



Science and Tech-driven Diplomacy

This editorial is based on [“India needs a holistic and effective ‘techplomacy’ strategy”](#) which was published in Hindustan Times on 19/09/2022. It talks about utilising technology as a credible foreign policy and diplomacy tool for India.

For Prelims: Multi-alignment, Cyber security, Intergovernmental Panel on Climate Change (IPCC), Science Technology and Innovation Policy (STIP) 2013, International Solar Alliance (ISA) 2015, Cyberwarfare, Bioweapons

For Mains: Current Status of Science and Tech-Driven Diplomacy in India, Challenges Before Science and Tech-Driven Diplomacy

In International Affairs, **diplomacy, economics and technology** are the most important tools for any nation. Historically, **Science and Technology** has been one of the main currencies for exchange and dialogue among human societies and sovereign nations.

In modern times, it is emerging as an important instrument of **techno-economic power** that will **shape the changing dynamics of international relations** and global affairs. Technologically adept nations are developing their own strategies to integrate technology with their foreign policy and diplomatic initiatives.

Science and Technology is a low-hanging fruit for India to employ in its soft power arsenal. Along with a [multi-aligned stand on global geopolitics](#), the time is ripe for India to extend its science and tech ties in global geoeconomics in a more comprehensive and well-rounded manner.

How Science and Technological Diplomacy Can Shape Global Geopolitics?

- **Science in Diplomacy:** It means the **scientific inputs going into diplomacy** and foreign policy making.
 - Global challenges such as [weapons of mass destruction](#), [climate change](#), [cyber security](#), [human health](#), [energy and environment](#), [outer space](#) etc., all require scientific inputs in order to understand and deal with them.
 - These challenges are **trans-border and require application of science and technology in order to resolve them** in addition to normal diplomatic efforts.
 - **Example:** [Intergovernmental Panel on Climate Change \(IPCC\)](#).
- **Science for Diplomacy:** It offers alternative channels of engagement among countries that may have **political differences**, thus playing an important role by influencing the dynamics of **power-balance between sovereign nations**.
 - Scientific values of **rationality, transparency and universality** are the same the world over. S&T cooperation therefore provides a **non-ideological environment** for the

participation and free exchange of ideas.

- **Diplomacy for Science:** It means making **use of diplomacy to gain benefits in science and technology** – bilaterally as well as multilaterally.
 - It seeks to acquire science and technology knowledge **to strengthen national economy** and capacity and to participate more effectively in international discussions where science and technology are involved.

What is the Current Status of Science and Tech-Driven Diplomacy in India?

- The [Science, Technology and Innovation Policy \(STIP\) 2013](#) was one of the instances that an intersection of technology and diplomacy found a mention in an official government document.
 - The document states that the “policy framework will enable strategic partnerships and alliances with other nations through both **bilateral and multilateral cooperation in science, technology and innovation**.
 - **Science diplomacy, technology synergy and technology acquisition** models will be judiciously deployed based on strategic relationships.
- [International Solar Alliance \(ISA\) 2015](#) was launched by **India and France** to boost solar energy in developing countries.
 - It is an association of **121 signatory countries** which **majorly are sunshine countries** (countries lying between **Tropic of Cancer and Tropic of Capricorn**), and is an **excellent example of modern-day science diplomacy**.
- [Draft Science, Technology and Innovation Policy, 2020](#) discusses the role of **Science & Technology** in re-organising India’s foreign policy priorities and shaping the global technology ecosystem.
- In **2020**, the [Ministry of External Affairs \(MEA\)](#) created technically specialised divisions, such as the **cyber diplomacy division**, [e-governance](#) and **information technology division**, and the new emerging and strategic technologies division.

What are the Major Challenges Before Science and Tech-Driven Diplomacy?

- **Growing Risk of Weaponization of Outer Space:** Given the advances in space technology, many areas of peaceful use of space are increasingly becoming **double-edged** and there is a growing risk of [militarisation and weaponization of outer space](#).
 - Satellites that can be used for both civil and military purposes have led to the development of [anti-satellite weapons](#) technology.
 - Several countries, including the **United States, Russia, China, and India**, have already tested this.
 - Also, as we **move from exploration of the Moon and Mars to exploitation**, questions of mineral and other rights on extraterrestrial bodies are likely to surface.
- **Rise of Cyber-Warfare and Cyber-Armies:** Technology has changed the nature of warfare from visible **large-scale military action and violence to subtle, invisible yet decisive cyberwarfare** for crippling the enemy’s information environment in a war-like situation.
 - Many countries around the world are maintaining military units that are specifically trained to operate in a cyberwarfare environment called **cyber-armies**.
- **Threat of Bioweapons:** With advances in [biotechnology](#), **microbiological agents (such as bacteria, viruses, or fungi)** can be used as [biological weapon](#) to intentionally cause harm to humans, animals, or plants in case of conflict and war.
- **Data Privacy Concern:** [Big data](#) is often perceived as the **black gold of the 21st century**.
 - As the Internet allows for the aggregation and globalisation of markets and consumers, **cross-border data flow** is becoming a contested issue of [data privacy](#) and **global governance**.
- **Growing China’s Influence:** The last two decades have seen the Chinese leapfrog in critical technology domains such as [quantum information](#) and the [electric vehicles](#) ecosystem.
 - Also, the Chinese state has been actively promoting and exporting its technology infrastructure beyond its borders, thereby **increasing its sphere of influence**.

How India Can Harness the Potential of Science and Tech-driven Diplomacy?

- **Unifying World with Unified Payment System:** The [Unified Payment Interface \(UPI\)](#) has proved a tectonic shift in the payments system for India.
 - An open and multilateral digital system of payments that has been developed in India **can be pushed for adoption in different countries**. This can serve as a **perfect soft power opportunity**.
 - A key diplomatic win would be when **India's existing digital payments system becomes a globally accepted standard**. This is already underway, with four countries ([Nepal, Bhutan, Singapore and UAE](#)) having accepted and using India's payments system.
- **Torchbearer in Public Health Space:** In terms of global presence, India remains the **world's largest supplier of [generic medicines and drugs](#)**, accounting for **20%** of the global demand. India has also been at the forefront of vaccine manufacturing and [Vaccine diplomacy](#).
 - This has made India a **torchbearer in the public health space** forging new ties around. **More incentive for Research and Development** activities can **improve India's soft power in terms of [global health cooperation](#)**.
- **Fostering Multilateralism:** In the technology sphere, diplomacy is not about seeking entry into an exclusive alliance or club but about **maximising a state's integration with the existing global value chains**.
 - Promoting the **growth of [open source technologies](#) (and built on open standards)** which have very little entry barriers in the form of licences, can be a priority on the multilateral front. In this way, technology related diplomatic engagements will increase as well as improve **India's accessibility to key technologies**.
- **Science Tourism:** India can conceptualise **science tourism** promoting scientific locations around the nation like **National Science Centre, Delhi** and **Birla Science Museum, Hyderabad** that can be visited by the people across the globe to quench their thirst for knowledge in the **various fields of science and technology**.

Drishti Mains Question

Technology is a low-hanging fruit for India to employ in its soft power arsenal. Explain.