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GS Paper II: International Relations

1. India–Finland Strategic Partnership in Digitalisation and Sustainability

a. Introduction: A New Phase in India–Europe Technology Diplomacy

India and Finland elevated their bilateral relationship to a Strategic Partnership in Digitalisation and Sustainability during the visit of Finnish President Alexander Stubb to India in March 2026. During the visit, the two countries signed agreements on mobility, environmental cooperation, and statistical collaboration, and announced an ambitious target of doubling bilateral trade by 2030.

This development reflects a broader transformation in India's foreign policy, where technology partnerships, innovation ecosystems, and sustainable development models are increasingly central to international cooperation. For Finland, India represents a large and rapidly expanding digital economy, while Finland offers India expertise in telecommunications, green technologies, and circular economy models.

Consequently, the partnership represents not merely a bilateral arrangement but part of the evolving India–Europe strategic engagement in emerging technologies and sustainable development.

Before examining the contemporary features of this partnership, it is useful to understand the historical trajectory and strategic linkages that have shaped India–Finland relations.



b. Historical Context and Strategic Linkages

India and Finland established diplomatic relations in 1949, soon after India's independence. Over time, cooperation gradually expanded from traditional diplomatic exchanges to areas such as education, technology, innovation, and environmental sustainability.

In recent years, several global developments have enhanced the relevance of this partnership:

Rise of Technology Diplomacy

- Countries increasingly collaborate in emerging technologies such as artificial intelligence and advanced telecommunications.
- Technological capabilities are now central to economic competitiveness and strategic influence.

Need for Resilient Supply Chains

- Global disruptions have highlighted vulnerabilities in concentrated production networks.
- Countries are therefore diversifying partnerships to ensure technological and economic resilience.

Transition toward Sustainable Development Models

- Environmental sustainability has become a central component of global economic policy.
- Countries are seeking partners with expertise in green technologies and circular economy practices.

Finland's membership in the European Union further enhances the strategic relevance of the partnership within the broader framework of India–European Union relations. Cooperation aligns with expanding India–EU engagement in digital governance, green technologies, and trade integration, particularly in the context of the India–EU Free Trade Agreement negotiations concluded in 2026.

Building on these historical and geopolitical foundations, the strategic partnership now focuses on several institutional and technological initiatives.

c. Key Features of the Strategic Partnership

The partnership combines economic cooperation, technology collaboration, and sustainability initiatives through structured institutional mechanisms.

Nature and Institutional Framework

- The relationship has been formally upgraded to a Strategic Partnership focused on digitalisation and sustainability.
- Institutional cooperation mechanisms have been established to translate diplomatic commitments into practical collaboration.

Agreements and Policy Cooperation

- Agreements have been signed on mobility, environmental cooperation, and statistical collaboration.
- A new consular dialogue framework has also been introduced to facilitate bilateral engagement.

Technology Collaboration Mechanisms

- A Joint Working Group on digitalisation has been created to promote technological cooperation.
- A dedicated task force on sixth-generation telecommunications technology has also been established.

Innovation and Economic Cooperation

- Both countries aim to strengthen linkages between their startup ecosystems and innovation networks.
- The two partners will also jointly host the World Circular Economy Forum in India.

Trade and Economic Objectives

- The partnership includes a target of doubling bilateral trade by 2030.
- Economic cooperation will focus on technology-driven sectors and sustainable industries.

These institutional mechanisms demonstrate that the partnership seeks to move beyond symbolic diplomacy toward structured collaboration in research, innovation, and economic development.

d. Areas of Cooperation

i. Digital Technology and Innovation

Digital technology constitutes the central pillar of the partnership. Both countries aim to collaborate in artificial intelligence, advanced telecommunications systems, and next-generation digital infrastructure.

- **Telecommunications Leadership**
Finland possesses a globally recognised digital innovation ecosystem, particularly in telecommunications. Companies such as Nokia have historically played a major role in the development of global mobile communication technologies.
- **Emerging Technology Collaboration**
Potential areas of collaboration include sixth-generation telecommunications technology, quantum computing, and advanced digital systems.
- **Supporting India's Digital Transformation**
Such partnerships support India's ambition of becoming a global hub for digital innovation and advanced technology development.

Digital collaboration naturally intersects with sustainability goals, leading to a second major pillar of the partnership: environmental and green technology cooperation.

ii. Clean Energy and Sustainable Development

Sustainability forms the second major pillar of the partnership. Finland is widely recognised as a leader in circular economy practices and green innovation, which are increasingly relevant for India's development strategy.

- **Renewable Energy and Green Technologies**
Cooperation is expected in renewable energy systems, energy efficiency technologies, and sustainable industrial processes.
- **Circular Economy Models**
Both countries aim to develop resource-efficient economic systems that minimise waste and maximise resource reuse.
- **Industrial and Rural Sustainability Projects**
The Numaligarh bamboo-to-bioethanol refinery in Assam, which incorporates Finnish technological expertise, illustrates how such cooperation can promote sustainable industrial development and rural economic transformation.

Beyond environmental cooperation, the partnership also extends into infrastructure and engineering collaboration.

iii. Infrastructure and Engineering Collaboration

India and Finland have also collaborated in large-scale infrastructure and engineering projects, demonstrating the practical application of technological cooperation.

- **Telecommunications Infrastructure**
Telecommunications networks across India incorporate technologies developed by Nokia, reflecting long-standing industrial collaboration.
- **Engineering Expertise in Major Projects**
Finnish technological and engineering expertise has contributed to projects such as the Chenab Railway Bridge in Jammu and Kashmir, the highest railway bridge in the world.

Such projects highlight how international technological cooperation can support high-quality infrastructure development in challenging geographical environments.

As global technological competition intensifies, the partnership is also expanding into new strategic sectors.

iv. Emerging Strategic Sectors

The partnership is expected to expand into several emerging strategic sectors that are increasingly central to the global economy.

- **Defence Technology Cooperation**
Joint research and technology sharing may be explored in selected defence-related domains.
- **Space and Advanced Scientific Research**
Space research collaboration could strengthen scientific partnerships and innovation ecosystems.
- **Semiconductor Manufacturing**
Cooperation in semiconductor technologies can support India's ambition to strengthen its electronics manufacturing ecosystem.
- **Critical Mineral Supply Chains**
Partnerships in critical minerals are important for technologies such as batteries, renewable energy systems, and advanced electronics.

These sectors are strategically significant because they form the backbone of modern technological ecosystems and supply chains.

e. Strategic Significance

Strengthening India–Europe Strategic Engagement

- The partnership deepens India's engagement with technologically advanced European economies.
- Finland views India as an important partner in the Indo-Pacific and global technology landscape.

Advancing Technology Partnerships

- Cooperation in artificial intelligence, advanced telecommunications systems, and quantum computing can strengthen India's digital ecosystem.
- Joint innovation initiatives may accelerate technological research and development.

Promoting Sustainable Development

- Finland's expertise in circular economy models, waste management, and green industrial processes aligns with India's sustainability goals.
- Collaboration can support India's climate commitments and environmental objectives.

Building Resilient Global Supply Chains

- Diversified partnerships reduce the risks associated with concentrated supply chains.
- Cooperation in semiconductors and critical minerals can help reduce strategic vulnerabilities.

Integrating Innovation Ecosystems

- Linkages between Indian and Finnish startups can stimulate technology transfer and joint research initiatives.
- Venture capital collaboration can further strengthen innovation ecosystems.

Despite its strong strategic potential, several challenges may affect the implementation of this partnership.

f. Challenges and Constraints

i. Limited Bilateral Trade

- Bilateral trade between India and Finland remains relatively modest.

- Economic engagement is still smaller compared with India's trade with larger European economies such as Germany and France.

ii. Technology Transfer Restrictions

- Certain advanced technologies are subject to regulatory controls and export restrictions.
- These restrictions may limit the scope of collaboration in sectors such as defence technology and semiconductor manufacturing.

iii. Global Technological Competition

- The global technology landscape is shaped by strategic competition among major powers.
- Rivalries, particularly between the United States and China, influence global technology supply chains and regulatory frameworks.

iv. Implementation Challenges

- The success of the partnership depends on effective functioning of joint working groups and research collaborations.
- Without sustained institutional coordination, cooperation mechanisms may remain underutilised.

Recognising these challenges is important for identifying policy priorities that can strengthen the partnership in the coming years.

g. Way Forward

- **Establish Joint Research Centres**
Both countries should develop collaborative research centres focusing on artificial intelligence, sixth-generation telecommunications, and quantum computing.
- **Strengthen Innovation Ecosystem Partnerships**
Startup exchanges, technology incubation partnerships, and venture capital collaboration should be expanded.
- **Integrate Green Technologies into Development Planning**
Finland's expertise in circular economy models and sustainable urban systems can be integrated into India's industrial and urban planning.
- **Align with India–EU Strategic Cooperation**
The partnership should complement broader India–European Union collaboration in digital governance, trade, and sustainable infrastructure.
- **Develop Resilient Technology Supply Chains**
Cooperation in critical minerals, semiconductors, and clean technologies should be expanded to reduce global supply chain vulnerabilities.

Conclusion

The India–Finland Strategic Partnership in Digitalisation and Sustainability represents an important step in strengthening India's engagement with technologically advanced European partners. By combining Finland's expertise in innovation, telecommunications, and sustainability with India's large digital market and technological ambitions, the partnership can generate mutually beneficial outcomes.

More broadly, the partnership illustrates the growing importance of technology diplomacy and sustainability cooperation in contemporary international relations. If effectively implemented, it could contribute not only to bilateral cooperation but also to the development of trustworthy, responsible, and sustainable global technological ecosystems.

2. Maritime Conflict, Naval Warfare Law and Torpedo Attacks

a. Introduction: The Legal and Strategic Complexity of Maritime Warfare

Naval warfare in the contemporary world frequently unfolds in areas of the ocean where sovereignty is limited or shared under international law. Unlike land warfare, which generally occurs within clearly defined territorial boundaries, maritime conflicts often take place in waters governed by layered legal regimes such as territorial seas, Exclusive Economic Zones (EEZs), and the high seas. Each zone carries different rights and obligations for coastal states and foreign vessels.

The reported sinking of the Iranian warship *IRIS Dena* near the Exclusive Economic Zone of Sri Lanka draws attention to several complex legal and strategic questions. Such incidents raise issues concerning the jurisdiction of coastal states, the legality of armed attacks on naval vessels outside declared war zones, and the evolving character of naval warfare technologies.

Understanding the implications of this episode requires examining three interconnected dimensions:

- The structure of maritime zones under international law
- The legal principles regulating the use of force at sea
- The operational realities of modern naval warfare, particularly submarine weapons

These themes together reveal how international law, strategic competition, and military technology intersect in contemporary maritime conflicts.



b. Maritime Zones Under International Law

The global legal framework governing the oceans is primarily defined by the United Nations Convention on the Law of the Sea (UNCLOS), adopted in 1982. The convention establishes a structured system of maritime zones extending outward from a coastal state's shoreline. Each zone grants varying degrees of authority to the coastal state while preserving certain freedoms for other states.

i. Territorial Sea

The territorial sea extends up to 12 nautical miles from the baseline of a coastal state.

- The coastal state exercises sovereignty comparable to its authority on land territory.
- This includes control over navigation, security, and resource utilisation.
- However, foreign vessels retain the right of innocent passage, meaning they may pass through the waters provided they do not threaten the peace or security of the coastal state.

ii. Contiguous Zone

Beyond the territorial sea lies the contiguous zone, which extends up to 24 nautical miles from the baseline.

- The coastal state does not possess full sovereignty in this zone.
- However, it may enforce laws relating to customs, taxation, immigration, and sanitation.
- These powers are exercised primarily to prevent violations within the territorial sea.

iii. Exclusive Economic Zone (EEZ)

The Exclusive Economic Zone extends up to 200 nautical miles from the coast.

- The coastal state enjoys sovereign rights over the exploration and exploitation of natural resources.
- These include fisheries, oil and gas reserves, and marine minerals.
- The state may also regulate marine scientific research and environmental protection.

However, the EEZ does not grant full sovereignty over the waters themselves. Foreign vessels, including naval ships, retain freedom of navigation provided they respect the economic rights of the coastal state.

iv. High Seas

Waters beyond national jurisdiction are considered the high seas.

- These areas remain open to all states regardless of geographic location.
- No state may claim sovereignty over them.
- Activities such as navigation, fishing, scientific research, and laying submarine cables are governed by the principle of freedom of the seas.

Implication for Maritime Conflict

Because the EEZ grants only economic rights and not complete sovereignty, foreign warships may legally operate within it. Consequently, if a naval confrontation occurs in an EEZ, the coastal state generally cannot prohibit it unless the conflict intrudes into its territorial sea or directly threatens its security.

This legal structure highlights why incidents involving warships frequently occur in maritime zones that are legally ambiguous from a conflict perspective.

c. Legal Framework Governing Naval Warfare

A critical feature of international maritime law is that UNCLOS primarily regulates peacetime conduct. It establishes rules for navigation, resource management, and environmental protection, but it does not comprehensively address armed conflict at sea.

i. Sources of the Law of Naval Warfare

When hostilities occur in maritime spaces, regulation derives from multiple overlapping legal sources:

- **The United Nations Charter**, which governs the use of force between states.
- **Customary international law**, developed through consistent state practice and legal opinion.
- **Specialised manuals and conventions** relating to naval warfare practices.

Together these frameworks provide the legal basis for evaluating maritime military actions.

ii. Relationship Between Maritime Law and Armed Conflict

In practice, maritime law and armed conflict law operate simultaneously.

- Peacetime maritime law regulates navigation and maritime jurisdiction.
- Once hostilities begin, the law of armed conflict at sea determines what actions are permissible against enemy vessels.
- The interaction of these regimes often produces legal ambiguity, particularly in grey-zone conflicts where formal war has not been declared.

This interaction explains why modern naval incidents often trigger intense legal and diplomatic debates.

d. The United Nations Charter and the Use of Force

The United Nations Charter provides the overarching legal framework governing the use of force between states.

i. Prohibition of Force

Article 2(4) establishes a central rule of international law.

- States must refrain from the threat or use of force against the territorial integrity or political independence of another state.
- This rule forms the foundation of the contemporary international security order.

ii. Right to Self Defence

An important exception is contained in Article 51 of the UN Charter.

- States possess the inherent right of individual or collective self defence if an armed attack occurs.
- Defensive action must be necessary and proportionate.
- The right continues until the United Nations Security Council takes measures to restore international peace.

iii. Application in Maritime Spaces

These principles apply equally in the maritime domain.

- Naval vessels may engage in defensive action if they face an armed attack.
- The Security Council may authorise maritime operations during international crises.
- In the absence of such conditions, attacking another state's vessel could be interpreted as an unlawful use of force.

This legal framework is central to analysing controversial naval incidents.

e. Targeting Warships in International Waters

Under the traditional law of naval warfare, warships belonging to an enemy state are legitimate military objectives during armed conflict.

i. Legality During Armed Conflict

If an armed conflict exists between two states:

- Warships of opposing sides may lawfully target each other.
- Such engagements can occur even in international waters.

ii. Self Defence and Imminent Threat

Even outside formal war, a state may act in self defence if a warship poses an imminent threat.

- The response must satisfy the principles of necessity and proportionality.

- Evidence of imminent danger becomes crucial in evaluating legality.

iii. Legal Ambiguity in Peacetime Incidents

If no armed conflict exists and a vessel is engaged in peaceful navigation:

- Attacking the ship would generally be considered an unlawful use of force.
- Such incidents therefore generate intense international scrutiny.

The controversy surrounding the sinking of *IRIS Dena* illustrates this dilemma, where analysts must determine whether the event constituted legitimate self defence, a lawful wartime engagement, or an unlawful escalation.

f. Torpedoes in Modern Naval Warfare

Submarine warfare remains one of the most decisive elements of naval combat. Among the most advanced submarine weapons is the Mark 48 heavyweight torpedo, widely used by the United States Navy and several allied navies.

i. Basic Characteristics

The Mark 48 torpedo is designed as a high-performance underwater weapon capable of destroying both surface ships and submarines.

- Introduced in the early 1970s.
- Weighs approximately 1,700 kilograms.
- Equipped with advanced sonar-based guidance systems.

ii. Guidance Systems

The weapon combines multiple sensing technologies.

- Active sonar emits sound pulses and analyses the echoes returning from objects.
- Passive sonar detects noise generated by the target vessel.
- The combination allows the torpedo to track targets with high accuracy even in complex underwater environments.

These technological capabilities make modern torpedoes extremely lethal weapons in naval engagements.

g. Mechanism of Ship Destruction

Modern torpedoes exploit a critical structural vulnerability in large vessels.

i. Under-Keel Detonation

Instead of striking the side of a ship, advanced torpedoes detonate beneath the hull.

- The torpedo manoeuvres under the central portion of the vessel.
- Detonation generates a powerful explosion beneath the ship.

ii. Formation of Gas Bubble

The explosion creates a rapidly expanding gas bubble under the hull.

- The bubble lifts the ship upward.
- Water support beneath the hull temporarily disappears.

iii. Keel Fracture

When the gas bubble collapses:

- The ship suddenly loses structural support.
- Intense stress fractures the keel, the structural spine of the vessel.
- Once the keel breaks, the ship may split and sink rapidly.

Because ships are structurally weakest along this axis, under-keel detonations can destroy even large warships with a single strike.

h. Historical Examples of Torpedo Attacks

Although torpedo warfare played a major role during the Second World War, post-war incidents remain relatively rare but strategically significant.

i. Indo-Pakistan War (1971)

- The Pakistani submarine PNS Hangor torpedoed the Indian frigate INS Khukri in the Arabian Sea.
- This remains one of the most significant submarine successes in South Asian naval history.

ii. Falklands War (1982)

- A British nuclear submarine torpedoed the Argentine cruiser ARA General Belgrano.
- The attack resulted in one of the largest naval losses of the conflict.

iii. ROKS Cheonan Incident (2010)

- The South Korean naval vessel ROKS Cheonan sank following an explosion widely attributed to a North Korean torpedo attack.
- The incident triggered a major diplomatic crisis on the Korean Peninsula.

These cases illustrate the continued strategic importance of submarine warfare in modern geopolitics.

i. Strategic Implications for the Indian Ocean Region

A naval incident near Sri Lanka has implications extending far beyond the immediate participants. The Indian Ocean Region (IOR) represents one of the most critical maritime spaces for global trade and security.

i. Globalisation of Naval Conflicts

- Conflicts originating in distant regions increasingly extend into global maritime routes.
- Strategic deployments by major powers often bring naval forces into the Indian Ocean.

ii. Protection of Sea Lines of Communication

- The Indian Ocean hosts major shipping lanes carrying energy supplies and international trade.
- Escalation in this region could disrupt supply chains and economic stability.

iii. Importance of Maritime Domain Awareness

Countries including India are investing heavily in maritime domain awareness systems.

- Satellite surveillance networks
- Coastal radar chains
- Maritime patrol aircraft
- Underwater monitoring systems

These technologies enable states to track maritime activity across vast ocean spaces and respond to emerging threats.

j. Way Forward: Strengthening Maritime Stability

Reducing the risk of maritime confrontation requires stronger legal frameworks and cooperative security arrangements.

i. Reinforcing International Maritime Law

- States must reaffirm commitment to UNCLOS principles.
- Freedom of navigation should be protected while respecting coastal state rights.

ii. Developing Clearer Norms for Naval Warfare

- Greater clarity is required regarding the use of force in international waters.
- Norms governing grey-zone maritime conflicts need further development.

iii. Expanding Naval Confidence Building Measures

- Communication protocols between navies
- Joint maritime exercises
- Transparency in naval deployments

Regional cooperation initiatives in the Indian Ocean can further enhance maritime stability through coordinated security operations and information sharing.

Conclusion

Maritime conflict operates within a uniquely complex legal and strategic environment. Peacetime maritime law, the law governing armed conflict, and rapidly evolving naval technologies interact in ways that often blur the boundary between lawful defence and unlawful escalation.

Incidents such as the sinking of *IRIS Dena* illustrate the challenges of applying traditional legal principles to modern naval warfare. At the same time, the destructive potential of submarine weapons such as torpedoes demonstrates the continuing relevance of undersea warfare in contemporary geopolitics.

For India and other maritime powers, maintaining strong naval capabilities while safeguarding a rules-based maritime order will remain essential for preserving stability in the Indian Ocean and the wider global maritime system.

Reader's Note — About This Current Affairs Compilation

Dear Aspirant,

This document is part of the PrepAlpine Current Affairs Series — designed to bring clarity, structure, and precision to your daily UPSC learning.

While every effort has been made to balance depth with brevity, please keep the following in mind:

1. Orientation & Purpose

This compilation is curated primarily from the UPSC Mains perspective — with emphasis on conceptual clarity, analytical depth, and interlinkages across GS papers.

However, the PrepAlpine team is simultaneously developing a dedicated Prelims-focused Current Affairs Series, designed for:

- factual coverage
- data recall
- Prelims-style MCQs
- objective pattern analysis

This Prelims Edition will be released separately as a standalone publication.

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