

# Embracing the New Frontier: Artificial Intelligence Initiatives in International Organizations

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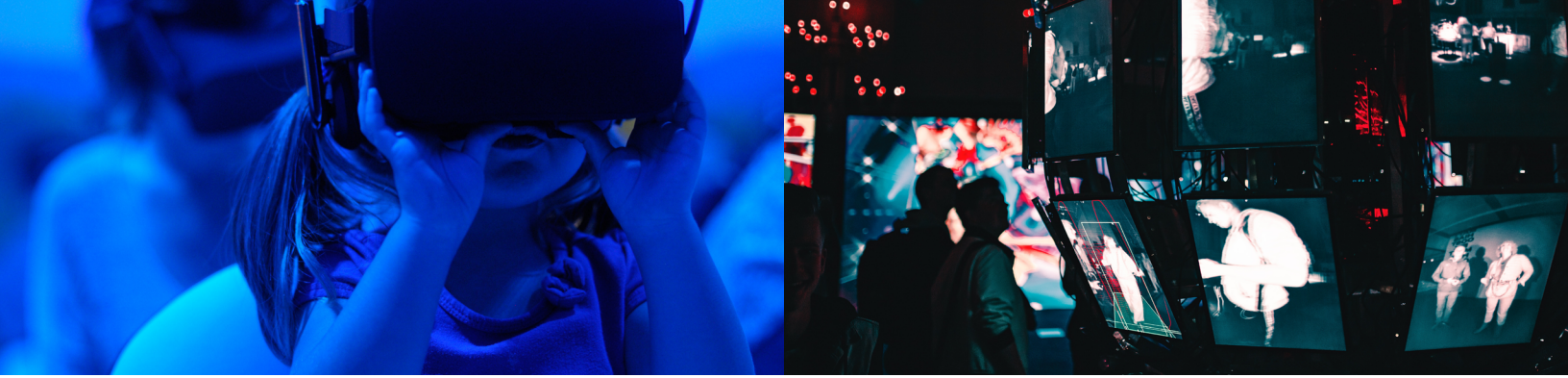
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## Background

The global challenges facing our world today are vast, multifaceted, and interconnected. Grand problems of climate change, unequal development, and human rights abuses are punctuated by humanitarian crises, which altogether degrade human dignity, threaten international security, and stretch global resources. Practitioners and pundits tend to agree that such complex problems are best addressed through agility, collaboration, and innovation. Turning to technology can seem like a quick and promising avenue for modern advancement, and the presence of cutting-edge technical initiatives can sometimes be used as a litmus test for the presence of “innovation” in organizations.

One such technical development is the aspirational and ever-enigmatic artificial intelligence (AI). The promise of AI boasts cutting edge solutions to modern problems, with the ability to extend human capacity through the strategic use of digital prowess. AI is lauded as an innovative and efficient method for integrating extensive amounts of data in a way that provides meaningful insights to bolster human interactions and decision making. Instances of artificial intelligence use are frequent in the private sector, where opportunities for technical advancement are often rewarded for their boldness and ingenuity.

The question remains, however, is AI able to deliver on its potential in order to equitably and adequately meet the challenges of our global society today? If opportunities for AI in the international sector exist, what do these initiatives look like and how might UN organizations adopt, promote, and benefit from this new technology? What does it look like when values-based organizations like the UN start to experiment with developing impact-oriented AI initiatives?

The definition of artificial intelligence is evolving, but AI is typically understood as technology that makes increasingly complex decisions, often mirroring and occasionally surpassing some form of human intelligence. Artificial intelligence inherently relies on recognizing patterns and making predictions based on extensive amounts of data. Machine learning is a frequently cited subfield of artificial intelligence, where computers build on their learning based upon experience.<sup>1</sup>

The allure of artificial intelligence is no longer a new phenomenon. Currently, AI programs govern the interactions we have with virtual assistants and ubiquitously adopted social media platforms. Private corporations are investing in AI to drive vehicles, predict human behavior, and manage supply chains. Even in the public sector, multiple initiatives have emerged exploring the policies, opportunities, and risks associated with artificial intelligence.

In 2018, the International Telecommunications Union (ITU) published its

first “United Nations Activities on Artificial Intelligence” report, outlining existing and potential AI initiatives across 27 UN agencies. By 2019, the number of UN agencies contributing their activities to the report had grown to 37. Since 2017, ITU has also hosted an annual AI for Good Global Summit to “identify practical applications of AI and scale those solutions for global impact” – this summit virtualized during the 2020 COVID-19 pandemic and became a virtual repository for information on start-ups and initiatives using AI to solve the Sustainable Development Goals (SDGs).

Momentum around AI in the international collaboration sector has increased, highlighted by the UN Secretary-General launching a Roadmap for Digital Cooperation in 2020. One of the eight key areas for action highlighted in the report is, “supporting global cooperation on artificial intelligence” so that AI is developed and used “in a manner that is trustworthy, human-rights based, safe and sustainable, and promotes peace.” Ultimately, digital cooperation and technology have significant potential to further the SDGs. One mechanism to facilitate such collaboration is to share AI related learnings across organizations as well as industries.

This study aims to uncover the use cases of artificial intelligence that exist in international organizations along with trends for how AI is being used in the UN context. In addition, the study conducts an inquiry into challenges and potential solutions that are specific to how these organizations leverage artificial intelligence, along with new opportunities that can emerge for organizations and teams engaging with AI.

Through explicit investigation into technological instances where AI is used to further the Sustainable Development Goals (SDGs), this study provides a unique perspective that integrates a cross-organizational comparison of UN organizations and uncovers emerging themes. While other studies have identified challenges relevant to adopting artificial intelligence in the private sector, this is the first study analyzing and highlighting the specific contextual challenges for AI in international organizations.

Such extensive and deliberate engagement on the topic of artificial intelligence across the United Nations has spurred curiosity about the kinds of projects where AI is valuable. Questions arise about how AI technology can influence internal workstreams and processes as well as impact the way an organization delivers upon its mission.

## Methodology

To better understand the use cases for artificial intelligence, over the course of December 2019 through August 2020 the i2i Hub for Innovation and Intrapreneurship, a research competence center at the University of Geneva, conducted a review of over 110 AI initiatives across forty organizations. We collected data on projects listed in both ITU reports as well as additional AI projects cited on international organization websites. A

thorough analysis of existing content was supplemented with interviews and a survey to gain detailed information about existing and upcoming initiatives as well as interviews with project leaders across UN organizations to identify emerging trends, challenges, and opportunities.

For the purpose of this research, publicly available projects where UN organizations explicitly state they are exploring or employing artificial intelligence technology have been included. Initiatives related to dialogue, workshops, or reporting have been noted but excluded from the analysis, supporting a functional inquiry into how artificial intelligence can be technically applied in international organizations.

Each initiative was considered across a number of categorical variables including the type of AI technology being used, its level of development, the stage where the technology is used in the larger organization's value chain, relevant SDGs being addressed, existing collaborations, and whether the technology is primarily being used with an internal or external focus. Further inquiry was conducted through surveys and interviews to verify existing categorizations and reveal the project's purpose, status, and forms of data sources. Broader qualitative data was also collected regarding team composition, working style, motivations, and integration into the larger organization, as well as existing challenges and opportunities.

Analysis of the projects revealed that many organizations are engaging in research, reporting, and dialogue to explore methods for using AI in an ethical and effective manner. A smaller subgroup of organizations has found ways to integrate and apply AI technologies into their own work, both externally and internally. These organizations, actively using AI to further their missions, provide a helpful blueprint for how AI technology can be understood, used, and scaled across UN agencies. The i2i Hub also conducted interviews with innovation and technology experts in these UN organizations to gain additional insight into the dynamics surrounding their AI project design and implementation.

## Use Cases of AI Across International organization

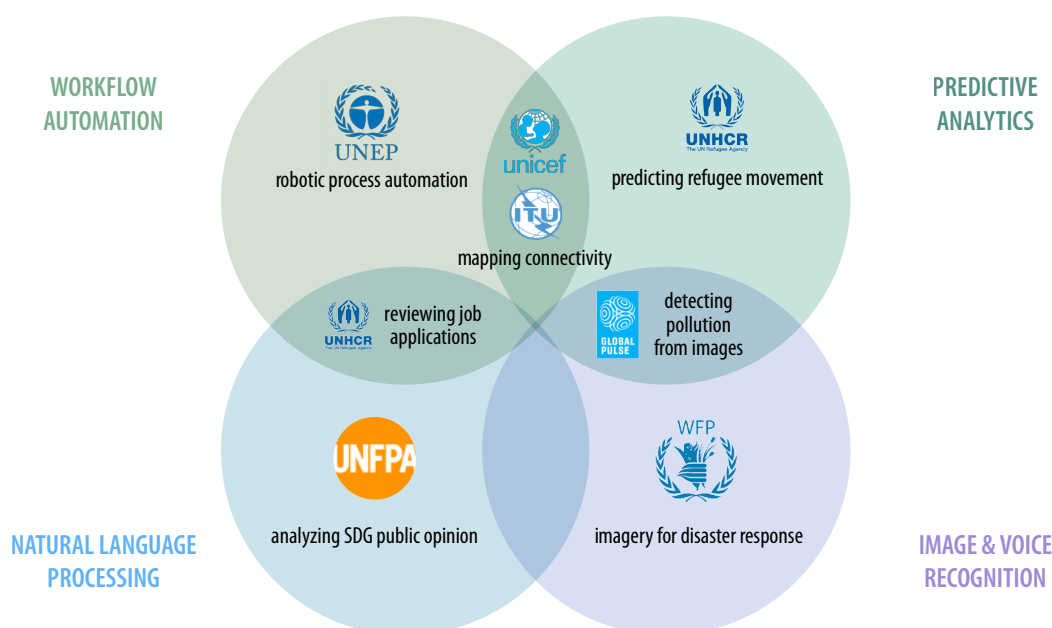
When considering ways artificial intelligence can be leveraged, we identified four primary forms that AI can take—predictive analytics, image or voice recognition, natural language processing, and/or workflow automation.

Predictive analytics supports informed decision-making by recognizing historic patterns in data and extrapolating likely future outcomes. Image or voice recognition involves analyzing visual or auditory input and identifying consistent objects or characteristics. Natural language processing is the perception, analysis, and generation of speech or text. And workflow automation involves the digitization of repeatable activities. By acknowledging the different ways AI can be used, additional clarity and nuance can support informed decisions about when and how to apply artificial intelligence.

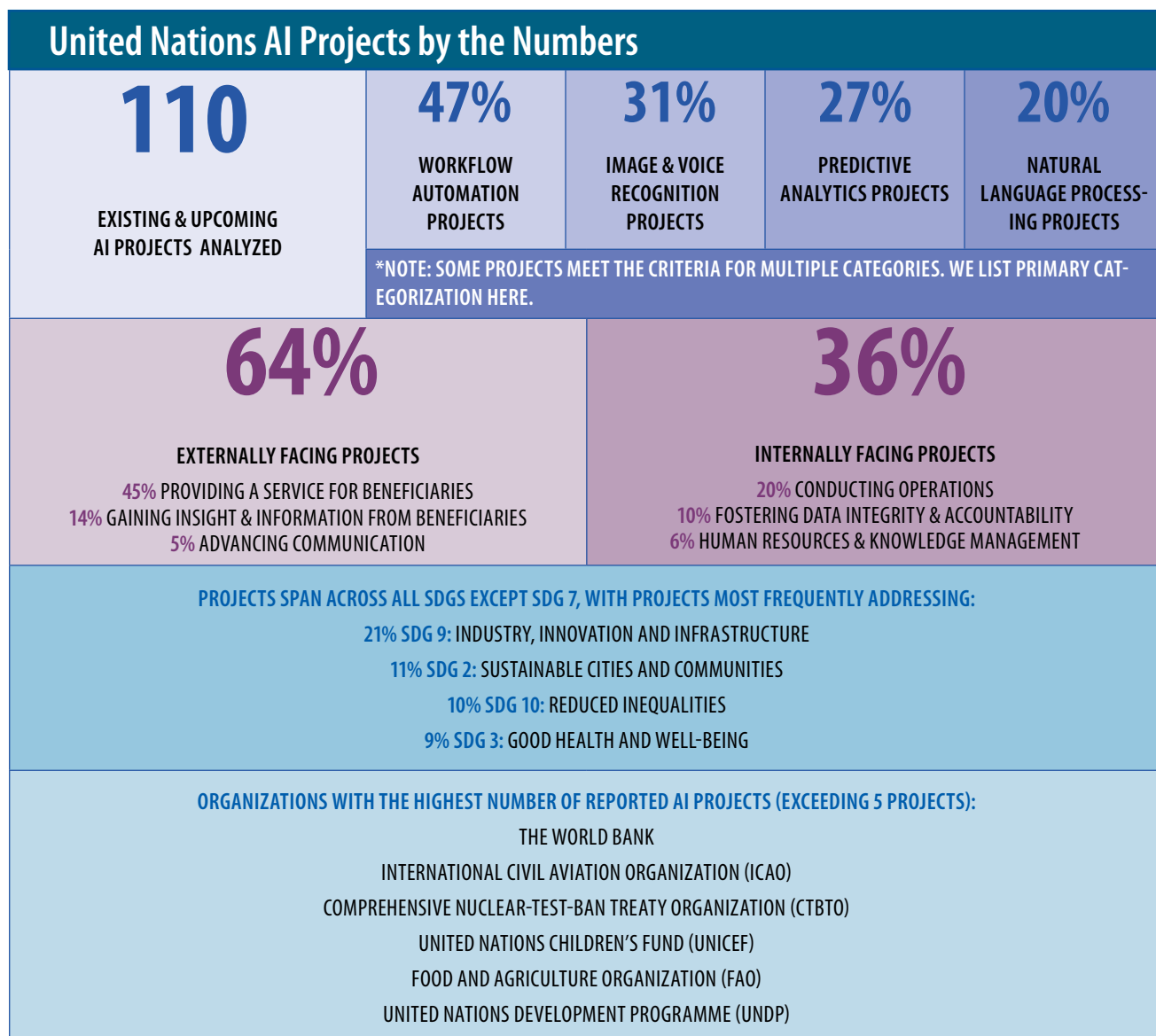
We found that this four-part classification was useful for categorizing AI projects currently engaged in by international organizations. An initiative may clearly fall into only one of the four categories, or it may exhibit traits across multiple categories. Recognizing these defining traits can help uncover when artificial intelligence may be a useful contributor to an organizational project or program.

Descriptions of each of these use cases can be found at the Annex of the report. Further insights from the data show that the majority of the projects using AI in the UN focus on externally facing goals (direct beneficiary assistance) rather than internally facing projects. At the same time, nearly half of the projects fit into the workflow automation category.

### SELECT USE CASES



“AI allows you to do a lot more with less.”



## Emergent Trends for AI Use

A number of common themes emerged regarding the kinds of projects UN agencies are pursuing with AI and the ways these projects are evolving.

### Capacity Building: A new application for AI in the UN

While the four descriptive categories for AI projects usefully frame technical initiatives, a fifth category emerged that seems particularly relevant to international entities. UN agencies are deliberately working to develop the capacity of countries and organizations, in an effort to prepare for more

ethical and accessible artificial intelligence in the future. Such projects include setting the data and computing structure in place to facilitate collaborative AI projects going forward or generating equitable datasets that take into consideration the most marginalized populations in order to train better AI algorithms. Some organizations are even explicitly developing their internal AI expertise in order to reliably provide advice to countries who are eager to adopt artificial intelligence in their own local context.

*Example: The UN Office for Outer Space Affairs is resurfacing space science data with the goal of becoming the one-stop-shop for open-source space science data and processing tools.*



“*Our goal is to build internal knowledge, educate bureaucrats, and also help inform countries on what they need when it comes to AI technology.*”

#### ***Externally Facing Initiatives: Aligning the goal of the initiative with the organizational mandate***

The majority of publicly disclosed AI projects by UN agencies aim to advance the UN mission by benefiting individuals outside the organization. Such projects may include predicting conditions for food or environmental security, identifying a specific object or species from imagery, or matching people to opportunities based on their individual profiles.

**Example:** *FAO has developed a system that uses machine learning to identify shark species from shark fin shapes, which supports port inspectors, custom agents, fish traders and other users without formal taxonomic training.*

“*Our organization is quite receptive if using AI will be practical and achieve our mission better, cheaper, and faster.*”

#### ***Satellite Imagery: A mapping stepping-stone to build out future priorities***

Perhaps unsurprisingly, a great deal of AI projects within international organizations involved the creative use of satellite imagery. Satellite imagery data is often publicly available and provides organizations with an overarching picture that can be used to categorize spaces, map changes over time, or even detect early warning signs. Many organizations including CTBTO, FAO, UNITAR, WFP and the World Bank, use such imagery to gain a holistic perspective that informs their projects. In the face of global challenges, gaining a literal global perspective through the use of satellite imagery may provide a particularly valuable viewpoint.

**Example:** *The World Bank is using satellite data and mapping to promote improved land use governance and infrastructure tracking. The project also aims to reduce barriers for governments and civil society to use satellite and machine learning to promote public sector accountability.*

While externally facing projects are a natural outflow of efforts based on organizational purpose, there are also many opportunities to apply artificial intelligence in support of internal needs. Whether optimizing processes, measuring organizational culture through NLP, or facilitating better decision making, some organizations are leveraging the benefits of AI to bolster their own internal structures. Such projects can be an effective way for the organization to gain competency and confidence using AI. For

instance, Project ARiN at the UNHCR was created to improve hiring practices and make these more inclusive. The World Bank is also using AI with international operational teams to solve business challenges such as using AI to create efficiencies in the work of procurement specialists through a prototype that scans documents and data sets to monitor fund usage and compliance; through data mining historical emerging market data; and other usages such as NLP for audit reporting.

#### ***Early Learning: Experiments and prototypes at initial stages paving the way for future success***

Many current UN AI projects are still in their early phases. Initiatives may be in the proof-of-concept phase, undergoing rapid experimentation and development, or even still in a formational state of ideation. Some projects that have attracted attention and investment both internally and externally are being adapted or sunsetted, while insights from these early phases are integrated into future endeavors. Teams working on these projects cite building internal competency as a major goal for AI initiatives and stress the importance of organizational learning.

**Example:** *The UN Office on Drugs and Crime is exploring the idea of a project that analyses trends related to the flow of illicit activities.*

“*We have a role to play in enabling people to experiment.*”

“*While [our project] was seen as a failure internally, it cracked the recipe for other agencies externally.*”

## **Challenges for International Organizations Driving AI Solutions**

In conversations with innovation team members and experts at UN agencies particularly active with AI, some recurrent challenges emerged. These include technical challenges around accessing data for the initiatives; resourcing challenges around recruiting top technical talent; organizational challenges related to communication and leadership; and specific contextual challenges that arise when the ethical missions of the UN agencies bump against the yet unregulated and hard to define ethics of AI. These challenges were validated through a social media survey. We list below some of the salient bottlenecks as well as some possible work-around solutions and responses.

## TECHNICAL CHALLENGES

### *A. Data is expensive and difficult to access.*

Team members frequently cited access to data as a significant challenge when working to develop a project using AI. While some data sources are public and freely available, other crucial information may not be as easy to access and expensive. Gaps in data are also common and concerns about unreliable data sources or the sensitivities of using private data may discourage team members from fully embracing a potential AI initiative.

*We have a role to play in enabling people to experiment.*

Organizations found that either exclusively using public data sources or incorporating a mixture of public, internal, and private sources was a feasible way to begin working around this challenge. While data can be seen as proprietary and organizations may be wary of opening up their own sources, once more organizations start to share data, there will be more access points and ways to collaborate. A strength of the UN family of organizations is that they are diverse in mission, but often touch the same beneficiaries. Corporations that operate in diversified businesses that touch the same customer face a similar problem, and also resolve it through internal data pooling. Not doing so is a missed opportunity for synergy within the UN.

*“Data is sensitive and hard to share—particularly as we work with very vulnerable people—so we focus on public data.”*

### *B. Top technical talent is difficult to attract by UN agencies.*

The talent pool for AI developers is highly competitive. International organizations do not feel well-equipped to attract and retain highly skilled programmers, especially when compared to large tech companies and the private sector. Teams approach this challenge by hiring a blend of programmers and individuals with strong technical skills who may not be AI experts. The challenge of attracting AI talent can also be addressed by weighing the value of housing AI expertise internally or striking creative partnerships with other entities.

*Potential workaround: Smartsourcing talent: broader partnerships with private sector and academia and contest platforms*

With the exception of the major tech corporations, most companies also face a shortage and challenge in terms of AI talent. Creative outsourcing—through partnerships with industry, academia and even crowdsourcing (e.g. the contest platform Kaggle) can all help to fill the gap. If investment in internal talent is currently prohibitive, partnering with technology companies provides a solid alternative and also supports the team in developing strong partnership skills. In addition, partnering with technology companies or academics that can provide this type of talent for free or in-kind contributions has been seen as an excellent way not only to bring in new ideas but also expand the scope of projects. Further, unlike the corporate sector, the UN's mandate and mission can be a strong attractor of effort on non-commercial terms.

*“We can let technologists build tech but work closely with them to build the right tech.”*

## ORGANIZATIONAL CHALLENGES

### *C. Communication about initiatives within the organization is siloed.*

The vast complexity of most international organizations means that teams are often not aware of all the different projects leveraging AI across the organization. An informal network of innovators and AI enthusiasts emerges where teams are vaguely aware of various initiatives taking place but are not necessarily clear on the scope or developmental stage of the work. Such decentralized communication results in potential flexibility for individual teams, but also risks key institutional insights and knowledge being lost.

*Potential workaround: Knowledge hubs: Make it easy for teams and emerging centers of excellence in AI use within the UN to find each other and share best practice*

Potential implementations of this idea range from formal internal “innovation units” that pool knowledge and expertise across the organization through regular interactions with other project teams, to informal cross-organizational working groups (communities of practice) that seek to actively share project progress, needs, and opportunities while identifying methods to integrate efforts.

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“*Even we don’t know everything [our organization] is doing.*”

#### ***D. Leadership is wary to take ownership and related risks regarding frontier technology.***

The extent to which AI is embraced by an organization appears to be related to the organization’s culture. For some teams, leadership appears supportive as long as the benefits of AI clearly outweigh the time and cost invested in the initiative. Other teams saw their organizational culture as more risk averse, with a reticence to embrace AI outputs or take ownership of new ideas. Project developers wondered whether the kinds of issues they sought to address were in line with the goals of upper management. These team members expressed a desire for their leaders to pose more sharper questions that AI has the capacity to answer. If the organization is not interested in or prepared for the information AI can provide, the teams on the cusp of these discoveries can be left feeling discouraged.

“*Using AI for decision making is the least of the explored options [in International Organizations]. . . . The culture is not ready to make these kinds of decisions and the organization is risk averse.*”

Remedying this challenge can begin with a small group of motivated intrapreneurs who are willing to challenge the status quo and will ultimately require a coalition of allies across all levels of the organization. However, support from the powerful decision makers is key to sustain the momentum. Launching an expanding series of mindset and culture change initiatives that promote calculated risk-taking and opportunities to learn from mistakes may prove beneficial. Ultimately, it is difficult to transform the culture of an organization without a strong push from the top, so identifying and integrating high-level champions of the work will be crucial. Contrary to popular opinion, it is possible to bring senior managers to a sophisticated understanding of AI and its potential very rapidly through workshops and training, as has been proven at INSEAD and other leading business schools. Finally, showcasing the benefits of key AI projects through evidence that the project is not only aligning to the values of the organization, but also freeing up humans’ time to be more effective in other roles would inspire more attention from the top.

## **CONTEXTUAL CHALLENGES**

### ***E. Aligning the ethical mission of the organization with the risks of automated decision making is difficult when human lives are on the line.***

The nature of the work that UN agencies conduct is deeply intertwined with human life and dignity. Whether addressing humanitarian needs, security, or development, the lives of human beings are at stake in decisions that are made. Often existing organizational structures have been deliberately built in response to these needs and introducing a new perspective or model to support decision making feels risky in terms of trust and accountability. Some team members felt that applying AI innovation to their organization’s core mission presented a higher risk compared to private companies, who predominantly have profit at stake.

“*Being proactive is not rewarded. If you are being proactive but you waste money—you make your own decision, you allocate resources somewhere when they were really needed somewhere else—then you can be blamed for it, you risk reputation, you risk peoples’ lives.*”

*Potential workaround: Evidence based AI adoption: use evidence to make the case that AI can improve on status quo*

The default assumption that underlies concerns of the type noted above is that the human is more correct in their choices than the algorithm, but that is not always correct, and human lives may also be lost because of poor human decision making. True, the introduction of AI can introduce risk and that has to be taken seriously when human lives are at stake. However, the same is true of the medical profession, and their response is to rely heavily on comparative evidence for new interventions (i.e. clinical trials). The same logic, embodied in A/B tests (i.e. experiments with randomization) can help understand the risks and benefits of AI in a controlled manner. The risk to human lives is present even when the human is taking the decision in these humanitarian contexts. What needs to be shown is that the algorithm makes less mistakes than the human and frees up the human time to work on tasks that can add increased value to the beneficiary and the organization. This type of evidence can be provided through simulations and experiments.

### *F. Ethical dilemmas around prediction and bias are magnified in humanitarian contexts.*

Just as international organizations are working to appropriately apply AI to achieve their goals, the nature of artificial intelligence also brings some inherent dilemmas. Team members shared their awareness that AI structures and data may reinforce existing biases and inequalities that permeate our world today. Knowing when to apply AI solutions, what datasets to use, and how to interpret the outcomes are all questions that teams actively consider from an ethical standpoint. Adding these layers of complexity can at times be daunting for teams on the forefront of AI work.

#### *Potential workaround: Common ethical standards: creating UN wide governance and process structures to curtail algorithmic bias*

The cost-benefit analysis at a very high level may indeed present that the risk of human lives is higher if there is a mistake in the algorithm than in the private sector where profit loss is the only risk. But even in the corporate sector, ethical violations have significant consequences for managers, including possibly the end of their careers or the bankruptcy of the company. There too the need for clear governance and process structures for projects is becoming widely appreciated, and many large corporations are working towards AI ethical standards stronger than what the regulatory framework prescribes. The UN can play a leading role in defining such standards first of all for its own internal use.

*“Who owns the problem and who owns the solution? When do we actually desire predictability? Who owns the models that are included? Who decided what was good?”*

*“We’ve run a few experiments and actually hit all of these boundaries and issues. . . When our colleagues look at the results, they don’t trust the technology. They have to be in a certain comfort zone and believe in it a little bit or it’s not going to work.”*

## Contrasting AI Adoption in International Organizations with the Private Sector

When compared to challenges the private sector faces when introducing and operationalizing artificial intelligence, as we have noted above that pioneering individuals in international organizations face similar barriers albeit to a heightened degree. For example, issues of data access, talent retention, and siloed communication are similarly ubiquitous within private companies. Yet two key factors differentiate the challenges of AI adoption within international organizations – extreme frugality and a uniquely human-focused value proposition for staff.

The nature of donor funding and accountability in international organizations means that UN organizations are highly beholden to external priorities and economic cycles. Taking risks, investing in new technologies, and experimenting with alternative delivery models requires donor support and an openness to ambiguous results that may not materialize. Maintaining the loyalty of current donors and weathering the volatility of donor contributions encourages international organizations to consistently center their core capacities. Significant deviation from the status quo potentially opens the organization to criticism, particularly when returns on investment in new technologies are not always immediately apparent. Aligning with progressive donors who value innovation can open up new opportunities for creative investments in the face of a frugal working environment. Collaborating directly with technology companies who contribute through expertise may also help mitigate this challenge.

Despite the frugal attitude toward paying for management talent in international organizations, many staff have willingly committed to the cause, recognizing their remuneration will be lower than what could be achieved in the private sector. The inherently lofty purpose behind the work of international organizations – aiming to “maintain international peace and security,” “protect human rights,” “deliver humanitarian aid,” and “promote sustainable development” – provides a motivation that is centered in meaning and humanity. Some UN employees may perceive the adoption of AI as a threat to the human-focused intent of their work.

Fortunately, in such purpose-minded organizations, AI tools coupled with deliberate ethical consideration can actually result in increasingly humanized solutions. UNHCR’s Project ARiN was specifically created, in part, to reduce the bias involved when considering external candidates for job opportunities and build inclusivity into the job hiring process. Similarly, thoughtfully applied artificial intelligence can be used to reduce the burden of dehumanizing bureaucratic tasks, freeing up space for staff to deliver on more meaningful responsibilities. Exploring instances where AI can bolster human capacity instead of replacing human expertise appears to be a promising opportunity for international organizations. As we have noted above, with the proper evidence, one can make the case that AI can help attain these objectives more effectively than what is currently possible, thus strengthening rather than detracting from the mission and meaning of the adopting international organization.



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## Looking Forward

Acknowledging the complexity of AI while exploring use cases and embracing AI as a learning opportunity can provide teams with additional skills, knowledge, and motivation to further organizational goals. International organizations can benefit from considering ways to apply AI technology both internally and externally, whether for making sense of the world, improving the effectiveness and efficiency of workflows, or even gaining predictive support for decision making. While adopting AI systems in international organizations may take time—particularly when predictive analytics are involved—trust can be built by framing results as additional input for problem solving or indicators for early warning signs, or as proven improvements over current practice. Ultimately, decision making can remain in the hands of human beings as they work to better understand and incorporate this technology. Gaining a new perspective can feel uncomfortable at first, but often provides the necessary impetus to launch something valuable or new.

Balancing the ethical concerns of AI initiatives with the humanitarian goals of these organizations will remain the key determinant in whether the UN can take an active role in building the future standards for the use of AI to build a sustainable future for the world. Through iterative experimentation, new partnerships, and targeted quick-fire projects, the UN agencies will continue to develop the capacity to understand the ways that these ethical dilemmas can be overcome. Practices such as data pooling, creating champions in the C-suite, creating AI governance standards, evidence-based AI adoption, smart sourcing talent and creating knowledge hubs are of interest far outside the international organizations community. In implementing these in a particularly extreme environment where any amount of risk to human welfare is unacceptable, the UN agencies have the potential to be at the forefront of understanding and developing standards towards ethical AI. In effect, the agencies are well positioned to act as ethical gatekeepers for the push towards this new frontier of technology.

## Annex: Highlighted Case Studies

### Predictive Analytics – Predicting refugee movement with UNHCR.

The UNHCR created Project Jetson, an initiative that predicts the movement of displaced populations within and outside of Somalia based on environmental, political, and economic data.<sup>7</sup>

#### Project Jetson: UNHCR

GOAL	HOW	ESTABLISHED IN	IMPLEMENTED IN	IMPACT
Predict population movement to help governments and organizations prepare for crisis situations	Supervised machine learning	2017	Somalia	Able to map population flows through 22 regions in Somalia

### Image or Voice Recognition – Imagery for disaster response with WFP.

Skai is an artificial intelligence and aerial imagery platform created by the World Food Program to conduct rapid data analysis amidst emergencies. The platform uses drones and deep learning to understand what has happened, what to expect on the ground, and what kind of support is needed after a disaster strike.<sup>8</sup>

#### Skai: WFP

GOAL	TECHNOLOGY	ESTABLISHED IN	IMPLEMENTED IN
Increase speed and efficiency of post-emergency aid delivery through mapping	Drones and deep machine learning	2017	In-training

## Natural Language Processing – Analyzing SDG public opinion with UNFPA.

ECHO, created by UNFPA, promotes participatory planning and awareness about the SDGs among citizens in Colombia through real-time guided public discussion. The ultimate goal of the project is to link conversational and informal citizen's language to the language of the SDGs using a classification model developed by UNFPA Columbia. After the first phase of the implementation in Medellin, more than 4,800 guided discussions were carried out.<sup>9</sup>

### ECHO: UNFPA

GOAL	TECHNOLOGY	ESTABLISHED IN	IMPLEMENTED IN	IMPACT
Link conversational and informal citizen's language to the language of the SDGs to promote awareness for the SDGs	NLP classification model	2019	Columbia (Medellin, Bogota, and Cartagena)	More than 4,800 guided discussions were carried out

## Workflow Automation – Robotic Process Automation

UNEP is experimenting with robotics process automation within the through the application of an article writing bot to expedite the generation of standard and low-value documents. An AI Article Writing Bot applies the use of Natural Language Generation and machine learning capabilities to create content out of the available data. UNEP aims for efficient and scalable elimination of the manual and redundant process of creating standard organizational reports, promotional material and articles.

### Robotic Process Automation: UNEP

GOAL	HOW	ESTABLISHED IN	IMPLEMENTED IN	IMPACT
Robotic process automation	Natural language generation and ML	2019	TBC	TBC

## NLP & Workflow Automation – Streamlining the review of job applicants with UNHCR.

UNHCR developed ARiN, a machine learning tool and accompanying interface to support the Human Resources department with the screening process for external candidates. The system sorts through an average of 8,000 applications per month and has been scaled, through validation processes and collaboration with the IT department, to become mainstreamed across the organization's HR practices. By leveraging AI to review thousands of job applications, the process becomes much more efficient while reducing some of the bias that can occur when candidates are selected manually.<sup>10</sup>

### ARiN: UNICEF

GOAL	TECHNOLOGY	ESTABLISHED IN	IMPLEMENTED IN	IMPACT
Expedite the review of job applications while reducing bias	Supervised machine learning	2018	UNHCR	Filters over 8,000 applications monthly and scaled throughout entire organization

## Image/Voice Recognition & Predictive Analytics – Detecting pollution from images with Global Pulse.

Global Pulse forecasted air pollution levels in Jakarta using imagery from social media, satellites, and ground sensors as a rapid and fiscally responsible alternative to deploying additional expensive sensors. Pulse Lab Jakarta based their pollution prediction initiative on an earlier project that used imagery to track fires and haze-related events. The team was selected as one of 17 winners in the Computer Vision for Global Challenges competition and is validating the accuracy of the system and exploring opportunities to use the model as either a replacement or supplement for existing air quality approaches in Jakarta and other countries.<sup>11</sup>

### Nowcasting Air Quality Using Social Media Imagery: Global Pulse

GOAL	TECHNOLOGY	ESTABLISHED IN	IMPLEMENTED IN
Quickly detect pollution levels in a low-cost manner	Deep learning	2018	Exploring implementation in Jakarta

## Predictive Analytics & Workflow Automation – Mapping school connectivity with UNICEF and ITU.

Project Giga was created through a collaboration between UNICEF and ITU to map the demand for connectivity around the world. The system discovers where schools are through satellite imagery and the use of infrastructure and identifies where there are gaps in connectivity that need to be addressed. The initiative works to map connectivity, make forecasts about financing, and monitor the quality of service delivered by providers. The program is active in over thirty countries and in just one country, Kyrgyzstan, the system supported internet access for 690 unconnected schools and realized \$200,000 per year of savings by renegotiating contracts.<sup>12</sup>

### Giga: UNICEF & ITU

GOAL	TECHNOLOGY	ESTABLISHED IN	IMPLEMENTED IN	IMPACT
Connect every school in the world to the internet	Machine learning	2019	Over 30 countries including Kyrgyzstan, Kazakhstan, Rwanda, Uganda, Kenya, & Sierra Leone	Over 800,000 schools have been mapped with the project



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## Endnotes

- 1 <https://www.technologyreview.com/2018/11/17/103781/what-is-machine-learning-we-drew-you-another-flowchart/>
- 2 <https://aiforgood.itu.int/about-us/>
- 3 <https://www.un.org/en/content/digital-cooperation-roadmap/>
- 4 <https://etradeforall.org/>
- 5 A survey of 17 individuals was conducted to validate the qualitative challenges identified through the research and identify which barriers are seen as the biggest impediments to adopting artificial intelligence in international organizations. Five survey responses were excluded as the respondents expressed that they did not work with the United Nations or have experience in the field of artificial intelligence. The results revealed that staff perceive issues of organizational silos and ethical dilemmas as being the greatest challenges for advancing AI in UN organizations. Risk aversion in leadership and concerns around automated decision making were also seen as challenges to overcome. One respondent noted they felt attracting top technical talent to work in international organizations is not particularly difficult, but challenges arise when trying to retain those hired because of “administrative hypertrophy and lack of recognition.”
- 6 <https://www.un.org/en/sections/what-we-do/>
- 7 <http://jetson.unhcr.org/>
- 8 <https://innovation.wfp.org/project/skai>
- 9 <https://colombia.unfpa.org/es/news/primeros-resultados-de-echo-en-colombia>
- 10 <https://medium.com/unhcr-innovation-service/from-pipe-dream-to-pipeline-unhcr-learns-from-mainstreaming-an-ai-product-c1f00518757a>
- 11 <https://medium.com/pulse-lab-jakarta/using-social-media-imagery-to-nowcast-air-pollution-95b493bed9b0>
- 12 <https://gigaconnect.org/>



The i2i Hub for Innovation is a research competence center at the University of Geneva. Its goals are to develop applicable research for fostering innovation. The Geneva Innovation Movement Association creates pathways for innovation in the Geneva ecosystem through networks, skills development and thought leadership.