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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

Science and technology for development

Report on the intersessional panel meeting

Virtual meeting

18–22 January 2021

Prepared by the UNCTAD secretariat*

* This report summarizes the intersessional panel's discussions. The findings, interpretations and conclusions expressed herein are those of the author(s) and do not necessarily reflect the views of the United Nations or its officials or Member States.

I. Introduction

1. At its twenty-third session¹ in June 2020, the Commission on Science and Technology for Development selected the following substantive themes for its 2020–2021 intersessional period:

(a) Using science, technology and innovation to close the gap on Sustainable Development Goal 3, on good health and well-being;

(b) Harnessing blockchain for sustainable development: prospects and challenges;

(c) 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.

2. To help address these themes, the Commission on Science and Technology for Development secretariat organized a virtual intersessional panel meeting from 18 to 22 January 2021. The aim of the meeting was to examine in depth various issues related to the substantive themes, with a view to contributing to considerations by the Commission on Science and Technology for Development at its twenty-fourth session from 17 to 21 May 2021.

II. Organization of work

3. The meeting was attended by Member States of the Commission on Science and Technology for Development and representatives of international organizations, civil society and the technical and academic community, as well as other observers. The documentation for the meeting included the issues papers prepared by the Commission on Science and Technology for Development secretariat with inputs from Member States of the Commission on Science and Technology for Development and relevant international organizations, and presentations and written comments submitted by participants.²

III. Opening

4. The meeting was opened by the Director of the United Nations Conference on Trade and Development (UNCTAD) Division on Technology and Logistics and Head of the Commission on Science and Technology for Development secretariat.³ She thanked Member States for contributing to the two themes of the secretariat's issues papers and elaborated on the recent efforts of UNCTAD in supporting developing countries to harness science, technology and innovation, and information and communication technologies (ICTs) in the fight against the coronavirus disease of 2019 (COVID-19) pandemic. Efforts included the policy analysis developed in the forthcoming *Technology and Innovation Report*, progress in the science, technology and innovation policy reviews for the Dominican Republic, Ethiopia, Uganda and Zambia, developments in a new project on technology assessment in Africa and contributions to the Tech Access Partnership led by the United Nations Technology Bank. She also updated participants on the work of UNCTAD in the area of ICT policy. She underscored the importance of multilateral cooperation.

5. In her keynote speech, the Deputy Secretary-General of UNCTAD⁴ highlighted the great potential of frontier technologies to address health issues and accelerate progress towards Sustainable Development Goal 3. She noted that people saw the virtues of science

¹ Owing to the COVID-19 pandemic and limitations on in-person meetings and international travel, the twenty-third session of the Commission on Science and Technology for Development was held as an informal virtual meeting.

² See <https://unctad.org/meeting/cstd-2020-2021-inter-sessional-panel>.

³ Ms. Shamika Sirimanne, UNCTAD.

⁴ Ms. Isabelle Durant, UNCTAD.

materializing before their eyes after the outbreak of COVID-19, and more than 120 countries had national policies on digital health. She raised the issue of equity and access for all regarding the development of vaccines against COVID-19, as the world was faced with a challenge of ensuring that COVID-19 vaccines reached people in every country. Turning to the second theme, the Deputy Secretary-General noted that the key feature of blockchain solutions was that they could reduce transactional complexity and could increase financial inclusion. However, several challenges, including the high energy consumption of blockchain technology and privacy concerns for individuals, needed to be overcome to ensure that blockchain contributed to sustainable development. She concluded by emphasizing the importance of international collaboration to realize the potential of science, technology, and innovation in the pursuit of the Sustainable Development Goals, as neither the coronavirus nor climate change recognize borders and, hence, could not be combated without global collaboration and solutions.

IV. Theme 1: Using science, technology and innovation to close the gap on Sustainable Development Goal 3, on good health and well-being

6. The theme was discussed through a panel discussion session and a dedicated interactive discussion session.

A. Panel discussions

7. The secretariat of the Commission on Science and Technology for Development⁵ presented an issues paper on the theme, which analysed, through concrete cases, the significant contribution that the whole spectrum of science, technology and innovation could make towards the achievement of Sustainable Development Goal 3. The paper highlighted applications of science, technology and innovation, including frontier technologies, in three major areas: primary health care, poverty-related diseases, and health emergencies and infectious diseases. Attention was drawn to the key constraints and policy options at the national level to harness innovation for Sustainable Development Goal 3. Finally, some suggestions were presented on how global cooperation could strengthen national health innovation ecosystems and more equitably share the benefits of health technologies.

8. The panel discussion was moderated by the Chair of the Commission on Science and Technology for Development.⁶ The first speaker⁷ drew attention to the three big questions about vaccine development. They related to the efficacy of a vaccine, the capacity of a country in making a vaccine and the effective and fair use of a vaccine. The speaker highlighted the remarkable speed of development of COVID-19 vaccines and related initiatives concerning the global deployment of vaccines, including the COVID-19 Vaccine Global Access (COVAX) Facility, which was organized by the Coalition for Epidemic Preparedness Innovations, the Vaccine Alliance and the World Health Organization and supported by 189 countries, with the aim of alleviating the burden of the disease uniformly across the world. He illustrated the equity gap using the example of the rotavirus vaccine and stated that, if the equity gap widened, it would not end the pandemic. The speaker addressed the need for ensuring vaccine supply and demand through national vaccination programmes and explained how the International Vaccine Institute could assist at each stage of the process. Specifically, for COVID-19, the International Vaccine Institute had helped other institutions in clinical trials and assays, assisted them in developing international serum standards and provided them with preclinical support. In so doing, the International Vaccine Institute aimed at acquiring a technology, transferring it to companies around the world and using it for global health purposes.

⁵ Mr. Bob Bell Junior, UNCTAD.

⁶ Mr. Peter Major, Hungary.

⁷ Mr. Jerome H. Kim, Director General, International Vaccine Institute.

9. The second speaker⁸ stressed that, while innovation was a critical component of solutions to addressing the health and economic consequences of the COVID-19 pandemic, innovation should be conceived in a broader sense, including both technological and non-technological aspects. Examples of non-technological innovation include community-based innovations. African communities had responded to the pandemic with non-technological innovations by the informal sector, such as the production of masks and other protective gear using African fabrics; the development of handwashing stations; community support groups for women to provide both physical and mental support; and the development and use of alternative medicines. The speaker underlined different forms of innovation in rural health systems, including herbal medicines and traditional healers. She reiterated that there was a need to adopt a much broader understanding of innovative solutions to ensure the interconnectedness of the formal and informal sectors, and that digital technologies could facilitate data sharing among different sectors.

10. The third speaker⁹ highlighted the three themes where the World Health Organization had focused with respect to science, technology and innovation. The first theme was space science and technology for health, including epidemic intelligence, health emergencies and the research agenda. The World Health Organization had worked with the Japanese and European space agencies to retrieve real-time data and address challenges in the health area. Second, the World Health Organization had worked in the field of artificial intelligence and health and was collaborating with the International Telecommunication Union to establish a focus group on artificial intelligence for health. The third theme highlighted by the speaker was the development of national, large-scale integrated information systems for health. This was crucial, as COVID-19 demonstrated that many health-care systems did not have integrated data which had raised issues, especially when addressing comorbidities in patients.

11. The last panellist¹⁰ discussed cross-national disparities in research and development expenditures. At the beginning of the twenty-first century, developing countries contributed only 6 per cent of global research and development. Currently, that had increased to 38 per cent, 23 per cent of which was from China, the country that had experienced impressive growth in the last few decades. Additionally, the speaker explained that innovation was not just limited to research and development. An important aspect of innovation was the acquisition and ease of transfer of technology. The panellist provided several policy options, including rethinking the model of research and development to ensure that technology and manufacturing capacities became a public good and were accessible to all, particularly to developing countries. He stressed the need to reimagine COVID-19 technologies as global public goods.

12. In interacting with the panellists, one delegate from Nepal highlighted the need to use science, technology and innovation to respond to a pandemic such as the COVID-19. He cited the example of Nepal, which, despite being a least developed country, was making continuous efforts to provide adequate health care to preserve the fundamental right to health. However, the country faced challenges that included lack of finances, infrastructure and persistence of a stark digital divide. The delegate emphasized that those challenges were applicable to all least developed countries.

13. In response to a question, the panellist from the International Vaccine Institute provided recommendations on dealing with “vaccine hesitancy”, namely, to lead the public with science and facts; to ensure the scientific community communicated in a way that was understandable by the public; and to raise awareness about vaccines as a societal contribution, including through public appearances by politicians, actors and other influencers. The panellist from the World Health Organization added that there should be a “national readiness framework” to assess the readiness of the health workforce, infrastructure, environment and finances of a country. That would enable countries to know

⁸ Ms. Erika Kraemer-Mbula, Professor of Economics, University of Johannesburg, South Africa.

⁹ Mr. Ramesh Krishnamurthy, Senior Adviser, Division of Data, Analytics and Delivery for Impact, World Health Organization.

¹⁰ Mr. Carlos Correa, Executive Director, South Centre.

where they stood and to work towards ensuring better access and equitable use of technologies in health care.

B. Dedicated interactive discussions

14. The dedicated interactive discussion was moderated by a Vice-Chair of the Commission on Science and Technology for Development.¹¹ Delegates and participants exchanged examples of effective international collaboration in science, technology and innovation for health. Examples offered by delegates included how science, technology and innovation were being applied in their respective countries.

15. In Latvia, the Philippines, South Africa, Thailand and the United Kingdom of Great Britain and Northern Ireland, the applications of science, technology and innovation ranged from use of digital technologies and telemedicine and novel development of COVID-19 diagnostics, therapeutics and contact-tracing applications, to research projects in non-communicable, infectious and rare diseases, cancers, forensic and other areas. Participants affirmed that whole-of-the government collaboration and private–public partnerships were crucial to ensure science, technology and innovation policies were consistent with national health priorities and development plans.

16. Representatives from international agencies drew attention to the need for early warning systems that could better understand so-called “cascading risks” and discussed international platforms related to the priority theme. Finally, participants highlighted the different impact of the pandemic for men and women and discussed the importance of considering diverse perspectives for more effective use of science, technology and innovation, and especially frontier technologies, in ensuring good health and well-being.

V. Theme 2: Harnessing blockchain for sustainable development: prospects and challenges

17. The theme was discussed through a panel discussion session and a dedicated interactive discussion session.

A. Panel discussions

18. The secretariat of the Commission on Science and Technology for Development¹² presented the issues paper on the second theme. The paper highlighted the great potential of blockchain to contribute to sustainable development. Currently, blockchain innovation was mainly used in financial applications, which were largely dissociated from the real economy and seemed to aim at extracting rents through financial intermediation and speculative gains in cryptoassets. That, combined with the lack of regulation and the fast pace of innovation, could lead to financial bubbles and bursts. At the same time, blockchain was potentially a key technology in a new technological paradigm of increasing automation and integration of physical and virtual worlds, along with technologies such as artificial intelligence, robotics and gene editing. Similar moments in past technological revolutions offered windows of opportunity for some developing countries to catch up, and others to forge ahead. Therefore, Governments of developing countries should seek to strengthen their innovation systems to guide the blockchain innovation towards inclusive and sustainable solutions and strategically position themselves to benefit from the new wave of technological change.

19. The panel was moderated by a Vice-Chair of Commission on Science and Technology for Development.¹³ The first speaker¹⁴ highlighted several existing and

¹¹ Mr. Kekgonne Baipoledi, Vice-Chair of the Commission on Science and Technology for Development.

¹² Mr. Clovis Freire Junior, UNCTAD.

¹³ Mr. A Min Tjoa, Austria.

potential applications using blockchain technologies, including those supported by the Ethereum Foundation. For example, the Cryptocurrency Fund of the United Nations Children's Fund, the first blockchain-enabled financial vehicle for the United Nations to receive, hold and disburse cryptocurrencies, testified as to how blockchain could increase transparency and accountability in transactions and generate savings in transaction time and fees, compared to traditional wire transfers. Another application provided solutions to Governments, such as digital certification. Government-issued documents, such as birth certificates, passports, visas, licences and land titles, could be verified and shared securely using blockchain. The third case presented was blockchain in decentralized weather-index crop insurance for smallholder farmers in Kenya. The speaker noted that the Ethereum Foundation supported the use of blockchain, including through ecosystem support and local grant and fellowship programmes.

20. The second speaker¹⁵ described the fast-growing development of the blockchain ecosystem and deployment of the technology in African countries. A combination of factors, such as mobile penetration, young demographics and infrastructure investments, served as a strong basis for adopting digital currencies and blockchain in Africa. Young African entrepreneurs had been active players in promoting the growth of the blockchain ecosystem in Africa. There were 1.4 million people holding cryptocurrency and 400 million people online in Africa. Blockchain-enabled services, such as decentralized finance had boundless prospects in Africa, promoting liquidity to individuals and businesses and driving economic prosperity. Many countries were developing a regulatory framework for blockchain.

21. The third speaker¹⁶ emphasized that blockchain technology had the potential to support the implementation of Sustainable Development Goal 16, by increasing transparency. A well-designed blockchain could bring information from multiple sources and made corruption more difficult, albeit not impossible. However, there were challenges to overcome in order to take full advantage of blockchain technology. First, blockchain did not guarantee the quality of the information entered. Ideally, it was paired with reliable sensors (which might be expensive) or reliable institutions. Second, blockchain did not solve deficiency or insufficiency in institutions, such as lack of property rights enforcement. Third, blockchains were more costly to maintain than centralized databases. Unless those challenges were managed, the potential of the technology might not be fully realized.

22. The last speaker¹⁷ shared the European Union's approach to blockchain innovation, its initiatives and infrastructure. The European Union had established the European Blockchain Partnership and the European Blockchain Services Infrastructure as part of the European Union blockchain strategies. It was actively engaged in regional and international initiatives (for example, the International Association for Trusted Blockchain Applications) that brought together stakeholders committed to promoting interoperability, transparent governance, legal certainty and trust in services enabled by blockchain. Regulatory sandboxes were being implemented within the European Union, which would help to live test the deployment of innovative blockchain solutions in line with European Union standards and values. The European Union was exploring the sustainability and carbon footprint of blockchain solutions and related policy measures.

23. In the ensuing interaction with panellists, participants noted the regulatory aspects connected to blockchain, for example, the use of European digital signature versus an individual's autonomy to choose the appropriate tool; potential disruptions, privacy and security issues; and the notion of trust. Participants expressed concerns on the possible negative consequences of the digital divide on deploying blockchain solutions for

¹⁴ Ms. Aya Miyaguchi, Head of the Ethereum Foundation.

¹⁵ Mr. Yele Bademosi, Chief Executive Officer, Bundle Africa, and Founding Partner, Microtraction.

¹⁶ Ms. Hanna Halaburda, Associate Professor of Technology, Operations and Statistics, Stern School of Business, New York University.

¹⁷ Mr. Pēteris Zilgalvis, Head of Unit, Digital Innovation and Blockchain, Digital Single Market Directorate, Directorate General Communications Networks, Content and Technology/Co-Chair, FinTech Task Force, European Commission.

sustainable development. The panellists offered their ideas of what could be a so-called “killer application” for blockchain. The ideas included decentralized finance applications for financial inclusion in Africa (for example, credit assessments and applying for loans); a digital euro in the European Union; applications for smart contracts, supply chains and document storing; and multilateral governance and collaboration. At the same time, the panellists stressed that technology itself was not the sole or automatic solution to poverty and other social and economic problems. Technology could help but could also have unintended consequences. Governments thus needed to adopt and implement appropriate policies and regulations to address such unintended consequences.

B. Dedicated interactive discussions

24. The dedicated interactive session was moderated by a Vice-Chair of the Commission.¹⁸

25. Participants shared national and international experiences in implementing blockchain projects.

26. In the United Kingdom, the Foreign and Commonwealth Office had launched a frontier technology program to test new technologies and innovative approaches. United Kingdom Aid had launched a pilot to test whether blockchain could address transparency, speed, efficiency and the risk of mismanagement of aid funding across the financial supply chain. Another pilot project in the United Kingdom was testing whether the use of a private blockchain platforms provided immutable proof of supplies passing between actors in the humanitarian supply chain.

27. Thailand had witnessed a fast-growing blockchain market, especially in the banking and finance industries, and the Government planned to create a digital currency. The Government of Thailand was working closely with other stakeholders to test the economic and technical feasibility of cryptocurrencies and to establish a regulatory framework. The Bank of Thailand had initiated a sandbox programme to use blockchain technology for the country’s banking and finance industry. The Government also launched a digital identity project based on blockchain to develop a national identification platform. It was further exploring the use of blockchain to enhance security, track payments to detect fraud and in the areas of copyright, trade finance and education.

28. At international level, the International Telecommunication Union had issued blockchain standards on adopting the technology, providing potential blockchain adopters with a clear view of this new technology and how to apply it. In 2019, the Focus Group Application of Distributed Ledger Technology of the International Telecommunication Union issued a guideline on the adoption of blockchain. The International Telecommunication Union was also working on the recommendations for blockchain as a service, such as cloud computing. Blockchain was related to action line C5 of the World Summit on the Information Society, building confidence and security in the use of ICTs. Twelve projects submitted to the World Summit on the Information Society 2020 used blockchain to make economic social and environmental impacts; six of them were nominated for the annual reward, and two were awarded as the best examples of using blockchain technology.

29. During the discussion, participants highlighted the critical role of public–private partnerships in designing blockchain solutions and creating a supportive environment for start-ups to innovate both for the public and private sectors, including through capital investment, incubators and accelerators.

30. Some participants suggested some issues for which the secretariat of the Commission on Science and Technology for Development could undertake more in-depth analysis, including practical applications of blockchain for sustainable development; blockchain to support humanitarian supply chains; and lessons learned from country cases in applying the blockchain. One delegate suggested not to focus much on the development

¹⁸ Mr. A Min Tjoa, Austria.

of the blockchain technology per se, but rather on the impact of blockchain on development. Another participant suggested that the Commission on Science and Technology for Development should provide blockchain guidelines as part of a digital transformation strategy, disseminate blockchain use cases and knowledge and facilitate regional and international partnerships for blockchain innovation and ecosystem development.

31. The moderator reminded participants to pay attention to the potential unintended consequences of blockchain applications. The point was echoed by one delegate, who underlined the concerns around blockchain's privacy, security and energy efficiency, and the need for multilateral and global cooperation, including to close the digital divide within and among countries. He underscored that blockchain and its variants were still uncharted space, and exploration of the technology had initially been decoupled from the "real" economy.

VI. 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

32. This panel discussion was moderated by the Chair of the Commission on Science and Technology for Development.¹⁹ Participants discussed the implementation and follow-up of World Summit on the Information Society outcomes during 2020 in several respects, including ongoing and new challenges, achievements and activities in World Summit on the Information Society forums and conferences. Most speakers commented on the significant impacts that countries had experienced because of the COVID-19 pandemic.

33. The first speaker²⁰ highlighted the positive role played across the world by digital technologies in helping countries to adjust to life under the huge challenges presented by the COVID-19 pandemic, a key incident of 2020. Digital technologies had played a role in developing vaccines and in test and trace systems. They had strengthened the resilience of countries to pandemics by enabling people to work from home, commerce to continue digitally via electronic commerce and education to shift online, along with continued social interaction. But those were unequally available across countries and people, with large digital divides, particularly in respect of Internet access and digital equipment, which had been persistent since the start of the World Summit on the Information Society. There have been challenges, including the so-called "infodemic" of misinformation about COVID-19, issues related to data privacy, data protection and cybersecurity, and concerns about the dominance of new digital platforms and the downsides of artificial intelligence and big data. An important development in 2020 for the World Summit on the Information Society was the United Nations Secretary-General's road map for digital cooperation. Cooperation was always central to implementing the World Summit on the Information Society, and likewise for achieving the Sustainable Development Goals. The road map acknowledged the need for digital governance to respond to changes in the nature of the digital environment since the World Summit on the Information Society, including the rise of digital platforms and big data corporations, the challenges of data privacy and digital identity, the risks associated with surveillance, harassment and disinformation, and the new challenges posed by artificial intelligence and frontier technologies. It also recognized the importance of capacity-building, human rights and trust and security in online systems. Progress in World Summit on the Information Society implementation would be measured by how far digitalization had created opportunity for all, enabled prosperity, protected people from harm, built upon digital cooperation between countries, stakeholders and development sectors and enabled society to recover from the pandemic.

34. The second speaker²¹ provided an update regarding World Summit on the Information Society outcomes from the World Summit on the Information Society Forum

¹⁹ Mr. Peter Major, Hungary.

²⁰ Mr. David Souter, ICT Development Associates.

²¹ Mr. Catalin Marinescu, International Telecommunication Union.

2020, the implementation of World Summit on the Information Society outcomes and the United Nations Group on the Information Society, as well as the plans and preparation process for the World Summit on the Information Society Forum 2021. The World Summit on the Information Society Forum 2020 was conducted as a digital meeting for the first time and held over 12 weeks. The United Nations Group on the Information Society developed a digital transformation repository of projects by the Group's members, showing the direct impact of World Summit on the Information Society action lines on the Sustainable Development Goals, and held a dialogue on the role of digitalization in the decade of action and a side event at the United Nations high-level political forum in 2020. The World Summit on the Information Society Forum 2021 would take place starting in January 2021 and conclude during the week of 17 to 21 May 2021. The Forum would be composed of several special tracks including a Forum track, a high-level track and special tracks on ICTs and youth, older persons, accessibility for persons with disabilities, gender, sports and cybersecurity.

35. The third speaker²² showcased an initiative which supported technical education for students and teachers in information technology and media skills in deprived areas of the Plurinational State of Bolivia. The programme was designed to reduce the digital gap, especially for women, and improve opportunities for school students, supporting Sustainable Development Goals 4 and 5. It focused especially on the training of girls and women, representing 72 per cent of all trainees, to empower them. The initiative included subjects such as scratch programming, educational robotics, 3-D printer management and computer maintenance. The programme paid for labs, installed computers and trained teachers. The programme suspended training in 2020 when the COVID-19 pandemic started, then adopted training via a digital platform. Despite a consequent reduction in the number of trainees, the online approach, nevertheless, allowed training to continue. The impact of the programme on trainees was highly visible in terms of increased female participation in technical training and the workforce, an increased level of parent involvement in the programme, increased family income and the higher level of confidence of many trainees, especially young girls, who attained new skills.

36. The fourth speaker²³ presented information regarding the Internet Governance Forum's activities and outputs in 2020 and an update on plans for 2021. In 2020, Internet Governance Forum activities were conducted in a virtual format due to the pandemic. The 2020 Internet Governance Forum had four main themes on the social, health, economic and environmental implications of emergencies. Over 20 agencies contributed to the Forum, with significant social media outreach involving more than 20 million users. The 2021 Internet Governance Forum would be held from 6 to 10 December in Poland. During the Forum, the United Nations Secretary-General's road map for digital cooperation, which included Internet issues, would be looked at closely. The Internet Governance Forum would also have a midterm review of its mandate during 2021, the midpoint of its third mandate, covering 2015 through 2025.

37. During the interactive discussions, several delegates and participants commented on the important role of ICTs in achieving sustainable development and the Sustainable Development Goals. One participant provided an overview of work under way to update the 2011 UNCTAD publication *Applying a Gender Lens to Science, Technology and Innovation*, which discussed, among other issues, the impacts of frontier technologies and digitalization on women. Another participant commented that digitization should be put at the service of all people and supported work in the Internet Governance Forum on digitization and the environment, including the establishment of a policy network on the issue.

38. One delegate suggested that the Commission on Science and Technology for Development, with the support of other relevant United Nations agencies, should prepare a study on harnessing science, technology and innovation for addressing the COVID-19 crisis and achieving the Sustainable Development Goals. Another delegate commented that the next annual session of the Commission on Science and Technology for Development

²² Ms. Sylvia Ortega Azurduy, Ayni Bolivia.

²³ Mr. Chengetai Masango, Head, Internet Governance Forum secretariat.

should include a clear and holistic analysis of how the recommendations of the report of the United Nations High-Level Panel on Digital Cooperation could be implemented in alignment with the World Summit on the Information Society outcomes. The Commission on Science and Technology for Development should also consider how to implement the World Summit on the Information Society agenda on enhanced cooperation. Another delegate suggested that the next session of the Commission on Science and Technology for Development should consider how to overcome the digital divide by providing affordable Internet connectivity, as the World Summit on the Information Society remained an important platform for the discussion of such issues. The next session could further consider the impacts of COVID-19 on World Summit on the Information Society outcomes, bringing together some of the learning and experiences from across the world.

39. It was also suggested by a delegate that the next session of the Commission on Science and Technology for Development could consider including a catalogue, report or summary of related ongoing discussions in other forums on World Summit on the Information Society outcomes, including cybersecurity, cybercrime, artificial intelligence and security (particularly autonomous weapons).

VII. Findings and suggestions

40. The following findings and suggestions on the two priority themes were highlighted at the panel meeting and put forward for consideration by the Commission on Science and Technology for Development at its twenty-fourth session.

A. Using science, technology and innovation to close the gap on Sustainable Development Goal 3, on good health and well-being

1. Main findings

41. Science, technology and innovation make a significant contribution to the achievement of Sustainable Development Goal 3, to “ensure healthy lives and promote well-being for all at all ages”. Discussions focused on three main areas: primary health care, poverty-related diseases and infectious disease outbreaks. Science, technology and innovation include not only scientific and technical innovations, but also well-established “low-technology” solutions and organizational and social innovations applied in health care. New technological developments in artificial intelligence, digital health, gene editing and other areas can advance our efforts in achieving Goal 3. However, these new technologies also raise critical concerns about privacy, security, accuracy of artificial intelligence in health care and the digital divide. The effective application of frontier or well-established science, technology and innovation tools in health care requires national capacities for health-care innovation. Key areas of policy consideration include investments in research, human capital and infrastructure, support for commercialization of research and development and a whole-of-government and multisectoral approach. Science, technology and innovation for global health requires global partnerships to support national actions and international efforts in combating disease. Key areas for consideration include supporting national innovation ecosystems, improving the accessibility of health innovations and building and strengthening multilateral and multi-stakeholder platforms for cooperation, knowledge sharing and standards-setting.

2. Suggestions

42. Member States may wish to consider the following courses of action:

(a) Strengthen innovation systems for health by investing in infrastructure, institutions and human capital, and make innovation systems an integral part of long-term building back better strategies;

(b) Provide support to firms in turning research and development into health-care products and services and in commercializing these products and services;

(c) Encourage a whole-of-government and multisectoral approach to ensure that science, technology and innovation policies are consistent with national health priorities and development plans;

(d) Consider a broader approach to innovation policy for health that includes socioeconomic characteristics, knowledge flows (for example, among formal and informal institutions), linkages and capabilities;

(e) Support and strengthen health information systems for knowledge sharing within and across government and other sectors;

(f) Develop national readiness frameworks that incorporate science, technology and innovation and ICT as part of efforts to address health emergencies, as well as early warning systems to detect health emergencies.

43. The international community may wish to consider the following suggestions:

(a) Support countries' efforts in developing national health innovation ecosystems, including building national capacities for digital technologies for health care;

(b) Work towards more equitable access to scientific knowledge and technologies;

(c) Continue to shape scientific networks and research and development for health-care innovation, including by supporting developing countries' participation in regional and global health research networks;

(d) Promote North–South, South–South and triangular cooperation on science, technology and innovation for health through joint research programmes and the creation of new knowledge and technologies for local needs;

(e) Establish a framework for collaborative research and development by diverse specialists in veterinary medicine, medicine, agriculture, natural science, information science, social science and education of animal diseases to detect global health emergencies.

44. The intersessional panel encourages the Commission to take the following courses of action:

(a) Support multi-stakeholder collaboration, including North–South, South–South and triangular cooperation, in policy learning and capacity-building in research and technology development;

(b) Share best practices and lessons learned on the formulation of science, technology and innovation policies and strategies for health-care innovation, and the utilization of science, technology and data for health-related applications.

B. Harnessing blockchain for sustainable development: prospects and challenges

1. Main findings

45. Blockchain can contribute to sustainable development, but, currently, most innovation has focused on financial applications and speculative gains in cryptoassets, instead of creating real value. Blockchain is potentially a key technology in a new technological paradigm of increasing automation and integration of physical and virtual worlds, together with technologies such as artificial intelligence, robots and gene editing. All stakeholders should seek to strengthen national and international blockchain innovation systems to guide innovation towards inclusive and sustainable solutions and to strategically position developing countries to benefit from this new wave of technological change.

2. Suggestions

46. Member States may wish to consider the following courses of action:

- (a) Develop national blockchain innovation strategies to give the policy direction for the development of national blockchain innovation systems;
- (b) Continue the development of digital infrastructure and skills;
- (c) Encourage innovation and create opportunities for skills development to kick-start the diffusion of blockchain;
- (d) Connect the domestic to the global ecosystem of innovation, including through incubators and networks;
- (e) Develop legal and policy frameworks so the real economy benefit from blockchain, while minimizing its risks and protecting users.

47. The international community may wish to consider the following suggestions:

- (a) Strengthen research cooperation and science–policy interfaces to ensure that blockchain technology is harnessed for inclusiveness and sustainability;
- (b) Compile, analyse and disseminate information on the use of blockchain for Sustainable Development Goal solutions, to raise awareness and inform the application of blockchain for sustainable development;
- (c) Promote the development of standards, recommendations and regulations on blockchain, to harness its potential, including promoting privacy and security;
- (d) Promote international best practices, international guidelines and legal frameworks governing blockchain;
- (e) Develop training programmes for countries and institutions planning to implement blockchain-related solutions to provide them with relevant information about the technology’s capabilities and limitations;
- (f) Implement knowledge sharing programmes between ecosystem actors from developed and developing countries;
- (g) Support Governments with decision-making tools to increase the preparedness to adopt and adapt new technologies.
- (h) Continue exploring the use of blockchain in technological solutions to address the Sustainable Development Goals;
- (i) Promote inclusive debate on blockchain technology for the Sustainable Development Goals; developing countries, especially least developed countries, not engaged in the development of frontier technologies but likely to be affected by their consequences, need to be part of the international debate on blockchain and the Sustainable Development Goals.

48. The intersessional panel encourages the Commission to take the following courses of action:

- (a) Share experiences on national strategies for harnessing blockchain for sustainable development;
- (b) Compile and share examples on the use of blockchain technology for sustainable development;
- (c) Facilitate regional and international partnerships for blockchain innovation and ecosystem development;
- (d) Develop synergies between the efforts by United Nations entities on blockchain for inclusive and sustainable development applications.