



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



A NEW GENERATION OF SCIENCE AND TECHNOLOGY PARKS

NEW GENERATION OF SCIENCE AND TECHNOLOGY PARKS

Acknowledging the importance of innovation to promote inclusive and sustainable economic development, and the key role science and technology play in this respect, UNIDO's Department of Digitalization, Technology and Innovation (DTI) designed a technical module focused on Science and Technology Parks (STPs).

STPs leverage the joint effort of two distinct but usually separated economies – the research economy, driven by the creation of new knowledge, and the commercial economy, driven by the marketplace – to unlock the potential of the Fourth Industrial Revolution (4IR), with the aim of promoting the development and commercialization of innovative solutions developed locally.



ADVANCING ISID THROUGH SCIENCE, TECHNOLOGY AND INNOVATION

STPs have the potential to contribute significantly to the achievement of inclusive and sustainable industrial development (ISID), as well as other industrial-related targets of the 2030 Agenda, by promoting innovation-driven economic development.

Indeed, STPs combine the complementary efforts of several actors – often having different and conflicting interests – to improve considerably regional and sectoral innovation ecosystems, by facilitating knowledge sharing, technology transfer, entrepreneurship development, and investment promotion.



START-UPS AND MSMEs EMPOWERMENT

STPs play a significant role for MSMEs and start-ups, in particular to promote their digitalization and internationalization. Indeed, the convergence of the digital and manufacturing sectors requires a quick adaptation, and often MSMEs and start-ups have not enough financial resources and competencies to respond to the demanding market. STPs play a central role in supporting them in bringing their ideas into commercially-viable products and helping them to scale up and develop sound business plans and models.



CIRCULAR ECONOMY PROMOTION

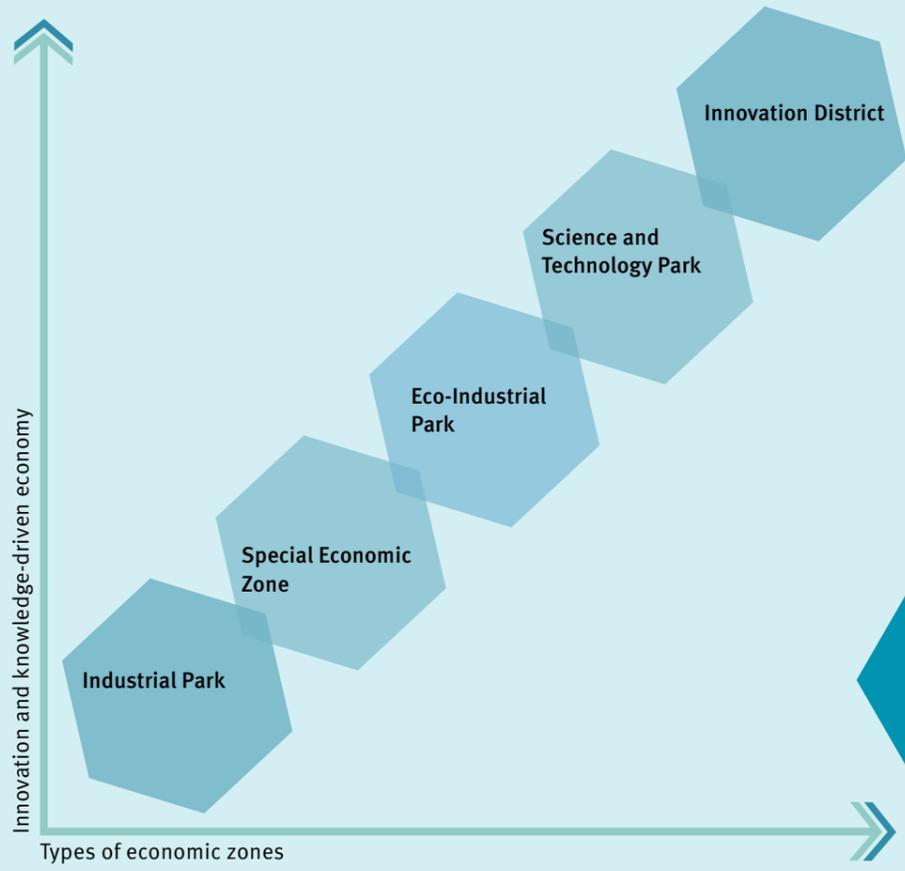
STPs do also have great potential to promote and accelerate the transition from a linear to a circular economy, by supporting entrepreneurship oriented towards “green” products and services. As a matter of fact, STPs represent a favourable strategy to unlock the potential of 4IR technologies, and develop solutions able to have a strong impact on several phases of the industrial production.



GENDER EQUALITY

STPs can also be instrumental to counteracting current gender imbalance in entrepreneurship. Despite improvements in recent years, the proportion of women entrepreneurs continues to be comparatively lower and more likely to operate in non-capital-intensive sectors. STPs can contribute to reverse this trend by easing their engagement with stakeholders and potential investors, facilitating their access to finance, and offering an environment conducive to innovation.





Economic zone models are often characterized by a similar structure, however there is a high degree of diversity in their nature and functions. While the initial model of industrial parks focused on productivity, over time more innovation-centered models have emerged, making a higher contribution to knowledge-driven economic development.

STPs are also known as innovation hubs, innovation and technology centers, research parks, business innovation centers, innovation parks, technocities, technopolis, and technopolises.

Collaborative-based relationships built among the five main actors create a complex innovation ecosystem, which can focus on a specific region and sector, depending on the purposes the STP aims to achieve.

STPs might also benefit from the contribution of additional actors. Bilateral and multilateral agreements established with other entities (including other parks operating in the same sector) allow development of collaborative projects, thus granting parks' growth and sustainability.



WHAT ARE STPs?

STPs are facility areas established with the purpose to facilitate innovation and knowledge-based economies, by promoting technological development, including through research and attracting technology-based companies.

WHO IS INVOLVED IN STPs?

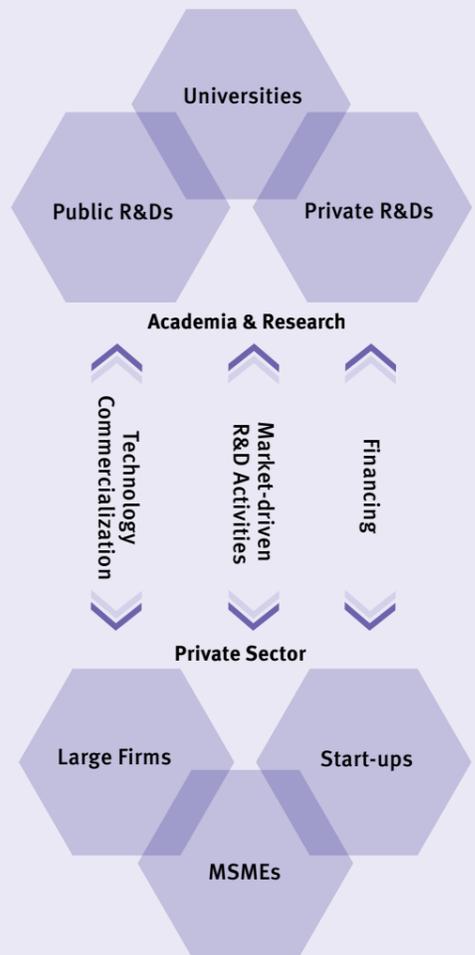
Multiple actors are involved in STPs, both within the private and public sector. The establishment and functioning of STPs are made possible by combining complementary competencies and resources

HOW DO STPs IMPACT?

STPs realize change by leveraging the potential of two distinct, but usually separated economies: the research economy, driven by the creation of new knowledge, and the commercial economy, driven by the marketplace.

WHY ARE STPs RELEVANT?

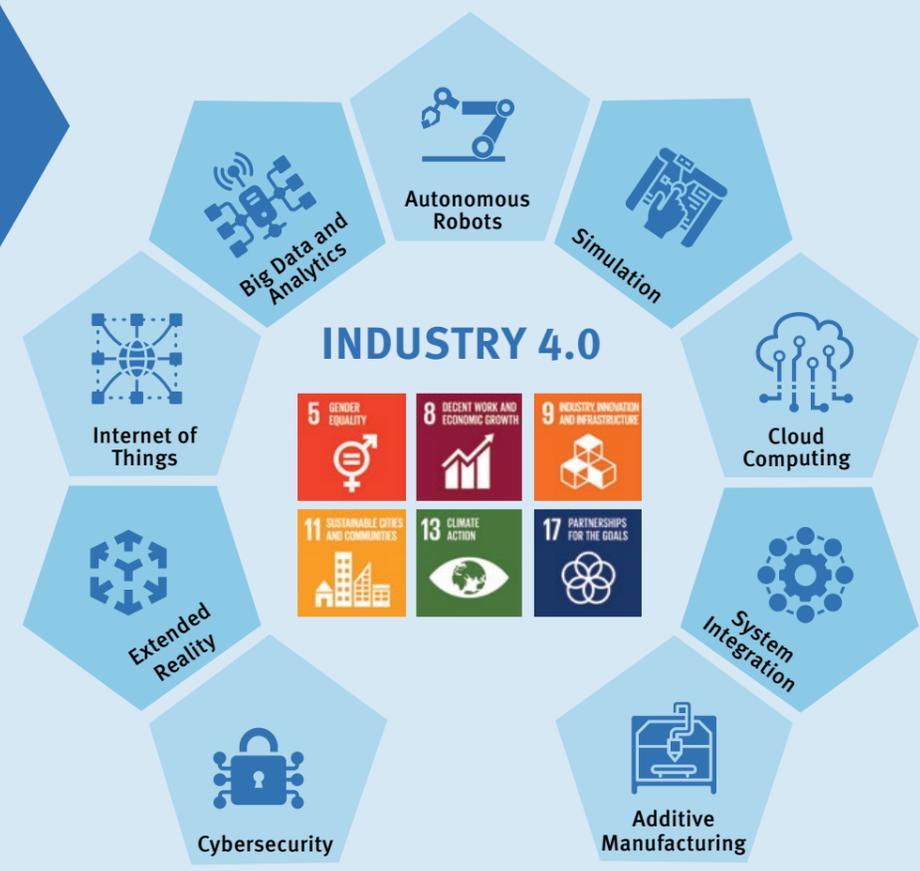
By promoting knowledge-based work and R&D activities, STPs boost regional and sectorial innovation ecosystems, thus constantly contributing to the development and improvement of the national system of science and technology.



STPs leverage the contributions of several actors – in terms of services, financial resources, and physical facilities –, to realize the commercialization of innovative solutions. This might be achieved through prototype and pilot production, testing facilities, laboratories to develop new tools, and advanced telecommunication systems. Through such synergies, STPs allow for a 'closing' of the commercialization cycle, thus enhancing the competitiveness of researchers, firms, start-ups, and other actors involved in the park.

STPs leverage the potential of 4IR technologies to promote the commercialization of innovative solutions locally-developed. These new technologies promise to deliver multiple economic, environmental and social benefits and contribute to realizing the 2030 Agenda.

STPs contribute to the achievement of ISID, and other industry-related SDGs, by fostering knowledge sharing, facilitating technology adoption, empowering MSMEs, encouraging investment, boosting entrepreneurship and job creation.



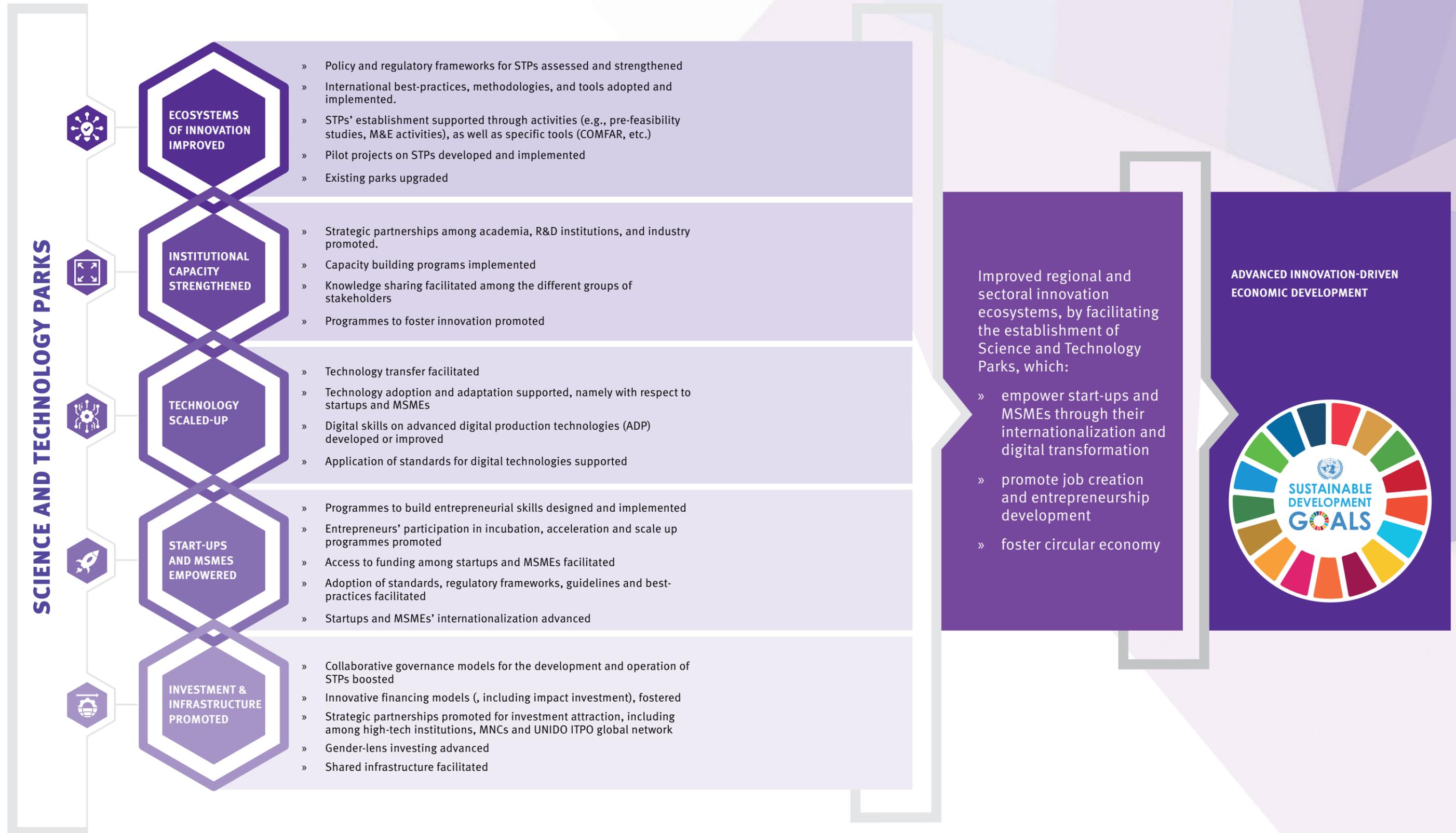
THE STRATEGIC FRAMEWORK

The main purpose of this Module is to facilitate the establishment or revitalization of STPs, including in terms of identifying and eliminating obstacles that might limit their development, their added value or sustainability, in order to make a substantial contribution towards the envisaged long-term goal of achieving SDG 9 and other industrial-related goals.

Activities within each block are identified and tailored on the basis of specific needs and circumstances the project aims to achieve, to effectively address national and regional challenges. Activities

initiating the change are the result of multiple partners' efforts, and might be implemented at various levels – macro, meso and micro –, thus, having an influence on several fronts.

The change will be tracked throughout the whole process by selected indicators, which allow to objectively measure the performance generated by each level of intervention. For this purpose, UNIDO apply the integrated results and performance framework (IRPF), which represents a pillar of the United Nations Results-based management (RBM) approach.



4IR DEMONSTRATION AND INNOVATION CENTER IN BELARUS

CREATING SMART MANUFACTURING CAPACITIES
TO BOOST INNOVATION IN THE EAEU REGION

OVERVIEW

UNIDO supports the establishment of a pilot 4IR Demonstration and Innovation Center in the Brest region of Belarus. The center supports 4IR technological learning, smart manufacturing and innovation, and provides 4IR capacity-building services for beneficiaries from the Brest, Vitebsk and Mogilev regions. It also serves as a demonstration and 4IR technological learning center for Belarus and other countries of the Eurasian Economic Union (EAEU).

The pilot center exemplifies the type of production approach that can become the engine of economic growth in the region and the country: it demonstrates how forward-thinking engagement of technology can create smarter and cleaner manufacturing, and how 4IR technologies at scale can transform the nature of work itself by engaging and improving human skills with minimal job displacement. The center will further contribute to skill upgrading and structural changes throughout the production value chain.

MAIN OBJECTIVES AND IMPACT

The project seeks to contribute towards ensuring smooth transformation of the Republic of Belarus to 4IR, by addressing challenges such as lack of information on state-of-the-art technological solutions, imperfection of the industrial processes applied by the enterprises, shortage of skilled personnel, the inadequacy of innovation ecosystems at the level of SMEs, and underdevelopment of infrastructural base for 4IR.

With this purpose, UNIDO supports the Ministry of Economy in implementing a project aiming at enhancing industrial competitiveness in the Republic of Belarus through leveraging the potential of 4IR technologies for smart manufacturing.

UNIDO'S STRATEGY

The project's purposes are achieved through the implementation of tailored activities aiming at:

- » Supporting the implementation phases for establishing a regional pilot 4IR Demonstration and Innovation Center in the Brest region
- » Formulating the EAEU Action Plan for cooperation on 4IR issues.



OVERVIEW

UNIDO supported the establishment and operationalization of the Shanghai Global Science and Technology Center, which promotes innovative technologies in the manufacturing industry. This project is part of the strategy the Government of China designed to strengthen its global innovation network and, to support the implementation of ISID.

Studies showed that the two major challenges MSMEs in the manufacturing sector have to face are: (i) low technological levels and weak access to modern technology, and (ii) a lack of skilled workforce.

Therefore, the adoption of technology and its subsequent adaptation and application are of particular importance for sustained manufacturing growth. This allows manufacturers to stay competitive and increasingly challenging international markets. Additionally, investment in technology can facilitate innovation, essential for furthering technological progress.

MAIN OBJECTIVES AND IMPACT

Through the establishment of an innovation and technology center – which promotes the introduction of advanced technologies in the manufacturing sector in China – UNIDO aimed at increasing industrial competitiveness, by upgrading technology, boosting innovation, generating decent jobs, and creating a sustainable environment.

Additionally, the center supports the identification of the best technology-led solutions from China, and promotes their transfer to other developing or least developed countries, through the South-South Cooperation modalities, thus maximizing the impact of the intervention.

The project allows many firms in the manufacturing sector in China – and other developing countries – to have access to new and better products, production processes, and management practices, thus, enhancing their productivity and export growth, through upgrading industrial technology-led solutions.

UNIDO'S STRATEGY

The project's purposes are achieved through the implementation of tailored activities aiming at:

- » Supporting the implementation process for establishing the Shanghai Global Science and Technology Center
- » Adopting a comprehensive multi-annual framework for the Center and a medium-term plan
- » Establishing a global partnership and networking platform with a growing portfolio of funded projects.



Experiences

GLOBAL SCIENCE AND TECHNOLOGY CENTER IN CHINA

FACILITATING TECHNOLOGY AND INNOVATION TRANSFER THROUGH SOUTH-SOUTH COOPERATION

Experiences

SCIENCE AND TECHNOLOGY PARKS IN PERU

PROMOTING INNOVATIVE AND TECHNOLOGY-ENABLED
SOLUTIONS FOR A CIRCULAR ECONOMY

OVERVIEW

UNIDO designed a project to support the establishment of a pilot Science and Technology Park in Peru, in alignment with the national programme the Government of Peru is carrying out to assist the digital transformation of the industrial sector.

The programme is oriented towards strengthening innovation ecosystems and their market linkages in several regions of the country, according to their sectoral competitive advantages, and it is meant to be a solution to the lack of cooperation between government, industry and academia. The project falls under the framework of the UNIDO Programme for Country Partnership (PCP), the flagship technical cooperation tool UNIDO developed for assisting Member States in their way to achieving ISID and particularly SDG 9.

MAIN OBJECTIVES AND IMPACT

The overall objective of this project is to promote innovation-driven economic development in Peru by boosting regional and sectoral innovation ecosystems. More specifically the project seeks to create favorable conditions for the establishment of STPs, as well as to facilitate networking with other existing innovation tools and mechanisms in the Country, to realize the

commercialization of “green” technological solutions. By strengthening the linkages between science and research institutions and industry, STPs facilitate knowledge sharing, technology transfer, entrepreneurship development, job creation, and investment promotion. Hence, STPs have the potential to significantly improve MSMEs’ competitiveness – in particular their digitalization and internationalization –, and accelerate the transition from a linear economy towards a circular economy, by promoting the development of products and services with a circular impact

UNIDO’S STRATEGY

The project’s purposes are expected to be achieved through the implementation of tailored activities aiming at:

- » Improving the regulatory framework, policies and guidelines for accelerating the establishment of STPs
- » Promoting partnerships with high-tech institutions, MNC, and UNIDO ITPO networks, for encouraging technology transfer, new skills development, and investment
- » Supporting the design and implementation process for establishing a pilot STP in the Country.



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