram creators monetising their virality as well as private marketers looking for discreet revenue streams. What's more, with AI automating many customer services and harvesting business insights, drop shipping feels like something that almost anyone with an internet connection can try out.

In addition to promoting products and setting up online storefronts, drop shippers may also buy/sell courses that reveal current market trends, customer interests, trusted wholesalers, and useful AI tools, in order to generate further profits.

Drop shipping might look illogical at first, but it is in vogue for a number of reasons.

Buyers trying to independently source foreign products from a wholesaler might be forced to order more than they need, or contend with complicated customs regulations and fees. They also may not know if the original seller is legitimate, or might be unable to communicate with them due to a language barrier.

However, placing orders through a vetted drop shipper with a user-friendly web page eases some of these worries. What's more, legitimate drop shippers regularly carry out quality assurance tests of their own, and should ideally become a customer support layer of sorts in order to resolve any complaints.

**Is drop shipping legal?**

Drop shipping is legal in most jurisdictions, as long as the participants involved ensure transparency and comply with their region's tax laws.

Instagram's commerce eligibility requirements state that the users' Facebook Pages or Instagram professional accounts must contain product listings that are available for direct purchase from the user's website. In case buyers are being directed to another website, the user must provide the domain through which they sell, and their channels must represent the shop associated with the domain.

But now that it is possible to create entire shopfronts and e-commerce websites in minutes with just some cheap domains and a few AI coding prompts, Instagram drop shippers can easily present themselves as original sellers and offload customer orders to other sellers. Videos of workers sorting through wrapped packages, or Reels of founders happily holding up stacks of paper that they claim are customer orders, can mislead social media shoppers into thinking they are dealing directly with a trusted seller.

Ultimately, the line separating influencers, marketers, and sellers can blur quickly on social media. Some drop shippers also ask customers to contact them via WhatsApp, to take their communication off the app. Buyers may not know where their products are actually coming from or how their data privacy rights are being eroded. And as supply chain transparency is lost, drop shipping operations can quickly slide into a legal grey area or end up in criminal violations.

Some risks include scams targeting customers, as well as scams targeting drop shippers. Original sellers and drop shippers may both inflate product prices.

Drop shippers might also work with wholesalers sending out defective/rejected products. Furthermore, drop shippers may unknowingly promote pirated/counterfeit products. Hyper-realistic AI product images can mislead both customers and casual drop shippers.

Meanwhile, delivery timelines can be long – if the product even arrives at all. The drop shipper may not be required to take responsible for any safety or hygiene standards that have to be maintained while shipping the products.

Adding to this, multiple drop shipping layers in different countries can inadvertently lead to sanctions violations. In case of complaints, cancellations, or refund requests, customers may have no choice except to cut their losses and move on.

Other dangers include pyramid schemes to recruit more drop shippers, or even cyber-crimes via phishing and hacks, as the customers' payment information is shared with multiple parties without their informed consent.

So, the next time you spot a book influencer on Instagram promoting a handy new reading light, or stumble across an excited founder surrounded by sacks of customer orders, take a few minutes to do your research and find out who is really selling you the product.

An e-commerce revenue model where the seller has control over pricing but doesn't keep products in stock and instead transfers customer orders and shipment details to a third-party supplier, who then ships the goods directly to the customer, is called :

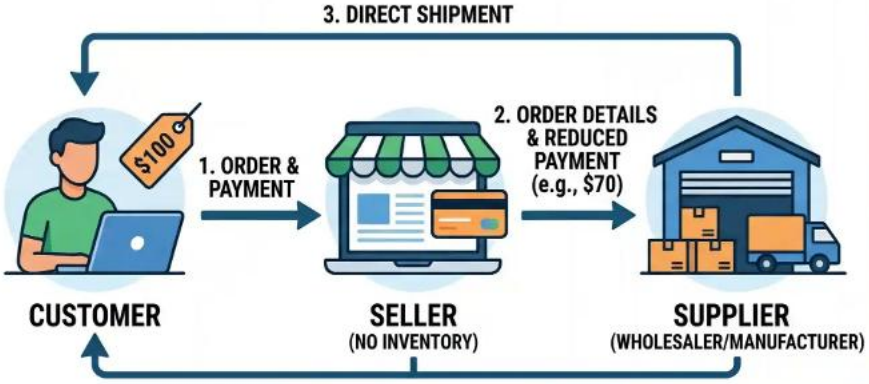
(a) Dropshipping Model

(b) Affiliate Revenue Model

(c) Transaction Fee Revenue Model

(d) Agency Revenue Model

# DROPSHIPPING REVENUE MODEL




PROFIT = SELLING PRICE - BUYING PRICE
(e.g., $100 - $70 = $30)

## KEY CHARACTERISTICS OF DROPSHIPPING

- SELLER ACTS AS THE RETAILER & SELLER OF RECORD.
- SELLER HAS CONTROL OVER PRODUCT PRICING.
- SELLER KEEPS NO PRODUCTS IN STOCK.
- SUPPLIER SHIPS DIRECTLY TO CUSTOMER.

1. Dropshipping Model

Meaning: Seller does not keep inventory. After receiving an order, the seller forwards it to a supplier/manufacturer, who ships the product directly to the customer.

Flow: Customer → Seller → Supplier → Customer

Example: A Shopify-based online store selling phone covers sourced from manufacturers in China. The store owner markets the product and collects payment, while the supplier ships it.

Other E-Commerce Revenue Models (Quick Revision)

2. Affiliate Revenue Model

* Earn commission by referring customers.
* No ownership of products.
* Example: Amazon Associates Program.

3. Transaction Fee Revenue Model

* Platform charges a fee on every transaction.
* Example: Paytm, Razorpay.

4. Agency Revenue Model

* A business strategy where a company earns money by providing specialized, professional services to other businesses (B2B) or individuals.Instead of selling physical products, an agency sells its team's expertise, time, and creative labor.
* Example: Uber, Ola, Airbnb.

With reference to Unmanned Aerial Vehicles (UAVs), consider the following statements :

I. All types of UAVs can do vertical landing.

II. All types of UAVs can do automated hovering.

III. All types of UAVs can use battery only as a source of power supply.

How many of the statements given above are correct?

*(a)* Only one *(b)* Only two

*(c)* All the three *(d)* None

# Drone revolution and modern warfare

The wars in Ukraine, Lebanon and West Asia have shown how drones have become central to modern warfare; as cheap, mass-produced unmanned systems proliferate, military power is increasingly shaped by industrial scale, technological adaptation and the ability to build, deploy and counter drones

EXPLAINER

Rahul Bedi

For decades, military power has been defined by the scale and sophistication of conventional arsenals – combat aircraft, tanks, artillery, warships, air-defence systems, precision-guided missiles, and other high-end assets.

**End of superiority**

In this environment, battlefield superiority belonged to armies with technologically advanced platforms and equipment, sophisticated intelligence networks, and large budgets. Smaller militaries and non-state actors, by contrast, were largely confined to asymmetric tactics that relied on guerrilla warfare, ambushes, and other unconventional methods to offset their opponents' superior firepower and operational dominance.

But the ongoing wars in Ukraine and Lebanon, together with the wider U.S.-Israel-Iran theatre of conflict, have irrevocably shattered this paradigm, demonstrating that commercially derived drones – mass-produced at scale, rapidly reconfigured for multiple operational roles, and widely deployed – have become a defining feature of contemporary warfare. Performing functions ranging from intelligence, surveillance, and reconnaissance (ISR) and target acquisition to precision strikes, artillery spotting, electronic warfare, and logistics support, they have evolved from auxiliary assets into central instruments of military operations.

In doing so, they have transformed the 21st-century battlespace into an environment of persistent visibility and rapid engagement, where front lines remain continuously exposed, and rear areas can no longer be assumed secure, as multiple types of Unmanned Aerial Systems (UAS) can locate, track, and strike targets with unprecedented speed and precision.

Across these concurrent theatres of conflict, the widespread – and in some cases decisive – employment of drones has challenged established assumptions about how military power is generated and applied, reshaping doctrine, force structures, and future warfighting concepts. The consequence has been the emergence of a continuous and interconnected battlespace in which no position is truly beyond reach, and no movement can safely assume it will remain concealed for long, as detection is increasingly followed by rapid engagement and destruction.

**Ukraine drone war**

Nowhere has this transformation been more visible than in Ukraine, where Russia's 'Special Military Operation' launched in February 2022, as a conventional war involving combat aircraft, tanks and artillery, evolved within two years into the world's first industrial-scale, drone-intensive conflict.

From the earliest stages of the Russian invasion, Ukraine rapidly adapted commercially available drones – originally designed for civilian purposes such as aerial photography, mapping, and basic surveillance – alongside a limited number of pre-existing military Unmanned Aerial Vehicle (UAV) assets into improvised reconnaissance and strike systems.

What had initially functioned as a support tool for intelligence gathering and guiding artillery fire quickly evolved into a decisive combat capability, as small quadcopters and First-Person View (FPV) drones were progressively weaponised and deployed as low-cost, precision-guided munitions. This shift marked a fundamental transformation in how unmanned systems were used on the battlefield: from passive information-gathering platforms to active instruments of destruction. By around 2024, drones had become fully integrated into almost every layer of Ukrainian combat, ranging from tactical battlefield surveillance to frontline targeting and deep-strike missions against logistics hubs, supply routes, and rear-area infrastructure.

From the earliest stages of Russian invasion, Ukraine adapted commercially available drones. FILE PHOTO

The operational template that emerged from this experience in Ukraine was subsequently replicated, albeit to varying degrees and in different forms, across the continuing West Asian conflicts, underscoring the growing centrality of drones to contemporary warfare.

**FPV revolution**

At the heart of Ukraine's drone revolution is the FPV system – an inexpensive, commercially available platform originally designed for recreational racing and aerial photography. Controlled through a live video feed transmitted from an onboard camera to virtual-reality-style goggles worn by their operators, FPV systems offer exceptional precision, manoeuvrability, and responsiveness.

These were then rapidly transformed into a broad spectrum of combat systems, including FPV strike drones, bombers, interceptors, and long-range attack variants. Among the most prominent are heavy-lift hexacopter Vampire drones – nicknamed "Baba Yaga" by Russian forces after the fearsome figure from Slavic folklore – alongside a vast number of improvised modular platforms, assembled in multiple workshops across Ukraine.

The most common are FPV kamikaze or strike drones, inexpensive quadcopters carrying explosive payloads such as modified rocket-propelled grenade warheads or purpose-built munitions, flown directly into targets as disposable precision-guided missiles. Their extremely low cost has radically reshaped battlefield economics which enable systems worth only a few hundred dollars to destroy armoured vehicles and equipment valued in the millions.

These systems operate within a broader Ukrainian deep-strike drone architecture that includes loitering munitions such as RAM II and UJ-31 Zozulya. The latter functions as an aerially deployed "parasite drone," carried by the Ukrainian-designed multi-purpose UJ-22 Airborne long-range UAV's, enabling penetration of contested airspace under intensive electronic warfare conditions and extending operational reach. RAM II, by contrast, is a short-range precision loitering munition employed in coordination with reconnaissance drones like the locally developed Shark and PD-2, with improved variants offering greater range and endurance to expand their engagement envelope against air defence systems and rear-area targets.

Also included within Ukraine's expanding drone inventory are bomber drones – largely adapted from commercial DJI Mavic 3 and DJI Matrice 300 RTK quadcopter platforms originally designed for aerial photography, surveying and industrial applications – which carry and release grenades, anti-tank mines and improvised munitions. Unlike kamikaze systems, they survive missions and can conduct multiple sorties, making them particularly effective against trenches, bunkers and other static positions.

Alongside these, Ukraine fields FPV-based strike systems like Pegasus and long-range, one-way attack drones designed to strike deep inside Russian territory against logistics hubs, airbases and critical infrastructure, far beyond the frontline. In practice, however, the distinction between FPV strike drones and loitering munitions has become increasingly blurred, with many FPV-based thermal and night-vision-equipped variants for round-the-clock operations.

But, Ukraine's most significant innovation has been the emergence of fibre-optic FPV drones, an electronic warfare (EW)-resistant class of systems. Unlike conventional drones, which rely on radio-frequency links vulnerable to jamming, these platforms transmit commands and video through ultra-thin fibre-optic cables that spool out during flight, rendering electronic interference largely ineffective. In heavily contested electromagnetic environments, this capability restores a significant operational advantage to drone operators by enabling missions to be conducted largely free from electronic disruption.

**Regional drone networks**

Meanwhile, unlike Ukraine, Hezbollah's offensive UAS capability is primarily built around Iranian-supplied platforms with limited local modification, relying heavily on systems like Ababil, Mohajer, and Shahed series. These platforms provide a layered operational architecture spanning ISR and strike functions. Within this framework, the Mohajer-4 and Shahed-129 provide tiered-ISR coverage across medium- to long-ranges, while the Shahed-136 loitering munition fulfils a 'dedicated' one-way strike role across a wider regional theatre.

More recently, Hezbollah has also adopted jamming-resistant fibre-optic FPV drones, enabling operations in heavily contested electromagnetic environments and enhancing close-range reconnaissance and precision strike effectiveness despite extensive Israeli EW measures.

In response, the Israel Defence Forces (IDF) in Lebanon have developed a layered counter-drone architecture, integrating EW systems, specialised radar arrays, and experimental platforms like the AI-enabled Iron Drone Raider, designed to neutralise low-altitude UAVs through kinetic, non-explosive interception methods such as net capture – by which a physical net is deployed to entangle and disable an incoming drone mid-air – or direct collision, rather than costly missile engagements. Alongside this, the IDF operates a multi-tiered UAV force structure combining long-endurance Heron systems for persistent ISR with armed drones and loitering munitions integrated into reconnaissance-strike complexes for rapid engagement.

Iran, for its part, constitutes a third and structurally distinct model of drone warfare.

Rather than employing drones solely as tactical assets, the Islamic Revolutionary Guard Corps (IRGC) integrates them into a broader strategy of deterrence, coercion, and power projection against the U.S.-Israel combine and their regional partners across West Asia.

Through indigenous systems such as Shahed drone variants, alongside platforms supplied to proxy forces across Iraq, Syria, Lebanon, and Yemen, the IRGC has demonstrated an ability to threaten military bases, critical infrastructure, and naval assets across West Asia at relatively low cost.

**Economy shift**

Thus, across ongoing wars and conflicts, the drone revolution is defined as much by economics as technology. Cheap, mass-produced unmanned systems are swiftly and irreversibly replacing reliance on expensive platforms, complex logistics, and specialised military structures, shifting the advantage toward the scale, speed, and production capacity of UAS ecosystems.

Warfare, therefore, is increasingly becoming a test of industrial endurance and relentless technological adaptation, where success depends on the ability to build, deploy, and counter fast-evolving, continuously reconfigured drone systems. And, in this rapidly evolving battlespace, drones are no longer just weapons, but the very infrastructure of modern-day war – shaping how conflicts are surveilled, fought, sustained, and ultimately decided.

*(Rahul Bedi is a journalist based in New Delhi and Chandigarh specialising in military, defence and security matters)*

## THE GIST

- Ukraine has pioneered industrial-scale drone warfare, integrating FPV drones, loitering munitions, bomber drones and fibre-optic systems across reconnaissance, targeting and deep-strike missions.
- Low-cost FPV strike drones have transformed battlefield economics, enabling systems worth a few hundred dollars to destroy armoured vehicles and equipment valued in the millions.
- The widespread adoption of drones has challenged traditional assumptions about military power, creating a continuous battlespace where detection is increasingly followed by rapid engagement and destruction.

## 1. Unmanned Aerial Vehicle (UAV)

**Definition**: A powered aircraft that operates without a human pilot inside the aircraft, and is controlled remotely or through onboard autonomous systems.

**Examples**: MQ-9 Reaper (USA), Heron (Israel), TAPAS-BH-201 (India).

**Importance**: Used for surveillance, reconnaissance, border monitoring and precision strikes.

## 2. First-Person View (FPV) Drone

**Definition**: A type of UAV in which the operator receives a real-time video feed from the drone's onboard camera, enabling navigation and targeting from the drone's viewpoint.

**Examples**: Ukrainian and Russian FPV Kamikaze Drones used in the Ukraine conflict.

**Importance**: Low-cost, highly accurate and difficult to detect; increasingly used for precision attacks in modern warfare.

# India-France Innovation Roadmap 2030

Posted On: 15 JUN 2026 5:42AM by PIB Delhi

On 17 February 2026, Prime Minister Narendra Modi and President Emmanuel Macron elevated the bilateral relationship to a "Special Global Strategic Partnership" and jointly inaugurated the India-France Year of Innovation 2026, calling for expanded and diversified cooperation in areas such as artificial intelligence, innovation, research, technology, digital technology and cyber space, health, culture, economy, educational links and people-to-people ties.

Building upon the Horizon 2047 Roadmap and the shared innovation journey of the two countries, India and France recognize innovation as a central driver of economic resilience, sustainable development, strategic autonomy, and technological and industrial sovereignty. Both sides agree that a strengthened innovation partnership will help unlock the full innovation potential of the two countries and contribute to solutions for global challenges.

The two sides recognize that India's vision of Viksit Bharat 2047 and France's ambition under France 2030 provide strong convergences for building a future-oriented innovation partnership, paving the way for new investment opportunities in disruptive innovations. India and France are therefore adopting the India-France Innovation Roadmap 2030 as a framework to guide their collaborative efforts towards advancing co-development in critical and emerging technologies, strengthening trusted technology ecosystems, deepening academic and research mobility, and delivering concrete outcomes for people, the planet and shared prosperity.

This Roadmap consists of the following key elements:

I. Partnership for 'Trusted AI' a central pillar of innovation partnership: Building on the India–France Declaration on Artificial Intelligence of February 2025 and the AI Action and Impact Summits hosted by France and India in 2025 and 2026 respectively, both countries agree to make 'trusted AI' a central pillar of their innovation partnership.

- Safe, secure and trustworthy AI systems: Both sides will work together to promote safe, secure and trustworthy AI systems that are aligned with democratic values and human rights, prevent discrimination and the dissemination of misinformation, and support the 2030 Agenda for Sustainable Development. They will encourage cooperation between regulators, standards bodies, and technical experts to advance interoperable, risk-based approaches to AI governance, including for frontier and generative models, while ensuring that innovation and national development are not stifled.

- Cooperation on child safety online as a priority of their AI partnership: Recognizing the acute risks that AI-enabled services pose to vulnerable sections particularly children in the digital environment, India and France agree to deepen their cooperation on child safety online as a priority of their AI partnership. Building on the Expert Engagement Group on AI and Child Safety convened at the AI Impact Summit 2026 and India's emerging techno-legal framework on child safety online, the two sides will develop concrete synergies between their ongoing initiatives, including privacy-preserving age assurance, safety-by-design architectures, and outcome-based safety standards for AI systems that materially interact with children.

- Centrality of privacy-preserving data sharing frameworks: India and France recognize the centrality of privacy-preserving data sharing frameworks to unlock the full potential of AI and data-driven innovation while safeguarding fundamental rights. India's Data Empowerment and Protection Architecture (DEPA) and France's own work on trusted data spaces and health data platforms offer complementary strengths that can support secure, consent-based data flows for research, healthcare, and public services.

II. Partnership for enhanced people-to-people cooperation via academic mobility: In accordance with the

ANNEX TO INDIA FRANCE INNOVATION ROADMAP 2030

| | Agreements |
|---|---|
| 1. | Amendment to existing Memorandum of Understanding to add cooperation in translation, incubation and acceleration between IIT Bombay and Institut Polytechnique de Paris (IPP), France |
| 2. | Amendment to existing Memorandum of Understanding to add cooperation in translation, incubation and acceleration between IIT Bombay and Paris-Saclay university, France. |
| 3. | Cooperation between faculty, administrative staff, departments and research institutions between IIT Bombay and Université Côte d'Azur, Nice, France. |
| 4. | Academic and scientific exchange and collaboration in education and research between IIT Delhi and Institut Mines-Télécom, France |
| 5. | Innovation and entrepreneurship partnership, especially Energy, Sustainability and Climate Change between IIT Delhi and Foundation for Innovation and Technology Transfer (FITT) and Racines de France, France. |
| 6. | Innovation and entrepreneurship partnership, focused on Energy, Sustainability and Climate Change between IIT Delhi and Foundation for Innovation and Technology Transfer (FITT) and DDI (Descartes Développement & Innovation) incubator |
| 7. | Innovation and entrepreneurship partnership to address global challenges and accelerate research into market-ready products and solutions between IIT Delhi and Foundation for Innovation and G2i Venture Management Private Limited (Represented by its French entity SC Conseil) |
| 8. | Expression of Interest to explore academic, innovation, entrepreneurship and research collaboration in mobility, AI, digital platforms, sustainability, smart transportation systems and innovation ecosystems between IIT Gandhinagar and Comuto SA / BlaBlaCar, France |
| 9. | Strategic academia-industry partnership in Positioning, Navigation and Timing (PNT), with focus on building a national ecosystem in India between IIT Tirupati and Safran Electronics & Defense, France |
| 10. | Declaration of Intention between the IITs, IISC and UDICE networks to promote academic, scientific and research collaboration in areas of mutual interest |
| 11. | Memorandum of Understanding for collaboration on 3D computing systems between IIT Hyderabad and Crimson Energy Experts and Dassault Systeme |
| 12. | Memorandum of Understanding between CYRAN AI and Safran Aircraft Engines |
| 13. | Renewal of the Student Exchange Agreement between IIT Madras and Université de Limoges (UNILIM) |

The Chancellor of the Federal Republic of Germany visited India in January, 2026. Which of the following is/are ***not*** correct in terms of outcomes of this visit ?

1. Signing of a Memorandum of Understanding between the All India Institute of Ayurveda and the University of Hamburg
2. Signing of a Memorandum of Understanding on Youth Hockey Development between Hockey India and the German Hockey Federation
3. Establishment of a bilateral dialogue mechanism on the Indo-Pacific
4. Opening of an Honorary Consul of Germany in Lucknow

Select the answer using the code given below :

(a) 2 and 3

(b) 1 and 4

(c) 3 and 4

(d) 1 only

**Context**: India and France adopted the **India–France Innovation Roadmap 2030** and announced 19 outcomes (MoUs, agreements and institutional partnerships) to strengthen cooperation in AI, research, higher education, startups, healthcare, space and other emerging technologies under the India–France **Special Global Strategic Partnership**.

## Key Highlights

### 1. Trusted AI as the Core Pillar

* Joint focus on safe, secure and trustworthy AI.
* Cooperation on AI governance, generative AI regulation and prevention of misinformation.
* Special emphasis on child safety online, privacy-preserving age verification and AI safety standards.

### 2. Data Sharing & Digital Innovation

* Collaboration on privacy-preserving data-sharing frameworks.
* India's Data Empowerment and Protection Architecture (DEPA) and France's trusted data ecosystems to support research, healthcare and public services.

### 3. Academic Mobility & Education

* France reiterated its goal of hosting 30,000 Indian students by 2030.
* Expansion of Mutual Recognition of Qualifications (MRQ).
* Multiple MoUs signed between IITs, IISc and leading French universities for student exchange and research collaboration.

### 4. Industry–Academia–Startup Ecosystem

* Strengthening of:
    * CEFIPRA (Indo-French Centre for the Promotion of Advanced Research)
    * India-France Innovation Network (IFIN)
* Promotion of startup collaboration, innovation clusters and resilient technology supply chains.

5. New Initiatives
* Franco-Indian Aeronautics Training Campus to be established in Kanpur.
* India–France InnoXchange Bridge for startup, research and entrepreneurship exchanges.
* Greater cooperation among SMEs and innovation ecosystems.

6. Space Cooperation
* Expanded collaboration in:
    * Earth observation
    * Human spaceflight
    * Future Indian space station in Low Earth Orbit (LEO)
* Bengaluru Space Expo and International Space Summit (Paris) to further cooperation.

7. Health & AI
* Joint work on AI-driven healthcare solutions.
* Collaboration between Indian Council of Medical Research (ICMR) and France's Health Data Hub for consent-based health data sharing.

Mains Value Addition
Keywords: Trusted AI, Technological Sovereignty, Strategic Autonomy, Innovation Diplomacy, Digital Public Infrastructure (DPI), Academic Mobility.

# Technology drives India-France strategic convergence

**Mohan Kumar**

Former Indian Ambassador to France and now Dean/Professor at O.P. Jindal Global University

It is a measure of the importance that Prime Minister Narendra Modi and French President Emmanuel Macron attach to the India-France relationship that they are meeting again in France, on the sidelines of the G-7 Summit in Evian (June 15-17), barely months after Mr. Macron's visit to India for the India AI Impact Summit 2026 in New Delhi in February. During that visit, the two leaders jointly inaugurated the India-France Year of Innovation 2026.

In normal diplomacy, such announcements often take time to translate into action. It is therefore notable that Mr. Modi and Mr. Macron are already moving swiftly to advance bilateral technology cooperation. They jointly inaugurated the "Bharat Innovates" event in Nice (June 14-16), bringing together leading Indian start-ups and venture capital funds. Mr. Modi will then attend the VivaTech Summit in Paris on June 18, Europe's largest technology and start-up event, underscoring the growing India-France technology partnership.

**The new pillars of partnership**

The India-French relationship is constantly evolving and is consequently being updated by the two leaders who are committed to the cause.

While the recently elevated Special Global Strategic Partnership has always included traditional areas such as defence, nuclear and space, it is the focus on tech and innovation that is now exciting for the relationship.

This focus will include cyberspace, Artificial Intelligence (AI), health care, sustainable development, creative economy, education and research. These are new facets of the evolving and dynamic relationship and will no doubt take ties to greater heights. Tech and innovation has tremendous mutual advantages for both sides. France has some of the best state-of-the-art technology in aerospace, AI, robotics, biotech, health care, green tech and sustainable development, besides being a European hub for the digital economy.

Technology and innovation power the next phase of India-France ties

It is not hard to see how India can not only benefit from access to technology in these areas but also bring its own added value in terms of frugal innovation, start-ups, digital public infrastructure and biotech, just to name a few. The possibilities are endless. It must be hoped that the two tech summits – "Bharat Innovates"and the "Vivatech" – will enable the private sector on both sides to come up with substantive collaborative arrangements.

**Defence, space and Africa**

The two leaders are also expected to take stock of the special strategic partnership. There are a number of dossiers which can benefit from their political and strategic guidance. The first is certainly the idea of the co-designing and co-production of defence platforms which must be expedited. Progress is also desirable in emerging areas such as small modular reactors, joint satellite development and human flight programmes.

The potential for Franco-Indian cooperation in Africa has not been fully exploited and this must get the attention of both sides. This becomes even more important in light of the postponement of the India-Africa Forum Summit (May 2026) due to the Ebola crisis in Africa. The two leaders will doubtless exchange views on the ongoing conflicts: in Ukraine and in Iran, which have adversely and disproportionately affected countries of the Global South.

Mr. Modi's Europe visit (June 13-18, 2026) also includes a state visit to Slovakia, the first-ever visit by an Indian Prime Minister to Slovakia since its independence in 1993.

**Watching the 'D10 debate'**

France, as the current chair of the G-7, will host the G-7 summit in Evian from June 15 to 17, 2026. It is difficult to imagine a G-7 summit without India being invited, and Mr. Modi's participation is particularly important given the geopolitical turbulence of the present moment. United States President Donald Trump is also expected to attend it. While attention will naturally focus on the possibility of a Modi-Trump meeting, any interaction may not be a substantive one, given the G-7 atmospherics.

More important is the evolving role of the G-7 itself in global geopolitics. With the G-20 having lost some of its momentum in recent years, discussions have resurfaced about expanding the G-7 into a D10 – a grouping of 10 major democracies. Whether, and how soon, such a transformation materialises remains uncertain, but it is a development India will need to watch closely.

At the end of the day, two middle powers – India and France – which set great store by strategic autonomy, have a fundamental role to play in contributing to geopolitical stability and ensuring a smooth transition to a multipolar world. In that sense, Mr. Modi and Mr. Macron shoulder a significant responsibility.

*The views expressed are personal*

Consider the following statements with respect to the AI Impact Summit, 2026 held in New Delhi :

1. The Summit's intellectual framework was based on three foundational Sutras : People, Planning, and Progress.
2. The Preamble of the Summit stresses Democratising AI Resources, which acknowledges the Charter for Democratic Diffusion of AI as a binding framework to support locally relevant innovation and strengthen resilient AI ecosystems while respecting national laws.
3. The New Delhi Declaration on AI Impact was structured around seven Chakras (Pillars), which included Access for Social Empowerment, AI for Science, and Secure and Trusted AI.

Which of the statements given above is/are correct ?

(a) 1, 2 and 3
(b) 1 and 2 only
(c) 2 and 3 only
(d) 3 only

Consider the following statements regarding AI Action Summit held in Grand Palais, Paris in February 2025 :

I. Co-chaired with India, the event builds on the advances made at the Bletchley Park Summit held in 2023 and the Seoul Summit held in 2024.

II. Along with other countries, US and UK also signed the declaration on inclusive and sustainable AI.

Which of the statements given above is/are correct?

*(a)* I only *(b)* II only

*(c)* Both I and II *(d)* Neither I nor II

1. **Bharat Innovates**

A flagship **India–France innovation and startup initiative** aimed at connecting startups, investors, incubators and research institutions of both countries.

**India's Relevance**: Helps Indian startups access global capital, technology partnerships and European markets.

2. **VivaTech Summit**

**Europe's largest technology and startup event, held annually in Paris**, bringing together innovators, entrepreneurs, investors and policymakers.

**India's Relevance**: Provides a global platform for Indian startups and emerging technologies to attract investment and international collaborations.

3. **D10 (Democracy 10)**

A proposed grouping of 10 major democracies, popularised in 2020, comprising the G7 countries (USA, UK, Canada, France, Germany, Italy and Japan) plus India, Australia and South Korea.

**Purpose**: To strengthen coordination among leading democracies on major global political, economic and strategic issues.

# Heatwaves, ozone raise cardiac death risk: study

Peer-reviewed study reports that surface ozone reaches 85-110 micrograms per cubic metre in northern India during heatwaves; exceeds the WHO guideline of 70 micrograms per cubic metre

**Jacob Koshy**
NEW DELHI

Surface ozone is not released directly but forms when sunlight drives a reaction among other pollutants. SHIV KUMAR PUSHPAKAR

While surface ozone – a pollutant harmful to the heart and lungs – already exceeds safe limits across much of India in the hot pre-monsoon months, a new study finds that heatwaves push it to still higher levels, thus adding several hundred deaths to a far larger toll that the study links to ozone across the season.

The peer-reviewed study, published in the Nature Portfolio journal *npj Clean Air* on June 12, reports that surface ozone reaches 85-110 micrograms per cubic metre in northern India during heatwaves and exceeds the World Health Organization guideline of 70 micrograms per cubic metre in every region of the country. The levels fall back within three to four days of a heatwave ending.

Because ozone level stays high for much of the season, the study attributes a large number of deaths to it even outside heatwaves. During the heatwave days of 2024, it links about 26,500 deaths from ischaemic heart disease and chronic obstructive pulmonary disease (COPD) to ozone exposure.

However, such health conditions are present before as well as after the heat too. The heatwave's contribution to the toll is the rise in it over the preceding days: about 490 additional heart-disease deaths and 342 from COPD, or roughly 830 in all.

The overall numbers are so large mainly because of how they are calculated. They are not directly counted. The study applies a small increase in an individual's risk of dying from these two common diseases to India's population of more than a billion; even a slight per-person risk, spread across so many people and two of the country's leading causes of death, adds up to tens of thousands.

The authors note that the mortality figures had to be modelled, as continuous ground-level ozone measurements were not available for the specific heatwave days in many affected cities. Therefore, the estimates rely on the assumed relationship between ozone exposure and disease rather than direct observation.

Surface ozone is not released directly but forms when sunlight drives a reaction among other pollutants, a process that speeds up in heat. "Ozone is very harmful, while $NO_2$ (nitrogen dioxide) and HCHO (formaldehyde) directly damage the respiratory system," the authors write, referring to two of the gases involved in forming ozone.

The authors describe the work as the first comprehensive, long-term, and country-wide assessment of surface ozone during heatwaves in India, noting that previous studies were largely limited to individual cities or regions. They counted 188 heatwave events over the two decades with most severe years – 2010, 2016, 2019, and 2024 – following strong El Niño episodes. The Western Himalayas recorded the steepest long-term rise in ozone level.

In the context of WHO Air Quality Guidelines, consider the following statements :

1. The 24-hour mean of $PM_{2.5}$ should not exceed 15 $\mu g/m^3$ and annual mean of $PM_{2.5}$ should not exceed 5 $\mu g/m^3$.

2. In a year, the highest levels of ozone pollution occur during the periods of inclement weather.

3. $PM_{10}$ can penetrate the lung barrier and enter the bloodstream.

4. Excessive ozone in the air can trigger asthma.

Which of the statements given above are correct ?

(a) 1, 3 and 4

(b) 1 and 4 only

(c) 2, 3 and 4

(d) 1 and 2 only

**Context: A study published in npj Clean Air (Nature Portfolio) found that heatwaves significantly increase ground-level ozone ($O_3$) concentrations in India, pushing them beyond the World Health Organization (WHO) safety guideline.**

## 1. Ground-Level Ozone ($O_3$)

* **Stratospheric Ozone ("Good Ozone")** forms the ozone layer and protects Earth from harmful Ultraviolet (UV) radiation.
* **Ground-Level Ozone ("Bad Ozone")** is a harmful pollutant formed when sunlight reacts with Nitrogen Dioxide ($NO_2$), Formaldehyde (HCHO) and Volatile Organic Compounds (VOCs).

**World Health Organization (WHO) Guideline:** Ozone concentration should not exceed 70 µg/m³ during any 8-hour period.

## 2. Heatwaves

India Meteorological Department (IMD):

* Plains: ≥ 40°C
* Coastal Areas: ≥ 37°C
* Hilly Regions: ≥ 30°C
* Conditions persist for at least 2 consecutive days with significant departure from normal temperature.

**Link with Ozone:** Higher temperature + Stronger sunlight = Faster ozone formation

## 3. Key Findings & Impact

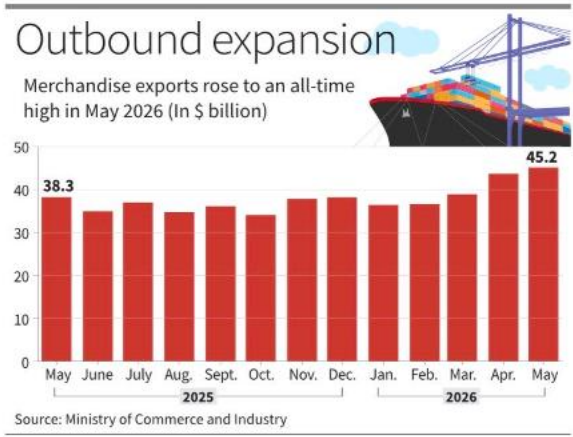
* Study analysed 188 heatwave events across India.
* Ozone levels in northern India reached 85–110 µg/m³, exceeding WHO limits.
* Major ozone spikes were observed during 2010, 2016, 2019 and 2024.
* Ground-level ozone damages the lungs and heart, aggravating asthma, Chronic Obstructive Pulmonary Disease (COPD) and cardiovascular diseases.

# India's goods exports hit record high of $45.2 billion in May; trade deficit widens

**T.C.A. Sharad Raghavan**
NEW DELHI

India's merchandise exports have jumped to a record high of $45.2 billion in May 2026, 18% higher than $38.3 billion in May last year, according to official data. Services exports rose 13.2% during the same period, to $36.8 billion in May 2026.

However, despite this, India's overall trade deficit widened to $10.5 billion, from $6.8 billion in May last year, due to a sharper growth in imports of both goods and services.



Source: Ministry of Commerce and Industry

## Broad-based increase

The data released by the Ministry of Commerce and Industry show that India's merchandise exports rose in May, due to higher shipments to Singapore, China, the U.K., Tanzania, Bangladesh, Germany, and South Africa, among others. This increase was also relatively broad-based in terms of sectors, with both petroleum and several non-petroleum sectors seeing strong growth in exports.

Within merchandise exports, the electronic goods sector saw exports growing 11.6% to $5.1 billion in May 2026.

The organic and inorganic chemicals sector similarly saw exports grow by 12.7% to $2.7 billion during the same period.

Notably, the engineering goods category saw exports jumping 24.5% in May 2026 to $12.3 billion. The gems and jewellery sector, too, saw a growth in exports of 6.7% to $2.5 billion in May 2026.

Overall, the data show India's non-petroleum exports grew 10.5% to $70.7 billion in the first two months of this financial year.

## Imports grow faster

India's merchandise imports jumped 22.1% to $73.4 billion in May 2026. As a result, the merchandise trade deficit stood at $28.2 billion in May this year, 25% higher than in May 2025.

Services imports, too, grew 14.1% in May 2026 to $19.1 billion.

With reference to the international trade of India at present, which of the following statements is/are correct ?

1. India's merchandise exports are less than its merchandise imports.
2. India's imports of iron and steel, chemicals, fertilisers and machinery have decreased in recent years.
3. India's exports of services are more than its imports of services.
4. India suffers from an overall trade/current account deficit.

Select the correct answer using the code given below :

(a) 1 and 2 only

(b) 2 and 4 only

(c) 3 only

(d) 1, 3 and 4 only

# Major Imports in Billions of Dollars

**Context**: India's merchandise exports reached a record high of $45.2 billion in May 2026, led by engineering goods, electronics and chemicals. However, imports grew faster, resulting in a wider merchandise trade deficit.

## Trade Basics

* Merchandise Trade: Trade in physical goods.
* Services Trade: Trade in services such as IT, finance and tourism.
* Trade Deficit: Imports > Exports.
* Trade Surplus: Exports > Imports.

## PYQ Link

* India generally runs a merchandise trade deficit.
* India generally records a services trade surplus.
* Services surplus partly offsets the merchandise deficit and reduces pressure on the Current Account Deficit (CAD).

## Major Imports (Value Addition)

* Crude Petroleum: $134.7 billion
* Gold: $72 billion
* Vegetable Oils: $19.5 billion
* Fertilisers: $14.5 billion

# PM welcomes West Asia deal, hopes peace will be restored

Modi is scheduled to meet U.S. President tomorrow on the sidelines of the G7 meeting to be held in France; several G7 countries have said the urgent opening of Strait of Hormuz is essential

**Sriram Lakshman**
LONDON

Prime Minister Narendra Modi on Monday welcomed the agreement between Iran and the United States to end the conflict in West Asia that has been raging for more than three months, killing and injuring thousands, and disrupting shipping and energy markets.

"I welcome the understanding reached between the United States and Iran on ending the conflict in West Asia, which has caused serious economic disruption across the world and led to loss of life in many countries," Mr. Modi said on X, from the Slovakian capital of Bratislava.

The Prime Minister arrived in the city on Sunday night for a bilateral visit after a day of events and meetings with French President Emmanuel Macron in Nice.

India hoped the deal would restore peace and stability as well, while ensuring the freedom of navigation and commerce, Mr. Modi said, welcoming further deliberations on the remaining issues so a "sustainable final agreement" is reached.

> India hopes that the implementation of this understanding will help restore peace and stability in the region and ensure the freedom of navigation and commerce. We look forward to deliberations on the remaining issues reaching a sustainable final agreement
>
> **NARENDRA MODI,** Prime Minister

**Death of 3 sailors in U.S. attacks off the coast of Oman has evoked anger and grief in India**

The deal is expected to be signed by Iran and the U.S. in Geneva on Friday, but details of the terms remain hazy. Mr. Modi will travel to Evian-les-Bains in the French Alps on Tuesday morning to participate in sessions with the leaders of the G7 group of wealthy countries.

## Mission for Hormuz

Host nation France, along with the U.K., Germany, and Italy welcomed the U.S.-Iran understanding on Monday, congratulating the two countries and others, including mediators Qatar and Pakistan.

The countries said the urgent opening of the Strait of Hormuz, a crucial waterway transporting 20% of the world's oil, was essential.

They are willing to conduct a "strictly defensive and independent" mission to "reassure commercial shipping" and to clear mines, the statement said. These countries - all members of the G7 - also said that Iran must never acquire a nuclear weapon.

The focus, however, at the G7 will be U.S. President Donald Trump, who arrived at the resort on Monday evening. A meeting between Mr. Modi and Mr. Trump is set for 2.45 p.m. local time on Wednesday. The two men go into the meeting with several challenging issues looming before them.

Indians have reacted – on the streets and online – with anger at the death of three Indian sailors killed in U.S. attacks off the coast of Oman last week. There is also the issue of a protracted trade agreement which was announced in February but has still not been formally singed.

**Context**: The U.S. and Iran reportedly agreed on a 14-point proposal aimed at reducing tensions in West Asia and restoring normal trade, energy and shipping flows.

## What Does the Proposal Seek to Do?

1. Reopen the Strait of Hormuz → Ensure uninterrupted global oil and commercial shipping.
2. End Military Hostilities → Prevent further escalation of the West Asia conflict.
3. Revive Nuclear Negotiations → Address concerns over Iran's nuclear programme through diplomacy.
4. Ease Economic Sanctions → Provide phased sanctions relief to Iran.
5. Release Frozen Iranian Assets → Improve Iran's access to overseas funds.
6. Restore Trade & Maritime Activities → Normalize regional commerce and shipping.

## Why Is It Important for India?

* Stable and potentially lower crude oil prices.
* Secure energy imports from Gulf countries.
* Safer shipping routes through the Strait of Hormuz.
* Greater regional stability for trade and the Indian diaspora.