

# Terms of Reference of the Intelligent Manufacturing and Robotics Working Group of the BRICS Partnership on New Industrial Revolution

## I. Introduction

Intelligent manufacturing and robotics, as core technologies of the Fourth Industrial Revolution, are crucial fields in the new round of scientific and technological revolution and industrial transformation. They are also indispensable elements in the industrialization processes worldwide. As an important force in promoting global manufacturing innovation, the BRICS countries play a key role in advancing the high-quality development of the intelligent manufacturing and robotics industries, which is of great significance for accelerating the global industrialization process.

The 1st Meeting of the BRICS Industry Ministers, held in Moscow, Russia, in October 2015, has agreed that it is necessary to define key areas and joint steps to expand cooperation in the industrial sector.

The 2nd Meeting of the BRICS Industry Ministers, held in Hangzhou, China, in July 2017, has adopted the "Action Plan for Deepening Industrial Cooperation among BRICS Countries," encouraging government departments, standard organizations, enterprises, industries, and business associations from BRICS countries to cooperate in standardization activities in emerging industries such as intelligent manufacturing, additive manufacturing, and robotics, and strengthen information exchange regarding the development of the latest standards.

The 10th BRICS Summit, held in Johannesburg, South Africa, in 2018, established the BRICS Partnership on New Industrial Revolution (PartNIR), which aims at deepening BRICS cooperation in the areas of digitalization, industrialization, innovation, inclusiveness, and investment.

In order to advance the implementation of the BRICS PartNIR, the BRICS Industry Ministers' Meetings in 2021, 2022, and 2023 have emphasized that digital transformation and smart manufacturing are key to seizing the strategic opportunities brought about by the New Industrial Revolution and it is necessary for BRICS countries to jointly strengthen capacity building in digitization, networking, and smart manufacturing, improve competency for industrial production and manufacturing, and speed up the processes of industrialization and modernization.

The 8th BRICS Industry Ministers' Meeting, held in Nizhny Novgorod, Russia, in August 2024, has endorsed the establishment of the Working Group on Intelligent Manufacturing and Robotics within the framework of the PartNIR Advisory Group, in order to promote high-level cooperation in the fields of intelligent manufacturing and robotics among BRICS countries and accelerate the pace of high-quality development and modernization of manufacturing industries in all countries.

## **II. Objectives**

The Working Group, aiming to serve as a regular exchange mechanism in the field of intelligent manufacturing and robotics among BRICS countries, seeks to implement the consensus reached at previous BRICS Summits and Meetings of Industry Ministers on cooperation in intelligent manufacturing and robotics. It focuses on key issues and technical aspects of intelligent manufacturing and robotics that are of interest to BRICS countries, and works to promote in-depth collaboration in technology, standards, industry, training, and applications between BRICS industrial authorities, industry associations, research institutions, and enterprises. The goal is to jointly advance the intelligent manufacturing capabilities in BRICS countries.

## **III. Scope of Work**

All parties will focus on, but not be limited to, the following areas for mutually beneficial cooperation:

### **1. Technical Exchange**

Conduct research on key manufacturing processes, smart equipment, industrial software, system solutions, core robotics algorithms, etc., publish joint research papers, and promote technical cooperation and technology transfer.

### **2. Industrial Matchmaking**

Explore cooperation opportunities in areas such as intelligent manufacturing scenarios, intelligent factory solutions, evaluations for the level of implementation, and the robotics industry chain. Share policies and best practices in intelligent manufacturing and robotics and accelerate the application of typical cases across BRICS countries.

### **3. Collaboration on Standardization**

Encourage relevant government departments, standards organizations, research institutions, enterprises, and industry associations in BRICS member countries to cooperate in setting standards for emerging industries like intelligent manufacturing, additive manufacturing, and robotics. Exchange policies related to standardization in these fields, strengthen information exchange on the formulation of the latest standards, organize BRICS experts to jointly participate in the development of international standards, and promote coordination, development, implementation, and dissemination of standards in intelligent manufacturing and robotics.

### **4. Participation in PartNIR Events**

Encourage relevant parties in the fields of intelligent manufacturing and robotics in BRICS countries to participate in PartNIR series of events such as the BRICS Forum on the Partnership on the New Industrial Revolution, the BRICS Industrial Innovation Contest, the BRICS New Industrial Revolution Exhibition, and other related events. Provide various forms of support for interaction, share innovative research results, discuss the latest technical topics in the field of intelligent manufacturing and robotics, and exchange views on future directions and challenges.

### **5. Cooperation for Capacity-building**

Encourage BRICS member countries to carry out skills upgrading training and programs in areas related to intelligent manufacturing and robotics. Encourage BRICS member countries and partner countries to organize and participate in online and offline training programs in relevant fields.

## **IV. Work Mechanism**

The Working Group shall appoint a Chair. The Chair of the Working Group shall be assumed

by a representative of the BRICS rotating presidency.

Through technical seminars, joint research, and experience sharing, the Working Group will facilitate the exchange of progress in technology, standards, industry, training applications, and other areas related to intelligent manufacturing and robotics, start and follow up on pilot cooperation projects, and create a regular, multi-level communication platform in the fields of intelligent manufacturing and robotics among BRICS countries.

The Working Group shall submit an annual summary report of its work to the PartNIR Advisory Group, which shall report on the work progress to the Meeting of Industry Ministers. The Working Group may revise the terms of reference and work plans on a consensus basis as needed.

## **V. Funding Sources**

Each member country shall provide financial and human resources support on a voluntary basis for the responsible projects led by the Intelligent Manufacturing and Robotics Working Group under the framework of the PartNIR Advisory Group. Members are encouraged to seek financial support from institutions such as the BRICS New Development Bank and other organizations, as needed.