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Summary of deliberations

United Nations system white paper on artificial intelligence governance: an analysis of current institutional models and related functions and existing international normative frameworks within the United Nations system that are applicable to artificial intelligence governance

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Contents

List of abbreviations

AI	artificial intelligence
CEB	United Nations System Chief Executives Board for Coordination
COVID-19	coronavirus disease
ECE	Economic Commission for Europe
ECLAC	Economic Commission for Latin America and the Caribbean
ESCAP	Economic and Social Commission for Asia and the Pacific
ESCWA	Economic and Social Commission for Western Asia
FAO	Food and Agriculture Organization of the United Nations
GDP	gross domestic product
HLCM	High-level Committee on Management
HLCP	High-level Committee on Programmes
IAEA	International Atomic Energy Agency
ICAO	International Civil Aviation Organization
ICT	information and communications technology
IFAD	International Fund for Agricultural Development
ILO	International Labour Organization
IMF	International Monetary Fund
IMO	International Maritime Organization
INTERPOL	International Criminal Police Organization
IOM	International Organization for Migration
ITC	International Trade Centre
ITU	International Telecommunication Union
NGO	non-governmental organization
OHCHR	Office of the United Nations High Commissioner for Human Rights
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UN-Habitat	United Nations Human Settlements Programme

UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children’s Fund
UNICRI	United Nations Interregional Crime and Justice Research Institute
UNIDIR	United Nations Institute for Disarmament Research
UNIDO	United Nations Industrial Development Organization
UNODC	United Nations Office on Drugs and Crime
UNOPS	United Nations Office for Project Services
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
UNU	United Nations University
UNV	United Nations Volunteers programme
UN-Women	United Nations Entity for Gender Equality and the Empowerment of Women
UPU	Universal Postal Union
WFP	World Food Programme
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WMO	World Meteorological Organization
UN Tourism	World Tourism Organization

Summary

Artificial intelligence (AI) governance has gained significant importance in recent years, in particular since late 2022, due to the rapid development and expansion of generative AI and large language models, coupled with the concerns voiced by numerous global leaders about the existential risks of AI. There have been calls to ensure the effectiveness and coherence of the multiple international AI governance efforts and to understand them in the broader context of the governance of digital technologies, factoring in the existing digital divide, including the gender digital divide.

The present paper[a] provides an outline of the work of the United Nations system on AI governance, focusing on current institutional models and related functions and existing international normative frameworks within the United Nations system that could be applied to or leveraged for international AI governance. The paper is intended to inform deliberations within the United Nations system on AI and also serves as a United Nations system-wide contribution to the work of the High-level Advisory Body on Artificial Intelligence.

The data and findings resulting from the research carried out to prepare the present paper serve to provide a high-level overview of the extensive resources, expertise and experience of the United Nations system with respect to normative governance processes and structures related to AI governance. The findings show that the United Nations system has played a proactive role in addressing the many challenges resulting from the rapid development of AI and has responded with diverse mechanisms to support Member States. In particular, the United Nations system plays a unique role as a convener for scientific and political consensus-building and as a platform for norm-setting, engaging with Governments, the private sector, academia and civil society and helping Member States to develop their technical and policy capacities. In addition, the United Nations system champions an ethical, human-centred and human rights-based approach to bridging the digital divide.

Further deliberations are required on the critical efforts and expertise needed to fully address the emerging challenges of AI and ensure that economic, social and environmental goals are balanced in AI governance approaches. It is also essential that the United Nations system strengthens implementation and coordination mechanisms, enhances working modalities and resource mobilization efforts, leverages its expertise, builds policy and programmatic coherence and streamlines communications and outreach. The task force established under HLCM has made progress in developing internal normative guidance or a model policy for the United Nations system on the use of AI and in identifying and promoting mechanisms for pooling technical capacity and sharing knowledge on AI.

The key takeaways from the three focus areas of the paper are presented below, followed by recommendations for the United Nations system.

Focus area 1: existing normative and policy instruments within the United Nations system that serve to inform and shape AI governance

Key observation. Several instruments were identified by the Inter-Agency Working Group on Artificial Intelligence as illustrative examples of existing multilayered and multifaceted instruments that provide a strong foundation for normative efforts. Reflecting the specific and intersectional mandates of United Nations system entities, the instruments vary in scope, with some focused on cross-sectoral and overarching efforts and others on more sector-specific efforts, providing an array of governance levers that cater to the varying levels of maturity of AI governance efforts and

capacities, including at the national, regional and international levels. Among the examples are comprehensive instruments that already include implementation mechanisms, as well as more targeted instruments. As a starting point, AI governance efforts must be anchored in international law, including international human rights law. Among the key takeaways are the following:

- Technical instruments within the United Nations system, such as international standards, play an effective role in facilitating norm-setting and interoperability to address the opportunities and risks of AI.
- Involving key stakeholders from the beginning of the development process and relying on their support in piloting the frameworks under development can help to add legitimacy, demonstrate early results and improve the adoption rate.
- During discussions on compliance, monitoring and enforcement mechanisms for AI systems, it is essential to consider audits, inspections and certification processes, for example, and to learn from the experience of the United Nations system in addressing other complex global challenges.
- The implementation of normative instruments that govern global public goods provides important lessons for transparency, accountability and redress mechanisms, which are essential for AI governance efforts.
- Tracking tools and data observatories can help to foster global alignment and the sharing of information and best practices.
- Capacity development for policymakers and AI practitioners is key to supporting the implementation of relevant instruments.

Focus area 2: institutional functions that serve to inform global AI governance

Key observation. There is no one-size-fits-all approach with respect to the institutional functions for AI governance, which include scientific research and consensus-building, norm- and standard-setting, enforcement and monitoring, as well as the development and diffusion of AI technology across all the diverse areas of application of AI. The continuation of a networked approach would benefit the United Nations system, by leveraging inter-agency coordination and cooperation and thereby enhancing capacities to strengthen its work and deliver effectively on global AI governance. Institutions have developed different ways of addressing this issue and benefit from cooperation. Among the key takeaways are the following:

- Scientific assessments conducted by an independent, multidisciplinary and multi-stakeholder group of experts add legitimacy to an issue area and facilitate international alignment on actions needed.
- Standards can influence the development and deployment of specific AI systems, through the ensuing development of product specifications relating to explainability, robustness and fail-safe design. The involvement of key stakeholders in the standard-setting process is important to ensure that the necessary guard rails are implemented appropriately.
- While drawing lessons on auditing and monitoring procedures from the models of entities that are focused on coordinating the global governance of civil aviation, maritime operations or nuclear energy, it is essential to distinguish between the specific subject areas that those models focus on and the decentralized nature of AI systems.
- The experience of the United Nations in development work, including the provision of capacity-building support for broader strategy work, such as the adoption of a national strategy on AI, can provide avenues for tailored

development programmes that cater to the specific needs of Member States and stakeholders. Such capacity-building can support AI development that is grounded in fairness, gender equality, reliability, safety, interpretability and accountability.

- A “dual action” approach is necessary to address the safety risks of AI as well as the opportunities for sustainable development presented by the technology, in particular in developing countries.
- The efforts of the United Nations system in areas such as cybersecurity provide lessons for effectively leveraging the complementary strengths and mandates of multiple entities to address the cross-cutting nature of technology.

Focus area 3: lessons learned from existing governance structures, inclusive normative processes and agile and anticipatory approaches within the United Nations system

Key observation. As highlighted in the interim report entitled “Governing AI for Humanity” prepared by the High-level Advisory Body on Artificial Intelligence, the development and implementation of AI governance efforts should be inclusive, universal, rooted in multi-stakeholder collaboration, adaptive and anchored in the Charter of the United Nations. In addition, agility in normative processes and instrument design and enhanced foresight on technological developments can boost existing processes. Among the key takeaways are the following:

- In the context of normative efforts that are focused on AI and global public goods, the United Nations system champions inclusivity in its norm-making processes through multi-stakeholder participation, tripartite structures and internal coordination frameworks.
- Engaging the private sector is key to global AI governance efforts, including in normative and operational processes of the United Nations. The United Nations system can also advance private sector accountability by supporting and advocating for reporting mechanisms across voluntary and mandatory requirements.
- Providing capacity development and detailed technical guidance can help to develop a trusted platform for the assessment of requirements, such as ex ante assessments of AI systems.
- Flexible and dynamic decision-making mechanisms are essential in specific contexts, in particular for decisions related to emergencies or safety.
- Aligned with the vision of the Secretary-General for a United Nations 2.0, existing and emerging normative processes can be further strengthened through foresight and lessons learned from the anticipatory governance approaches of the United Nations in the areas of food, climate and humanitarian work.

The following general recommendations are made for consideration, including by the High-level Advisory Body on Artificial Intelligence:

(a) Global AI governance efforts within the United Nations system should be anchored in international law, including the Charter of the United Nations, international human rights law and other internationally agreed commitments, such as the 2030 Agenda for Sustainable Development. In order to adequately cater for the specific requirements and economic, social and environmental priorities of different sectors, United Nations instruments and frameworks that provide sector-specific guidance are key to those governance efforts;

(b) The convening power, normative and policy instruments, institutional functions and frameworks, stakeholder networks and resources and diverse expertise and experience of the United Nations system should be leveraged to help to address global AI governance challenges, including with respect to scientific and political consensus-building, monitoring and enforcement, capacity development on technical, policy and regulatory aspects, enhanced multi-stakeholder collaboration and technology diffusion and dissemination;

(c) A well-conceived AI governance system should provide appropriate incentives and guard rails that are commensurate with the particular characteristics of different AI systems and applications in order to advance ethical and human rights-based governance while maximizing the positive impact of the technology on society and mitigating the risks thereof;

(d) Effective AI governance should be delivered through an ecosystem of critical functions, including but not limited to technology development and consensus-building through research and analysis, stakeholder engagement and coordination, standard- and norm-setting, capacity-building and monitoring and accountability. These functions have already been tested by the entities surveyed and this experience can provide tailored approaches, through specific networks for focus areas and diverse stakeholder groups within the United Nations system, facilitated by established governance structures and coordination mechanisms;

(e) The adoption of a pragmatic approach and efforts to build on current governance initiatives within the United Nations system are crucial when designing global AI governance efforts. In addition, the fast pace of technology development, compared with the relatively slow process of developing new international law instruments within institutional structures, the need for regional or industry- or sector-specific approaches and the level of agility of mechanisms and processes that exist at the institutional level also need to be factored in. The United Nations system has launched various initiatives to help all stakeholders to adapt to the changing pace of technology development;

(f) International AI governance efforts should be linked with ongoing efforts in the field of international data governance to ensure complementarity and avoid fragmentation. Effective AI governance requires an integrated approach across related or adjacent governance efforts. It relies on the principles and practices of data governance as the availability of quality data is a key enabler for the development of AI.

A summary of the specific recommendations made for consideration by the United Nations system is provided below. They include the following:

(a) Present the tools and instruments of the United Nations system relating to AI governance as a combined toolbox for the benefit of Member States and stakeholders. This toolbox should encompass cross-cutting and sector-specific instruments. In this regard, the United Nations system should consider building upon the more impactful initiatives to enhance the effectiveness of its response to global AI governance;

(b) Expand taxonomies for existing instruments, including international human rights law, to facilitate the provision of technical and normative guidance on leveraging existing instruments and complement these efforts with capacity-building support;

(c) Put in place or update internal policies governing the use of AI within United Nations system entities, building on the work of the task force on AI established under HLCM to develop normative guidance or a model policy for the United Nations system on the use of AI;

(d) Leverage, enhance and scale up observatories on AI to disseminate best practices, use cases and lessons learned on the use, identification, adoption and implementation of existing instruments;

(e) Leverage existing multidisciplinary global networks within the United Nations system to build consensus and communicate key technological milestones and developments in AI, through the effective flow and exchange of information;

(f) Invest in and develop in-house granular and comprehensive AI expertise to support Member States effectively, engage with stakeholder groups and build trust;

(g) Establish sandboxes to facilitate the development of internationally harmonized approaches for AI risk assessments and monitoring efforts;

(h) Proactively manage risks and mainstream foresight capabilities across all system efforts on technology and AI governance through cross-sectoral and multi-stakeholder partnerships, including with academic institutions and think tanks that are focused on technology foresight;

(i) Invest in talent, data and compute resources, as well as regulatory and procurement capacity, through initiatives that are aimed at reducing the AI divide, within the broader context of addressing the broader digital divide, and enhancing the technical capacities of policymakers and AI practitioners.

[a] The present paper was prepared by the Inter-Agency Working Group on Artificial Intelligence, which is co-led by ITU and UNESCO and comprises over 40 United Nations system entities. The paper was developed in response to a request made at the joint session of HLCP and HLCM, held in October 2023, to produce a white paper on current institutional models and related functions and existing international normative frameworks within the United Nations system that could be applied to or leveraged for international AI governance, for consideration by HLCP at its forty-seventh session, held in March 2024. The outcome was subsequently welcomed by CEB.

I. Introduction

1. With a transformative impact across many industries and sectors, AI can spark global innovation, enhance data-driven decision-making across all countries and boost progress towards the Sustainable Development Goals. Amid rapid innovation and advancements in AI, there is growing recognition that while it provides opportunities for extraordinary growth and inclusive sustainable development, it also has the potential to cause significant disruption and pose risks. Discussions of the risks are especially pertinent not only for areas in which the use of AI technologies, such as in autonomous weapons systems, could have adverse implications for peace and security, but also in relation to the role of AI in the spread of misinformation and its use in law enforcement or in the delivery of public services.

2. AI is already the subject of intense geopolitical competition. States with the financial and technical resources and capacity are prioritizing AI systems as a strategic objective. Meanwhile, technology companies wield significant influence and control over data, algorithms and computational resources. Harnessing the benefits of AI systems while minimizing the risks and potential harms thereof requires a collaborative effort among stakeholders as part of a shared global responsibility. The rapid emergence of generative AI applications has further accelerated the push towards exploring adaptable governance models and mechanisms that evolve with technological progress. Those models should combine openness to experimentation and innovation with risk-conscious and responsible technology adoption to advance inclusive and sustainable development and ensure trust. In developing such models, it is also necessary to factor in the limited resources that small and medium-sized enterprises or stakeholders have for compliance and regulatory efforts and they should, therefore, be designed proportionately.

3. These trends reaffirm the need for global AI governance to be anchored in the Charter of the United Nations and human rights frameworks and for the United Nations system to continue to leverage its unique convening power to facilitate international cooperation and multi-stakeholder engagement in governance efforts.

A. Risks, challenges and considerations for global artificial intelligence governance

4. Given the horizontal, transversal and cross-sectoral nature of AI, it has the potential to affect all aspects of humanity. In order to mitigate the associated risks, they must be examined through multiple lenses to address any issues, ranging from economic to market-related matters, the social fabric, digital rights and inclusivity, in a comprehensive manner. As part of global discussions on AI governance, it is, therefore, necessary to factor in the following dimensions: (a) the AI value chain and the socioeconomic and geopolitical impacts thereof, as some countries vie for technological dominance while others risk being confined to serving as sources of data, cheap labour or raw materials; (b) the AI life cycle, taking into consideration the technical dimensions of AI development and deployment; (c) the broader macro risks and challenges associated with AI; (d) the diverse levels and avenues of impact of AI on different sectors and aspects of society, with, for example, precision agriculture intended to generate higher agricultural yields and lethal autonomous weapons systems introducing new threats to peace and security; and (e) governance, which must go hand in hand with the sustainable development opportunities presented by AI.

5. These dimensions have also helped to guide the structuring of the present paper and selection of examples researched and presented across the focus areas.

1. Artificial intelligence value chain

6. The AI value chain is typically composed of the following elements: (a) computer hardware; (b) cloud platforms; (c) data and AI models; (d) applications; and (e) services. As AI use and innovation gain momentum, an equity gap and the unequal concentration of power have become apparent across all the elements of this value chain. For instance, the economic benefits of AI applications are accrued primarily to three stakeholders: businesses that build AI models and applications; hardware companies that supply chips and compute the capacity that powers AI models; and cloud service providers. Most of those companies are currently located in a handful of countries.

7. While workers in developing countries perform a substantial amount of the work related to such aspects as data labelling and content moderation, they accrue limited economic benefits. While this divide has been increasingly observed as technological advancements have been made over the past several years, the scale and pace of the impact of AI technologies and applications on the digital divide are unprecedented. AI has the potential to exacerbate the gap between developing and developed countries while adversely affecting women and children and marginalized populations, with both groups facing the risk of AI bias and having limited control over how their data are collected and processed. It is also essential to consider geopolitical factors, as the task of designing and manufacturing hardware chips is restricted to a few companies and countries, while the role of a number of other countries is confined to the provision of essential minerals and metals that are needed to produce such chips and other hardware.

8. It is also important to consider the environmental cost of building and training large AI systems, as well as the resource-intensive process of manufacturing the hardware that powers AI systems. While some emerging AI regulations reflect environmental considerations and some studies are being carried out to assess and measure the energy consumption of AI systems, there is a gap in terms of global accountability for the overall carbon footprint of the AI value chain. In addition, the mining of essential minerals and metals to manufacture chips for AI-related hardware, as well as the manufacturing process, leads to massive greenhouse gas emissions and water consumption. The environmental dimension also reflects another equity gap, as countries facing energy poverty may have limited energy resources to power data centres, which are the foundational layer of AI systems.

2. Artificial intelligence life cycle

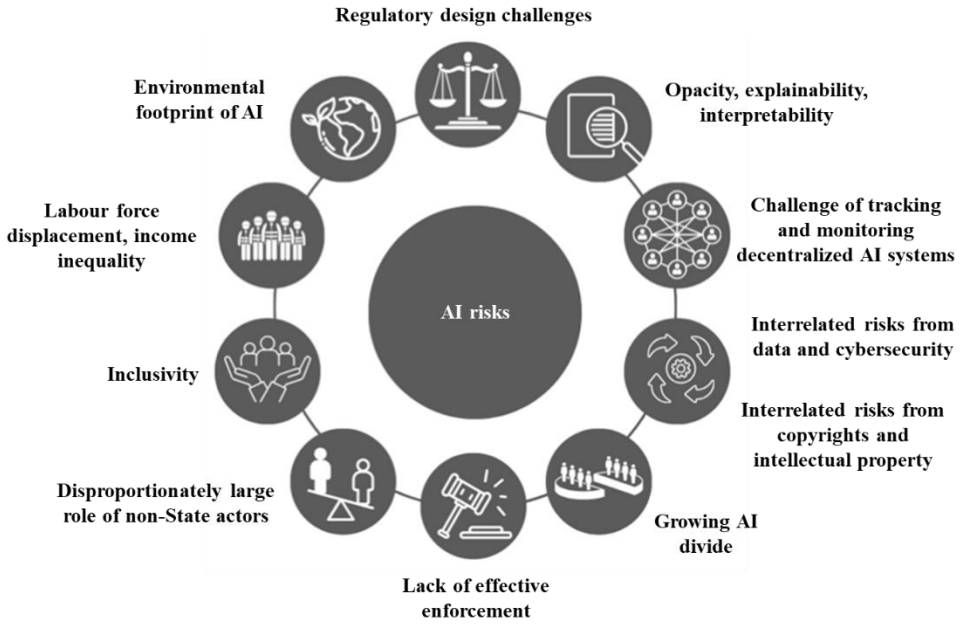
9. As described in the Recommendation on the Ethics of Artificial Intelligence adopted by the General Conference of UNESCO, another dimension of AI governance is the AI life cycle, the stages of which range from research, design and development to deployment and use, including maintenance, operation, trade, financing, monitoring and evaluation, validation, end of use, disassembly and termination. When viewed through a life cycle lens, the technical dimensions would involve governance across various elements, including such aspects as the interpretability of models, the quality of training data, licensing and certification for AI applications and services and other factors. Data governance, data protection, privacy and cybersecurity remain essential aspects throughout the AI life cycle.

3. Broader macro risks and challenges associated with artificial intelligence

10. With respect to the risk dimension of AI governance, while it is challenging to define all the possible risks of AI, in particular those arising from general-purpose AI systems, some of the key risks are highlighted in figure I, including those that were identified by United Nations system entities during the research carried out for the

present paper, as well as the risks broadly highlighted by experts and in the interim report entitled “Governing AI for Humanity” by the High-level Advisory Body on Artificial Intelligence. Further details on those risks are provided in annex I.

Figure I
Current and evolving global risks of artificial intelligence



Source: Prepared by the Inter-Agency Working Group on Artificial Intelligence.

4. Diverse levels and avenues of impact of artificial intelligence on different sectors and aspects of society

11. The levels and avenues of impact of AI across different sectors and aspects of society are diverse, with examples ranging from precision agriculture intended to generate higher agricultural yields to lethal autonomous weapons systems introducing new threats to peace and security. In the context of discussions of AI governance and the design of AI governance approaches, the overarching principles of governance, as well as the varying levels of risks and opportunities across sectors, need to be taken into consideration.

5. Governance must go hand in hand with sustainable development opportunities

12. As part of AI governance, it is necessary to factor in capacity development needs, including facilitating the implementation of AI solutions and scaling up AI use cases for societal benefit, such as in the areas of climate or health. Scaling up the use cases requires investments and concerted policy efforts across the entire AI value chain, in particular to enhance compute capacity, cloud infrastructure and data access and to democratize AI.

B. Context for the paper

13. The United Nations system has been closely tracking and responding to developments in the AI space, including the growing digital divide, divergent regulatory approaches and the proliferation of principles and tools. There have been recent calls to enhance international cooperation on AI and to address the growing challenges with

respect to AI governance, including by effectively engaging all stakeholder groups. In that regard, some experts have suggested creating new AI governance mechanisms and related bodies, while others have called for concerted efforts within existing institutions, including the United Nations system, to address the issue of AI governance. The United Nations system plays a unique role in norm-setting and consensus-building, capacity development and international cooperation on topics ranging from human rights to climate, disarmament, health and technology, and is ready to be leveraged to address new challenges or new areas of governance. Within the United Nations system, the importance of ensuring a human rights-centred approach to AI governance through effective, diverse and multi-stakeholder engagement is recognized.

14. The complex multidimensional nature of AI demands both overarching efforts as well as focused actions within specific industry verticals and a decentralized network of networks governance approach. Given its structural strengths, the United Nations system provides robust avenues and mechanisms for AI governance and acknowledges the necessity for continual improvements to meet the evolving challenges posed by AI technologies. While some United Nations system entities have primarily sectoral mandates encompassing such areas as health, agriculture, economics and finance, trade, industry, education, labour, nuclear energy, aviation and the environment, the mandates of other entities are focused on adherence to overarching principles, such as human rights, or on the well-being of vulnerable groups, such as women and children. Each entity works with and brings together specific networks, focus areas and diverse stakeholder groups, which are supported by established governance structures and coordination mechanisms.

15. Recognizing the importance of leveraging the existing mandates of United Nations system entities in their particular areas of knowledge and expertise, during the joint session of HLCP and HLCM[1] on the use and governance of AI and related frontier technologies, held in October 2023, the Inter-Agency Working Group on Artificial Intelligence was asked to prepare, with input from HLCM as relevant, a white paper on AI governance by analysing current institutional models and related functions and existing international normative frameworks within the United Nations system that could be applied to or leveraged for international AI governance, for consideration by HLCP at its forty-seventh session. The outcome was subsequently endorsed by CEB. The white paper is intended to inform deliberations within the United Nations system on AI and also serves as a United Nations system-wide contribution to the work of the High-level Advisory Body on Artificial Intelligence. In December 2023, the preliminary findings resulting from the research and survey carried out as part of the preparation of the white paper were shared with the Co-Chairs of the High-level Advisory Body on Artificial Intelligence. At the above-mentioned joint session, the members of both Committees also decided to develop a system-wide normative and operational framework on the use of AI in the United Nations system, establish appropriate knowledge-sharing mechanisms for ideas and experiences, including the possibility of developing a generative AI platform for the United Nations system, and pool the technical capacity needed, as a complementary and internally focused effort (CEB/2023/7). Subsequently, a task force on AI was established under HLCM to develop internal normative guidance or a model policy for the United Nations system on the use of AI and to identify and promote mechanisms for pooling technical capacity and sharing knowledge on AI.

[1] CEB is the longest-standing and highest-level coordination forum of the United Nations system. The 31-member body is chaired by the Secretary-General. It seeks to enhance United Nations system-wide coherence and coordination and provides broad guidance and strategic direction to the United Nations system on issues of system-wide concern. The work of CEB is supported by two high-level committees, HLCP and HLCM, which are the principal mechanisms for United Nations system coordination and policy coherence in the areas of programmes and management. Specific topics are coordinated by inter-agency mechanisms and networks established under HLCP and HLCM.

C. Overview of the paper

1. Focus areas

16. The present paper is focused on three key areas as outlined below:

(a) Focus area 1: existing normative[2] and policy instruments within the United Nations system that serve to inform and shape AI governance;

(b) Focus area 2: institutional functions that serve to inform global AI governance;

(c) Focus area 3: lessons learned from existing governance structures, inclusive normative processes and agile and anticipatory approaches within the United Nations system.

17. These focus areas were developed on the basis of the request made at the above-mentioned joint session, as well as the ongoing global dialogue and debate on the governance of AI. Several experts and civil society groups[3] have emphasized the importance of leveraging existing instruments on technology governance, in particular the international human rights framework, as a binding framework for governance. While technologies continue to evolve, human rights are technology-neutral, although guidance may be necessary to interpret human rights laws in the digital context to adapt to the changing realities of a technology and AI-driven era.

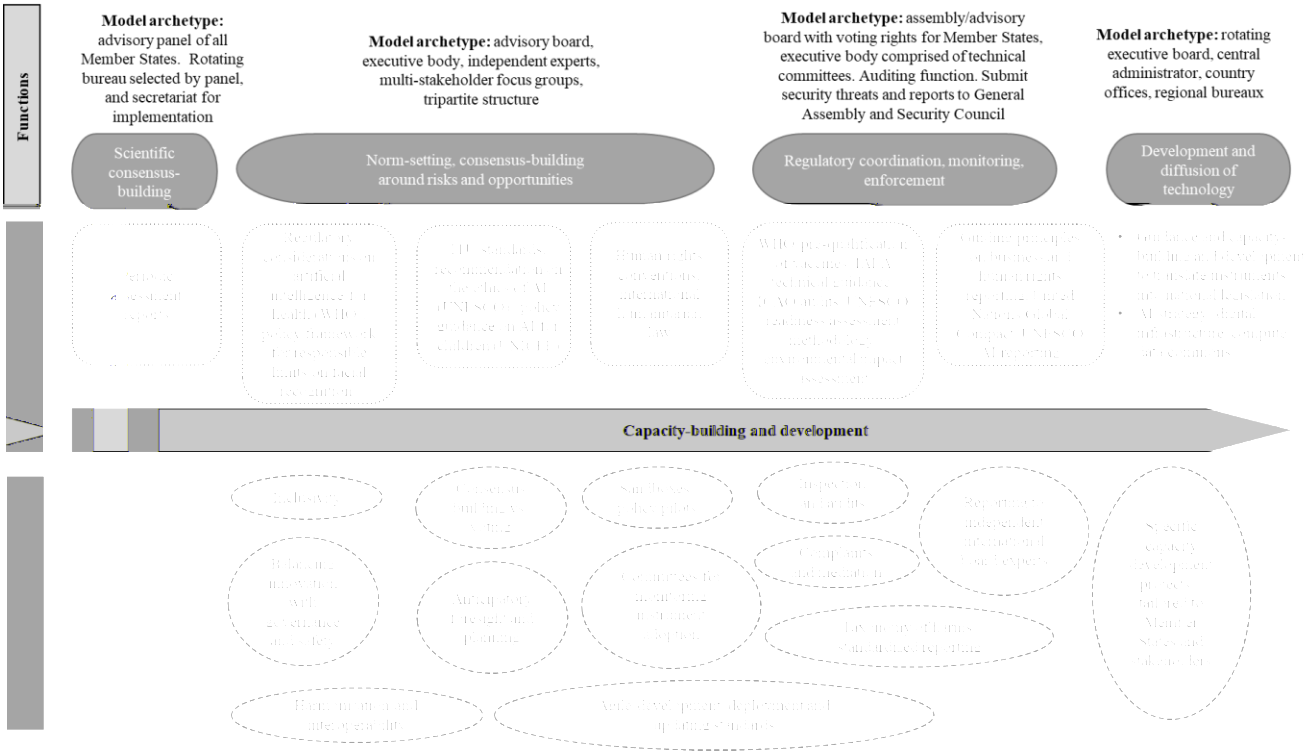
18. The study of existing institutional models and governance structures within the United Nations system is intended to help to improve the understanding not only of how the United Nations system has adapted its strategy and programmatic delivery over the past several decades to the changing realities and geopolitics of the world, but also of its experience as a trusted forum for consensus-building through normative and multi-stakeholder processes, as well as in developing tailored capacity-development programmes to support Member States in complex and challenging areas.

19. More broadly, the present paper serves to describe the above-mentioned focus areas, review existing United Nations capacities and resources, highlight examples and draw lessons from research and findings. An overview of the focus areas is provided in figure II.

[2] In the *UNEG Handbook for Conducting Evaluations of Normative Work in the UN System*, normative work is defined as follows: “The support to the development of norms and standards in conventions, declarations, regulatory frameworks, agreements, guidelines, codes of practice and other standard setting instruments, at global, regional and national levels. Normative work also includes the support to the implementation of these instruments at the policy level, i.e. their integration into legislation, policies and development plans, and to their implementation at the programme level.”

[3] Kate Jones, “Principles of AI governance: the contribution of human rights”, in *AI Governance and Human Rights: Resetting the Relationship* (London, Chatham House, 2023).

Figure II
Focus areas of the white paper



Source: Prepared by the Inter-Agency Working Group on Artificial Intelligence.

[a] World Economic Forum, UNICRI, INTERPOL and Netherlands Police, "A policy framework for responsible limits on facial recognition – use case: law enforcement investigations", 2022.

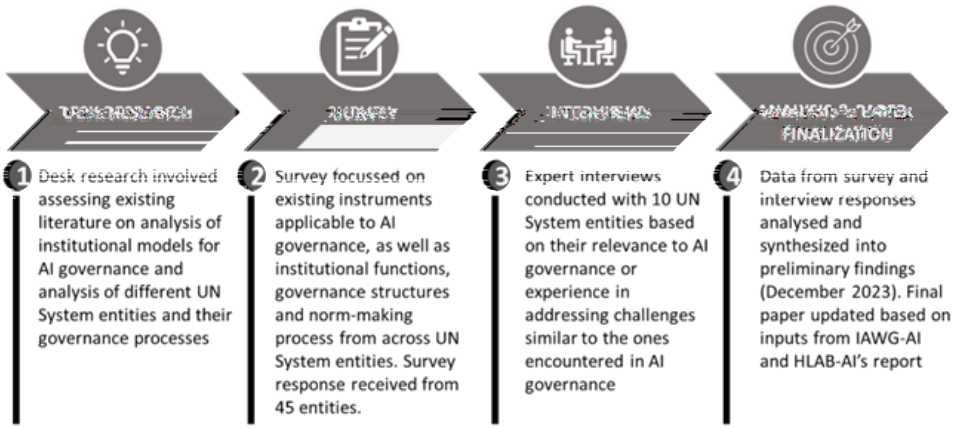
2. Methodology

20. The present paper was prepared by the Inter-Agency Working Group on Artificial Intelligence, which is co-led by ITU and UNESCO and comprises over 40 United Nations entities. The findings presented in the paper are based on the results of a United Nations system-wide survey, follow-up interviews with select entities and a desk review of global trends and existing literature,[4] including the interim report entitled "Governing AI for Humanity". A brief overview of the methodology and process are provided in figure III, but further details on the research methodology can be found in annex II. Annex III contains highlights from the early analysis of the survey, which was shared at the session of CEB held on 9 November 2023.

21. Inputs for the survey were received from 45 United Nations system entities. The survey was followed by expert interviews conducted with 10 United Nations system entities based on their relevance to AI governance or experience in addressing challenges similar to those encountered in AI governance.

[4] Robert Trager and others, *International Governance of Civilian AI: A Jurisdictional Certification Approach* (Oxford Martin School, 2023); Matthijs M. Maas and José Jaime Villalobos, "International AI institutions: a literature review of models, examples, and proposals", Legal Priorities Project – AI Foundations Report 1, September 2023; Eleonore Fournier-Tombs and others, "A global architecture for artificial intelligence", UNU Centre for Policy Research, 17 October 2023; and Jason Hausenloy and Claire Dennis, "Towards a UN role in governing foundation artificial intelligence models", UNU Centre for Policy Research, September 2023.

Figure III
Overview of the methodology



Source: Prepared by the Inter-Agency Working Group on Artificial Intelligence.

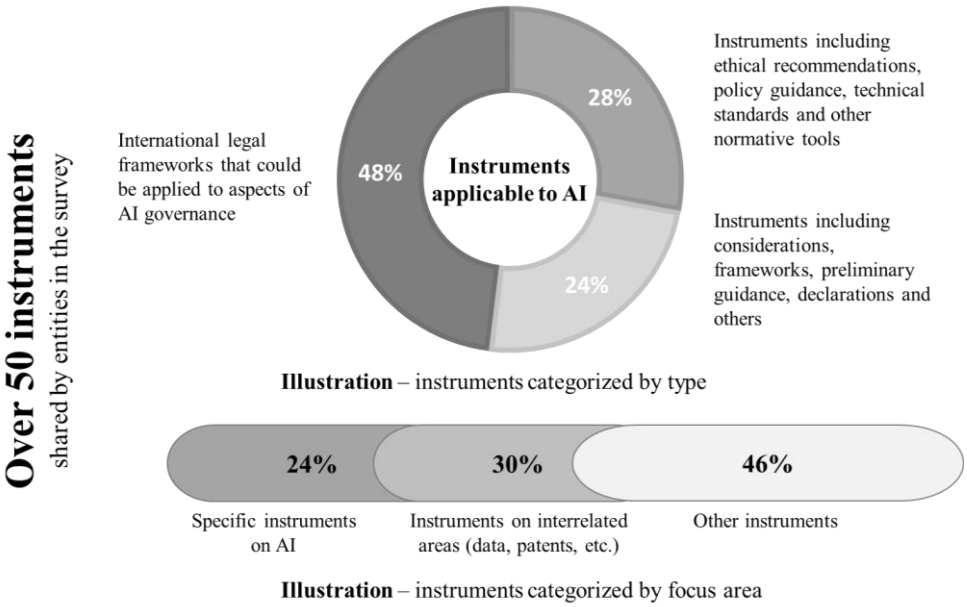
II. Focus area 1: existing normative and policy instruments within the United Nations system that serve to inform and shape artificial intelligence governance

22. The United Nations system entities have deployed various normative and other instruments, including treaties, conventions, resolutions, standards, guidelines and policy guidance. These instruments cater to different policy and issue areas and can be cross-cutting or sector-specific in nature. Under the first focus area of the present paper, an illustrative overview is presented of existing international legal frameworks and normative and policy instruments within the United Nations system that could be applied or extended to AI, as identified by the United Nations system entities in response to the survey (see annex IV). The classification of instruments, as presented in the sections below, has been developed solely to facilitate ease of analysis in the context of the AI governance risks and opportunities discussed in the paper. The present paper is not intended to present a qualitative assessment of the instruments or a comparative assessment vis-à-vis other international or regional instruments or a legal classification and analysis.

Overview of instruments

23. Over 50 laws and instruments were identified by the survey respondents, including binding and non-binding instruments, that are either directly applicable to AI or areas that are interrelated with AI, such as ethics, data, cybersecurity, copyright, patents, information integrity, disarmament, human rights, international labour standards and codes of practice and international humanitarian law. These laws and instruments include treaties, conventions, recommendations, compliance and certification procedures, policy instruments and technical standards. The terminology used in and legal effects of those international laws and other instruments vary from one organization to another. In particular, laws or instruments negotiated and approved by Member States carry significant weight and have a high standing in terms of expressing their commitments or directing implementation efforts.

Figure IV
Instruments within the United Nations system applicable to artificial intelligence



Source: Prepared by the Inter-Agency Working Group on Artificial Intelligence.

24. The analysis of those instruments shows that some of them contain provisions that already apply to the digital sphere, in particular those relating to human rights, international labour standards and humanitarian law. In contrast, some instruments applicable to areas that are related to AI could be extended to AI. Some instruments that apply to other forms of global public goods are also relevant as they may serve as examples from which lessons can be drawn for AI governance. An overview of all those instruments is presented below, followed by additional details and key takeaways.

1. Specific instruments on artificial intelligence governance

25. The UNESCO Recommendation on the Ethics of AI serves as a comprehensive framework for ensuring the ethical governance of AI throughout all stages of the AI system life cycle (i.e. from research, design and development to deployment and use, including maintenance, operation, trade, financing, monitoring and evaluation, validation, end of use, disassembly and termination). The Recommendation was developed through a global multi-stakeholder process and adopted by 193 member States in November 2021, demonstrating that the United Nations system is responding to the need to establish globally shared values and principles on ethical and responsible AI that are focused on promoting human rights and human dignity, fairness and sustainability. The Recommendation encompasses values and principles, including with respect to the rule of law, human determination, accountability and transparency, and various policy areas, including ethical governance, gender, education and the environment, among others.

26. The Department of Economic and Social Affairs, UNDP, UNICEF, UNICRI and WHO also have instruments that are focused directly on AI governance. In addition, ITU is working on international AI-related technical standards across specific sectors, many of which have been developed in collaboration with other United Nations

entities, and has already published over 100 standards on AI, with 120 more in development as of 2024. The report entitled "Strengthening multi-stakeholder approach to global AI governance, protecting the environment and human rights in the era of generative AI" produced by an expert multi-stakeholder group, the Internet Governance Forum Policy Network on Artificial Intelligence, is focused on AI interoperability in the global regulatory landscape, gender and race biases in AI, as well as current use cases for environmental security. With more than 40 co-authors, including representatives of ITU, UNESCO and UN-Women, it provides a broad international perspective on some of the most contentious and promising aspects of AI applications. The instruments established by UNICEF, UNICRI and WHO have been tailored to the specificities of their sectors and range from policy guidance on AI for children to toolkits that are focused on specific use cases, such as facial recognition in law enforcement. UN-Habitat is currently preparing international guidelines on people-centred smart cities, which will contain key principles for AI development and application across cities globally, aimed at ensuring adherence to human rights and inclusion.[5]

27. The United Nations system instruments on AI are helping to shape norms and serve as resources and tools for Member States during a period of flux in the global AI governance space. For instance, the Recommendation on the Ethics of AI contains actionable policies that can guide Member States towards responsible developments in AI and is complemented by tools such as the readiness assessment methodology,[6] which is currently being piloted in the first cohort of 50 countries in all regions of the world. The readiness assessment methodology is a tool that helps countries to identify gaps with respect to the different dimensions of their AI ecosystem, including the legal and regulatory, social and cultural, economic, scientific and educational and technological and infrastructural dimensions. As part of the assessment, a steering committee is established, including ministers engaged in AI and representatives of the private sector, academia and civil society. The assessment helps countries to shape or strengthen their national AI strategies and enables tailored support for Governments on specific needs, such as institutional and legal reforms. Given that the results of the assessment are published on the UNESCO Global AI Ethics and Governance Observatory website and discussed at the Global Forum on the Ethics of Artificial Intelligence, such a tool facilitates peer-to-peer learning among countries.

28. Some Member States are considering adopting "A policy framework for responsible limits on facial recognition – use case: law enforcement investigations",[7] developed by the World Economic Forum, UNICRI, INTERPOL and Netherlands Police, into national legislation. Furthermore, the UNICRI toolkit for responsible AI innovation in law enforcement[8] has been tested in a practical setting by INTERPOL and 15 law enforcement agencies. As for UNICEF, the guidance provided in its publication *Policy Guidance on AI for Children* has also been integrated into the strategy on AI developed in Scotland. Turning to UNDP, its AI Readiness Assessment,[9] which is built upon the Recommendation on the Ethics of AI and aligned with the broad mandate of UNDP to work across sectors, is intended to assist Governments in understanding the AI landscape and in assessing their level of AI readiness across sectors. The focus of the assessment is the dual role of Governments as facilitators of technological advancement and users of AI in the public sector. It

[5] At the second session of the UN-Habitat Assembly, held in June 2023, 193 member States adopted resolution 2/1, in which UN-Habitat was asked to develop international guidelines on people-centred smart cities.

[6] Available at https://unesdoc.unesco.org/ark:/48223/pf0000385198.

[7] Available at https://unicri.it/sites/default/files/2022-11/A%20Policy%20Framework%20for%20Responsible%20Limits%20on%20Facial%20Recognition.pdf.

[8] Available at https://unicri.it/sites/default/files/2024-02/00_README_File_Feb24.pdf.

[9] See www.youtube.com/watch?v=_m-_fsT1kP8.

has been implemented in three countries, with plans to extend it to 35 countries in 2024. Lastly, the UNIDO report *Gender, Digital Transformation and Artificial Intelligence* provides a review of the current state of policies and initiatives related to the promotion and strengthening of global efforts towards gender-transformative strategies for AI.

29. As existing instruments on AI are adopted and new instruments are introduced, they should continue to be implemented and designed in a manner that supports Member States, with appropriate guidance on how to respect, protect and promote human rights and fundamental freedoms throughout the life cycle of AI systems.

2. Instruments on areas that are interrelated with artificial intelligence governance

30. In the context of AI governance, it is important to consider the work of the United Nations on international data governance, data protection and privacy given the close relationship between data and AI and the role that diverse data sets can potentially play in reducing bias in AI systems and building trustworthy AI. Particular attention is needed to build foresight on the potential human rights impacts of data collection, retention, processing and transfer, in particular in the case of AI-driven tools deployed in a security context. Another important consideration is access to data and data commons so that AI applications serve to support the achievement of the Sustainable Development Goals. Multiple United Nations entities, including ILO, ITU, UNCTAD, UNDP, UNESCO, UN-Habitat, UNHCR, UNICEF, UPU, WFP and WHO, have developed instruments and undertaken efforts that are focused on data, including data policy, data protection and digital public infrastructure, to address those issues.

31. Specific data-related instruments in, for example, the areas of migration, human rights or health, demonstrate that the varying sensitivities and nuances of data governance, protection and privacy in different sectors are recognized within the United Nations system. For instance, the HLCP working group on international data governance, which is co-led by WHO, as Chair of the Committee of the Chief Statisticians of the United Nations System, and UNODC, prepared a paper on pathways towards international data governance (CEB/2023/1/Add.2), which contains a vision for the governance of data at the international level, and its annexes may also serve as an analytical resource to support the efforts of Member States in that regard. Furthermore, in the World Bank publication *World Development Report 2021: Data for Better Lives*, a number of data resources are provided to assist policymakers in elaborating digital development strategies. The Global Data Regulation Diagnostic,[10] also produced by the World Bank, further builds on the survey and the trust framework set out in the *World Development Report 2021* to provide a more expansive geographic coverage.

32. In addition, some instruments under development, such as the United Nations code of conduct for information integrity on digital platforms,[11] are closely related to AI governance as they pertain to the flow of information on digital platforms. Several cases of misinformation fuelled by deep fakes and the misuse of generative AI tools have been observed on digital platforms. It is also important to take note of the United Nations instruments related to cybersecurity, which will be discussed later in the present paper.

[10] Forthcoming.

[11] See A/77/CRP.1/Add.7.

3. International legal frameworks that could be applied to aspects of artificial intelligence governance

33. International law, including international human rights law, is of fundamental importance for designing and implementing AI governance frameworks, institutions and processes, both domestically and internationally, and various existing international legal frameworks can be readily extended or applied to mitigate the harms caused by AI. International human rights law reflects universally agreed values and encompasses a vast range of civil, political, social, economic and cultural rights. It clearly defines the harms that should be addressed and the goals that should be achieved and can guide the prioritization of risks and actions. Crucially, international human rights law contains binding obligations for States to respect, protect and fulfil human rights. Businesses have a responsibility to respect human rights. The principles and recommendations contained in numerous reports and resolutions across the United Nations human rights system are relevant in the context of AI and include extensive language that has been adopted by consensus. The General Assembly and Human Rights Council, for example, have underscored that human rights should be respected, protected and promoted throughout the life cycle of AI systems. They have also specifically highlighted the importance of applying human rights due diligence. [12]

34. Among the binding obligations are those arising from the International Covenant on Civil and Political Rights, which contains relevant obligations pertaining to, for example, the right to freedom of expression, the right to privacy and the right to fair trial. The International Covenant on Economic, Social and Cultural Rights contains provisions defining the duties of States in sectors such as social security, employment and health, which are relevant to AI. The obligations under the Convention on the Rights of the Child and under the Optional Protocol to the Convention on the Rights of the Child on the sale of children, child prostitution and child pornography, in particular when read in the light of general comment No. 25 (2021) on children's rights in relation to the digital environment, are specifically relevant to digital harms. [13]

35. It is also important to take note of the treaties established under the auspices of WIPO, [14] factoring in concerns about copyrighted material and its use in the training of large language models. In addition, there may be legal uncertainty regarding the ability to patent innovations that have been "co-developed" with AI and open

[12] See Human Rights Council resolution 53/29 and General Assembly resolution 78/213.

[13] At its eighty-first session, held in 2019, the Committee on the Rights of the Child adopted guidelines regarding the implementation of the Optional Protocol to the Convention on the Rights of the Child on the sale of children, child prostitution and child pornography (CRC/C/156), in which there is no explicit mention of AI. Given that, however, in paragraph 63, State parties are encouraged to include in their legal provisions regarding child sexual abuse material "representations of non-existing children", the guidelines are of direct relevance to synthetic images, such as deep fakes. In paragraph 75, the need to apply article 7 of the Optional Protocol to online chat rooms and forums is emphasized. The recommendation on data collection in paragraph 20 could serve as a tool for consistent monitoring of the implementation of the Optional Protocol. Similarly, discriminatory or biased automated hiring systems could be considered to fall under the purview of the Convention on the Elimination of All Forms of Discrimination against Women and the relevant articles thereof. The International Convention on the Elimination of All Forms of Racial Discrimination contains similar non-discrimination obligations and the Committee on the Elimination of Racial Discrimination adopted general recommendation No. 36 (2020) on preventing and combating racial profiling by law enforcement officials, which contains recommendations concerning AI.

[14] Examples include the International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations, the Berne Convention for the Protection of Literary and Artistic Works, the Beijing Treaty on Audiovisual Performances and the Patent Cooperation Treaty.

questions around the disclosure requirements of the patent system in the context of black box algorithms.

36. The impact of AI on labour and the associated instruments is also an important factor in the discussion on AI governance. As highlighted in annex I, the impact of AI on the workforce cannot be understated. Automation and job displacement were features of all past industrial revolutions. However, the pace and complexity of change as a result of AI are staggering. According to a recent analysis by IMF,[15] almost 40 per cent of global employment is exposed to AI, with advanced economies at greater risk but also better poised to exploit the benefits of AI than emerging market and developing economies. The ILO Declaration on Fundamental Principles and Rights at Work and its Follow-up applies to all working environments that are affected by AI, irrespective of whether States members of ILO have ratified all the fundamental standards. Ongoing research provides examples of both the positive and negative impacts of AI on human rights in the workplace. ILO is committed to developing international labour standards, notably regarding decent work in the platform economy.

37. With respect to ICAO, it current deliberations related to AI safety and how the latter applies to its existing normative instrument on aviation safety, namely the Convention on International Civil Aviation are highlighted.

4. International instruments for the governance of global public goods and sector-specific approaches

38. Through the survey, United Nations entities reported several instruments that span a range of sectors, including health, aviation, labour, climate, education, communications and disarmament, among others. While a detailed analysis of those instruments is beyond the scope of the present paper, they were reviewed with the objective of drawing lessons from their respective monitoring, reporting and enforcement mechanisms, success factors and the role of the United Nations in facilitating their adoption by stakeholders, in particular given the varying capacities and interests of Member States.

Key takeaways

39. Numerous instruments developed within the United Nations system are highly relevant to the governance of AI. International law, including the Charter of the United Nations and international human rights law, serves as a fundamental framework that should underpin the design, implementation and operation of governance instruments, mechanisms, institutions and processes. Instruments that are directly applicable to AI demonstrate the engagement and presence of the United Nations system across all layers of governance, whether in the context of broader normative or sector-specific frameworks. Instruments on AI within the United Nations system align with current national, regional and local AI governance efforts, including both cross-sectoral or overarching regulatory efforts and sector-specific regulations. As an overarching instrument, the UNESCO Recommendation on the Ethics of AI provides a policy-friendly blueprint for the ethical governance of AI across sectors. The accompanying Ethical Impact Assessment Tool can be used in procurement processes across different sectors for public or private entities. Similarly, the accompanying readiness assessment methodology can be used by member States and can be adapted to their needs. In addition, the chapters on policy of the UNESCO

[15] Mauro Cazzaniga and others, *Gen-AI: Artificial Intelligence and the Future of Work* (Washington, D.C., IMF, 2024).

Recommendation serve to provide inputs for policies in critical sectors, such as health, employment, the environment, gender and education.

40. Member States are also implementing methodologies developed by UNCTAD, UNDP and other United Nations entities to support the development of AI governance and enable the use of AI for sustainable development. Broad-based normative frameworks and tools are essential for setting a baseline and for international alignment, in particular when national and international legislative efforts and capacities are still evolving and being adapted to the continuous changes in AI. The United Nations system can also leverage experiences from local and regional governance practices to inform the development of national and global frameworks.

41. Instruments developed by ITU, UNESCO, UN-Habitat, UNICEF, UNICRI, UNIDO and WHO support the nuanced needs of their sectors (e.g. the application of AI in the processing of health data and in medical devices, education or urban planning) and allow for specific technical details to be developed in collaboration with stakeholders. Those details can be further nuanced through deep dives on specific use cases (e.g. facial recognition use cases in the context of law enforcement). As highlighted earlier in the present paper, the tools developed and deployed by UNICRI in collaboration with INTERPOL were piloted or trialled with law enforcement agencies. Furthermore, ITU technical standards are developed during a consensus-driven multi-stakeholder process, often in partnership with other United Nations entities and/or led by an industry from a specific sector. The UN-Habitat report *AI and Cities: Risks, Applications and Governance* provides recommendations for developing AI strategies.

42. The case for a sector-specific approach is also based on the review of multilateral instruments in which other global public goods are addressed, such as the Montreal Protocol on Substances that Deplete the Ozone Layer and the WHO Framework Convention on Tobacco Control. Achieving scientific and political consensus on the issue area was key to the success of those instruments. The specificity of the issue (e.g. substituting chlorofluorocarbons in refrigeration equipment, banning smoking in public places or banning the sale of tobacco to minors) helped to facilitate international agreement on the scientific evidence, urgency, timeline and action plan, which were also vital to the success of those instruments. Lessons learned from those multilateral instruments can be translated by delineating the use cases of AI in the public goods domain (e.g. AI for climate modelling, AI use cases for addressing public health challenges and AI in pre-competitive research) and the more commercial or military uses of AI. This approach may also make it possible to build consensus on targeted topics and achieve small but material wins in shorter time frames.

43. Technical instruments within the United Nations system, such as international standards, play an effective role in facilitating norm-setting and interoperability to address the opportunities and risks of AI. Technical standards can serve to encourage competition and innovation, facilitate compatibility and interoperability, improve cost-efficiency and promote national development across a range of sectors, including health, financial services, transportation, energy, agriculture, smart cities and aviation. With respect to AI in particular, technical standards can influence the development and deployment of specific AI systems, through the ensuing development of product specifications with requirements relating to explainability, robustness and fail-safe design. They can also affect the larger context, though the development of process specifications for AI research, development and deployment. In particular, safeguards, including those related to privacy and data protection, oversight mechanisms and transparency reporting requirements, can be incorporated to facilitate human rights compliance in the development of technology. These safeguards are especially pertinent where technology is used in high-risk settings, as

well as when it affects people in marginalized or vulnerable situations, such as children or people on the move.

44. Within the United Nations system, ITU is working on technical standards on AI, with over 100 standards already published and 120 more in the development stage as of 2024. Standards are often developed in collaboration with other United Nations entities that have lead mandates and domain expertise in specific sectors. Examples include the work of ITU with WHO and WIPO on AI for health, as well as its work with FAO on AI for agriculture, with UNEP and WMO on AI for natural disaster management and with ECE on intelligent transport systems and automated driving. ITU also works closely with other standards development organizations to strengthen and advance the voluntary consensus-based international standards system, including through the World Standards Cooperation, which is a high-level collaboration between the International Electrotechnical Commission, the International Organization for Standardization and ITU.

45. In support of those efforts, the AI for Good platform has been instrumental in facilitating the development of agile multi-stakeholder working environments for developing specifications rapidly to address industry needs as they emerge. Standards development organizations, such as ITU, have set up mechanisms to augment standard-making processes by providing alternative working environments for developing specifications in their relevant areas more flexibly and rapidly. These mechanisms are open to all stakeholders, who are able to participate on an equal footing.

46. Standards may, however, have some limitations. For example, market forces may be insufficient to incentivize the development and adoption of standards that govern fundamental research and other transaction-distant systems and practices. In addition, the key expertise of a wide range of stakeholders, including representatives of all countries, in particular countries of the global South, civil society and potentially affected communities, is required during standard-setting processes to ensure adequate consideration of critical aspects such as human rights (see A/HRC/53/42). Efforts are needed to ensure the necessary level of inclusivity.

47. There is a need and opportunity to build the capacity of civil society and academia not just on standards development processes, but also on digital technologies so that a wider pool of experts can effectively participate. Similarly, there is a need and opportunity to build the capacity of technical experts across all levels of Government, as well as of businesses and academia on the potential human rights impacts of their standards-related work.

48. Concerted efforts among the technical community and all stakeholders may be needed to establish such standards in practice, as well as a potential monitoring mechanism to assess the adoption and implementation thereof. Existing international treaties, national mandates, government procurement requirements, market incentives and global harmonization pressures can contribute to the dissemination of standards once they have been established. In that regard, standards are part of a broader array of governance levers and need to be deployed in conjunction with them.

49. Involving key stakeholders from the beginning of the development process and relying on their support in piloting the frameworks under development can help to add legitimacy, demonstrate early results and improve the adoption rate. Notwithstanding the broad endorsement of multi-stakeholder approaches across the United Nations system, significant challenges are encountered in terms of effectively including representatives of civil society and the end users of AI systems (ibid). The work of WHO on AI is linked to practical use cases, such as the use of AI for cervical cancer screening, resulting in the buy-in from member States and stakeholders on specific use cases, which can also help to address demands from member States

concerning certain diseases and health needs. Furthermore, the deployment of the UNESCO readiness assessment methodology in specific countries has involved public, private, academic and civil society organizations.

50. During discussions on compliance, monitoring and enforcement mechanisms for AI systems, it is essential to consider audits, inspections and certification processes, for example, and to learn from the experiences of the United Nations system in addressing other complex global challenges. For instance, within the United Nations system, IAEA safeguards play a central role in preventing the proliferation of nuclear weapons, through the independent verification of States' compliance with nuclear non-proliferation undertakings. IAEA safeguards are embedded in legally binding agreements concluded between States and IAEA. Those agreements provide the legal basis for the implementation of safeguards.

51. As part of its vaccine pre-qualification process, WHO has provisions in place for the comprehensive evaluation of vaccines against international standards, including though site inspections, targeted visits and other mechanisms. Similarly, ICAO conducts on-site and off-site audits to assess the oversight capabilities of States and the degree to which they comply with relevant ICAO standards and IMO audits signatory States against IMO standards and develops recommendations and audit reports. ICAO, IMO and WHO do not have any legal enforcement capacity. However, as highlighted in the report entitled *International Governance of Civilian AI: A Jurisdictional Certification Approach*,[16] the recommendations of these entities, which are based on audits, are considered essential and their standards are referred to in the national legislation in place in many countries as minimum requirements that must be adhered to.

52. There is a case for establishing globally coordinated minimum safety standards and certification processes for AI systems, in particular for high-risk AI systems. Given the nuances of each sector, certification is expected to involve sector-specific approaches and inter-agency collaboration, in particular for cross-sectoral general-purpose AI systems. In his policy brief entitled "A New Agenda for Peace", for example, the Secretary-General called for an agreement on a global framework regulating and strengthening oversight mechanisms for the use of data-driven technology, including AI, for counter-terrorism purposes.

53. The implementation of normative instruments governing global public goods provides important lessons for transparency, accountability and redress mechanisms, which are essential for AI governance efforts. With the exception of voluntary efforts to monitor AI incidents, there are currently no internationally coordinated avenues that are specifically intended as redress mechanisms for AI-related harms once they have been reported and recorded.

54. However, within the United Nations system, there are many examples of reporting mechanisms or avenues for reporting complaints, which may be relevant in the case of AI harms and provide lessons for AI governance. Some examples include the following:

(a) There are multiple human rights reporting and accountability mechanisms in place, through which human rights issues are systematically addressed. Universal

[16] According to the report, the Federal Aviation Administration and Transportation Security Administration of the Government of the United States of America can prohibit a flight from entering United States airspace if it does not comply with ICAO standards. Similarly, national regulatory agencies and national control laboratories play a vital role in WHO vaccine pre-qualification processes as they are responsible for regulatory oversight, testing and the release of WHO pre-qualified vaccines. In addition, the work of UNESCO on bioethics has led to the establishment of bioethics committees in many countries, along with the development of handbooks and guidance.

periodic reviews and the consideration by treaty bodies of a State party's report and issue of concluding observations serve to track developments in the human rights situation in countries. The Human Rights Council complaint procedure and the monitoring and complaints procedures of the treaty bodies serve as avenues through which individuals and groups can initiate proceedings once relevant eligibility criteria have been met.[17] The special procedures of the Human Rights Council may also act in individual cases of allegations of human rights violations by sending communications to Member States and the Working Group on Arbitrary Detention is mandated to consider individual complaints;

(b) The United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988 contains provisions on compliance with both mandatory and voluntary reporting requirements and reporting to the International Narcotics Control Board. Under the Convention, Governments are permitted to update their estimates and assessments in their report mid-cycle and the Board can rapidly confirm such estimates or assessments;

(c) The Radio Regulations Board, the members of which are elected by ITU, oversees compliance with complex radio regulations and establishes regulatory and technical procedures to ensure the harmonious and interference-free operation of various radio services. The Board clarifies the application of specific regulations, considers reports of unresolved interference investigations carried out by the ITU Radiocommunication Bureau and formulates recommendations;

(d) The ILO supervisory system enables the regular monitoring of the application of ratified conventions, as well as the intermittent supervision of the effect given to non-ratified conventions and recommendations both by independent experts and by tripartite political bodies (Committee of Experts on the Application of Conventions and Recommendations and Conference Committee on the Application of Standards). Complaints-based mechanisms, in particular for representations and complaints, and a special procedure for the examination of complaints alleging violations of freedom of association complement this system;[18]

(e) The UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions includes provisions on quadrennial reporting, under which member States are required to submit a report on the actions taken to implement standards.

55. In the light of the existing mechanisms and committees in place to address human rights concerns and provide redress, their needs in terms of capacity to address human rights risks arising from AI could be supported and their capacity thus enhanced. While a committee that receives complaints related to AI at the international or regional level cannot serve as a substitute for legal processes at the member State level, it can provide additional capacity and mechanisms for redress, in particular after domestic remedies have been exhausted. Such redress mechanisms would be essential in cases of discriminatory harm caused by AI, which was identified in the survey as one of the top areas that the United Nations system should address.

56. Tracking tools and data observatories can help to foster global alignment and the sharing of information and best practices. Most of the entities surveyed indicated that they were using tools and observatories for information-sharing, transparency, peer learning and knowledge exchange. Examples of such tools in areas that are not directly related to AI include the IOM Displacement Tracking Matrix, through which data are gathered and analysed to disseminate critical multilayered information on the

[17] See www.ohchr.org/en/treaty-bodies/what-treaty-bodies-do.

[18] See www.ilo.org/international-labour-standards/ilo-supervisory-system-regular-supervision/applying-and-promoting-international-labour-standards/.

mobility, vulnerabilities and needs of displaced and mobile populations; the UNDP electricity access mapping, which was developed using high-resolution satellite imagery in conjunction with household-derived data for more than 100 countries to identify electricity access gaps and enable the design of electrification strategies; the ILO Forced Labour Observatory, which provides national data on protection, prevention and remedies for victims of forced labour; and the ECLAC Gender Equality Observatory for Latin America and the Caribbean, which provides updated information on gender equality indicators. Furthermore, the ITU Regulatory Tracker helps decision makers and regulators to make sense of the rapid evolution of ICT regulation. The UN-Habitat urban observatory model provides technical support for and builds the capacity of local and regional governments on data governance, which is a cornerstone of AI governance.

57. With respect to AI in particular, the AI for Good Neural Network facilitates the sharing of information and best practices among a multi-stakeholder professional community of over 35,000 members. The UNIDIR Artificial Intelligence Policy Portal is another example of a tracking tool that lists countries and their relevant policies on AI. In addition, UNESCO recently launched the Global AI Ethics and Governance Observatory in collaboration with ITU and other partners. The Observatory provides access to reports that were prepared by applying the readiness assessment methodology in over 50 countries, as well as the lessons learned. An example is the report on the deployment of the readiness assessment methodology in Chile,[19] which resulted in specific recommendations, such as the need to update data protection and cybersecurity legislation. The Observatory also provides use cases and analytical papers prepared by networks of experts (e.g. AI Ethics Experts Without Borders and Women4Ethical AI) that UNESCO has established to support the implementation of the Recommendation on the Ethics of AI. The Global Observatory of Urban Artificial Intelligence maps the ethical AI initiatives of local governments. It was developed by UN-Habitat and the cities of Barcelona (Spain), London and Amsterdam and the Cities Coalition for Digital Rights.

58. While many of those observatories already provide information on AI governance efforts worldwide, it would be worth extending them to include a comprehensive list of existing United Nations system laws and instruments that can be extended to AI or are under development for AI governance. In addition, an overview of best practices on legal capacities and the adoption and implementation of laws and instruments across countries would facilitate learning from such best practices. It would also be helpful for the adoption and enforcement of such instruments. Results from the work of the United Nations system on AI[20] can further feed into such efforts.

59. Capacity development is key to supporting the implementation of relevant instruments. In this regard, the role of the United Nations system is twofold: (a) develop technical guidance and tools to assist Member States in translating instruments into national and subnational legislation; and (b) provide capacity-development support to enhance legislative and enforcement capacities, including through tailored capacity-building programmes, training initiatives and other strategic interventions.

60. In addition to the examples of guidance and tools highlighted earlier in the present chapter, there are further examples, such as the publication entitled *UNEP*

[19] UNESCO, *Chile: Artificial Intelligence Readiness Assessment Report* (Paris, 2023).

[20] *United Nations Activities on Artificial Intelligence (AI)* is an annual report prepared in partnership with over 40 United Nations entities to highlight ongoing use cases and projects on AI led by the United Nations system, covering all 17 Sustainable Development Goals. In the 2022 edition, nearly 300 projects were reported.

Guidance: Enforcement of Chemicals Control Legislation, resulting from the work of UNEP in the area of chemical control, which contains detailed guidance on translating instruments into national legislation. Other examples include WHO guidance documents on the pre-qualification of medical products, including vaccines, which provide information for manufacturers, regulatory agencies, laboratories and procurement agencies;[21] IAEA tools for regulatory bodies on radiation sources;[22] ITU guidance on the global use of radio frequency spectrum and satellite orbits;[23] ILO codes of practice,[24] which provide guidance on safety and health at work in specific economic sectors; UNESCO handbooks on bioethics and its bioethics committees, including their contributions to jurisprudence in certain countries and regions; and the Office of Counter-Terrorism Global Counter-Terrorism Programme on Cybersecurity and New Technologies, which provides technical guidance on potential solutions for the use of AI in countering terrorism and an exploratory assessment of the probability of misuse or abuse of AI for terrorist purposes.

61. In each case, the respective United Nations entities have supplemented those tools with capacity development, including tailored capacity-development programmes, workshops, online courses and training. Those tools carry both normative and technical weight, as they are highly regarded and widely adopted by member States. The wide adoption reflects the demand from member States for guidance on highly technical and sensitive areas such as vaccines, chemical control, technology for countering terrorism and nuclear safety, as well as their trust in the capacity of the United Nations system to provide such guidance. The Office of Counter-Terrorism and UNICRI guidance is sought particularly by law enforcement bodies in Member States to ensure that they have the capacities and measures to respond effectively to evolving threats. The work of WHO on AI in health shows the technical demand from member States and stakeholders with respect to specific issues, such as AI for drug discovery and the associated governance aspects of model explainability and interpretability. The World Bank often provides specific institutional capacity-building as part of its technical support for digital development and financing operations. Further deliberation on the skills required internally within the United Nations system is, however, necessary to address technical nuances in AI systems. The assembly of cross-functional teams that combine technical and social science knowledge, to guide responsible AI governance and the prevention and elimination of AI discrimination and bias, including gender bias, is also essential.

III. Focus area 2: institutional functions that serve to inform global artificial intelligence governance

62. The present focus area relates to recent proposals for international AI governance institutions that are inspired by the institutional models or processes of existing entities, such as the Intergovernmental Panel on Climate Change, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services and IAEA. A suitable institutional governance model, robust governance structure and effective norm-making process for AI governance need to deliver a variety of functions. Those functions may include consensus-building on norms, regulations, rules and policies, scientific consensus-building and research, harmonizing standards and certifications, monitoring and reporting, capacity-building for member States and development-focused work, including the application of AI for the Sustainable

[21] Available at https://extranet.who.int/prequal/vaccines/guidance-documents.

[22] Available at www.iaea.org/topics/radiation-sources.

[23] Available at www.itu.int/en/mediacentre/backgrounders/Pages/itu-r-managing-the-radio-frequency-spectrum-for-the-world.aspx.

[24] Available at www.ilo.org/ilo-codes-practice-and-guidance-documents.

Development Goals, among others. There is no "one-size-fits-all" approach that can be adopted across all those functions and hence multiple entities have been studied to understand their governance models and related functions and processes. In addition, the strengths and limitations of the models within the United Nations system have also been reviewed to understand what could be most effectively adapted to the requirements of global AI governance.

63. The overview provided below is based on a combination of existing literature, interviews with experts from United Nations entities and desk research on existing institutions. Consideration has also been given to the institutional functions [25] highlighted in the report on AI of the High-level Advisory Body on Artificial Intelligence. The present paper is focused on the following institutional functions related to AI governance where some gaps have been observed, namely: (a) scientific consensus through technical and authoritative assessments and research; (b) consensus-building and norm-setting with respect to risks and opportunities; (c) regulatory coordination, monitoring and enforcement; and (d) addressing needs related to the development of AI, including through capacity-building, technological equity and technology diffusion and dissemination. It is important to note that for an AI governance regime to be effective, the institutional functions must be closely interlinked and mutually reinforcing. In the present section, an overview of specific institutional models and functions is provided, followed by key takeaways for AI governance.

A. Scientific consensus through technical and authoritative assessments and research

64. Reaching a consensus on concerted and aligned global efforts on any issue area is challenging if there is no empirical and scientific evidence to back those efforts. Scientific consensus-building is, therefore, often a precursor of global cooperation. Within the United Nations system, there are different examples of scientific consensus-building through, for example, the assessment of ozone layer depletion by the Scientific Assessment Panel and the work of the Intergovernmental Panel on Climate Change and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (see box 1). The Intergovernmental Panel on Climate Change was created not only for scientific consensus-building, but also in response to growing environmental consciousness at the international level and the political momentum at the time, including as a result of the United Nations Conference on the Human Environment, held in Stockholm in 1972, the International Conference on the Assessment of the Role of Carbon Dioxide and of Other Greenhouse Gases in Climate Variations and Associated Impacts, held in 1985 by UNEP and IMO, and the pivotal "Our Common Future" report of the World Commission on Environment and Development, led by Gro Harlem Brundtland in 1987. The political momentum and willingness resulting from the Montreal Protocol on Substances that Deplete the Ozone Layer were also contributing factors.

[25] The following institutional functions are outlined in the report of the High-level Advisory Body on Artificial Intelligence: (a) assess regularly the future directions and implications of AI; (b) reinforce interoperability of governance efforts emerging around the world and their grounding in international norms through a global AI governance framework endorsed in a universal setting; (c) develop and harmonize standards, safety and risk management frameworks; (d) facilitate the development and use of AI for economic and societal benefit through international cooperation; (e) promote international collaboration on talent development, access to compute infrastructure, building of diverse high-quality data sets, responsible sharing of open-source models and AI-enabled public goods for the Sustainable Development Goals; (f) monitor risks, report incidents, coordinate emergency response; and (g) compliance and accountability based on norms.

Box 1

Intergovernmental Panel on Climate Change and Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

The Intergovernmental Panel on Climate Change is made up of 195 member Governments. Its governance structure comprises a Bureau that is made up of 34 members who are selected by its Panel. Technical papers and assessment reports of the Intergovernmental Panel on Climate Change are globally recognized as constituting a global observatory of information on climate change and cut across all the essential elements thereof, including the physical science elements of climate change and the adaptation and mitigation measures that are needed. The governance model of the Intergovernmental Panel on Climate Change also comprises national focal points, which provide and update the list of national experts to help to implement its work programme and coordinate between the Intergovernmental Panel on Climate Change and its member Governments, thereby providing avenues for a decentralized approach.

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services is an intergovernmental body that was established by member States to strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development. It was established in 2012 by 94 Governments and its secretariat services are provided by UNEP. It provides a mechanism through which both the scientific and policy communities can synthesize, review, assess and critically evaluate relevant information and knowledge generated worldwide by Governments, academia, scientific organizations, NGOs and Indigenous communities. Like the Intergovernmental Panel on Climate Change, it produces globally recognized assessment reports.

Key takeaways

65. Scientific consensus built on the assessments of an independent, multidisciplinary and multi-stakeholder group of experts adds legitimacy to an issue area and facilitates international alignment on actions needed. Evidence-based decision-making and enhanced scientific consensus-building mechanisms relating to AI will be foundational to global governance efforts.

66. Concerns have been raised globally about how sources of information related to AI scientific research, safety and important milestones are being dictated and controlled by a limited number of entities, in particular non-State actors such as the private sector. For example, public announcements related to AI milestones, such as artificial general intelligence, can result in market hype and exacerbate the problem of the AI divide. In addition, any multilateral or international efforts to develop scientific research on the capabilities and risks of frontier AI should be carried out with the inclusive participation of all countries, in particular those that are already lagging behind in terms of AI development and research, with adequate support for capacity-building on scientific knowledge and tools.

B. Consensus-building and norm-setting with respect to risks and opportunities

67. Consensus-building and norm-setting with respect to risks and opportunities are core to many issue areas and have many facets, including harmonizing the needs and interests of stakeholders around norms and standards. Technical standards can play a key role in facilitating international governance through expert multi-stakeholder and multidisciplinary consensus. Technical standards have been effectively used to create and globally disseminate best practices in areas such as cybersecurity, environmental sustainability and safety in numerous industries, including autonomous vehicles and nuclear energy. When it comes to emerging technologies, standards serve as a path towards effective global solutions, by laying down the "rules of the game" for markets that seek to develop and adopt emerging technologies, such as a definition of interoperability, fostering trust in those technologies through safe and reliable standards and streamlining the development of technologies and related products though processes and systems that are known to work. Examples of standards development are provided in box 2.

Box 2
Examples of standards development

As a standards development organization, ITU offers a contribution-driven and consensus-based environment for standard-setting that is open to all stakeholders. The work of ITU is often driven by the private sector, with the close involvement of member States and academia. The standard development process includes study and focus groups, which are divided by technical areas such as speech quality, multimedia, security and infrastructure connectivity and emerging technologies, such as AI, the metaverse and quantum technologies. ITU facilitates such standard-setting by adopting a holistic approach and balancing the interests of the private sector with the needs of member States and it is working to strengthen the inclusion of human rights considerations. Compliance with ITU standards is voluntary unless mandated by national law or as part of the ITU-facilitated internationally agreed Radio Regulations. The "Common patent policy for ITU-T/ITU-R/ISO/IEC", as well as related guidelines, is a key policy in which there is a call for intellectual property covered by ITU standards to be made available to all standards implementers under reasonable and non-discriminatory terms and conditions. ITU also works closely with other standard development organizations to strengthen and advance the voluntary consensus-based international standards system, including through the World Standards Cooperation.

The UNESCO governance model and decision-making process is based on the findings of expert advisory bodies and intergovernmental institutions, in particular the International Bioethics Committee, the World Commission on the Ethics of Scientific Knowledge and Technology and the Intergovernmental Bioethics Committee. These bodies facilitate consensus-building between experts and member States, in particular in the areas of bioethics and science and technology ethics. Their joint efforts lead to informed decision-making on standards and recommendations that actively shape best practices with respect to ethics globally. In 2018, the World Commission on the Ethics of Scientific Knowledge and Technology produced a report entitled "Preliminary study on the ethics of artificial intelligence", which, as mandated by member States, led to the development of the first global gold standard on AI ethics by UNESCO,

namely the Recommendation on the Ethics of AI. More recently, the World Commission produced a report on the ethics of neurotechnology, which was the basis for the request made by member States for UNESCO to develop a normative instrument in that area.

The adoption by ILO of international labour standards on social justice and decent work was preceded by years of research by the secretariat, as well as technical and expert meetings in which stakeholders, in particular representatives of trade unions and employer organizations, participated on an equal footing, the preparation of a law and practice report and two rounds of tripartite consultations led by national labour administrations.

Under the auspices of UNEP, the Global Framework on Chemicals – For a Planet Free of Harm from Chemicals and Waste, adopted at the fifth session of the International Conference on Chemicals Management held in Bonn, Germany, in 2023, contains specific targets and guidelines for key sectors across the entire life cycle of chemicals. The historical decision to establish the Global Framework was made during a unique international negotiating process, which involved the participation of representatives of Governments, the private sector, NGOs, intergovernmental organizations, youth and academia on the same level. The Montreal Protocol on Substances that Deplete the Ozone Layer, which was finalized in 1987, is a global agreement to protect the stratospheric ozone layer by phasing out the production and consumption of ozone-depleting substances. The Montreal Protocol has proven to be innovative and successful and it is the first treaty for which universal ratification by all countries in the world has been achieved. It has spurred global investment in alternative technologies and placed the ozone layer on the path to repair. The success of the Montreal Protocol is the result of an unprecedented level of cooperation by the international community and collaboration between the public and private sectors.

Key takeaways

68. With respect to standards, in particular in areas that could be considered relating to critical infrastructure or technologies that have significant potential to harm the fundamental rights of citizens, the involvement of all stakeholders, including Governments, in the standard-setting process is particularly important to ensure that the necessary guard rails are appropriately implemented. This multi-stakeholder involvement is especially important when technology transcends national boundaries, given that responses are often fragmented due to discrepancies between domestic frameworks.

69. In terms of AI in particular, technical standards can influence the development and deployment of specific AI systems, through the ensuing development of product specifications, including requirements relating to explainability, robustness and fail-safe design. They can also affect the larger context, with process specifications for AI research, development and deployment. For example, standards on AI are currently being developed by ITU, the Institute of Electrical and Electronics Engineers, the International Organization for Standardization and other standards bodies. Many United Nations system entities work in partnership and participate in the standard-setting process internally and externally. In addition, as technology evolves, technical standards may require further refinement, depending on the sector and use cases,

which thus means that the development processes must be agile to keep pace with technological developments in AI.

C. Regulatory coordination, monitoring and enforcement

70. Within the United Nations system, IAEA, ICAO and IMO are examples of international institutional models with regulatory and policy functions that coordinate international systems across member States (see box 3). These entities demonstrate the United Nations system's expertise and background in coordinating highly complex global systems, such as global aviation or maritime systems, which are the backbone of globalization and international trade and transport systems as they are known today. In addition, the evolution of focus areas within these entities also shows their response to the changing realities of their specific sectors. For instance, the focus of ICAO on aviation sustainability and security has evolved in response to climate change, as has the need to secure aviation systems in response to unlawful interference and emerging threats to international civil aviation.

Box 3
International Civil Aviation Organization, International Atomic Energy Agency and International Maritime Organization

ICAO was established, before the creation of the United Nations, to fill the gap in terms of global cooperation on international civil aviation after the Second World War, at a time when most countries had their own or limited rules, leading to inefficiencies in travel and transport, as well as the risk of not being able to assess safety and security on the basis of minimum standards. ICAO is an intergovernmental organization that works closely with member States and develops and maintains International Standards and Recommended Practices and Procedures for Air Navigation Services, which are at the heart of global aviation safety and efficiency. ICAO operates under the Chicago Convention and comprises an Assembly, the supreme body in which each member State has one vote, and a Council, which is a permanent body elected by the Assembly and responsible for secretariat oversight. One of the mandatory functions of the Council is to adopt Standards and Recommended Practices, when proposals are approved by a two-thirds majority vote. Member States have the obligation to comply with Standards and Recommended Practices unless they register their disapproval or notify the ICAO of any differences. While ICAO does not have any enforcement capacity, adherence to its standards is widely accepted as the international norm and has translated into national civil aviation legislation. It is also important to note that while the private sector can provide inputs, it is not involved in the voting process for finalizing standards, even though it must comply with them.

IAEA is an institution that reports to the General Assembly and reports non-compliance with its nuclear safeguards to the Security Council, which has enforcement functions. In addition, the IAEA Board of Governors is made up of representatives of member States from across all regions on the basis of their capabilities in nuclear science and technology. Decisions taken by the Board are mostly based on consensus, but may also be adopted by a majority or two-thirds majority vote.

The IMO governance model comprises member States with voting rights and associate member States without full voting rights. Its structure consists of three tiers, including the Assembly, which is the highest level, an Executive Council and various technical committees and subcommittees. The committees draw on the input of stakeholders to propose or amend standards, which are then submitted to the Council or Assembly for adoption.

Key takeaways

71. While drawing lessons on auditing and monitoring procedures from the models of IAEA, ICAO or IMO, it is essential to distinguish between the specific subject areas that they focus on and the decentralized nature of AI systems. Firstly, there is significant international consensus on the safety and security aspects of aviation, maritime operations and nuclear energy and consensus-building in that respect has involved several decades of global coordination. Safety and security are "preliminary and primary" considerations in the development of AI systems before they can be made operational or placed on the market. Aeroplanes, for example, are not allowed to be flown unless they meet all the safety criteria. Regarding AI, the global political consensus on the relevant safety aspects is gaining momentum. Countries, however, still have different understandings of the safety thresholds and regulatory approaches and new AI models and systems are being developed and placed on the market at record rates. Secondly, ex ante assessments of aeroplanes, ships and fissile material are different from ex ante assessments of AI systems, which are more diffused, decentralized and, in some cases, open-source.

72. There are still valuable lessons, however, to be learned from auditing and monitoring procedures (with respect to, for example, the number of staff required, the skills needed, the auditing checklist, post-audit remedial measures and enforcement measures), as well as from how member States discuss and agree on standards and the associated voting mechanism, how priorities shift and evolve, how an institutional model facilitates adaptation to those changes (e.g. following the evolution in standards related to aeroplane noise over the years, the enhanced focus on sustainability standards for aviation or the more recent evolving focus on peaceful nuclear fusion energy reactors and other similar examples), as well as from the time needed to introduce, test and adopt a standard at the international level, which in some cases is a process that could take several years.

73. Further deliberations are also needed on the role of the United Nations system in addressing issues, such as the existential risks of AI and potential complex AI-driven attacks on State assets by other State or non-State actors.

D. Addressing needs related to the development of artificial intelligence, including through capacity-building, technological equity and technology diffusion and dissemination

74. Given the tremendous opportunities that AI presents in domains such as health, climate, new material design and discovery and other vital areas, there is a need for development-focused use cases of AI, in particular for developing countries, in a wide variety of areas including climate modelling, drug discovery and improving access to healthcare information. Given the gaps observed in the global AI space, it is critical to place emphasis on the development opportunities provided by AI. According to the *Technology and Innovation Report 2023: Opening Green Windows – Technological Opportunities for a Low-Carbon World* by UNCTAD, fewer than five countries today

possess nearly half of all AI-related publications and patents. This AI divide leaves many countries, in particular least developed countries, lagging and often relegated to the role of data providers and subject to data extraction.

75. To understand existing institutional models that are focused on development aspects and needs, the models of the European Organization for Nuclear Research, the Global Fund to Fight AIDS, Tuberculosis and Malaria and UNDP were studied (see box 4), keeping in mind the nuanced and specific needs of different countries that might be at varying levels of AI maturity. While the European Organization for Nuclear Research plays a broader role in scientific research, the importance of pooling resources for cost- and resource-intensive research and innovation is highlighted through its institutional model.

Box 4

European Organization for Nuclear Research, Global Fund to Fight AIDS, Tuberculosis and Malaria and United Nations Development Programme

The European Organization for Nuclear Research (CERN)[a] is an intergovernmental organization that has 23 European member States and several associate members and was established through a resolution adopted by UNESCO in 1950. One of the key success factors behind the European Organization for Nuclear Research is its neutral and open science approach, including its knowledge transfer activities,[b] involving the public, academia, industries and start-ups. The birth of the World Wide Web, as it is known today, happened at the European Organization for Nuclear Research. The importance of pooling resources is also highlighted through its institutional model. With annual costs exceeding 1 billion Swiss francs,[c] it would be impossible to cover those costs for one or just a handful of countries without international collaboration.

The Global Fund to Fight AIDS, Tuberculosis and Malaria is a public-private partnership that was established in 2002 to combat AIDS, tuberculosis and malaria in low- and middle-income countries. The history of the Global Fund can be traced back to 1999, which was the year that WHO called for a “massive attack on diseases of poverty” followed by the endorsement by the General Assembly of the creation of a fund to fight HIV/AIDs in 2001. The Global Fund governance model comprises a Board that has 22 members, including representatives of Governments, foundations and civil society organizations. The voting rights of the members of the Board for strategic matters are weighted in proportion to their level of contribution to the Global Fund. Its programmes are managed at the country level by country coordinating mechanisms and implementing partners, including NGOs and civil society organizations. This diffused governance approach allows local and in-country partners to develop tailored programmes that reflect the realities of the respective countries across prevention, treatment, care and support aspects of managing HIV, tuberculosis and malaria. The approach of the Global Fund also involves creating co-financing, technical, procurement and philanthropic partnerships with stakeholders. In addition, the Global Fund follows a results-based financing model, which increases accountability and transparency, and has set up an incentive funding structure based on demonstrated progress.

As for UNDP, its model also serves to highlight the importance of developing tailored programmes in line with the needs of a country or a thematic area. At the apex level of its governance structure is an Executive Board that is made up of 36 member States, which are selected by the General Assembly for a three-year term. UNDP decisions are consensus-driven, but each member State has one vote in the case of voting. UNDP supports member States through its country offices and thematic centres that focus on specific policy issue areas, such as climate, food security, gender, human development and urban development. In addition to the UNDP AI Readiness Assessment, which was referred to earlier in the present paper, the work of UNDP on AI is also focused on developing specific AI applications, either at the member State level or within a thematic area or sometimes both. eMonitor+, for example, is a technology that relies on AI models to identify and analyse online content that harms the integrity of information and the iVerify fact-checking tool is used to identify false information and mitigate the spread thereof. In Rwanda, the UNDP accelerator laboratories partnered with the Ministry of ICT and Innovation to deploy five smart anti-epidemic robots[d] in two COVID-19 treatment centres and at Kigali International Airport.

[a] The European Organization for Nuclear Research is another example of the role that the United Nations plays in facilitating international cooperation and research on complex topics, recognizing the need for neutral scientific research with pooled resources. At the UNESCO General Conference held in 1950, a resolution was adopted in which a call was made for the establishment of a centre for particle physics research to propel neutral scientific research for the benefit of humanity. Subsequently, UNESCO also helped to facilitate intergovernmental meetings and negotiations with member States and scientists and lent its support to develop the legal framework for the European Organization for Nuclear Research, including the Convention for the Establishment of a European Organization for Nuclear Research signed in 1953, leading up to the eventual establishment of the Organization in 1954.

[b] See https://kt.cern/.

[c] European Organization for Nuclear Research, *Annual Report 2022* (Geneva, 2023).

[d] UNDP, “UNDP and Government of Rwanda deploy smart anti-epidemic robots to fight against COVID-19!”, 21 May 2020.

Key takeaways

76. AI research, development and training are cost- and resource-intensive and require the pooling of resources to spur responsible innovation in AI. The cost- and resource-intensive nature of AI is also well reflected in the publication entitled *Artificial Intelligence Index Report 2023* by the Stanford University Institute for Human-Centered AI, which shows that in 2022, there were 32 significant industry-produced machine learning models compared with just three produced by academia. Even though the efficacy of large language models is still evolving, training a large language model with between 65 and 170 billion parameters could cost between $2.4 million and $4 million.[26]

77. For any public-focused AI system or model built for the larger benefit of humanity, cost is a crucial consideration, particularly in the development of models. Therefore, similar to the approach taken by the European Organization for Nuclear Research, international cooperation is critical to help to pool resources and ensure that such research is both neutral and distributed in the spirit of open science, in

[26] Jonathan Vanian, “ChatGPT and generative AI are booming, but at a very expensive price”, *CNBC*, 13 March 2023.

particular for use cases related to AI for the Sustainable Development Goals, such as in the areas of health and climate.

78. In addition, the analysis of the European Organization for Nuclear Research institutional model and its open innovation approach also necessitates further discussion, with respect to the use of open-source AI systems. This is an opportunity for the United Nations system to consider further its role in ongoing international discussions on open-source AI, including research on the related governance aspects. Open-source AI should not be seen as a silver bullet, but rather an essential consideration in the equity, access and power concentration debate. Such systems can also potentially provide avenues for stakeholders with limited resources to develop AI systems from the ground up.

79. The experience of the United Nations in development work, including the provision of capacity-building support for broader strategy work, such as the adoption of national strategies on AI, can provide avenues for tailored development programmes that cater to the specific needs of stakeholders and Member States on the basis of a holistic view of the AI value chain. Capacity-building can support AI development that is grounded in fairness, gender equality, reliability, safety, interpretability and accountability. As reflected in practically all national AI strategies developed in the past few years, governance is an important consideration. There is a dedicated chapter or section in most of those strategies. Governance is considered to be part of a broader umbrella of AI opportunities or needs in a given country, as opposed to a stand-alone objective. Developing countries in particular see AI as a leapfrog opportunity and they must balance the resources that are available to leverage the opportunities presented by AI while ensuring the effective governance thereof. In order to leverage AI, countries may have development and capacity-related needs, which may be relating to compute or hardware requirements, access to data, the existing AI ecosystem and skills, the need to assess sectors that can benefit from AI and leveraging AI for domestic and global value addition as well as better public service delivery. A holistic approach, which involves considering AI-related development efforts in a country in conjunction with any existing United Nations efforts on digital infrastructure and digital transformation, would be beneficial.

80. A “dual action” approach is necessary to address the safety risks of AI as well as the development opportunities presented by the technology, in particular in developing countries. In that respect, lessons can be learned from treaties on weapons of mass destruction and from the related international organizations, in which it is recognized that while physics, chemistry and biology offer substantial development opportunities, they also present potential risks of accidents and deliberate misuse. Instruments such as the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction and the Treaty on the Non-Proliferation of Nuclear Weapons contain provisions on balancing the opportunities and risks, to ensure that security concerns do not hamper the beneficial applications of science and technology. Recognizing the benefits, for example of civil nuclear energy, can also help to bring a much broader set of countries to the table. The above-mentioned instruments contain provisions to manage this balance and ensure that security concerns do not hamper beneficial applications of science and technology.

81. This tension is also observed in the case of environmental treaties and instruments. Efforts to reduce emissions and achieve associated targets must be balanced with the economic and social development needs of countries, which should be met as progress in terms of clean energy and sustainable production is achieved. Similarly, in the case of AI, it is necessary to strike a balance between innovation for

development and governance, while being able to provide resources for both adequately. The United Nations system, through its entities and their specialized mandates, can help to address this duality by providing dedicated support and guidance on the ethical development and governance of AI systems that cater to development needs in such areas as access to justice, health and energy efficiency.

E. Coordination across the United Nations system for cross-cutting issue areas

82. The analysis of institutional models also reaffirms that in the case of cross-cutting and transversal topics like AI, the various governance functions should be distributed across multiple entities. The present section highlights examples of United Nations system-wide coordination and collaboration in cross-cutting and complex issue areas. The efforts of the United Nations system in areas such as cybersecurity provide lessons for effectively leveraging the complementary strengths and mandates of multiple entities to address the cross-cutting and multifaceted nature of technology.

83. ITU supports member States by helping to enhance their technical cybersecurity capabilities, including by establishing computer security incident response teams at the member State level, conducting cyberdrills for better coordination, sharing best practices and developing skills and providing a platform for developing technical standards. National security-related issues concerning cyberthreats from State or non-State actors were addressed, for example, by the Group of Governmental Experts on Advancing Responsible State Behaviour in Cyberspace in the Context of International Security and the Open-ended Working Group on Developments in the Field of Information and Telecommunications in the Context of International Security, which was established pursuant to General Assembly resolution 73/27.[27] While UNODC addresses the issue of cybercrime and the Human Rights Council and OHCHR typically handle the human rights implications of cyberactivity, the Office for Disarmament Affairs deals with issues relating to the use of ICTs by States in the context of international peace and security. The regular sharing of experiences between Member States and the Secretariat, as well as among the different United Nations entities, helps to ensure that relevant forums are utilized for specific aspects relating to the complex topic of cybersecurity.

84. Another example of United Nations system coordination is the United Nations Global Counter-Terrorism Coordination Compact, which ensures coordination and cohesion across 46 United Nations and non-United Nations entities, acting as a platform for strengthening joint United Nations action to support Member States in delivering on the United Nations Global Counter-Terrorism Strategy, while reducing the duplication of efforts within the United Nations, including in the field of new technologies such as AI and cybersecurity.

[27] In its resolution 73/266, the General Assembly requested that a Group of Governmental Experts on Advancing Responsible State Behaviour in Cyberspace in the Context of International Security be established. Furthermore, in its resolution 73/27, the General Assembly established an Open-ended Working Group, in which all Member States were invited to participate. Both Groups have now concluded their work.

IV. Focus area 3: lessons learned from existing governance structures, inclusive normative processes and agile and anticipatory approaches within the United Nations system

85. The analysis relating to this focus area is based on the examples of governance structures and normative processes, selected from among the survey and interview responses, that demonstrate the challenges and gaps observed in global AI governance. The analysis covers aspects such as the disproportionately large role of the private sector and the related concentration of market power, as well as the need to balance innovation capabilities with safety aspects, legal liability, the growing AI divide, the need for inclusivity, the proliferation of principles and guidelines related to AI but lack of enforcement, the need to regularly update technical and safety standards, in line with the rapid development of AI, and other issues.

86. There is also a need to "future-proof" regulations. In this regard, human rights experts have highlighted the added value of risk and opportunity assessments that also duly incorporate human rights considerations and the need to adopt the precautionary principle when developing new technologies and AI. Data show that the United Nations has extensive experience in addressing several of those challenges, as part of its work on AI and in other areas. Further reflection, however, is needed on important factors such as agility in normative processes and further strengthening engagement with the private sector.

A. Lessons learned from existing governance structures and normative processes

87. The United Nations system champions inclusivity in its norm-making processes by seeking inputs from a wide variety of stakeholders, which can help to address the challenges of inclusive AI design and development. The first such instance of convening in the digital space was the World Summit on the Information Society, which was held in two phases, supported by more than 100 Heads of State and world leaders and attracted thousands of representatives of all stakeholder groups. The outcome documents, which include the Plan of Action adopted by the World Summit on the Information Society and the Tunis Agenda for the Information Society, in which the concept of multi-stakeholderism is elaborated, continue to drive digital discussions and work programmes across United Nations entities and multi-stakeholder communities.

88. The AI for Good platform, which is hosted by ITU in collaboration with over 40 United Nations entities and has an online community of over 137,000 members, continues to play a critical role in hosting global multi-stakeholder dialogue on AI and identifying common ground and solutions. The Commission on Science and Technology for Development and the multi-stakeholder forum on science, technology and innovation for the Sustainable Development Goals are also important multi-stakeholder platforms for advancing the understanding of science and technology.

89. Other examples of governance models selected from among the survey results and responses to the interviews with experts from United Nations entities include that of ITU, which has a diverse membership that includes over 1,000 representatives of the private sector, civil society and academia and engages different stakeholders in the development of technical standards together with experts and representatives of member States, as well as the UNAIDS governance model, which includes representatives of people living with HIV on its Programme Coordinating Board, so that they are directly involved in decision-making, and the UNICEF U-Report

platform for engaging young people in policy discussions, as well as the Youth Foresight Fellowship programme. Under the ILO governance model, both trade unions and organizations of employers are involved in standard-setting and meetings of executive committees for shared decision-making and governance on an equal footing with Governments. Turning to UNESCO, the Recommendation on the Ethics of AI was developed by multidisciplinary experts from all over the world, on the basis of over 50,000 diverse inputs that were received as part of an online consultation, and the implementation of the Recommendation is supported by multiple networks, including the private sector and civil society.

90. The success of all the United Nations human rights mechanisms is rooted in meaningful, consistent and inclusive stakeholder engagement, including in sessions of the Human Rights Council and treaty bodies, the preparation of reports by OHCHR and special procedures, as well as general comments and recommendations of treaty bodies, and in the Forum on Business and Human Rights and the Forum on Minority Issues. Paying more attention to public participation in AI governance and fostering participatory processes can ensure inclusion and a human rights-based approach, taking into consideration, in particular, vulnerable groups such as women and girls, children and young people, persons with disabilities, Indigenous groups and forcibly displaced persons. It is also crucial to include developing countries, in order to redress imbalances in their participation in previous global governance processes and effectively incorporate a development perspective into global AI governance.

91. Engaging the private sector is key to global AI governance efforts. The engagement between the United Nations system and the private sector was analysed across a range of areas, including ICTs, aviation, health, disaster risk management, climate and counter-terrorism, and modalities, for example engaging the private sector in standard-setting or harmonization processes, seeking inputs for the shaping and development of instruments or in some cases, engaging the private sector in ex ante or pre-qualification assessments. Some examples include the following:

(a) ITU is one of the few United Nations entities with a multi-stakeholder membership, which includes industries, universities, research institutes and international and regional organizations. The private sector plays an important role in decision-making processes at ITU, including decisions relating to standards development, which are made primarily through a consensus-driven process involving different stakeholder groups;

(b) As part of the implementation of the Recommendation on the Ethics of AI, the Ibero-America Business Council for Ethics of AI was launched, considering that it is the business sector that is developing the largest share of AI technologies. The members of the Council include Microsoft, Telefónica, Mastercard, Salesforce, Lenovo and Innit;

(c) The UNIDO Global Alliance on AI for Industry and Manufacturing brings together stakeholders from the private sector, the public sector, academia and civil society to ensure access to AI technologies and the responsible and fair use thereof;

(d) As part of the OHCHR Business and Human Rights in Technology Project (B-Tech Project), a range of policy papers and recommendations, including analyses and recommendations regarding generative AI, have been developed with inputs from relevant stakeholders and are applicable to the technology sector.[28]

[28] See Volker Türk, United Nations High Commissioner for Human Rights, “Türk calls for attentive governance of artificial intelligence risks, focusing on people’s rights”, opening statement at the Generative Artificial Intelligence and Human Rights Summit, 30 November 2023; and OHCHR, “B-Tech note regarding the United Nations’ plan towards AI Governance at the UN General Assembly 78”, September 2023.

92. Given the current global AI context, the United Nations system should take into account the following considerations to further strengthen its engagement with the private sector:

(a) **Ensure neutrality in normative and operational processes**. The United Nations system has guidelines in place for engaging with the private sector and other non-State actors in normative and operational processes. An example is the WHO Framework of Engagement with Non-State Actors,[29] as well as its "two-tiered" normative process while developing its regulatory considerations on AI for health. As part of that process, important technical inputs are gathered from the private sector through advisory boards. The inputs are then filtered by a group of experts and inputs from member States are also considered to ensure that standards and policies are developed in such a way as to prevent bias, conflicts of interest or risk of regulatory capture. In addition, the final decision-making process is led by member States without the participation of the private sector in voting or decision-making;

(b) **Increase accountability by supporting and advocating for reporting mechanisms across voluntary and mandatory requirements**. There are many examples of the work of the United Nations system to develop or support standardized reporting, such as the United Nations Global Compact and the Guiding Principles on Business and Human Rights. While the Guiding Principles have helped to make significant progress on business and human rights, there is a long way to go, as reporting is voluntary. Similarly, in the field of AI, reporting by the private sector is voluntary. In addition, while some leading technology companies have published transparency reports, there are no standardized metrics in place for reporting on AI responsibility and safety. Standardized disclosures related to AI safety and governance across the AI life cycle could be deliberated, while recognizing that they should be differentiated depending on the size of companies, given that large technology companies have more policy and legal resources than small and medium-sized enterprises. Environmental, social and governance-led investments in AI companies can further support such efforts, given that human rights and responsible AI metrics are, therefore, considered in investment decisions. Initiatives like the Principles for Responsible Investment could be extended for similar discussions on disclosures and investments, considering the nuances of AI and other frontier technologies;

(c) **Provide capacity development and detailed technical guidance to help to develop a trusted platform for the assessment of requirements**. When it comes to a trusted body for pre-qualification and ex ante requirements for AI systems, multiple examples can be drawn from the work of the United Nations system in different sectors. While Member States perform the ultimate regulatory function, the United Nations system plays a key role in providing guidance. With respect to AI, the WHO publication entitled *Generating Evidence for Artificial Intelligence-Based Medical Devices: A Framework for Training, Validation and Evaluation* provides guidance on the deployment and pre- and post-market surveillance of AI-based software as a medical device. Other examples of the trusted role of the United Nations in ex ante assessments include the work of WHO on the pre-qualification of medical products,[30] for which there is an array of instruments to support the process (e.g. the legally binding International Health Regulations (2005) and the WHO Pre-qualification Programme Manual and Pre-qualification Standard Operating Procedures). Similar examples include the WFP Food Safety and Quality public repository, the ICAO guidance on aircraft airworthiness,[31] the ITU *Benchmark of Fifth-Generation Collaborative Digital Regulation* and the IAEA safety standards

[29] World Health Assembly, document WHA69.10.

[30] See https://extranet.who.int/prequal/vaccines.

[31] ICAO, "Aircraft certification: including modifications", 2019.

relating to nuclear power plants.[32] The UNESCO Ethical Impact Assessment and UNDP AI Readiness Assessment are also useful ex ante assessment tools for AI systems before they are procured and deployed. These examples show the depth of the technical support provided by the United Nations system to address the need for pre-qualification assessments.

93. Flexible and dynamic decision-making, in particular with respect to emergencies or safety, is essential in specific contexts. Agility in decision-making processes, the rapid allocation or release of funds and rapid emergency responses are all important for AI safety, in particular in cases of the malicious use of AI or extreme AI incidents (e.g. a large-scale AI-driven attack on critical infrastructure). Research provides some relevant examples in such contexts including the experience of UNHCR in mobilizing emergency funds and resources and continuous need to deploy resources in the light of the unpredictable nature of crises and conflicts. The structure of UPU allows for lower-level regulations of the Universal Postal Convention to be amended biannually to keep up with the fast-paced developments in the postal sector. As for ITU, it has an Alternative Approval Process, which is a fast-track approval procedure for technical standards that allows for a standard to be approved in as little as five weeks.

B. Lessons learned from agile and anticipatory governance mechanisms

94. The rapid evolution of AI technology requires agile governance approaches. It also highlights the need for anticipatory mechanisms, to predict unforeseen risks and develop an action plan that can be triggered if they materialize. The present section provides examples and lessons learned from the work of the United Nations system on agile and anticipatory governance approaches, which are aligned with the vision for a United Nations 2.0,[33] which is aimed at accelerating the transformation towards agile, diverse, responsive and impactful United Nations entities.

1. Agile and reflexive governance

95. As a concept, agile governance borrows from agile software development and includes the tenets of fluidity, adaptiveness and flexibility in governance design, while introducing the idea of mechanisms and processes that can be updated in an expedited manner to stay abreast of rapid changes in technology or social, political and economic levers. Reflexive governance, however, is a concept under which processes are more participatory in nature, feedback on the impacts of technology is incorporated through policy iterations and the capacity of Governments to mitigate and respond to risks faster is fostered. When it comes to the agile governance of emerging technologies, work has been ongoing globally. The analysis of the survey results has yielded the following broad categories of agility that are relevant to the governance of AI:

(a) Agility in policy design or instruments (e.g. the ability to add optional protocols or annexes or update standards in an expedited manner instead of modifying the whole instrument);

[32] Available at www.iaea.org/resources/safety-standards.

[33] “UN 2.0” encapsulates the Secretary-General’s vision of a modern United Nations family, rejuvenated by a forward-thinking culture and empowered by cutting-edge skills for the twenty-first century, to turbocharge United Nations support for people and planet. The approach will involve a powerful fusion of innovation, data, digital, foresight and behavioural science skills and culture, a dynamic combination that is called the quintet of change.

(b) Agility in normative processes and governance mechanisms (i.e. in developing or modifying instruments and governance mechanisms, allowing for expedited decision-making when relevant);

(c) Agility in mechanisms for an expedited response in the event of emergencies (e.g. disease outbreaks or a climate or humanitarian crisis).

96. Based on the above, some examples of agile governance within the United Nations system include the following:

(a) The UNDP global network of accelerator laboratories is focused on applying collective intelligence to accelerate development in member States in specific issue areas, experimenting with test beds and sandboxes, informing national policies and developing innovative ways of engaging citizens or the community on a large scale for policy formulation, while capacitating member States and stakeholders within the local ecosystems in the global South on open research and development capabilities;

(b) WFP is currently developing an AI sandbox that is aimed at providing streamlined access to data and compute resources to enable experimenting with AI solutions and offer an expedited understanding of effective AI solutions;

(c) ILO has mechanisms in place that enable regular and expedited updates to be made to conventions. The Maritime Labour Convention, 2006, for example, includes a mechanism under which regular updates can be proposed by the Special Tripartite Committee and an "opt-out" mechanism that can be used for subsequent amendments, which contrasts with the time-consuming ratification process. The List of Occupational Diseases Recommendation, 2002 (No. 194) has an accelerated process for updating the list of diseases, through a tripartite meeting of experts, including representatives of all relevant stakeholder groups;

(d) The policymaking approach taken by UNHCR enables the expedited adoption of "interim" guidance while system-wide standards are under development. This approach has been used to introduce or adapt requirements in the event of fast-moving operations or emergencies and to regulate the dissemination of anonymized microdata.

Key takeaways

97. While reviewing these examples, it is important to note that the magnitude of agility at the project or smaller-scale programme level is different from that at the entity or institutional level or even in a normative process involving all Member States. In the light of the technical complexity of the work, diversity of views among decision makers and varying levels of maturity in terms of technology adoption, it is necessary to reflect on the true agility of normative processes, for which regional, industry or sector-specific approaches may be required. An important next step for the United Nations system would be to consider ways to integrate agility into its current processes to keep pace with changes in AI and emerging technologies.

2. Anticipatory governance and foresight-based research

98. Applying foresight in AI is critical for navigating the complex interplay between technology, society and the environment and crafting adaptive strategies that align with ethical, inclusive and sustainable values. It serves as an indispensable tool, not only for forestalling the unintended consequences of AI, but also for uncovering implicit assumptions, ensuring that the full potential impact is understood when developing AI systems. Moreover, foresight serves to foster a nuanced understanding of the interaction between AI and other emerging technologies, promote a forward-

looking view and underscore the significance of human agency in directing AI technologies to enhance societal well-being without exacerbating inequalities.

99. Several examples of anticipatory governance were shared by United Nations entities, in particular in the areas of food, health, climate, conflict and humanitarian relief and response, in all sectors that are highly volatile and high-risk owing to multifold crises, including climate change and erratic weather patterns, natural disasters, conflict and unforeseen disease outbreaks, requiring both anticipatory response planning as well as emergency resource mobilization. Given that AI and emerging technologies affect practically all sectors, specialized entities like ICAO are also working on anticipatory governance. Some examples of anticipatory governance within the United Nations system include the following:

(a) The pre-standards work of ITU for alignment on an emerging technology or issue area, through "focus groups", enhances formal standards development processes by enabling the swift development of specifications in emerging technology areas, thus addressing emerging industry needs. Some recent areas of focus include quantum computing, the metaverse, AI for health, precision agriculture and the Internet of things, autonomous and assisted driving and many others. In the ITU *Benchmark of Fifth-Generation Collaborative Digital Regulation*, the dynamic and intricate nature of the ICT landscape is addressed by providing metrics to assess gaps, suggesting adaptable road maps amid the evolving regulatory environment, monitoring progress and proposing solutions to overcome challenges in achieving the Sustainable Development Goals;

(b) WFP work on anticipating food crises that may be exacerbated by unforeseen risks related to climate and natural disasters, conflict or economic and political shocks. In this regard, WFP has developed common principles to address challenges related to anticipatory action in foreseeing food crises.[34] A key finding of the work was the lack of uniform methods across entities to assess the efficacy of anticipatory action. To overcome this lack of uniformity, the principles developed included agreeing on common outcome indicators and alignment on acute food insecurity projections, which are evidence based and consensus based. In addition, it was also recommended that such projections and the indicators be aligned with forward-looking indicators such as the climate and economic situation. In this regard, platforms such as the Anticipation Hub are also gaining traction, which shows that the success of anticipatory governance is contingent upon clearly defining the roles of all stakeholders, common forecasting and threshold triggers and financing for action;

(c) The work of ECLAC on foresight for development[35] spanned 10 countries in the region and involved training more than 1,400 government officials and members of civil society and academia in foresight concepts and tools. The methodology deployed by ECLAC involved scenario-building for multiple futures based on strategic variables, such as competitiveness, investment, economic and social infrastructure, security and justice, that enable organizations to define risks, opportunities or threats that may occur in the future. Hypotheses were developed based on the changes in variables and the interaction between them over a 10-, 20- and 30-year horizon;

(d) ICAO developed a Global Air Navigation Plan, in which the possibility of using emerging technologies in aviation safety and security was explored and timelines were set for their implementation, considering the differentiated rates of development among member States. The anticipated technologies have been partially

[34] FAO and WFP, "Anticipating food crises: common principles to address challenges relating to anticipatory action", 2023.

[35] ECLAC, *Foresight for Development: Contributions to Forward-Looking Territorial Governance* (Santiago, 2023).

developed by some member States and are ranked in categories based on their implementation timeline;

(e) UNHCR has developed several case studies on anticipatory governance. Examples include the study of anticipatory governance and refugee protection in North Macedonia,[36] a predictive analytics project in the Sahel,[37] which brought together a global consortium of leading academic institutions that specialize in predictive analytics and strategic foresight approaches to work on the nexus between climate change and other megatrends, which are considered factors contributing to new or exacerbated vulnerabilities, and a predictive analytics project in Brazil to create contingency plans for different scenarios. UNHCR is also scoping a global early warning system for forced displacement based on the Inter-Agency Standing Committee contingency plan;

(f) With the support of the European Union, the Office for Disarmament Affairs engages young AI practitioners, civil society, academia and professional associations in the responsible use of AI and the mitigation of the risks that the misuse of civilian AI presents for peace and security as a form of "upstream arms control". This work builds civilian capacity to support anticipatory governance, which is critical in such fields as AI, given that practitioners must be engaged for governance efforts to be appropriately agile and meaningful;

(g) The Resilience Frontiers initiative, led by the secretariat of the United Nations Framework Convention on Climate Change, embodies the essence of strategic foresight coupled with human agency. Engaging a wide array of international stakeholders and experts from diverse disciplines, the initiative provides an opportunity to confront directly the challenges of short-termism and linear thinking, through an approach that is structured around eight transformative pathways. These pathways are focused on leveraging frontier technology in a way that enables humanity and the natural world to thrive in harmony, fostering a sustainable, equitable and resilient world for all. Unlike theoretical frameworks, these pathways offer actionable plans that are designed to catalyse an irreversible shift towards a world that is characterized by permanent resilience. This collaborative effort exemplifies a model of anticipatory governance in which multidisciplinary collaboration, innovative thinking and transformational future-making are valued;

(h) The work of the UNESCO Committee on the Ethics of Science and Technology and the International Bioethics Committee is anticipatory in nature. For many decades, the work has served to identify emerging trends on the technological innovation ladder and inform member States and stakeholders. Through the work, many technological developments are scanned and debated. Examples include the human genome, the ethics of climate engineering or the Internet of things and the work on AI.

Key takeaways

100. In order to develop an effective anticipatory governance system for AI, different stakeholders must align on the "outcome indicators" related to safety, well-being and prosperity, for example, when building forecasting models. Achieving global alignment on all those indicators is expected to be challenging and a sectoral or regional approach is recommended. It is also recommended to adopt a holistic

[36] See UNHCR Innovative Service, "Anticipatory governance and refugee protection", Medium, 19 August 2020.

[37] Office of the Special Coordinator for Development in the Sahel and UNHCR, *Moving from Reaction to Action: Anticipating Vulnerability Hotspots in the Sahel – A Synthesis Report from the Sahel Predictive Analytics Project in Support of the United Nations Integrated Strategy for the Sahel* (2022).

perspective of the AI value chain in anticipatory governance, taking into account environmental and energy considerations, the hardware required to meet the compute capacity needs, cloud services, data and the design, development, training and deployment of the model and beyond. For instance, further geopolitical rifts affecting trade curbs on essential minerals and metals or shortages of semiconductor chips could affect the AI hardware and compute requirements, as semiconductors fabricated using those essential minerals and metals are necessary to meet those requirements. These rifts could disrupt the development of future AI applications and exacerbate the equity gap in AI.

V. Recommendations

101. **Based on the research and analysis presented in the present paper, the following general recommendations are made for consideration by the United Nations system and High-level Advisory Body on Artificial Intelligence:**

(a) **Global AI governance efforts within the United Nations system should be anchored in international law, including the Charter of the United Nations, international human rights law and other internationally agreed commitments, such as the 2030 Agenda for Sustainable Development. To adequately cater for specific requirements and economic, social and environmental priorities, United Nations instruments and frameworks that provide sector-specific guidance are key to those governance efforts;**

(b) **The convening power, normative and policy instruments, institutional functions and frameworks, stakeholder networks and resources and diverse expertise and experience of the United Nations system should be leveraged to help to address global AI governance challenges, including with respect to scientific and political consensus-building, monitoring and enforcement, capacity development on technical, policy and regulatory aspects, enhanced multi-stakeholder collaboration and technology diffusion and dissemination;**

(c) **A well-conceived AI governance system should provide appropriate incentives and guard rails that are commensurate with the particular characteristics of different AI systems and applications in order to advance ethical and human rights-based governance while maximizing the positive impact of the technology on society and mitigating the risks thereof;**

(d) **Effective AI governance should be delivered through an ecosystem of critical functions, including but not limited to technology development and consensus-building, research and analysis, stakeholder engagement and coordination, standard- and norm-setting, capacity-building and monitoring and accountability. These functions have already been tested by the entities surveyed and this experience can provide tailored approaches, through specific networks for focus areas and diverse stakeholder groups within the United Nations system, facilitated by established governance structures and coordination mechanisms;**

(e) **Adopting a pragmatic approach and building on current governance initiatives within the United Nations system are crucial when designing global AI governance efforts. In addition, the fast pace of technology development, compared with the relatively slow process of developing new international law instruments within institutional structures, the need for regional, industry or sector-specific approaches and the level of agility of mechanisms and processes that exist at the institutional level also need to be factored in. The United Nations system has launched various initiatives to respond to the changing pace of technology development;**

or "codes of conduct" in that issue area. Further discussion is needed on the incentives that are necessary to hire and retain AI talent and expertise within the United Nations system, in particular given the competition from the AI industry. Within the United Nations system, efforts are ongoing as part of the work of the task force on AI, to identify and promote mechanisms for pooling technical capacity and sharing knowledge on AI;

(g) **Enable sandboxes to facilitate the development of internationally harmonized approaches for assessing AI risks and monitoring. Globally, there is growing recognition of the need for AI safety-related institutions that are aimed at assessing risks and monitoring AI systems, as also demonstrated by the recent launch of such institutions in a few countries. The United Nations system can provide platforms in the form of "sandboxes" that enable relevant stakeholders to convene, develop and test assessment approaches, including at the sector level, and leverage guidance, frameworks and instruments provided by the United Nations system and its entities;**

(h) **Proactively manage risks and mainstream foresight capabilities. Aligned with the Secretary-General's vision for a United Nations 2.0 and his policy brief entitled "UN 2.0: forward-thinking culture and cutting-edge skills for better United Nations system impact",[38] the efforts of the United Nations system in the areas of technology and AI governance can be bolstered by foresight. Such a foresight function could be embedded into the existing activities of entities. It can be supported through cross-sectoral and multi-stakeholder partnerships, including with academic institutions and think tanks that are focused on technology foresight. In addition, with an eye to the future, further deliberations are needed on whether the United Nations system can play a role in addressing issues such as the existential risks of AI and complex AI-driven attacks on State assets by State or non-State actors;**

(i) **Invest in talent, data and compute resources, as well as regulatory and procurement capacity. United Nations system entities must, within their respective mandates and in collaboration with each other, continue to prioritize, invest in and support coordination on initiatives aimed at reducing the AI divide in the context of addressing the broader digital divide, including the gender digital divide. Capacity development is key to this effort, with increased focus needed on enhancing the regulatory and technical capacities of policymakers and AI practitioners, considering the work that is under way as part of national AI strategies, as well as sector-specific efforts targeted at key stakeholders, in particular those in developing countries and traditionally marginalized populations. Capacity-building on AI for women is also needed to ensure that they can equally enjoy the benefits and opportunities of AI, while recognizing the risks and threats that can be detrimental to their well-being.**

[38] According to the policy brief, 34 per cent of United Nations system entities had designed a strategy for strategic foresight (as of September 2023). Climate and crisis situations are the primary focus areas of foresight strategies.

Annex I

Risks of artificial intelligence[1]

1. **The technical nature of AI systems poses regulatory design challenges**. Technology governance approaches involve considering multiple dimensions, including the risks, performance-based governance and safety thresholds, among others. AI, in particular the general-purpose nature of foundation models, poses challenges in terms of regulatory design because it is difficult to foresee all the permutations and combinations of outcomes of those applications, which in turn makes it challenging to define the risk and safety thresholds or align on standards, which would have to be continuously updated.

2. **Opacity and the lack of explainability and interpretability of AI systems**. Opacity and the lack of explainability and interpretability hinder effective accountability and decision-making and make it challenging to design governance approaches, as not all the modalities of the system are well understood. Effective guard rails, such as accountability, transparency, equity and alignment with international human rights law, must be in place to ensure human agency and oversight and to protect human rights.

3. **The decentralized nature of AI applications and models**. The decentralized nature of AI applications and models, and even the quantized versions thereof,[2] makes tracking and monitoring every instance and usage of models difficult. This decentralized nature can pose risks of the models being used by malicious actors, in particular in the light of the nefarious use cases of AI, such as the spread of misinformation by troll bots. In addition, there has been a big push for open-source AI, which democratizes AI innovation but can also be put to malicious use by certain actors.

4. **Risks arising from interrelated areas, such as data, copyright, patents and cybersecurity, can compound AI risks**. The problem of data bias in AI algorithms is also a reflection of intergenerational and historical biases in data collection relating to gender, race, culture and other factors. It is often exacerbated in AI systems, which can lack data diversity. In addition, there is increasing divergence with respect to the interpretation of the fair use of data and there are associated copyright challenges, as well as patenting issues when the application or system is auto-generated or developed by an AI system. There are also inherent risks of data protection and privacy issues, as well as the issue of whether the data being used for AI systems have been obtained with consent or through extractive practices. Cybersecurity is a dual risk in terms of adversarial prompt injections, that is the deliberate manipulation of the system for malicious use, or even the use of AI for large-scale complex cyberattacks.

5. **The market for AI is growing, but so is the AI divide**. Calls to pause giant AI experiments[3] have not affected the growth of AI applications. According to estimates,[4] investment in AI will reach $200 billion globally by 2025. While AI innovation is welcome, the risk of a global AI divide is also evident. According to a report by PricewaterhouseCoopers,[5] the most significant economic gains from AI will

[1] As highlighted in the paper, this list is not exhaustive but covers the major risks that are being observed globally.

[2] As a concept, quantization broadly covers techniques to convert input values from a large set to output values in a smaller set. In the case of AI models, a quantized model refers to a “smaller” version of an AI model, which can be run using a regular laptop or desktop computer without the need for extensive hardware or computing resources.

[3] Future of Life Institute, “Pause giant AI experiments: an open letter”, 22 March 2023.

[4] Goldman Sachs, “Generative AI could raise global GDP by 7%”, 5 April 2023.

[5] Available at https://www.pwc.com.au/government/pwc-ai-analysis-sizing-the-prize-report.pdf.

be in China (26 per cent boost in GDP in 2030) and North America (14.5 per cent boost in 2030), equivalent to a total of $10.7 trillion and accounting for almost 70 per cent of the global economic impact.

6. **The proliferation of principles without adequate accountability, effective enforcement or redress mechanisms**. The issue of ethics and responsibility in relation to autonomous systems, robots and AI emerged several decades ago and dates back to the creation of the Three Laws of Robotics by Isaac Asimov.[6] In the past few years, hundreds of principles related to AI governance have emerged, but there is concern about the lack of effective accountability for AI-driven decision-making and associated adequate redress mechanisms.

7. **The disproportionately large role of non-State actors across the value chain and concentration of market power**. Non-State actors, for example the private sector, are driving most of the developments and investments in AI. The United Nations system engages the private sector through several multi-stakeholder groups, but its primary focal points and stakeholders are Member States and the enforcement of instruments is contingent upon the legal capacity, resources, willingness to regulate and intent of Governments at various levels.

8. **Risk of inadequate inclusion**. The development of AI technologies and developments in AI governance are driven primarily by the global North. The unequal distribution of technology can affect transparency and confidence between and among States. Furthermore, the underrepresentation of disadvantaged groups in the AI development and governance process results in discriminatory or biased outputs. A gender and minority groups lens must therefore be used for the governance of AI.

9. **The dual challenges of AI in the labour force**. AI poses a dual risk to the labour force. On the one hand, large-scale automation driven by AI poses risks to the future of work and the least technical and repetitive jobs are at the highest risk of displacement. On the other hand, there are concerns[7] that an overreliance on AI systems can result in deskilling in the longer term as people become overreliant on those systems.

10. **Environmental footprint of AI**. There is growing concern about the large environmental footprint of AI,[8] in particular with the advent of foundation models with trillions of parameters. While efforts are being made to build smaller and more efficient models, the compute requirements of AI applications are increasing the demand for hardware that contains several rare essential minerals and metals, as well as the need for cloud computing and data centres, with increasing energy and water consumption needs.

[6] Amy Tikkanen, “Three laws of robotics”, *Encyclopaedia Britannica*, 15 July 2024.

[7] Ajit Varwandkar, “Is Chat GPT the end of thinking skills?”, *The Times of India*, 10 February 2023.

[8] Renée Cho, “AI’s growing carbon footprint”, State of the Planet, 9 June 2023.

Annex II

Methodology

1. The starting point for the present paper and research was the initial concept note developed by the Inter-Agency Working Group on Artificial Intelligence and the mandate provided by HLCP to the Working Group to develop a white paper in which existing instruments, institutional models, governance structures and agile and anticipatory approaches for AI governance are analysed.

2. The first phase of research, which started in early October 2023, involved desk research, covering some of the initial ideas in the concept note, as well as an analysis of extant literature in which different institutional models and governance mechanisms for AI governance are studied, in particular in the light of international deliberations on the need for a new "international organization or entity". The entities for the desk research were selected in consultation with the co-leads of the Inter-Agency Working Group on Artificial Intelligence and the CEB secretariat. As part of the desk review, models for developing laws, regulations and norms and mechanisms for monitoring or enforcing compliance in the context of AI governance were examined and the opportunities for integrating anticipatory, agile or iterative approaches were considered. The desk research was based on recent papers in which proposed institutional models and approaches for AI governance are outlined.

3. Concurrently, a survey was created and administered to 57 United Nations system entities. The survey was designed to gather insights on the three focus areas of the paper. In addition, it also served to gain an insight into the top AI risks that the entities consider should be prioritized by the United Nations system, as well as the different areas of AI that are being explored within their entities. Out of the 57 entities, 45 responses[1] were received.

4. In total, 10 entities were selected for follow-up interviews based on the relevance and depth of their responses. The selection criteria for the follow-up interviews were based on the following four factors: (a) entities with specific instruments on AI; (b) entities with instruments on areas that are interrelated with AI or those that could be extended to aspects of AI governance; (c) entities with experience in dealing with globally complex areas, in particular the dimensions of governance that are relevant to AI governance (e.g. engaging the private sector in governance issues and globally coordinated sector-specific standards); and (d) entities that are carrying out or plan to carry out work to mitigate the top AI risks identified in the survey. Each interview, conducted via videoconference, lasted between 45 and 60 minutes, allowing for in-depth exploration of the key themes and issues that had been identified but not been fully addressed in the survey responses. A semi-structured format was used for the interviews. A set of predefined questions that were shared with the respondents prior to the interviews provided the foundation for exploring core themes, while the semi-structured format allowed for flexibility, nuanced perspectives and open discussion.

[1] Responses were received from the Department of Economic and Social Affairs, the Department of Global Communications, ECLAC, ESCAP, ESCWA, the Executive Office of the Secretary-General, FAO, IAEA, ICAO, IFAD, ILO, IMF, IOM, ITC, ITU, the Office for Disarmament Affairs, the Office for the Coordination of Humanitarian Affairs, the Office of Counter-Terrorism, the Office of Information and Communications Technology, the Office of the Envoy of the Secretary-General on Technology, OHCHR, UNAIDS, UNCTAD, UNDP, UNEP, UNESCO, UNFPA, UNHCR, UNICEF, UNICRI, UNIDO, the secretariat of the United Nations Framework Convention on Climate Change, the United Nations Office for Disaster Risk Reduction, UNODC/United Nations Office at Vienna, UNOPS, UNRWA, UN Tourism, UNU, UNV, UN-Women, UPU, WFP, WHO, WIPO and World Bank.

5. A mixed-methods approach was adopted for the analysis. Qualitative content analysis was used to categorize themes from the desk research, while quantitative analysis was used to identify trends from the survey responses. Thematic coding (a qualitative approach) was used for the interview notes. This combination ensured a comprehensive understanding of this complex topic.

Annex III

Highlights from the survey

The following trends emerged based on the data received from the survey and the interviews:

(a) **AI is already widely used within the United Nations system, but entities are still developing guidance for internal use**. According to the survey results, over 80 per cent of United Nations entities already use AI or are exploring the potential applications of AI. Out of the 37 entities using or exploring AI, 76 per cent have developed internal normative or policy guidelines on the use of AI, demonstrating the increasing maturity with which United Nations entities are addressing AI while also highlighting that a quarter of entities using or exploring AI lack internal guidance;

(b) **Data bias, discrimination and the digital divide are top AI risks that should be prioritized by the United Nations system**. The majority of respondents identified data bias, discrimination and the deepening of the digital divide as among the top three AI risks that should be addressed by the United Nations system, followed by AI-generated misinformation and disinformation, the rapid deployment of AI without adequate guard rails and cybersecurity risks;

(c) **Developing public administration capacities is critical**. Virtually all the entities identified building public administration capacities as the action area that should be prioritized by the United Nations system to facilitate international AI governance, followed by supporting AI literacy and digital public infrastructure.

Annex IV

Instruments, documents or tools from the United Nations system on artificial intelligence or those that are interrelated with or could apply to artificial intelligence[1]

Supporting entity	*Name of instrument/description*	*Binding instrument*[a]	*On AI*	*Interrelated with AI*	*Applicable to AI*
Department of Economic and Social Affairs	Convention on the Rights of Persons with Disabilities (with respect to disability inclusion and promoting accessibility in digital and physical environments)	✓			✓
Department of Economic and Social Affairs	Report of the United Nations High Commissioner for Human Rights, A/HRC/49/70 (with respect to digital deficits and access by older persons to information technology)			✓	
Department of Economic and Social Affairs	"Strengthening multi-stakeholder approach to global AI governance, protecting the environment and human rights in the era of generative AI", report by the Policy Network on Artificial Intelligence		✓		
ECLAC	*Latin American Artificial Intelligence Index*		✓		
ICAO	Convention on International Civil Aviation (Chicago Convention)	✓			✓
ILO	Worst Forms of Child Labour Convention, 1999 (No. 182)	✓			✓
ILO	Occupational Safety and Health Convention, 1981 (No. 155)	✓			✓
ILO	Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187)	✓			✓
ILO	Discrimination (Employment and Occupation) Convention, 1958 (No. 111)	✓			✓
ILO	Workers' Representatives Convention, 1971 (No. 135)	✓			✓
ILO	Employment Policy Convention, 1964 (No. 122)	✓			✓
ILO	*Protection of Workers' Personal Data*				✓
ITU	Over 100 approved standards and 120 under development. Some examples of standards relate to: AI in telecommunication operations and management AI in smart systems and cities AI in network management and services AI in specific technologies or applications		✓		

[1] The present list is indicative and non-exhaustive.

Supporting entity	*Name of instrument/description*	*Binding instrument*[a]	*On AI*	*Interrelated with AI*	*Applicable to AI*
OHCHR	International Convention on the Elimination of All Forms of Racial Discrimination	✓			✓
OHCHR	International Covenant on Civil and Political Rights	✓			✓
OHCHR	International Covenant on Economic, Social and Cultural Rights	✓			✓
OHCHR	Convention on the Elimination of All Forms of Discrimination against Women	✓			✓
OHCHR	Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment	✓			✓
OHCHR	International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families	✓			✓
OHCHR	International Convention for the Protection of All Persons from Enforced Disappearance	✓			✓
UNDP	UNDP Digital Standards (provide a framework for innovation and improvement, ensuring that new technologies are used effectively, efficiently and ethically)				✓
Office of Counter-Terrorism	The United Nations Global Counter-Terrorism Strategy: eighth review (General Assembly resolution 77/298)				✓
Office of Counter-Terrorism and UNICRI	*Algorithms and Terrorism: The Malicious Use of Artificial Intelligence for Terrorist Purposes*			✓	
Office of Counter-Terrorism and UNICRI	"Countering terrorism online with artificial intelligence: an overview for law enforcement and counter-terrorism agencies in South Asia and South-East Asia"			✓	
United Nations Office for Disaster Risk Reduction	Sendai Framework for Disaster Risk Reduction 2015–2030	✓			✓
UNFPA	Programme of Action of the International Conference on Population and Development				✓
Department of Global Communications	Code of conduct for information integrity on digital platforms			✓	
Department of Global Communications	United Nations Global Principles for Information Integrity			✓	
UNESCO	Recommendation on the Ethics of Artificial Intelligence		✓		
UNESCO	*Guidance for Generative AI in Education and Research*		✓		
UNESCO	"Draft AI competency frameworks for teachers and for school students"		✓		

Supporting entity	*Name of instrument/description*	*Binding instrument*[a]	*On AI*	*Interrelated with AI*	*Applicable to AI*
UNESCO	"AI and digital transformation competencies for civil servants"		✓		
UNESCO	*Guidelines for the Governance of Digital Platforms: Safeguarding Freedom of Expression and Access to Information through a Multi-Stakeholder Approach*			✓	
OHCHR	Guidance of the Secretary-General on "Human rights due diligence for digital technology use"			✓	
UNICEF	Convention on the Rights of the Child	✓			✓
UNICEF	*Policy Guidance on AI for Children*		✓		
UNICEF	"Core considerations for exploring AI systems as digital public goods" (developed together with the Digital Public Goods Alliance)		✓		
UNICEF	Child Protection Strategy 2021–2030			✓	
UNICEF	*The Case for Better Governance of Children's Data: A Manifesto*			✓	
UNICEF	Procedure on ethical standards in research, evaluation, data collection and analysis (procedure on evidence generation utilizing new, emerging or novel technologies or innovations for data collection or processing, directly or through third parties, including predictive or other "black box" analytics)			✓	
UNICEF	"UNICEF policy on personal data protection", which serves to describe the permissible use of personal data and required protections			✓	
UNICEF	Responsible Data for Children website, which provides a set of principles and tools to sensitize audiences to opportunities and risks across the data life cycle, including data for AI systems			✓	
UNICRI	"Responsible AI innovation in law enforcement: AI toolkit"		✓		
UN-Habitat	"International guidelines on people-centred smart cities" (forthcoming)			✓	
UN-Habitat	*AI and Cities: Risks, Applications and Governance*		✓		
UN-Habitat	"Mainstreaming human rights in the digital transformation of cities: a guide for local governments"				✓
UN-Habitat	*Centering People in Smart Cities: A Playbook for Local and Regional Governments*				✓
UNICRI	"A policy framework for responsible limits on facial recognition-use case: law enforcement investigations"		✓		

Supporting entity	*Name of instrument/description*	*Binding instrument*[a]	*On AI*	*Interrelated with AI*	*Applicable to AI*
UNIDO	Abu Dhabi Declaration adopted by the General Conference of UNIDO				✓
UNIDO	"Standards and digital transformation: good governance in a digital age"			✓	
UNIDO	Global Alliance on AI for Industry and Manufacturing		✓		
UNIDO	*Gender, Digital Transformation and Artificial Intelligence*		✓		
UNIDO	*Empowering SMEs through 4IR Technologies: Artificial Intelligence*		✓		
UNIDO	*Propelling LDCs in the Digital Age: A 4IR Perspective for Sustainable Development*			✓	
UNIDO	"ISO 56002:2019: innovation management system – a practical guide"				✓
UNIDO	"Digital Kaizen: lean manufacturing, kaizen and new technologies to increase business productivity"			✓	
UNIDO and partners	*"Empowering digital transformation in small enterprises through national policies: an international benchmarking"*			✓	
UNIDO, ESCAP and UNCTAD	*Asia-Pacific Trade and Investment Report 2023/24: Unleashing Digital Trade and Investment for Sustainable Development*			✓	
UNIDO	Digital Maturity Assessment tool for national standardization bodies			✓	
Office for Disarmament Affairs	Article 36 of Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I) (best practice sharing around "new weapons review")	✓			✓
Office for Disarmament Affairs	Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction	✓			✓
UNODC	Kyoto Declaration on Advancing Crime Prevention, Criminal Justice and the Rule of Law: Towards the Achievement of the 2030 Agenda for Sustainable Development				✓
UN-Women	"Challenges and opportunities in achieving gender equality and the empowerment of rural women and girls", review by the Commission on the Status of Women at its sixty-seventh session of the agreed conclusions adopted at its sixty-second session				✓

Supporting entity	*Name of instrument/description*	*Binding instrument*[a]	*On AI*	*Interrelated with AI*	*Applicable to AI*
UPU	“Multilateral data sharing agreement”	✓		✓	
WHO	*Regulatory Considerations on Artificial Intelligence for Health*		✓		
WHO	*Ethics and Governance of Artificial Intelligence for Health: WHO Guidance*		✓		
WHO	*Generating Evidence for Artificial Intelligence-Based Medical Devices: A Framework for Training Validation and Evaluation*		✓		
WIPO	International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations	✓		✓	
WIPO	Berne Convention for the Protection of Literary and Artistic Works	✓		✓	
WIPO	Beijing Treaty on Audiovisual Performances	✓		✓	
WIPO	Patent Cooperation Treaty	✓		✓	
World Bank	World Bank Environmental and Social Framework	✓[b]			✓

[a] Legally binding for member States that have ratified the relevant instrument.
[b] Applicable to all World Bank Investment Policy Financing operations.