

India-Germany Vision to Enhance Cooperation in Innovation and Technology

1. India and Germany share a long history of cooperation in science and technology, research and innovation, institutionalized under the framework of the Inter-Governmental Agreement on '*Cooperation in Scientific Research and Technological Development*' signed in May 1974. Mirroring the overall deepening of the India-Germany Strategic Partnership, cooperation in these areas has become wider, deeper and more comprehensive in the face of the evolving needs and skills of the two countries.

2. India and Germany share a responsibility for global peace, stability, sustainability and prosperity. Their cooperation on innovation, technology and industry aims at benefitting humanity and is firmly guided by their shared democratic values and respect for universal human rights.

3. India and Germany aim to utilize synergies and institutional linkages forged between the two countries through existing cooperation. On the occasion of their meeting on 25th February 2023 in New Delhi, Prime Minister Modi and Chancellor Scholz agreed to deepen and widen this cooperation and to work towards a roadmap for innovation and technology with a view to using scientific and technological knowledge for the economic development of both countries as well as to address global challenges.

4. India and Germany recognize the close ties that have been nurtured through the decades, reaffirmed in 2022 by the India-German Green and Sustainable Development Partnership (GSDP), and acknowledge the positive and proactive roles of the governments, institutions, academia and industry on both sides, which has led to the emergence of Germany as one of India's prime partners for technological

Final Text as of Saturday, 25 February, 1300 hrs IST

collaborations. They highlight the following flagships of cooperation, on which joint efforts will continue to focus:

- Recognising that academia-industry cooperation is key to catalyse Indo-German strategic research and development partnerships, India and Germany welcome the progress achieved by the jointly funded Indo-German Science and Technology Centre (IGSTC), under which projects have been supported on national priority areas such as Advanced Manufacturing, Embedded System and ICT, Sustainable Energy/Environment, Biotechnology/Bioeconomy, Bio-Medical Technology/Water and Wastewater Technology, and Smart Cities/e-Mobility.
- Acknowledging the importance of research in advanced materials and particle physics, India and Germany appreciate India's participation in major science projects in Germany such as the Facility for Anti-Proton and Ion Research (FAIR) at Darmstadt and the Deutsche Elektronen Synchrotron (DESY) for experiments in advanced materials and particle physics. India and Germany highlight the importance of additional commitments for the realization of the world-class facility FAIR and therewith acknowledge the importance of basic research for science, technology and innovation in both countries.
- Both sides appreciate the existing collaboration between Indian Research institutes, such as Indian Institute of Technology (IITs), Indian Council for Medical Research (ICMR), Indian Institute of Management (IIM), Indian Institute of Science Education Research (IISER), Council of Scientific & Industrial Research (CSIR), Indian Council for Agricultural Research (ICAR), and The Energy and Resources Institute (TERI), and German Research institutes such as Max Planck Society (MPG), Fraunhofer Gesellschaft (FhG), Helmholtz Association, Leibniz Association, German Research Foundation (DFG), the Thünen Institute, Potsdam Institute for Climate Impact Research and also the German Academic Exchange Service (DAAD).

Both sides note that in recent years, Germany has emerged as a destination of choice for Indian students wishing to pursue higher education in STEM. The number of Indian students in Germany has increased threefold in the past seven years. Indians form the second largest group of international students enrolled at German universities, with around 35000 students from India currently enrolled in Germany.

5. India and Germany recognize the role and importance of science, technology and innovation in socio-economic development, and emphasize the progress being made in ongoing projects. They recognize the increasingly critical role of technologies in responding to key challenges of our times, which include *inter alia* climate change, biodiversity loss, land degradation, extreme weather events, pollution, energy security and achieving long-term sustainable development and growth. They are convinced that common goals can be better achieved through close cooperation, building on individual strengths and capacities of both partners.

6. In today's working and economic world, innovative technologies and know-how are decisive for the competitiveness and future viability of companies. India and Germany agree to further develop their comprehensive economic relations in a spirit of equality and reciprocity. They are committed to further development and improvement of an enabling environment for innovation

7. Initial focus areas of Indo-German cooperation on innovation, technology and economy:

With a view to developing a more comprehensive Indo-German roadmap on innovation and technology, India and Germany will introduce and develop further the following elements of their partnership:

7.1. Energy partnership and clean technologies, including green hydrogen:

Final Text as of Saturday, 25 February, 1300 hrs IST

7.1.1. Germany and India pursue the common intention of advancing the energy transition in both countries with the aim of achieving a socially just, ecologically and economically sustainable, secure and affordable energy supply, reducing their dependence on imports of fossil fuels and decarbonizing their economies. They value the productive and close political dialogue that takes place under the Green and Sustainable Development Partnership (GSDP) within the framework of the Indo-German Energy Forum (IGEF), which was founded in 2006, and on the basis of the ongoing Indo-German development cooperation, both with a focus on, but not limited to: a just energy transition, energy security, flexibilization of the power system, a massive scale-up of renewable energy, green grids and storage, energy efficiency and low emission energy systems. Large projects include the Green Energy Corridors and the Renewable Energy Partnership. Both sides note the potential for collaboration between Indian and German companies in electrolyser manufacturing and for trade in green hydrogen and derivatives.

7.1.2. India and Germany appreciate the progress achieved under the Joint Declaration of Intent (JDI) on 'Indo-German Green Hydrogen Task Force,' signed during the sixth Indo-German Intergovernmental Consultations (IGC) between the Ministry of New and Renewable Energy (MNRE), India and the Ministry for Economic Affairs and Climate Action (BMWK), Germany on 2nd May 2022 to strengthen mutual cooperation in production, utilization, storage and distribution of green hydrogen. The common long-term goal is to make green hydrogen economically viable. This requires a global expansion of green hydrogen production and sales. Germany and India therefore support the development of a global green hydrogen economy to facilitate the achievement of the goals of the Paris Agreement. The aim of the Task Force is to strengthen cooperation in the production, use, storage and distribution of green hydrogen by creating frameworks for projects, regulations and standards, trade and joint R&D projects.

7.1.3. Collaboration between India's Department of Science and Technology (DST) and Germany's Fraunhofer-Gesellschaft (FhG) on Green Hydrogen

Final Text as of Saturday, 25 February, 1300 hrs IST

India and Germany welcome the signing of the Letter of Intent by DST and FhG, according to which both institutions intend to cooperate on, inter alia, Hydrogen Energy Clusters being set up by DST, integrating FhG's technologies with Indian technologies, and long-term technology development in the areas of renewable energy.

7.2 Strengthening the framework and ecosystem for Indo-German business relations to thrive:

6.2.1 Standardization policy is an integral part of economic and innovation policy. Standards define the state of the art and the requirements for products and services in almost all areas of life. They enable system capability, they ensure quality, they create transparency and they protect consumers. Standards are particularly important in the development of new technologies, such as Industry 4.0, Smart Farming, Digital Technologies, and Artificial Intelligence. They can also accelerate the implementation of innovations. Both sides therefore aim to strengthen cooperation in the Global Project Quality Infrastructure, through the framework of the Indo-German Working Group on Quality Infrastructure.

7.2.2 On the Indian side, Invest India is the National Investment Promotion and Facilitation Agency of India. It facilitates and empowers investors to establish, operate and expand their businesses in India. The Embassy of India, Berlin, runs the Make in India Mittelstand since 2015, which supports Mittelstand companies through various business support services by a professional network of program partners and state agencies. On the German side, the federally owned foreign trade promotion agency "Germany Trade and Invest" (GTAI) supports German and Indian companies by providing a comprehensive range of information to help them establish cross-border business relations in innovative technology sectors.

7.2.3 Start-ups are young innovative companies that are often interested in international cooperation. German and Indian start-ups have great potential for cooperation in the field of innovation. The dialogue between Startup India and the German Accelerator initiated in the context of the 6th Indo-German government

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consultations should be intensified. The aim is to explore the economic potential in India and Germany for start-ups and to improve cooperation.

7.2.4 The Asia-Pacific Conference of German Business (APK)

Indian and German companies are key drivers of technological innovation. Many German companies have important research and development centers in India. India and Germany therefore welcome the decision by the Asia Pacific Committee of German Business (APA) to hold the Asia-Pacific Conference of German Business (APK) in India in 2024. The APK is an important platform of exchange for German and Indian as well as other representatives from politics and business in the Asia-Pacific region on important economic policy issues of the time, such as innovation, diversification and sustainability. The APA and its supporting associations have developed this unique conference to reflect the importance of the Asia-Pacific region. The Indo-German Chamber of Commerce is a strong local organizational partner. Both governments will support APK in India 2024.

7.3 Digital technologies, including fintech:

7.3.1 India and Germany acknowledge that digital technologies and solutions could address key development needs and highlight the potential of these digital solutions to achieve the Sustainable Development Goals (SDGs) in other parts of the developing world. India looks forward to sharing digital solutions and expertise with Germany.

7.3.2 India and Germany acknowledge the Indo-German Digital Dialogue as an important instrument to facilitate cooperation regarding the digital transformation. This includes the support of digital innovations and business models in areas like Industry 4.0 and Artificial Intelligence as well as the promotion of 5G/6G technologies and start-up ecosystems.

7.4 Artificial Intelligence (AI):

India and Germany recognize AI's potential to enhance the work and lives of people, through its wide array of applications. The framework for cooperation in the field of

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AI is laid out in the Joint Declaration of Intent between the Indian Ministry of Electronics and Information Technology and the Federal Ministry of Economics and Technology (now the Federal Ministry of Economic Affairs and Climate Action) of 30 May 2017.

7.5 5G/6G:

India and Germany recognize the potential for collaboration on 6G technologies. The telecom markets offer promising opportunities for collaboration.

8. Financial Provisions:

Cooperation within the framework of this Vision document would take place within the funds allocated by both sides and in accordance with the laws, regulations, and procedures of each country. Cooperation partners from the private sector may include innovative funding methods to further the objectives under this framework.
