Partnership on New Industrial Revolution - PartNIR -

ISSUES NOTE

BRICS 2025

1. Background Information

The BRICS Partnership on the New Industrial Revolution (PartNIR) was established in 2021 to promote industrial development, innovation, and technology cooperation. Its mandate involves identifying shared interests, challenges, and opportunities and developing initiatives within the New Industrial Revolution framework. PartNIR aims to strengthen capacities in a rapidly evolving industrial landscape while ensuring structured collaboration among BRICS countries.

2. Priorities

2.1. Digital Transformation of Industry

The digital transformation of industry has emerged as a key driver of economic growth and innovation, reshaping global production, trade, and competitiveness. This transformation presents opportunities for BRICS members to leverage advanced technologies such as artificial intelligence (AI), the Internet of Things (IoT), and Big Data analytics. These technologies can enhance productivity, reduce operational costs, and promote sustainable practices, empowering member states to tackle pressing socio-economic challenges and lead in the Fourth Industrial Revolution.

The Brazilian chairmanship proposes that BRICS members share insights on the digital transformation of industry, underscoring its significance for their economies. Members are encouraged to assess its importance, identify key challenges, and explore collaboration opportunities.

2.2. Intelligent Manufacturing and Robotics

Intelligent manufacturing and robotics are transforming the global industrial landscape, driven by AI, IoT, and automation advancements. These innovations enable greater efficiency, flexibility, and precision in production processes, reducing costs and enhancing product quality. Globally, countries are leveraging these technologies to strengthen industrial competitiveness and adapt to rapidly changing market demands. Smart manufacturing also supports sustainable development by optimizing resource usage and reducing environmental impact, aligning with global efforts to achieve greener industrial practices.

The Brazilian chairmanship encourages BRICS members to share perspectives on intelligent manufacturing and robotics, highlighting their importance for economic transformation. Members

are invited to evaluate their significance, identify key challenges, and explore opportunities for collaboration.

2.3. SMEs

Micro, Small, and Medium Enterprises (SMEs) are the backbone of BRICS economies, making substantial contributions to employment, GDP, and innovation. Strengthening and integrating SMEs across BRICS nations can foster mutual economic benefits, accelerate inclusive growth, and support small business development. This integration creates opportunities for resource sharing, technology transfer, and expanded access to regional markets and global value chains.

2.3.1. Structuring the Cooperation Agenda on SMEs and Developing a Work Plan

Key Focus Areas:

- Organizing and consolidating documents on SMEs from previous BRICS chairships;
- Updating information on government agencies and institutions that support SMEs in each member country;
- Reassessing priorities following the inclusion of new BRICS members;
- Improving governance mechanisms for SME collaboration within the grouping.

2.3.2. SMEs, Digitalization and AI

Key Focus Areas:

The Brazilian chairship prioritizes the adoption of AI and digital technologies as transformative tools for SMEs. AI can enhance efficiency, automate repetitive processes, and foster innovation. It enables SMEs to access regional and global markets while providing data-driven decision-making and strategic planning insights. By adopting AI solutions, SMEs can streamline operations, optimize resource allocation, strengthen resilience against disruptions, reduce costs, and gain a competitive edge in the digital economy.

2.4. Sovereign AI for Digital Industrialization

Artificial Intelligence is a pivotal driver of digital transformation, fostering innovation, enhancing productivity, and advancing sustainable practices. AI-driven solutions, such as predictive analytics and process automation, are reshaping industries by optimizing resource usage, reducing costs, and fostering sustainability.

Generative AI adds a new dimension to these advancements, highlighting the need for technological independence. To excel in this area, BRICS nations must invest in sovereign AI ecosystems that contemplate national realities and languages while meeting the needs of businesses and citizens. This requires autonomy in AI techniques, tools, standards, and data and digital infrastructure control.

BRICS nations must also address the monopolistic tendencies of large corporations that dominate digital infrastructure, pricing mechanisms, and market dynamics. Collaborative initiatives can foster fair competition, reduce digital dependencies, and prioritize equitable data exchange.

The Brazilian chairship is committed to promoting initiatives that exchange best practices, tackle challenges, and identify opportunities for AI development across member states.

2.5. Bioindustry to Supply the World

Biomanufacturing represents a key industry for the future, combining sustainable economic development strategies with products that are in increasing demand in the global market. This approach also promotes the establishment of industrial parks that utilize renewable inputs, thereby reducing greenhouse gas emissions.

Integrating bioindustry and biotechnology with digital technologies will shape the productive paradigm of the 21st century. BRICS member countries have exceptional comparative advantages in leading this global process.

Member countries should prioritize integrating bioindustry production chains, particularly by leveraging biomass to provide essential inputs for green chemistry sectors such as plastics, polymers, pharmaceuticals, cosmetics, and food.

It should be a priority to integrate and promote supply chains for industrial inputs of biological origin, as well as the production of capital goods essential to these activities and the development of technologies to intensify biomanufacturing processes. Cooperation should also extend to developing the capacity of applied sciences and technology institutions connected with the industry to carry out the biomapping of genetic resources, as well as the exchange of experiences in synthetic biology to develop new bioindustrial products and processes.

In this sense, it is essential to have a detailed diagnosis of each country's potential for using their biomass in industrial biorefining processes to serve the green chemistry markets worldwide massively. This includes understanding the types of biomass available, the production capacity of each, the technologies available for their large-scale utilization in biorefining processes, and the most promising types of products and inputs to guide a robust production chain integration process within member countries.

2.6. Circular Economy

It is proposed to strengthen cooperation among BRICS member countries to foster the Circular Economy. The initiative aims to develop a joint plan for the adoption of policies and technologies that promote efficient resource management, extend product life cycles, increase industrial recycling, and reuse waste as productive inputs, in addition to incorporating practices such as remanufacturing, repair, reuse, and product ecodesign. Brazil suggests the creation of a BRICS cooperation program to share best practices and promote technical capacity-building.

The proposal seeks to position BRICS as a pioneering bloc in the integration of sustainable practices, encouraging the creation of green jobs and productive decarbonization. This approach will enhance the bloc's relevance in global discussions, promoting inclusive and innovative models of production and consumption aligned with the Sustainable Development Goals (SDGs).

3. Planned Deliverables

3.1. On Digital Industry Transformation

3.1.1. A webinar titled "Unlocking Potential: Tackling the Challenges of Digital Industry Transformation in Developing Countries" to be organized in collaboration with Brazilian and international industrial stakeholders.

3.1.2. A Report on Results and Recommendations summarizing the findings from the webinar.

3.2. On Intelligent Manufacturing and Robotics

3.2.1. A webinar titled "Empowering Industries: The Smart Manufacturing and Robotics Revolution in Emerging Economies" to be organized in collaboration with Brazilian and international industrial stakeholders.

3.2.2. A Report on Results and Recommendations from the webinar to be presented to Industry Ministers.

3.3. On SMEs

3.3.1. Adoption of the BRICS SME Work Plan;

3.3.2. A BRICS SMEs Forum focusing on:

- Regulatory harmonization to promote SME integration;
- Expanded access to financial resources;
- Development of a digital platform to connect SMEs and enhance market access;
- Support for SMEs' climate transition efforts.

3.3.3. A report from the BRICS SMEs Forum will be presented during the SMEs Working Group meeting.

3.4. On SMEs, Digitalization, and AI

3.4.1. Two webinars titled "Digital Transformation in the Age of Artificial Intelligence: Empowering SMEs in the BRICS for a Competitive Future";

3.4.2. A Report on Results and Recommendations from the webinars.

3.5. On Sovereign AI for Digital Industrialization

3.5.1. Adoption of a Term of Reference by BRICS Industry Ministers outlining:

- The development of foundational open-source GenAI models based on the languages of BRICS countries to represent their cultures;
- The creation of shared infrastructure with storage and processing capacity to train machine learning and deep learning models for industrial applications;
- The establishment of capacity-building and training programs for human resources in the industrial sector, along with the exchange of experiences among developers from member countries;
- The establishment of a shared marketplace for interregional commercialization of AI-based digital products and services.

3.6. On Bioindustry to Supply the World

Delivery of National Reports with diagnoses that assess the economic potential for implementing biorefineries to serve the global green chemistry market. These reports will evaluate local biomass production capacities and bilateral investment opportunities among member countries.

3.7. On Circular Economy

Joint declaration of the BRICS countries, reaffirming the importance of coordinated and collaborative actions to advance the agenda to accelerate the transition to a Circular Economy.

Establishment of a Working Group (WG) to deepen discussions and structure coordinated actions

(identification of challenges and opportunities, proposal of measures).