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THE HUMAN RIGHTS DATA REVOLUTION

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DISCLAIMER

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1. INTRODUCTION

Over the past ten years, the human rights landscape has undergone a significant transformation, marked by the integration of digital technology into its core operations. A surge in the development of digital human rights tracking tools and databases (DHRTTDs) by national, regional and international human rights entities has revolutionized the way human rights are monitored, implemented, reported and followed up globally.

These digital innovations provide a comprehensive solution for organizing and streamlining information gathering and data collection in the implementation of international human rights standards and recommendations. In this regard, the *UN Secretary-General's 2018 Strategy on New Technologies* represents a clear shift in policy at the global level, with its stated goal to 'define how the United Nations system will support the use of … technologies to accelerate the achievement of the 2030 Sustainable Development Agenda and to facilitate their alignment with the values enshrined in the UN Charter, the Universal Declaration of Human Rights, and the norms and standards of international law'.[1]

This call was amplified in 2019, with the UN Human Rights Council adopting a resolution on New and Emerging Digital Technology and Human Rights, in which it acknowledged that

digital technologies have the potential to facilitate efforts to accelerate human progress, to promote and protect human rights and fundamental freedoms, to bridge digital divides, to support, inter alia, the enjoyment of the rights of persons with disabilities, the advancement of gender equality and the empowerment of all women and girls, and to ensure that no one is left behind in the achievement of the Sustainable Development Goals.[2]

The resolution also mandated the Human Rights Council Advisory Committee to produce a report on the 'possible impacts, opportunities and challenges of new and emerging digital technologies with regard to the promotion and protection of human rights'.[3] This report provides a comprehensive analysis of potential human rights violations through the use of new technologies and maps relevant existing initiatives by the UN.[4] One noticeable gap however is the question of *how UN and*

1 *UN Secretary-General's Strategy on New Technologies*, September 2018, p 4, https://www.un.org/en/newtechnologies/images/pdf/SGs-Strategy-on-New-Technologies.pdf (last accessed 29 February 2024).

2 Human Rights Council (HRC), New and Emerging Digital Technologies and Human Rights, UN doc A/HRC/RES/41/11, 17 July 2019, p 1.

3 Ibid, §1.

4 HRC Advisory Committee, Possible Impacts, Opportunities and Challenges of New and Emerging Digital Technologies With Regard to the Promotion and Protection of Human Rights, UN doc A/HRC/47/52, 19 May 2021.

regional human rights mechanisms as well as national human rights actors could use new digital technologies in their monitoring and implementation work – an issue that deserves to be 'high on the agenda, given the enhanced impact and outreach that could be achieved'.[5]

The present Academy Briefing explores this question, examining best practices and challenges faced by new and emerging information management tools developed by various human rights stakeholders, including the UN Secretariat, UN agencies, regional human rights mechanisms, national mechanisms for implementation, reporting and follow-up (NMIRFs), national human rights institutions (NHRIs), civil society organizations (CSOs) and academics worldwide.[6] After all, a primary objective of both international human rights monitoring bodies and national human rights systems is the effective coordination of data collection.[7] This task has become increasingly complex due to the growing number of recommendations from UN Treaty Bodies, the Universal Periodic Review (UPR), Special Procedures and regional human rights mechanisms, as well as the need to make progress on the Sustainable Development Goals (SDGs).

In the context of this Academy Briefing, 'human rights data' refers to a comprehensive set of information and statistics that track and analyse the observance, protection and fulfillment of human rights across various dimensions and contexts globally, regionally and nationally. This data not only includes specific information related to the implementation and follow-up of recommendations issued by UN and regional human rights mechanisms, but also extends more broadly to encompass a wide range of indicators relevant to the implementation of human rights principles and standards. Broadly, human rights data produced by DHRTTDs encompasses:

1. **Status of implementation of recommendations**: information on how countries are responding to and implementing the recommendations made by UN and regional human rights bodies. This includes legislative, judicial, administrative and policy changes undertaken to comply with human rights obligations.
2. **Legal and policy frameworks**: data on the existence and effectiveness of national laws, regulations and policies designed to protect human rights, including their alignment with international human rights norms and standards.
3. **Human rights violations**: records of incidents and patterns of human rights abuses, including civil and political rights such as freedom of expression, assembly and protection against torture, as well as economic, social and cultural rights like the right to education, health and adequate living standards.
4. **Human rights measurement**: datasets reflecting the fulfillment of economic, social and cultural rights, civil and political rights, the state of equality and the extent of discrimination and the accessibility, efficiency and fairness of legal and judicial systems in protecting human rights.
5. **Human rights impact assessments**: evaluations of how policies, projects and practices impact human rights, including assessments conducted by states, corporations and international organizations.
6. **Public perception and awareness**: surveys and studies measuring public awareness, attitudes and perceptions regarding human rights issues, including trust in institutions responsible for protecting those rights.

Human rights data is thus a holistic and multidimensional concept that captures both qualitative and quantitative aspects of human rights practices, challenges and achievements. It serves as a critical tool for monitoring progress, identifying areas of concern, promoting accountability and guiding the formulation of policies aimed at the advancement of human rights globally. And, while the adoption of DHRTTDs is on the rise, a key issue that remains is the lack of coordination and sharing of best practices among the developers and users of these diverse tools.

To address this gap and identify potential solutions, the Geneva Human Rights Platform (GHRP) convened a first expert roundtable during its 2022 Annual Conference[8] and – in collaboration with the Office of the UN High Commissioner for Human Rights (OHCHR) – it hosted a second expert roundtable on DHRTTDs in 2023.[9] Both events brought together prominent figures from the human rights and technology sectors to discuss the development and future of DHRTTD-specific initiatives. Over the course of these two roundtables, more than 50 experts in DHRTTDs, representing various permanent missions, the UN and regional organizations, NMIRFs, NHRIs, CSOs and academic institutions, engaged in in-depth discussions about the impact of digital tools on human rights reporting, monitoring and implementation. The experiences, lessons learned and challenges shared during the two expert roundtables, in addition to desk research and interviews with developers and users at the forefront of the 'human rights data revolution', form the basis for this report. Incorporating these takeaways into future strategic planning will ensure that the human rights community remains agile, informed and equipped to address the evolving challenges and opportunities of the digital age.

5 J. Grimheden, 'The Use of IT for Compliance With Supranational Bodies', inR. Murray and D. Long (eds), *Research Handbook on Implementation of Human Rights in Practice*, Edward Elgar Publishing, 2022, p 331.

6 For an analysis of 15 different DHRTTDs, see D. Zipoli, *The Emergence of Digital Human Rights Tracking Tools and Databases*, Geneva Human Rights Platform (GHRP) Working Papers, Geneva Academy of International Humanitarian Law and Human Rights, March 2023, https://www.geneva-academy.ch/joomlatools-files/docman-files/working-papers/The%20Emergence%20of%20Digital%20HR%20Tracking.pdf (last accessed 29 February 2024).

7 D. Zipoli, *National Human Rights Strategies*, Geneva Academy Briefing no 18, January 2021, https://www.geneva-academy.ch/joomlatools-files/docman-files/Academy%20Briefing%2018.pdf (last accessed 24 February 2024).

8 First Expert Roundtable on Digital Human Rights Tracking Tools: De-Mystifying Digital Human Rights Tracking Tools, 18 October 2022. See Geneva Academy, '2022 Annual Conference of the Geneva Human Rights Platform', https://www.geneva-academy.ch/event/past-events/detail/349-2022-annual-conference-of-the-geneva-human-rights-platform (last accessed 29 February 2024).

9 Second Expert Roundtable on Digital Human Rights Tracking Tools and Databases, 14–15 September 2023. See Geneva Academy, 'Digital Human Rights Tracking Tools and Databases: Pioneering Discussions at the Expert Roundtable', https://www.geneva-academy.ch/news/detail/642-digital-human-rights-tracking-tools-and-databases-pioneering-discussions-at-the-expert-roundtable (last accessed 29 February 2024).

This Academy Briefing is structured to provide a comprehensive overview of the role and evolution of DHRTTDs within the human rights ecosystem. It first delves into the definitional scope and operational objectives of DHRTTDs, delineating their definition, purpose and integral role in advancing human rights. The briefing then proceeds to analyse three critical aspects that shape the performance of DHRTTDs. Firstly, the analysis centres on *accessibility*, dissecting the benefits and challenges of open, limited, and hybrid access models, alongside considerations for web accessibility and linguistic diversity, thereby emphasizing the imperative for inclusivity and equal participation. Secondly, it breaks down several *sustainability* concerns regarding the operation of these tools, including data collection coordination, the impact of staff turnover, strategies for enhancing user adoption, the necessity for sustained investment and funding and the burgeoning role of artificial intelligence (AI) and machine learning (ML). Thirdly, *interoperability* is examined through the lens of fostering collaborative ecosystems, automated interactions via application programming interfaces (APIs) and the promotion of knowledge-sharing events and platforms. Across each identified theme and sub-theme, the briefing evaluates the practical challenges and potential pathways, drawing on real-world instances to frame actionable policy directives. The conclusion synthesizes these discussions, projecting future directions that underscore the need for strategic enhancements in DHRTTDs to bolster their effectiveness and reach for future human rights monitoring and implementation.

2. DEFINITION AND PURPOSE OF DHRTTDs IN THE HUMAN RIGHTS ECOSYSTEM

The historical context of human rights monitoring has evolved dramatically with the advent of digital technologies. The process that once relied on manual data collection and paper-based reporting – a method that was time-consuming and limited in scope – has witnessed a complete transformation.

UN Assistant Secretary-General for Human Rights, Ilze Brands Kehris, recently emphasized the importance of digital tools in future human rights work: 'We are in the midst of a data revolution that could radically improve the way we use data to better understand human rights concerns and risks, assess progress, monitor human rights, hold governments, businesses and individuals accountable and foster sustainable development.'[10]

The supply of relevant, timely and usable data is essential for countries to set priorities, make informed choices and better policies for the implementation of recommendations from UN and regional human rights mechanisms as well as to achieve progress on sustainable development. Advances in the ability to manage, exchange, combine and analyse human rights data, and to disseminate statistical information online, are changing the way traditional statistical processes are carried out. As such, digitalization is a potentially significant step forward for the realization of human rights and the SDGs. Enhanced protection of individual rights has been observed to coincide with increased state participation in reporting processes, as evidenced by research findings.[11] This heightened engagement is accompanied by an improvement in states' capacity to collect, organize and analyse data, leading to more thorough and transparent reporting aligned with treaty obligations. Consequently, providing states with enhanced tools for data collection and compilation could facilitate the integration of relevant information into their reports.

The establishment of a robust system for regular monitoring and reporting plays a crucial role in domestic politics, serving as a vital link between international commitments and domestic frameworks. Ideally, these reports should not only spur data collection but also foster self-reflection within states, ultimately driving substantive policy changes. To effectively translate treaty obligations into tangible

10 Office of the UN High Commissioner for Human Rights (OHCHR), 'Better Data Bolsters Human Rights of Marginalised People', 16 February 2022, https://www.ohchr.org/en/stories/2022/02/better-data-collection-bolsters-human-rights-marginalised-people (last accessed 29 February 2024).

11 C. D. Creamer and B. A. Simmons, 'The Proof Is in the Process: Self-Reporting Under International Human Rights Treaties', 114 *American Journal of International Law* 1 (2020) 1.

domestic rights, it is imperative to equip states with tools and technologies that streamline monitoring and reporting processes while retaining the capacity to capture nuanced information relevant to a diverse array of rights. Technology may thus be part of the solution to counter the many challenges that states face when implementing international human rights recommendations.[12]

Today, challenges to human rights implementation are caused by several factors. The exact nature of the reporting burden differs from country to country, with hundreds of human rights recommendations and obligations often overlapping to varying degrees. This challenge is often exacerbated by competing demands and priorities, such as SDG reporting, for example, and the regular receipt of further recommendations at the conclusion of each treaty body review, UPR or Special Procedures' visit. From the outset, this makes tracking implementation and data collection an onerous task that needs to compete for attention with other national priorities. Consequently, data collection often occurs only once a periodic report is due or overdue. During any given reporting cycle period, if data is not regularly collected it is unlikely that full data sets will be available when required. It may not even be straightforward to identify who the data owners are or how to contact them. Staff turnover also contributes to the reporting burden. Maintaining knowledge of data sources and reporting deadlines and requirements (submission process, formatting standards, word limits, etc.) across the various UN human rights mechanisms is not easy due to the lack of a standardized approach. It is not uncommon to find that a state is unaware of when its reports are due, how a report should be submitted and the required format and length. If reporting becomes too difficult whilst competing with other priorities, states revert to an ad hoc approach, which often means recommendations do not see the light of day until the next report is due. If the number and complexity of a set of recommendations received by a state are unmanageable, then comprehensive and coordinated implementation (and therefore effective data collection and reporting) is almost impossible. As a result, ministries work in siloes and rarely engage with other implementing actors in a systematic and regular manner. In turn, this leads to implementation gaps and/or duplication of work and inconsistent messaging.

The implementation challenges can be summarized as follows:

1. One key challenge is the tendency of government ministries and other implementing actors to work in siloes, leading to a lack of coordination and collaboration. It is important for government agencies and other national actors to work together in a coordinated manner to ensure the effective implementation of international human rights recommendations.

2. One further challenge is duplication, where different national actors may be implementing similar activities, leading to a waste of resources and duplication of efforts. In order to avoid this, it is important for actors to coordinate and collaborate to ensure that resources are used efficiently and effectively.

3. In some instances, different actors may be communicating inconsistently, leading to confusion and a lack of understanding of the recommendations made by UN and regional human rights mechanisms. This can also affect implementation efforts. In order to address this challenge, it is important for actors to communicate in a consistent manner, using a common language and set of indicators against which progress or deterioration can be measured.

4. A final, broader challenge is the low levels of engagement with the international human rights system of domestic stakeholders. In some cases, there may be conflicting priorities at the national level or limited understanding and commitment to the implementation of the recommendations made. Addressing this challenge requires concerted efforts from all national stakeholders to regularly engage with the international human rights system.

Broadly speaking, the introduction of DHRTTDs may counter such challenges and facilitate human rights implementation in various ways, including by:

- Tracking and thematically clustering recommendations and decisions by UN and regional human rights mechanisms
- Linking specific recommendations to the SDGs
- Identifying responsible government ministries and/or agencies for their implementation as well as NHRIs and CSOs for their monitoring
- Developing follow-up plans, including timelines with all relevant domestic actors, to facilitate a coordinated monitoring of implementation
- Managing information regarding the implementation of human rights standards and recommendations

The current digitalization of the international human rights framework has the potential to shape a brighter future for human rights implementation. However, it also brings about new challenges. As mentioned above, digitalization is reshaping traditional human rights monitoring and implementation practices which requires adaptation in the way in which data is collected and ultimately used. There is also a critical need to bridge the gap between the engineering community's level of awareness of human rights standards/procedures and the human rights community's limited grasp of technologies. The complex relationship between technologies and human rights can lead to trade-offs between different rights and mechanisms. Without clear guidance, technology designers may prioritize certain rights or mechanisms over others, influenced by coding complexity or cost considerations. The proliferation of diverse ethical standards further complicates matters. Yet another deficiency lies in the fact that researchers and policymakers tend to disproportionately emphasize specific technological systems or concentrate their efforts on addressing the negative consequences they bring about. Concerns related to the influence of new

12 For more information on technology as a response to human rights implementation challenges see Danish Institute for Human Rights (DIHR), *Report on the International Seminar on National Mechanisms for Implementation, Reporting and Follow-up in the Field of Human Rights, Marrakech, 7-8 December 2022*, 2023 pp 63–72, https://www.humanrights.dk/files/media/document/DIHR_Report-on-the-International-Seminar-on-National-Mechanisms_EN.pdf (last accessed 29 February 2024).

technologies on freedom of expression,[13] online hate speech,[14] disinformation[15] and privacy[16] have received considerable attention whereas the role of technology in monitoring and implementing international human rights standards and recommendations has been relatively underexplored.[17]

DHRTTDs, an acronym introduced by the GHRP, encompass a wide array of digital solutions designed to enhance the monitoring, documentation and analysis of human rights practices. These tools and databases serve a pivotal role in human rights monitoring, whether by tracking the status of implementation of recommendations from regional and UN human rights mechanisms – effectively integrating these efforts with the SDGs – classifying governments' human rights practices vis-à-vis their international obligations or serving as repositories of information useful for human rights reporting.

In broad terms, DHRTTDs may be divided into three main categories:[18]

1. **Digital human rights tracking tools**: These are specialized in monitoring the lifecycle of human rights recommendations, identifying progress (or lack of implementation) and responsible domestic actors whilst ensuring alignment with the SDGs to promote an integrated approach to human rights and development. Especially for this category, it is essential to differentiate between two types of tracking tools: those that are open-source and public, aiding in state accountability through public scrutiny, and those that are internal, enhancing governments' information management capabilities. While notable exceptions exist, the former can be managed by NHRIs, NGOs, or the UN Secretariat and UN agencies, and the latter primarily supports NMIRFs' operational needs.

2. **Human rights measurement projects**: Utilizing social science or sophisticated methodologies such as AI and ML, these projects develop indicators and indices to assess human rights conditions quantitatively. This assessment can be thematic or encompass a country's overall human rights landscape, providing a measurable and analytical perspective on human rights issues.

3. **Human rights databases**: These are comprehensive repositories that aggregate a vast array of human rights recommendations, case law and international standards. They serve as crucial resources for reference and research, offering easy access to detailed human rights information.

These digital solutions are designed to document, monitor and track human rights implementation efforts by a variety of national and international stakeholders. Today, the development and upkeep of DHRTTDs are collaborative efforts involving a diverse range of stakeholders. This includes the UN Secretariat and UN agencies, such as OHCHR,[19] UNICEF[20] and UN Women;[21] regional intergovernmental organizations and agencies such as the Organization of American States,[22] the Council of Europe[23] and the European Union Agency for Fundamental Rights;[24] governmental entities such as NMIRFs;[25] as well as NHRIs[26] and CSOs.[27] Additionally, the academic sector is instrumental, especially in the field of human rights measure-

13 E.g. Council of Europe, The Impacts of Digital Technologies on Freedom of Expression, Recommendation CM/Rec(2022)13, 2022, https://edoc.coe.int/en/international-law/11101-the-impacts-of-digital-technologies-on-freedom-of-expression-recommendation-cmrec202213.html (last accessed 29 February 2024).

14 E.g. The UN Office on Genocide Prevention in Collaboration With the Economic and Social Research Council (ESRC) Human Rights, Big Data and Technology Project, University of Essex, *Countering and Addressing Online Hate Speech: A Guide for Policy Makers and Practitioners*, July 2023, https://www.un.org/en/genocideprevention/documents/publications-and-resources/Countering_Online_Hate_Speech_Guide_policy_makers_practitioners_July_2023.pdf (last accessed 29 February 2024).

15 E.g. Disinformation and Freedom of Opinion and Expression: Report of the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression, Irene Khan, UN doc A/HRC/47/25, 13 April 2021.

16 E.g. Report of the Special Rapporteur on the right to privacy, Ana Brian Nougrères: Principles of Transparency and Explainability in the Processing of Personal Data in Artificial Intelligence, UN doc A/78/310, 30 August 2023; United Nations Development Programme (UNDP) Istanbul Regional Hub, *The Impact of Digital Technology on Human Rights in Europe and Central Asia: Trends and Challenges Related to Data Protection, Artificial Intelligence and Other Digital Technology Issues*, 2023, https://www.undp.org/eurasia/publications/impact-digital-technology-human-rights-europe-and-central-asia (last accessed 29 February 2024).

17 See Zipoli, *National Human Rights Strategies*, supra fn 7; Zipoli, *The Emergence of Digital Human Rights Tracking Tools and Databases*, supra fn 6; Grimheden, 'The Use of IT for Compliance with Supranational Bodies', supra fn 5; DIHR, *Report on Country Experiences with HR-SDG Integrated National Mechanisms for Implementation, Reporting and Follow-Up*, July 2021, https://www.humanrights.dk/sites/humanrights.dk/files/media/document/COUNTRY%20EXPERIENCES%20WITH%20HR-SDG%20INTEGRATED%20NATIONAL%20MECHANISMS__ENG_accessible.pdf (last accessed 29 February 2024).

18 For a selection of key DHRTTDs see the DHRTTD Directory, https://www.geneva-academy.ch/geneva-humanrights-platform/tracking-tools (last accessed 29 February 2024).

19 OHCHR Databases, https://www.ohchr.org/en/resources/databases; Universal Human Rights Index (UHRI), https://uhri.ohchr.org/en/; National Recommendations Tracking Database (NRTD), https://nrtd.ohchr.org/en (last accessed 29 February 2024).

20 UNICEF Regional Office for Europe and Central Asia, Transformative Monitoring for Enhanced Equity (TransMonEE), https://www.transmonee.org/ (last accessed 29 February 2024).

21 UN Women, GenTRACK Arab States, https://data.unwomen.org/arab-states/overview (last accessed 29 February 2024).

22 Organization of American States, SIMORE Interamericano, https://www.oas.org/ext/es/derechos-humanos/simore/ (last accessed 29 February 2024).

23 Council of Europe, Human Rights Documentation (HUDOC), https://www.echr.coe.int/hudoc-database.

24 European Union Agency for Fundamental Rights, EU Fundamental Rights Information System (EFRIS) https://fra.europa.eu/en/databases/efris/ (last accessed 29 February 2024).

25 E.g. Ministry of Foreign Affairs and Ministry of Justice of Paraguay, Sistema de Monitoreo de Recomendaciones Plus (SIMORE Plus), https://www.mre.gov.py/simoreplus/; National Mechanism for Implementation Reporting and Follow-Up of Samoa, SADATA, https://sadata.ws/ (last accessed 29 February 2024).

26 E.g. Equality and Human Rights Commission, Human Rights Tracker, https://humanrightstracker.com/en/; Norwegian National Human Rights Institution, NIM Human Rights Tracker, https://www.nhri.no/en/recommendations/ (last accessed 29 February 2024).

27 E.g. HURIDOCS, Uwazi, https://uwazi.io/; ILGA World, ILGA World Database, https://database.ilga.org/en; CCPR Centre, World Map on ICCPR Implementation, https://ccprcentre.org/ccprpages/follow-up-procedure-on-recommendations-of-the-un-human-rights-committee and CCPR Centre Database and Case Law Briefs, https://ccprcentre.org/database-decisions/ (last accessed 29 February 2024). For a selection of key human rights databases developed, amongst others, by CSOs, see the DHRTTD Directory, supra fn 18.

ment, in innovating methodologies that enhance the global understanding and tracking of human rights practices.[28]

Collectively, these varied digital solutions contribute to a more knowledgeable, accountable and effective human rights ecosystem, and to providing essential capabilities for monitoring, recording, analysing and disseminating human rights information in alignment with the SDGs. Their purpose extends beyond mere documentation; they serve as instruments of change, promoting accountability and transparency by holding duty-bearers responsible for their actions and keeping rights-holders informed of their government's actions.

The ensuing analysis revolves around three central common themes and related challenges specific to the development and use of DHRTTDs, namely accessibility, sustainability and interoperability. By addressing these themes and challenges, the intention is to reflect on the varied nature of these digital solutions and contribute to their effective development and use by interested stakeholders.

28 E.g. Human Rights Measurement Initiative, Rights Tracker, https://rightstracker.org/; University of Rhode Island, Binghamton University and University of Connecticut, CIRIGHTS https://cirights.com/; University of North Carolina-Asheville, The Political Terror Scale, https://www.politicalterrorscale.org/; University of Georgia, University of Michigan and Arizona State University, Sub National Analysis of Repression Project (SNARP), http://snarpdata.org/ (last accessed 29 February 2024). For an overview of the state-of-the-art on how human rights has been advanced by quantitative measurement see M.G ibneyandP.Haschke,'Special Issue on Quantitative Human Rights Measures',19 *Journal of Human Rights* 1(2020)1-2.

3. ACCESSIBILITY OF DHRTTDs: ENSURING INCLUSIVITY AND EQUAL PARTICIPATION

The concept of accessibility in the context of DHRTTDs is multifaceted and crucial for ensuring that these tools effectively serve a wide array of stakeholders, including international and regional organizations, NMIRFs, NHRIs, CSOs and individuals.

Accessibility in this sense goes beyond mere availability; it encompasses the ease of use, inclusivity and adaptability of these tools to meet the diverse needs of users. In order to unpack the key aspects of DHRTTD accessibility, the analysis will turn to three core aspects: the variance in access models and their impact on utility and reach, accessibility for persons with disabilities and linguistic diversity.

A. OPEN, LIMITED AND HYBRID ACCESS MODELS

The concept of accessibility in the context of DHRTTDs firstly pertains to the availability and usability of these tools for a wide or restricted range of stakeholders. It is a critical factor that shapes their utility, reach and effectiveness in human rights monitoring and implementation. Central to this discussion is the distinction between open, limited and hybrid access models, each presenting unique implications for the functionality and impact of these tools.

Open access DHRTTDs are characterized by their public availability, allowing anyone to access them. This model is instrumental in fostering transparency, encouraging broad participation and democratizing the flow of human rights information. Such open access tools have the potential to reach a diverse audience, encompassing international civil servants, government officials, civil society, researchers, academics and the general public. This widespread accessibility can significantly enhance awareness and engagement in human rights issues, contributing to a more informed and active society as well as facilitating greater collaboration across different sectors. Open access democratizes information and empowers various actors to contribute to a comprehensive understanding of human rights progress.[29] This model's main strengths and challenges include:

- **Inclusivity:** One of the primary strengths of open access is its ability to empower marginalized groups and smaller organizations. By providing unres-

29 S. Dubberley, A. Koenig and D. Murray (eds), *Digital Witness: Using Open Source Information for Human Rights Investigation, Documentation, and Accountability*, Oxford University Press, 2019.

tricted access to human rights data, these tools enable entities with limited resources to participate actively in human rights discourse and action.

- **Data sensitivity:** A major challenge with open access is balancing the need for openness with the protection of sensitive information. Care must be taken to ensure that data, especially if it includes identifiable details of vulnerable individuals or groups, is not misused or does not lead to harm.
- **Quality and misinformation:** Maintaining the accuracy and quality of data is crucial, particularly in platforms that may allow user-generated content. Open access tools must have robust mechanisms to verify information and prevent the spread of misinformation.

Limited access models restrict the availability of DHRTTDs to specific user groups, often based on defined criteria such as professional affiliation. This may restrict access to government entities or select CSOs through specific permissions. This model is typically employed to protect sensitive information, ensure data security and comply with legal and ethical standards. Limited access can be essential in contexts where the data involves vulnerable populations, confidential information, or where there is a high risk of misuse. At the same time, limiting access can reduce the tool's reach and restrict public engagement with human rights issues. This exclusivity can impact the tool's overall effectiveness in raising awareness and fostering transparency. The model's main strengths and challenges include:

- **Privacy and security**: The primary advantage of limited access is the protection it offers to sensitive data. It ensures that information about vulnerable individuals or sensitive situations is not accessible to potential perpetrators or misused for harmful purposes.
- **Exclusivity and bias**: A significant concern with limited access is the potential exclusion of key stakeholders, especially those from grassroots or marginalized communities. This can lead to a skewed perspective in human rights monitoring and reporting, as the voices of some groups may be underrepresented.
- **Verification and accountability**: Tools with limited access must implement stringent verification processes to ensure the authenticity and accuracy of the data. Additionally, accountability mechanisms should be in place to monitor how selected users utilize and handle the data.

Both DHRTTD models have their unique strengths and challenges. The choice between open and limited access should be guided by the nature of the data, the intended use of the tool and the stakeholders involved. For some DHRTTDs, a *hybrid model* might be most effective, providing open access to general information while restricting sensitive details. Key factors in this balance include:

- **Purpose of the tool**: The primary function of the DHRTTD (e.g. tracking government action, policy-making, research, advocacy) can dictate the appropriate level of access.
- **Stakeholder needs and risks**: Understanding the needs of different stakeholder groups, including marginalized communities, and assessing the potential risks to these groups is essential.
- **Legal and ethical obligations**: Compliance with data protection laws and ethical standards is crucial in determining access levels.

Balancing openness with privacy and security considerations is key to maximizing the utility of these tools while protecting the rights and safety of individuals and communities.

NRTD, IMPACT OSS AND SIMORE PLUS AS EXAMPLES OF DIFFERENT ACCESS MODELS

Three prominent digital human rights tracking tools exemplify the limited, open and hybrid access models. Each model, with its distinct characteristics, offers unique benefits and faces specific challenges.

OHCHR's National Recommendations Tracking Database[30] (NRTD): The NRTD is an interactive web application designed to help states plan and track the realization of their human rights obligations and the SDGs. Through improved digital information management, the NRTD supports states in their work by tracking the implementation of recommendations received from UN human rights mechanisms and reporting to these mechanisms.[31] The NRTD follows a limited access model, thus ensuring that sensitive human rights data is well protected, reducing the risk of misuse or harm that could arise from wider public access. The targeted nature of this model means that the tool is utilized efficiently for its intended purposes, with inputs managed by trained and authorized personnel. Limiting access to a select network of focal points from ministries or state agencies not only promotes ownership among users but also enhances accountability and facilitates coordination by reducing the risk of indiscriminate input, thereby streamlining the tool's effectiveness and data integrity.This controlled environment facilitates a higher degree of quality control over the data, ensuring accuracy and reliability. However, the NRTD's limited access model also poses certain challenges. It can lead to exclusivity, potentially barring important stakeholders like CSOs or marginalized groups from accessing and contributing to the database. This exclusivity might result in a limited range of viewpoints and data sources, potentially introducing biases in the data collected and the analyses conducted. Furthermore, the restricted access could raise transparency issues, as the wider public, researchers and independent entities may not have the opportunity to scrutinize the data. That said, this exclusivity fully rests with the government managing its national version of the NRTD, as the tool itself does not prevent tout court the provision of access for NHRIs, CSOs and other stakeholders. Addressing transparency issues and enhancing monitoring by external

30 NRTD, supra fn 19.

31 Users of the NRTD are representatives from the NMIRF and human rights focal points in different ministries of the country in question. The NRTD also allows users to upload recommendations from regional human rights mechanisms in collaboration with their respective secretariats.

stakeholders, the OHCHR plans to make certain sections available through a public interface, contingent upon government willingness and criteria regarding the disclosure of information on this platform.

IMPACT OSS: IMPACT OSS is an open source software (OSS) for Integrated Management and Planning of ACTions (IMPACT) that is maintained by the Impact Open Source Software Trust.[32] IMPACT OSS is a digital human rights tracking tool created to assist states with coordinating and monitoring the implementation of international human rights recommendations and the SDGs, and to communicate implementation progress to the public. The software has now been expanded to allow incorporating additional "frameworks" such as national development plans as well as human rights recommendations from national bodies. As the name suggests, IMPACT OSS operates on an open access model and allows a broad spectrum of stakeholders, including the general public, to access and contribute to the platform.[33] This inclusivity fosters greater transparency, aligning with the principles of open data and knowledge sharing. However, this model is not without its challenges. Open systems like IMPACT OSS are more susceptible to data integrity concerns, due to the potential unwillingness of government to make actions public and transparent. Additionally, managing an open access platform often requires significant resources to ensure the system's reliability and up-to-date access to the public.

SIMORE Plus (Sistema de Monitoreo de Recomendaciones en Derechos Humanos): SIMORE Plus [34] is a digital human rights tracking tool initially introduced by Paraguay as a joint initiative between its ministries of foreign affairs and justice and the OHCHR Paraguay office. It is now used in multiple Latin American countries including Chile, the Dominican Republic, Guatemala, Honduras, Uruguay, Argentina and Costa Rica as well as by the Organization of American States (OAS).[35] It tracks the implementation of recommendations from UN human rights mechanisms and the Inter-American Court of Human Rights (IACtHR). In each country where it operates, SIMORE Plus operates as a hybrid model in terms of accessibility:

- **Open access:** It compiles and systematizes recommendations and decisions from the UN and the IACtHR, linking them to the SDGs and relevant implementing ministries and state institutions. This ensures public access to updated information on international human rights recommendations and decisions as well as on progress made in their implementation.
- **Limited access:** SIMORE Plus facilitates the preparation of national reports and investigations on human rights situations. Government representatives can provide input on recommendation progress. CSOs can also register and provide comments on progress, promoting transparency and accountability. These comments are shared with administrators and relevant ministries, enhancing citizen participation.

In summary, the NRTD's limited access model prioritizes data security and targeted usage but may encounter challenges related to inclusivity and transparency. In contrast, IMPACT OSS's open access model promotes inclusivity and transparency but necessitates vigilant management of data quality. SIMORE Plus is a valid alternative to the two categories, providing distinct spaces with open and limited access features depending on the nature of the function. The choice between these models should be guided by the specific objectives of the tool, the nature of the data it handles and the needs and capacities of the stakeholders it serves.[36]

B. WEB ACCESSIBILITY

Web accessibility is a fundamental component in the design and operation of DHRTTDs, ensuring that these platforms are not only universally accessible but also user-friendly for all individuals, including persons with disabilities. As such, it is important to facilitate active and inclusive participation of all stakeholders, including persons with disabilities, in the development of DHRTTDs, which must be designed with accessibility features that cater to people with visual, auditory, cognitive or motor impairments.

The importance of web accessibility in DHRTTDs is multifaceted. Firstly, it embodies the ethical obligation to uphold the principle of inclusivity in all spheres of society and to ensure access to enabling environments created by, for and with persons with disabilities.[37] As the first UN Special Rapporteur on the rights of persons with disabilities, Catalina Devandas-Aguilar has pointed out, 'when accessible information and communications are not available, a range of persons with different

32 Impact Open Source Software Trust, IMPACT OSS, https://impactoss.org/impactoss/ (last accessed 29 February 2024).

33 Different user roles are enabled by IMPACT OSS. 'Administrators' have access to the full range of functionality and can add/edit all recommendations and content, as well as create other users and manage page content. 'Managers' are responsible for data collection. They can upload data and approve uploads made by 'Contributors', who are responsible for creating (and publishing) progress reports and upload data for indicators they have been assigned to (by Administrators and Managers). 'Guests' who may be CSOs or any other monitoring entity can create progress reports and upload data but not publish it. This tiered system of users enables a collaborative approach across ministries and with external stakeholder engagement. User types can be adapted to suit any particular country context.

34 SIMORE Plus, supra fn 25. For an analysis of different national versions of SIMORE Plus see the DHRTTD Directory, supra fn 18.

35 The main users in the SIMORE Plus structure are its focal points – governmental officers who work in human rights-related offices, with the role of reporting on the implementation of their respective assigned recommendations. The focal points come from the three branches of the government, as well as from other national institutions, such as the NHRI. CSOs may also provide input to the tool through a dedicated, interactive platform embedded in the tool: OSC-Plus.

36 See N. Isama, 'The Importance of Accurate, Verified Human Rights Data', Sunlight Foundation, 14 March 2016: 'And not only should the data be trusted, but how governments reach their conclusions is equally important: Without accompanying open data with transparent methodologies even absent clear reasons to suspect manipulation of national statistics — true legitimacy is impossible, especially when statistics differ from prevailing public sentiment.' https://sunlightfoundation.com/2016/03/14/the-importance-of-accurate-verified-human-rights-data/ (last accessed 29 February 2024).

37 UNGA Res 70/1, 21 October 2015, §4: 'As we embark on this great collective journey, we pledge that no one will beleft behind. Recognizing that the dignity of the human person is fundamental, we wish to see the Goals and targets met for all nations and peoples and for allsegments of society. *And we will endeavour to reach the furthest behind first.*' (Emphasis added).

disabilities cannot effectively benefit from public policies and programmes'.[38] Human rights tools and databases should be exemplars of this principle, embodying the values they seek to promote. If made accessible, DHRTTDs become usable by a broader audience, encompassing people with various disabilities such as visual impairments, hearing loss or motor difficulties. This inclusivity is not just a matter of convenience but a necessity to ensure that these tools serve diverse communities equitably. Implementing web accessibility standards, such as the Web Content Accessibility Guidelines (WCAG),[39] is a tangible way to demonstrate this commitment. These guidelines offer a comprehensive framework for making web content more accessible, including recommendations for text, images, sound and code structure. For more information on WCAG, see Box below.

Compliance with international human rights standards is another significant consideration. The 2030 Agenda for Sustainable Development calls upon countries to ensure public access to information, as embedded in Indicator 16.10.2, and to enabling environments created by, for and with persons with disabilities, in accordance with the UN Convention on the Rights of Persons with Disabilities (CRPD). In this regard, the CPRD recognizes equality for persons with disabilities in accessing information as an essential prerequisite and it places the right to information in the context of disability accessibility.[40] Moreover, many regions around the world have established laws and regulations that mandate web accessibility.[41] Adhering to these legal requirements is crucial for DHRTTDs, not only to avoid legal repercussions but also to demonstrate a commitment to universal human rights standards.

Another aspect of web accessibility is the concept of universal design. An accessible DHRTTD is typically more user-friendly for all users, with or without disabilities. Features that make a website accessible, such as clear navigation, readable fonts and straightforward layouts, generally enhance the overall user experience and make the interface more intuitive. This approach to design ensures that DHRTTDs are not only compliant with accessibility standards but also more efficient and easier to use for everyone.

By prioritizing web accessibility, DHRTTDs not only become more inclusive and effective but also align with broader ethical and legal standards, reinforcing the commitment to human rights for all individuals. A number of best practices for implementing web accessibility for DHRTTDs may be highlighted for further development.

38 Report of the Special Rapporteur of the Human Rights Council on the rights of persons with disabilities, Catalina Devandas-Aguilar, UN doc A/71/314, 9 August 2016, §32.

39 World Wide Web Consortium (W3C) Web Accessibility Initiative (WAI), Web Content Accessibility Guidelines (WCAG) 2.2, 5 October 2023, https://www.w3.org/TR/WCAG22/ (last accessed 29 February 2024).

40 Arts 9(1) and 21(a), Convention on the Rights of Persons with Disabilities.

41 Access to Information (ATI) laws in several countries acknowledge the importance of accessibility of information to persons with disabilities. Based on an analysis of the 132 countries with ATI laws in 2022, 37 countries explicitly refer to persons with disabilities and their rights, to varying degrees. For more information, see L. Ayoubi, *Access to Information Laws: A Guarantee of Inclusion and Disability Rights*, UNESCO Issue Brief, 2022, https://unesdoc.unesco.org/ark:/48223/pf0000380470 (last accessed 29 February 2024).

Firstly, it is essential to ensure *responsive design* to make DHRTTDs functional and user-friendly across various devices, particularly smartphones and tablets. This approach dynamically resizes content and adapts layouts, providing an optimal viewing experience for users with mobility or vision impairments. Secondly, *keyboard navigation* plays a pivotal role in accessibility. It allows users who cannot use a mouse, such as persons with motor disabilities, to operate all DHRTTD features efficiently. This includes features like tab navigation, keyboard shortcuts and comprehensive keyboard accessibility for all interactive elements. To cater to visually impaired users, *screen reader compatibility* is crucial. This involves ensuring that DHRTTDs work seamlessly with screen reader software like JAWS and VoiceOver. It allows visually impaired users to comprehend and interact with content by converting text into synthesized speech. Additionally, providing *alternative text (alt text)* for images and optimizing all elements and navigation menus for screen readers is vital. Adjustable text sizes and high-contrast colour schemes are important for *contrast and text size* customization. This empowers users with visual impairments to enhance readability and usability by allowing them to adjust text size and contrast settings according to their preferences. For users with hearing impairments, closed captioning and transcripts are essential. These features provide accessibility to multimedia content by offering closed captioning for videos and clear, comprehensive transcripts for audio files. Accurate and synchronous captions ensure a complete and understandable experience.

To continually improve accessibility, *regular testing* is crucial. Routine accessibility audits and user testing, ideally involving participants with disabilities, should encompass various aspects of the site, including navigation, content accessibility and interactivity. Moreover, it is imperative to focus on *training and awareness* among DHRTTD developers. Regular training sessions on web accessibility principles and best practices are essential. These should cover legal requirements, familiarity with accessibility tools and testing methods and an understanding of the diverse needs of users with disabilities. Finally, the inclusion of a *feedback mechanism* allows users to report accessibility issues and provide suggestions for improvement. Incorporating user-friendly mechanisms such as feedback forms, contact information or discussion forums ensures ongoing enhancements in DHRTTD accessibility and usability.

ADHERENCE TO THE WEB CONTENT ACCESSIBILITY GUIDELINES (WCAG)

The Web Content Accessibility Guidelines (WCAG)[42] are a critical set of recommendations designed to make web content more accessible, particularly for persons with disabilities. For DHRTTDs, adherence to WCAG is not just a matter of compliance, but a commitment to inclusivity and universal access. These guidelines provide a comprehensive framework that, when implemented, significantly enhances the accessibility of DHRTTDs, ensuring that they cater to a diverse range of users. Compliance with different levels of WCAG standards (A, AA or AAA) enhances the accessibility of DHRTTDs for a diverse user base.

42 WCAG, supra fn 39.

WCAG's recommendations are structured around four key principles: content must be perceivable, operable, understandable and robust. This framework ensures that all users, regardless of their abilities or disabilities, can access and interact with web content effectively.

- **Perceivable**: This principle emphasizes that information and user interface components must be presented in ways that are discernible to all users. For DHRTTDs, this means incorporating features like alt text for images, which is crucial for visually impaired users who rely on screen readers. It also involves ensuring that text content is easily readable, with options for users to customize display settings to suit their visual needs, such as adjusting font size or colour contrasts.
- **Operable**: The operability of web content is essential. Users must be able to navigate and interact with a website regardless of how they access it. This includes keyboard navigability for those who cannot use a mouse, providing sufficient time for all users to read and interact with content and designing interfaces that prevent elements known to cause seizures. For DHRTTDs, ensuring operability means that all functionalities, from data entry to report generation, are accessible through various means of interaction.
- **Understandable**: The information and operation of the user interface must be understandable. This involves creating a consistent and predictable experience across the platform. Navigation should be intuitive, with clear instructions and feedback mechanisms. For DHRTTDs, this might involve straightforward guidance on how to input data, search for information or interpret results, ensuring that users from diverse backgrounds can utilize the tool without confusion.
- **Robust**: Finally, content must be robust enough to be interpreted reliably by a wide range of user agents, including assistive technologies. This means using standard HTML tags, ensuring compatibility with different browsers and devices and considering future technological advancements. For DHRTTDs, robustness ensures that the tools remain functional and accessible as technology evolves, and as users employ various devices and software to access them.

By integrating these principles and technologies, DHRTTDs can significantly improve their usability and accessibility, making human rights information and tools more inclusive and effective for diverse user groups, including those with disabilities. Web accessibility is not just a technical requirement for DHRTTDs but a reflection of their commitment to human rights principles. By adhering to WCAG and embracing the above best practices, these tools can ensure that they are not only legally compliant and ethically sound but also more effective and user-friendly for a diverse global audience. This approach strengthens the foundations of human rights monitoring and advocacy, ensuring that these crucial tools are accessible to everyone who needs them.

C. LANGUAGE DIVERSITY AND LOCALIZATION

Human rights are universal, and the tools used to monitor them should reflect the diversity of languages spoken globally. Ensuring that these tools are available in different and local languages is essential for effective communication and engagement. It allows stakeholders from various linguistic backgrounds to comprehend and contribute to the data collection process. Additionally, local languages enable grassroots organizations and communities to actively participate in human rights monitoring, thereby fostering a more accurate representation of on-the-ground realities. Adapting these tools to diverse languages is a crucial step towards ensuring that no voice is left unheard in the pursuit of human rights progress. DHRTTDs that cater only to a limited number of languages may inadvertently exclude significant populations. This limitation can hinder the collection of comprehensive data, reduce the effectiveness of human rights monitoring and impede the participation of various groups in human rights monitoring and implementation.

The *challenges* posed by language diversity for DHRTTDs are multifaceted, impacting accessibility, accuracy, cultural sensitivity and resource allocation. Addressing these challenges is crucial to ensure that human rights information is universally accessible and effective.

Accessibility is a primary concern in diverse linguistic contexts. Human rights information must be approachable and understandable to people globally, irrespective of their primary language. The exclusion of non-English speakers is a significant issue, as a considerable portion of the global population does not speak English. Relying solely on English in DHRTTDs can inadvertently marginalize these individuals, denying them access to essential human rights information. Furthermore, support for minority languages is critical. Many communities speak languages that are not widely recognized on global platforms, and providing content in these languages is crucial for inclusivity, especially for indigenous and minority groups.

Accuracy in translation is another critical challenge. Ensuring the precise translation of human rights content is vital, as poor translations can lead to misunderstandings and misinterpretations of critical information. This is not merely a linguistic issue but a matter of conveying the correct legal and situational nuances. Misinterpretation risks are high with poor or inaccurate translations, which can affect monitoring and implementation outcomes and effective human rights advocacy. Accurate translation often requires translators who are not only linguistically skilled but also familiar with legal and human rights terminology.

Finally, providing multilingual support is a *resource-intensive* endeavour. Hiring skilled translators and interpreters can be costly. Additionally, developing and maintaining multilingual platforms requires significant investment in technology and ongoing support. Effective multilingual support often relies on advanced technologies like AI-driven translation tools, which require continuous development and updates.

Addressing these challenges involves a multifaceted approach, integrating technologies and strategies to provide multilingual support, thereby enhancing their effectiveness across different linguistic communities. *Solutions* for multilingual support may include a number of initiatives.

Leveraging AI-driven translation services like Google Translate offers a foundational level of multilingual support, making initial content accessible to a broader audience. However, the nuances of human rights contexts necessitate supplementing these automated tools with human review to ensure accuracy, particularly for legal and technical documents where precision is paramount. Automated tools offer speed and scalability, but human oversight is essential to maintain the cultural and contextual relevance of translations.

Collaborating with local linguists and cultural experts ensures that translations are not only linguistically accurate but also culturally appropriate. Local experts bring an understanding of linguistic nuances and cultural contexts, vital for accurate translation and localization of content. This collaboration helps adapt content in a way that resonates with local cultural norms and practices, thereby enhancing the tool's relevance and effectiveness. The involvement of local experts can also foster trust among local communities, reflecting a commitment to respecting and understanding their language and culture. On the other hand, encouraging the *creation of content in local languages from the outset*, rather than relying solely on translation, can greatly enhance the relevance and accessibility of information. Original content in local languages can better address specific regional human rights issues and narratives, making the information more relatable and effective.

Designing DHRTTDs with *multilingual interfaces* allows users to interact with the tool in their preferred language, enhancing usability. This user-centric design improves accessibility and the overall user experience, making the tool more intuitive and user-friendly for a diverse audience. Implementing such a design requires careful planning in the tool's architecture to accommodate different languages, including right-to-left languages, and ensure seamless language switching.

Regular updates and quality checks are essential to maintain the accuracy and relevance of translations. Languages evolve, and terminologies, especially in the human rights context, can change. Implementing a robust quality assurance process, including periodic reviews by professional translators or native speakers, ensures ongoing accuracy. Incorporating user feedback can help identify and correct errors or areas for improvement in translations.

Implementing text-to-speech and speech-to-text features can aid users who are more comfortable with spoken language, especially in regions with strong oral traditions. Text-to-speech technology enhances accessibility for illiterate users, while speech-to-text features facilitate content submission for those more comfortable speaking than writing. Ensuring these features support a wide range of languages and dialects is key to their effectiveness.

Finally, beyond literal translation, *adapting content to reflect local idioms and cultural references* can improve understanding and engagement. This approach requires a deep understanding of cultural nuances to ensure that the content is respectful and appropriate. Culturally adapted content is more likely to engage users, as it reflects their realities and experiences, enhancing the impact of human rights information and advocacy.

By implementing these strategies, DHRTTDs can overcome the barriers posed by language diversity, making human rights information more accessible and effective across different linguistic communities worldwide.

LANGUAGE DIVERSITY FEATURES FOR UWAZI AND ILGA WORLD DATABASE

Uwazi: Uwazi is an open source web-based database application designed for human rights defenders to manage collections of information. Developed by the leading international non-governmental organization working on technology and human rights–HURIDOCS (Human Rights Information and Documentation Systems)–Uwazi is used by more than 150 human rights organizations worldwide, facilitating the management of large amounts of information such as documents, evidence, cases, complaints, research and materials. Its language diversity feature allows collections to be accessible in multiple languages, supporting over 180 languages, including widely spoken ones such as Chinese, French, Hindi and Spanish, as well as less commonly used languages like Burmese, Kurdish, Quechua and Yoruba.[43]

The Uwazi interface can be translated into various languages, including default options like English, Arabic, Burmese, French, Korean, Russian, Spanish, Thai and Turkish. Customization of interface translations for a collection is possible, enabling manual translation into any enabled language. More specifically, interface translation management is accessible in the 'Settings' section, under 'Translations' and 'User Interface', where untranslated terms can be easily identified using the 'Untranslated Terms' filter.

For bulk translation of interface terms, a CSV file with English terms and corresponding translations can be imported, which proves especially useful when a preferred language lacks a default translation. Alternatively, the 'Live Translate' feature allows interface term translation as encountered within the software, offering context for term usage.

As for collection content, this can be translated into any enabled language. Switching between languages in the main navigation menu results in the Library or Page content being displayed in the selected language.

Translating an Uwazi collection encompasses four key aspects:

43 Uwazi, supra fn 27.

1. Translation of property names, thesauri, relationship types, custom filters and navigation menu items

2. Translation of entity names and content within properties like Text, Rich Text, Image and Media

3. Upload of translated Primary Documents and recreation of Table of Contents and References

4. Translation of custom Pages[44]

HURIDOCS has been instrumental in advancing human rights advocacy worldwide through the innovative development of Uwazi, a platform that enables human rights organizations to leverage information technologies and documentation methods to enhance the effectiveness of their advocacy efforts.

The ILGA World Database: ILGA World is a membership-based federation of more than 1,900 organizations in over 160 countries and territories worldwide, working to advance the human rights of LGBTI people. Research has always been a fundamental part of ILGA World's mandate, but has been revolutionized by tracking tools and databases.

In 2018, a manual mechanism involving approximately 300 Google alerts was established by the research team to monitor LGBTI-related information across media outlets. This process was later automated in 2020, enhancing efficiency while retaining the capability for manual filtration of non-relevant entries. The evolution culminated in the development of the ILGA World Monitor, an automated source aggregator tracking over 18,000 sources in more than 70 languages, yielding an average of 1,700 relevant entries weekly.[45] The project underscored the importance of language diversity, acknowledging that the specificity and nuance of terminology related to sexual orientation, gender identity, expression and sex characteristics (SOGIESC) are crucial for accurate monitoring. The limitations of AI in providing precise translations necessitated the involvement of staff, consultants and members in a comprehensive translation project to ensure both accuracy and cultural sensitivity in reporting. The ILGA World Monitor, primarily an internal tool, laid the groundwork for the ILGA World Database launched in March 2023.[46] This open access knowledge base encompasses laws, human rights bodies, advocacy opportunities and news related to SOGIESC issues across 193 UN member states and 47 non-independent territories allowing everyone to track current and historic progress and backlash. This is a massive wealth of information that can inform not only advocacy and research but also media articles, policy briefs, court rulings or educational work. ILGA's own research has benefited immensely from this: unlike standard reports, which are static, this database offers a dynamic update mechanism that accurately mirrors current developments.

44 More information may be found in the UWAZI Adminstrator's Guide, https://uwazi.readthedocs.io/en/latest/admin-docs/translating-your-collection.html (last accessed 29 February 2024).

45 ILGA World, ILGA World Monitor, https://monitor.ilga.org/ (last accessed 29 February 2024).

46 ILGA World Database, supra fn 27.

To enhance accessibility and inclusivity, the database was made available in English and Spanish, reflecting the organization's bilingual constitution. Despite the lack of funding for further linguistic expansion, efforts were made to communicate the database's utility to users. To this end, ILGA World's communications team developed an animated video, an explainer video and ten other videos featuring human rights defenders globally to elucidate the database's significance. Volunteer contributions were pivotal in ensuring language appropriateness and nuance, with all videos captioned in 14 languages. The organization's commitment to accessibility was further demonstrated through a partnership in 2019 with a consultancy firm led by people with disabilities, who assessed and improved the organization's communications for accessibility, outlining a plan for short-, mid-, and long-term interventions. This initiative marked a pivotal shift in organizational culture towards broader inclusivity, emphasizing the importance of making digital human rights resources comprehensible and accessible to a diverse global audience.

In conclusion, accessibility shapes the effectiveness and reach of DHRTTDs. The choice between open and limited access models should be guided by the nature of the data, the intended use of the tool and the stakeholders involved. The general positives of open access are clear, as it democratizes access to data and potentially maximizes its use and impact. Limited access offers privacy and security benefits by safeguarding sensitive data but raises concerns of exclusivity and bias by potentially excluding key stakeholders, necessitating strict verification and accountability measures for data use. A hybrid approach can be the most effective for DHRTTDs, offering open access to general information while safeguarding sensitive details, striking a balance between transparency and security. This approach ensures wider dissemination of essential insights while preventing potential misuse of confidential data. Ensuring web accessibility and language diversity leads to more accurate data collection and more meaningful implementation of human rights recommendations. This inclusive approach aligns with the core principles of human rights – universality and equity – and is essential for building robust foundations for human rights monitoring and progress at both national and international levels. Enhancing the accessibility and linguistic diversity of DHRTTDs is about ensuring that these tools are not only available but also adaptable and responsive to the varied needs of a global and diverse user base. By doing so, it expands their reach to a broader audience, including young people, persons with disabilities, and linguistic minorities, thereby informing more individuals of their rights and enabling them to use DHRTTDs for advocacy, ultimately empowering rights-holders through increased accessibility.This approach fosters a more inclusive and effective human rights ecosystem, where every stakeholder, regardless of their background or abilities, can contribute to and benefit from the collective effort to uphold and advance human rights.

4. SUSTAINABILITY OF DHRTTDs: ENSURING LONG-TERM VIABILITY AND EFFECTIVENESS

Sustainability is a critical factor in the long-term effectiveness and impact of DHRTTDs. By addressing sustainability issues, stakeholders such as international and regional organizations, NMIRFs, NHRIs and CSOs can ensure that DHRTTDs remain robust, effective and impactful over time.

Sustainability in this context encompasses several key themes that collectively contribute to the enduring success and relevance of these tools: data collection coordination, addressing staff turnover, facilitating user adoption, fostering partnerships, securing investment and funding and navigating the growing role of AI and ML.

A. DATA COLLECTION COORDINATION

A key aspect of sustainability for DHRTTDs is efficient data collection coordination. Establishing or strengthening clear mechanisms for coordinated information gathering and data collection, such as standard operating procedures between focal points within government ministries or institutions,[47] or between national statistics offices and UN agencies,[48] ensures that relevant and accurate information is consistently gathered. Focal points act as liaisons, streamlining the process and facilitating consistent reporting. By standardizing data collection practices and maintaining strong communication channels, sustainability is enhanced, preventing information gaps that may arise due to inconsistent or sporadic reporting. However, coordinating data collection efforts across multiple organizations and regions presents significant complexities for DHRTTDs. These challenges manifest in various forms, impacting the effectiveness and reliability of human rights data.

Data inconsistency is a major issue. Different entities often collect data using diverse methodologies, leading to incompatible datasets that are difficult to integrate. This inconsistency can be seen in the varied indicators used to measure specific human rights issues, resulting in data that cannot be easily compared or aggregated. Additionally, non-standardized data formats pose a challenge: data collected by one agency might be in a format that is not usable by another without significant processing. This could include differences in coding systems or languages. Temporal misalignments further complicate matters, with some organizations reporting annually and others on different cycles, making synchronicity challenging.

47 E.g. SIMORE Plus, supra fn 25.

48 E.g. TransMonEE, supra fn 20.

For DHRTTDs data inconsistency challenges may include:

- **Interoperability issues**: If these platforms need to interact with other data systems that have different formats, standards or methodologies for collecting and recording data, this could lead to difficulties in merging and analysing data comprehensively.
- **Lack of update synchronicity**: Timely updates are crucial. If data is not synchronized across systems, this can lead to discrepancies that affect accuracy and reliability.
- **Diverse user interfaces**: Different user interfaces and experiences can result in varied data input quality, potentially affecting the consistency of the data collected.
- **Lack of version control**: Without strict version control, different iterations of the same document or data entry could create confusion and inconsistencies.
- **Translation and localization issues**: As these tools are used across different countries, ensuring consistent translation and localization can be challenging, potentially leading to data misinterpretation.

Addressing these challenges involves continuous technical refinement, user training and the development of strict guidelines for data entry and management. This ensures that human rights data is coherent, comparable and useful for monitoring and advocacy purposes.

SIMORE PLUS AND IMPACT OSS DATA COLLECTION COORDINATION STRATEGIES

SIMORE Plus: SIMORE Plus is a practical example of a tracking tool designed to address the challenges of data collection coordination by NMIRFs in human rights monitoring and implementation. SIMORE Plus is a tracking tool designed to track the implementation of recommendations from the UN human rights mechanisms and cases from the IACtHR and to identify links to the SDGs and their targets. It does so by standardizing the data collection process by providing a common framework for tracking the status of implementation. In Paraguay, the SIMORE Plus User Regulations establish the creation of a network of focal points belonging to public institutions of the executive, judicial and legislative branches of government and other relevant institutions responsible for the implementation and follow-up of the recommendations. Through the use of SIMORE Plus, government officials may address overlaps and inconsistencies by aggregating the data in a uniform format, which allows for better comparison and analysis across different issuing bodies and time periods. This centralization helps overcome the challenge of disparate reporting methods and recommendations, enabling stakeholders to draw meaningful insights and make informed decisions on implementation and follow-up based on reliable and coherent data.[49]

49 Zipoli, *National Human Rights Strategies*, supra fn 7.

IMPACT OSS: The IMPACT OSS clustering process is an excellent example of streamlining data collection. After adding recommendations to a national version of IMPACT OSS, administrators can efficiently organize and cluster them to manage overlap. Combined with its filtering possibilities, its batch editing capabilities allow clustering and tagging recommendations and actions in just a few clicks. This streamlined data collection ensures that uploaded data is tracked against each recommendation, eliminating duplication. For example, if a state has received six recommendations to establish an NHRI across its UPR and most recent reviews of the Convention on the Elimination of All Forms of Discrimination against Women and Convention on the Rights of the Child then any data uploaded will be tracked against each recommendation, eliminating any duplication. IMPACT OSS also strikes a balance between batch editing capabilities and the need for punctual human inputs and, consequently, the clustering system can accommodate directly overlapping, partially overlapping and distinct recommendations. Following clustering, administrators can add implementing actions. This process typically involves first entering planned and budgeted actions from existing national, sectoral and ministerial plans. Subsequently, administrators use another feature of IMPACT OSS to identify implementation gaps and add additional actions to address them.

Without tools like IMPACT OSS or SIMORE Plus, conducting a comprehensive gap analysis of the implementation of recommendations might be an onerous task. These tools can perform this analysis within seconds, with the user defining the scope, whether it be a state's entire human rights obligations, specific conventions, affected persons, ministries or other criteria.

Technical disparities and resource limitations among developers may pose significant challenges in maintaining DHRTTDs. There may be significant differences in the technical capabilities and resources of organizations, leading to challenges in maintaining a consistent data collection approach. Technical disparities refer to differences in the technological infrastructure, expertise and resources available to various stakeholders developing DHRTTDs. Resource limitations in the context of human rights data collection are also a critical challenge. This encompasses not just financial constraints but also limitations in terms of skilled personnel. Many human rights organizations and entities struggle with limited budgets, which can restrict their ability to invest in necessary technologies, maintain databases and hire or train staff for data collection and analysis.

Challenges in this regard include:

- **Resource limitations**: Adequate funding and staffing are crucial for systematic data collection, which is often a challenge for many organizations.
- **Varied IT infrastructure and technology gaps**: Different organizations might have varying levels of IT infrastructure, affecting their ability to access and utilize data platforms effectively.
- **Skills gaps and training deficits**: There may be disparities in the technical skills of staff across organizations, with some users being less equipped to handle complex digital tools, leading to inconsistent data entry or analysis. Due to budget constraints, staff often miss out on essential training for data handling and software usage.
- **Maintenance and support issues**: Continuous technical support and system maintenance can be challenging, especially for organizations with limited IT staff or expertise, leading to inconsistent data entry or analysis. Ongoing funding uncertainties can impact the long-term sustainability of data collection projects.
- **Staff shortages and dependency on voluntary work**: Many organizations lack the personnel needed for comprehensive data collection and analysis whilst reliance on volunteers can lead to inconsistencies and discontinuities in data collection efforts.

These challenges underscore the need for context-sensitive support systems and capacity-building initiatives. Ensuring that all users, regardless of their technical starting point, can fully engage with these tools is crucial for the effective implementation and utilization of DHRTTDs. Addressing these technical disparities often requires targeted investment in infrastructure, ongoing training programmes for staff and robust technical support mechanisms. Such measures are essential to bridge the technical divide, ensuring that all users, irrespective of their organizational background, can effectively engage with and contribute to these human rights data tools. This approach not only enhances the functionality of DHRTTDs but also ensures their equitable and effective use across various human rights stakeholder groups. More generally, resource constraints can lead to gaps in data, limiting the effectiveness of human rights monitoring and implementation efforts. Addressing this challenge often requires strategic partnerships, diversified funding sources and innovative approaches to maximize limited resources.

Another area for necessary reflection relates to *privacy concerns*. Ensuring the privacy and protection of sensitive human rights data can be complex, particularly when multiple parties are involved, especially when data sharing involves multiple parties such as the UN Secretariat, UN agencies, national ministries, NHRIs and CSOs. Challenges include:

- **Data sensitivity**: Human rights data often includes sensitive personal information that could put individuals at risk if exposed.
- **Compliance with various regulations**: Different countries have different data protection laws (e.g. the General Data Protection Regulation (GDPR) in the EU) and ensuring compliance when data crosses borders can be complicated.
- **Risk of data breaches**: The more entities that handle data, the greater the risk of breaches due to varying security protocols.
- **Anonymization and pseudonymization**: Properly anonymizing data to protect individual identities while retaining data utility is a significant technical challenge.
- **Informed consent**: Obtaining informed consent for data use, especially in contexts where understanding of data privacy may be limited, is another area that requires careful consideration.

These challenges necessitate stringent data governance policies, robust security measures and ongoing dialogue about ethical data use to protect individuals' privacy rights in human rights data management.

Data collection efforts may be hindered by political influences or restrictions, especially in contexts where human rights issues are contentious. *Political sensitivities* present a significant challenge in the collection of human rights data. When human rights issues are contentious within a country, governments may impose restrictions on the gathering or dissemination of information that could portray them in a negative light. Challenges in this regard include:

- **Government censorship**: In some countries, governments may deliberately restrict access to information, especially that which could expose human rights violations. Additionally, there can be pressure on national ministries to alter or suppress data that might lead to international criticism or domestic unrest.
- **Conflict zones**: In areas of conflict, the danger and instability can make it challenging to collect reliable data.
- **Information blackouts**: Governments or militant groups might impose blackouts, cutting off internet or telecommunications to prevent the flow of information.
- **Restricted access to areas**: Certain regions may be off-limits to human rights monitors due to military operations or government prohibitions.
- **Unreliability of sources**: In restrictive environments, the reliability of available information can be questionable, with propaganda or misinformation campaigns.
- **Fear of reprisal**: In oppressive regimes, individuals might be unwilling to share information due to fear of government retribution and individuals or organizations that collect or share human rights data might also face reprisals, including harassment, surveillance or legal actions.

These conditions create a hostile environment for accurate data collection and may lead to significant underreporting of human rights abuses. Efforts to navigate these challenges often involve careful diplomatic engagement, the use of indirect data collection methods and reliance on anonymous or remote reporting mechanisms to protect the safety of individuals and the integrity of the data collected.

B. STAFF TURNOVER

Staff turnover can significantly impact the effectiveness and continuity of DHRTTDs. For the UN Secretariat and UN agencies, NMIRFs, NHRIs and CSOs, the loss of experienced personnel can mean a loss of institutional knowledge, which can disrupt ongoing data collection and analysis processes. High turnover rates can lead to a lack of ownership and accountability for long-term projects, such as human rights monitoring initiatives that require consistency and stability.

To mitigate these challenges, organizations often implement comprehensive training programmes to ensure a seamless transfer of knowledge. Best practices include:

- **Comprehensive documentation and training resources**: Creating detailed documentation is crucial for continuity and training. This includes process maps and flowcharts to visually represent workflows, Standard Operating Procedures (SOPs) for consistent task execution, system architecture documents detailing technical configurations, data governance frameworks outlining responsibilities and protocols, user manuals and help guides for easy navigation of DHRTTDs and training materials like webinars and e-learning modules. Additionally, maintaining change logs provides a historical account of system and process modifications, aiding in future decision-making.
- **Standardization and knowledge transfer**: Establishing standardized procedures ensures consistency in operations, regardless of personnel changes. This can be complemented by mentorship and shadowing programmes, which facilitate direct knowledge transfer from outgoing to incoming staff. Encouraging a culture of knowledge sharing and collaboration within the organization further supports this transfer and builds a collective understanding of the systems and processes.
- **Cross-functional training and organizational resilience**: Providing cross-training for staff enables them to fill multiple roles when needed, enhancing the organization's flexibility and resilience. This cross-functional training ensures that critical functions of DHRTTDs are not hindered by staff turnover.

By implementing these strategies, organizations can build resilience, ensuring that the operation and utility of DHRTTDs are maintained despite changes in staff. This comprehensive approach to documentation, standardization, knowledge transfer and cross-training creates a robust framework that supports the continuity and effectiveness of human rights monitoring activities, even in the face of personnel changes.

C. USER ADOPTION

The success of DHRTTDs depends on user adoption. In turn, sustained engagement with DHRTTDs depends on various factors, including the tool's ease of use, the relevance of the data presented and the users' ability to understand and engage with the tool effectively. Sharing success stories and learning from failure factors can guide future efforts. Technical support and user-friendly interfaces are essential to facilitate user engagement. Effective management, including clear roles and responsibilities among users, is crucial to sustain engagement. By prioritizing user needs, addressing technical challenges and maintaining strong user communities, sustainability is achieved through continued tool usage and positive impact.

However, there are challenges in user adoption that need to be addressed. *Resistance to change* is a common barrier, as users may prefer familiar methods of data collection and analysis over new digital approaches. The level of *technical literacy* among users can vary significantly, affecting their ability to effectively use digital

tools. Additionally, *resource constraints*, such as limited access to necessary hardware, internet connectivity and training opportunities, can hinder user adoption. *Cultural and language barriers* also play a significant role. Tools need to be adaptable to various cultural contexts and available in multiple languages to ensure accessibility for a diverse user base. Furthermore, *trust issues* related to the security and accuracy of digital tools can impede users' willingness to adopt new technologies. This often requires a strategic approach combining technology development, training and change management.

To enhance user adoption of DHRTTDs, it is essential to focus on a range of best practices that cater to the needs and capabilities of various users. These practices are designed to make the tools more approachable, effective and valuable for those who use them:

- **Intuitive design**: The cornerstone of user adoption is ensuring that the tool is user-friendly. This involves creating an intuitive interface that is easy to navigate and understand, even for those with a minimal technical background. The design should be straightforward, with clear labels, logical navigation paths and a layout that guides the user naturally through tasks and processes. The goal is to minimize the need for extensive training, allowing users to start using the tool effectively with a small or no learning curve.
- **Tailored training programmes**: Recognizing that users have varying levels of technical skills, offering comprehensive training sessions tailored to these different levels is crucial. These training programmes should cover the basics for beginners, while providing more advanced modules for experienced users. The training could include hands-on workshops, online tutorials and user guides that cater to different learning styles and preferences. The aim is to equip all users with the knowledge and skills needed to utilize the tool confidently and competently.
- **Robust support systems**: Providing ongoing technical support and resources is key to sustaining user engagement. This support can take various forms, such as helpdesks, online FAQs, user forums and real-time assistance. These resources should be easily accessible and capable of addressing a wide range of issues, from simple queries to complex technical challenges. Effective support ensures that users feel assisted throughout their journey with the tool, enhancing their confidence and reliance on the system.
- **Feedback mechanisms**: Incorporating a mechanism for collecting and responding to user feedback is vital for continuous improvement. This could involve regular surveys, suggestion boxes or interactive forums where users can voice their opinions and suggestions. Actively seeking and addressing feedback demonstrates a commitment to meeting users' needs and shows that their input is valued. This practice not only helps in refining the tool but also fosters a sense of ownership and engagement among users.
- **Demonstrating value**: Clearly communicating the benefits and potential impact of using the tool is essential to motivate user adoption. This involves articulating how the tool can streamline processes, enhance data accuracy and contribute to more effective human rights monitoring and advocacy. Demonstrating real-life examples of the tool's impact can be particularly persuasive. By showing users the tangible benefits and value of the tool, organizations can encourage regular and enthusiastic use.

EXAMPLES OF INTUITIVE DESIGN IN DHRTTDs

To find examples of DHRTTDs known for their intuitive design, we can look to several initiatives that have been commended for user-friendliness and ease of use. These tools aim to minimize the need for extensive training, allowing users to quickly adapt to the system and utilize it efficiently. These DHRTTDs are distinguished by their focus on user-centric designs, which facilitate quick adoption by a diverse range of users, from human rights experts to individuals with less technical experience.

Universal Human Rights Index (UHRI): Managed by OHCHR, the UHRI is renowned for its user-friendly approach to accessing human rights recommendations. It is particularly commended for its straightforward search and filter functions, which enable users to easily locate specific recommendations and decisions. This tool simplifies the process of navigating through vast amounts of human rights data, making it more accessible to a wide range of users.[50]

SADATA: Samoa's digital human rights tracking tool, powered by IMPACT OSS, exemplifies user-centric design in the context of a national human rights tracking system. It provides an intuitive platform for tracking and reporting on the implementation of human rights recommendations, particularly in alignment with SDGs and their national development targets. SADATA's interface is structured to facilitate easy entry, retrieval and analysis of data, making it an effective tool for government bodies, CSOs and other stakeholders in Samoa.[51]

Human Rights Measurement Initiative (HRMI) Rights Tracker: The HRMI Rights Tracker stands out for its graphically intuitive platform, which presents a range of human rights metrics in an accessible format. This design approach makes complex data understandable and engaging for non-specialist audiences, thereby broadening the tool's usability and appeal.[52]

Uwazi: Uwazi, developed by HURIDOCS, is tailored specifically to human rights documentation. It is designed to be both flexible and user-friendly, enabling organizations to manage and publish documents online without the need for advanced IT skills. This adaptability makes Uwazi a valuable tool for various human rights organizations, especially those with limited technical resources.[53]

50 UHRI, supra fn 19.

51 SADATA, supra fn 25.

52 Rights Tracker, supra fn 28.

53 Uwazi, supra fn 27.

D. INVESTMENT AND FUNDING

The financial sustainability of DHRTTDs is a complex issue, encompassing various aspects from initial development to ongoing maintenance and expansion. The financial challenges these tools face significantly impact their long-term viability and effectiveness.

One of the primary financial hurdles is the *initial development cost*. Creating sophisticated DHRTTDs requires a substantial upfront investment. This includes expenses related to software development, hardware procurement and hiring expert personnel. The development phase often involves intricate programming, design and testing, all of which demand specialized skills and resources. Once developed, these tools require ongoing maintenance and regular upgrades to remain effective and secure. This continuous funding is essential not only for routine system maintenance but also for integrating new features or technologies that emerge over time. Keeping the tools up to date ensures they remain relevant and useful in the ever-evolving field of human rights monitoring and implementation.

Additionally, *scalability and expansion* present their own set of financial challenges. As the user base grows or as the scope of the tool expands to cover more areas or functionalities, additional costs are incurred. This might include upgrading server capacities, enhancing software capabilities or even extending the tool to new regions or languages. *Training and support* are also critical components that require financial investment. For DHRTTDs to be effective, users need to understand how to utilize them efficiently. This necessitates comprehensive training programmes and accessible customer support, which in turn require funding for development, implementation and staffing.

Furthermore, *data security and compliance* with international regulations, such as the GDPR, add another layer of financial burden. Ensuring the highest standards of data security and compliance is crucial, especially given the sensitive nature of human rights data. However, implementing robust security measures and maintaining compliance with various international laws and standards can be a costly endeavour.

Finally, DHRTTDs operated by public bodies, such as the UN Secretariat and UN agencies or national ministries, face a unique set of challenges and implications, particularly in terms of *funding*. Funding and budget constraints are a significant concern for these bodies as they typically rely on government budgets or funding from intergovernmental organizations, which can be subject to fluctuations based on political priorities or economic conditions. This reliance often imposes constraints, as these bodies must operate within the limits of their allocated funds, which may not always align with the needs or ambitions of the DHRTTDs. Bureaucratic processes present another hurdle. Public bodies often navigate extensive bureaucratic procedures for approval, procurement and implementation of DHRTTDs. This can significantly slow down the development and update cycles of the tools, affecting their effectiveness and responsiveness to emerging human rights issues. Political influence is another inherent challenge for tools run by governmental structures. Changes in administration or shifts in policy priorities can impact budget allocation and hence the continuity of these tools. Given the long-term nature of human rights monitoring, sustained commitment from public bodies is crucial. This commitment must endure beyond changes in leadership or political climates to ensure the ongoing effectiveness and relevance of the DHRTTDs. In essence, while DHRTTDs run by public bodies benefit from the legitimacy and authority of governmental or international organizations' backing, they also face serious challenges related to funding constraints.

The financial sustainability of DHRTTDs is a multifaceted challenge that requires careful planning and resource allocation. From the initial development phase to ongoing maintenance, scalability, training and compliance, each aspect demands significant financial resources. Addressing these challenges is crucial for ensuring that these vital tools continue to serve their purpose in the human rights domain effectively and securely.

As such, various funding models may be employed to counter the above challenges, each with its own financial implications and sustainability considerations.

- **Grants and donations**: Many DHRTTDs are initially funded through grants from governments, NGOs or foundations. This model can provide substantial funding to kickstart the development and deployment of these tools. However, grants and donations are often time-bound and project-specific. This means that once the funding period ends, these tools may face sustainability issues if they haven't developed alternative revenue streams or secured ongoing funding.
- **Subscription models**: Some DHRTTDs adopt a subscription model, charging users or organizations for access. This approach can create a steady income stream, contributing to the financial sustainability of the tool. However, the subscription model may limit accessibility, particularly for underfunded organizations or individuals who cannot afford the subscription fees. This could potentially restrict the user base and impact the tool's widespread adoption and impact.
- **Freemium models**: Offering a basic version of the tool for free while charging for premium features is another approach. This freemium model can attract a broad user base, including those who might not be able to afford a full subscription. However, converting free users to paying customers can be a significant challenge. The success of this model depends on the value offered by the premium features and the tool's ability to convince users of their worth.
- **Crowdfunding**: Utilizing crowdfunding platforms like Kickstarter or GoFundMe can be an effective way to raise initial funds, especially for tools that have strong community support or appeal to a specific niche. While crowdfunding can provide a significant influx of funds, it is typically not a sustainable long-term financial model. It is more suited for initial development or specific project funding rather than ongoing operational costs.
- **Public-private partnerships**: Collaborating with private companies can bring in substantial funding and may offer a more sustainable financial model. These

partnerships can provide the necessary resources for the development, expansion and maintenance of DHRTTDs. However, it is crucial to ensure that such partnerships align with the tool's human rights goals and do not compromise its independence. Careful management is required to maintain the focus on human rights and avoid potential conflicts of interest.

Each funding model has its benefits and challenges, and the choice depends on the specific context, target audience and objectives of the DHRTTD. A balanced approach, combining *multiple funding sources*, can be the most effective strategy to ensure both financial sustainability and the broadest possible impact of the tool. *Forming a consortium* to support DHRTTDs brings several key benefits. It allows for pooling of resources and expertise from diverse stakeholders like the UN Secretariat, UN agencies, regional human rights organizations, NMIRFs, NHRIs, CSOs and private sector partners, leading to a stronger and more sustainable funding base. This collaborative approach not only eases the financial burden on individual organizations but also attracts larger investments due to the reduced risk and broad support. Additionally, the varied insights from consortium members can drive innovation, ensuring the development of more effective, user-centric and culturally adaptable tools, thereby increasing their global applicability and impact.

E. THE ROLE OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

The integration of AI and ML presents opportunities and challenges in sustaining DHRTTDs. AI can enhance data analysis, prediction and trend identification, improving the tools' effectiveness. However, ethical considerations, bias mitigation and data privacy must be carefully addressed to maintain trust and integrity. Striking a balance between technological innovation and responsible use ensures that AI and ML contribute to the tools' sustainability without compromising human rights principles.

One of the most significant challenges is the potential for *bias* in AI and ML models. These models are trained on datasets, and if these datasets are biased, the outcomes of the AI analysis will likely be biased too. In the context of human rights monitoring, biased outcomes can lead to misinterpretations of human rights conditions and potentially overlook or misrepresent violations. This is particularly problematic in areas where human rights data is sensitive and the accuracy of reporting is paramount. Another issue concerns *interpretability and transparency*. AI models, especially those based on deep learning, can be complex and opaque, often referred to as 'black boxes'. This lack of interpretability and transparency can be a significant issue in human rights monitoring, where accountability is crucial. Understanding how AI models arrive at certain conclusions or predictions is essential to validate their reliability and to ensure that these tools are used responsibly in human rights reporting.

The effectiveness of AI and ML in DHRTTDs is heavily dependent on the *quality and availability of data*. In regions or contexts where data is sparse, incomplete or of low quality, AI models may be less effective or even misleading. This is a significant challenge in human rights monitoring, where data can be uneven across different regions and issues, potentially leading to gaps in monitoring and reporting.

Furthermore, the development and maintenance of AI and ML capabilities require *substantial financial investment and specialized expertise*. This can be a barrier for smaller human rights organizations or those operating in resource-limited settings. Ensuring that these advanced technologies are accessible and usable by a wide range of organizations is crucial for the equitable advancement of human rights monitoring. With the inevitable increasing use of AI in DHRTTDs, ensuring compliance with international data protection and privacy laws is crucial. This is especially important in human rights work, which often involves sensitive data. Navigating these regulatory landscapes can be complex, but it is essential for maintaining the integrity of human rights monitoring and the trust of those whose data is being used.[54]

Finally, the use of AI also raises several *ethical considerations*, especially in the context of monitoring state compliance with human rights standards.[55] The integration of AI in monitoring state actions for human rights compliance brings to the forefront the ethical concern of surveillance. The use of AI in this context can sometimes become overly intrusive, blurring the line into surveillance that may infringe upon state sovereignty and individual privacy rights. It is thus imperative to strike a delicate balance between effective human rights monitoring and respecting these crucial boundaries. Closely linked to this is the issue of data privacy.[56] When handling sensitive information about state actions and human rights situations, AI systems must be meticulously designed to ensure the confidentiality and privacy of this data. This involves implementing robust security measures to prevent unauthorized access or data leaks, thereby safeguarding the sensitive information they process. In addition to these concerns, transparency and accountability in AI decision-making processes are essential, particularly when these decisions have significant implications for human rights monitoring. Establishing clear lines of accountability is necessary to address any errors or misjudgments made by AI systems, providing a means for recourse and rectification. The collection and analysis of data also bring up considerations of consent and agency. This includes ensuring that states and individuals whose data is being used consent to this usage and have agency over how their data is utilized. They should be fully informed about how their data is being used in these AI systems. Moreover, the overreliance on technology, and particularly on AI, for monitoring purposes can lead to a reduction in human oversight. While AI can significantly enhance data analysis capabilities, it is vital to maintain human analysis for a nuanced

54 For an informative series of case studies of how AI is being used by CSOs to monitor and track violations (or progress on the enjoyment) of specific rights see A. Dulka, 'The Use of Artificial Intelligence in International Human Rights Law', 26 *Stanford Technology Law Review* 316 (2023) 329–344. For more information on how machine learning can be used for human rights reporting see B.Park,K.Greene&M.Colaresi, 'How to teach machines to read human rights reports and identify judgments at scale',19 *Journal of Human Rights* 1 (2020)99-116.

55 G. Sartor, 'Artificial Intelligence and Human Rights: Between Law and Ethics', 27 *Maastricht Journal of European and Comparative Law* 6 (2020).

56 See, e.g., S. Lu, 'Data Privacy, Human Rights, and Algorithmic Opacity', 110 *California Law Review* (2022).

understanding and contextual interpretation. AI should be seen as a complement to, rather than a replacement for, human judgement in human rights contexts. Finally, the ethical use of AI in human rights monitoring must strictly adhere to guidelines that respect human rights principles. This includes avoiding the use of AI for purposes that could harm individuals or groups, such as targeting vulnerable populations. Ensuring the ethical application of AI in this field is paramount to maintaining the integrity and effectiveness of human rights monitoring efforts.

It is critical to address these challenges to ensure that the use of AI and ML in this field is effective, ethical and responsible.

That said, the integration of AI and ML into DHRTTDs brings forth a spectrum of opportunities, particularly in the context of human rights monitoring and reporting. A number of key technological advancements may strengthen the sustainability of DHRTTDs:

- **Automated data analysis**: AI algorithms have the capability to process and analyse vast amounts of data at a speed unattainable by human analysts. This includes sorting through extensive documents, identifying patterns and trends in human rights implementation as well as specific violations. The automation of these processes not only speeds up data analysis but also enhances the accuracy and comprehensiveness of the findings.[57]
- **Predictive analytics**: ML models, when trained on historical data, can predict potential human rights violations. This predictive capability enables organizations to adopt a proactive approach in addressing human rights issues, potentially preventing violations before they occur or mitigating their impact.[58]
- **Natural language processing (NLP)**: AI's ability to interpret and analyse textual data is particularly useful in the context of DHRTTDs. NLP can process information from diverse sources such as laws, policies, NHRI and CSO reports and other relevant documentation in multiple languages. This allows for a more nuanced understanding of human rights issues across different contexts.[59]
- **Enhanced accessibility**: AI can significantly improve the accessibility of DHRTTDs. Features like automated translation and voice recognition can make these tools more user-friendly, especially for persons with disabilities or those who speak different languages. This inclusivity is crucial for ensuring that DHRTTDs serve a broad and diverse user base.[60]

57 M. L. Littman et al, *Gathering Strength, Gathering Storms: The One Hundred Year Study on Artificial Intelligence (AI100) 2021 Study Panel Report*, Stanford University, September 2021, http://ai100.stanford.edu/2021-report (last accessed 29 February 2024); M. Marin, F. Kalaitzis and B. Price, 'Using Artificial Intelligence to Scale Up Human Rights Research: A Case Study on Darfur', Amnesty International and Citizen Evidence Lab, July 2020.

58 Danish Refugee Council, *Global Displacement Forecast 2023*, March 2023, pp 66–69.

59 Littman et al, supra fn 57, pp 12, 34.

60 K. Cashman, 'Masakhane: Using AI to Bring African Languages Into the Global Conversation', RESET, 2 June 2020, https://en.reset.org/masakhane-using-ai-bring-african-languages-global-conversation-02042020/ (last accessed 29 February 2024).

- **Scalability**: One of the key advantages of integrating AI and ML into DHRTTDs is scalability. As the volume of human rights data increases, AI and ML systems can handle this surge without the need for a proportional increase in human resources. This scalability is essential for managing large-scale human rights data and ensuring that these tools remain effective as they grow.[61]

In conclusion, while AI and ML present exciting opportunities for revolutionizing human rights tracking and analysis, they also come with challenges that need to be carefully managed. Balancing the power of these technologies with considerations of bias, ethics and transparency is essential for their effective integration into DHRTTDs.

INTEGRATING AI AND ML INTO HURIDOCS' UWAZI

HURIDOCS, as part of its innovative approach to human rights documentation, has embarked on a groundbreaking project integrating AI and ML into their Uwazi platform, a key digital tool for human rights data management. HURIDOCS' partners that also use ML in their own human rights databases include UPR Info's Database,[62] Plan International's Girls' Rights Platform,[63] CEJIL's SUMMA and OHCHR's Universal Human Rights Index. This initiative, bolstered by HURIDOCS' recognition as a Google AI Impact grantee and a substantial grant, focuses on employing advanced ML algorithms, including BERT and TensorFlow, to efficiently process and analyse vast amounts of human rights texts. For example, it has used such deep learning models to:

- Build a classifier that takes human rights-related text and assigns human rights topics to it
- Improve and maintain its existing and in-development 'text segmentation related models' that divide written text into meaningful units
- Improve its prototype 'information extraction' feature to support more data types in Uwazi. This will include the thesauri, relationships and text references
- Implement an updated 'entity extraction' or 'paragraph extraction' feature based on a Beta version already deployed with Plan International and UPR Info. The updated entity extraction feature will be used to convert paragraphs or other extracted data automatically into new entities
- Implement a feature called 'topic classification' to be applied to short texts and paragraphs

61 Amnesty International and Element AI, *AI-Enabled Human Rights Monitoring*, September 2019, https://perma.cc/GYU8-NDG7 (last accessed 29 February 2024). For an analysis of the potential of using computer vision and earth observation data for large-scale human rights monitoring, see Marin, Kalaitzis and Price, 'Using Artificial Intelligence to Scale Up Human Rights Research', supra fn 57.

62 UPR Info Database, https://upr-info-database.uwazi.io/ (last accessed 29 February 2024).

63 Plan International, Girls' Rights Platform, https://www.girlsrightsplatform.org/ (last accessed 29 February 2024).

- Improve and roll out an updated version of the 'table of contents creator'
- Improve and roll out an updated automatic translation feature
- Create a 'document conversion library' with the main aim of PDF-to-HTML and PDF-to-accessible-PDF conversion, while integrating it into all Uwazi collections
- Finalize and maintain RightDocs – an in-house database developed by HURIDOCS that makes it easy to search resolutions, amendments, decisions, presidential statements and reports of the UN Human Rights Council (based on the tooling and models developed).[64]

Ensuring the sustainability of DHRTTDs is crucial for their long-term effectiveness in human rights monitoring and implementation. Key to this sustainability is efficient data collection coordination, which standardizes data gathering and reporting processes. Implementing clear, standardized data collection practices across all entities involved ensures consistency and addresses interoperability issues and temporal misalignments. This uniformity in methodologies, indicators and reporting formats is crucial for the integrity and reliability of human rights data. Furthermore, technical refinement and regular user training on data entry and management are essential for maintaining the coherence and reliability of data collection. The above analysis exemplifies how customization and semi-automated processes can streamline data collection and analysis, demonstrating the importance of leveraging proven technologies to enhance efficiency. Addressing the challenge of staff turnover extends beyond the provision of DHRTTD-specific documentation to cultivating a learning environment through mentorship and cross-functional training, reinforcing organizational resilience and continuity. Meanwhile, user engagement with DHRTTDs depends on intuitive designs and adaptive training, underpinned by robust support and active feedback mechanisms to foster a cycle of continuous improvement and user-centric development. With regard to financial sustainability, DHRTTDs require a multifaceted approach to funding. A diversified funding strategy addresses the inherent risks of funding reliance. The formation of public-private partnerships can leverage private sector resources effectively without compromising the tools' mission. Innovative revenue streams and cost-effective development practices, including the adoption of open source technologies and cloud computing, are essential for sustainable financial management. As proposed above, engaging with a broad spectrum of stakeholders underscores DHRTTDs' impact and secures additional support. Finally, the integration of AI and ML into DHRTTDs offers transformative potential for human rights monitoring, enhancing data analysis, predictive analytics and accessibility. Ethical considerations, bias mitigation and data privacy are paramount in ensuring these technologies align with human rights principles. As former High Commissioner for Human Rights Michelle Bachelet stressed in a speech to the Council of Europe's Committee on Legal Affairs and Human Rights, '[w]e cannot afford to continue playing catch-up regarding AI – allowing its use with limited or no boundaries or oversight and dealing with the almost inevitable human rights consequences after the fact. The power of AI to serve people is undeniable, but so is AI's ability to feed human rights violations at an enormous scale with virtually no visibility. Action is needed now to put human rights guardrails on the use of AI, for the good of all of us.'[65] Ensuring the responsible and ethical application of these technologies is paramount for the effective use of DHRTTDs. Capacity building, collaborative development and continuous evaluation of AI and ML implementations are indispensable for realizing their full potential in a manner that is both effective and efficient.

These solutions collectively aim to overcome challenges in data sharing, standardization and sustainability of DHRTTDs.

64 Presentation by HURIDOCS at Second Expert Roundtable on Digital Human Rights Tracking Tools and Databases, supra fn 9 (on file with the author).

65 'Urgent Action Needed Over Artificial Intelligence Risks to Human Rights', *UN News*, 15 September 2021, https://news.un.org/en/story/2021/09/1099972.

5. INTEROPERABILITY OF DHRTTDs: ENHANCING SYNERGY AND COLLABORATION

Interoperability in the context of DHRTTDs is pivotal for enhancing the synergy and collaboration among these platforms. It involves creating an integrated environment where different tools and databases can communicate, exchange data and function cohesively.

This interconnectedness is essential for maximizing the efficiency and impact of human rights monitoring and reporting, ultimately strengthening implementation efforts. Interoperability for DHRTTDs thrives through cooperation initiatives, automated interactions such as the use of plug-ins and APIs and the establishment of knowledge-sharing platforms.

A. COOPERATION INITIATIVES

The collaboration between UN and regional human rights organizations, national human rights actors and technology experts has been pivotal in advancing DHRTTDs, which are becoming an indispensable part of the human rights infrastructure. A recurring challenge however is the endeavour to cultivate collaborative communities and encourage cooperation between different tools and databases. DHRTTD developers acknowledge the importance of establishing communities that promote shared learning and progress. Such collaborative networks provide a platform for developers to glean insights from each other's experiences, exchange best practices and integrate valuable feedback into the ongoing development and enhancement of their tools.

Cooperation initiatives significantly *enhance data collection and analysis*. When different DHRTTDs share data, the result is a richer and more diverse dataset.[66] This pooling of information from various sources allows the identification of trends and patterns that may not be apparent when datasets are viewed in isolation. Additionally, such cooperation enables the cross-verification of data, which enhances its reliability and accuracy. By identifying and addressing discrepancies, cooperation among DHRTTDs leads to the creation of higher-quality data, thereby improving the overall effectiveness of human rights monitoring and analysis. Collaboration can reduce duplication of efforts and resource expenditure, leading to more efficient data collection and processing. By working together, DHRTTDs can avoid redundancy in their efforts, eliminating the need to collect the same data twice, thereby reducing unnecessary duplication. Such collaboration extends to resource optimization as well; shared technical, human and financial resources lead to more efficient operations. This aspect of collaboration is especially beneficial for smaller organizations or those operating with limited budgets, as it allows them to leverage shared resources for greater impact. Furthermore, joint efforts often result in the development of standardized processes and tools, which streamline both data collection and analysis. This standardization not only simplifies procedures but also ensures consistency and accuracy in the data collected, contributing to the overall effectiveness of human rights monitoring efforts.

The amalgamation of data from diverse sources leads to *more informed and effective decision-making in policy and advocacy*. By bringing together data from various DHRTTDs, a holistic approach to human rights monitoring and implementation is achieved. This comprehensive perspective facilitates more informed policy-making and strategy development, allowing for a deeper understanding of the issues at hand. Access to such a diverse and comprehensive data set also empowers organizations to base their advocacy efforts on solid evidence, thereby enhancing the credibility and impact of their campaigns. Moreover, this wealth of information is invaluable for strategic planning, enabling organizations to target their efforts more effectively and efficiently. Cooperation initiatives can also *extend the reach* of DHRTTDs, allowing them to impact a broader audience and contribute to a more global understanding of human rights issues. These initiatives help extend the influence of DHRTTDs beyond local and national confines, offering a worldwide perspective on human rights matters. As a result, data and tools become more universally accessible, benefiting a diverse range of stakeholders, including those from marginalized groups or underrepresented regions. This expanded accessibility paves the way for collective action on an international scale, enabling a unified response to human rights challenges and amplifying the call for change across the globe.

In summary, cooperation initiatives in DHRTTDs not only enhance the quality and comprehensiveness of human rights data but also foster more efficient operations, informed decision-making and a wider reach and impact. These initiatives are instrumental in building a cohesive and powerful global human rights monitoring and advocacy network. Today, however, cooperation initiatives between DHRTTDs are rare, given a series of outstanding challenges, namely the diverse technical standards adopted, intellectual property concerns, resource competition and data security and privacy issues.

1. DIVERSE TECHNICAL STANDARDS

Developing cooperation initiatives between DHRTTDs involves collaboration among various developers, each potentially employing *different technologies and standards*. This diversity, while beneficial in some respects, introduces several challenges in building effective partnerships. One of the primary issues is the complexity of integrating these diverse systems. Teams might use different coding languages, database structures or data formats, which necessitates additional layers of translation and compatibility checks. This integration process can be both

66 One example of a successful data-sharing initiative between DHRTTDs is the DIHR's SDG – Human Rights Data Explorer, https://sdgdata.humanrights.dk/en (last accessed 29 February 2024). Notably, this database retrieves recommendations when they become available in the UHRI.

complex and resource-intensive, requiring significant effort to ensure seamless interoperability between different systems. Another challenge lies in *data interchange*. With varied standards, there can be difficulties in exchanging data effectively. For example, discrepancies in how human rights abuses are categorized across different systems can lead to mismatches and inaccuracies when attempting to merge datasets. This inconsistency can significantly impact the reliability and usefulness of the combined data. Maintaining and updating multiple systems with different standards also increases the workload and potential for errors. Each system may require specialized knowledge for its *upkeep*, creating a demanding environment for developers and potentially leading to inefficiencies. Furthermore, *scalability* becomes a concern. As DHRTTDs evolve and grow, maintaining interoperability among disparate systems can become a limiting factor. This challenge can hinder the tools' ability to adapt to new requirements or integrate new data sources, potentially affecting their long-term effectiveness and adaptability in the dynamic field of human rights monitoring and implementation.

Possible solutions to these challenges include:

- **Developing a common framework**: Establishing a shared framework or set of standards can facilitate the easier integration of different systems.
- **Creating middleware**: Middleware can act as a bridge between systems, translating and routing data appropriately to ensure smooth interoperability.
- **Utilizing APIs**: APIs can allow different systems to communicate and share data more effectively, even if they use different technologies.
- **Adopting industry standards**: Aligning with widely accepted industry standards for data exchange, such as XML or JSON for data formatting, can reduce friction in merging disparate systems.
- **Open source collaboration**: Encouraging the use of open source technologies can foster a more collaborative environment where developers can work together to create compatible and flexible systems.
- **Regular sync meetings**: Regular meetings between DHRTTD developers can ensure everyone's technology choices and standards are aligned.

By proactively establishing common ground and creating tools for integration, DHRTTDs can overcome the challenges posed by diverse technical standards, data interchange, maintenance and scalability issues, leading to more cohesive and effective human rights monitoring and implementation efforts.

2. INTELLECTUAL PROPERTY CONCERNS

Intellectual property (IP) concerns present significant challenges in the development of DHRTTDs. These concerns encompass various aspects, including the rights to software code, development methodologies and the data processed by these tools.

A primary issue is the *ownership of the code*. In collaborative software development, especially where multiple organizations or individuals contribute, disputes can arise over who owns the final product. This can lead to complications in terms of rights and responsibilities, particularly when the software is intended for widespread use or further development. *Licensing issues* also play a significant role. The type of license under which the software is released can greatly influence its use and distribution. While open source licenses promote sharing and collaboration, proprietary licenses impose restrictions on usage and modifications, potentially limiting the tool's accessibility and adaptability. *Data ownership* is a particularly sensitive issue in the context of DHRTTDs. Questions about who owns the data input into these systems are crucial, especially when dealing with sensitive human rights information. This becomes even more complex when considering the legal and ethical implications of data handling and privacy. Lastly, the *use of third-party components* in DHRTTDs introduces additional layers of complexity to the IP landscape. These components come with their own IP rights and restrictions, which must be carefully navigated to ensure compliance and avoid legal complications.

Solutions to these IP concerns include:

- **Clear IP agreements**: Drafting comprehensive agreements at the outset of the collaboration outlines who owns what, how contributions will be handled and how IP rights will be protected.
- **Open source development**: Using an open source development model can alleviate some IP concerns by allowing everyone to use, modify and distribute the software while adhering to agreed-upon terms.
- **Collaborative governance structures**: Establishing a governance structure for the tool's development can help manage contributions and ensure that control over the software's direction is balanced and transparent.
- **Data use agreements**: Creating agreements that specifically address data ownership and usage can provide clarity and protect the rights of data providers.
- **Licensing education**: Educating all parties involved will make clear the implications of various software licenses and ensure that all third-party components are used in compliance with their terms.

By addressing these IP concerns through proactive agreements and transparent policies, organizations can foster an environment of trust and collaboration, essential for the successful development and deployment of DHRTTDs.

3. RESOURCE COMPETITION

Entities involved in DHRTTD development and operation often face challenges stemming from competition for resources, users and recognition. This competitive environment can pose significant hurdles to effective collaboration.

A key area of competition is *funding*. DHRTTD developers frequently find themselves vying for the same pools of grants, donations and other funding opportu-

nities. Given the limited availability of these resources, such rivalry can lead to conflicts of interest, impeding the willingness of entities to share information and resources. This can be particularly challenging for smaller organizations or new entrants in the field who may struggle to secure the necessary funding to develop and maintain their tools. Another aspect of competition is the *overlap in user bases*. When multiple DHRTTDs target similar audiences, they can inadvertently compete for the same users. This situation can limit the growth and reach of individual tools, fragmenting the user base and potentially diluting the overall impact of these tools in the human rights sector. *Visibility and recognition* also play a role in this competitive landscape. There is often a race among entities to secure acknowledgment for being the first or the most innovative in the field. This drive for recognition can create an environment where DHRTTDs prioritize their own visibility and success over collaborative efforts, potentially hindering the collective goal of advancing human rights monitoring and advocacy. The competition extends to *talent acquisition*. Skilled professionals in software development, data analysis and human rights expertise are in high demand and are relatively few. Organizations might find themselves in competition to attract and retain top talent, which is crucial for the development and operation of effective DHRTTDs. This competition for skilled personnel can further exacerbate the challenges faced by organizations, especially those with limited resources, in sustaining their operations and contributing effectively to human rights monitoring and implementation.

Solutions to the issue of resource competition include:

- **Consortiums and alliances**: Forming consortiums or alliances can allow entities to pool resources, share funding and reduce duplication of efforts.
- **Shared platforms and databases**: Creating shared platforms where data from various sources can be accessed and utilized can minimize the need for competing tools.
- **Collaborative grant applications**: Joint grant applications and fundraising initiatives can provide a unified front for securing funding.
- **Cross-promotion and partnerships**: Cross-promoting each other's tools and forming partnerships for co-development can enhance the reach and effectiveness of DHRTTDs without directly competing for the same user base.
- **Specialization**: Entities can focus on niche areas or specific aspects of human rights monitoring, reducing direct competition by offering complementary rather than competing services.
- **Community building**: Investing in building a community around human rights data can create a more cooperative environment where sharing and collaboration are the norm.

By implementing these solutions, entities can overcome the zero-sum nature of resource competition and foster a more collaborative ecosystem that amplifies the impact of DHRTTDs in protecting and promoting human rights.

3. DATA SECURITY AND PRIVACY

Data security and privacy are paramount in the context of DHRTTDs, where sensitive information is often handled. When multiple partners with varying protocols come together, this can complicate the collective effort to maintain the confidentiality and integrity of the data.

One of the primary challenges is the *varying security standards* among different DHRTTDs. These discrepancies can lead to inconsistencies in how data is protected, potentially weakening the overall security of shared information. Additionally, partners may operate under different legal frameworks. This diversity requires nuanced approaches to compliance, making it difficult to standardize practices across all entities. *Discrepancies in data handling procedures*, including collection, storage, processing and disposal, pose additional risks to data privacy. When data is exchanged between systems with differing security measures, the *risk of breaches* increases, potentially exposing sensitive human rights data. Moreover, ensuring that all parties adhere to *confidentiality agreements* can be challenging, especially when dealing with a large number of stakeholders.

To mitigate these challenges, several solutions can be implemented:

- **Unified security protocols**: Establishing a set of common security protocols that all partners agree to follow can help ensure consistent data protection.
- **Regular security audits**: Conducting regular audits of the security measures in place can help identify and address vulnerabilities.
- **Data anonymization**: Implementing robust data anonymization techniques can protect individual identities, even if data security is compromised.
- **Joint privacy impact assessments**: Collaboratively conducting privacy impact assessments can ensure all parties understand the privacy risks and agree on mitigation strategies.
- **Training and awareness**: Providing regular training and updates to all stakeholders on best practices in data security and privacy can help maintain high standards across the board.

By addressing these challenges with a combination of technical solutions and collaborative policies, entities involved in DHRTTDs can create a secure and private environment conducive to sharing and utilizing sensitive human rights data.

SUCCESSFUL EXAMPLES OF COLLABORATIVE DEVELOPMENT PROJECTS AND SHARED DATA PLATFORMS

SDG – Human Rights Data Explorer: The SDG – Human Rights Data Explorer is a platform developed by the Danish Institute for Human Rights (DIHR) that offers public access to the outcomes of an experimental data-mining initiative carried out by DIHR in partnership with Specialisterne, a social enterprise that focuses on em-

ploying individuals diagnosed with autism. Specialisterne has developed a text-mining algorithm on behalf of DIHR, aiming to establish connections between human rights recommendations and SDG targets. This database incorporates data from the OHCHR's UHRI. The UHRI compiles recommendations from all UN human rights mechanisms, making it easier for a diverse audience to access recommendations and observations regarding specific human rights issues directed at states. The development of this database's methodology and objectives has been shaped with the guidance and input of OHCHR experts. It is important to note that some of the data presented in this database also comes from UPR Info's Database, which contains all UPR recommendations and offers analytical tools and statistics to enhance the monitoring of implementation. UPR Info is dedicated to promoting universal human rights progress for all segments of society through the UPR mechanism by fostering participatory and inclusive dialogues among national stakeholders.[67]

The Human Rights Tracker: The Equality and Human Rights Commission, one of the UK's NHRIs and Britain's equality regulator, has developed the *Human Rights Tracker*, a comprehensive online tool to support users in understanding the UK's human rights obligations; to learn how to engage with international human rights monitoring systems; and to track how well governments are putting their human rights duties into practice. The Commission has seen a strong uptake of the Tracker by civil society, government officials and academics. This is important to ensure that the information, evidence and analysis on the Tracker are used to make a concrete difference to human rights protections in the UK. To achieve this uptake, and build cooperation with these key stakeholders, the Commission provided an extensive programme of training sessions. These sessions focused on how to engage with the Tracker to access relevant recommendations from UN human rights committees; and how to collate pertinent evidence and independent analysis from the Commission itself. The training sessions were often tailored to the thematic interests of the organization, such as child rights or violence against women and girls.[68]

IMPACT OSS: IMPACT OSS is an open source software designed for managing and publishing human rights recommendations, obligations as well as progress towards the SDGs and national development targets. Its development and sustainability have been enhanced through collaborations with various human rights organizations and entities, providing a platform that is adaptable to different contexts. The success of IMPACT OSS can be attributed to its collaborative development model, where feedback from diverse users has been integral to its evolution. Its collaborative development ensures that the resulting tool is versatile, catering to the varied needs of different stakeholders, pooling expertise and resources, and is enriched with diverse insights and expertise.[69]

67 Ibid. For more information on the partnerships involved in data collection for the SDG – Human Rights Data Explorer see DIHR, 'What is the SDG – Human Rights Data Explorer?', https://sdgdata.humanrights.dk/en/node/23; OHCHR, 'New Database Explores Link Between Human Rights and Sustainable Development Goals', 10 April 2018, https://www.ohchr.org/en/stories/2018/04/new-database-explores-links-between-human-rights-and-sustainable-development-goals (last accessed 29 February 2024).

68 Human Rights Tracker, supra fn 26.

69 IMPACT OSS, supra fn 32.

NRTD: Developed by OHCHR, the NRTD is an example of a successful partnership between the UN Secretariat and member states. The tool is used by specific NMIRFs to track the implementation of human rights recommendations. Partnerships with national governments have been crucial in customizing the database to meet specific country needs, thereby enhancing its usability and effectiveness.[70]

Uwazi: Uwazi is a flexible database tool for documenting human rights. It has benefited from partnerships between HURIDOCS and numerous human rights organizations. These collaborations have helped tailor Uwazi to the specific needs of human rights documentation, making it a versatile tool for different organizations. The open source nature of Uwazi also encourages a collaborative approach to development, where users contribute to its continuous improvement. Today, more than 150 human rights organizations across the globe are using Uwazi as a database tool – some for more than one collection. This brings the total of public and private Uwazi databases to more than 300, including UPR Info's Database, Plan International's Girls Rights Platform and the African Human Rights Case Law Analyzer by the Institute for Human Rights and Development in Africa.[71]

These examples demonstrate how collaborations and partnerships have been fundamental in developing DHRTTDs that are not only technologically advanced but also closely aligned with the needs of their users, thus enhancing their sustainability and impact.

B. AUTOMATED INTERACTIONS VIA APIs

An API is a set of protocols and tools for building software applications. It specifies how software components should interact and enables different software systems to communicate with each other. In the context of DHRTTDs, APIs play a critical role in *data sharing and integration.* APIs act as a bridge, facilitating seamless communication and data exchange between diverse systems, thereby eliminating the need for manual intervention. They function as conduits, allowing different software systems to efficiently and accurately exchange data. For instance, a DHRTTD might use an API to automatically import data from various human rights reports, ensuring the database is up to date with current information.

APIs also standardize interactions between systems, ensuring data is exchanged in a uniform format, which is crucial for maintaining *data integrity and consistency.* This standardization means that when one DHRTTD requests data from another system, it receives it in a structured format that is immediately usable, reducing the risks of data misinterpretation or corruption. Another significant advantage of APIs is their ability to facilitate *real-time updates.* Changes or updates in one system can be instantly reflected in another, allowing for immediate data synchronization.

70 NRTD, supra fn 19.

71 African Human Rights Case Law Analyzer, https://caselaw.ihrda.org/ (last accessed 29 February 2024).

This feature is particularly important in human rights databases where timely information is critical for monitoring and responding to emerging situations. For example, if a national human rights database updates its records on implemented human rights policies, APIs can ensure that this update is immediately reflected in international monitoring tools like the UHRI. Lastly, APIs offer *customizable data access*, allowing systems to request specific data sets from each other. This selective data retrieval enables more tailored access to information, where users can retrieve data specific to their particular area of focus or interest. For instance, a civil society organization could use an API to request specific types of human rights violation data from a larger database for targeted analysis or campaigns. This level of customization and flexibility makes APIs an invaluable tool in the technological integration of DHRTTDs.

The integration of APIs in DHRTTDs represents a significant advancement in the field of human rights data management. APIs enable more efficient, accurate and real-time data sharing and processing, greatly enhancing the interoperability and effectiveness of these tools. As a result, human rights organizations and entities can collaborate more effectively, leading to better-informed strategies and actions.

EXAMPLES OF AUTOMATED INTERACTIONS VIA APIS BETWEEN DHRTTDs

UHRI: OHCHR facilitates access to its valuable UHRI dataset through the use of REST API. The dataset itself comprises country-specific observations and recommendations from Treaty Bodies, Special Procedures and the UPR. The API has been developed by OHCHR to provide unrestricted access to the dataset, enabling users to retrieve human rights data conveniently and efficiently. The API boasts a range of versatile filtering options, allowing individuals or organizations to customize their data retrieval according to their specific needs. Whether users require large-scale exports, intend to integrate the data into their websites or seek to monitor recommendations from different UN human rights mechanisms and their distribution across SDGs, the API offers the necessary flexibility to accommodate these requirements. Furthermore, the UHRI's dataset is available in multiple formats, including JSON and Excel, ensuring compatibility with various software tools and applications.[72]

TransMonEE: Transformative Monitoring for Enhanced Equity (TransMonEE) is a pivotal UNICEF initiative, fostering partnerships with national statistical offices to improve the availability, comparability, and disaggregation of statistics on children, contributing to a better understanding of the challenges faced by children in Europe and Central Asia. The TransMonEE database and dashboard play a crucial role in this collaboration, utilising APIs to offer a dynamic and comprehensive view of child rights data. The TransMonEE database compiles data for over 700 child rights indicators from international sources and organises them by the Regional Child Rights Monitoring Framework domains. APIs facilitate seamless data extraction and integration, ensuring timely updates and accuracy across 55 countries in the region. This method not only enhances data collection efficiency and minimises errors but also supports automated updates. The TransMonEE dashboard complements the database by showcasing a curated selection of indicators, with data integrated through the database›s API, enabling stakeholders to explore trends and compare data. The unique feature of the dashboard is the direct linkage to Committee on the Rights of the Child (CRC) recommendations, automatically retrieved from UNICEF's Dashboard on Recommendations of the Committee on the Rights of the Child (see example below). This allows the user to view the CRC recommendations thematically, together with the data for selected indicators. Together, the database and dashboard form an essential component of the initiative, leveraging technology to advance child rights advocacy and policymaking in the region.[73]

Dashboard on Recommendations of the Committee on the Rights of the Child: Developed by the UNICEF Regional Office for Europe and Central Asia, the Dashboard on Recommendations of the Committee on the Rights of the Child is an essential tool for disseminating actionable insights and knowledge on child rights within Europe and Central Asia. It organises recommendations into CRC clusters/sub-clusters and bottleneck types, equipping stakeholders with a comprehensive framework for policy and advocacy and helping identify recurring issues requiring collective action. Featuring a 'Recommendation view' for full texts of recommendations, alongside 'Overview', 'Sub-regional', and 'Country' views, the dashboard offers a multi-faceted analysis. The 'Overview' provides a broad regional perspective; 'Sub-regional' highlights trends in grouped countries; and the 'Country' view facilitates the comparison of recommendations across up to five countries, allowing for a nuanced examination of CRC clusters, as well as bottleneck-specific insights. These capabilities, combined with advanced search and download options, elevate the dashboard beyond a mere data repository to a dynamic platform for engagement. The future plan includes automatically retrieving the CRC recommendations from the UHRI using APIs and classifying the recommendations using machine learning.[74]

C. KNOWLEDGE-SHARING EVENTS AND PLATFORMS

Knowledge-sharing events and platforms are essential forums where users, developers and stakeholders can converge to exchange information, share best practices and collaborate on solutions related to the work of DHRTTDs. These occasions facilitate community building by engaging a diverse group of participants, including government officials, UN officials, CSOs, human rights activists, academics and software developers. They offer a space for peer-to-peer support, where users

72 To begin utilizing the API, interested parties can simply reach out to OHCHR at OHCHR-DL-uhrisupport@un.org, from whom they will receive comprehensive information regarding the API endpoints and documentation.

73 TransMonEE, supra fn 20.

74 UNICEF Regional Office for Europe and Central Asia, Dashboard on Recommendations of the Committee on the Rights of the Child, https://www.transmonee.org/recommendations-committee-rights-child (last accessed 29 February 2024).

facing challenges could seek advice from others who have encountered similar issues, and developers can gain valuable feedback to enhance their tools.

The impact of these platforms on DHRTTDs are multifaceted:

- Fostering collaboration and knowledge exchange, leading to improved functionality and effectiveness of the tools
- Collectively brainstorming solutions to challenges between users and developers, accelerating problem resolution and fostering innovation
- Enhancing the interoperability of different DHRTTDs by facilitating the development of standards and connectors that enable seamless data exchange
- Facilitating capacity building, as users could enhance their skills and understanding of DHRTTDs through various learning opportunities hosted on these platforms –contributes to more effective human rights monitoring and reporting

Furthermore, some DHRTTDs have evolved based on community feedback and contributions, demonstrating the value of community-led development. Networking and partnerships formed on these platforms can extend beyond the digital space, leading to collaborations that advance human rights goals. Knowledge-sharing platforms in this space are vital in building a supportive community within the DHRTTD ecosystem, contributing significantly to the functionality, interoperability and overall impact of these tools.

RECENT EXAMPLES OF KNOWLEDGE-SHARING EVENTS AND PLATFORMS

In April 2019, the Government of Fiji, in collaboration with the Pacific Community (SPC) and the Universal Rights Group, organized the 'Nadi Dialogue', convening representatives from ten Pacific Island Countries, alongside other small island states, Australia and New Zealand. The purpose was to discuss implementation challenges and responses, including the establishment of NMIRFs.[75] During this dialogue, various entities such as IMPACT OSS, OHCHR's NRTD and Paraguay's SIMORE Plus, shared insights on the utility of technology in human rights reporting, implementation and monitoring. As a result, the Pacific Principles of Practice for NMIRFs, emerged as an outcome of the Nadi Dialogue. Notably, Article 3.4 of the Pacific Principles encourages the utilization of DHRTTDs to enhance the work of NMIRFs.[76]

The Human Rights Measurement Workshop held at the University of Rhode Island in May 2023 represents a significant example of a platform aimed at bringing together some of the leading human rights measurement projects, focusing on the development of quantitative measures and addressing biases in data sources.[77] This knowledge-sharing workshop included representatives from the CIRIGHTS Data Project, currently the largest quantitative database on human rights, measuring 77 recognized human rights in all of the world's 195 countries.[78] Other projects represented were the HRMI[79], which measures five economic and social rights and eight civil and political rights in nations around the world; the Sub-National Analysis of Repression Project,[80] which measures human rights in different regions within countries; and the Political Terror Scale[81] (and an affiliated project called the Societal Violence Scale), which has tracked international human rights violations since the 1980s. The workshop highlighted the importance of collaboration among large human rights projects to improve data quality and efficiency. Key topics included the challenges of analysing diverse human rights areas, the role of technology like ML in data analysis and strategies for leveraging data from government and NGO reports for better policy and advocacy work. The event underscored a collective effort to refine human rights measurement tools, facilitating a more informed and effective approach to human rights advocacy worldwide.

75 See Pacific Community, 'Pacific to Launch Human Rights Implementation Principles at the UN Human Rights Council in July', 26 June 2020, https://www.spc.int/updates/blog/2020/06/pacific-to-launch-human-rights-implementation-principles-at-the-un-human (last accessed 29 February 2024).

76 Art 3.4, Pacific Principles of Practice for NMIRFs, https://hrsd.spc.int/sites/default/files/2021-07/Pacific%20Principles%20of%20Practice_0.pdf (last accessed 29 February 2024):
Utilisation of technology – to facilitate the aims and functions of an NMIRF and simplify reporting writing processes tracking software/tools can be used to:
(a) Create a single national database of clustered recommendations that becomes a 'living national human rights action plan' through continuous inputs from line ministries and other implementing actors;
(b) Link human rights obligations to national and international development commitments;
(c) Automate and semi-automate many of the processes required for the effective implementation, tracking, measurement and reporting including data collection requests, data analysis and visualisation, the generation of periodic reports (to parliament and relevant international mechanisms), identification of implementation/data gaps and elimination of reporting/data collection duplication across all human rights obligations and development commitments;
(d) Enable public tracking of implementation activities and progress in relation to all clusters of recommendations and development commitments;
(e) Expand the space for civil society engagement through a platform that allows data inputs from the full range of implementing actors.

77 See, The University of Rhode Island, 'Researchers Gather at URI to Discuss Better Measurement of International Human Rights', 15 May 2023, https://www.uri.edu/news/2023/05/researchers-gather-at-uri-to-discuss-better-measurement-of-international-human-rights/ (last accessed 29 February 2024).

78 CIRIGHTS, supra fn 28; see also The University of Rhode Island, 'URI Research Team Launches World's Largest Global Human Rights Dataset', 8 December 2022, https://www.uri.edu/news/2022/12/uri-research-team-launches-worlds-largest-global-human-rights-dataset/ (last accessed 29 February 2024).

79 A. M. Brook, K. C. Clay & S. Randolph, 'Human rights data for everyone: Introducing the Human Rights Measurement Initiative (HRMI)', 19 *Journal of Human Rights* 1 (2020) 67-82.

80 SNARP, supra fn 28.

81 The Political Terror Scale, supra fn 28.

The two-day Expert Roundtable on Digital Human Rights Tracking Tools and Databases – a collaborative effort between the GHRP and OHCHR held on 14–15 September 2023 – attracted key stakeholders from the human rights and technological sectors to discuss the evolution and sustainability of digital human rights tracking initiatives. More than 30 DHRTTD developers and users representing different permanent missions, national ministries, international and regional organizations, NHRIs, CSOs and academia delved into the transformation digital tools bring to the human rights landscape. The discussion's valuable insights and main conclusions included a series of pathways to strengthen the DHRTTD agenda, including prioritizing web accessibility, synergizing platforms for greater impact, harnessing AI responsibly and state-led empowerment of NMIRFs.[82]

The GHRP also developed the DHRTTD Directory,[83] a strategic initiative aimed at providing a comprehensive and current overview of DHRTTDs available to the international community. This directory, featured on the GHRP website, maintains a regularly updated catalogue of DHRTTDs developed by stakeholders at both national and international levels, offering a valuable resource for researchers, practitioners and policymakers engaged in the field to learn about and access these digital tools. Each tool within the directory is meticulously catalogued, with dedicated pages offering in-depth analysis of the tool's functionalities, the entities responsible for its development, its target user base and direct access to the tool itself. By facilitating access to these digital resources, the GHRP aims to bolster the global human rights framework, promoting a more informed and effective engagement with digital platforms designed to advance human rights objectives.

The emergence of DHRTTDs signals a transformative shift in human rights monitoring and implementation at the national level, closely aligning SDGs and other development targets. However, given the nascent stage of these tools, empirical evidence of their efficacy remains sparse. One primary concern that emerges is the issue of *interoperability among the multitude of available DHRTTDs*. The proliferation of such tools underscores not only the innovation but also the potential for confusion and inefficiency due to a lack of standardized protocols for data exchange and system integration. As more states and institutions adopt these digital solutions, there is a clear need for a harmonized framework that allows different systems to 'speak' to each other, thereby enhancing the collective utility of the data gathered. In the spirit of fostering a more cohesive digital human rights landscape, future development should pivot towards creating interoperable systems that can efficiently share data and break down technical barriers while respecting privacy and security standards.

Addressing these issues necessitates a multifaceted approach encompassing the development of a common framework, leveraging middleware for system translation and utilizing APIs for seamless data sharing, all aligned with industry standards such as XML or JSON. *Open source collaboration*, underpinned by regular synchronization meetings, can catalyse harmonious development and integration of these tools. IP concerns can be mitigated through *clear agreements* that outline ownership and usage, thereby ensuring that contributions and rights are appropriately managed. The open source development model offers a pathway to communal software enhancement while maintaining adherence to established terms. *Collaborative governance structures and specific data-use agreements* can further clarify roles and protect data providers, supported by thorough licensing education to ensure legal compliance. Resource allocation challenges can be tackled through *consortiums and alliances*, which enable resource sharing and diminish duplicative efforts. Shared platforms and databases can centralize data access, while *collaborative grant applications* can strengthen funding opportunities. *Cross-promotion, partnerships and specialization* in niche human rights monitoring aspects can foster a cooperative ecosystem that minimizes direct competition. *Community-building initiatives* can shift the focus from competition to cooperation, promoting a culture of shared progress. Finally, to safeguard data integrity and security, *unified security protocols, regular security audits, data anonymization, joint privacy impact assessments and ongoing training* can collectively reinforce the robustness and resilience of DHRTTDs. These measures are imperative to ensure that the deployment of these tools fortifies rather than fractures the global human rights monitoring framework.

By addressing interoperability, the full potential of DHRTTDs may be unlocked, leading to more informed decision-making, greater accountability and, ultimately, more effective realization of human rights globally. In essence, interoperability is not just a technical requirement but a strategic approach that enhances the collective capacity of DHRTTDs.

This forward-looking approach heralds a more interconnected and efficient future for human rights tracking and implementation.

82 See Geneva Academy, 'Digital Human Rights Tracking Tools and Databases', supra fn 9:
1. Prioritizing Web Accessibility: As digital platforms become primary sources of information dissemination, ensuring web accessibility emerges as a paramount concern, with the need to ensure that these tools are designed to be inclusive for everyone, especially for persons with disabilities. Incorporating technologies like screen readers, captions, easy navigation, and compatibility with assistive devices ensures that all individuals can engage with these tools effectively.
2. Synergizing Platforms for Greater Impact: The collaboration and integration of different DHRTTDs present unparalleled opportunities. By fostering synergy between various platforms, stakeholders can harness the collective power of multiple tools, offering more comprehensive solutions, amplifying reach, and generating new avenues for effective human rights monitoring.
3. Harnessing AI Responsibly: While AI is an indispensable component of contemporary digital landscapes and offers immense promise in enhancing data analysis and reporting, its adoption is not without challenges. The use of AI in the human rights domain necessitates strict ethical guidelines, rigorous bias-check mechanisms, and comprehensive transparency protocols to ensure that its deployment promotes, rather than compromises, human rights.
4. State-Led Empowerment of National Mechanisms for Implementation, Reporting, and Follow-up (NMIRFs): To realize DHRTTDs' full potential, states must take proactive steps. This entails fortifying NMIRFs and nurturing a culture of collaboration among various national stakeholders. By reinforcing NMIRFs and encouraging inter-agency cooperation, states can facilitate more efficient tracking, reporting, and implementation of human rights recommendations.

83 DHRTTD Directory, supra fn 18.

6. CONCLUSION AND FUTURE DIRECTIONS

Today, almost all areas of international governance have been subject to digitalization, through the growing use of indicators and quantitative measurement indicating achievement or performance. Notably, in the realm of development as delineated under the Millennium Development Goals and subsequently the SDGs, the United Nations Development Programme (UNDP) fully relies on the use of indicators to gauge progress towards these goals.[84] As showcased in this Academy Briefing, the trend is also becoming a common feature for tracking the implementation of international human rights recommendations and standards. International and regional organizations, NMIRFs, NHRIs, CSOs and academics alike are dedicating increasing time, attention and resources to the production of indicators and the collection and disaggregation of data. As the field continues to evolve, the potential of DHRTTDs in promoting human rights and influencing policy is vast. These tools are reshaping the way human rights are monitored and enforced, paving the way for more responsive and effective human rights practices worldwide. With ongoing advancements in technology and an increasing commitment to human rights protection, DHRTTDs stand as a testament to the potential of digital innovation to enhance human rights monitoring and implementation.

However, just as the use of DHRTTDs and, in turn, indicators and quantitative measurement, has gathered momentum, so have the concerns expressed about it.

What explains the rise in the use of indicators and what are the main concerns?

The benefits of such an approach include the following elements:[85]

1. **Objectivity**: objective measurement as solution to the disparity between agreed obligations and actual performance. In other words, objective measures supposedly allow for making objective judgements about progress, thus providing information on what has been achieved and what remains to be achieved, equipping the relevant stakeholders with the necessary knowledge to make progress as well as making the work of the monitoring bodies more efficient and streamlined.

2. **Consistency**: Unlike the subjective opinion of individual researchers/experts, an indicator allows close tracking of performance over time, permitting the accurate assessment of improvement or failure.

3. **Mainstreaming**: Indicators link the conceptual discussion about human rights compliance to implementation practices. They do not merely measure human rights compliance in the abstract; they also instigate movement in pre-determined directions and supply ready-made policy goals, thus setting priorities, informing strategies and budgeting, establishing accountability and ultimately assessing impact.

4. **Normativity**: indicators imply the existence of ideals and in a sense, are also communicative instruments. They are not merely data but also statements of what is desirable, which means that they can express values. This gives indicators a certain political usefulness.

In a sense, what we are witnessing today represents a 'human rights data revolution', a process that is bringing technological innovation to different aspects of the monitoring, implementation, reporting and follow-up of international human rights recommendations.

At the same time, the emergence of DHRTTDs may eventually pose a risk to the substantive monitoring by both national and international human rights actors. Over-reliance on the production of indicators, disaggregated data and quantitative measurement may eventually lead human rights reporting cycles into audit-like processes, thus replacing – or at least overshadowing – the more discursive or narrative-based processes. As such, the potential consequent pitfalls of such an approach may be summarized as follows:[86]

a. **Oversimplification**: A change in emphasis from judgement-based decision-making to an exercise in verification and checking of indicators agreed by supra-national fora, can only artificially close the gap between international law and domestic policy. This brings with it the concern that monitoring through indicators ignores the contextual complexity of what human rights represent.

b. **Imprecision**: Gross, aggregate indices belie the diverse contextual factors that have a real bearing on why the numbers come out the way they do; they are thus not sufficiently precise to allow analytical conclusions to be drawn from them as conditions of data gathering vary so dramatically between countries.

84 One of the 'enablers' of UNDP's 2022–2025 Strategic Plan is indeed that of 'supporting countries to build inclusive, ethical and sustainable digital societies' through digitalization. *United Nations Development Programme Strategic Plan 2022–2025*, p 10, https://www.undp.org/publications/undp-strategic-plan-2022-2025. See also *United Nations Development Programme Digital Strategy 2022–2025*, https://digitalstrategy.undp.org/ and Emrys Schoemaker, A Shared Vision for Digital Technology and Governance, *Development Futures Series Working Papers*, United Nations Development Programme, February 2024, https://www.undp.org/publications/dfs-shared-vision-digital-technology-and-governance-role-governance-ensuring-digital-technologies-contribute-development-and-mitigate-risk (last accessed 4 March 2024).

85 Adapted from D. McGrogan, 'Human Rights Indicators and the Sovereignty of Technique',27 *European Journal of International Law* 2 (2016).

86 Ibid.

c. **Disconnection**: There is a strong incentive for the subjects of an audit to attempt to render the process 'ceremonial' – to produce comfort in the auditing body through ritualized compliance and the production of 'auditable form' rather than actual human rights protection.

d. **Capture**: The values and practices of auditing permeate an organization – or a state – to such an extent that it creates new mentalities, new strategies and new goals that interact in unpredictable ways. At its worst, it removes socio-political values from the public realm and embeds them in the construction of indicators, which shifts the balance of power towards the experts engaged in that process.

Taken together, these pitfalls may have a long-lasting negative effect on human rights implementation efforts:

> The current trend risks to simply 'buffer away' the monitoring process by going through an ineffectual, but apparently exhaustive, set of checking and measurement, issuing of technical guidance, production of measures and metrics and so forth … To this might be added the opportunity cost of diverting resources and time towards the creation of auditable performance (indicators, standards, measures and associated data collection and disaggregation) as opposed to the actual protection of individual citizens' human rights.[87]

To avoid a future in which human rights actors consider the creation of auditable outputs to satisfy external monitors as an end in itself, independent, cross-disciplinary collaboration and human-centred design deserve to be at the forefront of the ongoing 'human rights data revolution'. Statistical data on local, national and international trends should not supplant the traditional reliance on non-quantitative forms of reporting and advocacy, using empirical, comparative studies that make a treasure of anecdotal evidence, eyewitness testimonials and the individualized human rights story.

The GHRP has initiated a global study to address these very concerns.[88] With a focus on evidence gathering and the fostering of exchanges between developers and users as well as between technology and human rights experts, what is now needed is the development of a comprehensive interoperability framework.[89] In light of the findings showcased in the above analysis, this Academy Briefing proposes that such a framework include an integrated approach structured around three actionable themes:

87 Ibid 398.

88 For more information, see GHRP, 'Digital Human Rights Tracking Tools and Databases', https://www.geneva-academy.ch/geneva-humanrights-platform/initiatives/detail/101-digital-human-rights-tracking-tools-and-databases (last accessed 29 February 2024).

89 A promising initiative in this regard is the OHCHR-led B-Tech Project and, more specifically, the recently launched Generative AI Human Rights Diligence Project (2023) which seeks to demonstrate the ways in which the UN Guiding Principles on Business and Human Rights can guide more effective understanding, mitigations and governance of the risks of generative AI. See OHCHR, 'B-Tech Project', https://www.ohchr.org/en/business-and-human-rights/b-tech-project (last accessed 29 February 2024). Another notable initiative is UNDP's SDG AI Lab which focuses on leveraging cutting-edge digital solutions, including AI and ML, to support SDGs. Part of this initiative includes mobilizing a community of volunteer data scientists to connect UNDP teams with highly skilled data scientists, aiming to address development challenges with digital solutions. See SDG AI Lab, https://sdgailab.org/ (last accessed 29 February 2024).

1. POLICY AND REGULATION

- **Policy development**: The development of supportive policies for DHRTTDs is crucial and to realize DHRTTDs' full potential, states must take proactive steps. One fundamental step is to fortify NMIRFs and nurture a culture of collaboration among various national stakeholders. By reinforcing NMIRFs and encouraging inter-agency cooperation, states can facilitate more efficient tracking, reporting and implementation of human rights recommendations. One way this can be done is for the Human Rights Council to encourage the establishment or strengthening of DHRTTDs as a form of effective information management in its next resolution on promoting international cooperation to support NMIRFs. At the same time, international human rights mechanisms, in particular Treaty Bodies and Special Procedures, could equally call on states to establish or strengthen DHRTTDs as part of their commitment to respect, protect and fulfill their human rights obligations, including but not limited to the right of access to information.

- Finally, NHRIs have yet to fully realize their potential as key actors in the development of DHRTTDs. Their peculiar status as state institutions operating independently from governments make NHRIs the ideal developers of DHRTTDs. For DHRTTDs managed by NMIRFs, NHRIs and their networks need to remain attentive and provide support and recommendations to ensure that DHRTTDs present fair and unbiased information on human rights implementation and compliance.[90] Future policy development should also foster an environment that encourages the ethical creation and use of DHRTTDs, ensuring they contribute effectively to human rights protection. This involves crafting regulations that address the complexities of emerging technologies while upholding ethical standards.

- **Regulatory recommendations**: DHRTTDs will be playing an increasingly crucial role in human rights monitoring and implementation globally. As such, it is imperative to prioritize regulatory frameworks for data protection, privacy and web accessibility. Regulations should aim at creating systems that not only comply with current privacy laws but are also adaptable to future technological advancements. This includes mechanisms for accountability and transparency in the handling and analysis of data collected through DHRTTDs. Ensuring they are accessible to all users, including persons with disabilities, is critical for the inclusivity and effectiveness of human rights monitoring and implementation strategies. By conforming to established web accessibility guidelines, such as WCAG, these platforms can ensure that their valuable resources and functionalities are available to a broader audience. This inclusivity not only enhances

90 S. Lorion and R. Murray, *Interactions Between National Human Rights Institutions and National Mechanisms for Implementation, Reporting and Follow-up: Research and Recommendations*, DIHR, Human Rights Research Papers no 2023/2, 2023, https://www.humanrights.dk/publications/interactions-between-nhris-nmirfs-research-recommendations (last accessed 29 February 2024).

the user experience but also strengthens the collective effort in safeguarding human rights across diverse communities.

2. TECHNOLOGICAL INNOVATIONS

- **New technologies**: Exploring emerging technologies is key to enhancing DHRTTDs' effectiveness. This includes advancements in data analytics, AI and ML, and encryption that can improve data collection, analysis and protection. Anticipating future technological trends will enable developers to design DHRTTDs that remain relevant and effective over time.
- **Integration strategies**: The integration of different DHRTTD datasets is essential for comprehensive human rights data collection and analysis. Developing open APIs and establishing common data standards are pivotal strategies. Open APIs facilitate system communication, allowing for the seamless integration of diverse datasets and tools, while common data standards ensure data sharing and comparison across regions and tools are streamlined and effective.

3. BUILDING ROBUST PARTNERSHIPS

- **Collaborative efforts**: Strengthening partnerships among the UN Secretariat, UN agencies, regional intergovernmental organizations and agencies, NMIRFs, NHRIs, CSOs and tech companies is fundamental. This collaboration should focus on developing principles that address the nuances of new technologies and translating human rights norms into practical standards for businesses and engineers. Such partnerships are vital for ensuring that DHRTTDs are developed and utilized in a manner that respects and promotes human rights.
- **Multi-stakeholder approach**: Embracing a collaborative approach entails adopting best practice guidelines, investing in capacity building and engaging in policy advocacy. Documenting best practices ensures adherence to high standards of data quality and user privacy. Capacity building is critical for training staff in interoperable systems management and fostering a culture of data sharing. Policy advocacy by the UN Secretariat and UN agencies can support the adoption of DHRTTD interoperability and data-sharing policies on a global scale.
- **Sustainability and scaling**: To accommodate the growing number of stakeholders and the expanding scope of DHRTTDs, ensuring sustainability and scalability is key. This involves building robust infrastructures including through the use of AI and ML, whilst securing continuous financial investment, which are critical for sustaining the increased load and expanding the reach of DHRTTDs effectively.

The emergence of DHRTTDs already represents a significant step forward for the realization of human rights at the national level and progress towards the SDGs. And whilst this is a growing trend, there is still an emerging understanding of the best way to refine and evolve the tools that currently exist. The global interest in such software and the maturity of available tools and databases indicates that it is only a matter of time before these are the rule, rather than the exception. As such, the historical shift to DHRTTDs is not just a change in method but a significant revolution in the pursuit of global human rights promotion and protection. The potential this has for transforming the implementation of human rights and the development agenda represents an exciting prospect.

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