

**COMMISSION ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT  
(CSTD)**

**Twenty-fifth session**

**Geneva, 28 March to 1 April 2022**

**Submissions from entities in the United Nations system, international  
organizations and other stakeholders on their efforts in 2021 to  
implement the outcomes of the WSIS**

**Submission by**

United Nations Industrial Development Organization

This submission was prepared as an input to the report of the UN Secretary-General on "Progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society at the regional and international levels" (to the 25<sup>th</sup> session of the CSTD), in response to the request by the Economic and Social Council, in its resolution 2006/46, to the UN Secretary-General to inform the Commission on Science and Technology for Development on the implementation of the outcomes of the WSIS as part of his annual reporting to the Commission.

**DISCLAIMER:** The views presented here are the contributors' and do not necessarily reflect the views and position of the United Nations or the United Nations Conference on Trade and Development.

## Executive Summary

UNIDO is fully committed to achieve the comprehensive, far-reaching, and people-centred set of universal and transformative Sustainable Development Goals (SDGs), as outlined in the [Abu Dhabi declaration](#) adopted at the eighteenth session of the UNIDO General Conference in 2019. UNIDO acknowledges the role of the World Summit on the Information Society (WSIS) outcomes, action lines and targets in realizing the 2030 Agenda for Sustainable Development. Several activities have been undertaken at UNIDO along these action lines to achieve the set outcomes and targets since the WSIS Geneva phase in 2003. The Organization has continued to support Member States in implementing and scaling up ICT programmes through the adoption and diffusion of the fourth industrial revolution (4IR)<sup>1</sup> technologies.

UNIDO is a co-facilitator to the (WSIS) action lines *access to information and knowledge*, *capacity building* and *enabling environment*. Strengthening knowledge and institutions is the fourth pillar in UNIDO's medium-term programme framework ([MPTF 2018-21](#)). *Access to information and knowledge* is, hence, a priority area for UNIDO with several initiatives undertaken, especially through the Organization's convening powers and strategic multi-stakeholder partnerships. An example is UNIDO co-chaired Global Manufacturing and Industrialization Summit ([GMIS](#)), which convenes stakeholders worldwide in pursuit of an inclusive and sustainable 4IR. The fourth edition of GMIS 2021 to be held in November will focus on '*Rewiring Societies: Repurposing Digitalization for Prosperity*'. Another initiative is 'Improved knowledge management on SDG 9 and ISID'.<sup>2</sup>

Activities related to *capacity building* and *enabling environment* are being implemented at the national, regional, and international levels by UNIDO through its technical cooperation, policy analysis and advisory, and norms and standard setting functions. Some of the UNIDO initiatives that support member states through *capacity building* and creating an *enabling environment* include the '[Learning and Knowledge Development Facility](#)', 'Promoting and upscaling ICT startups and innovative SMEs in Iran',<sup>3</sup> the '[National Manufacturing Innovation Survey 2021](#)' in India, the implementation of the Global Innovation Network<sup>4</sup> and Intelligent Manufacturing Technology<sup>5</sup> projects in China, and 'Promoting smart manufacturing through innovation system building in Serbia'.<sup>6</sup>

---

<sup>1</sup> [What is the Fourth Industrial Revolution? | Industrial Analytics Platform \(unido.org\)](#)

<sup>2</sup> [Projects in Global 180231 \(unido.org\)](#)

<sup>3</sup> [Projects in Islamic Republic of Iran \(unido.org\)](#)

<sup>4</sup> [Projects in Global 150363 \(unido.org\)](#)

<sup>5</sup> [Projects in China 140037 \(unido.org\)](#)

<sup>6</sup> [Projects in Serbia 200037 \(unido.org\)](#)

## Analytical Overview

UNIDO recognizes the potential of digital technologies and business models that can help countries navigate their digital transformation journeys towards sustainable and inclusive industrial development (ISID). Intelligent industrial production using 4IR technologies can help businesses attain sustainable production and consumption of goods and services. Productive transformation using digital technologies of the 4IR can enable businesses to effectively manage their demand and supply.

In line with the WSIS proposed target of connecting all businesses through ICTs, UNIDO's key focus for building business resilience through digital transformation has been on 4IR technologies. The COVID-19 pandemic has accelerated the adoption and diffusion of 4IR technologies.<sup>7</sup> Despite the significant slumps in manufacturing output from early to mid-2020, most world economies are bouncing back to normal. Manufacturing sector in China and other developing countries had already reached their pre-crisis production levels by the end of 2020.<sup>8</sup>

Advanced digital production technologies of the 4IR such as AI, advanced robotics, 3D printing, big data and the Internet of Things have led the way in fighting the global pandemic. AI and Big Data processing were crucial in the COVID-19 vaccine development<sup>9</sup> and smart devices have empowered the healthcare community to assist their patients in different ways despite constraints. For example, in several locations, drones have been leveraged to distribute essential medical supplies, to disinfect hospitals and workplaces, and to monitor potential carriers of the pathogen. Similarly, blockchain has been harnessed for additional traceability in the medical and food sectors, while robots have enabled the continuance of essential supply chains/manufacturing operations through continuous production.

However, developing countries face several challenges in their transition towards digital transformation. A major concern is the widening disparity between developed and developing countries brought about by the 4IR. The primary causes of this widening disparity are the digital divide and lack of economic diversification.<sup>10</sup> The digital divide in developing countries exists both in terms of ICT access and infrastructure, as well as digital skills. While 83% of Europeans were using the internet in 2019, only 29% and 19% of the population had internet access in Africa and LDCs, respectively.<sup>11</sup> A lack of requisite ICT infrastructure, especially in SMEs hinders the adoption and diffusion of 4IR technologies, along with the lack of skills of the workforce to utilise them. Moreover, given the less diversified nature of production structures in developing countries and due to the absence of key industries that drive the 4IR, it takes longer for the adoption and diffusion of 4IR technologies. As per UNCTAD's

---

<sup>7</sup> [Microsoft Word - Maysoun Ibrahim 4IR and SCs in the Time of COVID19.docx](#)

<sup>8</sup> [UNIDO Statistics Data Portal](#)

<sup>9</sup> [The role of artificial intelligence in tackling COVID-19 \(nih.gov\)](#)

<sup>10</sup> [The impact of frontier technologies on inequalities across countries | Industrial Analytics Platform \(unido.org\)](#)

<sup>11</sup> ITU. (2020) Measuring digital development - Facts and figures 20120. International Telecommunication Union, Geneva. [FactsFigures2020.pdf \(itu.int\)](#)

Technology and Innovation Report 2021<sup>12</sup>, a higher level of economic diversification is associated with a higher readiness to adopt frontier technologies.

Hence, developing countries should focus on bridging their digital divides, connecting their businesses and people through ICT, skilling their workforce, building the requisite infrastructure for ICT development, and diversifying their economies for greater adoption and diffusion of 4IR technologies. On this front, UNIDO has been working with member states to build their technological capacities for a smooth transition through the 4IR.

## Current and future initiatives

UNIDO, through all its departments has implemented several ICT projects and programmes along the WSIS target lines of *access to information and knowledge*, *capacity building* and *enabling environment* at the national, regional, and international levels, some of which are listed below:

### **1. Global Manufacturing and Industrialization Summit**

GMIS is a joint initiative of UNIDO and the Ministry of Industry and Advanced Technology of the United Arab Emirates, which brings together leaders in government, policymaking, the private sector, academia and civil society from across the globe to cooperate towards an inclusive and sustainable future of manufacturing. GMIS 2021 will include familiar elements such as keynote addresses, panel discussions, fireside chats, and interviews with some of the industry's most prominent leaders, followed by working groups, interactive workshops, youth sessions, and activities related to the GMIS legacy initiatives, such as the Mohammed bin Rashid (MBR) Initiative for Global Prosperity and Green Chain initiative on decarbonization.<sup>13</sup>

### **2. Learning and Knowledge Development Facility**

The project contributed to establishing inclusive, sustainable, and innovative market oriented vocational training systems and job creation in Africa and elsewhere in the era of the Fourth Industrial Revolution by facilitating knowledge sharing and supporting a wider innovative approach for Public Private Development Partnerships (PPDPs) in skills development. LKDF 2.0 addresses the need for skills development among young people by supporting the establishment and upgrading of local TVET training academies in close partnership with the private sector through PPDPs.<sup>14</sup>

### **3. Promoting and upscaling innovative SMEs in the Islamic Republic of Iran**

The project which began in 2019 focuses on strengthening national technical capacities and improving competitiveness of ICT start-ups and SMEs in Iran. It aims to contribute to economic growth and diversification, as well as export and employment creation and facilitate regional socio-economic, industrial and trade integration of Iran. The ongoing project seeks to: a) strengthen the ICT value chain and support services to startups and scale-ups, promote sustainable entrepreneurship, enhance economic, managerial and technological performance and market competitiveness of

---

<sup>12</sup> [Technology and Innovation Report 2021 \(unctad.org\)](https://unctad.org/publications/technology-and-innovation-report-2021)

<sup>13</sup> [Global Manufacturing and Industrialisation Summit \(GMIS\) 2021 | UNIDO Knowledge Hub](https://www.unido.org/knowledge-hub/global-manufacturing-and-industrialisation-summit-gmis-2021)

<sup>14</sup> [Projects in Global 200005 \(unido.org\)](https://www.unido.org/projects-in-global-200005)

startups in Iran; b) promote investment environment by supporting the establishment of market-linkages and facilitating linkages with financial institutions; c) provide advisory support for establishing partnerships with domestic and foreign partners in ICT sector, especially in line with capacity building purposes in the broader regional environment; d) enhance the competitiveness and export capacities for startups and scale-ups; e) develop training and leadership programmes for startups and fast growing organizations; and f) foster job creation in ICT sector through creating an entrepreneurial foundation for a dynamic and competitive private sector in line with the UNIDO's Entrepreneurship Curriculum Programme.<sup>15</sup>

#### **4. National Manufacturing Innovation Survey (NMIS) 2021**

With the support of the Department of Science and Technology (Government of India), UNIDO is implementing NMIS 2021. The survey, launched in February 2021, is assessing the innovation landscape of the manufacturing sector, by measuring the nature and intensity of firm-level innovations in the manufacturing sector in India covering 58 sectors and the functioning of 'system of innovation' in five select manufacturing sub-sectors, namely, food, beverages, automotive, pharmaceuticals and ICT. NMIS 2021 is a follow-up to DST's National Innovation Survey 2011 and combines both the approaches of Oslo 2018 manual, the international guideline for measuring innovations, and UNIDO's methodology for measuring 'system of innovation'.<sup>1617</sup>

#### **5. Global Innovation Network**

China and UNIDO established and operationalized the Shanghai Global Science & Technology Innovation Center as part of the government's strategy to strengthen its global innovation network to support implementation of ISID.<sup>18</sup> Part of a broader strategy facilitating economy wide transformation from factor- and investment-driven to innovation-driven growth model, the Center will act as conduit towards reaching the interlinked objectives of increased industrial competitiveness, technology upgrading and innovation, generation of decent jobs for all and sustainable environment and energy access. Under this new framework, the Center will promote the introduction of advanced manufacturing technologies in the greater Shanghai region and subsequently China while, at the same time, the best and proven technology solutions from China will be identified and transferred through the South-South and Triangular Industrial Cooperation modalities to developing countries and LDCs.<sup>19</sup>

#### **6. Intelligent Manufacturing Technology**

The overall objective of the project is to introduce SMEs in Chinese manufacturing to the concept of IM and its attendant ICT needs, increase awareness of its benefits and provide training on its implementation. The objective will be achieved by providing industry and business associations with necessary sector-specific ICT and IM knowledge, practices and training, access to international networks of relevant institutions and experts as well as with tools and methodologies for them to deliver training activities and consultancy services to SMEs. Apart from helping to expand the

---

<sup>15</sup> [Iran - ICT startups and SMEs](#)

<sup>16</sup> [NMIS 2021 \(nstmis-dst.org\)](#)

<sup>17</sup> [National Manufacturing Innovation Survey 2021 | UNIDO Knowledge Hub](#)

<sup>18</sup> [China and UNIDO open Global Innovation Network Headquarters in Shanghai | UNIDO](#)

<sup>19</sup> [Projects in Global 150363 \(unido.org\)](#)

awareness and knowledge of IM and its application, the project is expected to increase the propensity of SMEs to implement IM systems in their business and manufacturing operations. The project may be seen as a demonstration one in that it will only be implemented in Shanghai. However, if successful, it is envisaged that the project may be up scaled to include more industrial sectors and/or regions and cities in China.<sup>20</sup>

**7. Promoting smart manufacturing through innovation system building in Serbia**

The project objective is fostering manufacturing innovation in Serbia through innovation system and business ecosystem development. The project will establish a pilot Smart Manufacturing Innovation Centre (SMIC). The SMIC will raise awareness on the opportunities and challenges of Industry 4.0/fourth industrial revolution (4IR) technologies for Serbian small and medium-sized enterprises (SMEs) and will serve as an innovation hub and a centre of competence for advanced 4IR technologies in manufacturing. The centre will provide: demonstration facilities on Industry 4.0 and the 4IR technologies; training package on digitalization and automation in specific industrial sectors; tools for the assessment of readiness for digitalization in manufacturing and skill building; and technical services and shop floor assistance on lean and Lean 4.0 for process optimization.

---

<sup>20</sup> [Projects in China 140037 \(unido.org\)](https://www.unido.org/projects-in-china-140037)