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CEB
Chief Executives Board for Coordination

High-level Committee on Management (HLCM)

HLCM Task Force on the use of Artificial Intelligence in the UN system

Report on the Operational Use of AI in the UN System

Executive Summary

The rapid advance of Artificial Intelligence (AI) technologies in recent years has profoundly impacted various industries, organizations, and sectors. The United Nations (UN) System, recognizing the transformative potential of AI, is increasingly integrating these technologies into both its external programmatic delivery and internal core operations.

As AI adoption accelerates within the UN System, a growing number of agencies are leveraging these technologies to enhance their work and support their efforts towards achieving sustainable development. From predictive analytics for humanitarian response to automated language translation for multilingual communication, AI is transforming how UN agencies work and deliver on their respective mandates.

However, the decentralized nature of the UN System presents challenges in the context of AI adoption, development, and integration. While individual agencies have made significant strides in implementing AI solutions tailored to their specific needs, there is a risk of duplicating efforts and resources, as well as missing shared opportunities, if these activities remain siloed. Moreover, the complex and multifaceted challenges addressed by the UN may require interdisciplinary approaches that could benefit from collaborative inter-agency development on AI.

Recognizing the need for a more cohesive and forward-looking framework on AI that reflects the collective strength and shared goals of the UN System, the High-Level Committee on Management Task Force on the Use of Artificial Intelligence in the United Nations System (HLCM TF-AI) was established following the October 2023 Joint Session of the HLCM and HLCP. The HLCM and HLCP affirmed the UN's role in leading by example, as AI technologies are already reshaping the way UN organizations do business. Some of the key priorities identified by the Committees for adopting AI included building internal capacity, leveraging common partnerships with technology providers, encouraging experimentation, and supporting multifunctional teams to bring together necessary skillsets from different parts of the house. The Committees agreed on the need to take joint bold steps to stay ahead on AI, considering the speed in which the technology is evolving, and decided to establish the HLCM TF-AI.

This report identifies existing mechanisms and initiatives among UN System organizations for pooling technical capacity and knowledge sharing on AI. By examining current initiatives, activities, use cases, and solutions, the report aims to better understand the landscape of AI adoption within the UN System. Additionally, the report examines existing and ongoing collaborative mechanisms in the UN System, highlights successful case studies of inter-agency cooperation on AI, and identifies areas where there are further opportunities and challenges to be explored as the AI technology landscape continues to evolve. The report also identifies core components of AI in

general, and Generative AI in particular, for the operational use of these technologies within the UN System and within its agencies.

Based on guidance from working meetings and insights from bilateral consultation calls of the HLCM TF-AI, the report presents findings on five focus areas:

- **Focus Area #1: AI Activities and Initiatives.** Identification, mapping, and analysis of AI activities and initiatives across the UN System, focused on knowledge sharing, joint efforts, useful resources, example projects, and the use of AI to support the SDGs.
- **Focus Area #2: AI Use Cases and Solutions.** Identification, mapping, and analysis of AI use cases and solutions across the UN System, focused on areas of application, implementation commonalities, useful resources, example projects, and the development of AI to support the SDGs.
- **Focus Area #3: AI Project Platforms.** Stock-take and analysis of the open-source movement, trends, practices, platforms and communities that may influence the development of AI in the UN System and pooling of technical capacity.
- **Focus Area #4: Emergence of Generative AI.** Observations on the rise and impact of Generative AI in the UN System, focused on its use by UN organizations, ongoing efforts to better understand the technology, and technical diagrams for reference.
- **Focus Area #5: Adopting and Adapting to AI.** Observations on the evolving impact and potential effects of AI in the workforce and workplace, including early insights on varied organizational approaches to AI across the UN System.

The report presents a comprehensive overview of the state of AI in the UN System, highlighting the significant strides and ongoing efforts of UN entities and agencies towards the responsible use of AI for programmatic delivery and towards integrating AI strategically in core operations. The report underscores the importance of coordination and collaboration across the UN System, particularly on knowledge sharing and pooling technical capacity, to maximize the benefits and minimize the challenges of the use of AI to support the SDGs. In closing, based on the findings from the focus areas and the deliberations of the HLCM TF-AI, the report suggests considerations and proposes recommendations for ongoing and future work on AI in the UN System.

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List of Acronyms and Abbreviations

AI	Artificial Intelligence
ANN	Artificial Neural Network
API	Application Programming Interface
CEB	Chief Executives Board for Coordination
CV	Computer Vision
CoP	Community of Practice
COP	Conference of the Parties
CRM	Customer Relationship Management
CTBTO	Comprehensive Nuclear-Test-Ban Treaty Organization
CX	Customer Experience
DEI	Diversity, Equity, and Inclusion
DevSecOps	Development, Security, and Operations
DTN	Digital and Technology Network
DTN Gen AI CoP	Digital and Technology Network Generative Artificial Intelligence Community of Practice
DTN OSS CoP	Digital and Technology Network Open-Source Software Community of Practice
EOSG	Executive Office of the Secretary-General
ETL	Extract, Transform, and Load
ERP	Enterprise Resource Planning
ESCAP	Economic and Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organization
FICSA	Federation of International Civil Servants' Associations
GDC	Global Digital Compact
GenAI	Generative Artificial Intelligence
GIS	Geographic Information System
GPT	Generative Pre-trained Transformer
GPU	Graphics Processing Unit
HDX	Humanitarian Data Exchange
HLAB-AI	High-Level Advisory Body on AI
HLCM	High-Level Committee on Management
HLCM TF-AI	High-Level Committee on Management Task Force on the Use of Artificial Intelligence in the UN System
HLCP	High-Level Committee on Programmes
HR	Human Resources
HRN	Human Resources Network
IAWG-AI	Inter-Agency Working Group on Artificial Intelligence

IAEA	International Atomic Energy Agency
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
ILO	International Labour Organization
IMF	International Monetary Fund
IMO	International Maritime Organization
IOM	International Organization for Migration
ITC	International Trade Centre
ITCILO	International Training Centre of the International Labour Organization
ITU	International Telecommunication Union
LLM	Large Language Model
LTA	Long Term Agreement
MaaS	Model-as-a-Service
ML	Machine Learning
NFV	Nonfinancial Value
NLP	Natural Language Processing
NN	Neural Network
OHCHR	Office of the United Nations High Commissioner for Human Rights
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OCR	Optical Character Recognition
OSI	Open Source Initiative
OSPO	Open Source Programme Office
OSS	Open-Source Software
PDCA	Plan-Do-Check-Act
PII	Personally Identifiable Information
RAG	Retrieval-Augmented Generation
RPA	Robotic Process Automation
SDGs	Sustainable Development Goals
SOM	Self-Organizing Map
SVM	Support Vector Machines
ToRs	Terms of Reference
TPU	Tensor Processing Unit
UI	User Interface
UN	United Nations
UN-DPPA	United Nations Department of Political and Peacebuilding Affairs
UN-Habitat	United Nations Human Settlements Programme
UN-OICT	United Nations Office of Information and Communications Technology
UNAIDS	Joint United Nations Programme on HIV/AIDS

UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNITAC	United Nations Innovation Technology Accelerator for Cities
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICC	United Nations International Computing Centre
UNICEF	United Nations International Children's Emergency Fund
UNICRI	United Nations Interregional Crime and Justice Research Institute
UNIN	United Nations Innovation Network
UNITAR	United Nations Institute for Training and Research
UNJSPF	United Nations Joint Staff Pension Fund
UNODA	United Nations Office of Disarmament Affairs
UNODC	United Nations Office on Drugs and Crime
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
UNSSC	United Nations System Staff College
UNU	United Nations University
UNU CPR	United Nations University Centre for Policy Research
UNU EGOV	United Nations University Operating Unit on Policy-Driven Electronic Governance
UNU INWEH	United Nations University Institute for Water, Environment, and Health
UNU Macau	United Nations University Institute in Macau
UX	User Experience
WFP	World Food Programme
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WMO	World Meteorological Organization

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1. Introduction and Overview

1.1 The use of AI in the UN System

The rapid advance of Artificial Intelligence (AI) technologies in recent years has profoundly impacted various industries, organizations, and sectors. The United Nations (UN) System, recognizing the transformative potential of AI, is increasingly integrating these technologies into both its external programmatic delivery and internal core operations.

As AI adoption accelerates within the UN System, a growing number of agencies are leveraging these technologies to enhance their work and support their efforts towards achieving sustainable development. From predictive analytics for humanitarian response to automated language translation for multilingual communication, AI is transforming how UN agencies work and deliver on their respective mandates.

However, the decentralized nature of the UN System presents challenges in the context of AI adoption, development, and integration. While individual agencies have made significant strides in implementing AI solutions tailored to their specific needs, there is a risk of duplicating efforts and resources, as well as missing shared opportunities, if these activities remain siloed. Moreover, the complex and multifaceted challenges addressed by the UN may require interdisciplinary approaches that could benefit from collaborative inter-agency AI development.

If work on AI in the UN System is done in isolation, UN agencies could miss crucial opportunities for synergies, knowledge sharing, breakthroughs, and resource efficiency. Shared interests in areas such as collective vendor agreements and core capacity building could be more effectively addressed through joint efforts. Furthermore, the potential for cross-pollination of ideas and best practices across different UN entities is particularly important when adopting and adapting to new technologies such as Generative AI.

A coordinated approach to AI development and implementation within the UN System offers numerous benefits. Pooling technical capacity and promoting knowledge sharing can lead to more robust, scalable, and interoperable AI solutions. Shared resources and expertise can accelerate innovation, reduce costs, and ensure more equitable access to AI technologies across agencies, whose level of AI adoption is heterogeneous given different mandates, sizes, structures, and other organizational attributes. Additionally, a unified approach for AI adoption across areas of common application and shared interest can uphold core UN values and maintain consistency amongst UN entities.

1.2 Ongoing efforts for a coordinated approach towards data, digital technologies, and AI across the UN System

The UN System's approach to inter-agency collaboration on data, digital technologies, and increasingly AI is guided by several unified efforts, leading entities, and strategic frameworks.

The *UN Secretary General's Roadmap for Digital Cooperation*[i] provides a comprehensive framework for addressing the opportunities and challenges presented by digital technologies. This roadmap emphasizes the importance of global digital cooperation and outlines specific actions to harness the potential of digital technologies while mitigating their risks. It calls for enhanced coordination among UN agencies to promote digital inclusion, build digital capacity, and ensure human rights in the digital age.

Building on this foundation, the *UN 2.0 Quintet of Change*[ii] and the *UN Secretary-General's Data Strategy for Action by Everyone, Everywhere with Insight, Impact, and Integrity*[iii] further reinforce the commitment to digital transformation and data-driven decision-making across the UN System.

The *Quintet of Change* – which includes *data*, *digital*, and *innovation* as three of its five core elements – underscores the need for the UN to embrace new technologies and innovative approaches, as well as to develop foundational skills and impactful ecosystems, to address global challenges more effectively. Meanwhile, the *Data Strategy* provides a blueprint for leveraging data as a strategic asset throughout the UN, promoting data sharing, interoperability, and ethical use.

The *Principles for the Ethical Use of Artificial Intelligence in the United Nations System*[iv] provides a comprehensive set of principles to guide the ethical use of AI technologies within UN organizations. These principles emphasize key aspects such as the need to promote transparency, accountability and non-discrimination in AI systems. They also stress the importance of human oversight and the need to ensure that AI technologies augment rather than replace human decision-making in critical areas. By adopting these principles, the UN aims to set a standard for responsible AI use that can serve as a model not only for its own agencies but also for Member States and other international organizations.

Together, these efforts and resulting documents set a clear direction for UN inter-agency collaboration, emphasizing the need for shared platforms, knowledge exchange, and coordinated approaches in developing and deploying data and digital solutions, including AI, to support the mandates of each organization in the UN System and the Sustainable Development Goals (SDGs).

1.3 Context and mission of the High-Level Committee on Management Task Force on the Use of Artificial Intelligence in the United Nations System

The High-Level Committee on Management Task Force on the Use of Artificial Intelligence in the United Nations System (HLCM TF-AI) was established following the October 2023 Joint Session of the HLCM and HLCP[v]. The HLCM and HLCP affirmed the UN's role in leading by example, as AI technologies are already reshaping the way UN organizations do business. Some of the key priorities identified by the Committees for adopting AI included building internal capacity, leveraging common partnerships with technology providers, encouraging experimentation, and supporting multifunctional teams to bring together necessary skillsets from different parts of the house. The Committees agreed on the need to take joint bold steps to stay ahead on AI, considering the speed in which the technology is evolving, and decided to establish the HLCM TF-AI with the following objectives, finalized in the *January 2024 Terms of Reference (ToRs)*[vi]:

1. Develop a normative guidance/model policy for the UN System on the use of AI.
2. Identify and promote mechanisms for pooling technical capacity and knowledge sharing on AI.

For this purpose, two inter-agency subgroups were respectively created and assigned to each objective. The focus of this report is on the work of the second subgroup for the second objective, which is further described in the ToRs as:

> *"The Task Force will also explore and recommend strategies and mechanisms for information sharing and pooling technical capacity among UN system organizations, including exploring the feasibility of developing a UN Generative AI platform. It also aims to promote an integrated and coherent approach to AI implementation, considering the diverse needs of UN system entities. Partnerships with external organizations and academia will also be explored to enhance technical expertise and foster innovation in the UN's AI endeavours. The Task Force will propose mechanisms that encourage active collaboration, fostering a unified approach to AI technologies and strengthening related data initiatives, contributing to a more cohesive and forward-looking framework that reflects the collective strength and shared goals of the UN system."*

The work of the second subgroup was co-led by IFAD and WFP, under the overall leadership of the HLCM TF-AI co-chairs from IFAD, UN-OICT, and UNHCR.

1.4 Objective of the report

This report aims to identify existing mechanisms and initiatives among UN System organizations for pooling technical capacity and knowledge sharing on AI. By examining current initiatives, activities, use cases, and solutions, the report aims to better understand the landscape of AI adoption within the UN System. Additionally, the report presents existing and ongoing collaborative mechanisms in the UN System, highlights successful case studies of inter-agency cooperation on AI, and identifies areas where there are further opportunities and challenges to be explored as the AI technology landscape continues to evolve.

The report also identifies core components of AI in general, and Generative AI in particular, for the operational use of these technologies within the UN System and within its agencies. The report provides mappings, analyses, frameworks, references, technical diagrams, and considerations for supporting the UN in understanding and adopting AI technologies in a system-wide or organization-specific context.

Based on the findings gathered through a multi-agency consultation process and working meetings of the subgroup, the report suggests considerations and proposes recommendations for ongoing and future work on AI in the UN System.

It is worth noting that this report represents a snapshot of the current landscape of AI within the UN System. Given the rapid pace of technological advancement and the dynamic nature of AI adoption, the findings and recommendations presented here should be viewed as a foundation for ongoing discussions and further work on AI, rather than a definitive analysis and guidance.

This report is produced as a key deliverable of the work of the HLCM TF-AI, which is planned for submission, discussion, and conclusion at the 48th HLCM Session in October 2024. However, the need for continued collaborative efforts beyond this timeframe is strongly advised given the continued evolution of AI. The findings and considerations outlined in this report should serve as a starting point for ongoing dialogue and action. As AI technologies continue to advance and their applications within the UN System expand, it will be crucial to maintain flexible and adaptive mechanisms for collaboration that can evolve in response to new developments and challenges. It is encouraged that UN entities consider this report as a catalyst for longer-term, sustained, and effective cooperation on AI.

1.5 Focus areas

The report is structured around five focus areas:

- **Focus Area #1: AI Activities and Initiatives.** Identification, mapping, and analysis of AI activities and initiatives across the UN System, focused on knowledge sharing,

joint efforts, useful resources, example projects, and the use of AI to support the SDGs.

- **Focus Area #2: AI Use Cases and Solutions.** Identification, mapping, and analysis of AI use cases and solutions across the UN System, focused on areas of application, implementation commonalities, useful resources, example projects, and the development of AI to support the SDGs.
- **Focus Area #3: AI Project Platforms.** Stock-take and analysis of the open-source movement, trends, practices, platforms and communities that may influence the development of AI in the UN System and pooling of technical capacity.
- **Focus Area #4: Emergence of Generative AI.** Observations on the rise and impact of Generative AI in the UN System, focused on its use by UN organizations, ongoing efforts to better understand the technology, and technical diagrams for reference.
- **Focus Area #5: Adopting and Adapting to AI.** Observations on the evolving impact and potential effects of AI in the workforce and workplace, including early insights on varied organizational approaches to AI across the UN System.

The focus areas of this report were not previously defined in the HLCM TF-AI ToRs; instead, they emerged through an organic and iterative process throughout the main work period of the HLCM TF-AI, from January to June 2024. The focus areas were selected and refined via discussions during working meetings, bilateral consultations, desk research, AI industry and UN System developments, and guidance from the HLCM TF-AI co-chairs. As UN entities shared their AI and AI-related work and experiences, key themes and collective priorities surfaced naturally. This collaborative approach allowed the report to align closely with the needs and interests of the UN System, as brought forth by the members of the HLCM TF-AI.

1.6 Methodology

The findings presented in this report are the result of a process that included:

- **HLCM TF-AI meetings.** HLCM TF-AI co-chairs and members provided strategic guidance and ensured alignment with HLCM expectations and broader UN objectives.
- **Desk research.** The subgroup co-leads conducted a focused review of UN AI efforts, practical AI use cases, technical components of AI systems, AI-related skills and roles, AI industry players and breakthroughs, and other similar desk research on areas of interest to the HLCM TF-AI.

- **HLCM TF-AI Subgroup #2 working meetings.**[1] Participants provided specific inputs for the focus areas of the report and contributed with their expertise and insights, helping to shape the core content and priorities over six working meetings.
- **Bilateral consultation calls.**[2] Over 20 bilateral consultation calls were conducted with various UN entities – including UN agencies as well as HLCM networks such as the Digital and Technology Network (DTN) and the Human Resources Network (HRN) – with the entities selected by self-nomination or on suggestions from the HLCM TF-AI co-chairs and members. These discussions were preceded by desk research on the AI and AI-related work of each entity, followed by open discussions and requests for additional inputs. In addition to the exchanges from the working meetings bilateral consultation calls, over 30 UN entities provided written feedback during the review process.[3]
- **Related reports, surveys, catalogues, and compilations.** Relevant reports, surveys, catalogues, compilations, and other materials were reviewed to build upon previous work, avoid duplication, and inform the direction of the HLCM TF-AI. These sources included:
    - *DTN GenAI CoP Survey on AI-Related Use Cases, Skills, and Tools*[vii]
    - *DTN OSS CoP Executive Summary on Mapping the Open Source Landscape at the UN*[viii]
    - *HLCP IAWG-AI UN System White Paper on AI Governance*[ix]
    - *HLCP-HLCM Compilation of Input of UN Organizations' Experiences with AI*[x]
    - *HLCP-HLCM Joint Session Report on the Use and Governance of Artificial Intelligence and Related Frontier Technologies*[xi]
    - *ITU Report on United Nations Activities on Artificial Intelligence*[xii]
    - *OCHA Catalogue of Predictive Models in the Humanitarian Sector*[xiii]
    - *UNIN Catalogue of Generative AI Use Cases*[xiv]
    - *UNIN Innovation Library*[xv]
    - *UNIN Innovation Update*[xvi]
    - *UNIN Library of Generative AI Resources*[xvii]
    - *UNU Macau AI Conference Proceedings Report*[xviii]
- **Related communities of practice, events, networks, and working groups.** The subgroup co-leads actively participated in and stayed informed of ongoing

[1] HLCM TF-AI Subgroup #2 working meetings included notable inputs from representatives of: CEB; FAO; FICSA; IFAD; IMF; IOM; ITU; UN-OICT; UNESCO; UNFPA; UNHCR; UNICC; UNICEF; UNIN; UNJSPF; UNRWA; WFP; WIPO.

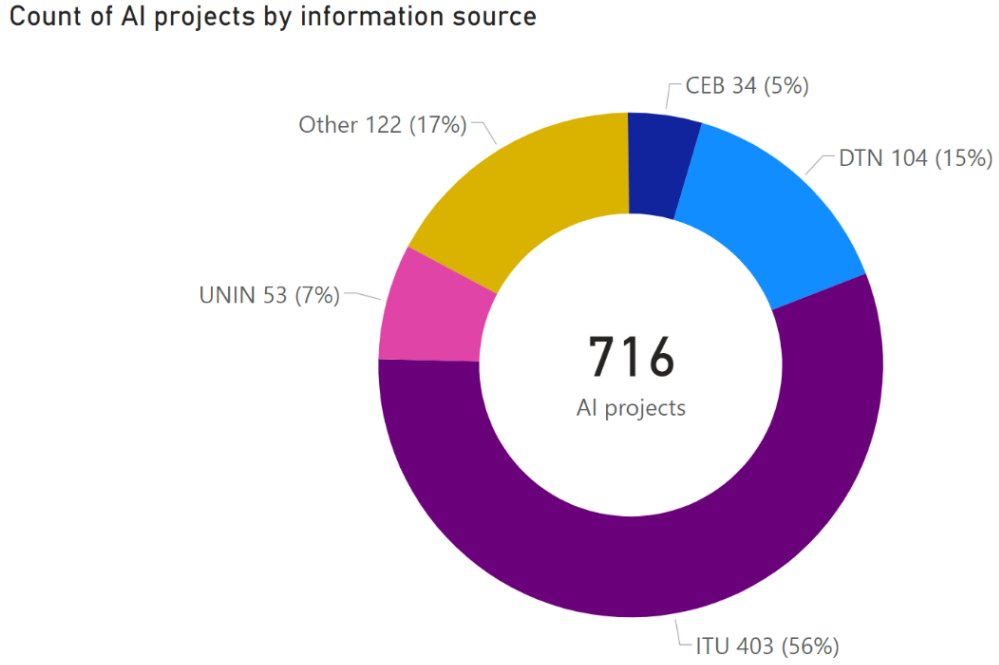
[2] Bilateral consultation calls were conducted with focal points of: CEB; DTN Generative AI Community of Practice (DTN GenAI CoP); DTN Open-Source Software Community of Practice (DTN OSS CoP); Executive Office of the Secretary-General (EOSG); FAO; HLCM; HLCP; HLCP IAWG-AI; HRN; IFAD; ITCILO; ITU; UNDP; UNHCR; UNICC; UNICEF; UNIN; UNSSC; UNU; UNU CPR; UNU Macau; WFP; WIPO.

[3] Written feedback and additional inputs were provided by representatives of: CEB; DTN GenAI CoP; DTN OSS CoP; EOSG; FAO; HLCM; HLCP; HLCP IAWG-AI; IFAD; IMF; ITCILO; ITU; OCHA; OHCHR; UN-Habitat; UNDP; UNESCO; UNFPA; UNHCR; UNICC; UNICEF; UNIN; UNITAC; UNJSPF; UNODA; UNSSC; UNU; UNU CPR; UNU EGOV; UNU Macau; WFP; WIPO.

engagements and fora on AI, including those led by DTN, DTN GenAI CoP, DTN OSS CoP, HLCP IAWG-AI, ITU, UN Generative AI Practice Group, UNIN, UNU Macau, and others. This participation ensured the subgroup's alignment with related work and discussions on AI across the UN System.

- **AI projects catalogue.** 716 AI and AI-related projects from over 50 entities across the UN System were aggregated into a unified catalogue for reference and analysis, drawing on information from the many resources described previously. As the projects were drawn from many sources that each employed different collection methodologies at different points in time, it's worth mentioning that the aggregate findings from the projects catalogue are limited to the available information from the original sources, including the creation of any new classifications that could be directly derived or otherwise indirectly inferred for the purposes of this report. Statistics on the count of AI projects by information source are shown in *Figure 1*[4], noting that the AI projects catalogue represents only a sample snapshot of a broader, ongoing, and growing set of AI projects in the UN System.

Figure 1: Count of catalogued AI projects by information source



[4] Data last updated on 23/08/2024. Duplicate projects found in multiple information sources were removed from the catalogue, favoring the source with more detailed information about the project.

2. Focus Area #1: AI Activities and Initiatives

2.1 Main knowledge-sharing and joint action efforts on AI in the UN System

To leverage the full potential of AI to drive change and impact, the UN System recognizes the importance of promoting knowledge sharing mechanisms that encourage active collaboration and foster a unified approach to AI, as emphasized in the main objectives of the HLCM TF-AI. In the context of AI activities and initiatives for operational use in the UN System, this section presents the main efforts underway on knowledge-sharing and joint action on AI across the UN System.

The items highlighted here indicate that AI is being widely discussed in the UN System and that alignment on a unified approach to the still-evolving technology will require a deeper understanding and coordination on AI adoption vis-a-vis external or internal activities (e.g., programmatic delivery, operational use, engagement with Member States, digital public goods), bottom-up or top-down approaches (e.g., users, developers, practitioners, management), and approach to technology developments (e.g., industry-led directives, UN-led directives, in-house solutions, private sector solutions).

2.1.1 HLCM Digital and Technology Network

The HLCM Digital and Technology Network (DTN)[xix] is the inter-agency mechanism for the promotion of cooperation and collaboration on digital and technology related matters. DTN brings together the CIOs from CEB member organizations to advise the HLCM on system-wide approaches to leveraging technology, and functions as a forum to coordinate system-wide ICT policy and practices. DTN establishes sub-groups to support professional development, to provide a forum for inter-agency collaboration, and to advance the role of new technologies, innovations, and partnerships.

The DTN Generative AI Community of Practice (DTN GenAI CoP)[xx] has been established within the DTN to leverage the use of Generative AI technologies to support DTN member organizations in the implementation of the SDGs as well as in achieving their broader corporate mandates. DTN GenAI CoP is co-led by UNICC and UNAIDS, with a scope of work on Generative AI that includes the development of guidance and other instruments, meetings to share experiences and discuss trends, coordination with other UN entities and efforts, identification of common approaches, and more.

Notable DTN and DTN GenAI CoP outputs on AI for use within the UN System include the *DTN Guidance on the Use of Generative AI Tools in the UN System*[xxi], *DTN Survey and Catalogue on AI-Related Use Cases*[xxii], and the *AI Use-Case and PRISM Framework Prioritization Tool*[xxiii]. Recent DTN[xxiv] and DTN GenAI CoP[xxv] topics of interest and discussions on AI have focused on moving from experimental development to scaled

production, strategic adoption and context-specific integration, vendor landscape and selection considerations, experiences with vendor offerings, and more.

2.1.2 HLCP Inter-Agency Working Group on AI

The High-Level Committee on Programmes (HLCP) is the principal mechanism for system-wide coordination and policy coherence in the programme area. The HLCP Inter-Agency Working Group on AI (IAWG-AI)[xxvi], co-led by UNESCO and ITU, brings together UN System expertise on AI in support of the CEB and HLCP workstreams on the ethics of AI and the strategic approach and roadmap for supporting capacity development. IAWG-AI combines ethical and technological capacities of the UN System to provide a solid foundation for current and future system-wide efforts on AI with a view to ensuring respect for human rights and accelerating progress on the SDGs.

Notable outputs of the IAWG-AI include the *United Nations system-wide strategic approach and roadmap for supporting capacity development on Artificial Intelligence*[xxvii], the *Principles for the Ethical Use of Artificial Intelligence in the United Nations System*[xxviii] and the *United Nations System White Paper on AI Governance*[xxix].

The ten Principles for the Ethical Use of AI, which are based on the *Recommendation on the Ethics of Artificial Intelligence* adopted by UNESCO's General Conference at its 41st session in November 2021[xxx], are grounded in ethics and human rights and aim to guide the use of AI across all stages of an AI system lifecycle for UN System entities.

The White Paper on AI Governance analyses the UN System's institutional models, functions, and existing international normative frameworks applicable to global AI governance. The paper has been offered as a UN system-wide contribution to relevant deliberations on the governance of AI, including the work of the UN Secretary-General's High-Level Advisory Body on AI (HLAB-AI). While the work overall is more external facing, some aspects are also of importance to the operational use of AI within the UN System, such as technological transformation, capacity development, norms and governance, risks and ethics, digital public goods, financing, cybersecurity, and more.

2.1.3 UN Innovation Network and UN Generative AI Practice Group

The UN Innovation Network (UNIN)[xxxi] is an informal, collaborative community of UN innovators from across the UN. UNIN, jointly chaired and funded by UNDP, UNICEF, and WFP, is open to innovators from all UN entities as well as external partners. UNIN hosts regular knowledge sharing sessions, helps entities share tools, resources, and best practices for innovating in the UN, and offers advice on how to build structures to promote innovation, activate innovation partnerships, and create a culture of innovation within organizations.

In addition to promoting innovation overall, UNIN also hosts UN groups on specific topics. The UN Generative AI Practice Group[xxxii], run in collaboration with the UN Data Strategy Team, is a space for personnel within the UN System wanting to learn more about Generative AI and engage in technical knowledge exchanges with other colleagues. The group also convenes and facilitates technical presentations and discussions on emerging techniques and innovative uses of Generative AI within the UN System, such as advanced prompt engineering, supervised fine-tuning, and reasoning-acting agentic systems.

Notable resources on AI from UNIN and the UN Generative AI Practice Group for use within the UN System include a library of publications and webinars[xxxiii], a compilation of training materials[xxxiv], a catalogue of use cases[xxxv], and a library of recorded video presentations[xxxvi]. Additionally, UNIN and the UN Generative AI Practice Group have a communication channel[xxxvii] for members to connect with each other and discuss topics of interest, which have recently included training courses, evaluation methodologies, explainability and interpretability, enterprise and open-source software, and more.

2.1.4 ITU AI for Good Platform

The ITU AI for Good platform[xxxviii] is a year-round digital platform where AI innovators and problem owners learn, build, and connect to identify practical AI solutions to advance the UN SDGs. AI for Good is the leading action-oriented, global, and inclusive UN platform on AI, organized by ITU in partnership with 40 UN agencies and co-convened with Switzerland.

The platform's flagship event is the AI for Good Global Summit[xxxix], which convenes and presents AI knowledge and solutions aligned with the UN SDGs and responsible AI. The 2024 edition[xl] attracted over 5,000 in-person participants and 27,000 online participants to learn from government and industry leaders, civil society and international organizations, academia and researchers, UN partners, and UN entities themselves on the use of AI in areas as diverse as health, climate, gender, inclusive prosperity, sustainable infrastructure, and other global development priorities. The 2024 edition featured a comprehensive program of expert panels, technical workshops, and networking sessions designed to explore how AI can contribute to societal well-being, economic growth, and sustainable development. Additionally, an exhibition area comprising over 90 cutting-edge demonstrations highlighted the latest innovations in AI, robotics, and brain-machine interfaces supporting the SDGs.

Beyond the flagship event, the AI for Good platform is a gateway for year-round knowledge and knowledge-sharing, with resources such as: webinars[xli] on global insights, debate, and discourse on AI solutions and critical issues; blogs[xlii] on latest stories, interviews, and insights on AI; and, the AI for Good Neural Network[xliii] community with more than 35,000 registered members and 137,000 online participants. Additionally, the

platform is linked to pre-standardization efforts for AI and Machine Learning (ML) via ITU-led Focus Groups[xliv] on topics such as AI for Health[xlv] (co-led with WHO), AI for Natural Disaster Management[xlvi] (co-led with UNEP and WMO), and AI and Internet of Things for Digital Agriculture[xlvii] (co-led with FAO).

Finally, ITU leads the compilation and publication of the report on *United Nations Activities on Artificial Intelligence*[xlviii], which is a multi-agency collaborative endeavour to catalogue and showcase AI projects within the UN System encompassing all 17 SDGs. The projects range from forecasting food crises and monitoring water productivity, to mapping schools through satellite imagery and optimizing the performance of communication networks, among others. The 2023 edition[xlix] describes 408 projects from 47 UN entities, an increase of 45% projects reported and 18% more participating entities as compared with the 2022 edition, with the most common projects being reports, applications, and in 2023 the noticeable emergence of Generative AI chatbots. Key highlights from the report relevant to the work of the HLCM TF-AI are listed in *Box 1*.

Box 1: Key highlights from the ITU report United Nations Activities on Artificial Intelligence

Sustainable Development Goals

- Nearly 83% of projects are linked with outcomes driving forward specific SDGs.
- The five most addressed SDGs are SDGs 9 (Industry, Innovation, and Infrastructure), 10 (Reduced Inequalities), 13 (Climate Action), 16 (Peace, Justice, and Strong Institutions), and 17 (Partnership for the Goals).
- The five least addressed SDGs are SDGs 6 (Clean Water and Sanitation), 7 (Affordable and Clean Energy), 12 (Responsible Consumption and Production), 14 (Life Below Water), and 15 (Life on Land).

Collaborations

- Nearly 60% of projects report collaborations with at least one other stakeholder or partner.
- Nearly 30% of projects report collaborations with entities within the UN System.
- 24% of projects report collaborations with governments, 20% with academia, and 17% with the private sector.

Project Outputs and Status

- About 74% of projects reported their project outputs.
- The most common project outputs are reports and software tools like mobile applications, web applications, searchable dashboards, and Generative AI chatbots.
- Over 90% of projects reported their current status, of which 69% of projects are ongoing or in development and 22% are completed.

2.2 High-level mapping and analysis of AI activities and initiatives in the UN System

The projects catalogue compiled for this report contains 716 AI and AI-related projects from across the UN System. Of these 716 projects, 353 projects (49%) were classified as *Activities and Initiatives*. This section describes the findings from the *Activities and*

Initiatives projects, for which a high-level mapping was developed to help visualize and understand trends and clusters, as shown in *Figure 2*[5].

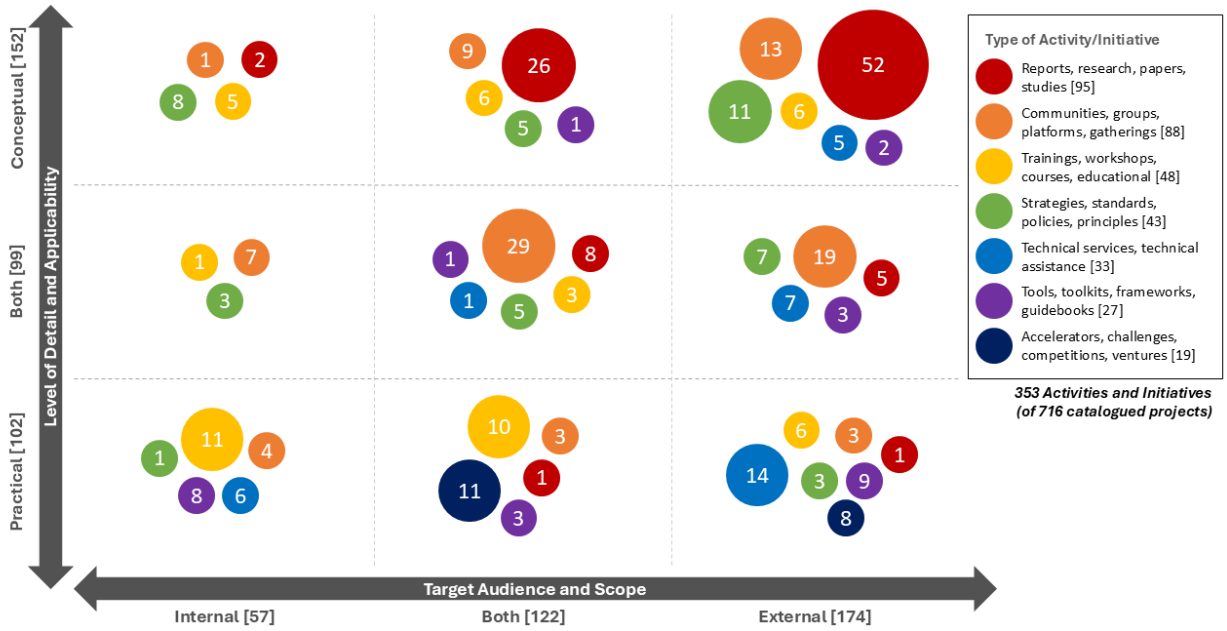
For the high-level mapping, two key dimensions were defined and assigned to each project:

- **Level of Detail and Applicability.** Indicates how the project can be leveraged and whether the project is mostly conceptual (152 projects, 43%), mostly practical (102 projects, 29%), or a combination of both (99 projects, 28%).
- **Target Audience and Scope.** Indicates who the project is meant for and whether the project is mostly external-facing (174 projects, 49%), mostly internal-facing (57 projects, 16%), or a combination of both (122 projects, 35%).

Additionally, projects are further sub-categorized by type of activity/initiative:

- Reports, research, papers, studies (95 projects, 27%)
- Communities, groups, platforms, gatherings (88 projects, 25%)
- Trainings, workshops, courses, educational (48 projects, 14%)
- Strategies, standards, policies, principles (43 projects, 12%)
- Technical services, technical assistance (33 projects, 9%)
- Tools, toolkits, frameworks, guidebooks (27 projects, 8%)
- Accelerators, challenges, competitions, ventures (19 projects, 5%)

Figure 2: Mapping of AI activities and initiatives in the UN System



[5] Data last updated on 23/08/2024.

The UN's collective activities and initiatives reflect a concerted effort within the UN System to leverage AI for positive global impact, ensure ethical and responsible use, and promote inclusive and sustainable development.

From the mapping, at a high level we observe most efforts on external-facing projects (206 projects, 71%), such as supporting Member States in their approaches to understand, regulate, and implement AI technologies whilst maximizing benefits and reducing risks. We also observe an emphasis on practical projects (138 projects, 48%), ensuring that action can be taken on AI through instruments such as working groups, startup accelerators, and toolkits.

Taking the perspective of HLCM TF-AI to focus on the operational use of AI within the UN System, the combination of practical and internal-facing projects draws attention. While this combination occupies a smaller share of the activities and initiatives (40 projects, 14%), there are some notable efforts that clearly demonstrate how UN organizations are proactively approaching AI to support their mandates and foster inter-agency collaboration, such as UN-DPPA's AI innovation workshop on *Exploring the Potential and Risks of Generative Artificial Intelligence in the UN System*[l]. When also considering activities and initiatives that are both internal-facing and external-facing, and both practical and conceptual, then the total number of projects of interest to HLCM TF-AI increases (69 projects, 24%) as we consider efforts such as UNU Macau's *Generative AI Series*[li].

2.2.1 Reports, research, papers, studies

Activities and initiatives in this subcategory (95 projects, 27%) recognize both incredible opportunities and considerable challenges in AI, reiterating the need for strong and aligned principles for the ethical and responsible use of AI across many areas. Notable examples include the high-level reports and guides from HLCP, HLAB-AI, and UNESCO mentioned previously, but also more specialized research such as: ILO's *Algorithmic Management Practices in Regular Workplaces: Case Studies in Logistics and Healthcare*[lii], examining the impact of AI and AI-related technologies on job quality and work organization; ITC's *Living with the Genie - Artificial Intelligence in Content Creation for Small Businesses in Trade*[liii], encouraging AI literacy for small business and trade institutions, through the lens of publishing activities; OHCHR's *The Right to Privacy in the Digital Age*[liv], analysing how the widespread use of AI and AI-related technologies affect the enjoyment of the right to privacy and associated rights; UN-Habitat's *Global Assessment of Responsible AI in Cities*[lv], including recommendations for developing responsible AI strategies derived from a global survey with cities and stakeholders; and several studies from UNU CPR on the links between AI and topics such climate[lvi], cybercrime[lvii], and disinformation[lviii].

2.2.2 Communities, groups, platforms, gatherings

Activities and initiatives in this subcategory (88 projects, 25%) emphasize collaboration among UN agencies and with external partners, sharing knowledge, experiences, and skills to advance the development of AI. These efforts include regular meetings of formal working groups, gatherings of informal practitioner communities, and other engagements via AI-centric platforms for panels, webinars, interactions, and more. Notable examples include the broad UN-wide efforts of DTN, ITU, and UNIN mentioned previously, but also more specialized platforms such as: IAEA's *International Network on Innovation to Support Operating Nuclear Power Plants (ISOP)*[lix], with an AI working group to strengthen awareness and engagement in activities linked to recent and near-term deployment of AI in the nuclear power sector; UNESCO's *Women4Ethical AI*[lx], a platform to leverage the knowledge, contribution, and networks of leading AI experts to advance gender equality in the AI agenda; UNESCO's *AI Ethics Experts Without Borders*[lxi], an initiative partly composed of local experts that have conducted the *Readiness Assessment Methodology* (RAM)[lxii], which can provide on-demand support and tailored policy advice to assist countries in implementing the RAM; and UNICRI's *AI for Safer Children Global Hub*[lxiii], a platform for law enforcement agencies that contains knowledge and resources on AI and specific AI tools for combatting online child sexual exploitation and abuse.

2.2.3 Trainings, workshops, courses, educational

Activities and initiatives in this subcategory (48 projects, 14%) focus on efforts for general capacity building and skills development for AI and AI-related areas, including foundational concepts such as data and digital. Examples include: structured training and learning services such as those offered by UNICC[lxiv], UNSSC[lxv], and UNU Macau[lxvi]; entire AI-centric curriculums or portfolios, such as ITCILO's *Artificial Intelligence Masterclass*[lxvii] and UNITAR's *Artificial Intelligence and International Affairs*[lxviii]; and specific AI courses such as *Introduction to Geospatial Data Analysis with ChatGPT and Google Earth Engine*[lxix], developed by ESCAP and UNU INWEH. In addition, organizations such as UNSSC are integrating AI as a core component of thematic training initiatives, with UNSSC also using AI technologies as features within its *Blue Line*[lxx] learning hub to support continuous and personalized learning for users.

2.2.4 Strategies, standards, policies, principles

Activities and initiatives in this subcategory (43 projects, 12%) offer more practical resources to harness AI in specific functional or thematic areas, with clearer guidance or established standards tailored for specific contexts and applications. Examples include: IMO's work on the use of and trials for AI within the Maritime Autonomous Surface Ships (MASS)[lxxi] regulatory framework; UNECE's work to strategize the deployment of big data

analytics, ML, and AI in utilities with a view to improve efficiency and reliability of energy systems[lxxii]; UNESCO's guidance on AI and education[lxxiii] for policymakers to support the development of national policies; and UNESCO's *Recommendation on the Ethics of Artificial Intelligence*[lxxiv] with its comprehensive implementation plan supported by the deployment of innovative operationalization tools and methodologies, including the Readiness Assessment Methodology and Ethical Impact Assessment, to foster deeper engagement with national stakeholders.

2.2.5 Technical services, technical assistance

Activities and initiatives in this subcategory (33 projects, 9%) show how UN organizations are leading on AI by providing advisory services and technical assistance to external partners and stakeholders, leveraging their sectoral and technological expertise to deliver on the promise of AI beyond the UN System. Examples include: UNIDO's support in building the AI ecosystem in Jordan[lxxv], aimed at creating job opportunities and improving the efficiency and quality of government services; UNITAC's collaboration with the city of eThekwini[lxxvi] to develop and AI tool used to map informal settlements, create up-to-date maps, and improve basic urban service delivery; UNODA's partnership with the Stockholm International Peace Research Institute (SIPRI)[lxxvii] to support greater engagement from the civilian AI community in mitigating the risks that the misuse of civilian AI technology can pose to international peace and security; UNU EGOV's role in the *Artificial Intelligence & Data Science for Public Administration Portugal Innovation Hub (AI4PA)*[lxxviii] consortium to enhance Portugal's public sector efficiency by promoting AI integration for policy effectiveness and stakeholder training; and the World Bank's support to Croatia[lxxix] in the use of AI to map business administrative procedures, process laws and bylaws from the registry of regulations, and identify potential regulatory requirements in administrative areas.

2.2.6 Tools, toolkits, frameworks, guidebooks

Activities and initiatives in this subcategory (27 projects, 8%) offer widely applicable resources to guide the assessment, development, and use of AI, often converting high-level principles to more practical guidance. Examples include: UN-OICT's *Responsible Technology Playbook: Tools for the United Nations*[lxxx]; UNESCO's *Ethical Impact Assessment: A Tool of the Recommendation on the Ethics of Artificial Intelligence*[lxxxi]; and UNICRI's *Toolkit for Responsible Artificial Intelligence Innovation in Law Enforcement*[lxxxii].

2.2.7 Accelerators, challenges, competitions, ventures

Activities and initiatives in this subcategory (19 projects, 5%) show how the UN is calling on external partners, creating opportunities for innovation, and taking an inclusive and

participatory approach to delivering on AI for global good through multi-stakeholder solutions. Examples include: the startup acceleration pilot *AI Hub for Sustainable Development Co-Design*[lxxxiii], a global call for innovative private sector AI partnerships, led by UNDP with the Italian G7 Presidency; the global open-source AI competition *AI Innovation Grand Challenge*[lxxxiv], to democratize the development and deployment of AI to combat climate change globally, led by UNFCCC and launched at COP 28; the global startup pitching and acceleration platform *AI for Good Innovation Factory*[lxxxv], to help start-ups grow and scale their innovative AI-powered and SDG-driven solutions, led by ITU; and innovation and venture funds such as UNHCR's *Data Innovation Fund*[lxxxvi] and UNICEF's *Venture Fund*[lxxxvii].

3. Focus Area #2: AI Use Cases and Solutions

3.1 High-level mapping and analysis of AI use cases and solutions in the UN System

The projects catalogue compiled for this report contains 716 AI and AI-related projects from across the UN System. Of these 716 projects, 363 projects (51%) were classified as *Use Cases and Solutions*. This section describes the findings from the *Use Cases and Solutions* projects, for which a high-level mapping was developed to help visualize and understand trends and clusters, as shown in *Figure 3*[6].

For the high-level mapping, two key dimensions were defined and assigned to each project:

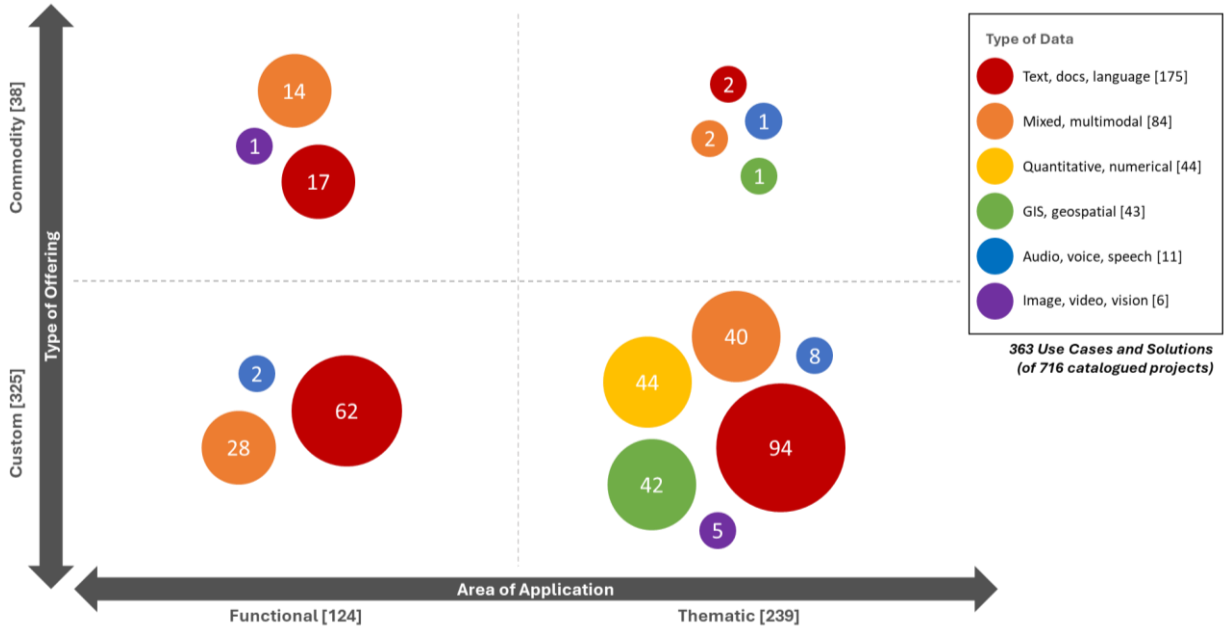
- **Type of Offering.** Indicates whether the project is mostly developed as a customized solution (e.g., proprietary software; 325 projects, 90%), or mostly based on commodity components (e.g., commercial products; 38 projects, 10%).
- **Area of Application.** Indicates whether the project serves mostly functional areas in the organization (e.g., legal, finance, human resources; 124 projects, 34%), or mostly thematic areas for programmatic delivery (e.g., climate, education, nutrition; 239 projects, 66%).

Additionally, projects are further sub-categorized by type of data:

- Text, docs, language (175 projects, 48%)
- Mixed, multimodal (84 projects, 23%)
- Quantitative, numerical (44 projects, 12%)
- Geographic Information System (GIS), geospatial (43 projects, 12%)
- Audio, voice, speech (11 projects, 3%)
- Image, video, vision (6 projects, 2%)

[6] Data last updated on 23/08/2024.

Figure 3: Mapping of AI use cases and solutions in the UN System



3.1.1 Quadrant analysis

The **Custom-Thematic quadrant** contains most of the catalogued projects (233 projects, 64%), which shows that the main efforts across the UN System are focused on building custom solutions to support thematic work for core operations and programmatic delivery. Projects in this quadrant indicate a trend of leveraging AI technologies to create innovative solutions that are adaptable, efficient, and aligned with organizational mandates. The projects also emphasize the importance of data analysis, decision support, and real-time insights to address complex challenges in various sectors. An example is IFAD's use of Large Language Models (LLMs) to extract and classify statements from national pathways and dialogues on food systems[lxxxviii], combined with data visualization tools to map and analyse key priorities for countries in the organization's operations portfolio.

The **Custom-Functional quadrant** contains fewer but still a significant number of projects (92 projects, 25%), which indicates that many solutions still require customization or in-house development, despite supporting functional areas or routine tasks that are commonly found in all organizations. Projects in this quadrant emphasize operational efficiency, knowledge management, and decision-making processes. However, while AI offers significant potential for improving day-to-day work within UN organizations, overcoming recurring challenges related to data quality, solution cost, and user acceptance are important to realize the full benefits of these technologies. An example is WIPO's custom speech-to-text service[lxxxix] used to transcribe speeches, meetings, interviews, and other spoken content in a secure, accurate, reliable, adaptable, and confidential manner.

The **Commodity-Functional quadrant** (32 projects, 9%) is the natural fit for projects that integrate vendor solutions designed to serve established functional areas or routine tasks. Examples here are various and common, including the use of Generative AI software to create or edit images and reports. Other example applications include extensions of Robotic Process Automation (RPA) solutions, now augmented by AI capabilities, to clean, classify, transcribe, and translate documents and data for further downstream processing and value-adding activities.

The **Commodity-Thematic quadrant** (6 projects, 2%) is the rarest combination that covers projects in which existing vendor solutions can be slightly adjusted to meet specific organizational ways of working on different thematic areas. An example is OCHA's use and evaluation of Google's Flood Forecasting system[xc] in a pilot project to provide flood alerts and disseminate actionable information in Nigeria.

3.1.2 Text, docs, language

Use cases and solutions in this subcategory (175 projects, 48%) mainly focus on the processing of text-centric data and documents to support knowledge management, improve decision-making, increase operational efficiency, and augment the ways in which people access or interact with information. The emergence of Generative AI, in particular, has led to the creation of many chatbot-based solutions and applications in this category; however, other types of approaches are also common, such as automatically translating and summarizing documents, expanding document data and metadata, or enhancing functionality and adding new AI features to existing search interfaces. Examples include: ESCAP's *Legal Trade Intelligence and Negotiation Adviser (TINA)*[xci] tool, to provide guidance and analytical capabilities to develop the text and legal provisions of trade agreements; IFC's *MALENA*[xcii] AI analyst, trained by IFC on unique emerging markets data to extract meaningful insights from unstructured Environmental, Social, and Governance (ESG) data at scale; and UNDP's *Artificial Intelligence for Development Analytics (AIDA)*[xciii] tool, powered by a set of AI models to intelligently search UNDP evaluation reports.

Additionally, projects in this subcategory also cover text-centric information retrieval and data mining processes further augmented by AI, for example: FAO's use of AI to source timely data from non-traditional sources to enhance their *Data Lab*[xciv] databases; IOM's application of AI to Twitter data to track immigration sentiment during COVID-19[xcv]; OHCHR's AI-based data gathering from open sources on attacks on human rights defenders, protests being repressed, and internet shutdowns[xcvi], as well as automatic tagging of observations and recommendations made by the international human rights protection system[xcvii]; UNODC's enhanced web scraping of open data on individual drug seizure events from media sites and official government websites for their *Drugs*

Monitoring Platform[xcviii]; and UN Women and UNICC's AI-based approach to flag sexist content on social media[xcix].

3.1.3 Mixed, multimodal

Use cases and solutions in this subcategory (84 projects, 23%) are transforming as new Generative AI models allow for multi-modal approaches to solve problems that require the input, reasoning, processing, and output of combined data in many forms. A notable appeal of the new Generative AI models is the replacement of mixed-methods AI techniques (e.g., optical character recognition (OCR), natural language processing (NLP), computer vision (CV), etc.) with single- or few-step processes now possible with multi-modal models. Examples of planned, ongoing, augmented, or experimental efforts include: extraction and classification of structured data from unstructured text and images, applied to multi-lingual and multi-modal budget reports; interaction with combined structured and unstructured data via a single point of query to a database, applied to business intelligence tasks; and improved search for open-source information from public websites to aid decision-making, including combined multi-modal searches through text, images, videos, and more inputs. An early example of a more concrete use case is UNICEF's exploration of mixed AI and multimodal Generative AI in their *Accessible Digital Textbooks*[c] project to fast-track the creation of interactive digital textbooks for a wide audience of learners, offering functionality such as sign-language videos, audio descriptions, and text-to-speech conversion.

3.1.4 Quantitative, numerical

Use cases and solutions in this subcategory (44 projects, 12%) cover projects that use more traditional forms of data analysis with AI, such as machine learning (ML) for linear regression, predictive analytics, statistical modelling, anomaly detection, classification, clustering, forecasting, and similar techniques to support data-driven decision-making, particularly based on quantitative or numerical data. Examples include: CTBTO's use of Artificial Neural Networks (ANNs), Self-Organizing Maps (SOMs), Support Vector Machines (SVMs), and other ML techniques, algorithms, and models to detect suspected nuclear explosions[ci]; UNHCR's *Project Jetson*[cii], an ML-based experiment that provides predictions on the movements of displaced people; and UNICEF's pilot for anomaly detection of suspicious transactions to tackle fraud in cash transfer programs[ciii].

3.1.5 GIS, geospatial

Use cases and solutions in this subcategory (43 projects, 12%) utilize maps, GIS, remote sensing, drone or satellite imagery, and other geographic and spatial data to tackle complex problems best solved through a geospatial lens, such as urban planning,

agriculture management, disaster response, and environmental monitoring. Examples include: UNEP's *International Methane Emissions Observatory (IMEO)*[civ] platform, which uses satellite data and ML to track methane releases, providing business and policymakers with data that allows them to stem leaks; UNITAC's *Building and Establishment Automated Mapper (BEAM)*[cv] software, which uses ML for better city planning and mapping of informal settlements; and WFP's *SKAI*[cvi] tool, which uses AI and satellite imagery to enable real-time insights and actionable intelligence for effective decision-making during disaster response.

3.1.6 Audio, voice, speech

Use cases and solutions in this subcategory (11 projects, 3%) are few, but they demonstrate the application of the right tools to solve the right problems. A notable example is UNFPA's *ECHO*[cvii] tool that uses automatic speech recognition, natural language processing, and data analytics to promote citizen's awareness about the SDGs through analysis of conversational and informal language, public discussion, and real-time participatory planning.

3.1.7 Image, video, vision

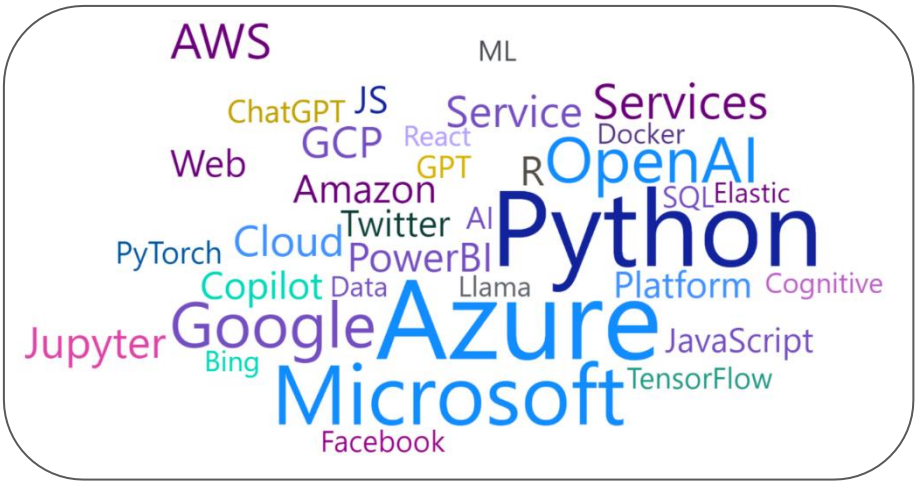
Use cases and solutions in this subcategory (6 projects, 2%) are also few, much like the previous subcategory, but they also demonstrate the application of the right tools to solve the right problems. A notable example is the World Bank Group's use of AI-based computer vision algorithms to identify and produce data on road incidents by analysing footage from road surveillance cameras[cviii].

3.2 AI Technologies, tools, and vendors

Though not fully representative, 173 projects (48%) reported information on the technologies, tools, or vendors used in the development of their use cases and solutions. A word cloud of the top terms mentioned in these projects was developed to help visualize and understand key insights, as shown in *Figure 4*[7].

[7] Data last updated on 23/08/2024. Only terms with at least five distinct mentions are shown.

Figure 4: Word cloud for AI technologies, tools, and vendors mentioned in AI use cases and solutions in the UN System



Azure is the most mentioned technology (64 projects), complemented by mentions of other Microsoft (44 projects) products and services such as Power BI (14 projects), Copilot (12 projects) and Bing (5). Python is the most mentioned programming language (60 projects), complemented by mentions of other Python-related technologies such as Jupyter (12 projects), PyTorch (7 projects), and TensorFlow (6 projects). Other cloud and AI service providers also figure prominently, with notable mentions for OpenAI (30 projects) and ChatGPT (7 projects), Google (30 projects) and Google Cloud Platform (GCP, 16 projects), and Amazon (13 projects) and Amazon Web Services (AWS, 20 projects).

3.3 PRISM framework for evaluating and prioritizing AI use cases and solutions

As organizations in the UN System continue to plan for the development of future AI use cases and solutions, it will be important to determine how to select which projects should move forward or not.

Recognizing this issue as a common challenge and opportunity for the introduction of tools to help decision makers, the DTN GenAI CoP designed a tool specifically for UN System organizations to score and prioritize AI use cases. The tool, known as the *PRISM Framework* and adapted for the UN context from Gartner's[8] *Use-Case Prisms on Generative AI for Analytics and AI Leaders*[cix], provides a structured approach for evaluating potential AI applications based on multiple dimensions. This approach allows

[8] Gartner is a technology research and consulting firm well known for developing practical frameworks to make decisions on technology, including specialized AI prism frameworks for assessing use cases and prioritizing investments in areas such as customer service, human resources, and quality management.

for a more strategic and informed decision-making process, aligning AI initiatives with organizational goals and resources.

The PRISM Framework in its current form, accessible online as a survey-based tool[cx], allows use cases to be scored along clear evaluation criteria in order to output a prioritization score. The PRISM Framework is a living tool that requires regular review to update the evaluation criteria and scoring system to adapt to the evolving landscape of AI and needs of the UN System. The evaluation criteria are shown in *Figure 5* and detailed below, with the complete survey questionnaire captured in *Table 1*.

- **Mission Impact.** Refers to how well the AI-related use case project helps achieve the outcomes desired by policies, regulations, or statutes within your organization. This may include aspects such as improving regulatory compliance, speeding up investigations, and resolving compliance issues effectively and promptly for the community's benefit.
- **Increased Efficiency.** Refers to the ability of the AI-related use case project to meet or exceed performance goals with equal or fewer resources, resulting in reduced efforts and operating costs or improved productivity in your organization.
- **Managed Risk.** Refers to the ability of the AI-related use case project to remove uncertainty from the future performance of the organization by reducing potential reputational, security, operational, or performance risks, or creating the agility to respond to future market disruptions. This includes the ability for the organization to remain resilient and adapt to events – policy, geopolitical, environmental, or other.
- **Nonfinancial Value.** Refers to the ability of the AI-related use case project to help the organization meet nonfinancial or mission-related goals such as innovation, diversity, equity, and inclusion (DEI), sustainability, and community development.
- **Technical Feasibility.** Refers to the organization's ability to meet the technical requirements of the AI-related use case project. Considerations include the core capabilities of the AI technology itself, the availability of vendor support, the current state of the organization's technology infrastructure, and the technical talent required by the use case project.
- **Internal Readiness**. Refers to the organization's ability and openness to use and incorporate the AI-related use case project. This includes stakeholders' willingness to understand, trust, and execute it, as well as the necessary internal policies, governance, culture, and mindset needed to implement and operate the use case project.
- **External Readiness**. Refers to how conducive the external environment is for the AI-related use case project's successful execution. Considerations include legal and regulatory environment; public opinion of the use case project; and the digital access, literacy, and engagement required by the use case project.

Figure 5: PRISM framework criteria for evaluating and prioritizing AI use cases and solutions, developed by DTN GenAI CoP

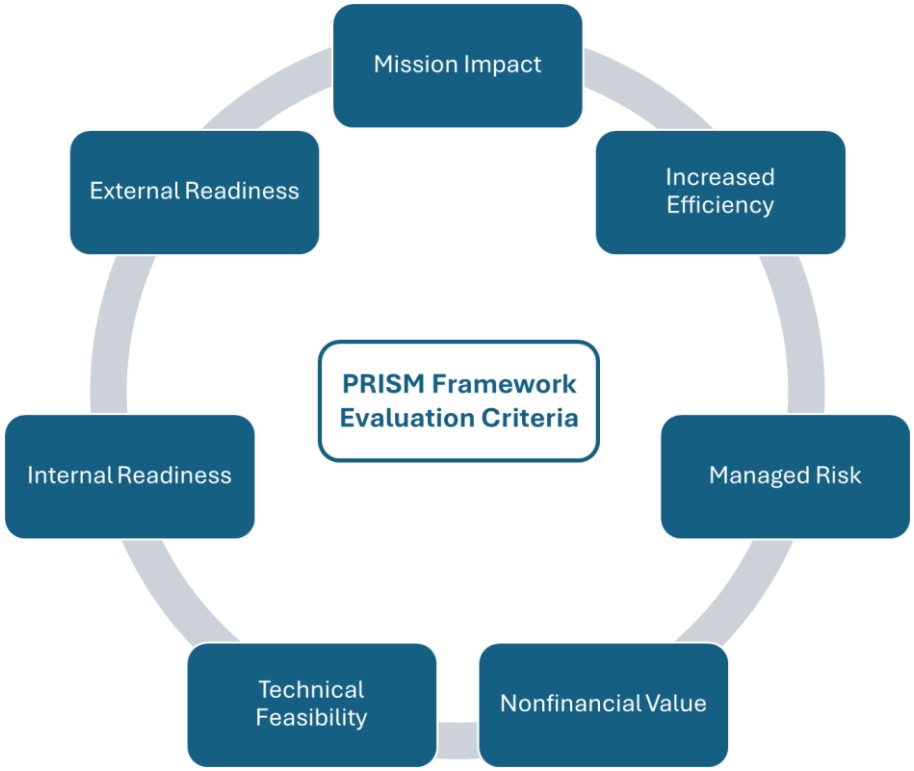


Table 1: PRISM framework questionnaire for evaluating and prioritizing AI use cases and solutions, developed by DTN GenAI CoP

Question	Answer options
How well does the AI-related use case project align with the UN 2.0 principles?	☐ 0: No alignment. ☐ 1: Minimal alignment. ☐ 2: Moderate alignment. ☐ 3: Significant alignment.
Mission Impact *How significantly does the AI-related use case project contribute to the mission of your organization?*	☐ 0: The initiative has no clear link between its implementation and mission success or failure. ☐ 1: The initiative has positive impact but only as a secondary effect of its primary function – for instance, it reduced time consumed thereby releasing resources. ☐ 2: The initiative creates incremental but significant improvements to a critical part of mission delivery. ☐ 3: The initiative enables a new approach which can significantly improve outcomes and mission impact both internally and externally. ☐ 4: The use case is mission critical – with the initiative, the mission is likely to succeed fully and be transformational; without it, the mission is extremely likely to fail. ☐ Not applicable.
Increased Efficiency *How does the AI-related use case project affect operational efficiency in terms of reducing efforts, operating costs, or improving*	☐ 0: The use case project is not likely to result in improved efficiency – it may in fact trigger latent demand for services. ☐ 1: The process is regarded as improved, but cost savings are negligible. ☐ 2: Some cost savings can be identified, though care is needed to ensure they can be properly measured.

productivity in your organization?	☐ 3: Significant identifiable savings are likely to be achieved, considerably outweighing the costs of service introduction and maintenance. ☐ 4: Cost base for delivery of the service is transformed, with over 50% savings in total cost of operation. ☐ Not applicable.
Managed Risk *How effectively does the AI-related use case project manage and mitigate risks associated with its implementation and operation in your organization?*	☐ 0: Zero or negative on overall risk – increasing the likelihood of a serious adverse event or an inability to adapt to changes in law/regulation. ☐ 1: No identifiable negative effects, some secondary positive effects, e.g., through releasing of resources to address backlogs. ☐ 2: Measurably improved processes and identifiable reduction in extant risks on the register. ☐ 3: Significant reduction in outstanding risks, allowing considerably increased flexibility of delivery. ☐ 4: Significant reduction in risk sources by addressing legacy/tech debt, lack of skills, lack of delivery capacity, addressing poor data as well as significantly improved capacity, resilience and flexibility. ☐ Not applicable.
Nonfinancial Value *What is the nonfinancial value generated by the AI-related use case project in terms of social, environmental, or cultural impact?*	☐ 0: No identifiable link to nonfinancial values (NFVs). ☐ 1: Some identifiable improvements in stated NFV – such as customer experience (CX), user experience (UX), speed of response. ☐ 2: Measurable, identifiable improvements in at least one major target area of NFV, such as diversity, digital divide, CX, UX. ☐ 3: Measurable and identifiable improvements in multiple areas of NFV. ☐ 4: Transformative service allowing significant, measurable, and publishable improvements in multiple dimensions of nonfinancial targets. ☐ Not applicable.
Technical Feasibility *How technically feasible is the AI-related use case project considering the available technology and resources in your organization?*	☐ 0: Impossible. The organization does not have skills, procedures, or policies in place, and it is uncertain whether vendors can deliver to the initiative's requirements. ☐ 1: Challenging. While in principle the delivery would seem possible, significant upskilling is required and there remain concerns about compliance with security, ethics, and continuous assurance. ☐ 2: Complicated. A base set of agreed policies are in place and there is sufficient capacity for delivery, though training and skills will need improvement and procedures will need updates. ☐ 3: Doable: The initiative is similar to ones already in place, and most anticipated obstacles can be overcome. ☐ 4: Easy: This initiative is one that is proven and well-understood and will not require additional skills or training. ☐ Not applicable.
Internal Readiness *How ready is your organization internally (skills, infrastructure, support) to implement the AI-related use case project?*	☐ 0: The organization has a number of significant blockers to delivery, and/or there are established policies that this initiative is likely to contravene which are not changeable by the organization. ☐ 1: There is a wider level of concern about the use of AI, with a level of mistrust from staff, and significant change would be required to operations policy and procedure. ☐ 2: The organization structure has the change capacity to adapt, but some uncertainties remain which will require significant executive attention. ☐ 3: The organization should be able to adapt within current policy and practice, with relatively minor changes and training required.

	☐ 4: The changes are within normal change capacity and require only minor adaptation, if any. ☐ Not applicable.
External Readiness *How well do external stakeholders and the public receive the AI-related use case project?*	☐ 0: The proposed initiative contravenes current legislation and/or accepted ethical practice, or is highly likely to be strongly protested by population and media. ☐ 1: There are significant challenges in passing through ethical/legal gates, and reception by external users is uncertain and/or the data is sparse or poor. ☐ 2: Careful attention must be paid to risks to acceptance, but it is likely that these can be handled without undue delay. Data is available and of sufficient quality to deliver the service, but requires close oversight. ☐ 3: There is reasonable demand for the solution, with minor concerns about specific stakeholders but they are anticipated to be addressable. ☐ 4: There is strong demand for the proposed initiative, and it is likely to enhance the reputation of the organization in delivery. No contraindications. ☐ Not applicable.
What is the comparative size of the impact of the AI-related use case project on your organization?	☐ 0: No impact. ☐ 1: Low impact. ☐ 2: Moderate impact. ☐ 3: High impact. ☐ 4: Very high impact.

3.4 Risk assessment framework for evaluating commercial AI offerings

As organizations in the UN System continue to integrate commercial AI offerings into their current and future AI projects, whether as full vendor products (e.g., AI assistants) or as custom solutions with vendor components (e.g., AI models), it will be important to assess the inherent risk of the offerings themselves in addition to any residual risk after applying organizational controls and mitigations.

Also recognizing this issue as a common challenge, recurring need, and opportunity for the introduction of tools to standardize processes and help decision makers, WIPO developed a risk assessment framework for evaluating commercial AI offerings. The objective of the framework is to help organizations highlight specific risks and generate recommendations to be considered during the planning and development of AI projects. The framework is intended to support risk assessments in a more agile manner, recognizing that AI offerings and technologies are rapidly evolving and thus require a proactive approach to realize the benefits of AI in a responsible manner.

The risk assessment framework, developed internally by WIPO's Security and Information Assurance Division [cxi], has garnered interest from other UN System organizations that have requested the framework as a useful and organization-agnostic resource for evaluating commonly used products and services in their own AI projects. The risk assessment criteria are shown in *Figure 6*, with the complete list of risk categories and descriptions captured in *Table 2*.

Figure 6: Risk assessment criteria for evaluating commercial AI offerings, developed by WIPO

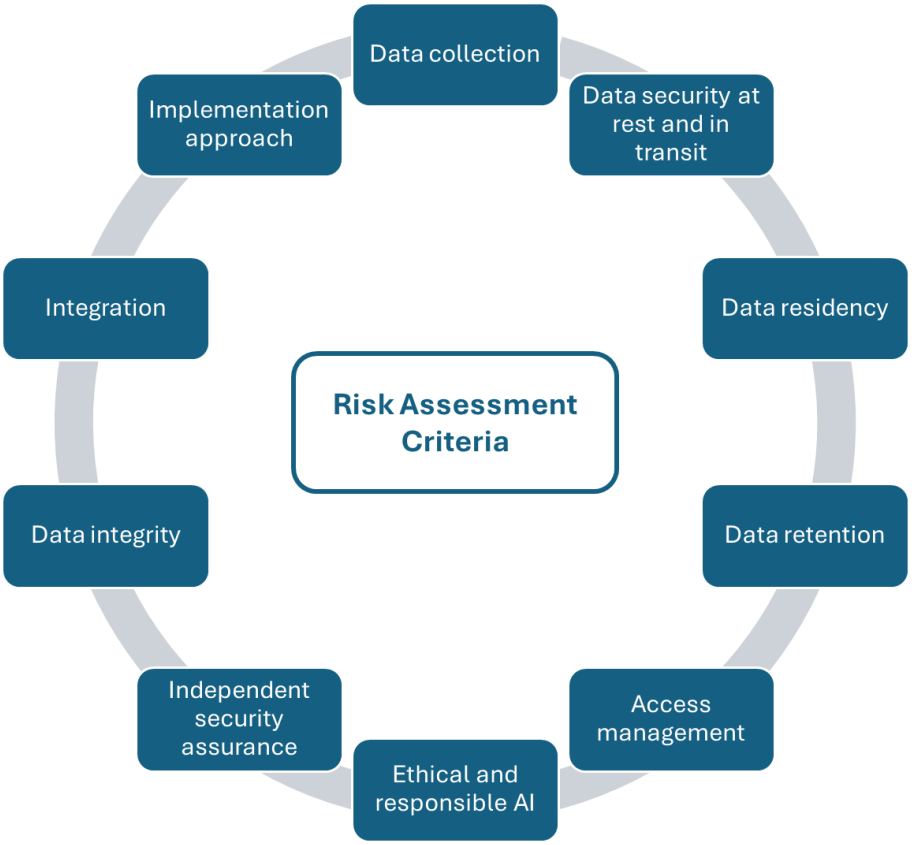


Table 2: Risk categories and descriptions for evaluating commercial AI offerings, developed by WIPO

Risk category	Risk description
Data collection	It is critical to understand and limit data collection in order to limit exposure of organizational data to data leakage and unauthorized risks, which could in turn have a reputational, financial, and operational impact on the organization. Therefore, it is important to understand how much data will be collected by the commercial offering and what controls are available to reduce these risks to an acceptable level.
Data security at rest and in transit	It is important to ensure the security of organizational data both at rest and in transit. Insufficient controls for data at rest exposes organization-sensitive information to potential theft, manipulation, or loss, leading to significant reputational, financial, and operational damages. Lack of secure protocols for data in transit presents a critical risk to the organization, making sensitive data vulnerable to interception, manipulation, or loss during transmission.
Data residency	It is important for the organization to ensure sufficient protection of its data, in line with the organization's privileges and immunities. For this reason, data residency, location of data centres, and hosting locations are key considerations.
Data retention	While retaining data can be valuable for refining AI models, products, and services towards improving future interactions, it also presents some risks in the sense that the retained data can become a target for cyberattacks. Retaining data, especially if it contains personal or sensitive information, can pose significant data leakage, data breach, and privacy risks.

Access management	Inadequate access controls could result in unauthorized access, abuse, data leakage, and potential misuse of the AI offering. It is therefore essential to implement robust access control mechanisms, such as strong authentication and authorization procedures, role-based access control, and regular access reviews to mitigate such risks.
Ethical and responsible AI considerations	For most AI offerings, there exist inherent risks associated with the ethical and responsible use of AI. These risks could include model biases, lack of transparency and explainability in the decision-making process, and copyright infringement concerns. Furthermore, without stringent guidelines and oversight, AI capabilities could be misused for generating deceptive or manipulative content, potentially exposing the organization to reputational risks. These inherent risks therefore underscore the necessity for proactive measures to ensure ethical, transparency, and responsible use of AI technologies.
Independent security assurance	In most cases, independent security assurance of the offering's infrastructure and security provides the only means for the organization to have confidence in the efficacy of the controls implemented by the vendors. It is therefore critical to obtain and review the vendor and the offering's security audits and certifications in order to get reasonable assurance of the technical and non-technical controls implemented to deliver a secure and reliable offering for the organization.
Data integrity	AI outputs, if not verified before use in business processes, could result in low-quality or incorrect results which could end up compromising data integrity over time.
Integration	The integration process of the offering, if not properly and securely managed, could expose the organization to new security vulnerabilities, potentially compromising the confidentiality, availability, and integrity of data.
Implementation approach	As a more generalized risk, it is important for the organization to work on an organizational strategy and approach for the adoption of AI technologies. This will help to address risks related to potential misalignment between business objectives, user needs, and security/privacy requirements. A well-planned implementation approach will further help to mitigate risks associated with offerings that are either over- or under-engineered for the intended organizational use cases and corresponding security/privacy needs.

4. Focus Area #3: AI Project Platforms

The influence of the open-source movement on AI development has been key in achieving technological breakthroughs, democratizing access to tools, overcoming common challenges, and building thriving communities. Many of the benefits of open-source AI are seen in both established project platforms for software in general, and in emerging platforms for AI and AI-related projects in particular. Overall, the strong connection between open-source and AI cannot be understated, echoing the vision outlined in the *Secretary-General's Roadmap for Digital Cooperation* [cxii] , which emphasizes open-source software (OSS), open data, open AI models, open standards, and open content to encourage and invest in the creation of digital public goods. More recently, high-profile events such as the *OSPOs for Good 2024*[cxiii] symposium, co-led by the Office of the Secretary-General's Envoy on Technology and UN-OICT, highlights emerging examples of open source for good, open-source networks as enablers of global cooperation, and the growing relationship between open source and AI.

4.1 Platforms and communities for AI and AI-related projects

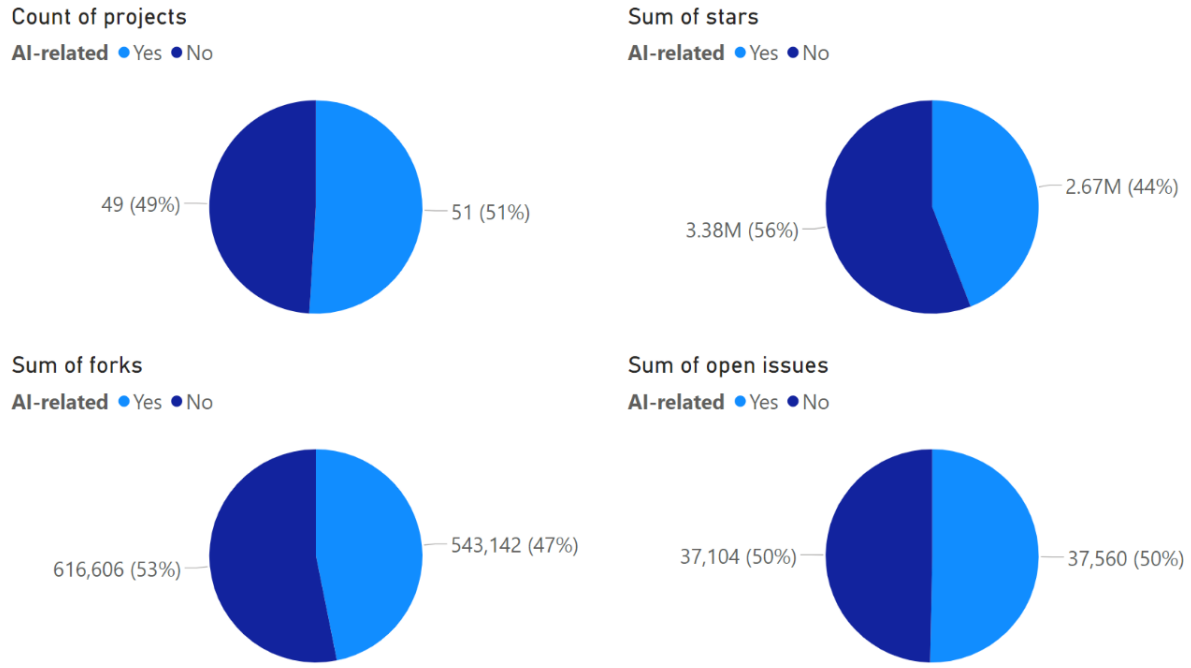
Several platforms and communities are thriving with AI and AI-related projects, and thus they can serve as a useful proxy for understanding general trends in AI development and how the UN System could stand to benefit from existing work, fill any missing gaps, or redirect efforts towards a more customized offering. It's important to note that the definition of a "project" is broad in this discussion, not just encompassing technical codebases for use cases or solutions, but also foundational datasets, architecture diagrams, interactive examples, design guidelines, customizable templates, and more. In this section we examine four AI and AI-related project platforms and communities[9]: GitHub[cxiv], Hugging Face[cxv], The Centre for Humanitarian Data[cxvi], and the Development Data Partnership[cxvii].

4.1.1 GitHub

GitHub is a developer platform that allows developers to create, store, manage, and share their code and projects. GitHub has over 100 million users[cxviii] and over 200 million public repositories[cxix], making it one of the most popular developer platforms worldwide. To understand general trends in AI, we focused on analysing a subset of GitHub repositories developed with or for the Python programming language, which is widely considered one of the most popular programming languages for AI projects. We obtained data from the top 100 Python projects[cxx] by count of stars and manually reviewed each project to determine whether it had an AI or AI-related focus. Statistics on the data with our classifications are visualized in *Figure 7*[10].

[9] GitHub and Hugging Face are examined in this report due to their size, popularity, and influence on AI and AI-related projects in the technology industry, but their inclusion should not be understood as an endorsement to specifically use these platforms for AI and AI-related projects in the UN System.
[10] Data last updated on 23/08/2024.

Figure 7: Statistics from the top 100 Python projects on GitHub by count of stars



By all measures, AI and AI-related projects represent approximately half of all activity in the top 100 Python projects: count of projects (51 projects, 51%); sum of stars[11] (2.67 million stars, 44%); sum of forks[12] (543,142 forks, 47%); and sum of open issues[13] (37,560 open issues, 50%). Popular and influential AI projects towards the top of the rankings include: *AutoGPT*[cxxi] (#5), a tool to create and run intelligent AI agents; *Stable Diffusion Web UI*[cxxii] (#7), a web interface for the Stable Diffusion family of Generative AI models; and *Transformers*[cxxiii] (#9), an application programming interface (API) for accessing and using pre-trained AI models. To show that popular and influential AI and AI-related projects are also found towards the bottom 100, we note the following examples: *LlamaIndex*[cxxiv] (#85), a data framework for LLM applications; *Streamlit*[cxxv] (#89), a tool to transform data scripts into interactive web applications; and *Ray*[cxxvi] (#97), a set of AI libraries for accelerating ML workloads.

[11] GitHub users can star repositories to keep track of projects they find interesting and to show appreciation to project teams. Stars are considered the main measure to determine the popularity of a project.

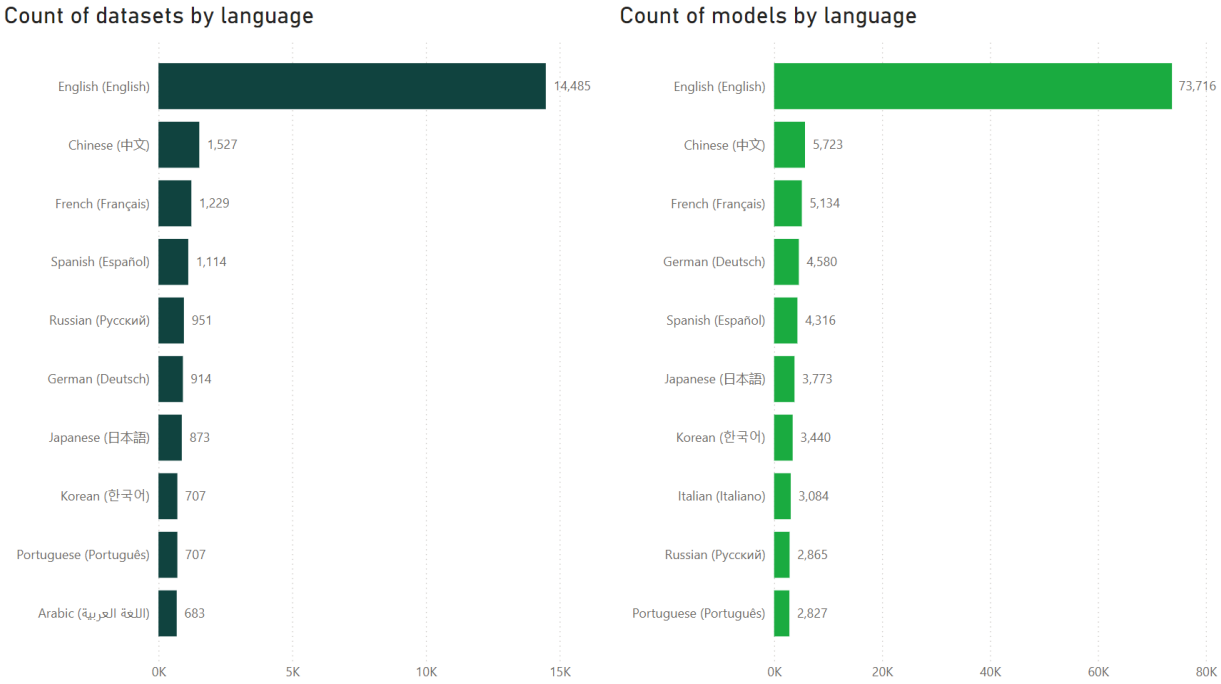
[12] A fork is a new downstream repository that shares code and visibility with an original upstream repository. Forks are used to propose changes to an existing project or to start a new project from an existing repository.

[13] Issues are a means to track ideas, feedback, tasks, or bugs for work on projects. Issues can be used to track work, give or receive feedback, collaborate on ideas or tasks, and efficiently communicate with others.

4.1.2 Hugging Face

Hugging Face is a platform where AI and ML communities collaborate on models, datasets, and applications. Hugging Face has over 860,000 models[cxxvii], over 199,000 datasets[cxxviii], and over 237,000 spaces[cxxix] to build, host, and share applications. To understand general trends in AI, we focused on analysing datasets and models by language[cxxx]and models by type of task[cxxxi]. Statistics on the data are visualized in *Figure 8*[14] and *Figure 9*[15].

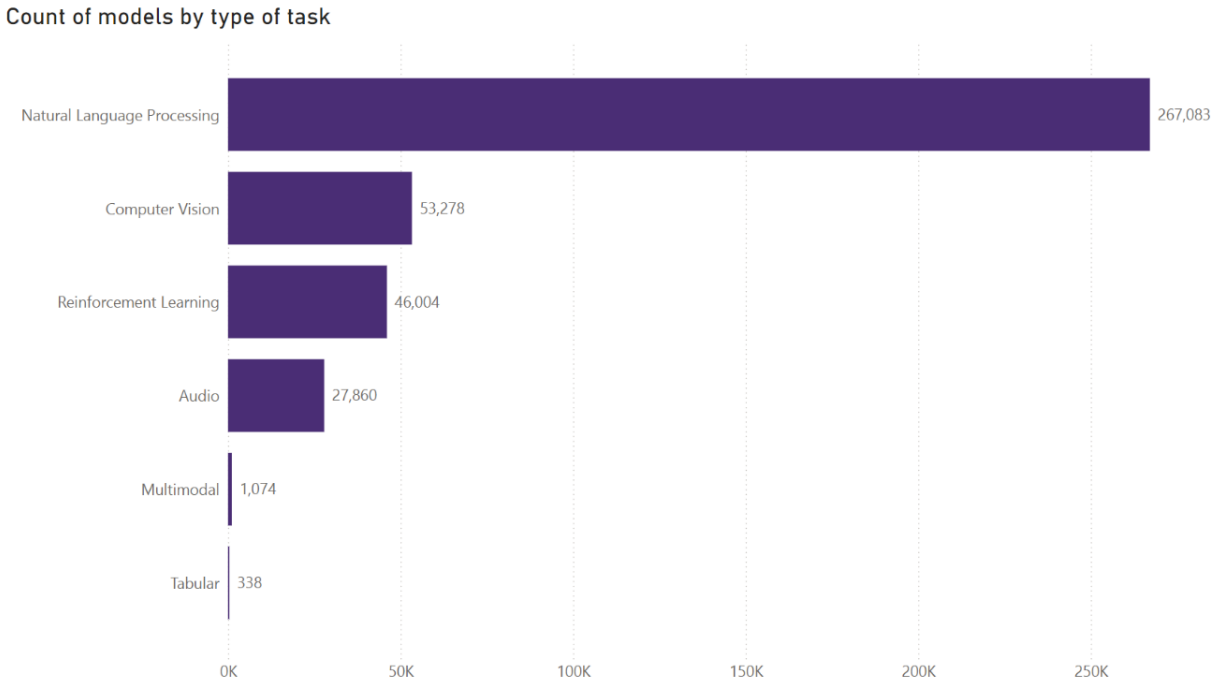
Figure 8: Statistics from datasets and models on Hugging Face by language



Statistics by language show a stark divide between English and non-English languages, with English-language datasets and models having approximately a 10x difference in their favour. There are 14,485 English-language datasets, with the next highest-ranking language, Chinese, having 1,527 datasets. Similarly, there are 73,716 English-language models, with the next highest-ranking language, also Chinese, having 5,723 models. Notably, all six official languages of the UN are represented in the top 10 ranking of datasets by language: English (14,485); Chinese (1,527); French (1,229); Spanish (1,114); Russian (951); and Arabic (683). However, only five official languages of the UN are represented in the top 10 ranking of models by language: English (73,716); Chinese (5,723); French (5,134); Spanish (4,316); Russian (2,865); and then Arabic coming in at #11 with 2,035 models (not shown in *Figure 7*). Finally, it's worth noting that, overall, there are more than 8,000 languages represented in datasets, more than 4,600 languages represented in models, more than 600 multilingual datasets, and more than 1,700 multilingual models available on Hugging Face.

[14] Data last updated on 23/08/2024.
[15] Data last updated on 23/08/2024.

Figure 9: Statistics from models on Hugging Face by type of task



Statistics by type of task show a noticeable divide between language-centric and non-language-centric tasks, with natural language processing (NLP) models having more than a 2x difference in their favour. There are 267,083 NLP models, mostly focused on text generation (more than 132,000 models), text classification (more than 67,000 models), and token classification (more than 19,000 models). The next highest-ranked task, computer vision (CV), has 53,278 models, mostly focused on text-to-image generation (more than 31,000 models), image classification (more than 13,000 models), and object detection (more than 2,000 models). Other models cover tasks such as automatic speech recognition (more than 19,000 models), visual question answering (more than 300 models), and tabular classification (more than 200 models).

4.1.3 Case Study: The Centre for Humanitarian Data

The Centre for Humanitarian Data is focused on increasing the use and impact of data in the humanitarian sector. Managed by OCHA, the Centre serves as a platform to support humanitarian operations and maximise the use and impact of data in humanitarian response, all while ensuring a responsible approach to technology and data management. The Centre is focused on serving OCHA staff and partners primarily, with a priority focus on locations with humanitarian operations, but it also contributes to the development, use, and promotion of digital public goods through a UN-led platform that embraces open-source practices to help attain the SDGs. The Centre's operations are organized around four workstreams: data services [cxxxii], data science [cxxxiii], data responsibility[cxxxiv], and learning and practice[cxxxv]. The Centre has several sub-platforms, services, and resources, including:

- **The Humanitarian Data Exchange (HDX)**[cxxxvi]**.** An open platform for sharing data across crises and organizations, with the goal of making humanitarian data easy to find and use for analysis. HDX currently has over 20,000 datasets from more than 2,000 sources for more than 250 locations. In addition to the data openly available on HDX, the Centre also provides additional services and tools related to HDX to support humanitarian decision making, including:
    - HDX Signals[cxxxvii], which monitors key datasets and generates automated emails when significant changes are detected.
    - HDX Humanitarian API (HAPI)[cxxxviii], a mechanism to access standardised indicators from multiple sources to automate workflows and visualisations.
    - HDX Humanitarian Exchange Language (HXL)[cxxxix], to speed up data processing and create interoperability across data sources.
    - Common Operational Datasets (CODs)[cxl], to ensure consistency and simplify the discovery and exchange of key data from authoritative reference datasets for all actors in a humanitarian response.
- **Catalogue of Predictive Models in the Humanitarian Sector**[cxli]**.** A catalogue of models to support humanitarian decision-makers with the use of predictive analytics to anticipate and better respond to humanitarian crises. The catalogue currently has over 50 models, including submissions from UN entities such as OCHA, UN Global Pulse, UNDRR, UNHCR, WFP, WHO, the World Bank Group, and others.
- **Peer Review Framework for Predictive Analytics in Humanitarian Response**[cxlii]**.** A rigorous process to ensure models can be understood and trusted by all stakeholders in a humanitarian operation, aimed at creating standards and processes for the use of models in the sector. The process, conducted in the style of an academic peer review, looks at better understanding the limitations of models and identifying how different stakeholders are impacted by these technical limitations and related ethical concerns.

Importantly, OCHA's approach shows how open-source platforms can be managed strategically and centrally to ensure high-quality open-sources resources and to promote open-source practices within more controlled communities with limited access (i.e., an *inner-source*[16] approach). Examples of these mechanisms within the Centre for Humanitarian Data include:

- Membership requirements to share data, with additional controls for public, private, or upon-request access.
- Submission forms, model cards, and peer review frameworks for predictive models.

[16] Inner-source is a software development strategy in which individual organizations or groups of organizations adopt open-source practices to collaborate more effectively. Organizations that adopt an inner-source approach develop proprietary software that is accessible and open to internal members.

4.1.4 Case Study: The Development Data Partnership

The Development Data Partnership is a collaboration between international organizations and technology companies, facilitating the efficient and responsible use of third-party data in international development. The Partnership's success is predicated on a project platform and community backed by standardized legal, IT, and governance procedures. *Data Partners* are organizations that provide data or services, while *Development Partners* are international organizations that receive data or services, both under a *Master Data License Agreement*. Development Partners in the Partnership include UN organizations such as UNDP, UNICEF, and the World Bank Group.

Although the Development Data Partnership does have public repositories published via GitHub[cxliii], many of the projects that rely on proprietary datasets are limited to the Partnership members via controlled access to the platform and community. Nonetheless, the Partnership demonstrates a valuable inner-source approach to augmenting technical cooperation and pooling technical capacity within domain-specific settings amongst trusted partners working towards common goals. Most importantly, the Partnership shows how collective agreements and inter-agency cooperation can facilitate access to data, tools, and expertise that would be harder to come by on an organization-by-organization basis.

4.2 Current state and ongoing efforts on the adoption and expansion of open-source practices in the UN System

Open-source practices are essential to modern software development, with several open-source technologies, projects, and communities having shaped the way of working for all technology professionals, regardless of background or domain. The UN System recognizes the importance of open source – from the Secretary-General to individual contributors, and all the UN entities, teams, and professionals in between – evident through the many contributions to open-source projects and the growing efforts on system-wide collaboration and coordination. However, there is also a growing recognition and call for necessary security, privacy, and data protection measures to be embedded in open-source projects and assets to prevent misuse, malicious use, data exfiltration, or intellectual property disputes, including new considerations emerging specifically for AI and the management and mitigation of potential risks for AI models, datasets, tools, applications, and other software. In the following subsections, we briefly look at indicative examples and ongoing efforts related to the presence, contributions, and approach to open source across the UN System.

4.2.1 UN presence in and contributions to open-source platforms and communities

The Centre for Humanitarian Data and the Development Data Partnership are two clear examples of UN-led platforms and communities for AI and AI-related projects. Beyond these two specific examples, UN organizations already have an active presence in open-source platforms and communities, with growing contributions to digital public goods.[17]

A desk review of UN organizations on GitHub reveals over 60 organizational accounts with over 2,700 repositories combined, including popular projects such as: WHO's COVID-19 app for Nigeria (2,126 stars)[cxliv]; the World Bank Group's Stata commands for data management and analysis (256 stars)[cxlv]; and WFP's user interface (UI) design and development kit (220 stars)[cxlvi]. Though these and most other projects are not necessarily AI-related, the overall presence of UN organizations on GitHub[18] indicates a strong appetite for further open-source activities and engagements.

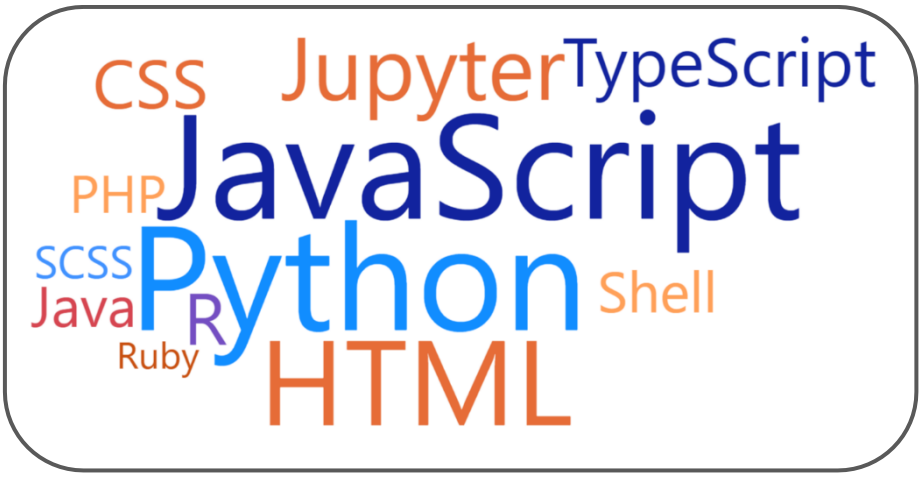
A word cloud of the top programming languages across GitHub repositories of UN organizations was developed to help visualize and understand key insights, as shown in *Figure 10*[19]. JavaScript and Python are both listed amongst the top programming languages for 33 UN organizational accounts, according to public GitHub repositories. This statistic matches GitHub ranking of *Top 50 Programming Languages Globally*[cxlvii], with JavaScript ranked at #1 and Python ranked at #2.

[17] The presence of UN System organizations on GitHub and Hugging Face is highlighted here for illustrative purposes only, and not as a definitive indication of or statement on all UN presence in and contributions to open-source platforms and communities. Other platforms and communities, such as Kaggle, may also have a UN presence.

[18] It is worth noting, however, that although GitHub is a popular developer platform, it is not necessarily used nor preferred by all entities in the UN System. Instances of GitHub can be used within the UN System as private project platforms for internal development, but other options such as Azure DevOps or GitLab are also widely used or preferred for integrated development, security, and operations (DevSecOps). Each organization's choice of a projects platform is based on multiple factors such as product and service features, vendor agreements, monitoring and security, policy compliance, project sensitivities, privileges and immunities, and other legal or technical considerations.

[19] Data last updated on 23/08/2024. Only terms with at least five distinct mentions are shown.

Figure 10: Word cloud for the top programming languages across GitHub repositories of UN organizations



On Hugging Face, the UN System footprint is less noticeable, but we can already see two projects that are leading the way on digital public goods for the AI era: UNHCR's *Hate Speech Detection Model*[cxlviii], a transformer-based model that can detect hate speech targeted at refugees, and UNDP's *SDGi Corpus* [cxlix], a curated dataset for text classification tasks related to the SDGs.

4.2.2 The DTN Open-Source Software Community of Practice

The DTN Open-Source Software Community of Practice (DTN OSS CoP), co-led by UN-OICT and UNFPA, was established to advance the adoption and integration of open-source software within the UN System, currently focused on taking actionable steps to create an open-source ecosystem. Based on responses from 16 UN organizations to a survey on *Mapping the Open-Source Landscape at the UN*[cl], the DTN OSS CoP issued five recommendations to jointly realize the opportunities of open source. The latest update from the DTN OSS CoP, delivered during the DTN 2024 Spring Session in Bangkok [cli], shows that these five recommendations are underway as implementable initiatives led by various UN organizations. The recommendations and actions from the DTN OSS CoP are summarized in *Table 3*, noting further directions from DTN to encourage contributions from various UN entities to foster a collaborative environment.

Table 3: Recommendations and actions on open-source opportunities for the UN System, developed and led by DTN OSS CoP

Recommendation	Action
#1: Software Catalogue Build a catalogue of open source and potentially open-sourceable software in the UN system categorized in different verticals such as maturity, SDGs impacted and existing support, among others.	UNFPA will lead the creation of a comprehensive catalogue of open-source software.

#2: Common Policy Framework Work together to generate a common set of policies, guidelines and governance frameworks that could then be specialized and overridden to suit the needs of each UN system organization.	ITU will lead the effort to create a unified policy for open-source licenses.
#3: UN Open Source License Draft a UN system-wide Open Source Initiative (OSI) compliant license for open-source development that is faithful to the UN status, immunities and privileges while allowing open participation by the greater world.	IAEA and WHO will address license standardization issues.
#4: Code-Hosting Platform Build and maintain a UN system-level open-source code-hosting platform compliant to existing quality, license and security policies, with voluntary participation from system entities.	UNICC will create an internally hosted GitLab repository.
#5: Cross-Organizational Capacity Building Extend capacity building activities beyond organizational boundaries to break down myths and scepticism surrounding staff involvement in open-source use, production and contribution.	UN-OICT will lead efforts to enhance the capacity of UN entities in using open-source software.

5. Focus Area #4: Emergence of Generative AI

The public launch of ChatGPT in November 2022[cliii] is widely recognized as a watershed moment for AI, and for Generative AI in particular, with the application reaching 100 million monthly active users in January 2023 according to common reports[cliii]. Since then, the increased focus on Generative AI within the UN System has been evident, leading to key discussions and the creation of the DTN Generative AI Community of Practice, the UN Generative AI Practice Group, and the HLCM Task Force on AI, among others.

At the October 2023 *HLCP-HLCM Joint Session on the Use and Governance of Artificial Intelligence and Related Technologies*[cliv], four UN organizations (IFAD, UNDP, UNHCR, and WHO) presented early insights from their experiences with adopting Generative AI. Now, many more organizations have launched additional pilots, completed entire projects, and are moving strategically towards production-ready solutions and organization-wide use. The 2023 edition of the ITU report *United Nations Activities on Artificial Intelligence (AI)* [clv], notes an increase of 45% more projects reported as compared with the 2022 edition, stating that *"2023 will go down in history as the year that generative artificial intelligence – also known as "gen AI" – took the world by storm"*.

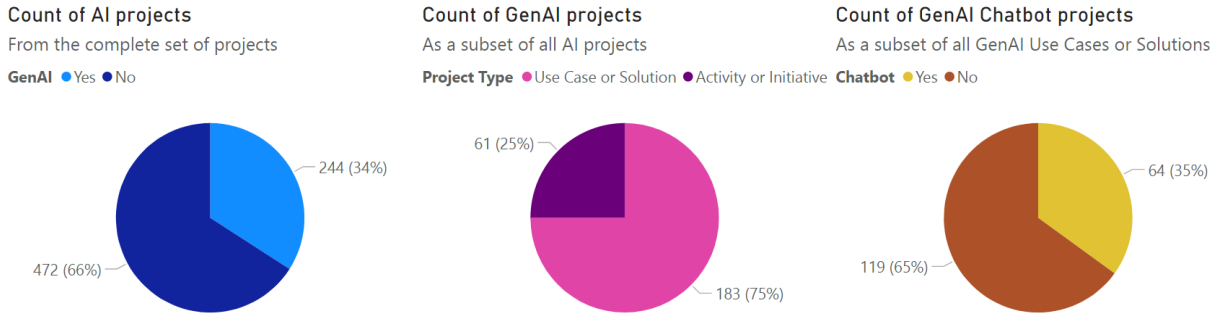
5.1 Generative AI projects

The projects catalogue compiled for this report contains 716 AI and AI-related projects from across the UN System. Of these 716 projects, 244 projects (34%) were classified as *Generative AI* projects, based on the projects' specific mention of Generative AI terms, technologies, and concepts. This section describes the findings from the *Generative AI* projects, for which a series of pie charts were developed to help visualize and understand trends, as shown in *Figure 11*[20] and summarized below:

- Of the 716 AI projects, 244 projects are *Generative AI* projects (34%).
- Of the 244 *Generative AI* projects, 183 projects are *Generative AI Use Cases or Solutions* (75%) and 61 projects are *Generative AI Activities or Initiatives* (25%).
- Of the 183 *Generative AI Use Cases or Solutions* projects, 64 projects are *Generative AI Chatbots* (35%).

[20] Data last updated on 23/08/2024.

Figure 11: Generative AI projects in the UN System



From the *Generative AI Activities or Initiatives* projects, we draw the following common observations on the understanding of and approach to Generative AI in the UN System:

- There is a strong emphasis on developing guidelines and frameworks for the responsible use of AI and Generative AI, including ethical considerations in the development and deployment of AI and Generative AI.
- There is a clear recognition of the dangers of AI and Generative AI in terms of misinformation and disinformation, also extending to bias and discrimination, requiring joint efforts and strong action for preventive measures and appropriate mitigations.
- Education and training initiatives are emerging for individuals, organizations, and other entities to effectively adopt and adapt to AI and Generative AI technologies, running in parallel with related efforts to gain a broader understanding of the impact of AI and Generative AI on the workforce, workplace, and markets.

From the *Generative AI Use Cases and Solutions* projects, we draw the following common observations on the development and use of Generative AI in the UN System:

- Large Language Models (LLMs) are being used to enhance decision-making, augment data analysis, and transform knowledge management. The use of LLMs aims to improve efficiency and effectiveness in core operations and strategic planning.
- Chatbots and conversational interfaces are being developed to make information more accessible and to facilitate user interaction with complex data, documents, and knowledge bases. These applications are designed to provide quick and human-like responses to queries, making it easier for users to access and understand information.
- Various AI and Generative AI techniques and approaches are being used to collate, analyse, and synthesize large amounts of data and documents. Mixed-technology approaches centred on Generative AI include the creation of interactive dashboards, rich repositories, multi-modal user interfaces, and new platforms that allow for efficient data retrieval, multi-faceted logic, and meaningful insights.

- Several projects are incorporating multi-lingual support to cater to diverse user bases, reflecting the global nature of the UN System and the need for organizations to communicate effectively across different languages.
- Many projects are still in the pilot or experimental stages, indicating a continued period of exploration and testing to understand the best ways to implement AI technologies within each organization.
- There is a conscious and active effort to consider ethical and human rights implications in the development and use of Generative AI, ensuring that the adoption of these technologies aligns with the values and principles of the UN System and organizational mandates.

Though similarities abound, in general projects are tailored to the needs of each organization. Even *Generative AI Chatbots* projects in their many presentations – such as ESCAP's *SATGPT*[clvi], OCHA's *Ask ReliefWeb*[clvii], or UNEP's *EnvironmentGPT*[clviii] – each have their particular knowledge base or user interface adapted to their context. However, there are two joint efforts on Generative AI worth highlighting as good examples of knowledge sharing and technical cooperation within the UN System, described in the following sub-sections.

5.1.1 Case Study: Knowledge sharing on commercial AI assistants and AI vendor selection

The DTN GenAI CoP organized a session for sharing knowledge on commercial AI assistants for standard office and workspace productivity software. The session highlighted experiences from IFAD, IOM, UNAIDS, UNDP, UNFPA, and UNICC, followed by a plenary discussion with over 100 participants. Key takeaways from the session[clix] are summarized below:

- **Implementation and Testing.** Various organizations are implementing and testing AI assistant-like tools, focusing on productivity improvements.
- **Challenges and Limitations.** Major challenges include data quality, processing time, and security concerns. The tools often require structured data, and there are limitations regarding customization and reliability of results due to varied data sources.
- **Security Concerns.** Security of data and privacy remains a significant concern. Organizations are cautious about using AI tools with sensitive or confidential information and are conducting thorough risk assessments.
- **Intellectual Property.** The use of AI tools, particularly those designed to support software development, raises intellectual property issues since they are trained on open-source codebases. This issue necessitates careful consideration of licensing and ownership of generated code.

- **Adoption Strategy.** Despite the challenges, the overall sentiment is positive towards the potential productivity gains from AI tools. The discussion highlighted the need for clear guidelines, effective change management, and responsible usage policies.
- **Risk Assessment.** There's a call for developing a practical risk assessment framework specific to Generative AI tools, distinguishing these risks from those posed by conventional digital tools like search engines.
- **Knowledge Sharing and Evolution.** Continuous dialogue with technology vendors and staying updated on feature releases is crucial. Organizations should keep track of evolving risks and adapt their strategies accordingly. Sharing knowledge and frameworks across organizations will help in better managing the adoption of AI tools.

To continue the conversation beyond the more popular AI tools, the DTN GenAI CoP organized a follow-up session[clx] for sharing knowledge on more niche or emerging vendor-led AI products and features, with particular interest on customer relationship management (CRM) and enterprise resource planning (ERP) software. Experiences were shared by UNJSPF and WFP, with the discussion steering towards the need for strategic diversification in vendor collaborations to leverage specialized AI expertise and unlock transformative possibilities across varied organizational domains.

5.1.2 Case Study: Technical cooperation on UNIFY HR AI Chatbot

UNHCR took an early sandbox approach for allowing staff to experiment with Generative AI technologies, leading to 17 different projects shared at the time of the HLCM-HLCP Joint Session in October 2023[clxi]. The projects encompassed various areas, such as policy drafting, legal research, human resources (HR), and reporting activities spanning UNHCR headquarters and regional and country offices. One sandbox was made available to the wider UN System, building on an existing inter-agency HR policy repository within the Human Resources Network (HRN). Several organizations agreed to test the Generative AI chatbot in a controlled environment with restricted access, using their HR policies to explore the functionalities and benefits that a policy chatbot might provide to HR experts.

Since the Joint Session, the project has expanded into an implementation of an inter-agency Generative AI chatbot for HR policies, rebranded as *UNIFY HR*. The project, now jointly led by UNHCR and UNICC, aims to enhance administrative HR tasks across 13 UN organizations. By adopting a conversational interface adept at interacting with dynamically updated policy documents, UNIFY HR catalyses operational efficiency in HR policy administration. Currently under testing, the aim is to increase the chatbot's accuracy prior to releasing it to production.

The latest status of the project was presented during a DTN GenAI CoP session[clxii], where participants engaged in a thoughtful discussion on improving HR workflows,

incorporating user-centric design principles, implementing continuous feedback mechanisms, refining and optimizing functionality, and ensuring alignment with evolving organizational needs and challenges.

5.2 Retrieval augmented generation

New design, development, and usage techniques are continuously emerging specific to Generative AI technologies and the many use cases and solutions enabled by them. *Prompt engineering*[21], for example, is now firmly established as a standard technique for working with Generative AI technologies and it is being increasingly tailored to UN audiences and contexts, as evidenced by prompt engineering courses, explainers, and workshops such as UNSSC's *Leveraging ChatGPT for Effective Communication in the UN*[clxiii] , UNDP's *ChatGPT Explained for Development Practitioners*[clxiv], and UNICEF's *Dos and Don'ts – A Hands-On Intro to Using GenAI*[clxv].

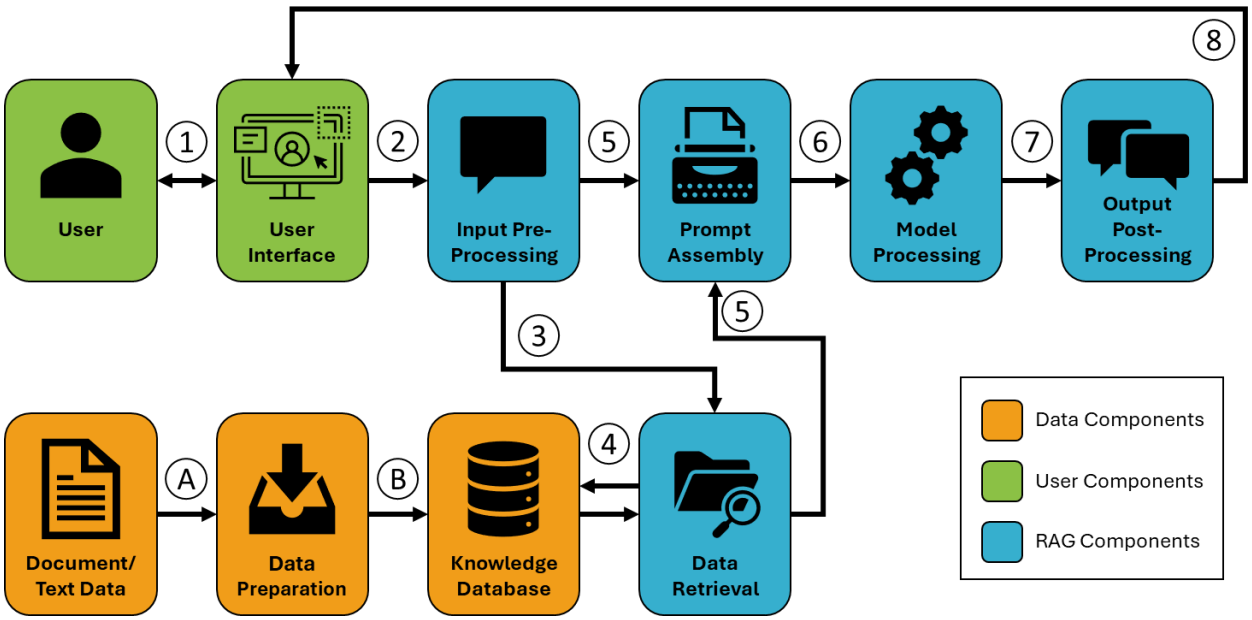
Beyond prompt engineering, more advanced techniques are also entering discussions amongst more technical practitioners in the UN System. For example, recent knowledge sharing events hosted by UNIN and the UN Generative AI Practice Group have brought forth technical discussions on practical experiences with *supervised fine-tuning*[22], led by IFAD[clxvi], and on *reasoning-acting agents*[23], led by UNDP[clxvii]. Another example, drawing on efforts led by UNU on exploring the use of *synthetic data*[24] to train AI models, shows how conceptual research [clxviii] can lead to practical recommendations [clxix] as emerging subtopics in Generative AI mature.

In the context of Generative AI chatbots and similar applications, *retrieval-augmented generation* (RAG)[25] is fast becoming one of the most widely adopted and implemented techniques in projects across the UN System. Amongst the *Generative AI Chatbots* projects from the AI projects catalogue, organizations such as IFAD, ITC, ITCILO, UNDP, UNEP, and UNHCR specifically reference RAG in their implementation approach, not to

[21] A prompt is a set of natural-language instructions written and provided to a Generative AI model in order to achieve a desired objective. Prompt engineering is the process of developing and optimizing prompts so that they can be more effectively interpreted and executed by a Generative AI model.
[22] Supervised fine-tuning is the process of using additional labelled data to change the behaviour of a pre-trained Generative AI model to better fit a specific task.
[23] Reasoning-acting agents are software programs that combine the reasoning ability of Generative AI models with their ability to take action, in order for the model to self-determine how to both reason and act in situations with multiple possibilities.
[24] Synthetic data is information created by computer simulations or algorithms that reproduce some structural and statistical properties of real-world data. Data produced by this "synthesis" process can be images, videos, text, or tabular data. Synthetic data is generally produced by a generative model, based on ground truth (domain knowledge, scientific theories, or collected data), which will produce new samples of synthetic data.
[25] Retrieval augmented generation (RAG) is a technique in which user queries and prompts for Generative AI models are augmented with relevant and contextual information that provides grounding data for the model's response.

mention the wider and inherent use of RAG via commodity tools such as AI copilots and assistants. A reference technical diagram for Generative AI chatbots and similar applications with RAG is shown in *Figure 12*.

Figure 12: Reference technical diagram for Generative AI chatbots and similar applications with retrieval-augmented generation (RAG)



5.2.1 Process flow and main components

The process flow for the reference technical diagram in *Figure 12* describes a typical Generative AI chatbot or similar application, particularly for text-centric data, tasks, and workflows. The orange components are mostly related to data management, the green components are mostly related to the user, and the blue components are mostly related to RAG techniques. We note that in this diagram, steps A to B of the process flow are presented as pre-requisites for the RAG solution and intended to be completed in advance prior to steps 1 to 9 (e.g., creating the knowledge base offline). However, other RAG-centric solutions may integrate steps A to B more closely and dynamically at runtime, in which the data components can be directly linked to the user components (e.g., uploading arbitrary documents).

A. Relevant data sources, such as documents or text files, are identified and selected. Data is prepared for RAG through *chunking*[26], *vectorization*[27], *indexing*[28], and other data processing steps such as OCR, stripping or masking of personally identifiable information (PII), multi-lingual translation, metadata assignment, etc.
B. The prepared data is organized, consolidated, and stored in a dedicated knowledge base (i.e., database). The knowledge base can be specifically created for the new chatbot or application, it can serve other client applications or systems, or it can be reused from an existing corporate repository. The augmentation and integration of the knowledge base with new data stores, such as vector databases or vector metadata fields, can help improve the information retrieval process for RAG if vector techniques are used.

1. Users input their queries via a designated user interface (UI). The UI can be completely new and all-encompassing for the new chatbot or application (e.g., a full chatbot web application), it can be a partially new sub-UI within an existing client application or system (e.g., a small chatbot pop-up or sidebar), or it can be entirely subsumed into an existing UI without any frontend changes (e.g., queries are sent through an existing search bar and RAG is embedded into the backend processing).
2. User queries are pre-processed to improve their effectiveness for generating a suitable response with RAG. Pre-processing steps can include query re-phrasing, query classification, keyword identification and extraction, content filtering, PII stripping or masking, multi-lingual translation, spelling correction, query vectorization, etc.
3. The processed user input query is sent to the information retrieval engine, which determines what data will be fetched from the knowledge base.
4. Information relevant to the user input query is retrieved from the knowledge base, using search techniques such as full-text search, metadata search, content filtering[29],

[26] Chunking is the process of breaking down a large document, file, or text into smaller, more manageable pieces known as chunks. Several chunking approaches are possible, such as chunking by fixed or dynamic length, by type of data (e.g., tables, paragraphs), or by structural elements (e.g., pages, chapters).
[27] Vectorization is the process of converting text into a sequence of numbers known as vectors, which makes it easier and faster for AI models and other algorithms to understand relationships between content for tasks such as search, clustering, and classification. Vectorization is usually performed by processing data with specialized embedding models.
[28] Indexing is the process of collecting, parsing, organizing, and storing data to facilitate information retrieval. The indexing process is usually coupled with other processes within search engines.
[29] Content filtering is a technique used to detect and prevent the downstream processing and output of harmful or damaging content, such as hate speech or jailbreak attacks.

keyword search[30], fuzzy search[31], vector search[32], hybrid search[33], and more. Relevant information is returned to the information retrieval engine in a structured manner.

5. Both the processed user input query and the relevant knowledge base information are sent to the prompt assembly engine, which constitutes the main process for RAG. The prompt assembly engine composes the final form of the prompt for the Generative AI model, which can include steps such as: including previous query-response messages from the chat history; further filtering, processing, ranking, and reordering of the relevant information; minimizing or maximizing the *token* count[34] for a model's context window[35]; and inserting additional instructions to define a role, context, and guardrails to influence the model's behaviour.
6. The final prompt is sent to the Generative AI model, along with suitable parameter settings to help control the model's processing rules and desired output.
7. Model responses are post-processed to improve their suitability and presentation for the user. Post-processing steps can include data validation, *hallucination*[36] checks, citation embedding, text formatting, response refinement or augmentation, etc.
8. Finalized responses and outputs are sent back to the user via the designated UI.

5.2.2 Case Study: ITCILO's AnswerMate

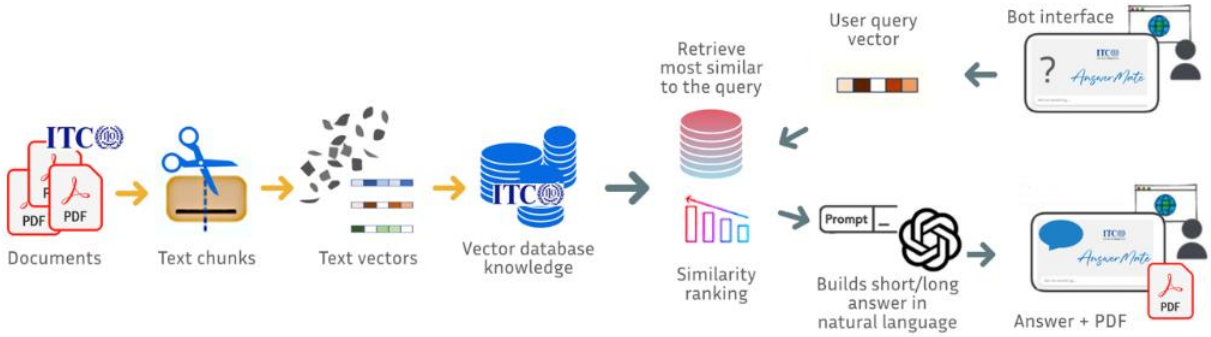
ITCILO's *AnswerMate*[clxx] is an example of a custom, RAG-based, Generative AI chatbot that was developed and deployed for internal use to enhance staff members' knowledge and understanding of ITCILO's internal governance framework. AnswerMate enables users and owners to quickly access information and ask questions concerning documents in the organization's Internal Governance Document System (IGDS).

AnswerMate provides natural-language answers to user questions based on a RAG architecture that retrieves information from an ITCILO knowledge base. *Figure 13* shows the process flow diagram for AnswerMate, with the yellow arrows showing the steps for

[30] Keyword search is a common search technique in which terms or phrases in a search query are matched with terms or phrases in a knowledge base.
[31] Fuzzy search is an extension of keyword search that matches similar terms while correcting for spelling mistakes, alternate spellings, or term variations.
[32] Vector search is a search technique in which vector representations of text content are matched based on mathematical similarity, usually determined by semantic meaning or conceptual relatedness.
[33] Hybrid search is any combination of search techniques, such as employing both keyword search and vector search on a search query.
[34] Text data is processed by Generative AI models in a form known as *tokens*, which are common sequences of characters found in text datasets. The process of converting text data to tokens is known as *tokenization*.
[35] A context window defines how many tokens a model can process at once.
[36] Hallucinations are responses generated by Generative AI models that contain misleading or false information which is presented as a fact.

internal knowledge base building and indexing, and the grey arrows showing the steps for the question and answer process.

Figure 13: RAG-based process flow diagram for AnswerMate, developed by ITCILO



AnswerMate is accessible from ITCILO's intranet homepage for staff, providing examples and disclaimers clarifying accountability and system limits. It also includes administrator-only features for advanced testing to modify technical parameters such as context, chunk limit, type of vector query, etc.

The project was developed following the Plan-Do-Check-Act (PDCA) cycle[clxxi]:

- **Plan.** The project scope was defined, including the selection of key governance documents and identification of common inquiries. A cross-departmental team evaluated essential documents and questions, while creating a mapping for accurate responses. A design sprint engaged multiple stakeholders to determine desired features and prototype guidelines.
- **Do (Implementation).** A project team developed a prototype tailored to frequent user queries. After internal testing and refinement, a beta version was launched organization-wide, accompanied by comprehensive user training across various formats.
- **Check (Evaluation).** The chatbot's performance, accuracy, and user satisfaction are continuously monitored. Feedback from both ITCILO staff and external sources is used to further refine the chatbot. Internal assessments highlight lessons learned and potential applications, alongside quantifiable performance indicators.
- **Act.** The chatbot's outcomes are documented and shared with stakeholders, and further improvement actions are taken.

Furthermore, the project was developed with a responsible approach to AI, including aspects such as:

- **Principles.** The *Principles for the Ethical Use of AI in the UN System*[clxxii] and the *Principles on Data Protection and Privacy*[clxxiii] guided the design and development of the chatbot and have been referred to in project decision-making when necessary. Additionally, ITCILO developed an *AI Manifesto*[clxxiv] that articulates the organization's

beliefs and commitments regarding the use of AI in education and how to address emerging concerns.

- **Explainability.** Along with each answer, the chatbot provides downloadable reference documents, specific excerpts, and relevant chunks.
- **Information Security.** The chatbot was developed following the same processes as those for corporate IT services, aligned with ITCILO's ISO 270001 certification[clxxv] and the UN's minimum cybersecurity requirements[clxxvi].

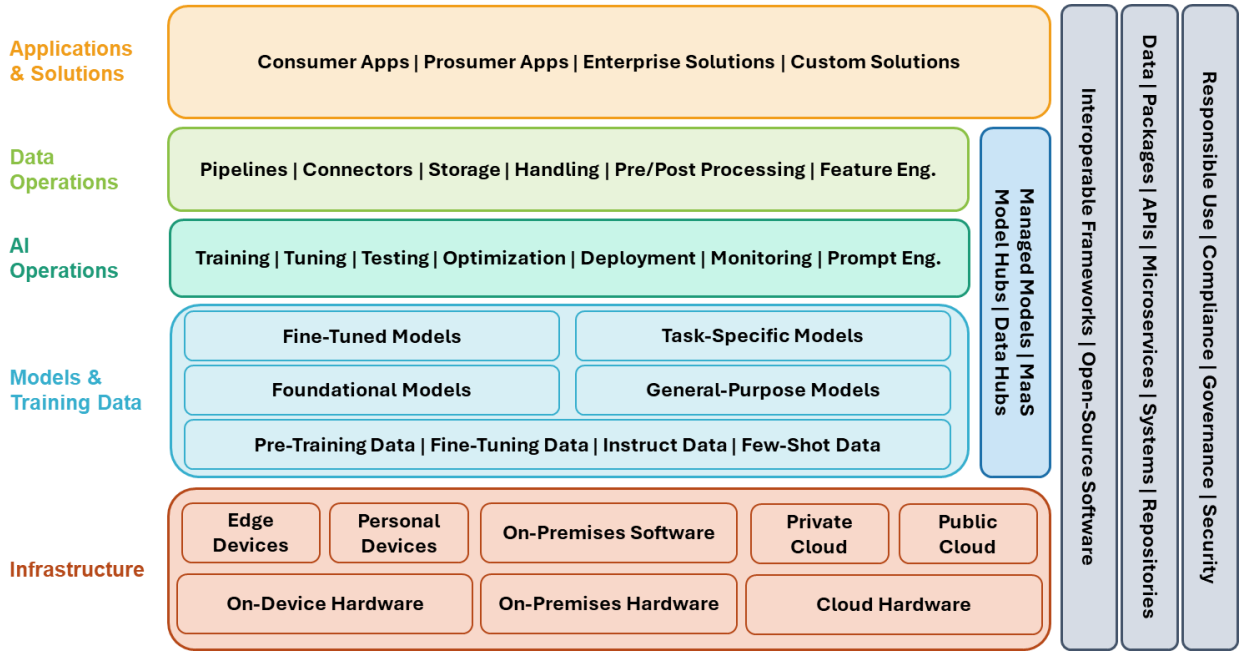
ITCILO analysed the use of the chatbot over a period of six months, applying *Bloom's Taxonomy*[clxxvii] to assess the type of questions asked and identify areas for further improvements. The project is advancing beyond the pilot stage; starting in August 2024, new information circulars added to the IGDS will be automatically added to the chatbot's knowledge base and indexed in its vector database.

5.3 Generative AI technology stack

New technology building blocks, whether essential, optional, or complementary, are fast emerging for Generative AI. These building blocks form part of a larger ecosystem that supports and influences the state of Generative AI as a whole. Even what may appear to be a simple AI product or feature on the surface, likely depends on a complex and interconnected set of underlying technologies that make it work. To better understand these building blocks, especially in the context of developing Generative AI platforms within the UN System, a reference *technology stack*[37] for Generative AI is shown in *Figure 14*.

[37] A technology stack (a.k.a. a tech stack, software stack, development stack, or solution stack) is a set of technology layers and components needed to create and run a complete technology platform.

Figure 14: Reference technology stack for Generative AI



5.3.1 Technology layers and main components

The technology stack in *Figure 14* shows the composition of a Generative AI platform, abstracted and generalized to show the most important building blocks and their relative order. The horizontal groups are organized by logical layers specifically focused on Generative AI elements, with each successive layer being dependent on the previous layer underneath. The vertical groups are organized by transversal layers that commonly exist in an enterprise setting and are applied to various technologies, not just Generative AI specifically.

While the implementation of the full technology stack would constitute a complete Generative AI platform, it's worth noting that not all organizations, use cases, applications, or solutions require the direct development, deployment, or integration of all Generative AI building blocks. Organizations can start at the highest level of the stack with commercially-available or vendor-sourced applications and solutions that are functionally backed by external platforms, without needing to get involved with the specific details of the underlying building blocks. Furthermore, organizations can go as deep down into the stack as needed according to strategic objectives or determined requirements. The separation and abstraction of components is especially true of the horizontal layers in the Generative AI stack; however, the transversal elements still exist within and remain the responsibility of the organization.

The technology layers and main components for a Generative AI platform stack are briefly described below, from the bottom layer to the top layer:

- **Infrastructure.** This layer contains the hardware and devices that run Generative AI technologies, as well as the software that directly interfaces with said hardware and devices. Hardware for Generative AI typically includes multiple graphics processing units (GPUs) and in some cases may even include specialized tensor processing units (TPUs) or similar. Access to most hardware for Generative AI is managed via cloud service providers, but it is also possible for organizations to deploy on-premises servers for Generative AI workloads based on open-source software and private cloud architectures. In some cases, especially for considerably lighter workloads, personal devices may be sufficient to run Generative AI technologies.
- **Models & Training Data.** This layer contains the core technologies for Generative AI. Typically, pre-trained foundational models are used for most Generative AI workloads, as these models tend to be the most capable, accessible, and supported offerings in the industry; additionally, despite the many models available in the industry, it is prohibitively expensive to develop pre-trained foundational models (data, cost, time, hardware, expertise, etc.). However, leveraging training data for fine-tuning processes to create fine-tuned models is more feasible; otherwise, the use of data in this layer is limited, with data for RAG considered as part of a more transversal component for the organization and not specific to Generative AI workloads. Models in this layer can be proprietary, open-source, small, large, multi-modal, multi-lingual, general-purpose, task-specific, etc.
- **AI Operations.** This layer contains all the tools for engineering teams to develop Generative AI products and features. Tools in this layer are fast emerging and for highly specialized purposes, such as model fine-tuning, prompt engineering, token monitoring, input optimization, output validation, and more. These tools are typically integrated with other engineering tools – such as development, security, and operations (DevSecOps) tools – as part of standard engineering practices.
- **Data Operations.** This layer contains all the tools for engineering teams to manage Generative AI data. Tools in this layer already exist for other purposes – such as Extract, Transform, and Load (ETL) operations – but they may be refined or augmented for Generative AI purposes, such as pre- and post-processing of prompts, user queries, and model responses.
- **Transversal.** This layer contains services that encapsulate and facilitate all data, model, and engineering operations for Generative AI through a unified and self-contained interface. New services are emerging specifically for Generative AI, such as Model-as-a-Service (MaaS) offerings, managed models, and model hubs to facilitate the access, use, and management of models in the development process.
- **Applications & Solutions.** This layer contains the end-user applications and solutions seen as finalized Generative AI products and features. Many types of Generative AI offerings fit within this layer, such as enterprise assistants, productivity applications, commercial chatbots, and custom solutions developed in and for the organization. Importantly, though not explicitly shown, this layer also involves end-

user adoption and support activities such as configuration and customization, documentation, training, acceptance testing, change management, and more.

6. Focus Area #5: Adopting and Adapting to AI

There may not be a single way for organizations to adopt or adapt to AI, given the depth, breadth, diversity, and complexity of both the technology and organizations themselves. However, several efforts are underway to make more sense of the effect and impact of AI within the context of work. This section presents findings from both an outside-in perspective, in which the UN System is drawing on external insights, as well as an inside-out look at how UN organizations are working internally.

6.1 Understanding the broader effect and impact of AI on the workforce and the workplace

6.1.1 Insights from global findings by UN organizations

AI is rapidly transforming labour and employment across many sectors worldwide, reshaping workforce and workplace dynamics while redefining jobs, roles, and skills for an era in which AI is commonplace. As AI technologies continue to advance, they are not only automating routine tasks, but these technologies are also augmenting more cognitive tasks involving complex decision-making processes, advanced problem-solving skills, creativity, and innovative thinking.

The effect and impact of AI on work as a whole has become a notable subject of study and analysis with profound implications for labour dynamics and organizational structures. Research is still ongoing and emerging, but working papers, discussion notes, and reports from UN organizations are already making headlines. As illustrative examples we highlight the following publications: *"Generative AI and Jobs: A global analysis of potential effects on job quantity and quality"* from ILO[clxxviii]; *"Gen-AI: Artificial Intelligence and the Future of Work"* from IMF[clxxix]; *"Mind the AI Divide: Shaping a Global Perspective on the Future of Work"*[clxxx] from the Office of the Secretary-General's Envoy on Technology and ILO; and *"Understanding the impact of artificial intelligence on skills development"* from the UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training[clxxxi]. Key takeaways from these publications are presented in *Box 2*.

Box 2: Key takeaways from UN organization reports on the effect and impact of AI on work

Generative AI and Jobs: A global analysis of potential effects on job quantity and quality

- The most important impact of the technology is likely to be of augmenting work – automating some tasks within an occupation while leaving time for other duties – as opposed to fully automating occupations.
- The potential employment effects, whether augmenting or automating, vary widely across country income groups, due to different occupational structures. The effects are highly gendered, with more than double the share of women potentially affected by automation.

Gen-AI: Artificial Intelligence and the Future of Work

- AI is set to profoundly change the global economy, with some commentators seeing it as akin to a new industrial revolution.
- Almost 40 percent of global employment is exposed to AI, with advanced economies at greater risk but also better poised to exploit AI benefits than emerging market and developing economies.
- AI will affect income and wealth inequality. The gains in productivity, if strong, could result in higher growth and higher incomes for most workers.
- College-educated workers are better prepared to move from jobs at risk of displacement to high-complementarity jobs; older workers may be more vulnerable to the AI-driven transformation.
- To harness AI's potential fully, priorities depend on countries' development levels.

Mind the AI Divide: Shaping a Global Perspective on the Future of Work

- Data curation and annotation are a critical component of the AI value chain, in addition to being an important source of employment creation for developing countries. Ensuring decent work, including the protection of the fundamental principles and rights at work for all workers in the AI value chain, would help to spread the benefits of AI more evenly.
- For workers at risk of redundancy due to AI, prioritize their redeployment and increase investment in relevant skills training. Provide employment support measures for workers most exposed to AI disruption and ensure coverage of social protection and access to reskilling for affected workers.
- Account for the strongly gendered dimension on the potential impact of generative AI on the current labour markets and design policies that address gender-specific needs in the transition process, including by investing in skills needed for growing AI occupations or for other societal needs, such as in the care or green economy.
- Promote the active involvement and consultation of workers and workers' organizations in the adoption of AI systems in the workplace; promote social dialogue and collective bargaining on the design, deployment and monitoring of AI and use of technology at the workplace; and support the development of AI-related skills among social partners.

Understanding the impact of artificial intelligence on skills development

- The era of AI is young in years but advanced in impact. Intermediate skill jobs as we know them are fast disappearing as their tasks are systematically automated, and individuals are increasingly likely to encounter AI technology in their everyday lives.
- AI has broad implications for the whole of humanity, and therefore on the education and training institutions that equip lifelong learners with the skills to navigate both work and society. A wide range of institutions and other stakeholders have risen to the challenge through research and innovative programmes, paving the way for a better understanding of AI's potential – and its pitfalls.

6.1.2 Insights from external experts for UN organizations

In terms of understanding how AI developments from outside the UN System affect UN organizations in terms of their way of working, three main efforts stand out from system-wide entities and communities: DTN, UNIN, and the ITU AI for Good platform.

DTN invites leaders from the private sector to present and comment on the state of AI and its implications for UN System organizations, especially for CIOs. Most recently, at the November 2023 DTN Session in Nairobi[clxxxii] and the May 2024 DTN Session in Bangkok[clxxxiii], private sector leaders from Gartner, McKinsey, and Google among others led sessions on the AI and AI-related topics summarized below:

- **The Evolution of AI (Gartner).** The presentation covered the evolution of AI tools, their widespread applications, strategies for identifying AI use cases, risk management, and the importance of organizational readiness in embracing AI technologies.
- **Learning Faster, Innovating at Pace, and Scaling Purposefully (McKinsey).** The discussion acknowledged the rapid evolution of AI and the shared challenges and opportunities it presents, along with the expressed need for further discussion on AI implementation strategies, particularly regarding balancing innovation with practical, scalable solutions.
- **Riding the Generative AI Wave and Beyond (Google).** Commentary on the evolving role of the CIO emphasized the need to navigate the complexities of emerging technologies, particularly generative AI, to drive organizational transformation, improve user experiences, and maintain competitive advantage.

UNIN invites external partners and guests to explain and demonstrate how UN System professionals can leverage AI in their work, especially more technical practitioners. Most recently, through a series of interactive webinars since March 2023[clxxxiv], UNIN has hosted policy heads from OpenAI, researchers from Stanford, and engineers from Microsoft to lead sessions on the AI and AI-related topics summarized below:

- **ChatGPT and Large Language Models: Challenges and Opportunities (OpenAI, with UN-DPPA and EOSG)[clxxxv].** The session covered the use of Generative AI to help identify emerging issues or crises that may be difficult for humans to detect, arguing that Generative AI has the potential to enhance work, but that it may also exacerbate biases or misperceptions.
- **Trends in AI and Perspective on Transparency (Stanford, with EOSG)[clxxxvi].** The session presented global trends in AI and takes on AI transparency, with a particular emphasis on the Generative AI landscape and ecosystem.
- **How to Strengthen Your Prompt Engineering Skills: A Guide by Microsoft's AI Experts (Microsoft, with EOSG).** The session explained how to improve prompt engineering skills and communicate effectively with Generative AI tools, also examining good and bad prompts, exploring how to yield positive results, reviewing

essential components of a perfect prompt, and demonstrating best practices that can be incorporated into daily workflows.

Finally, the ITU AI for Good platform has an entire stage dedicated to the SDGs in both its online format[clxxxvii] via the AI for Good Neural Network and its in-person format[clxxxviii] via the AI for Good Global Summit. The SDG Stage hosts AI innovators from various sectors to present their work, insights, and breakthroughs on using AI to advance the SDGs, often in partnership with UN organizations. Presenters at the 2024 AI for Good Global Summit SDG Stage included the likes of Amazon, Alibaba, China Telecom, China Unicom, Deloitte, EY, King Abdulaziz Center for World Culture (Ithra), Microsoft, Technology Innovation Institute (TII), USAID, and ZTE.

6.2 Organizational approaches to AI across the UN System

The following section is largely based on findings from bilateral consultation calls and working meeting discussions conducted throughout the main work period of the HLCM TF-AI. Although these findings do not fully encompass the whole UN System, they do provide useful insights on how various UN organizations are currently approaching AI, keeping up with the fast pace of change, establishing mechanisms for internal governance, creating sandboxes for experimentation, and preparing for the future. Findings are presented in alphabetical order by organization: FAO, IFAD, IMF, UNDP, UNHCR, UNJSPF, UNICEF, WFP.

6.2.1 Governance, strategy, and structure

In this subsection, we delve into the governance, strategy, and structure of AI across different organizations, observing a spectrum of approaches from structured, top-down strategies to more organic, bottom-up growth. While some organizations have formed cross-functional teams and issued AI guidelines from the start, others have seen AI initiatives emerge naturally from a grassroots level, growing into more formal strategic engagements at later stages. The common thread is the pursuit of responsible and ethical use of AI, with varying degrees of centralization or decentralization and an emphasis on multi-stakeholder and community-driven approaches, reflecting the unique operational needs and internal dynamics of each organization.

FAO. FAO's mature and expansive data ecosystem, coupled with strong technical units throughout the organization, establishes a precedent and foundation for AI projects to be broadly pursued throughout the organization. FAO has an internal coordination group for AI, which is a cross-functional team chaired by the CIO and Director of the Digital FAO and Agroinformatics division. The group has issued whitepapers and guidelines on Generative AI, and is working on broader AI governance efforts that include the development of assessment criteria for AI business cases, capacity building, innovation

accelerators, and sandboxes. Furthermore, FAO's community of practice on AI gathers approximately 500 members to facilitate the exchange of ideas, best practices, and lessons learned.

IFAD. IFAD's work on AI started with the corporate-wide People, Processes, and Technology Plan (PPTP), through which the organization launched the IFAD-internal Omnidata platform for data. Omnidata is a centralized platform owned and managed by the CIO, where IFAD personnel connect to and collaborate on data, tools, technologies, trainings, and showcases. AI-related initiatives began as one of the more advanced offerings within Omnidata, starting with ML and progressively growing into Generative AI. Through Omnidata, the development of AI capacities and capabilities within the organization have been largely a bottom-up effort via an active community of practitioners, employing a self-service and guided approach to data and AI technologies. The success of this grassroots approach, with over 60 AI use cases, led to more top-down buy-in for AI and the beginning of an expansion into strategic engagements, corporate systems, and business processes. As the appetite for AI use cases, solutions, and technical capability continues to grow within IFAD, the organization is shifting from developing single-use projects towards a more coordinated corporate architecture on AI by directly embedding and mainstreaming AI in operational use cases within the workplace and existing core business applications.

IMF. IMF has established a specific committee of three chairs from key areas of the organization, with the aim of involving core business areas in the development of guidance on how to embed AI into the organization in a structured and strategic manner. Additionally, IMF has created a separate unit with fully dedicated AI experts, doing research and development, with the plans to expand over time to support AI initiatives and projects. In July 2024, a new Business Technology Strategy has positioned AI at the core of the strategy for the next 5 years.

UNDP. UNDP's external-facing activities run in parallel to internal efforts. The organization has an established data strategy which covers issues such as data governance, data management, and data privacy, as well as a new digital strategy which guides UNDP in its efforts to support countries to build inclusive, ethical, and sustainable digital societies. To have a more holistic approach to AI, UNDP has formed an AI Working Group with senior leadership from regional offices, with three main pillars:

1. **Corporate Positioning.** This pillar is focused on the principles of AI and the external-facing stance of the organization towards Member States regarding the use of AI.
2. **Internal Guidance.** This pillar works on creating standards so that AI developments are deployed ethically and through a streamlined process. This stems from the organization's decentralized nature that promotes value-driven governance, rather than compliance-driven governance. One of the main principles for AI developments

is that humans remain in the loop, and that AI informs decision making but does not make decisions itself. These safeguards are especially important given the highly decentralized nature of the organization.

3. **Member States.** UNDP developed an AI Landscape Assessment (AILA) tool that provides insights into the AI landscape of a Member State, with a specific focus on the data ecosystem, connectivity, digital capacity, strategy and planning, and implementation and evaluation. The AILA tool is complementary to similar efforts from UNESCO and both organizations work together to provide Member States with concrete assessment tools.

UNHCR. UNHCR is adopting a cautious and ethical approach to using AI tools, ensuring human oversight and accountability. This involves utilizing secure tools within their IT ecosystem to protect data. UNHCR's work on AI has involved several divisions and multifunctional teams, including IT, Innovation, Global Data Services, Risk Management, and Change Management, with centralized oversight and coordination to avoid duplication of efforts. Most of these efforts are coordinated by the internal: a) Emerging Technology Reference Group, composed of UNHCR senior staff across HQ entities and divisions; b) Big Data and AI Community of Practice, composed of 400+ personnel to keep abreast of AI developments; and c) Data Innovation Fund, used as a sandbox space to create AI projects.

UNICEF. UNICEF is drafting an AI Strategic Framework governing the responsible use of AI within UNICEF and with its beneficiaries. UNICEF is also launching a formal AI Task Force, led by its ICT Division. The AI Task Force focuses on three main pillars:

1. **Strategic alignment.** Implement and contribute to the AI Strategic Framework.
2. **AI system facilitation.**
    a. Avail AI platforms for building AI systems and UniBot, a Fine-Tuned Knowledge Assistant built on GPT-4o.
    b. Develop an AI Business Case template (that will incorporate a PRISM framework), and an AI system development methodology.
    c. Facilitate AI initiatives.
3. **Capacity building.** Develop AI curriculums for different audiences, avail a knowledge-sharing social platform, and further expand AI capacity through partnerships.

UNICEF is dedicating engineering capacity to AI use-cases and is training young people around the world in testing AI systems so that they can participate in matters that affect them. This will be essential in ensuring that AI systems are age-appropriate throughout their life cycle. Finally, UNICEF is drafting guidance on how to protect children from online harms.

UNJSPF. UNJSPF has engaged with consultants to develop a cultural digital transformation in the organization, including a strong focus on AI. The organization's digital transformation is embedded in their overall strategy and UNJSPF aims to involve all staff in its design and implementation.

WFP. Building upon its recently completed and approved IT and data strategies, WFP has recognized the need to expand the organization's AI capabilities while ensuring responsible implementation. This recognition led to the formation of a Responsible AI Task Force, comprising members from various parts of the organization. The task force aims to advise on investments, prioritize areas of focus, and guide the organization's AI journey, ensuring that AI is implemented responsibly across WFP's operations. In terms of AI-specific strategy development, WFP is considering creating a dedicated AI strategy that builds on top of its existing IT and data strategies; however, the rapid pace of AI technologies may risk a traditional strategy becoming obsolete too soon and therefore alternative approaches such as a more lightweight AI roadmap are being explored.

6.2.2 Use case experimentation, solution development, and technology mainstreaming

In this subsection, we delve into the innovation and production landscape of AI within various organizations, focusing on the experimentation of use cases, the development of solutions, and the mainstreaming of technology. The findings reveal a shared commitment to continue to explore the potential of AI and scale up the most promising and impactful projects. Organizations are pursuing technological advancements adapted to key contextual differences in methods of integration and application, showing a high level of ambition and determination to use AI in the support of organizational mandates by improving and transforming ways of working.

FAO. FAO is developing a comprehensive portfolio of AI use cases, both proposed and already in progress. The portfolio is managed using a PRISM approach, which evaluates use cases based on their business value and feasibility. This approach allows the organization to gain visibility into the demand for AI across different sectors, in order to also anticipate technological needs and plans for scaling up. Benefitting from existing digital and data structures within the organization, FAO emphasizes the need to make tools and technologies AI-ready to build capacity at a systemic level and effectively scale up solutions.

IFAD. In addition to vendor-related solutions, considered "commodity AI" and for which IFAD established a mainstreaming programme to leverage and deploy commercial tools for routine tasks, IFAD is working on bespoke cases in support of its core mandate and operations directly within existing processes and systems. Through the organization's Omnidata platform, IFAD first enabled access to cloud-based ML studios for no-code or low-code prototyping. As AI cloud offerings evolved, more AI studios were made

accessible to IFAD personnel through controlled sandbox environments, particularly for experimenting with Generative AI prompt engineering. AI studios greatly enabled co-development of use cases and solutions between business and technology, particularly with business owners developing domain-specific prompts that are then refined by technology teams into more structured code for deployment. As the demand and expectation for AI continues to grow, IFAD is strategically embedding custom AI solutions into core business activities through corporate processes and systems throughout the organization.

IMF. IMF has more than 150 AI-related use cases, which are classified in a matrix by topic and business areas. The organization is doing a mapping of capabilities and skills that are required to deliver on their full portfolio of use cases. The organization makes a clear distinction between horizontal AI (more generic and functional AI) and vertical AI (more specific and thematic AI), allowing the organization to identify where talent and resources are most needed.

UNDP. UNDP provides sandboxes for AI experimentation, while implementing guardrails to avoid risks such as technology misuse, data exfiltration, or elevated costs. The sandbox business model allows for teams across UNDP to develop quick prototypes in approximately two-week sprints, to then be transferred into more traditional long-term agreements (LTAs) for development as more formal ICT projects.

UNHCR. UNHCR's technology team has set up sandboxes to experiment with AI technologies and allow different teams to prove the value of their use cases. These proofs of concept have led to more buy-in from higher-level management and teams, as well as more budget allocation to move into production phases. From approximately 30 proofs of concepts and more than 60 ideas for the application of Generative AI, UNHCR has eight use cases that are now in production. Additionally, to boost development capabilities, UNHCR has developed the Data Innovation Fund to facilitate the appropriate adaptation of these technologies to support humanitarian work, while ensuring compliance with organizational policies, such as data protection policies, and adherence to a human-rights based approach and humanitarian ethics standards. Finally, UNHCR aims to empower refugee-led organizations to develop and own their AI solutions in the future, via the Refugee-Led Innovation Fund.

UNICEF. UNICEF's approach to AI has been very prudent and measured, given the sensitivity, concerns, and risks surrounding the use of AI by children and for children. As such, the organization is creating a clear separation of target audiences and contexts for which AI tools are developed, coinciding with intended periods for development:

1. **Administrative and Corporate Functions.** In the present-term, AI efforts are focused on developing and deploying solutions that increase productivity and save

time in routine tasks, potentially also seeking value-adding opportunities where promising and feasible.

2. **Programmatic Delivery.** In the short-term, the organization plans to develop and deploy AI tools to make programme formulation and delivery more efficient and less costly.
3. **Children.** A longer-term prospect for which no AI solutions have been implemented yet, upholding UNICEF's principle to do no harm via an ethical approach to AI, will require considerable efforts and thorough testing to develop AI solutions that prioritize the best interests of children, as mandated by the Convention on the Rights of the Child. For instance, in the Accessible Digital Textbooks project where UNICEF has developed and applied a methodology for meaningful child engagement on AI.

UNJSPF. UNJSPF has engaged with external subject matter experts and consultants to develop a series of workshops on digital innovation, with a specific focus on AI and its impact on the mission and use cases of the organization. These will first target senior leadership and then involve other representatives of UNJSPF. The initiative aims to inform decisions regarding job profiles, reclassification of certain posts for future vacancies, and possibly the creation of new positions. UNJSPF emphasizes the importance of identifying who does what, how, and why in the context of emerging profiles and responsibilities for AI, drawing parallels with past experiences in digital transformation.

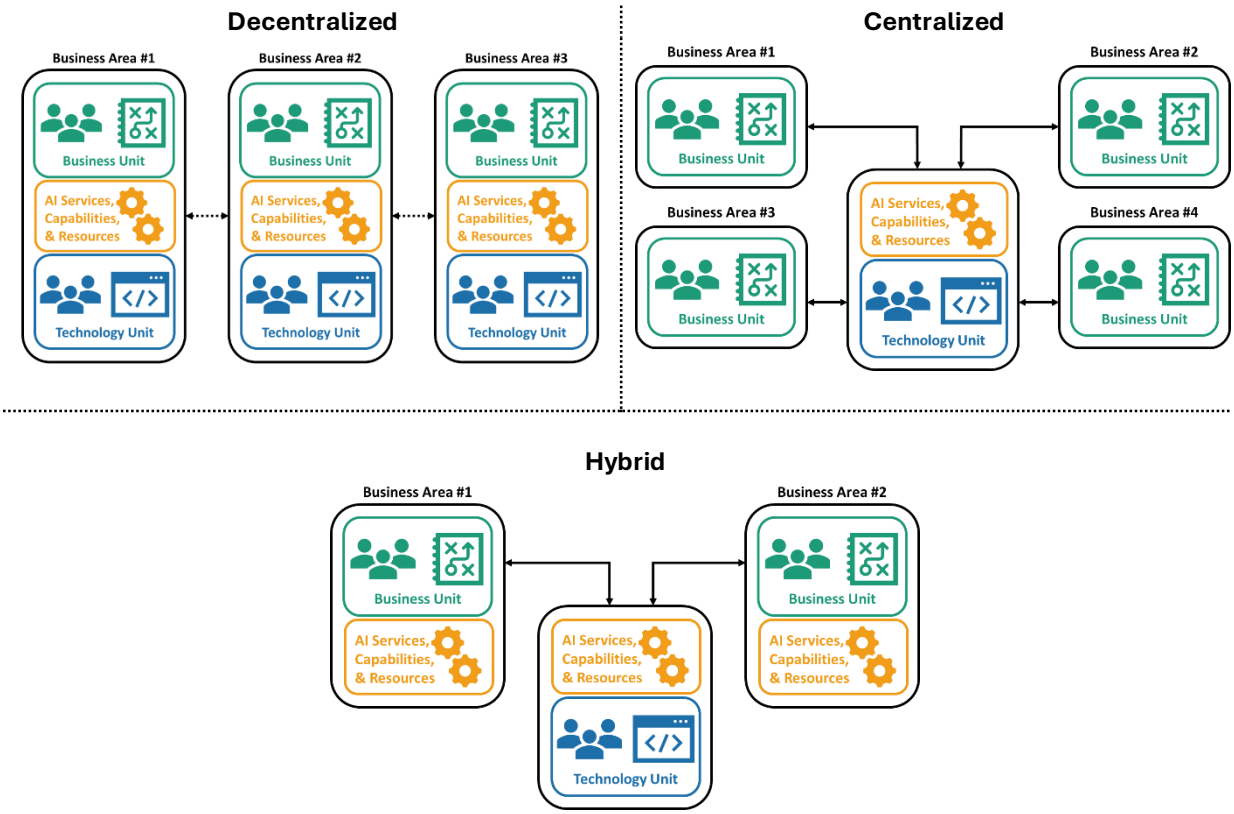
WFP. WFP has been working with AI and ML technologies for several years, taking an approach to AI that is focused on three main areas: everyday AI, domain-specific AI, and custom AI. To accelerate AI development, WFP is establishing an AI sandbox environment starting with their current cloud partners, and then expanding to other cloud environments as needed. This approach allows for flexibility in the development and deployment of AI solutions across different priority areas. To support these efforts, the organization is expanding its partnerships, collaborating with entities such as CERN, DLR, Google, Luxembourg Institute of Science and Technology, Microsoft, and PwC. The collaboration with CERN, for instance, brings expertise in areas like anomaly detection and damage assessment models, where advanced techniques and data-driven insights can be applied to WFP's needs.

6.2.3 Positioning AI services, capabilities, and resources within the organization

Notably, a key theme emerging from the previous findings involves the positioning of AI services, capabilities, and resources within the organization – including sandboxes for AI experimentation – with options ranging from centralized to decentralized and even hybrid approaches. Organizations have taken many different approaches based on their size, structure, distribution, expertise, strategy, objectives, and governance. *Figure 15* shows

a simple representation of different structural approaches to placing and offering AI services, capabilities, and resources within the organization.

Figure 15: Representation of different structural approaches to placing and offering AI services, capabilities, and resources within the organization



Brief descriptions for each structure are provided below:

- **Decentralized.** AI is adopted individually by each business area according to their specific needs, where internal business units and/or technology units manage their own AI services, capabilities, and resources. Communication between business areas is possible to share best practices, lessons learned, and general advice.
- **Centralized.** AI is managed by a single technology unit that provisions AI services, capabilities, and resources to business areas according to the requirements of business units while aligning with the organization's technology framework.
- **Hybrid.** Any combination of decentralized and centralized approaches, in which AI services, capabilities, and resources can be self-managed by decentralized business units and/or centrally managed by a leading technology unit.

7. Conclusions and Considerations

This report presents a comprehensive overview of the state of AI in the UN System, highlighting the significant strides and ongoing efforts of UN entities and agencies towards the responsible use of AI for programmatic delivery and towards integrating AI strategically in core operations. The report underscores the importance of coordination and collaboration across the UN System, particularly on knowledge sharing and pooling technical capacity, to maximize the benefits and minimize the challenges of the use of AI to support the SDGs.

With this report, the following objectives of the HLCM TF-AI are met:

- Identify and promote mechanisms for knowledge sharing on AI
- Identify and promote mechanisms for pooling technical capacity on AI
- Contribute to a more cohesive and forward-looking framework on AI that reflects the collective strength and shared goals of the UN System

In addition, recognizing the growth and complexity of AI as a whole, this report contributes to fostering a unified, integrated, and coherent approach to AI technologies and AI implementation in any ongoing or future work on AI in the UN System. In the following subsections, conclusions and considerations are presented by focus area based on the contents of this report and the final deliberations of the HLCM TF-AI.

7.1 Focus Area #1: AI Activities and Initiatives

This focus area highlights the UN System's commitment to leveraging AI for positive global impact, with an emphasis on ethical and responsible use to promote inclusive and sustainable development. The focus area showcases the diversity of AI and AI-related projects, their alignment with the SDGs, and the collaborative efforts across the UN System. The focus area also highlights the importance of knowledge-sharing, strategic governance, and the mainstreaming of AI technologies, while acknowledging the challenges and opportunities that come with AI adoption. The collective activities and initiatives of UN entities and agencies reflect a concerted effort to realize benefits, mitigate risks, and ensure equitable access, ultimately supporting the UN's broader mandate.

Considerations

1.1 Centralize and standardize cataloguing efforts of AI activities and initiatives across the UN System, encouraging active and regular contributions from UN System entities.

1.2 Continue sharing knowledge in AI communities of practice within the UN System to encourage collaboration on AI activities and initiatives of shared interest, in order to maximize synergies and reduce duplication of similar efforts.
1.3 Expand the scope of Generative AI communities of practices to also cover broader AI discussion topics, including traditional and specialized forms of AI, with sufficient resources and adequate support.
1.4 Extend and demonstrate the applicability of UN-led external-facing readiness and impact assessment tools for UN-internal operational use.
1.5 Develop common and foundational training materials on AI for internal and operational use in the UN System, focused on UN-specific considerations and building on existing resources.

7.2 Focus Area #2: AI Use Cases and Solutions

This focus area highlights the numerous and diverse application of AI technologies throughout the UN System, noting a commitment to responsible and ethical use, continuous innovation, and strategic impact. It emphasizes the importance of tailored AI solutions to enhance programmatic delivery and core operations, while also addressing common challenges. The focus area underscores the need for structured and shared frameworks to evaluate and prioritize AI use cases, conduct risk assessments on AI technologies, and ensure alignment with organizational priorities and objectives, as well as the SDGs.

Considerations

2.1 Centralize and standardize cataloguing efforts of AI use cases and solutions across the UN System, encouraging active and regular contributions from UN System entities.
2.2 Continue sharing knowledge in AI communities of practice within the UN System to encourage collaboration on AI use cases and solutions of shared interest, in order to maximize synergies and reduce duplication of similar efforts.
2.3 Promote and encourage the use of the PRISM framework for evaluating and prioritizing AI use cases.
2.4 Regularly review and update the methodology, evaluation criteria, and scoring system within the PRISM framework to adapt to the evolving landscape of AI and the needs of the UN System.
2.5 Develop a reporting mechanism to track the outcomes of AI projects selected through the PRISM framework, providing insights into the value of the framework and the effectiveness of the prioritization process.

2.6 Develop a UN system-wide risk assessment framework and catalogue for commercial offerings, including applications, tools, and models, with a baseline risk assessment for the most common offerings.
2.7 Develop UN system-wide guidance on common risks and mitigation actions to address AI development, application, and usage challenges.

7.3 Focus Area #3: AI Project Platforms

This focus area highlights the vibrant, influential, and leading project platforms and communities that play an important role in the development of AI in general and within the UN System. The focus area notes the significant role of open-source practices in fostering innovation, collaboration, and global cooperation. The focus area also reflects on the current state and ongoing efforts to adopt and expand open-source practices, emphasizing the importance of shared knowledge, pooling of technical capacity, community-driven development, and responsible use to achieve the SDGs.

Considerations

3.1 Support the development of a project-hosting platform for the UN System and the promotion of responsible open-source practices, including the development of a software catalogue, common policy framework, UN open-source license, and cross-organizational capacity building.
3.2 Support the exploration of additional and complementary project-hosting platforms where beneficial for AI-specific projects, such as platforms with technical infrastructures and secure implementations specifically designed to support AI models, datasets, and compute resources while exercising caution and due diligence on issues such as data privacy, data protection, intellectual property, and privileges and immunities.
3.3 Contribute to the catalogue of open-source software in the UN System, specifically for AI and AI-related assets that may exist on AI-specific platforms.
3.4 Encourage active and regular contributions to AI projects in the UN System project-hosting platform, including the establishment of key performance indicators to track and measure the success of the platform.
3.5 Allow for the development of inner-source projects, limited to UN organizations only or UN subgroups, within the UN System project-hosting platform.
3.6 Allow for the addition of non-open-source projects to the UN System project-hosting platform, in order to contribute to the catalogue of projects without being committed to an open-source end-goal.
3.7 Investigate how the UN System project-hosting platform and potentially other public platforms can serve as a catalogue and gateway for commonly used datasets,

categorized by functional and thematic areas and applications, including access via standardized APIs.

3.8 Investigate how the UN System project-hosting platform and potentially other public platforms can serve as a federated hub for datasets and models, including access via standardized APIs.

3.9 Investigate how the UN System project-hosting platform and potentially other public platforms could serve to evaluate and promote open-source technologies as alternatives to commercial offerings, including the possibility of using the platforms to fork or clone open-source projects so that they can be further modified and tailored to the UN System.

3.10 Coordinate within the UN System on the development of AI and AI-related digital public goods to support joint efforts, build on capabilities, and avoid duplication and fragmentation.

3.11 Identify gaps in open-source AI and AI-related assets that the UN System can develop through collaborative inner-source projects, potentially paving the way for more AI and AI-related digital public goods from the UN System.

7.4 Focus Area #4: Emergence of Generative AI

This focus area notes the ongoing transformative impact of Generative AI within the UN System, highlighting the adoption of LLMs for decision-making, the development of chatbots for information management, and the evolving landscape of vendors and offerings. The focus area emphasizes the tailored approach to AI projects, catering to the specific needs of each organization whilst recognizing the emergence of common patterns and practices. The section also acknowledges the benefits of collaborative efforts related to knowledge sharing and pooling of technical capacity, which are crucial for the strategic, coordinated, and efficient development, deployment, and use of AI technologies across UN organizations.

Considerations

4.1 Continue sharing knowledge in AI communities of practice within the UN System to identify emerging trends in Generative AI research and development, in order to gauge potential and capitalize on new opportunities.

4.2 Develop guidelines for the responsible use of third-party models and datasets for UN System operations, including due diligence on selection and integration. (Applicable to AI in general, not just Generative AI).

4.3 Develop guidelines for the responsible development of proprietary models and datasets for UN System operations, including due diligence on data privacy and protection as well as model deployment and testing. (Applicable to AI in general, not just Generative AI).

4.4 Identify, share, and promote emerging technology patterns and best practices that are vendor- and platform-agnostic, and can be converted into reference frameworks for common types of use cases and solutions. (Applicable to AI in general, not just Generative AI).

4.5 Explore collaborative development techniques, such as federated learning for decentralized AI development, to maximize data sharing and model training opportunities whilst respecting data privacy and overcoming other data-related challenges. (Applicable to AI in general, not just Generative AI).

4.6 Continue sharing insights and experiences on new players and offerings in the Generative AI industry, in order to broaden possibilities across the UN System and reduce vendor lock-in.

4.7 Promote continuous research and development efforts to proactively capitalize on emerging concepts and technologies with the potential for practical application. (Applicable to AI in general, not just Generative AI).

7.5 Focus Area #5: Adopting and Adapting to AI

This focus area briefly delves into the multifaceted impact of Generative AI on the workforce and workplace. It highlights leading research from UN organizations, key insights from external experts, and potential implications for the UN System. The focus area presents diverse yet similar experiences on adopting and adapting to AI in the UN System, referencing findings on organizational structures, strategy, governance, operations, and objectives.

Considerations

5.1 Examine the workforce and workplace implications of AI across the UN System, including but not limited to topics such as reskilling and upskilling, talent pools and rosters, jobs and roles, insourcing and outsourcing, partnership opportunities, capacity and capabilities, and targeted recruitment, to meet the growing needs for expertise and resources on AI.

7.6 Additional considerations

6.1 Ensure that existing AI communities of practice communicate and align with each other, meet frequently, have representative memberships, coordinate on focus areas, and cater to key audiences in the UN System, overlapping when beneficial but without duplicating efforts.

6.2 Ensure that existing AI communities of practice are sufficiently resourced and supported to continue with their mandates for the benefits of the UN System.

6.3 Promote cooperation mechanisms for inter-agency AI asset development and common use, with an initial focus on operational use but with the possibility of extending towards programmatic delivery and digital public goods.

6.4 Strengthen and leverage collective bargaining agreements with AI technology vendors that can serve the needs and interests of multiple organizations within the UN System.

6.5 Explore partnerships with public and private entities to mobilize and provide equitable access to resources for AI development, including in-kind contributions, computing infrastructure, datasets and models, and specialized expertise.

6.6 Consider launching a new task force or focused projects to conduct more targeted feasibility assessments and develop business cases for UN system-wide AI assets, such as a UN-led Generative AI model underpinned by UN datasets for underrepresented or misrepresented communities, languages, cultures, and topics, which can be tailored and leveraged for more organization-specific tasks or provided as a UN-endorsed alternative to commercial tools.

6.7 Continue to invest in the growth and mainstreaming of AI in the UN System by actively engaging in wider AI-adjacent platforms like the *UN Summit of the Future*[clxxxix], *UN OSPOs for Good Symposium*[cxc], *UN World Data Forum*[cxci], *UN Digital Community*[cxcii], and more.

6.8 Consider recommendations regarding AI governance contained in the *United Nations System White Paper on AI Governance*[cxciii], including: the development of internal policies to govern the use of AI within UN System entities; and, on investing and developing in-house expertise on AI to support Member States effectively, engage with stakeholder groups, and build trust.

6.9 Consider recommendations regarding AI governance originating from the *UN Secretary General's High-Level Advisory Body on Artificial Intelligence (HLAB-AI)*[cxciv], particularly on guiding principles and institutional functions, including: interoperability, frameworks, standards, talent development, compute infrastructure, quality datasets, risk monitoring, incident reporting, and more.

6.10 Increase awareness of UN-led inter-governmental efforts related to AI, such as the *Global Digital Compact (GDC)*[cxcv], to link the operational use of AI in the UN System to important deliberations on issues such international governance of AI.

8. Recommendations

General recommendation

Based on the research and analysis presented in this report, stemming from the work and deliberations of the HLCM TF-AI, the following **general recommendation** is presented to HLCM for consideration:

1a. **Foundational work on AI.** Endorse the report as a fundamental basis and building block for ongoing and future work on AI in the UN System, recognizing the report's foundational value towards fostering a unified, integrated, and coherent approach to AI in strategic and operational matters within the UN.

Specific recommendations

The following **specific recommendations** are presented to HLCM for consideration, with the aim to strategically facilitate and advance impactful work on AI in the UN, including the potential tasking of suitable work packages to relevant entities across the UN System:

2a. **Rightsized scope of work.** Extend the scope of existing communities of practice and working groups on AI to cover the domain holistically as a multi-faceted technology – including subsets such as Generative AI and Machine Learning – to deliver effectively across all AI-related efforts and activities in the UN System.

2b. **Consolidated catalogue.** Standardize and centralize efforts on periodically taking stock of AI projects in the UN System, including the cataloguing and publication of project details for the benefit of internal and external knowledge sharing.

2c. **Cohesive project approaches.** Support the development and use of a common framework for evaluating, prioritizing, and potentially partnering on AI projects, encouraging a culture of sharing to foster collaboration and harness synergies on use cases and solutions within the UN System.

2d. **Shareable building blocks.** Support the development of a project-hosting platform for the UN System and actively contribute to the development of AI-related components for system-wide use, including code, datasets, and models that can be further developed, reviewed, or improved by leveraging diverse inputs from technical specialists across the UN System.

2e. **Common risk framework.** Develop a risk assessment framework for the use of AI in the UN System, sharing guidance on common risks and mitigations as well as baseline assessments for common AI products, services, and related offerings to address systemic risks with consistency beyond organization-specific mandates.

2f. **Workforce and workplace.** Examine the workforce and workplace implications of AI across the UN System, including but not limited to topics such as reskilling and upskilling, talent pools and rosters, jobs and roles, insourcing and outsourcing, partnership opportunities, capacity and capabilities, and targeted recruitment, to meet the growing needs for expertise and resources on AI.

2g. **Common procurement.** Strengthen and leverage collective bargaining agreements with AI technology vendors that can better serve the needs and interests of the UN organizational context and its diverse organizations, further exploring partnerships with public and private entities to provide equitable access to AI resources, including in-kind contributions, computing infrastructure, datasets and models, expertise, and other technical components.

Endnotes

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