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Industry 4.0 for inclusive development

Statement submitted by

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Republic of Botswana

**25th SESSION OF THE COMMISSION ON SCIENCE AND
TECHNOLOGY FOR DEVELOPMENT VIRTUAL MEETING**

HIGH-LEVEL PANEL

ON INDUSTRY 4.0 FOR INCLUSIVE DEVELOPMENT

STATEMENT

BY

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AND TECHNOLOGY**

REPUBLIC OF BOTSWANA

29th March 2022; 1400hrs

Secretary-General of UNCTAD, Ms. Rebecca Grynspan,

CSTD Chair, Mr Al-Qurashi

Excellencies,

Ladies and gentlemen,

Good afternoon,

Mr. Chair, as I take the floor for the first time in this Session I wish to congratulate you on your election to steer the proceedings of this august house. Botswana also congratulates the Secretary General of UNCTAD on Ms Rebecca Grynspan on your appointment as the eighth, and first woman Secretary-General of United Nations Conference on Trade and Development (UNCTAD) as of September 2021. My Country commits to supporting you madam in your new role.

I am pleased to address this High-level panel on Industry 4.0 for inclusive development. Industry 4.0, in the context of our discussion today, refers to the increased use of automation and data exchange in manufacturing. It has enormous potential for boosting productivity and innovation, but it could also increase the technological gap between technologically advanced economies and countries that are less diversified and industrialized.

Mr Chair, if Governments do not act strategically to seize the opportunities created with this new wave of technological change, the increasing technological gap could reduce the ability of developing countries to catch up, which would increase income

inequality across countries. Ultimately, what we should be aiming for is not Industry 4.0 as final goal, but strategic ways to use it to grow our economies faster, more inclusively and in a cleaner way. Central to that is economic diversification and structural transformation, particularly of many developing economies, such as Botswana, that are reliant in commodities. This involves productive diversification and shifting resources towards new activities that are more knowledge-intensive and generate higher value-added.

The Report of the Secretary General presents the status of development and use of Industry 4.0 in manufacturing. It shows that few countries and firms lead the development of Industry 4.0. Ten economies account for 91% of patents in Industry 4.0 and almost 70% of exports and 46% of imports. These are the countries that create, sell and buy products using these technologies. For most firms in developing countries, Industry 4.0 is far from reality. Most firms use either analog technologies or simple digital technologies such as email.

In fact, that is the case for most countries in Africa. For example, the frontier technology readiness index presented in the Technology and Innovation Report 2021 shows that the least-ready countries to use, adopt and adapt frontier technologies are in sub-Saharan Africa, and in the developing world more broadly.

Mr Chair, using industry 4.0 technologies in manufacturing industry improves productivity and reduces environmental damage from industrialization and creates new jobs rather than bringing job losses. Africa has a history of slow industrialization using the previous industrial revolutions as a yard stick. However, Industry 4.0 presents an opportunity of a new playing field for developing countries which might have missed the early transformations of industrialization, and therefore the developing countries cannot afford to miss this new shift of technological change. Largely, this shift will depend on new national strategies, policies, laws, programmes and initiatives to support and facilitate the change and Botswana is making strides towards this.

Each country will need science, technology and innovation policies relevant to the level of development to prepare people and industries for a period of rapid and disruptive change. Outcome-based Education starting from Early Childhood through tertiary level needs to provide skillsets required for Fourth Industrial Revolution such as coding, Cloud Computing, Artificial Intelligence, Internet of Things, Blockchain, Robotic programming, Data Science (Big Data & Analytics), Cybersecurity and so on. Consequently, re-skilling and up-skilling will be needed but requires a systematic approach, so as to build a robust and diversified human capital to drive the Industry 4.0 transformation.

Mr Chair, the Report of the Secretary General also show that most countries in Sub-Saharan Africa neither have many high-tech sectors in their economic structure nor the high-skill jobs. Therefore, they lack the manufacturing sectors in which more firms are expected to adopt Industry 4.0, as well as the skilled workers better prepared to transition to Smart production. As result, it is expected that the Industry 4.0 diffusion would be slower in the countries in the African continent.

The Report further provides many useful recommendations for developing countries to harness Industry 4.0 for inclusive development. In this regard, developing countries need to implement a two-pronged strategy of continuing to diversify their economies and foster competitive manufacturing while, at the same time, creating the conditions for the emergence and diffusion of Industry 4.0 in their production base. Countries that have digitally transformed have been able to achieve stronger economic growth, improved efficiency and productivity of the public and private sectors. This has resulted in increased citizen participation and raised standards of living and satisfaction.

Mr Chair, in Botswana, we are committed to diversify our economy. The fourth industrial revolution needs people in the digital world and our natural resources are finite. For that reason, Botswana has intended to spur economic growth through digital transformation, including Industry 4.0.

Botswana can and should seize the opportunity to take the lead on the continent by accelerating its digital transformation through digitizing its industries. Whilst as a country we may have very little prospects of playing much role in gene-editing, we still have opportunities to adopt and adapt components of the fourth industrial revolution such as Artificial Intelligence, Internet of Things, 3D printing, data analytics & big data, smart sensors and nanotechnologies as we built an industrial base.

Botswana's global competitiveness will be enhanced through adopting digital technologies and innovation in key economic sectors that include tourism, beef and mining, as well as new sectors such as energy and ICT. We have developed filtering materials for dust, medical using nanotechnology, laid the foundations for data analytics by building capacity to collect Government electronic data in the health and soon in education spaces; a Government R&D institution has begun a 3D prototyping operations and deploying wireless sensor networks as a platform for real-time, sensor driven data gathering tool to guide decision making and automation of processes.

In 2020, Botswana approved the digitization strategy also known as SmartBots to drive transformation across the economy, Government and society through several key strategic initiatives and projects. Our objective is to take advantage of the opportunities presented

by the Fourth Industrial Revolution and move the country towards the Knowledge-Based Economy, without leaving anyone behind. The SmartBots has four focus areas: First, connect the country and include all Botswana to build an internal market; Secondly, co-create data-driven products and services that leverage on digital technologies; Third, prioritise and invest in ideas and compete in global markets; and Fourth, building a knowledge workforce that has the knowledge and tools to compete.

Mr Chair, in 2021, we launched the Grand Challenges Botswana, a new programme to fund innovations to accelerate progress towards achieving Botswana's national development priorities and economic transformation. This is a five-year implementation plan in which we target supporting key projects that will scale commercially, locally and regionally, building a portfolio with potential to create jobs. The calls for submissions are in alignment with Botswana's national digital transformation initiatives and aims to identify locally developed solutions that demonstrate the use of relevant emerging and Fourth Industrial Revolution related technologies.

Industry 4.0 requires new technologies and knowledge, which can only be achieved through improving tertiary education system to be able to meet the demands for diversification and upgradation of the Industry. In this regard, my Ministry is also playing an important role in creating a digital transformation in the country strategy as well as working towards a SMART Botswana.

We are continuing to develop human capital and STEM skills as well as deepen the R&D base. The Human Resource Development Council has been set up to guide with the priority skills in this regard. Establishing University - Industry collaborations to meet the challenges of a knowledge-based economy, Botswana's key stakeholders such as Special Economic Zones Authority, Botswana Institute for Technology Research and Innovation (BITRI), Botswana Innovation Hub, Botswana Vaccine Institute, as well as Universities, should work together for synergy.

Mr Chair, Funding is key in facilitating this transformation, especially in research and innovation and thus has to be prioritised. The Botswana Innovation Fund and other funders and sponsors will help influence the direction of development and innovation to facilitate this transformation. Strengthening R&D management and coordination, improving indicators for Science Technology and Innovation, promote digitalization of the country, and supporting technology adoption and development are key essentials in the process. Equally important for this shift to take place is raising public awareness especially reversing the perception that the coming of robots will replace jobs, but rather making humans and robots work as a team and creating even more new jobs. Such awareness raising is also crucial for career guidance.

The key is to design deliberate policies to mitigate and control natural inequality that will favour the resourced, urban, highly skilled and male. Such could be focus on skilling across the divide, implementing special-purpose empowerment vehicles for those likely to be left behind. But at country level, it calls for provision of the necessary and accessible digital infrastructure, in terms of cost and ease of use.

Mr Chair, as highlighted in the Report of the Secretary General, international cooperation is essential for supporting developing countries in building their capacities to properly identify ways to harness Industry 4.0 aligned with national development objectives and the SDGs, formulate coherent policies, and design appropriate policy instruments to promote Industry 4.0.

Most of what we have done as a Government are at concept or small scale prototypes. What is needed is funding and collaborations internationally to scale. In this regard, the CSTD can play a pivotal role in disseminating knowledge and best practices, establishing partnerships and sharing knowledge on success stories in various development contexts for the benefit of all Member States.

International collaboration provides opportunities for technological and resource sharing to help scale what has been Botswana developed in the industry 4.0 space. International cooperation is

also needed to help lay the necessary physical, digital infrastructure upon which the digital economy depends. In addition, skilling of citizens and handholding in this emergent industry and the support for it to deploy industry 4.0 technologies will be key to successful adoption and catch up that the country must do.

Mr Chair, I believe that the current national strategic masterplan, Vision 2036, which aims to use ICT as a transformational tool towards creating a knowledge-based society will then be automatically achieved in promotion of implementation of Industry 4.0.

I thank you for your attention.