

**Human Rights Council****Forty-ninth session**

28 February–1 April 2022

Agenda item 3

**Promotion and protection of all human rights, civil,
political, economic, social and cultural rights,
including the right to development****Rights of persons with disabilities****Report of the Special Rapporteur on the rights of persons with
disabilities***Summary*

The present report is submitted to the Human Rights Council pursuant to Council resolution 44/10 by the Special Rapporteur on the rights of persons with disabilities, Gerard Quinn. It provides an overview of the activities undertaken in 2021 and contains a thematic study on artificial intelligence and the rights of persons with disabilities.

The world is undergoing unprecedented and rapid growth in the use by States of artificial intelligence, automated decision-making and machine-learning technologies. These new technologies can be of enormous benefit to persons with disabilities and drive the search for inclusive equality across a broad range of fields such as employment, education and independent living. However, there are many well-known discriminatory impacts. While there is a growing awareness of the broad human rights challenges that these new technologies can pose, a more focused debate on the specific challenges of such technology to the rights of persons with disabilities is urgently needed. In his thematic study, the Special Rapporteur intends to initiate and inform such a debate. In it, he describes the risks that this technology constitutes to the enjoyment of the human rights of persons with disabilities, as provided by the Convention on the Rights of Persons with Disabilities. He maintains that the human rights of persons with disabilities should be placed at the centre of the debate about these technologies. Once these risks are addressed, then the practical benefits of artificial intelligence might be realized. To that end, practical recommendations as to how this can be achieved are set out in the final section of the report.



Contents

| | <i>Page</i> |
|--|-------------|
| I. Introduction | 3 |
| II. Activities of the Special Rapporteur | 3 |
| A. Country visits..... | 3 |
| B. Consultations, meetings and engagement with stakeholders | 3 |
| C. Communications | 4 |
| III. Artificial intelligence and the rights of persons with disabilities | 4 |
| A. The nature of artificial intelligence..... | 7 |
| B. General impacts of artificial intelligence on persons with disabilities..... | 8 |
| C. Key rights and obligations of the Convention on the Rights of Persons with Disabilities that apply to the development and use of artificial intelligence..... | 10 |
| D. Discriminatory applications of artificial intelligence to persons with disabilities | 15 |
| IV. Conclusions and recommendations | 17 |
| A. Conclusions | 17 |
| B. Recommendations..... | 18 |

I. Introduction

1. The present report is submitted by the Special Rapporteur on the rights of persons with disabilities, Gerard Quinn, to the Human Rights Council pursuant to its resolution 44/10. It describes the activities undertaken by the mandate in 2021 and contains a thematic study on artificial intelligence and the rights of persons with disabilities.
2. In preparing the study, the Special Rapporteur analysed the responses to a questionnaire addressed to Member States, national human rights institutions, agencies of the United Nations system, civil society organizations, businesses and persons with disabilities and their representative organizations. The Special Rapporteur received a total of 35 contributions and wishes to express his gratitude to those who provided contributions.¹

II. Activities of the Special Rapporteur

A. Country visits

3. Owing to the coronavirus disease (COVID-19) pandemic, the Special Rapporteur did not carry out any country visits in 2020 and in 2021. The visit to Botswana, scheduled for 2021, was postponed because of the pandemic. The Special Rapporteur thanks the Government of Botswana for their cooperation and hopes to conduct the visit during his tenure.
4. The Special Rapporteur has made requests to visit the European Union and Jordan in 2022.

B. Consultations, meetings and engagement with stakeholders

5. The Special Rapporteur participated in numerous conferences and meetings, allowing him to exchange information, share good practices and raise awareness of disability-related issues. Some of the activities of 2021 are set out below.
6. In February 2021, the Special Rapporteur took part in an expert meeting on strengthening the protection of the human rights of older persons during the COVID-19 pandemic and beyond, convened by the Office of the United Nations High Commissioner for Human Rights (OHCHR) to contribute to the work of the Open-ended Working Group on Ageing. He also participated in the fifty-ninth Session of the Commission for Social Development. In March 2021, he participated in the Human Rights Council annual debate on the rights of persons with disabilities. In July 2021, the Special Rapporteur took part in the fourteenth session of the Conference of States Parties to the Convention on the Rights of Persons with Disabilities and its parallel events. In November 2021, he participated in the Human Rights Council intersessional consultation on mental health and human rights, mandated by Council resolution 43/13, and in the intersessional panel discussion organized by the Council on the right to social security in the changing world of work, held pursuant to that resolution.
7. The Special Rapporteur held consultations with regional organizations and other stakeholders. They included, inter alia, consultations to finalize the European Commission strategy for the rights of persons with disabilities 2021–2030; a public hearing of the Committee on Social Affairs, Health and Sustainable Development of the Parliamentary Assembly of the Council of Europe on deinstitutionalization of persons with disabilities; a public hearing of the Standing Committee on legal and constitutional affairs of the Senate of Canada on a bill to amend the Criminal Code (medical assistance in dying); and a public hearing of the Joint Committee on Disability Matters of the Parliament of Ireland concerning the country's progress on implementation of the Convention on the Rights of Persons with

¹ All contributions received are available on <https://www.ohchr.org/EN/Issues/Disability/SRDisabilities/Pages/HRC49-Artificial-Intelligence-Report.aspx>.

Disabilities. He also held consultations with the Victim Assistance Committee of the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction, the International Committee of the Red Cross, representatives of national human rights institutions, persons with disabilities and their representative organizations, other non-governmental organizations, academics and diplomats.

C. Communications

8. Summaries of communications sent and replies received during the period covered by this report are available in the communications reports of the special procedures (and in the public communications database of OHCHR).²

III. Artificial intelligence and the rights of persons with disabilities

9. Artificial intelligence, automated decision-making and machine-learning technologies are rapidly changing the world.³ As with previous technological revolutions, automated decision-making and machine-learning technologies are resetting the terms of human coexistence. They are deployed by both public and private actors in numerous ways, across many domains and reaching all spheres of life. Artificial intelligence has been described as humanity's biggest challenge.⁴

10. Many have commented on the liberating potential of artificial intelligence for persons with disabilities. There is no doubt that, harnessed properly and responsibly, it can advance the overall goal of "inclusive equality" in international human rights law and in particular the rights set out in the Convention on the Rights of Persons with Disabilities across numerous domains, including employment, access to commercial goods and services, the transformation of disability services, independent living and education. It could also meaningfully accelerate sustainable development, directly and indirectly benefiting persons with disabilities.⁵ If properly tailored to individual circumstances, artificial intelligence might significantly advance the search for effective reasonable accommodation for individuals with disabilities in new and perhaps dramatically more effective ways in all countries.

11. At the same time, artificial intelligence also poses acute challenges to the enjoyment of human rights. While many of those risks are shared with other groups, some are unique to persons with disabilities, or carry differentiated and disproportionate risks. There is an urgent need for a debate that considers the balance of risks and opportunities presented by artificial intelligence in the context of disability.

12. The impacts of artificial intelligence on human rights are beginning to crystallize and they form an essential backdrop to the present report. In 2021, OHCHR highlighted some profound concerns about privacy associated with artificial intelligence.⁶ The impact of artificial intelligence on the enjoyment of human rights has also been extensively examined by various special procedure mandate holders. Mandate holders who have issued thematic reports on artificial intelligence include the Special Rapporteurs on the right to development, on the right to education, on the promotion and protection of freedom of opinion and expression, on extreme poverty and human rights, on extrajudicial, summary or arbitrary

² See A/HRC/47/3 and A/HRC/48/3 and <https://spcommreports.ohchr.org/>.

³ See Klaus Schwab, "The fourth industrial revolution: what it means, how to respond" World Economic Forum, 14 January 2016.

⁴ See Henry A. Kissinger, Eric Schmidt and Daniel Huttenlocher, *The Age of AI and our Human Future* (London, John Murray Press, 2021); and Sue Halpern, "The human costs of AI", *New York Review of Books*, 21 October 2021.

⁵ See Charlotte McClain-Nhlapo and Deepti Samant Raja, "Addressing the drivers of digital technology for disability-inclusive development" in *Accessible Technology and the Developing World*, Michael Ashley Stein and Jonathan Lazar, eds. (Oxford, Oxford University Press, 2021).

⁶ See A/HRC/48/31.

executions, on contemporary forms of racism, racial discrimination, xenophobia and related intolerance, on contemporary forms of slavery, and on the right to privacy, and the Independent Expert on the enjoyment of all human rights by older persons.⁷ Some of their reports take account of the particular impact of the use of artificial intelligence on persons with disabilities. The present report builds on this valuable work.

13. The United Nations specialized agencies are also drawing attention to the balance of risks and opportunities presented by artificial intelligence. For instance, the United Nations Children’s Fund (UNICEF) has undertaken significant work to identify whether and how artificial intelligence systems are impacting children, including children with disabilities, addressing, for example, how they are being used and their impact on children at home, at school and at play, as well as the range of child rights that could be disproportionately impacted, both positively and negatively, by the use of artificial intelligence.⁸

14. The International Labour Organization (ILO) has supported a number of initiatives considering various elements of artificial intelligence and its implications for the future of work. Its study on the implications of artificial intelligence for the future of work explores the economics of artificial intelligence and how it relates to the labour market.⁹ The authors emphasize that risks in the form of increases in inequality need to be addressed if the benefits of artificial intelligence-based technological progress are to be broadly shared. In its *World Employment and Social Outlook 2021*, ILO addresses, inter alia, how platform design and algorithmic management are defining the everyday experiences of workers on digital labour platforms.¹⁰

15. The Broadband Commission for Sustainable Development, established in 2010 by the International Telecommunication Union and the United Nations Educational, Scientific and Cultural Organization (UNESCO) with the aim of boosting the importance of broadband on the international policy agenda, has highlighted the importance of persons with disabilities co-creating artificial intelligence tools to create better global health. The World Health Organization (WHO) has similarly highlighted the role that artificial intelligence can play in transforming health services., for instance in its publication on the ethics and governance of artificial intelligence for health.¹¹ In that publication, WHO points out that opportunities and risks are linked and cautions about the unethical collection and use of health data, biases encoded in algorithms and risks to patient safety, cybersecurity and the environment. It also cautions that systems trained primarily on data collected from individuals in high-income countries may not perform well for individuals in low- and middle-income settings, which is a concern given that persons with disabilities will have very different access to medical and rehabilitation interventions in countries with fewer resources. UNESCO has identified the challenges that artificial intelligence poses, recognizing the specific situation of persons with disabilities, and the recommendation on the ethics of artificial intelligence, adopted by its General Conference at its forty-first session, emphasizes the principle of non-discrimination on the basis of disability.¹² The World Bank, in recognition of the opportunities and the risks posed by artificial intelligence-enabled identification technologies, has published guidance on disability-inclusive approaches to national legal proof of identity projects where artificial intelligence technology is in use.¹³ Further, the Bank has engaged directly with stakeholders with disabilities in West Africa where such technology was being deployed, in order to understand the risks and benefits related to biometric identification technology being used in national identification projects.

⁷ See [A/HRC/42/38](#), [A/HRC/32/37](#), [A/73/348](#), [A/74/493](#), [A/HRC/29/37](#), [A/HRC/26/36](#), [A/75/590](#), [A/HRC/48/76](#), [A/HRC/42/44](#), [A/HRC/46/37](#) and [A/HRC/45/14](#).

⁸ See UC Berkeley Human Rights Center Research Team and UNICEF, *Memorandum on Artificial Intelligence and Child Rights* (April 2019).

⁹ Ekkehard Ernst, Rossana Merola and Daniel Samaan, “The economics of artificial intelligence: implications for the future of work” (2018).

¹⁰ *World Employment and Social Outlook 2021: The Role of Digital Labour Platforms in Transforming the World of Work* (Geneva, ILO, 2021).

¹¹ *Ethics and Governance of Artificial Intelligence for Health* (Geneva, WHO, 2021).

¹² Available from <https://unesdoc.unesco.org/ark:/48223/pf0000379920.page=14>.

¹³ World Bank, “Creating disability inclusive ID systems” (2020).

16. The human rights treaty bodies are also alive to the challenge of artificial intelligence. For example, in its general comment No. 25 (2020), the Committee on Economic, Social and Cultural Rights highlighted the risk of discrimination against persons with disabilities where “the products of scientific progress do not take into account their specificities and particular needs” (para. 34). The Committee emphasized the need for the participation of persons with disabilities in scientific decision-making and for ensuring that reasonable accommodation is provided for them to benefit from the products of scientific advancements.

17. Important regional initiatives are also under way to address the impact of artificial intelligence on human rights. For instance, the Council of Europe, through the work of its ad hoc Committee on Artificial Intelligence,¹⁴ is considering the drafting of a human rights treaty on the development, design and application of artificial intelligence.¹⁵ The European Commission has already published a proposal for an artificial intelligence act to regulate the use of artificial intelligence, including its discriminatory applications.¹⁶ The Economic and Social Commission for Asia and the Pacific (ESCAP)¹⁷ and the African Commission on Human and Peoples’ Rights have also started considering artificial intelligence and human rights.¹⁸

18. At the national level, many States are now introducing national artificial intelligence strategies, acknowledging the ethical and, in some instances, human rights challenges of artificial intelligence. National human rights institutions have begun to highlight the balance of human rights risks and opportunities posed by artificial intelligence systems and their use. Some have explicitly referenced disability rights concerns, including the Australian Human Rights Commission,¹⁹ Equinet²⁰ and the German Federal Anti-Discrimination Agency.²¹

19. Notwithstanding this explosion of general interest, there has been little detailed assessment of the direct benefits and potential harms of artificial intelligence for the world’s approximately 1 billion persons with disabilities. That is a major gap. Now is the moment to bridge that gap by initiating an informed debate among States, human rights experts, organizations of persons with disabilities and civil society and private actors to place the rights of persons with disabilities at the core of artificial intelligence development.

20. The rights and core norms of the Convention on the Rights of Persons with Disabilities form the basic yardsticks by which to assess the risks and opportunities presented by artificial intelligence. The relevant rights and corollary obligations include, among others, privacy, autonomy, independent living, employment, education, health and in particular the overall guarantee of equality and non-discrimination. The Sustainable Development Goals reinforce the provisions of the Convention. Goal 10 in particular echoes the equal treatment foundation of the Convention and aims to create a society in which persons with disabilities enjoy their lives free from discrimination. The High-level Panel on Digital Cooperation has emphasized the need to ensure that digital technologies are harnessed to promote the Sustainable Development Goals.²² Persons with disabilities - so often the farthest left behind - will simply have no chance to catch up unless the technology is properly harnessed.

¹⁴ See <https://www.coe.int/web/artificial-intelligence/cahai>.

¹⁵ See Council of Europe Committee of Experts on Internet Intermediaries, “Algorithms and human rights: study on the human dimensions of automated data processing technologies and possible regulatory implications” (2017).

¹⁶ “Proposal for a regulation of the European Parliament and of the Council laying down harmonised rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain union legislative acts” COM/2021/206. Available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0206>.

¹⁷ See ESCAP, “Artificial intelligence in Asia and the Pacific” (November 2017).

¹⁸ See <https://www.achpr.org/sessions/resolutions?id=504>.

¹⁹ See Australian Human Rights Commission, “Using artificial intelligence to make decisions: addressing the problem of algorithmic bias” (2020).

²⁰ See Robin Allen and Dee Masters, *Regulating for an Equal AI: a New Role for Equality Bodies. Meeting the New Challenges to Equality and Non-discrimination from increased Digitisation and the Use of Artificial Intelligence* (Brussels, Equinet, 2020).

²¹ See Carsten Orwat, *Risks of Discrimination Through the Use of Algorithms* (Berlin, Federal Anti-Discrimination Agency, 2020).

²² See A/74/821.

21. Reinforcing the rights and obligations provided in the Convention are other instruments that help frame the human rights implications of artificial intelligence for persons with disabilities. Among other things, the United Nations Disability Inclusion Strategy specifically aims to harness public procurement as a tool to advance equality in the entire United Nations system. Used optimally, this could make the United Nations a model for the development, purchase and deployment of only human rights-compliant artificial intelligence tools. The Guiding Principles on Business and Human Rights call for businesses to conduct human rights impact assessments of products and services, which would include all new artificial intelligence tools, and to do so based on consultation with directly affected groups such as persons with disabilities (principles 17–20). Various principles of the United Nations Global Compact likewise call for business to avoid complicity with human rights abuses and end discrimination, especially in employment, where artificial intelligence tools pose particular challenges to persons with disabilities.²³

A. The nature of artificial intelligence

22. There is no single universal definition of artificial intelligence²⁴ but it can be summarized as “the science of making machines smart”.²⁵ The core idea is that machines might be made to work in the same or a similar way to humans, only faster, better and more reliably and, theoretically, without human bias. In almost all cases this involves an initial assessment of a so-called training set of data to create instructions known as algorithms.²⁶ This is followed by the subsequent deployment of the machine to analyse further data obtained from one or more sources, such as sensors, records or scanners, by reference to the machine “learning” about the patterns in the original training set. The decisions the machine reaches may be self-activating as “automated decision-making” or may yield information for a human actor to act on.

23. Artificial intelligence is made “smart” through the process of machine learning. The smartness of the system hinges on the information and data provided to the machine. Thus, when an artificial intelligence model is required to achieve an objective (for example, to identify the best candidate for a job), it is usually supplied with data about employees deemed successful in the past. Such data, in reflecting history, is designed to privilege those historically hired candidates. Thus, it is unlikely to account for the benefits of diverse candidates who do not conform to historical hiring norms, such as persons with disabilities. The result is the creation of a “standard” good employee using the supplied data that the artificial intelligence system is then directed to learn, in order to see correlations in the data that can be applied to a different data set (for example, a list of prospective employees) to identify ideal candidates. Those data can be of many different kinds and might include interview video and audio data, as well as data about age, past work history and education.

24. The data set used to “train” artificial intelligence systems will often include data shaped by prior human decisions and value judgments and these may be faulted on many grounds. For instance, an artificial intelligence system purporting to identify the best person for a job, will usually be trained on a data set drawn from prior human decisions as to who is best for the relevant job. If the human decisions that the data set represents are discriminatory, the artificial intelligence system will likely process new data in the same discriminatory fashion, thereby perpetuating the problem. This may flag disability and hence a presumed lack of fit with a job. Worryingly, this is almost always done without any consideration of

²³ The United Nations Global Compact aims to mobilize a global movement of sustainable companies and stakeholders, help businesses align with its 10 principles on human rights, labour, environment and anti-corruption and advance the Sustainable Development Goals.

²⁴ See Council of Europe, “What’s AI? A definition uneasy to build and share”.

²⁵ See Frederik Zuiderveen Borgesius, *Discrimination, Artificial Intelligence, and Algorithmic Decision-making* (Strasbourg, Council of Europe, 2018).

²⁶ Algorithms (sometimes called computer programmes), setting out the logical steps that a computer must follow in addressing data presented to it, instruct the computer to use data inputs to create specified outputs.

how reasonable accommodation might enable a person with disabilities to perform the essential functions of a job.

25. Artificial intelligence models often work by profiling people (for example, a candidate for a job). This will occur when the system makes a judgment about a person based on their personal data or information trail: whether they are likely to, for example, commit fraud or have particular health-care needs.²⁷ Profiling can be used to make profound decisions about individuals or groups of individuals.

26. There is no single definition of automated decision-making, which can come in different forms. Thus, machines powered by artificial intelligence can make decisions without any direct human involvement. One example would be automated border control at international frontiers, where the artificial intelligence machine may open the gate to a person wishing to cross the border, but the process is overseen by a human watching on closed circuit television.²⁸ In many situations, while a human actor is nominally placed between the machine and its application, the degree of human involvement can be limited. That is the case, for instance, where the machine output has a dominant role in the decision-making and the human uncritically accepts it as determinative.²⁹

27. While artificial intelligence creates human rights concerns writ large, the risks associated with machine learning can be much more acute because of the so-called “black box” or transparency problem. Artificial intelligence is often hidden from plain sight either because the system’s inner workings are deliberately concealed to protect intellectual property rights or the system is only understandable to those who can read and write computer code. Indeed, the process can be so complex, due to machine learning, that any human would struggle to understand its decision-making processes. Sometimes the data is deleted or not even collated, because of concerns over data protection. That can have the perverse consequence that it is nearly impossible to determine, retrospectively, whether discrimination has occurred. That lack of transparency is a real barrier to the right to equal treatment of persons with disabilities. The opaque nature of machine learning is further compounded by intellectual property laws and international trade agreements that effectively hide any inbuilt discriminatory design. If one does not even have the ability to identify discriminatory decisions that are being made on the basis of an individual’s disability status, then it becomes exceptionally difficult to challenge such practices.

B. General impacts of artificial intelligence on persons with disabilities

28. Artificial intelligence offers enormous opportunities for persons with disabilities. Artificial intelligence-enabled systems are making positive contributions, particularly in assistive technology, for instance in enabling persons with disabilities to identify accessible routes around their locality.³⁰ Other applications can enhance the personal mobility rights of individuals who are blind or have poor vision with navigability tools powered by artificial intelligence. Others include eye-tracking and voice-recognition software technology that

²⁷ The general data protection regulation of the European Union provides one definition of profiling in article 4 (4) as “any form of automated processing of personal data consisting of the use of personal data to evaluate certain personal aspects relating to a natural person, in particular to analyse or predict aspects concerning that natural person’s performance at work, economic situation, health, personal preferences, interests, reliability, behaviour, location or movements”.

²⁸ See, for example, Costica Dumbrava, “Artificial intelligence at EU borders” (2021); and Pinja Lehtonen and Pami Aalto, “Smart and secure borders through automated border control systems in the EU? The views of political stakeholders in the Member States”, *European Security*, vol. 26, No. 2 (January 2017).

²⁹ See, for example, Jennifer Cobbe, “Administrative law and the machines of government: judicial review of automated public-sector decision-making”, *Legal Studies*, vol. 39, No. 4 (July 2019).

³⁰ See the “AI for inclusive urban sidewalks” project, a collaborative venture of the Global Initiative for Inclusive ICTs, the Taskar Center for Accessible Technology and Microsoft’s “AI for accessibility” programme.

enable persons with disabilities to access information and education, and to communicate and impart information.³¹

29. Adaptive learning platforms can provide the kind of personalized learning experiences that addresses the specific needs of students with disabilities.³² Speech-to-text software is being used to meet the chronic lack of sign language interpreters and enable people with speech impairments to interact more easily with others. Signing avatars now assist persons who are deaf and those who are hard of hearing.³³ Artificial intelligence-enabled systems can contribute to better outcomes for persons with disabilities if used to diagnose illnesses and recommend treatments, uses that are helpful to everyone and could usefully be extended to applications in rehabilitation contexts as well. Artificial intelligence is also beginning to be used in the mental health field, including, inter alia, to structure peer support and otherwise provide mental health services.³⁴

30. While artificial intelligence provides opportunities for advancing disability rights, it is also associated with significant risks for persons with disabilities. Artificial intelligence is transforming the relationship of the State with persons with disabilities; for example, research has revealed that, in certain instances, artificial intelligence and emerging technologies have become gatekeepers for social protection benefits. Eligibility for benefits, such as unemployment assistance, can be restricted by artificial intelligence using biased data sets and discriminatory algorithms. With a large number of persons with disabilities living in poverty across the world, many in extreme poverty, it is crucial that artificial intelligence systems do not improperly deny persons with disabilities their eligibility for services and support.

31. The proliferation of artificial intelligence and emerging technologies has also proved a boon for persons with disabilities wanting to live independently, as robots and other tools powered by artificial intelligence are now being introduced in the home to provide care and other assistance.³⁵ The future of artificial intelligence may entail persons with disabilities living side by side with intelligent machines that can sense, learn and predict future events. However, this is not without tangible risks.

32. Artificial intelligence has also started to impact persons with disabilities in their capacity as consumers. Faulty artificial intelligence risk assessments based on certain disability types can lead to access to private health insurance being denied and improper increase in health insurance premiums. Concerns have been raised regarding the use of artificial intelligence in decision-making leading to an increase in insurance premiums for consumers, where the rationale for the decision by the artificial intelligence system is unknown or even unknowable.³⁶ That lack of transparency as to the underlying logic used by machine learning and automated decision-making poses significant issues for the general population and is likely to impact persons with disabilities who are already marginalized in health and life insurance markets.

33. The employment domain is increasingly dominated by artificial intelligence tools that can have a strong impact on persons with disabilities.³⁷ Artificial intelligence tools can exclude candidates at each stage of the hiring process. For example, chatbots used in interviewing that are enabled by artificial intelligence may be inaccessible to someone using

³¹ See the response of Chile to the call for contributions to the present report.

³² See Global Disability Innovation Hub, “Disability innovation strategy 2021-2024”.

³³ European Disability Forum, “Plug and pray? A disability perspective on artificial intelligence, automated decision-making and emerging technologies” (2018).

³⁴ See Piers Gooding and Timothy Kariotis, “Ethics and law in research on algorithmic and data-driven technology in mental health care: scoping review”, *JMIR Mental Health*, vol.8, No. 6 (June 2021).

³⁵ European Association of Service Providers for Persons with Disabilities, “Technology in social care and support services”.

³⁶ See Bureau Européen des Unions de Consommateurs, “Regulating AI to protect the consumer. Position paper on the AI Act” (October 2021).

³⁷ See Center for Democracy & Technology, “Algorithm-driven hiring tools: innovative recruitment or expedited discrimination?” (December 2020); and Sheridan Wall and Hilke Schellmann, “Disability rights advocates are worried about discrimination in AI hiring tools”, *MIT Technology Review* (21 July 2021).

a screen reader. Résumé-screening tools may prove an obstacle to a candidate with disabilities because, for example, his or her résumé does not reflect internships undertaken or options to work virtually. Explanatory information about equivalent experience is almost never reviewed by a human. Artificial intelligence-enabled video screening tools are typically developed without using persons with disabilities as test subjects. That creates the possibility of exclusion based on atypical attributes prior to a human interviewer meeting a candidate for a job. Candidates with disabilities have sometimes been given a negative weighting in the scoring process used by an artificial intelligence tool to determine employability, resulting in the employment agency allocating fewer resources and less support to a disabled candidate in his or her job search.³⁸

34. Increasingly popular, interviews powered by artificial intelligence subject potential employees to assessments ranging from personality tests to gamified testing. The algorithm searches for characteristics such as emotional stability, extroversion, impulsivity or attention span in interview data. It may also measure facial expressions for the levels of eye contact and vocal enthusiasm of the interviewee. Artificial intelligence tools are often unable to, or improperly, read the facial expressions of persons with disabilities. That can lead to their exclusion as candidates. Notably, whether by design or otherwise, a consideration of reasonable accommodation in the development of artificial intelligence technology for interviewing persons with disabilities is conspicuously short-circuited.

35. Beyond recruitment, artificial intelligence is increasingly being deployed to allow continuous surveillance of workers and the automation of their supervision, with emerging evidence suggesting workers with disabilities being flagged at greater levels than their colleagues.³⁹ Owing to the lack of consideration for and involvement of persons with disabilities in the development of artificial intelligence, these systems are creating divisions rather than promoting access and supported environments.

36. Artificial intelligence-enabled tools do hold the potential to improve access to educational opportunities for persons with disabilities, including one-on-one tutoring, creative gaming to facilitate social skills learning and problem-solving powered by artificial intelligence. Of concern though, is growing evidence that artificial intelligence is being used to make decisions about how educational opportunities are distributed. This was highlighted in one response to the call for contributions to the present report and shows how it can adversely affect access to education for persons with disabilities.⁴⁰

C. Key rights and obligations of the Convention on the Rights of Persons with Disabilities that apply to the development and use of artificial intelligence

37. The Convention on the Rights of Persons with Disabilities establishes legal obligations on States on the development and use of artificial intelligence. Importantly, States also bear the obligation to “eliminate discrimination on the basis of disability by any person, organization or private enterprise” (art. 4.1 (e)). That certainly engages the regulatory responsibilities of Governments vis-à-vis the private sector when it comes to the development and use of artificial intelligence. Additionally, States bear the obligation to promote the design and development of information technologies “at an early stage” (art. 9.2 (h)). That too hints at a robust responsibility of the State to appropriately incentivize and regulate the private sector.

38. The relevant rights and obligations cover both substance (for example, privacy) and process (the right to be consulted). One important caveat should be mentioned: when traditionally thinking about technology and disability, one may naturally think of

³⁸ See Nicolas Kayser-Bril, Algorithm Watch, “Austria’s employment agency rolls out discriminatory algorithm, sees no problem”, 6 October 2019. In its response to the call for contributions to the present report, the Austrian Ombudsman explained that use of this tool had been suspended pending a Supreme Administrative Court decision.

³⁹ Trades Union Congress, “Technology managing people: the worker experience” (2020).

⁴⁰ See <https://www.sistemadeadmisionescolar.cl/> (in Spanish only).

accessibility (article 9 of the Convention). At issue there is the making of new technology accessible to, and useable by, persons with disabilities. While artificial intelligence does indeed raise a range of accessibility concerns, the core concern of the Special Rapporteur in the present report is how artificial intelligence tools impact persons with disabilities. Front and centre is the question of equal treatment or discrimination.

39. The following is a non-exhaustive account of some of the rights at play in this context.

Right to equality and non-discrimination (articles 2, 5 and 18)

40. At its heart, the Convention advances a notion of “inclusive equality” (art. 5). All rights in the Convention are to be secured on an equal basis with others. The Committee on the Rights of Persons with Disabilities understands the notion of equality underpinning article 5 broadly and under the rubric of inclusive equality.⁴¹

41. Importantly, the avoidance of discrimination may require reasonable accommodation to be provided to enable an individual to fully exercise their rights (art. 2). As the Committee has pointed out, this is an individualized and tailored process which requires detailed consideration of the individual’s personal circumstances.⁴²

42. Additionally, and importantly in the artificial intelligence context, the obligation may have an anticipatory dimension, in the sense that one should not have to wait for persons with disabilities to present themselves before considering what reasonable accommodation might be warranted. An obvious example would be where the impact on persons with disabilities of goods and services powered by artificial intelligence (for example, screening or interview tools that are driven by artificial intelligence) can be reasonably anticipated. Another is the use of biometric technology to facilitate legal proof of identity and unlock access to public services such as education, health care and voting. The Convention affirms the right to recognition before the law and the right to obtain, possess and utilize documentation of identification and birth registration for children with disabilities (article 18). Here, the point of such artificial intelligence tools is to reach the most marginalized populations who may have no legal proof of identity. However, the lack of adherence to standards for producing accessible biometric systems or failing to provide alternative means where technology fails, constitute barriers that must be addressed to ensure that persons with disabilities can access the benefits of such technology.⁴³

Right to autonomy and decision-making (articles 3, 12 and 23)

43. Ethical artificial intelligence principles acknowledge that individual human beings are ends in themselves and should not be instrumentalized for the ends of others.⁴⁴ The Convention pivots on an innate sense of the value of human personhood with its associated rights of autonomy and decision-making, as reflected in articles 3 (general principles) and 12 (equal recognition before the law). Like other human rights instruments, the Convention requires that consent should be informed, real, transparent, effective and never assumed. Autonomy is implicated where machine learning uses profiling and other decisions affecting persons with disabilities without their knowledge.⁴⁵

44. One key application of autonomy is with respect to the right to marry and found a family (art. 23). Technologies powered by artificial intelligence and used in health and reproductive screening raise concerns regarding the safeguarding of family rights. Access to information and reproductive and family planning are rights guaranteed under article 23 and are equally applicable to artificial intelligence tools. DNA and genetic testing enabled by artificial intelligence raise the spectre of article 23 concerns.

⁴¹ See the Committee’s general comment No. 6 (2018).

⁴² Ibid.

⁴³ See Ramon Blanco-Gonzalo and others, “Biometrics: accessibility challenge or opportunity?”, *PLoS ONE* (March 218).

⁴⁴ See, for example, the recommendation on the ethics of artificial intelligence adopted by the UNESCO General Conference at its forty-first session, available from <https://en.unesco.org/artificial-intelligence/ethics#recommendation>.

⁴⁵ See Ramon Blanco-Gonzalo and others “Biometrics: accessibility challenge or opportunity?”.

Right to privacy (articles 22 and 31)

45. Rights to privacy and data protection are fundamental to human dignity. The right to privacy is protected under article 22 of the Convention and article 31 sets out parameters for the protection of disability data and statistics. Data belonging to persons with disabilities refers to the content they create, the information collected about them and what is inferred through algorithms. Together, articles 22 and 31 mandate data protection and respect for the privacy of persons with disabilities. In the context of artificial intelligence, this means that persons with disabilities must be able to maintain agency over their personal data and be supported in accessing, securely sharing, understanding the use of and controlling and deleting their data.

Right to work and employment (articles 27 and 9)

46. The Convention protects against discrimination based on disability in employment, including conditions of recruitment, hiring and employment, employment continuance, career advancement and safe and healthy working conditions, including the duty to provide reasonable accommodation. In this instance, that might mean providing alternative testing and screening tools to accommodate applicants with disabilities in ways that do not restrict their opportunity to use their skills. Reasonable accommodation provided during testing should be given equal weight and providing a parallel, non-algorithmic hiring track to a certain percentage of all candidates could help remove bias and stigma.

47. Artificial intelligence tools can exclude candidates at each stage of the hiring process and present further risks of exclusion after an individual with disabilities is hired. Video screening tools enabled by artificial intelligence are typically developed without including persons with disabilities as test subjects, thus creating the possibility of exclusion based on atypical attributes prior to a human interviewer meeting a candidate. Article 27 of the Convention, read together with article 9 (accessibility), requires employers to utilize artificial intelligence tools in a way that avoids the discriminatory impact of inaccessible technologies.

Right to education (article 24)

48. Artificial intelligence systems have an important role to play in education and the Convention embraces inclusive education at all levels. Article 24 emphasizes the duty to provide reasonable accommodation for the requirements of the individual learner and, crucially, that “individualized support measures are provided in environments that maximize academic and social development, consistent with the goal of full inclusion”. The clear implications of the Convention for artificial intelligence in education is the facilitation of inclusion and not the employment of new technologies to reinforce or justify segregation in education.

Right to an adequate standard of living and social protection (article 28)

49. Job automation has the potential to reinforce existing barriers that persons with disabilities face in accessing the labour market through job elimination, making the fulfilment of the right to an adequate standard of living, guaranteed in article 28 of the Convention, a pressing priority for Governments. Social protection is set forth in article 28 (2) and guarantees a range of measures including assistance programmes for persons living in poverty. As Governments move in the direction of decision-making for government-funded services enabled by artificial intelligence, such as assistance with disability-related expenses, such decision-making may occur without transparency.

Right to health (article 25) and right to habilitation and rehabilitation (article 26)

50. Access to health and rehabilitation services for persons with disabilities, addressed in articles 25 and 26 of the Convention, must be provided without discrimination. The advantages that tools enabled by artificial intelligence can have, for example individualizing patient treatment recommendations or making specialist medical and rehabilitation advice more accessible, must be accorded equally to individuals with disabilities. Artificial intelligence poses risks for discrimination in health care, where outcomes such as cost-cutting could be programmed, risking patient well-being and putting persons with disabilities at

significant risk. This type of discrimination is addressed in article 25 of the Convention, which prohibits the discriminatory denial of health care or health services on the basis of disability. The prohibition in the same article of discrimination in the provision of health insurance and life insurance on the basis of disability would cover the use of artificial intelligence to determine access to health insurance.

Freedom of expression and opinion, and access to information (articles 21 and 29)

51. The Convention guarantees the right to freedom of expression (art. 21), including the right to seek, receive and impart information without interference, rights that can be undermined if artificial intelligence is used to close down civic space and increase censorship, and if it assists Governments in monitoring and targeting members of specific groups, including minorities. Measures to support access to information, as set out in article 21, include the provision of information in accessible formats and technologies, which can be facilitated through accessible artificial intelligence tools. States are likewise urged to ensure that private entities and the mass media provide information and services, including through the Internet, in accessible and usable formats for persons with disabilities. Freedom of association, protected by article 29 of the Convention, may be jeopardized if systems enabled by artificial intelligence are used by Governments to remove information, publications, groups and web content, on which organizations of persons with disabilities and disability advocates rely to organize and exercise their right to protest. Additional concerns related to freedom of expression projected by the Convention include the use of bot-enabled online harassment, which has a particularly chilling effect for members of marginalized communities subject to historical discrimination.

Participation in political and public life (article 29)

52. The requirements of article 29 of the Convention regarding access to elections are also pertinent to the wide range of artificial intelligence technologies already in use in electoral cycles. This includes tools enabled by artificial intelligence, such as online voting systems, similarly enabled voter education tools and tools used by social media platforms to identify and eliminate foreign trolls attempting to provide disinformation to potential voters. All these tools can enhance access to the political process for persons with disabilities, provided they are developed in an accessible way inclusive of their needs and concerns. At the same time, the Convention requires proactive measures to ensure that surveillance powered by artificial intelligence, for example, is not used to restrict or inhibit the political participation of persons with disabilities, especially those belonging to racial, ethnic or other groups who are marginalized in political processes.

Situations of risk and humanitarian emergencies (article 11)

53. Artificial intelligence systems have a role to play in actively protecting marginalized groups, including persons with disabilities, from harm and exploitation and other risk situations, consistent with article 11 of the Convention. Efforts are already under way to use artificial intelligence to better support refugees and internally displaced persons with disabilities and to explore the use of artificial intelligence to prevent contemporary forms of slavery, human trafficking and child labour, all important for persons with disabilities.⁴⁶

54. At the same time, the use of artificial intelligence can have deleterious effects on persons with disabilities in situations of risk. For example, the deployment and use of fully autonomous weapons systems, like other artificial intelligence systems, raises concerns as to the ability of weaponry directed by artificial intelligence to discriminate between combatants and non-combatants, and make the nuanced determination as to whether an assistive device qualifies a person with disabilities as a threat. Further, the use of facial or emotion recognition technology at security checkpoints to assist in determining whether an individual may pose a threat lacks the same ability to correctly assess the reactions of persons with disabilities, owing to incomplete or biased data sets. To alleviate and address such concerns, persons with

⁴⁶ See, for example, <https://aiforgood.itu.int/about/un-ai-actions/unhcr/>; and <https://aiforgood.itu.int/event/ai-to-prevent-modern-slavery-human-trafficking-and-forced-and-child-labour/>.

disabilities must be involved in the development, procurement and deployment of artificial intelligence technology as applied to situations of risk.

International cooperation (article 32)

55. Facilitation of equal rights for persons with disabilities in the artificial intelligence space also means ensuring that disability-inclusive development programmes and international cooperation advance inclusive artificial intelligence systems. Notably, article 32 (c) and (d) of the Convention specifically references international cooperation measures that facilitate “cooperation in research and access to scientific and technical knowledge” as well as the provision of “access to and sharing of accessible and assistive technologies”.

Intellectual property rights (article 30)

56. Article 30 (3) of the Convention calls on States “to ensure that laws protecting intellectual property rights do not constitute an unreasonable or discriminatory barrier” with respect to cultural materials. It is suggested that the rebalancing that this article calls for sweeps beyond the material scope of cultural rights. Such a rebalancing was achieved in the Marrakesh Treaty to Facilitate Access to Published Works for Persons Who Are Blind, Visually Impaired, or Otherwise Print Disabled, where barriers to accessible versions of print materials created by copyright restrictions were addressed. There is no a priori reason why it cannot be achieved in other contexts.

Public procurement

57. Article 4 (d) (general obligations), together with other provisions in the Convention, sets out adequate grounds for a robust form of public procurement to ensure that public authorities operate in conformity with its commitments. The Convention requires that procurement of artificial intelligence systems and tools by the State and extensions of the State must not discriminate on the basis of disability and must be accessible. Inclusive procurement links also to the work of international organizations and procurement is specifically reflected in disability policies such as the United Nations Disability Inclusion Strategy.

Active consultation (article 4 and 7)

58. One of the overarching principles of the Convention is the full participation of persons with disabilities in policy and in decision-making in all spheres, anchored in article 4 (3) and embedded throughout the text. Disability rights principles of participation and inclusion mean that in all artificial intelligence policies and systems design, development and deployment, persons with disabilities should be actively consulted. This makes business sense too, as the resulting tools will be better designed to meet their objectives.

59. Participation and inclusion within a disability rights matrix also means taking proactive measures to diversify the teams who design, develop, collect and process data, and implement, research and regulate products and services that are enabled by artificial intelligence. For example, in the employment and hiring context, this means engaging experts in algorithms and employment discrimination who have disabilities.

60. Participation rights apply intersectionally, covering indigenous people, migrants, minorities, women, children and older persons with disabilities, among others. Children with disabilities, as users of artificial intelligence systems and products, have a specific right to express their views on artificial intelligence under article 7 (3) of the Convention. Further, artificial intelligence services and products designed for children, including children with disabilities, must consider the child’s best interests. The best way to do so is to secure their active involvement in product design in a manner that is appropriate and respectful of the child’s evolving capacities and in line with the provisions of the Convention on the Rights of the Child.

D. Discriminatory applications of artificial intelligence to persons with disabilities

61. If unequal treatment or discrimination based on disability is the core issue in focus in the present report, then how does it, in fact, arise? One poignant example is when conducting an image search for “athlete” on Internet search engines enabled by artificial intelligence. Such search engines are unlikely to return images of athletes with disabilities because they rely on a data set or algorithm that subscribes to the antiquated view that persons with disabilities cannot be athletes. Proposed fixes to systemic bias should be treated with caution, as disability inclusion in artificial intelligence requires an understanding of not only the data sets used but also of the decision-making process of the artificial intelligence system to avoid discrimination.

62. In failing to address disability directly in the development of original data sets and models and relying instead on historic practice, artificial intelligence often excludes persons with disabilities entirely. For example, résumé-mining tools rely on the previous hires of an employer as indicators of successful candidates for future employment. Reliance on the profiles of previous employees necessarily creates a biased data set or model for the artificial intelligence system to use in screening applications. Further, it serves to consolidate societal barriers to the hiring of persons with disabilities (and indeed candidates from other historically marginalized groups) unless the hiring practices of the company were previously inclusive of persons with disabilities.⁴⁷ Unfortunately, one cannot count on that yet.

63. Furthermore, artificial intelligence systems that are used for initial screening of an individual’s competency and aptitude for a specific job may mislead. For example, if the time taken to complete an online test is a criterion for the test taker’s skills level, individuals with disabilities who utilize assistive technologies may be disadvantaged. That is especially so if the testing platform is not fully accessible. All the more so if the duty to make reasonable accommodation is ignored. Other workplace tools driven by artificial intelligence, such as those addressing performance monitoring, may be equally suspect.

64. Discrimination can happen in other ways when artificial intelligence systems draw inferences about people using proxy data that might be accurate for persons without lived experience of disability but is entirely inappropriate for persons with disabilities. For example, research discloses that machine-learning models used in the financial sector have identified a positive correlation between the correct capitalization of words in loan applications and creditworthiness. That might contribute to an unfair downgrading in credit scoring for persons with disabilities. Put simply, core features in the artificial intelligence model deployed may have no bearing at all on the ability of the individuals to repay a loan.⁴⁸

65. Facial recognition technology that identifies people or infers traits from images raises similar concerns in relation to persons with disabilities.⁴⁹ There is documentary evidence that there is an inherent bias in some facial recognition algorithms against persons with disabilities who were judged untrustworthy because their face did not conform to the standard programmed into the artificial intelligence system. Evidence shows that various aspects of facial analysis software may not work well for people with conditions such as Down’s syndrome, achondroplasia, cleft lip or palate, or other conditions that result in facial differences. Studies also suggest that artificial intelligence systems may fail people who are blind or who have low vision owing to eye anatomy and conditions such as albinism. They may also fail people who exhibit unanticipated behaviours such as turning away from a camera. Further, emotion-processing algorithms may misinterpret the facial expressions of

⁴⁷ Meredith Whittaker and others, “Disability, bias, and AI” (2019).

⁴⁸ Reuben Binns and Reuben Kirkham, “How could equality and data protection law shape AI fairness for people with disabilities?”, *ACM Transactions on Accessible Computing*, vol. 14, No. 3 (September 2021).

⁴⁹ See, for example, the statement by the United Nations High Commissioner for Human Rights, “New technologies must serve, not hinder, right to peaceful protest”, 25 June 2020.

autistic persons. People with Williams syndrome or others with atypical facial expressions, such as persons who have experienced stroke, Parkinson's disease, or Bell's palsy.⁵⁰

66. Emotion recognition technology, used to make evaluative judgements about people, also raises significant disability rights concerns. As has been reported, its use can reveal learning disabilities among students, thus raising concerns as to the use of such data, along with privacy and confidentiality concerns.⁵¹

67. There are other ways in which overreliance on artificial intelligence can have human rights implications for persons with disabilities. Service providers could rely on technology enabled by artificial intelligence to reduce or eliminate the need for human carers. That can carry serious risks for the mental health of persons with disabilities and reinforce segregation and isolation.⁵²

68. Some civil society organizations are campaigning for the rights of persons with disabilities in the field of artificial intelligence.⁵³ However, there have been only a handful of formal complaints, official investigations or legal actions concerning discrimination against persons with disabilities by artificial intelligence systems. Beyond the initiatives highlighted above, no national legislative initiatives targeted specifically at protecting persons with disabilities from the discriminatory impacts of artificial intelligence or algorithms were identified in the research informing the present report. No national artificial intelligence strategy was identified that places particular emphasis on the human rights implications for persons with disabilities in artificial intelligence.

69. There is a common view in the artificial intelligence development community that models can be improved and bias removed when more representative data sets are deployed. While some categorizations, such as a person's age, can be entered into a data set in a binary way, disability is a more fluid, heterogenous and nuanced concept. Establishing a training data set fully representative of all the diversity of disability is challenging, but not impossible. Such challenges are surmountable and serve to underscore the importance of consultation at the earliest steps of product design.

70. Compounding all the discriminatory effects mentioned above are intellectual property rights. Major barriers to transparent artificial intelligence systems include the confidentiality of the code in algorithms and the system itself.⁵⁴ Other barriers to disability-inclusive artificial intelligence include the advantages and disadvantages of fair reasonable and non-discriminatory rules to ensure that patents can be licensed in a way that does not bar the development of new artificial intelligence systems.⁵⁵

71. An understanding of the complex interaction of international trade law with artificial intelligence and human rights is beginning to emerge, and warrants closer study. To some extent, the issues are being addressed, inter alia, within the World Trade Organization, the Asia-Pacific Economic Cooperation, the Association of Southeast Asian Nations and the Organization for Economic Cooperation and Development (OECD), where the ethical obligations associated with trade in artificial intelligence systems, the intellectual property rights which lie behind them and their products in data and other forms are under

⁵⁰ Anhong Guo and others, "Towards fairness in AI for people with disabilities: a research roadmap" (2019), available at <https://arxiv.org/pdf/1907.02227.pdf>.

⁵¹ See Article 19, *Emotional Entanglement: China's Emotion Recognition Market and Its Implications for Human Rights* (November 2020).

⁵² See European Parliament resolution of 16 February 2017 with recommendations to the Commission on civil law rules on robotics (2015/2103(INL)).

⁵³ Examples include the World Institute on Disability, the International Disability Alliance, the European Disability Forum, the Center for Democracy & Technology, the AI Now Institute and the ARC Centre of Excellence for Automated Decision-Making and Society.

⁵⁴ See, for example, the case of *Thaler v. Comptroller General of Patents Trade Marks and Designs*, England and Wales Court of Appeal judgment of 21 September 2021. Similar litigation has been conducted in other jurisdictions.

⁵⁵ In its 2019 report, "Intellectual property and artificial intelligence - a literature review", the Joint Research Centre of the European Commission concluded that insufficient attention had been paid to the tension between the need for explainability and transparency as against intellectual property rights.

consideration. OECD, for instance, has played a major role in developing worldwide ethical standards for artificial intelligence.⁵⁶ The United Nations Conference on Trade and Development has also started to address some human rights concerns within the artificial intelligence context.⁵⁷ However, little significant contribution has been made specifically in relation to the effects on persons with disabilities of international trade rules in the artificial intelligence context.

72. One common problem lies in the standard terms used in international trade agreements. These include provisions designed to promote trade in digital products by requiring their confidentiality to be preserved when traded across borders.⁵⁸ Such rules make it particularly difficult to reveal the true extent of how traded artificial intelligence systems may cause discrimination and have been heavily criticized in general.⁵⁹ They undercut transparency, which makes the enforcement of the guarantee of equal treatment difficult if not impossible. As previously mentioned, States certainly have ample space under article 30 (3) of the Convention on the Rights of Persons with Disabilities to rebalance the intellectual property rights of persons with disabilities in the context of artificial intelligence. More focused effort is needed in this regard.

IV. Conclusions and recommendations

A. Conclusions

73. **Three broad conclusions seem warranted based on the discussion above:**

(a) **First, the unprecedented power of artificial intelligence can be a force for good for persons with disabilities, especially when tied to the achievement of the Convention on the Rights of Persons with Disabilities. Profound advances for humankind must be properly harnessed to make sure that the farthest left behind can at last benefit fully from science and its advancements;**

(b) **Second, the well documented negative impacts of artificial intelligence on persons with disabilities need to be openly acknowledged and rectified by States, business, national human rights institutions, civil society and organizations of persons with disabilities working together. At the development level, those negative impacts arise from poor or unrepresentative data sets that are almost bound to lead to discrimination, a lack of transparency in the technology (making it nearly impossible to reveal a discriminatory impact), a short-circuiting of the obligation of reasonable accommodation, which further disadvantages the disabled person, and a lack of effective remedies. While some solutions will be easy and others less straightforward, a common commitment is needed to work in partnership to get the best from the new technology and avoid the worst;**

(c) **Third, a fundamental reset of the debate is needed, based on more evidence and greater consideration of the rights and obligations contained in the Convention on the Rights of Persons with Disabilities and other human rights instruments.**

74. **Engagement with persons with disabilities and their representative organizations in the development, procurement and deployment of artificial intelligence systems is required under the Convention on the Rights of Persons with Disabilities. The right of**

⁵⁶ See <https://oecd.ai/en/ai-principles> for the OECD five principles for the responsible stewardship of responsible artificial intelligence.

⁵⁷ See *Technology and Innovation Report 2021: Catching Technological Waves. Innovation with Equity* (United Nations publication 2021).

⁵⁸ See, for example, chapter 19 of the Agreement between the United States of America, the United Mexican States and Canada, or chapter 8 of the Agreement between the United Kingdom of Great Britain and Northern Ireland and Japan for a Comprehensive Economic Partnership.

⁵⁹ See the report on intellectual property rights for the development of artificial intelligence technologies presented to the European Parliament on 2 October 2020, available from https://www.europarl.europa.eu/doceo/document/A-9-2020-0176_EN.html#title2.

persons with disabilities and their representative organizations to participate in artificial intelligence policymaking and in decisions on its development, deployment and use is key to achieving the best from artificial intelligence and avoiding the worst. They have a right to be actively involved in the policymaking process and in any deliberations among businesses through, for example, the United Nations Global Compact.

B. Recommendations

75. The Special Rapporteur sets out the following recommendations to ensure that the international community is positioned to get the best from artificial intelligence and avoid the worst in the disability context.

76. States are encouraged to:

(a) Broaden, inform and deepen their national artificial intelligence debates with the Convention on the Rights of Persons with Disabilities explicitly in mind;

(b) Ensure that national artificial intelligence regulations include human rights principles and standards and an explicit prohibition against discriminatory and harmful uses or impacts of artificial intelligence in relation to persons with disabilities. National digital inclusion strategies should explicitly take into account the need for human rights-compliant artificial intelligence tools, in particular as they address disability;

(c) Consider imposing a moratorium on the sale and use of artificial intelligence systems that pose the greatest risk of discrimination unless and until adequate safeguards to protect human rights are in place. That may include a moratorium on facial and emotion recognition technologies. The exceptional risk of discrimination against persons with disabilities that they pose seems particularly acute in this context and States should consider postponing any deployment until a full audit of the effects can be conducted in a participatory manner with representative organizations of persons with disabilities;

(d) Ensure that human rights due diligence legislation is comprehensive and inclusive of disability, including by ensuring that it is conducted by business when artificial intelligence systems are acquired, developed, deployed and operated, and before big data held about individuals are shared or used. States that are considering enacting legislation requiring human rights due diligence on artificial intelligence deployed by private sector actors should ensure that such legislation explicitly takes account of the impact of artificial intelligence on the rights of persons with disabilities;

(e) Insist on the obligation of reasonable accommodation in the operation of artificial intelligence systems, including by incorporating reasonable accommodation into artificial intelligence tools. Explore positive ways of using artificial intelligence tools to highlight or flag when reasonable accommodation is needed - subject always to the individual's right to privacy. Consistent with article 8 of the Convention on the Rights of Persons with Disabilities, States should educate the private sector (developers and users of artificial intelligence), as well as the public sector and State institutions that use artificial intelligence, in full collaboration with persons with disabilities and artificial intelligence experts, on their obligation to provide reasonable accommodation;

(f) Adhere to disability-inclusive public procurement standards. The procurement by the State (and all its extensions) of artificial intelligence systems or tools should be conditional upon those systems being human rights-compliant;

(g) Support capacity-building of representative organizations of persons with disabilities to effectively monitor the impact of artificial intelligence on the rights of persons with disabilities. States should consider ways of supporting representative organizations of persons with disabilities by strengthening their capacity to advocate for responsible and disability-inclusive artificial intelligence, to interact effectively with all stakeholders, including the private sector, and to highlight harmful or discriminatory uses of the technology;

(h) Consider reporting on the progress made in identifying and rectifying the discriminatory impacts of artificial intelligence on persons with disabilities and in employing artificial intelligence tools and services to advance disability rights, using the spaces available for dialogue with States to address progress made, obstacles encountered and innovative solutions found in relation to disability and artificial intelligence. For example, States may consider including information on how artificial intelligence is being used to advance the provisions of the Convention on the Rights of Persons with Disabilities in their periodic reports to the treaty bodies and the universal periodic review, as well as in their voluntary reporting on the Sustainable Development Goals.

77. National human rights institutions should:

(a) Inform national artificial intelligence policy debates using the Convention on the Rights of Persons with Disabilities and other human rights standards, and increase their engagement on policies related to artificial intelligence, so that national policy can be based on the best understanding of international human rights law including the Convention;

(b) Consider appointing members specifically charged with examining the broad human rights impact of artificial intelligence, including on the rights of persons with disabilities.

78. Businesses and the private sector should:

(a) Operate with transparency and provide information about how artificial intelligence systems work. That should include alignment with open-source and open data standards and publication of accessible information about how artificial intelligence systems operate;

(b) Implement disability-inclusive human rights impact assessments of artificial intelligence to identify and rectify its negative impacts on the rights of persons with disabilities. All new artificial intelligence tools should undergo such assessments from a disability rights perspective. Artificial intelligence businesses should conduct their impact assessments in close consultation with organizations representing persons with disabilities and users with disabilities;

(c) Use corporate human rights due diligence to explicitly take account of disability and artificial intelligence. Private sector actors that develop and implement machine-learning technologies must undertake corporate human rights due diligence to proactively identify and manage potential and actual human rights impacts on persons with disabilities, to prevent and mitigate known risk in any future development;

(d) Ensure accessible and effective non-judicial remedies and redress for human rights harms arising from the adverse impacts of artificial intelligence systems on persons with disabilities. This should complement existing legal remedies and align with the International Principles and Guidelines on Access to Justice for Persons with Disabilities;

(e) Ensure that data sets become much more realistic and representative of the diversity of disability and actively consult persons with disabilities and their representative organizations when building technical solutions from the earliest moments in the business cycle. This includes proactively hiring developers of artificial intelligence who have lived experience of disability, or consulting with organizations of persons with disabilities to gain the necessary perspective.

79. The United Nations system and the specialized agencies should:

(a) Include disability within their artificial intelligence strategies and seek to deal proactively with the impact of artificial intelligence on persons with disabilities within the scope of their responsibilities, in order to provide a useful survey of all the benefits and pitfalls that might exist;

(b) Ensure that the application of disability-inclusive artificial intelligence is an element of the United Nations Disability Inclusion Strategy. The Strategy should be

refined to include requirements that artificial intelligence systems and other emerging technology products purchased and used by the United Nations system are disability-inclusive.

80. United Nations treaty monitoring bodies and the special procedures of the Human Rights Council, including the Working Group on the issue of human rights and transnational corporations and other business enterprises, should:

(a) Continue their valuable work on artificial intelligence and broaden it to assess disability-specific impacts;

(b) Ensure the coverage of disability rights dimensions when considering the adoption or revision of general comments or human rights legal and policy guidance addressing artificial intelligence.

81. In particular, the Committee on the Rights of Persons with Disabilities should consider the development of a general comment clarifying the obligations of States (and their regulatory responsibilities vis-à-vis private actors) arising under the Convention on the Rights of Persons with Disabilities in respect of artificial intelligence.

82. International trade agreements should not hinder artificial intelligence justice. International trade organizations involved in promoting and regulating world trade should explicitly consider the rights of persons with disabilities as they are impacted by the development of new technologies such as artificial intelligence and machine learning. Ways should be found of rebalancing intellectual property rights with the guarantee of equal treatment and non-discrimination for persons with disabilities.

83. Research should be developed, in active partnership and co-production with organizations of persons with disabilities:

(a) To investigate the uses of artificial intelligence and their impacts on the rights of persons with disabilities, including to: (a) identify positive uses of artificial intelligence to implement the Convention on the Rights of Persons with Disabilities; (b) clarify and identify negative impacts (whether intended or unintended); and (c) explore ways of rectifying those impacts and avoiding them in the future;

(b) To analyse the impact of artificial intelligence on persons with disabilities in domains such as health, education, employment, independent living, transformation of services, housing and financial services;

(c) To assess the impact of international trade agreements on the capacity of States to effectively regulate the discriminatory impacts of artificial intelligence and on how rebalancing might be achieved where needed.
