



RESPONSIBLE DATA
FOR CHILDREN
SYNTHESIS REPORT

RD4C.ORG



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WHY RESPONSIBLE DATA FOR CHILDREN?

Around the world, humanitarian and development organizations working with children are increasingly reliant on a wide range of technologies used to improve the efficacy of service delivery. These child rights organizations use biometrics, digital identity systems, remote-sensing technologies, mobile and social media messaging apps, and administrative data systems, among other technologies to provide aid. The data generated by these tools and systems includes potentially sensitive data, such as PII (personally identifiable information) and DII (demographically identifiable information)—data points that enable the identification, classification, and tracking of individuals, groups, or multiple groups of individuals by demographically defining factors.

RD4C refers to a set of principles, practices and tools that can enable the responsible handling of data for and about children.

Given this increasingly datafied environment, and the emerging challenges involved in upholding the Convention on the Rights of the Child in our data age, there is a clear need to develop and disseminate responsible approaches for handling data for and about children. This need can be realized through Responsible Data for Children (RD4C), which involves avoiding unintended negative consequences on data subjects and beneficiaries and, in turn, ensuring the effective use and positive impact of data.

Collecting, storing, preparing, sharing, analyzing, and using data about children create unique opportunities and risks. These opportunities and risks are distinct from those involved in the datafication of the general public or other vulnerable groups. To achieve responsible data for children, child rights actors and their government and civil society counterparts need to better understand the unique risks and opportunities of an increasingly connected and quantified environment.



UNIQUE RISKS AND RESPONSIBILITIES WHEN USING DATA ABOUT AND FOR CHILDREN



...Too often, children do not know what rights they have over their own data and do not understand the implications of their data use, and how vulnerable it can leave them...

— An Open Letter to the World's Children by UNICEF's Executive Director Henrietta H. Fore on the 30th anniversary of the Convention on the Rights of the Child¹

¹ Fore, Henrietta. 2019. "An Open Letter to the World's Children." UNICEF. September 17, 2019. <https://www.unicef.org/child-rights-convention/open-letter-to-worlds-children>.



The increased use of data poses unique risks for and responsibilities to children. While practitioners may have well-intended purposes to leverage data for and about children, the data collection and data-based systems used were often designed with (consenting) adults in mind without a focus on the unique needs and vulnerabilities of children. This can lead to the collection of inaccurate and unreliable data as well as the inappropriate and potentially harmful use of data for and about children. The following trends and realities provide for the rationale why we need a dedicated data responsibility approach for children:

1. Today's children are the first generation growing up at a time of rapid datafication where almost all aspects of their lives, both on and off-line, are turned into data points. An entire generation of young people is being datafied—often starting even before birth. Every year the average child will have more data collected about them in their lifetime than would a similar child born any year prior. The potential uses of such large volumes of data and the impact on children's lives are unpredictable, and could potentially be used against them.
2. Children typically do not have full agency to make decisions about their participation in programs or services which may generate and record personal data. Children may also lack the understanding to assess a decision's purported risks and benefits. Privacy terms and conditions are often barely understood by educated adults, let alone children. As a result, there is a higher duty of care for children's data.
3. Disaggregating data according to socio-demographic characteristics can improve service delivery and assist with policy development. However, it also creates risks for group privacy. Children can be identified, exposing them to possible harms. Disaggregated data for groups such as child-headed households and children experiencing gender-based violence can put vulnerable communities and children at risk. Data about children's location itself can be risky, especially if they have some additional vulnerability that could expose them to harm.



4. Mishandling data can cause children to lose trust in institutions that deliver essential services including vaccines, medicine, and nutrition supplies. For organizations dealing with child well-being, these retreats can have severe consequences. Distrust can cause families and children to refuse health, education, child protection and other public services. Such privacy protective behavior can impact children throughout the course of their lifetime, and potentially exacerbate existing inequities and vulnerabilities.
5. As volumes of collected and stored data increase, obligations and protections traditionally put in place for children may be difficult or impossible to uphold. The interests of children are not always prioritized when organizations define their legitimate interest to access or share personal information of children. The immediate benefit of a service provided does not always justify the risk or harm that might be caused by it in the future. Data analysis may be undertaken by people who do not have expertise in the area of child rights, as opposed to traditional research where practitioners are specifically educated in child subject research. Similarly, service providers collecting children's data are not always specially trained to handle it, as international standards recommend.
6. Recent events around the world reveal the promise and pitfalls of algorithmic decision-making. While it can expedite certain processes, algorithms and their inferences can possess biases that can have adverse effects on people, for example those seeking medical care and attempting to secure jobs.² The danger posed by algorithmic bias is especially pronounced for children and other vulnerable populations. These groups often lack the resources to respond to instances of bias or to rectify any misconceptions or inaccuracies in their data.
7. Many of the children served by child welfare organizations have suffered trauma. Whether physical, social, emotional in nature, repeatedly making children register for services or provide confidential personal information can

² Hajian, Sara, Francesco Bonchi, and Carlos Castillo. 2016. "Algorithmic Bias: From Discrimination Discovery to Fairness-Aware Data Mining." In Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2125–2126. ACM. https://www.isi.it/wp_blobs/publication/document/tut026.pdf.



amount to revictimization—re-exposing them to traumas or instigating unwarranted feelings of shame and guilt.

PURPOSE AND STRUCTURE OF THIS REPORT

This report synthesizes key findings and recommendations from the first phase of the RD4C initiative. RD4C is a joint endeavor between UNICEF and The GovLab at New York University. This document aims to provide actionable insights from research conducted in the interest of supporting UNICEF and all rights-based organizations working with children's data in the advancement of responsible data practices for and about children.

This report first provides an introduction to RD4C, followed by findings from an extensive literature review. It then presents examples of UNICEF's engagements around data for children in different programming environments, synthesizes findings on the current state and future opportunities for responsible data management in service delivery for children, and finally introduces RD4C Principles and Practices.

While this report and the research that it summarizes focused heavily on UNICEF and its direct counterparts, The GovLab and UNICEF are sharing it as a public good for others facing similar challenges and as a way of initiating a broader conversation and collaboration around these key issues.



INTRODUCTION TO RESPONSIBLE DATA FOR CHILDREN

UNICEF and The GovLab initiated RD4C in December 2018 to:

- ▶ Identify and articulate the risks and opportunities common to the use of data in different programming contexts through a series of country-level field research missions;
- ▶ Develop a set of public goods, including principles and tools for child rights actors in the development and humanitarian communities, including but not limited to UNICEF;
- ▶ Establish a culture of data responsibility for children—embedding good practices at the planning stage of data initiatives and mitigating risks across the data lifecycle; and
- ▶ Offer UNICEF, its partners, and other actors in the space an enriched understanding of how to interpret and uphold the Convention on the Rights of the Child in the data age.

WHAT IS RD4C?

RD4C refers to a set of principles, practices and tools that can enable the responsible handling of data for and about children. It is a responsible data approach that involves both data protection and effective use of data when it can provide value and be used to help improve children's lives.

Opportunities to apply RD4C principles and practices span the data lifecycle. The data lifecycle comprises six broad stages (listed below) through which a data initiative progresses. Actors specifically focused on upholding child rights—i.e. humanitarian and development institutions, government agencies, and non-governmental organizations providing services to children—as well as other actors such as government can use the data lifecycle framework to structure their consideration of risks and opportunities. The stages of the data lifecycle are:

1. **Planning:** how a data system will be developed, what type(s) of data will be collected, and for what intended uses.
2. **Collecting:** the process by which data is generated or extracted.
3. **Storing and Preparing:** holding and cleaning processes to enable data sharing, analysis, and use.
4. **Sharing:** the transfer of data between different systems and/or stakeholders.
5. **Analyzing:** the interpretation of data, whether through algorithmic or human analysis, to inform some type of decision.
6. **Using:** the ultimate action taken (if any), as well as any eventual archiving or destruction of the data (discussed in more detail below).

To be sure, the stages of the data lifecycle are not always sequential or discrete. Nonetheless, this framing can help to inform consideration of responsible data handling approaches.

For data handlers to ensure responsibility across the lifecycle, they require systematic and sustainable procedures and processes. These procedures and processes can be viewed as different types of infrastructure for achieving RD4C. The four central types of

infrastructure that can play a role in advancing more responsible practices for children are:

1. **Institutional Infrastructure:** the structures and processes stakeholders in a data initiative have that could influence data handling practices within and across institutions (e.g. child rights organisations, Ministries, etc.)
2. **Technical Infrastructure:** the systems, standards, and other technological elements at play across the lifecycle.
3. **Human Infrastructure:** the capacity, skills, and general positioning for success of the people involved in different stages of the data lifecycle.
4. **Legal/Policy Infrastructure:** including both governmental laws and regulations, as well as institutional and sectoral policies.

METHODOLOGY

The GovLab and UNICEF yearlong fact-finding and research initiative progressed through a three-part research methodology comprising: 1) desk research and resource mapping; 2) informational interviews with key personnel and subject matter experts; and 3) participatory action research in select field locations. Additional details of the different methodological components are included in relevant sections below.

SCOPE AND FOCUS

Across the RD4C research and fact-finding activities, the research team focused its assessment primarily on three types of data. First, it looked at personal data about children and their families. Second, it looked at group data, data about different groups of children. This category included information such as aggregate figures on the number of children living in institutional care or the number of child-headed households in a particular administrative area. Lastly, it looked at administrative data, data about and generated through the routine delivery of services to children and, where relevant, caregivers. Administrative data can include both personal and group data.



LITERATURE REVIEW

The first stage of the project saw the research team review resources that inform the work of child rights actors on their use of data. These items included policies, technical guidance, and other relevant documentation. The review was ecosystem-wide, considering not only global policies uniquely focused on children's data, but also documentation with any relevant guidance or lessons learned. For example, the review looked at documentation on a specific topical domain (e.g. guidance on handling data about refugee children) or policies guiding more general development or humanitarian action that featured some reflection on data handling. This review took place ahead of the field work described below to provide a representative snapshot of resources available at the time.

The research team curated a selection of relevant resources as the Selected Readings on Responsible Data for Children (rd4c.org/readings.html), which provides detailed annotations on all of the resources referenced below. Given the dynamic and rapidly evolving nature of research and practice in the space, these selected readings will be updated regularly going forward in the interest of maintaining a current and illustrative curation.

In the below we provide ten prominent takeaways from the literature. They reflect the key areas of focus as well as the emerging narratives that are present in today's writings on the subject. As such, they are not meant to be fully comprehensive of all the topics associated with data and children.



TAKEAWAYS FROM THE LITERATURE ON RD4C

1. Data can be a powerful resource to protect and improve children's lives.

UNICEF's Data for Children Strategic Framework begins by arguing “smart demand, supply, and use of data drives better results for children.”³ UNICEF's Ethical Considerations When Using Social Media for Evidence Generation makes a similar point. It finds value in social media data for amplifying humanitarian organizations' ability to increase their situational awareness, bolster real-time monitoring capacities, and crowdsource relevant insights.⁴ The United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) Data Responsibility Guidelines state data is a critical component of humanitarian response and suggests the management of digital data relating to crisis contexts, affected people, and humanitarian response operations allows the humanitarian community to respond in a more effective and efficient manner.⁵ Other potential benefits of data for children represented in the literature include mitigating risks of children dropping out of school⁶ and enabling family reunification,⁷ among other topics. Additionally, Global Kids Online, an international research project funded by UNICEF and WePROTECT Global Alliance, created a series of method guides addressing the fact that digital media environments increasingly

³ Wicks, Toby, Emily Garin, Hye Jung Han, and Laurence Chandy. 2017. “Data for Children Strategic Framework.” UNICEF. <https://data.unicef.org/resources/data-children-strategic-framework/>.

⁴ Berman, Gabrielle, James Powell, and Manuel García-Herranz. 2018. “Ethical Considerations When Using Social Media for Evidence Generation.” Innocenti Discussion Paper. Florence, Italy: UNICEF. <https://www.unicef-irc.org/publications/pdf/DP%202018%2001.pdf>.

⁵ Centre for Humanitarian Data. 2019. “OCHA Data Responsibility Guidelines Working Draft.” United Nations Office for the Coordination of Humanitarian Affairs. <https://centre.humdata.org/wp-content/uploads/2019/03/OCHA-DR-Guidelines-working-draft-032019.pdf>.

⁶ UNICEF. 2016. “Monitoring Education Participation: Framework for Monitoring Children and Adolescents Who Are Out of School or at Risk of Dropping Out.” Geneva, Switzerland: UNICEF. https://www.unicef.org/eca/sites/unicef.org.eca/files/2018-03/MonitoringEducationParticipation_accessibleWEB.pdf.

⁷ Kaonga, Nadi N., Hima Batavia, William C. Philbrick, and Patricia N. Mechael. 2016. “Information and Communication Technology for Child Protection Case Management in Emergencies: A Framework for Design, Implementation, and Evaluation.” UNICEF. http://healthenabled.org/wordpress/wp-content/uploads/2017/09/ICTs_for_Child_Protection_Case_Management_Research_HealthEnabled-1.pdf.



mediate a host of activities and experiences important to children’s cognitive, emotional, and social well-being.⁸

2. Data about children requires an additional duty of care in comparison to data about adults, and responsible data approaches must accordingly adhere to higher standards and security measures—in part because of potential long-term and unknown consequences of data’s use.

The Technical Working Group on Data Collection on Violence Against Children studied over 80 documents on ethical issues around data and children and found that Privacy and Confidentiality represented a top concern across a variety of framework and guideline types.⁹

A similar point is repeated in UNICEF's Ethical Research Involving Children in Humanitarian Settings documentation. In this piece, UNICEF’s writers argue the collection and use of children's data occurs in contexts with complex and inequitable power relations.¹⁰ These power asymmetries should be considered when pursuing the beneficial use of children's data. In the same piece, the authors note children in humanitarian settings are subject to additional vulnerabilities beyond those that are ordinarily occurring for children. Namely, challenges arising from structures for children's support and development breaking down in such settings.

⁸ Livingstone, Sonia. 2016. “Method Guide 1. A Framework for Researching Global Kids Online Understanding Children’s Well-Being and Rights in the Digital Age.” London, United Kingdom: Global Kids Online. <http://globalkidsonline.net/wp-content/uploads/2016/05/Guide-1-Research-framework-Livingstone.pdf>.

⁹ Powell, Mary Ann. 2012. “Ethical Principles, Dilemmas and Risks in Collecting Data on Violence against Children: A Review of Available Literature.” Geneva, Switzerland: Child Protection Monitoring and Evaluation Reference Group. <https://data.unicef.org/resources/ethical-dilemmas-risks-collecting-data-violence-children-findings-work-cp-merc-technical-working-group-violence-children/>.

¹⁰ Berman, Gabrielle, Jason Hart, Dónal O’Mathúna, Erica Mattellone, Alina Potts, Clare O’Kane, Jeremy Shusterman, and Thomas Tanner. 2016. “What We Know about Ethical Research Involving Children in Humanitarian Settings: An Overview of Principles, the Literature and Case Studies.” Innocenti Working Paper. Florence, Italy: UNICEF. https://www.unicef-irc.org/publications/pdf/IWP_2016_18.pdf.



World Vision International's Data Protection, Privacy, and Security for Humanitarian & Development Programs acknowledges the complexities of data protection in humanitarian contexts, but also argues it is "incumbent on this sector to strive toward the highest level of integrity, ethics, and technical ability" to ensure the responsible handling of data on children given their higher degree of vulnerability.¹¹

UNICEF's Children and the Data Cycle: Rights and Ethics in a Big Data World posits the voices of the world's children and those who advocate on their behalf are absent in an era of increasing dependence on data science and big data. Due to the potential for severe, long-lasting and differential impacts on children, the document argues child rights need to be integrated into the agenda on ethics and data science.¹²

Furthermore, as described in Child Privacy in the Age of Web 2.0 and 3.0, questions and challenges still remain regarding the applicability of concepts and provisions, like GDPR's "right to be forgotten," to children and their data, adding additional complexity.¹³ More than just a concern for digital activities, the ongoing accumulation of data about children throughout their lifetime can create a variety of unforeseen risks and challenges.

3. Responsible data approaches for children should encompass 1) measures to determine and communicate the potential value of data for those beneficiaries; 2) actions to ensure data protection and a legal basis for data activities; and 3) efforts to ensure that the potential value outweighs identified risks.

¹¹ Lutz, Al, Amos Doornbos, Anna Kehl, Annette Ghee, and Laura DePauw. 2017. "Data Protection, Privacy and Security for Humanitarian & Development Programs." Edited by Sherrie Simms. World Vision. <https://www.wvi.org/sites/default/files/Discussion%20Paper%20-%20Data%20Protection%20Privacy%20%26%20Security%20for%20Humanitarian%20%20%26%20Development%20Programs%20-%20FINAL.pdf>.

¹² Berman, Gabrielle, and Kerry Albright. 2017. "Children and the Data Cycle: Rights and Ethics in a Big Data World." WP-2017-05. Innocenti Working Paper. Florence, Italy: UNICEF. https://www.unicef-irc.org/publications/pdf/IWP_2017_05.pdf.

¹³ de Azevedo Cunha, Mario Viola. 2017. "Child Privacy in the Age of Web 2.0 and 3.0: Challenges and Opportunities for Policy." Innocenti Discussion Paper. UNICEF. https://www.unicef-irc.org/publications/pdf/Child_privacy_challenges_opportunities.pdf.



In UNOCHA's Building Data Responsibility into Humanitarian Action, data responsibility goes beyond the aims of data protection and privacy. It encompasses principles, policies, and tools aimed at unlocking the value of data in humanitarian contexts while mitigating risks and avoiding harms.¹⁴ The UN Global Pulse's Privacy and Data Protection Principles embraces similar ideas, such as a) Purpose Compatibility and Risk and Harm Assessment; and b) Risk Mitigation, as central concerns for its responsible use of data.¹⁵ These principles underline the importance of understanding value as well as risks of data for humanitarian and development work.

UNICEF's Children and the Data Cycle: Rights and Ethics in a Big Data World raises concerns on privacy and loss of control of personal data over data's lifespan. It also highlights the problem of direct or inadvertent discrimination and profiling, scope creep, and technological dependency, and provides approaches to address ethical issues in the child data cycle.¹⁶ Regarding metadata, the International Committee of the Red Cross (ICRC) and Privacy's International's "Doing No Harm" in the Digital Era identifies robust risk assessment and mitigation strategies that humanitarian organizations must develop to ensure that their use of new technologies does not result in any harm.¹⁷

The Framework for Data Sharing in Practice, from UNOCHA and Protection Information Management (PIM), highlights a Joint Benefit and Risk Assessment to systematically

¹⁴ Raymond, Nathaniel, Ziad Al Achkar, Stefaan Verhulst, Jos Berens, Lilian Barajas, and Matthew Easton. 2016. "Building Data Responsibility into Humanitarian Action." *OCHA Policy and Studies Series*. [unocha.org/sites/dms/Documents/TB18_Data%20Responsibility_Online.pdf](https://www.unocha.org/sites/dms/Documents/TB18_Data%20Responsibility_Online.pdf).

¹⁵ United Nations Global Pulse. 2019. "Privacy and Data Protection Principles." United Nations Global Pulse. 2019. <https://www.unglobalpulse.org/privacy-and-data-protection>.

¹⁶ Albright and Berman *supra* note 13

¹⁷ Pirlot de Corbion, Alexandrine, Gus Hosein, Tom Fisher, Ed Geraghty, Ailidh Callander, and Tina Bouffet. 2018. "The Humanitarian Metadata Problem - Doing No Harm in the Digital Era." London, United Kingdom: Privacy International. <http://privacyinternational.org/report/2509/humanitarian-metadata-problem-doing-no-harm-digital-era>.



and collaboratively assess data sharing's value and risks and modify actions accordingly.¹⁸

4. Digital and connected identifiers can be useful for providing personalized services, but can also create additional, significant risks to children and their families.

Data-driven digital identities are seen as game-changers across contexts but especially for children and other vulnerable groups. As described in UNICEF's State of the World's Children 2017 report, "as more and more children go online around the world, [digital technology] is increasingly changing childhood."¹⁹

These sentiments are repeated in other documents. In its Privacy Impact Assessment of Cash Based Interventions, the United Nations High Commissioner for Refugees (UNHCR) highlights the issues of profiling and social sorting as risks in the increased generation, sharing, and use of beneficiaries' identity information.²⁰ Responsible Data's Development Book echoes these concerns, explaining that while data in the wrong hands can put individuals at risk, even data in the "right" hands can lead to discrimination or exclusion.²¹ Categorization or documentation of individuals can have unintended consequences even when actors are not acting maliciously .

For adults, biometric identifiers are driving increasing parts of the responsible data literature. A working paper from the International Labour Office guides social protection practitioners seeking to create efficiency benefits from highly sensitive

¹⁸ "Framework for Data Sharing in Practice." 2018. Protection Information Management. <http://pim.guide/wp-content/uploads/2018/05/Framework-for-Data-Sharing-in-Practice.pdf>.

¹⁹ Keeley, Brian, and Céline Little. 2017. *The State of the World's Children 2017: Children in a Digital World*. UNICEF. https://www.unicef.org/publications/index_101992.html.

²⁰ TriLateral Research and Consulting. 2015. "Privacy Impact Assessment of UNHCR Cash Based Interventions." Office of the United Nations High Commissioner for Refugees. http://www.globalprotectioncluster.org/assets/files/tools_and_guidance/cash-based-interventions/erc-privacy-impact-assessment-of-unhcr-cbi_en.pdf.

²¹ *Responsible Data Book: Ways to Practise Responsible Development Data*. 2014. Responsible Data. <https://responsibledata.io/wp-content/uploads/2014/10/responsible-development-data-book.pdf>.



biometric identifiers while mitigating risks.²² The Center for Global Development, meanwhile, produced guiding documents on biometric identity information collection.²³ These materials advocate for upfront privacy impact assessments to identify potential sensitivities related to data use.²⁴ These researchers also outlined principles on inclusion, robust and responsive design, and accountable governance of identifiers and provide good-practice examples from countries at the forefront of ID management.²⁵ Even in 2010, the Columbia Human Rights Law Review published a note highlighting the risks of collecting biometric data from refugees.²⁶ More recently, ICRC noted that when biometric data collection is linked to services, such as those provided to refugees, consent cannot be viewed as free and fair.²⁷

UNICEF is taking a considered approach to the use of biometrics. Its report, “Faces, Fingerprints and Feet: Guidance on assessing the value of including biometric technologies in UNICEF-supported programmes,” provides decision-makers with key

²² Carmona, Sepúlveda, and M. Magdalena. 2018. “Is Biometric Technology in Social Protection Programmes Illegal or Arbitrary? An Analysis of Privacy and Data Protection.” Working Paper No. 59. Geneva, Switzerland: International Labour Organization. https://www.researchgate.net/profile/Magdalena_Sepulveda/publication/325909014_Is_biometric_technology_in_social_protection_programmes_illegal_or_arbitrary_An_analysis_of_privacy_and_data_protection/links/5b2c1583a6fdcc8506bc723e/Is-biometric-technology-in-social-protection-programmes-illegal-or-arbitrary-An-analysis-of-privacy-and-data-protection.pdf.

²³ Gelb, Alan, and Julia Clark. 2013. “Identification for Development: The Biometrics Revolution.” *Center for Global Development Working Paper*, no. 315. https://www.cgdev.org/sites/default/files/1426862_file_Biometric_ID_for_Development.pdf.

²⁴ Gellman, Robert. 2013. “Privacy and Biometric ID Systems: An Approach Using Fair Information Practices for Developing Countries.” *Center for Global Development, CGD Policy Paper*, August. https://www.cgdev.org/sites/default/files/privacy-and-biometric-ID-systems_0.pdf.

²⁵ Gelb, Alan, and Anna Diofasi Metz. 2018. “Identification Revolution: Can Digital ID Be Harnessed for Development?” *Center for Global Development Working Paper*. <https://www.cgdev.org/sites/default/files/identification-revolution-can-digital-id-be-harnessed-development-brief.pdf>.

²⁶ Farraj, Achraf. 2010. “Refugees and the Biometric Future: The Impact of Biometrics on Refugees and Asylum Seekers.” *Colum. Hum. Rts. L. Rev.* 42: 891. <https://iow.eui.eu/wp-content/uploads/sites/18/2013/04/07-Rijpma-Background4-Refugees-and-Biometrics.pdf>.

²⁷ Hayes, Ben, and Massimo Marelli. 2019. “Facilitating Innovation, Ensuring Protection: The ICRC Biometrics Policy.” *Humanitarian Law & Policy Blog*. October 18, 2019. <https://blogs.icrc.org/law-and-policy/2019/10/18/innovation-protection-icrc-biometrics-policy/>.



questions and criteria to ensure critical assessment and due diligence on benefits and risks of investments in biometrics.²⁸

5. Children and their needs and interests should be at the center of any data collection intervention.

Human-centered design is a common element of many responsible data strategies. The Engine Room, a research center, published the Handbook of the Modern Development Specialist, which focuses especially on the issue of human-centric data practices as key to responsible data use in development.²⁹ With relevance for famine relief in general, not just relating to children, Oxfam's Responsible Program Data Policy premises itself on the idea that responsible data practices at their core must safeguard people's rights and ensure dignity throughout the data collection and use process.³⁰

The Interagency Guidelines for Case Management & Child Protection recommend users prioritize the best interests of the child. In reference to the Convention on the Rights of the Child, it makes clear that the best interests of the child should be “the basis of all decisions and actions taken.”³¹

Responsible Data's Development Book notes the increasing reliance on quantification in development work may be motivated by funders, governments, financial incentives, or research goals.³² However, it argues a critical approach to avoid the use of “data for data's sake.”

²⁸ Richards, Nicole, Karen Carter, Tanya Accone, Shane Khan, Toby Wicks, Steven Voloo, and Sophie Clavet. 2019. “Faces, Fingerprints & Feet.” UNICEF. <https://data.unicef.org/resources/biometrics/>.

²⁹ “Responsible Data Book: Ways to Practise Responsible Development Data” *supra* note 22.

³⁰ “Responsible Program Data Policy.” 2015. Oxfam. <https://policy-practice.oxfam.org.uk/publications/oxfam-responsible-program-data-policy-575950>.

³¹ “Inter Agency Guidelines for Case Management & Child Protection.” 2014. Child Protection Working Group. http://www.cpcnetwork.org/wp-content/uploads/2014/08/CM_guidelines_ENG_.pdf.

³² “Responsible Data Book: Ways to Practise Responsible Development Data” *supra* note 22.



Regarding social media, just one small part of the data ecosystem, UNICEF's Ethical Considerations When Using Social Media for Evidence Generation states it is no longer sufficient for users of data and technologies to leave ethical reflection to subject-matter experts.³³ Rather, child advocates who use social media data need to be brought into the conversation and to understand and reflect on the ethical implications of the use and potential outcomes of adopting these technologies and the data they generate.

6. Broadly applicable frameworks and guidelines can help to establish good practices, but recognition of regional context and norms are often key when seeking to ensure the responsibility of data approaches involving children.

UNICEF's Data for Children Strategic Framework's five principles include "different data are appropriate for different uses and contexts."³⁴ Similarly, a resolution on Privacy and International Humanitarian Action agreed at an international conference of data protection and privacy commissioners committed members to consider the specific needs of international humanitarian actors operating in different contexts and with different externalities at play.³⁵ In other words, a one-size-fits-all approach is not realistic.

Responsible Data's Development Book suggests a number of questions and issues to consider, but notes a project's context determines the challenges its sponsors will face.³⁶ While defining "sensitive personal data," Privacy International's Guide for Policy Engagement on Data Protection states there is no exhaustive list of what constitutes sensitive personal data and recommends special consideration for categories such as financial data, society security, and data relating to children.³⁷

³³ Berman, Powell, and García-Herranz, *supra* note 5.

³⁴ Wicks, Garin, Han, and Chandy *supra* note 4.

³⁵ *Resolution on Privacy and International Humanitarian Action*. 2015. https://edps.europa.eu/sites/edp/files/publication/15-10-27_resolution_privacy_humanitarian_action_en.pdf.

³⁶ "Responsible Data Book: Ways to Practise Responsible Development Data" *supra* note 22.

³⁷ "The Keys to Data Protection: A Guide for Policy Engagement on Data Protection." 2018. London, United Kingdom: Privacy International. <https://privacyinternational.org/sites/default/files/2018-09/Data%20Protection%20COMPLETE.pdf>.



Privacy International also argues that national and local contexts should also be considered; for example, caste information is treated as highly sensitive personal data in India.

Global Kids Online's report *Addressing Diversities and Inequalities* calls attention to how the conceptualizations of social actors and their locations may be rich in international contexts where there has been prior research on a variety of aspects.³⁸ However, these conceptualizations, when applied in other contexts, can lead to overly broad characterizations and even stereotyping. It can imply, for instance, there is an "average 12-year-old." Still, it is also clear certain responsible data standards and principles are non-negotiable even if certain good practices depend on the context.

7. The participation of and consultation with children and their caregivers around the collection and use of children's data is an important component of data responsibility.

A paper in *Conflict and Health*, for example, highlights the need to consult with beneficiaries and data subjects. The authors make clear this engagement can be a complex undertaking that is highly dependent on context, especially in humanitarian settings.³⁹ Additionally, The Signal Code from the Harvard Humanitarian Initiative echoes this argument, including "the right to data agency" as one of its five human rights associated with humanitarian information activities.⁴⁰ Similar views are found in the Organisation for Economic Co-operation and Development's (OECD) Privacy Guidelines, which includes individual participation in its eight Basic Principles of National Application.⁴¹ Global Kids Online's method guide suggests children should be actively involved in the research process when research pertains to children's

³⁸ Livingstone *supra* note 9

³⁹ Bennouna, Cyril, Hani Mansourian, and Lindsay Stark. 2017. "Ethical Considerations for Children's Participation in Data Collection Activities during Humanitarian Emergencies: A Delphi Review." *Conflict and Health* 11 (March). <https://doi.org/10.1186/s13031-017-0108-y>.

⁴⁰ Greenwood, Faine, Caitlin Howarth, Danielle Poole, Nathaniel Raymond, and Daniel Scarnecchia. 2017. "The Signal Code: A Human Rights Approach to Information during Crisis." *Standards and Ethics*, 2, , January. <https://hhi.harvard.edu/publications/signal-code-human-rights-approach-information-during-crisis>.

⁴¹ "The OECD Privacy Framework." 2013. Organisation for Economic Co-Operation and Development. http://www.oecd.org/sti/ieconomy/oecd_privacy_framework.pdf.



opportunities. It also argues for deploying participatory and child-centered approaches to enable policy-makers and practitioners to design initiatives that respond to children's needs.⁴²

Finally, USAID's Considerations for Using Data Responsibly at USAID states its team must respect the agency of its data subjects in all humanitarian efforts.⁴³ Ensuring children and their caregivers can exert meaningful agency over children's data is, however, a significant challenge, as unforeseen data linkages and re-uses can emerge over time.

8. The consent of data subjects and their caregivers is important, but obtaining meaningful consent is a complex and, at times, impossible undertaking when dealing with children, especially in fragile humanitarian settings.

The Global Protection Cluster, European Commission, and USAID Interagency Guidelines for Case Management & Child Protection encourages actors to seek informed consent and/or informed assent, demonstrating both the importance of consent and the challenge of obtaining it in certain situations.⁴⁴ The ICRC Handbook on Data Protection in Humanitarian Action also highlights the importance of consulting children in decisions that affect them but notes humanitarian actors must take "particular care" to ensure children understand the risks and purported benefits of the collection and use of their data, otherwise the consent they provide will not be meaningful.⁴⁵ Indeed, a subsequent article in Humanitarian Law & Policy describes how

⁴² Livingstone *supra* note 9.

⁴³ Green, Siobhan, Subhashini Chandrasekharan, Claudia Schwegmann, Julie Cohen, Clare Sullivan, Linda Raftree, Abdul Bari Farahi, and Nina Getachew. 19AD. "Considerations for Using Data Responsibly at USAID." Washington, DC: USAID. <https://www.usaid.gov/sites/default/files/documents/15396/USAID-UsingDataResponsibly.pdf>.

⁴⁴ "Inter Agency Guidelines for Case Management & Child Protection." *supra* note 32.

⁴⁵ Kuner, Christopher, and Massimo Marelli. 2017. "Handbook on Data Protection in Humanitarian Action." Geneva, Switzerland: Data Protection Office of the International Committee of the Red Cross. <https://shop.icrc.org/e-books/handbook-on-data-protection-in-humanitarian-action.html>.



ICRC does not operate under the belief “consent provides a legally valid basis for data processing in many emergency situations.”⁴⁶

Meanwhile, UNICEF’s *Children and the Data Cycle: Rights and Ethics in a Big Data World* explains approaches adopted to ensure the realization of the rights of adolescent should differ from those adopted for younger children. Consent policies, UNICEF argues, ought to recognize children’s development, including their increasing competencies, analytical capacities and agency.⁴⁷ In another report, *Child Privacy in the Age of Web 2.0 and 3.0*, UNICEF outlines national, regional, and international consent provisions, noting the adoption of some norms aimed at protecting children’s privacy and their personal information pre-date the advent of the Internet.⁴⁸

9. Responsibilities around the ethical use of children’s data are ill-defined and distributed. Greater cooperation and improved partnerships could be a means for addressing these challenges.

The need for and challenge of determining a locus of accountability in the event of data-related harms is prevalent across strategies and policies reviewed but with little commonality in proposed approaches. The UN Privacy Policy Group’s Principles on Personal Data Protection and Privacy, consistent with many other efforts included here, in part intends to “harmonize standards for the protection of personal data,” highlighting the current fragmentation of policies, expectations, and responsibilities.⁴⁹

Improved collaboration could help to address these challenges. *Mapping and Comparing Responsible Data Approaches*, developed by the Centre for Innovation and The GovLab, highlights the need for leadership and inter-agency coordination around

⁴⁶ Hayes and Marelli, *supra* note 28.

⁴⁷ Berman and Albright *supra* note 13.

⁴⁸ de Azevedo Cunha *supra* note 14.

⁴⁹ Principles on Personal Data Protection and Privacy. 2018. <https://www.unsceb.org/privacy-principles>.



data responsibility to drive good practice and improve coordination and cooperation.⁵⁰ The Global Food Security Cluster and UN OCHA Field Guide to Data Sharing also makes clear that effectively leveraging data in humanitarian contexts is a joint effort, requiring good practices and collaboration across organizations, as well as across sectors.⁵¹ The Principles for Digital Development also culminate with the push for organizations leveraging technology to provide services to children to be more collaborative.⁵² Finally, a joint report prepared for UNICEF, UNHCR, and the ICRC also points to the value of data sharing in enhancing “coordination and collaboration across agencies” tasked with providing services to vulnerable children.⁵³

10. Low quality and/or unrepresentative data could negatively impact the responsible use of data. A focus on accuracy is essential if data will be used to inform decision-making affecting children.

Though not specifically focused on children's data, the European Union (through GDPR⁵⁴), the International Organization for Migration,⁵⁵ and UNHCR,⁵⁶ respectively, all consider data accuracy as central principles for responsible data handling. In line with the Principle on Data Accuracy, UNOCHA's Data Responsibility Guidelines include determining accuracy and integrity of data as a necessary step when collecting and

⁵⁰ Berens, Jos, Ulrich Mans, and Stefaan Verhulst. 2016. “Mapping and Comparing Responsible Data Approaches.” New York, New York: The GovLab. <http://www.thegovlab.org/static/files/publications/ocha.pdf>.

⁵¹ OCHA Information Management Sub-Group on Data Sharing, and global Food Security Cluster Technology & Innovation Working Group Sub-Group on Data Sharing. 2015. “Field Guide to Data Sharing.” Global Food Security Cluster. <https://fscluster.org/technology-and-innovation-task-team/document/field-guide-data-sharing>.

⁵² “Principles.” n.d. Principles for Digital Development. Accessed November 13, 2019. <https://digitalprinciples.org/principles/>.

⁵³ Kaonga, Batavia, Philbrick, and Mechael *supra* note 8.

⁵⁴ “General Data Protection Regulation (GDPR) – Official Legal Text.” n.d. General Data Protection Regulation (GDPR). Accessed November 13, 2019. <https://gdpr-info.eu/>.

⁵⁵ Martens, Ruzayda. 2010. “IOM Data Protection Manual.” Geneva, Switzerland: International Organization for Migration. https://publications.iom.int/system/files/pdf/iomdataprotection_web.pdf.

⁵⁶ United Nations High Commissioner for Refugees. 2015. “Policy on the Protection of Personal Data of Persons of Concern to UNHCR.” Office of the United Nations High Commissioner for Refugees. <https://www.refworld.org/docid/55643c1d4.html>.



receiving data.⁵⁷ The Center for Democracy & Technology, a technology nonprofit advocacy and research center, reviewed 18 data use frameworks and recognized the Data Quality Principle, which states personal data should be relevant to the purposes for which it is used, and, to the extent necessary for those purposes, should be accurate, complete, and kept up-to-date as a consistent and foundational principle.⁵⁸

A lack of comparable data can also create issues. The Global Agenda for Children's Rights in the Digital Age, for example, notes the challenges involved in using data to benefit children's lives resulting from the lack of comparable baseline data related to policies and programs, as well as issues of transferability regarding solutions developed in the Global North and their applicability in the Global South.⁵⁹ Global Kids Online's Addressing Diversities and Inequalities method guide also notes research questions transferred (e.g. from the global North to the global South, or from wealthy neighborhoods to impoverished ones) without providing attention to local and international inequalities can generate contaminated knowledge.⁶⁰

⁵⁷ Centre for Humanitarian Data *supra* note 6.

⁵⁸ "Responsible Data Frameworks: In Their Own Words." 2018. Washington, DC: Center for Democracy and Technology. <https://cdt.org/files/2018/06/2018-06-25-Responsible-Data-Frameworks-In-Their-Own-Words-FULL.pdf>.

⁵⁹ Livingstone, Sonia, and Monica E. Bulger. 2013. "A Global Agenda for Children's Rights in the Digital Age. Recommendations for Developing UNICEF's Research Strategy." Innocenti Publications. UNICEF. <https://www.unicef-irc.org/publications/702-a-global-agenda-for-childrens-rights-in-the-digital-age-recommendations-for-developing.html>.

⁶⁰ Livingstone *supra* note 9.



OVERVIEW OF UNICEF ENGAGEMENT IN DATA FOR CHILDREN OBSERVED IN FIELD VISITS

The RD4C research team conducted three field visits as part of its research. While three countries could never be fully representative of the breadth of contexts in which UNICEF operates, the countries provide a diverse view into the many contexts in which UNICEF works. They also reveal the challenges and varied data systems and policies in use in different country environments. The three countries selected were:

- ▶ **Romania**, a middle-income country with a relatively small UNICEF country program;
- ▶ **Kenya**, a large and well-resourced country office operating in a nexus environment, one with both development and humanitarian needs; and
- ▶ **Afghanistan**, an emergency environment with acute vulnerabilities affecting a large number of children.

METHODOLOGY FOR FIELD VISITS

The three field visits represented the central component of the RD4C methodology. The participatory action research undertaken during these visits sought to fill gaps in



understanding related to the use of data in delivering services for children and explore complex challenges, workflows, and other concerns. The research team worked closely with UNICEF staff to learn from country teams' experiences with data and to expose UNICEF personnel and counterparts to participatory diagnostic and assessment exercises that could be applied for self-assessment purposes in the future.

The field visits combined observation and participatory workshops involving key UNICEF staff and counterparts from government and partner NGOs. The research team used the same approach at each field site to ensure the findings were comparable and consistent. The different components included:

- ▶ **Observation:** The research team observed aspects of UNICEF's data management in each country context. This work included observation of data collection exercises and meetings on data management and governance between UNICEF and relevant counterparts.
- ▶ **Informational Interviews:** A mix of one-on-one and small group interviews with UNICEF staff and selected counterparts to establish a baseline understanding of how data is being used in different sectors within the country context. These interviews were organized in the interest of gaining a representative understanding of responsible data activities and policies across UNICEF sections.
- ▶ **Data Responsibility Workshops:** The research team organized a workshop in each country bringing together UNICEF staff and key counterparts from sectors of focus to review and expand on findings from the earlier observations and interviews. Participants focused particularly on identifying and mapping relevant data systems, data uses, data handling entities, and related governance and decision-making processes in place that support (responsible) data for children in the context.

FIELD VISITS TO ROMANIA, KENYA, AND AFGHANISTAN

In this section, we briefly describe a selection of the data systems and processes identified (and in some cases observed being used in practice) during the field visits. The analysis of these systems and processes informed the cross-cutting findings included in the subsequent section, as well as the concluding principles and



recommended practices for UNICEF and other child rights actors working to ensure responsible data for children.

ROMANIA

Investment in improved generation and use of data in service delivery for children and child rights monitoring is core to the UNICEF Romania country programme. As described in the Country Programme Action Plan (CPAP), UNICEF provides “technical assistance and capacity-strengthening to support the scaling-up of tested and evaluated models, facilitate the development of policies and the allocation of budgets at all levels of administration.”⁶¹

In collaboration with government counterparts at the National Institute of Statistics and the Ministries of Labour and Social Justice, including especially the National Authority for Child Rights Protection and Adoptions, UNICEF is working toward enabling policy design and implementation [that] are more rigorous and evidence-based.” According to the CPAP, these efforts to generate more evidence across the children’s data ecosystem “will contribute to greater national capacity for improved and harmonized child rights monitoring and policy evaluation.”⁶²

The UNICEF Romania Country Office (RCO) plays a key role in data systems in use across sectors affecting children, including notably:

- ▶ In the Child Protection sector, UNICEF has a strong ongoing collaboration with the Ministry of Labour and Social Justice. The UNICEF RCO supports a “modelling project”⁶³ of the Aurora tool—a data platform used for needs assessment, case management, and policy development.

⁶¹ United Nations Children’s Fund Executive Board. 2017. “Country Programme Document: Romania.” New York: United Nations Economic and Social Council. <https://www.unicef.org/about/execboard/files/2017-PL8-Romania-CPD-ODS-EN.pdf>.

⁶² *Ibid.*

⁶³ “Modelling projects” refer to early stage, exploratory approaches or initiatives that UNICEF and its counterparts design and test to see whether they should be considered for implementation at scale.



- ▶ In the Education sector, UNICEF uses and supports the Sistemul Informatic Integrat al Învățământului din România / Education Management Information System (SIIR), as well as various data modelling projects designed and implemented with the Ministry of National Education focused on thematic areas such as out-of-school children.
- ▶ In the Health sector, UNICEF supports the collection of individual and aggregate health data, commissioning research studies on issues such as infant and maternal mortality with counterparts at the Institute of Mother and Child, and analysis of data held by the National Institute of Statistics and Ministry of Health, among others.
- ▶ Across these different sectors of focus, UNICEF also works closely with the National Institute of Statistics to support more ethical and effective statistical practice, including in relation to Child Rights Monitoring. Specific engagements and activities include capacity building and convening around ethics in evidence-generation⁶⁴ and ethical data management, engagement with ethical review boards housed in different research institutes, and co-creation of more robust standard operating procedures for research, studies, evaluations, and similar statistical exercises.

KENYA

UNICEF has placed significant attention on strengthening national and subnational capacities to collect and analyze data and use evidence to improve development and humanitarian programmes in Kenya. As described in the 2014–2018 Kenya CPAP, this work includes investment in innovations such as digital platforms and data driven-planning and advocacy to scale high-impact interventions. Evidence of this work includes the well-established data management systems across relevant sectors, including those listed below.

The UNICEF Kenya Country Office (KCO) plays a key role in data systems in use across sectors affecting children, including notably:

⁶⁴ *Ibid*: “Stronger data-generation, use of evidence and child rights monitoring will be key outputs, so that policy design and implementation are more rigorous and evidence-based.”



- ▶ In the Child Protection sector, UNICEF works closely with the Department of Children Services at the national and county level to support the roll out of the Child Protection Information Management System (CPIMS), the central child protection case management system used across different sectors and levels of governance. UNICEF also supports NGOs advancing child protection objectives through the use of digital platforms, including ChildLine, a helpline for children experiencing or at risk of violence and other forms of mistreatment or neglect.
- ▶ In the Education sector, UNICEF supports the National Education Management Information System (NEMIS), and has been actively involved in the development, upgrading, and roll-out of this system over the past several years.
- ▶ In the Health sector, UNICEF supports the District Health Information System 2 (DHIS2), as well as the Integrated Community Health Information System (ICHIS), an HIV Database, and other national systems primarily managed by the Ministry of Health. Additionally, UNICEF supports the many largely analog data collection systems in place across the country, including the Mother and Baby Booklet, which tracks health services provided to mothers and their children during pregnancy and post-birth.
- ▶ In the Nutrition sector, UNICEF supports and uses the Nutrition Information System (NIMS) with the Ministry of Health. UNICEF also supports surveys in the nutrition space and nutrition-focused components of broader information management systems, including the DHIS2 and the Logistics Management and Information System (LMIS).
- ▶ In the WASH sector, UNICEF supports the Ministry of Health in implementing the real-time monitoring system for community-led total sanitation (CLTS). This system enables the Ministry and its partners to monitor progress on the open defecation free coverage at the village, sub-county, county, and national level.

AFGHANISTAN

As explained in the Afghanistan CPAP, UNICEF is committed to supporting government to “ensure availability, analysis and use of disaggregated data at national and provincial levels to inform programme design, implementation and monitoring.”⁶⁵

⁶⁵ “Afghanistan Country Programme Action: 2015–2019.” 2014. Kabul, Afghanistan: UNICEF. <https://www.unicef.org/afghanistan/sites/unicef.org.afghanistan/files/2018-01/afg-report-CPAN2015-2019.pdf>.



Data collection and use are also mentioned as critical areas for support and capacity building in several sectoral/programmatic domains within the CPAP. The CPAP also cites a strategic shift toward building “national and local government institutional capacity in all programme areas...by providing human, material and financial resources, and transfer of knowledge through training, on-the-job skills transfer, inter-country/South-South cooperation and technical assistance.” Data management is one area where such institutional capacity development has proven key across sectors.

The UNICEF Afghanistan Country Office (ACO) plays a key role in data systems in use across sectors affecting children, including:

- ▶ In the Child Protection sector, UNICEF manages the Monitoring and Reporting Mechanism (MRM) for grave violations of children's rights in situations of armed conflict. This is arguably the most sensitive data and related data system and process that UNICEF manages in the country. In addition to MRM, the ACO supports Government and civil society counterparts in implementing the Children on the Move Programme and related data systems, as well as information management systems for child protection case management. Finally, UNICEF supports the national birth and death registration database as part of broader investments in improving civil registration and vital statistics across the country.
- ▶ In the Education sector, UNICEF supports the Ministry of Education in its continued maintenance of the EMIS system. UNICEF also directly implements the findings of the national out-of-school children study in targeted interventions in provinces highlighted as most deprived.
- ▶ In the Health sector, UNICEF supports the HMIS including the rollout of DHIS2. The ACO also plays an important role in creating and disseminating the paper ledgers used by facilities and health workers to capture data at the individual patient/service delivery level. The ACO Health Programme Strategy includes investments in data availability, quality, and use across all key programme areas, including support to frontline data capture through the design and provision of ledgers for use by health workers in different areas (e.g. 10+ ledgers are supported for EPI). The Polio team leverages the polio eradication and surveillance data system maintained by



WHO, immunization rate data collected and managed by the Ministry of Public Health, and also directly manages data collected regarding social mobilization for immunization efforts.

- ▶ In the Nutrition sector, UNICEF supports and uses data systems including the Nutrition Management Information System, the Early Warning System, the Nutrition Online Database—all of which are integrated with HMIS in some if not all provinces. Weekly Iron Folic Acid Supplementation (WIFS) Database in collaboration with the Education section and relevant Ministry counterparts.
- ▶ In the WASH sector, UNICEF helped create and continues to fund the MISGIS Unit, which compiles location data associated with WASH-related service delivery and beneficiaries. CLTS and other WASH-associated datasets are integrated into the MISGIS systems. An MHM programme was recently launched and will eventually collect granular beneficiary data—the management of that information system will be led by the UNICEF ACO WASH section in collaboration with the Education section.



CROSS-CUTTING FINDINGS

The research team's review of the relevant literature, key informant interviews, and three field visits surfaced a number of findings that could inform more responsible handling of children's data. These findings are presented here focusing first on the current status, particularly in the Romanian, Kenyan, and Afghan contexts, and then on opportunities at the national and global level for advancing responsible data for children. Across these concerns, we organize the findings according to the previously introduced four Elements of Responsible Data Infrastructure that can support or constrain good practice: Institutional Infrastructure; Technical Infrastructure; Human Infrastructure; and Legal and Policy Infrastructure.

CURRENT STATE

This section provides key findings across the four elements of responsible data infrastructure as it pertains to the current state of UNICEF and partners' work around data for children. Strengths and weaknesses in each area are presented in tandem to



provide a holistic view of the key features of the children's data landscape observed through the research.

INSTITUTIONAL INFRASTRUCTURE

Existence of Institutions Well-Placed to Drive the RD4C Agenda

Institutions with clear mandates for advancing children's rights can act as important enablers for achieving responsible data for children across contexts. As discussed, responsible data for children is a unique challenge. As such, more general data privacy regimes and related groups or communities of practice are unlikely to serve as effective conveners of child rights actors on issues specific to children's data. Institutions with explicit child rights mandates would be well-placed to convene and lead on issues related to responsible data for children. These organizations should be natural partners for UNICEF and similar actors to engage on the normative dimension of these issues.

In Romania, for example, the National Authority for Child Rights and Adoption and the newly established Children's Ombudsman are well-positioned to act as trusted partners on issues of responsible data for children. Similarly in Kenya, policy and service delivery entities, such as the Department for Children's Services, key line ministries, and a coalition of child rights, and child protection organizations active at the national and sub-national level are well placed to advance the agenda.

Strategic Transition or Integration of Data Systems with Government Counterparts

Responsible institutional infrastructure can take the form of ongoing engagement between entities with a child rights mandate. It can also involve laying the operational groundwork for effective use of relevant data systems across sectoral partners and the effective and responsible handover of data system management responsibilities between different actors.

In Afghanistan, the UNICEF ACO has demonstrated its commitment to system strengthening with government counterparts through investment in data systems across sectors. This work was particularly visible in the Nutrition and Health sectors where UNICEF national staff have strong ties with the government. Staff serve as trusted allies and advisors to their Ministry counterparts. The data systems UNICEF has



helped develop are designed with integration and (eventual) government ownership in mind.

The UNICEF RCO is similarly laying the groundwork for a responsible handover of the Aurora data system to government. UNICEF developed the system but always intended it to be administered over the longer term by the National Authority for Child Rights and Adoption. Close engagement with the National Authority and a thoughtful consideration of the many variables at play, as well as capacities required for an effective transition, are positioning the UNICEF RCO and Romanian government for success.

Missed Use of Data Already Collected

Across regions and institutions, significant amounts of data about children are collected and stored but not used to inform decision-making. Not only does unused data create resource drains and additional risks with no clear potential benefit, but it can also cause organizations to miss opportunities to improve children's lives despite the existence of information to act on those opportunities.

In the Kenyan data ecosystem, despite the presence of robust and well-functioning systems for data collection and management, evidence of consistent and effective data use is limited. Data collected from the NEMIS related to educational outcomes have not been released through a publicly accessible report over the last two years. Across sectors, UNICEF staff and key counterparts acknowledged they do not use much of the data currently collected to its full potential. This applies to both inter-sectoral administrative data systems as well as more targeted data collection exercises, such as sector-specific surveys and assessments.

Similarly, in Afghanistan missed use of collected data is acknowledged by both UNICEF and key public sector counterparts as a major barrier to creating positive impacts for children. Missed use arises due to many challenges, including lack of capacity in key institutions, lack of clear strategies and value propositions for data collected, and lack of coverage for key data systems thanks to insecurity in certain regions, among other challenges. The absence of robust mechanisms for oversight of how data systems are



used to inform programme design and related decision-making also enables this problem to persist.

Lack of Clarity Regarding Source of “Truth”

Redundant data collection and storage is a common reality across contexts. While this reality often cannot be avoided—and indeed can be somewhat desirable in the absence of interoperable systems—stakeholders engaging with these datasets and systems need to be clear about what serves as the arbiter of truth. Stakeholders will struggle to effectively and responsibly use children’s data if they cannot determine which system or dataset should be the basis for decision-making, particularly when faced with inconsistencies.

In Romania, an inter-ministerial push for database and platform interoperability highlights the prevalence of potentially redundant datasets and data collection procedures in areas like health and child protection. Major questions exist across the data ecosystem, including especially within government ministries, regarding the system of record and how to reconcile different but related information collected for varied purposes. This confusion regarding the system of record also creates challenges for other ministries and stakeholders seeking to update their databases and maintain consistency and cross-organizational data accuracy.

This lack of clarity can cause decisions to be made based on inaccurate or outdated information. It also creates major potential for missed uses of data resulting from actors lacking the most up-to-date and accurate information to inform their decision-making and service delivery.

TECHNICAL INFRASTRUCTURE

Investment in Data System Inventories and Audits

Across the three countries, individuals understood the need for a comprehensive view of the data systems in use across the children’s data ecosystem. In Afghanistan, the UNICEF ACO ICT section has already initiated a project to capture all the data systems (“technology for development” projects) currently supported or used by the office. This effort demonstrates a clear recognition of the need for clarity. The office sees value in



thoughtful consideration of what data is being held where, and which actors are responsible for the management of that data. Similarly, the National Statistics and Information Authority (NSIA) is inventorying data and information systems in use and under development by various line ministries.

Romania and Kenya have also initiated technical audits to better understand the data systems active in their contexts and to inform decision-making on how to act on opportunities for leveraging those systems or to retire those that are not providing value for children.

Lack of Standardization

Given the diversity of actors in the responsible data for children ecosystem, there is a clear need for cooperation amongst child rights actors to align and promote common approaches to data management for children. Technical standardization is a key pathway for enabling effective cooperation and collaboration across stakeholders. Such technical standardization, however, is often lacking in the data for children ecosystem, particularly given the many third-party technology vendors providing their own proprietary software to actors in the space.

In Romania, for example, in education, child protection, and health, there is not a clear understanding across national government Ministries and Departments as to which actors must set standards for data management—including both data standards, such as common formats, and system standards, such as common retention procedures. The processes for implementing these standards are not well recognized, leading to fragmentation in the ecosystem and potential gaps in data protection. This ambiguity can lead to redundancy in systems and overcollection of certain data points beyond what is proportionate to the purpose for which it was collected. Finally, while there is a broad push for increased interoperability of systems and the data that they generate, stakeholders are not clear on the technical, policy, and procedural requirements for achieving it in a meaningful and responsible way.

Kenya faces similar challenges, especially in education, child protection, and health. Institutions, including national government ministries, do not always understand who



has the ability and mandate to set standards for data collection. The result is fragmentation in the ecosystem and potential gaps in data protection, as well as missed use.

Group Data Risks

Group privacy is a way to protect sensitive group data or demographically identifiable information (DII). Personal data risks are increasingly well documented around the world—including in countries like Romania where compliance with the EU’s GDPR drives data protection practices. Risks created by certain types of aggregated group data, however, are less well recognized and understood, even in cases where stakeholders’ data practices are consistent with GDPR’s personal data-focused provisions.

Data about population segments (e.g. gender- or age-disaggregated data) or types of vulnerability (e.g. child-headed households and children experiencing gender-based violence) are not personally identifiable. They can, however, expose groups of children to threats from malicious actors if the data is handled irresponsibly. The focus on data responsibility as a means for ensuring the protection of personal data creates potential for risks arising from the collection and/or accessibility of group data—including risks associated with the so-called mosaic effect—going unidentified and unmitigated.⁶⁶

HUMAN INFRASTRUCTURE

Prioritization of Trust Across the Ecosystem

Across institutions and levels of government, each observed country intended to protect children and their sensitive personal information. In some cases there was not a clear understanding of the risk profile of certain types of data or data handling practices among frontline data collectors and government actors involved in managing data systems. Still, frontline service providers and institutional decision makers at

⁶⁶ The “mosaic effect” is when seemingly innocuous bits of data, which by themselves are not a security concern, may reveal sensitive information when combined. See, for example, John Czajka, Craig Schneider, Amang Sukasih, and Kevin Collins, “Minimizing Disclosure Risk in HHS Open Data Initiatives,” Mathematica Policy Research, September 29, 2014, https://aspe.hhs.gov/system/files/pdf/77196/rpt_Disclosure.pdf.

UNICEF recognized the need for privacy-protective behavior as a means for maintaining trust with beneficiaries.

In Romania, service providers and decision-makers acknowledged responsible management of data is key to maintaining the trust of children and caregivers needed to deliver services effectively. Interviews and consultations indicated that the importance of data protection was understood and prioritized at the national and sub-national levels, though the theoretical concepts of data protection were best understood at the national level. Sub-national counterparts and frontline service providers exercise responsible practice because it is critical to maintaining trust with and access to the children and families they serve, even if particular actions were not viewed as data responsibility efforts, per se. UNICEF staff and their counterparts also exhibited prioritization of trust across sections.

Unclear Decision-making Processes

Just as technical standardization is necessary for responsible intra-organizational and inter-organizational data handling, a shared understanding of which individuals and teams are responsible for making decisions at different stages of the data lifecycle can help to ensure responsibility.

In Kenya, the processes determining if, when, and how to collect or share different datasets (e.g. school enrollment status, and social services received) for specific purposes are not well defined within or across key governing institutions (e.g. national line ministries, county-level authorities, etc). The lack of clarity on this decision provenance undermines opportunities for cross-institutional collaboration, database interoperability, and mechanisms to ensure responsible data use.

In Romania, stakeholders across government, civil society, and multinational institutions did not always clearly document or understand decision-making processes and policies influencing all stages of the lifecycle of different datasets and data systems affecting children. The inability of stakeholders to clearly articulate the decision provenance affecting data systems created significant challenges for enabling cross-institutional collaboration, database interoperability, and the advancement of



responsible data handling practices. This work is relevant to the management of non-personal group data and administrative data, as the governance of such data falls largely outside of the regulatory framework of reference, GDPR.

Most of the expertise related to responsible data handling exists at the national level, where the least sensitive data is handled. Sub-nationally, frontline data collectors and local institutions engage with significantly more sensitive, personally identifiable data about children.

Absence of Sufficient Subnational Capacity

In each of the countries studied, a paradox exists: Most of the expertise related to responsible data handling exists at the national level, where the least sensitive data is handled. Sub-nationally, frontline data collectors and local institutions engage with significantly more sensitive, personally identifiable data about children. Individuals working in these contexts are knowledgeable about their fields of work, but not always versed in data protection and responsibility issues.

In Afghanistan, particularly at the subnational level, the limited understanding of how children's data relates to child rights represents a significant barrier to promoting more responsible data practice. UNICEF staff and counterparts emphasized how notions of privacy never really existed in the country's cultural context. As such, it was challenging to communicate the importance of handling children's data responsibly and viewing data more broadly as an object worthy of protection—particularly for those handling data at the community or village level. Responsible data expertise and



capacity issues similarly existed at the provincial level in Kenya, where significant amounts of personal data are prepared and aggregated before reaching actors working at national institutions and ministries.

LEGAL AND POLICY INFRASTRUCTURE

Strong Processes in Place for Ensuring Ethical Research and Monitoring, Respectively Research and program monitoring are two key data-generating practices initiated by UNICEF and other child rights actors. Across the country environments, stakeholders initiating research and monitoring programs exhibited a clear understanding of the relevant policy guidance and procedures for ensuring responsible data practices in each context.

Ethical research and monitoring processes were notably evident among UNICEF and its counterparts in Kenya. These actors consistently engaged with institutional review boards and ethical review boards in designing data-generating exercises. The Kenyan National Bureau of Statistics and relevant line Ministries promoted and reinforced this practice, which seems to be consistently applied across sectors. The extension of this approach to other data-related activities (such as the design and deployment of administrative and other related data systems) could further bolster responsible data management for children.

Influence of Dominant Regulatory Regimes

GDPR is arguably the most influential data protection regulation in the world today. It affects data responsibility strategies, even in institutions that are not subject to GDPR. While this influence can advance important personal data protection practices, there are also risks. Alignment with GDPR can improve data responsibility but is often not sufficient given risks and challenges that are not addressed by the regulation.

In Romania, there is an understandable but risky notion across government Ministries and other institutions that compliance with GDPR is sufficient for attaining responsible data for children. Risks which aren't explicitly addressed by GDPR, such as risks related to targeting of groups based on demographically identifiable information that is not considered personal data, are likely to be overlooked. Decision-making processes are



not in place for stakeholders when confronted with situations or processes that are not clearly addressed in GDPR.

Outside of the EU, the central role of international NGOs and donors is acutely felt in Afghanistan's data ecosystem. The prevalence of EU-based NGOs generating and handling data creates a level of uncertainty regarding the impact of the GDPR on data activities in the country. While the UNICEF ACO is not subject to GDPR, access to data could suffer from excessive caution and resultant reluctance to share by EU-based NGOs due to the law.

OPPORTUNITIES

UNICEF and other all rights-based organizations working with children's data have clear opportunities to build on current good practices, and mitigate risks and challenges. Although standards for responsible data for children will likely shift over time, acting on the following opportunities at the country and global level will help position practitioners for success (and successful iteration) going forward.

INSTITUTIONAL INFRASTRUCTURE

Country-level Opportunities

Inter-sectoral Collaboration around Responsible Data for Children

Good and responsible practice is in place across sections and contexts in UNICEF country offices and counterparts handling children's data. Even at the country level, however, structures often do not exist for cross-sectoral collaboration and knowledge-sharing between actors tasked with ensuring responsible data handling at institutions such as UNICEF. Creating opportunities, for example, whereby good practices in place in the Nutrition section can be communicated to the Health section could provide a way to accelerate responsible data activities within large and complex child rights institutions and their government and civil society counterparts.

In Afghanistan, the UNICEF ACO can engage as a key partner and technical advisor in the emerging national data governance and policy landscape through support to the National Statistics and Information Authority (NSIA) and key line ministries. The



UNICEF ACO has an opportunity to support and positively influence the development of a national data policy framework for Afghanistan with its child rights lens. UNICEF is uniquely positioned to serve both as a technical advisor and an operational partner in the development, testing, refinement, and implementation of different data governance instruments as part of the broader data policy landscape that the NSIA seeks to develop in collaboration with key line ministries. Critically, UNICEF can use this opportunity to champion issues that are particularly relevant to children and children's data as an entry-point for enhanced data governance in different sectors.

This work can also take the form of technical and policy support for government and civil society counterparts regarding responsible data practices for systems that UNICEF country offices engage with but do not directly manage or fund. In Kenya, UNICEF is positioned to advise more consistently and comprehensively on issues related to data management. National counterparts in key line ministries seem open to increased engagement on this issue, and the current gap in technical expertise on data-related topics within child rights organizations presents an opportunity for UNICEF and its key counterparts to engage in a more intentional and meaningful way.

Evidence Generation and Modelling Responsible Data for Children in Safe Sandbox Environments

Evidence for how to advance responsible data practices is growing. While there are good practices child rights actors can and should replicate, there is still a strong need for more (safe and responsible) piloting of new ways to achieve responsible data in the interest of generating evidence that could inform future practice. Given the many risks in these experimental approaches, pilots ought to be implemented in a safe sandbox.⁶⁷ Such a sandbox environment would institute restrictions and controls to mitigate possible negative consequences before any work is replicated.

In Romania, UNICEF has a well-established practice of jointly designing and implementing model projects with counterparts in different sectors of focus. The work around the minimum package of services—including the development and deployment

⁶⁷ See, for example, “Regulatory sandbox lessons learned report,” Financial Conduct Authority, October 2017, <https://www.fca.org.uk/publications/research/regulatory-sandbox-lessons-learned-report>

of the Aurora application and web platform—is an excellent model of reference for similar projects in other sectors.

Where systems already exist, UNICEF can engage around modelling improved governance, guidance, and procedures to prevent data protection issues and drive responsible use of data when it can provide value for children. In scenarios where UNICEF is directly or indirectly involved in the technical development of a data system, the point in time when ownership of the system is formally transferred from UNICEF to government (or other) counterparts should serve as an opportunity to embed and formalize responsible data practice and ensure a rights-based approach to the adoption and scaling of data systems for children.

Global Opportunities

Self-directed Application of Diagnostic and Assessment Methodology

The RD4C project team used a purpose-built diagnostic and assessment methodology to understand the opportunities and challenges facing UNICEF country offices in how they handled data about children. The methodology focuses on the key systems and actors in the children's data ecosystem under consideration; the principles and policies guiding practices across the ecosystem; perceptions and identification of gaps and needs; and use cases exemplifying opportunities and risks. Child rights organizations such as UNICEF could benefit from the identification of such tools, and the harmonization and dissemination of instruments aimed at enabling self-directed assessments of their data handling processes and procedures.

TECHNICAL INFRASTRUCTURE

Country-level Opportunities

Technical Support and Sharing of Best Practice

As a trusted partner across its sectors of focus, UNICEF is positioned to consistently and comprehensively advise on issues related to data management. Key national counterparts seem open to increased engagement on this issue. The current gap in technical expertise within child rights organizations presents an opportunity for UNICEF and its counterparts to engage in an intentional and meaningful way.

For instance, the UNICEF ACO has strong experience in the effective and responsible development of data systems for children, most notably in the areas of health and nutrition. The office can demonstrate how to develop, deploy, and sustainably manage data systems in a responsible way through ongoing support to different line ministries in improving the availability, quality, protection, and use of data across sectors. Relatedly, the UNICEF ACO could consider supporting its government counterparts to improve the coordination and strategic oversight of data systems deployed by development partners. This work would be particularly valuable in sectors, such as health, that are farther along in implementing robust Management Information Systems (MIS) at national scale.

Advancing the discussion on group data risks and risk mitigation could be one key aspect of this technical support and best practice sharing. UNICEF country offices and their counterparts have the opportunity to convene a nation-level conversation around the normative dimensions of child rights in the digital age. Moving the discussion beyond a strict focus on personal data protection (to include considerations around the protection of non-personal but still potentially sensitive forms of group data) can ensure a holistic approach to the design and delivery of data systems across sectors, putting protection of child rights at the center.

Global Opportunities

Data Systems Mapping Methodology

Globally, UNICEF and other child rights organizations can support teams in diverse contexts through the development and dissemination of a common tool for mapping data systems handling children's data. Such a tool could support group exercises and facilitated workshops to map the data systems active in a country. The mapping approach could encourage stakeholders to identify the systems generating data about children as they access different services; the relative sensitivity of data these systems generate; the parties with access to the data; the technical makeup of these systems; and the implications (positive and negative) of the technical components of the local ecosystem. The methodology could also feature an overview of considerations and guiding questions to surface the most important components of this ecosystem and

identify salient risks and opportunities associated with those components. This should build off existing work such as the Data Landscape and Diagnostic Tools (internal to UNICEF) and the enterprise architecture (business process mapping) and assessment approaches already used in sectors such as civil registration and vital statistics and health

Global Guidance on Interoperability

Interoperability, or the “standardization and integration of technology” systems, is an objective that, if achieved, can greatly increase the effectiveness and efficiency of digital systems.⁶⁸ If a data system managed by one section of an organization can work effectively with another related data system managed by an entirely different entity, each party is likely to experience efficiency gains. Moreover, interoperable data systems can help to avoid re-victimization of children arising from repeated requests to share information about traumatic events or situations. The lack of interoperability can also lead to redundancy, overcollection of certain data points, and undue accumulation of both information and risk. This could result in actors missing possible uses of data and security risks emerging from varying levels of protection applied to sensitive data held in multiple places.

Across each of the field research visits, data handlers in governments, NGOs, and international organizations voiced a desire to achieve greater interoperability. The value of data systems that effectively “speak with” one another is clear. This broad push for increased interoperability of systems and the data that they generate is reflective of a cross-cutting recognition that greater value could be derived from existing data about children. However, in many of the contexts studied, stakeholders were not clear on the technical, policy, and procedural requirements for achieving fully interoperable systems. Improving the ability to share sensitive data about children can create significant risks, such as unauthorized access and use.

At a global level, there is no clear, easy-to-implement solution for enabling this type of interoperability. Global guidance on defining optimal data exchange technical

⁶⁸ Palfrey, John, and Urs Gasser. 2012. *Interop: The Promise and Perils of Highly Interconnected Systems*. Basic Books. <https://cyber.harvard.edu/publications/2012/interop>.



mechanisms (such as APIs or middleware) and policy frameworks for minimizing risks of misuse of interoperable systems—including systems holding especially sensitive data, such as location data on children with particular vulnerabilities—could provide significant value. Such guidance could both help to accelerate moves toward interoperability and ensure that interoperability is achieved in a responsible and strategic manner.

HUMAN INFRASTRUCTURE

Country-level Opportunities

Creating Data-focused Internal Coordination Structures and Working Groups

Concrete structures and mechanisms are essential for moving responsible data principles, policies, and best practices to actual implementation. Institutionalizing working groups and creating responsible data-focused intra- and inter-organizational connections between those tasked with handling children's data can allow for effective implementation of responsible data procedures.

In Afghanistan, staff across the UNICEF ACO acknowledged challenges related to internal coordination and collaboration on issues related to data, due to the scale and complexity of the Country Programme.

There is a clear opportunity to enhance the impact and complementarity of investments in data systems, and data management more broadly, by addressing these coordination and collaboration challenges. The creation of, for instance, an Information Management Working Group, which would connect information management officers positioned across sections of the UNICEF ACO, could improve collaboration. Existing internal working groups at both the technical and management levels should be supported to address relevant issues related to data in an informed and consistent way. This can be achieved through comprehensive and regular monitoring and communication around what data (and underlying systems) are available to and supported by the UNICEF ACO at the national and sub-national levels.



Global Opportunities

Establishing a Decision Provenance Mapping Strategy

As demonstrated in each of the RD4C field visits, responsible data processes involve internal and external stakeholders faced with myriad decision points. Across the data lifecycle, individuals make choices that impact:

- ▶ what types of data are collected;
- ▶ how that data is processed and stored;
- ▶ whether and how it is shared with internal or external parties;
- ▶ for what purposes it is analyzed and through which methods; and
- ▶ whether and how it is used.

The individuals responsible for making these decisions and the inputs to their decision-making are rarely understood by all those interacting with these data systems, including beneficiaries. The lack of visibility into decision provenance across the children's data ecosystem can limit the ability of UNICEF and similar actors both to identify the optimal intervention points for mitigating data risks and to avoid missed use of potentially impactful data. A global decision provenance mapping methodology could help personnel across contexts to better understand where and how decisions are being made across the children's data ecosystem, and to develop strategies for improving these decision-making processes.

LEGAL AND POLICY INFRASTRUCTURE

Country-level Opportunities

Identifying Responsible Data Practices and Formalizing Them in Policy

Across the children's data ecosystem, highly effective and responsible individuals drive good data practices. These practices are often not aligned with codified data policies and procedures. Often, individuals undertake these good practices recognizing the trust of beneficiaries is tied to the safe and legitimate handling of information. The RD4C field visits showed many of the extant approaches to data management within UNICEF. It also revealed promising practices by different partners in government and civil society, though many frontline workers and data collectors had little formal training on data handling.



Institutional leaders could identify good practices by creating regular opportunities for staff to convene and discuss responsible data strategies, opportunities, and challenges. Going forward, UNICEF and similar organizations could invest in further documenting and formalizing or codifying these practices. This work might include sharing protocols, information sensitivity classifications, data protection policies, and other similar instruments to ensure they become standard in practice. Standard practices are more likely to take hold if their value are emphasized and well articulated. Organizations might also emphasize how the practices are necessary to retain the trust of beneficiaries and avoid harming them.

Global Opportunities

Advancing Consistent, Principles-based Approach Regarding Responsible Data Handling through Partnerships and Supply Agreements

UNICEF and other influential child rights organizations can play a key organizing and convening role as it relates to responsible data for children. They can develop a global, interorganizational community working to advance RD4C. Globally, UNICEF engages with implementing partners, contractors, and others engaged in handling children's data. Using standard language in different contractual and partnership engagement mechanisms, as a first step, can help to advance a consistent, principle-based approach for achieving responsible data for children. By enhancing the requirements for data management reflected in these mechanisms, UNICEF can promote (and build consensus around) a high standard of data management for children. This work is relevant not only with partners involved in direct program and service delivery, but also with companies and NGOs involved in third-party monitoring and surveys, studies, and assessments.

CONCLUDING RECOMMENDATIONS: THE RD4C PRINCIPLES AND PRACTICES

We conclude this synthesis report with RD4C Principles and Practices. These recommendations outline a commitment to steward the data collected, stored and prepared, shared, analyzed and used to save children’s lives, defend their rights, and help them fulfill their potential from early childhood through adolescence. Data has the potential to innovate and improve service delivery for children around the world, yet without earning the public trust in how institutions handle data that promise may be short lived or unfulfilled.

The practices and principles are informed by the research synthesized above. They also reflect institutions’ responsibility to children in general, and specifically regarding the management of data for and about them—especially (but not exclusively) regarding “personal data” or information relating to an identified or identifiable natural person (“data subject”). These principles and practices further intend to support, augment, and operationalize, with a focus on children, the following guiding documents:

- ▶ The United Nations Convention on the Rights of the Child whose guiding principles include non-discrimination; adherence to the best interests of the child; the right to life, survival and development; and the right to participate.⁶⁹
- ▶ The Principles on Personal Data Protection & Privacy, endorsed by the United Nations system Organization, which sets a framework for the processing of “personal data” by, or on behalf of, the United Nations System Organizations in carrying out their mandated activities.⁷⁰

⁶⁹ *Convention on the Rights of the Child*. 1990. 44/25. <https://www.ohchr.org/en/professionalinterest/pages/crc.aspx>.

⁷⁰ “Principles on Personal Data Protection and Privacy” *supra* note 50.



RD4C PRINCIPLES

Purpose-Driven

A responsible data practice starts by being purpose-driven. When seeking to handle data actors should identify and specify why the data is needed and how the intended or potential benefits relate to improving children's lives. If there is no clearly articulated benefit for children, actors should not collect data, store, share or analyze it.

People-Centric

Much of the data used for drawing insights to improve children's lives involves or is generated by people. The insights from it have the potential to impact the lives of children in many ways, both positive and negative. Actors must thus ensure the needs, interests and expectations of people—including children and their caregivers in particular—are prioritized by those handling data about them. Actors should take a people-centric approach to the consideration of opportunities and risks of data initiatives—prioritizing the consideration of data practices' effects on people over potential efficiency gains or other process-oriented objectives. This entails some combination of the following criteria: children and/or their caregivers have consented to the data use, children and/or their caregivers have a clear understanding of how this work will be conducted, the work is demonstrably serving children's interests, and/or the work is required by law or institutional mandate. In addition, actors need to be context sensitive, paying attention to and acting according to the legal, cultural and community contexts in which any given project exists.

Participatory

Responsible data is participatory. It seeks and builds with inputs from those who use and are affected by data, namely children, their caregivers, and the communities in which they live. Accordingly, actors should inform and engage with individuals and groups. In seeking input, actors should pay attention to marginalized and vulnerable population segments as well as to the inputs of partners, donors and other key stakeholders.



Protective of Children's Rights

When it comes to children, responsible data practices begin by recognizing their distinct needs and requirements. Children's rights must be realized in order for them to develop to their full potential. Realizing these rights can be complex given children's inherent vulnerabilities, the likelihood that others are making impactful decisions on their behalf, and the future prospects they can achieve if supported effectively by those working in their interest.

Proportional

In the data space, less can sometimes be more. When developing and implementing data initiatives, actors should always consider necessity and whether there is proportionality in the breadth of data collection and duration of data retention in order to achieve the intended purpose. The collection and retention of data should be relevant, limited and adequate to what is necessary for achieving intended purposes. The importance of targeting and minimizing collection is true of all data, but especially true of data related to children, given potential and actual vulnerabilities.

Professionally Accountable

Data responsibility rests upon broader foundations of professional accountability. To ensure that the practices and principles described above are put in action, and the unique considerations of responsible data for children are operationalized within institutional processes, organizations and partners should collect, process, and use data within a more general culture of data responsibility. Such a culture has many elements, but one of the most important is to establish and clearly define the role of organization-wide data stewards. Data stewards are an emerging role; they are individuals or groups whose duties cut across departments and functions, and whose broad remit is to oversee responsibility and accountability in the way data is handled.

Prevention of Harms across the Data Life Cycle

Data is not static but exists on a cycle. As part of a commitment to data responsibility, actors should assess and seek to prevent risks across the full data life cycle, including

the collecting, storing and preparing, sharing, analyzing and using stages. This concept is called end-to-end data responsibility. It is essential for preventing harm to children and ensuring trust.

COMPARISON ACROSS PRINCIPLES

The RD4C principles are informed by the Principles on Personal Data Protection & Privacy developed by the United Nations System. The UN Principles set out a basic framework for the processing of personal data, by, or on behalf of, the United Nations System Organizations in carrying out their mandated activities. The RD4C principles aim to reflect elements of these principles, while expanding and adapting the content to the unique needs and expectations of children.

Responsible Data 4 Children	Principles on Personal Data Protection & Privacy
Purpose-Driven	Purpose Specification; Fair and Legitimate Processing
People-Centric	Fair and Legitimate Processing
Participatory	Fair and Legitimate Processing;
Protective of Children's Rights	Confidentiality; Security; Transparency
Proportional	Proportionality and Necessity; Retention
Professionally Accountable	Transparency; Accountability
Prevention of Harms	Transfers, Security; Accuracy and Confidentiality

Figure: A representation of how the UN Principles on Personal Data & Privacy inform RD4C



In the section below, we outline a number of practices that can help actors to adhere to the RD4C principles.

RD4C PRACTICES

Purpose-Driven

- ▶ **Articulate intended actions:** Establish a legitimate purpose for information collection prior to collection. Understand what data is required for the project, why, and for how long. This process means actors identifying information needs at the planning phase, including who needs what information at each stage of the project and for what purpose. Information should not be collected unless its intended use (and any intended re-use), specificity, and depth are clearly defined as it relates to improving children's lives.
- ▶ **Define objectives and establish metrics:** Clearly define project goals and only collect data directly relevant to meeting those goals. Tailor collection towards well-defined operational objectives and avoid collecting superfluous or unnecessary data. Define metrics for success as a means to measure progress and confirm data is effectively delivering intended value and enabling evidence-based iteration, as warranted.
- ▶ **Avoid missed uses of data:** Missed use of data is when useful data exists (or could exist) but is not used. Missed use can be avoided by reviewing all available datasets and using them to solve problems when such use (or re-use) is appropriate and legitimate. At each stage of the data lifecycle, children's rights actors should assess the consequences if the information is not collected or put to use. These consequences could include a failure to deliver services, a failure to identify vulnerable populations, or denial of access to data in the future.

People-Centric

- ▶ **Assess Group Data Risks:** Group privacy can protect sensitive group data or demographically identifiable information (DII). While personal data risks are well documented, data users should also consider the risks created by types of aggregated group data. Data about some population segments (e.g. gender- or age-disaggregated data) or types of vulnerability (e.g. child-headed households and



children experiencing gender-based violence) are not personally identifiable. They can, however, expose groups of children to threats from malicious actors if the data is handled irresponsibly. Data users should consider how they can responsibly segment the population while handling data in a way that prevents harm.

- ▶ **Scrutinize Inferred Data Prior to Use:** Inferred personal data is information about a child that can be interpreted through multiple pieces of existing data. Inferred personal data includes conclusions based on behavior and metadata and can identify characteristics such as family situation. Increasingly, organizations use inferred personal data in conjunction with automated tools and algorithms to make life-altering decisions. Inferred personal data is not directly collected like many types of potentially useful (and sensitive) data about children, but is rather created through an analytical process. Data users need to provide transparency, explainability, and oversight mechanisms to combat bias and discriminatory action through the use of inferred personal data. They also need to ensure their subjects cannot be identified from the available assets for unauthorized analysis or use.

Participatory

- ▶ **Engage with affected communities:** Engaging with local communities can increase situational awareness and provide insights that may not otherwise be represented in the data. Post hoc engagement with beneficiaries can also generate insight into the effectiveness of services provided as a result of data activities as well as feedback on earlier data collection processes where relevant. These engagements should be a regular occurrence and viewed as part of the service delivery process.
- ▶ **Collect contextual consent and co-design with beneficiary communities:** There is a need to design new ways for obtaining consent to collect data from children that are context-specific and go beyond the current click-through processes that may take advantage of children's lack of agency. They must respect the principles of do no harm and the best interests of the child. When designed responsibly, contextual consent can involve engaging children and/or their guardians in the data ecosystem at the design, implementation, and review stage of data initiatives. This work can go beyond simply asking for their permission to use data. For instance, data users might co-design with affected communities to promote accountability and increase the likelihood the data project will effectively serve those it intends to.



- ▶ **Assess contextual data risks (and opportunities):** Certain types of data about children are always sensitive but others might only be sensitive in particular environments. This understanding should be determined through a child rights lens and in consultation with relevant local stakeholders. Data actors can also ensure responsible practice by examining existing information sources and data projects related to their initiative. This can help to uncover useful data that already exists and identify datasets that could create previously unanticipated data risks, such as accidental re-identification of data subjects by combining multiple datasets containing similar or complementary information.

Protective of Children's Rights

- ▶ **Classify information by risk and sensitivity:** Different types of data have different risks and sensitivities. Biometric and health data as well as data about children in conflict areas create unique and amplified risks to children's privacy and security. Similarly, datasets with known or unknown inaccuracies, biases, and other quality issues can negatively influence analysis and use. They should be classified as higher risk because classification of information according to risk and sensitivity enables consistent management of risks over time, across regions, and through staff changes. Once assessed, risk ratings can then be used to standardize how information is protected.

Proportional

- ▶ **Consider data's relevance and potential value over its lifespan:** Identifying information's lifespan requires users to look at applicable laws and organizational or professional policies. These materials can determine the default minimum and maximum information retention periods applicable during a data initiative as well as how to manage that information afterwards. Data can create risks for data subjects if used beyond its period of relevance. When actors use outdated or irrelevant data for analysis, it can lead to incorrect and even dangerous conclusions.
- ▶ **Ensure legitimacy of re-use:** Many applications of data to benefit children are the result of secondary use, the use of data for something other than its initial purpose. Legitimate re-use requires users to understand the risks introducing previously collected data into a new context can create for children. Actors re-using data



should ensure there is an appropriate legal basis, that the re-use is consistent with the original intent for collection and the contextual consent originally provided. If these criteria are not satisfied, re-use should not occur.

- ▶ **Destroy Outdated or Superfluous Data:** Data users should have a clear process for identifying when and why data about children should be retained, when it should be archived, and when it should be destroyed to avoid accumulating risk for minimal value and/or using data that is anachronistic and no longer relevant or applicable. Data systems can become outdated in a similar fashion to datasets. Defining a strategy for the secure decommissioning of outdated systems is another important component of proportional data handling practices.

Professionally Accountable

- ▶ **Decision Provenance:** Decision provenance refers to the practice of tracking and recording all decisions about the collection, processing, sharing, analyzing, and use of data. By forcing individuals to document how and why they acted, organizations can provide transparency and oversight into the decision-making process. This transparency can, in turn, help organizations identify best practices, understand possible sources of dysfunction, and remain accountable to those they serve.⁷¹
- ▶ **Standardize and codify good practice:** Good practices for handling data should be standardized across organizations handling children's data within a project. Codifying good practice creates consistency across teams, improving coordination. Since data responsibility is often an interorganizational concern, stakeholders should work to coordinate with partners and working groups to develop standards at local, national and global levels, consulting with as many practitioners as relevant and possible. They should also document standards as well as any modifications they made for future use.
- ▶ **Enshrine data stewardship and responsible data practices:** Operationalizing responsible data for children requires organizations to empower individuals and teams to take on data steward roles and responsibilities. High-level principles and broad guidance will not be taken up in practice unless there are people within organizations positioned and mandated to act upon them.

⁷¹ Singh, Jatinder, Jennifer Cobbe, and Chris Norval. 2019. "Decision Provenance: Harnessing Data Flow for Accountable Systems." *IEEE Access* 7: 6562–74. <https://doi.org/10.1109/ACCESS.2018.2887201>.



- ▶ **Manage internal access:** Ensure only authorized personnel have access to children’s information. Both physical and electronic access to information should be governed by sensitivity classifications as well as the “need-to-know” principle. Special measures should also be in place to protect against unintended and unrestricted access to confidential information.

Prevention of Harms across the Data Life Cycle

- ▶ **Research the policy ecosystem and previous practice:** Build projects following a comprehensive review of relevant laws, policies, regulations, guidance, and existing services and capacities that may impact on the development of a children’s data initiative. Such ecosystem awareness can inform strategy and decision-making that reflect the local context such as local laws and operational considerations (e.g. disaster-prone areas).
- ▶ **Assess contextual data risks (and opportunities):** Certain types of data about children are always sensitive. Others might only be sensitive in particular environments. Data actors can ensure responsible practice by examining existing information sources and data projects related to their initiative. This can help to uncover useful data that already exists and identify datasets that could create previously unanticipated data risks, such as accidental re-identification of data subjects by combining multiple datasets containing similar or complementary information.
- ▶ **Define procedures for ensuring responsibility during transitions:** Across contexts, institutional, technical, human, and legal and policy infrastructures change over time. Institutional mandates shift; technological systems are deployed, upgraded, and replaced; roles and responsibilities are defined and redefined; and the internal and external policy landscape evolves. These shifts can allow for cracks to emerge in procedures for ensuring responsible data for children. Stakeholders should recognize that such changes are inevitable, and define clear strategies and procedures for maintaining responsibility while navigating these changes.

APPENDIX 1: KEY INFORMANT INTERVIEW QUESTIONNAIRE

The following questionnaire intends to facilitate a deeper understanding of the current practice of using data for children within UNICEF and the broader systems/ environments within which UNICEF operates; the associated risks (including opportunity risks) and how decisions are made that can mitigate those risks. Based upon the answers we will seek to develop:

- ▶ Data Footprint about Children;
- ▶ Flow Chart of Design Options and Decisions across the Data Life Cycle; and
- ▶ Risk Mapping and current Data Responsibility Frameworks and Practices.

I. Current State of Data for Children (Assessing the Data Footprint)

- A. What data is being collected or acquired in your programme and/or country context and/or division (at HQ level)?
- B. What systems are being used to collect, share and store data?
- C. How many initiatives are in place that seek to “innovate” on how data is being collected and used vis-a-vis traditional means of data collection?
- D. Who analyzes the data, how and under what conditions?
- E. What is the current set of data skills and expertise within UNICEF and within key partner organizations?
- F. How are insights derived from data being used? Does anyone measure the impact of data use on UNICEF programmes (and, if so, how)?

II. Processes, Organizations, and People (Mapping the Decision/Design Flow)

- A. What are the design and review processes for data-related initiatives? Who decides?
- B. How do these processes link to the other key processes in the UNICEF Country Programming Cycle?
- C. Who is accountable for making decision on data-related initiatives? Who signs off at different stages of the data lifecycle? What happens when there are disputes?



- D. What processes and initiatives can be celebrated and should potentially be replicated in other program areas or country contexts?
- E. What processes and initiatives should be prevented from happening or discontinued in the future?
- F. What role do different actors (UNICEF, public sector partners, private sector partners, etc.) play in the development and implementation of data-related initiatives?

III. Principles, Policies, and Risk Management

- A. How are child rights upheld in data-related initiatives?
- B. How are different policy and legal frameworks (national, regional, global) taken into account and adhered to? Which specific frameworks are most relevant in your context?
- C. What internal and external tools and frameworks offer the most relevant guidance to field teams engaging in data-related initiatives?
- D. To what extent is UNICEF consulted or does UNICEF play a proactive role regarding policy formulation related to the management of data in different contexts?
- E. How are risks assessed ahead of and during a data-related initiative?
- F. How are risks mitigated ahead of and during a data-related initiative?

APPENDIX 2: SAMPLE AGENDA FOR FIELD RESEARCH TRIP

The following offers a sample agenda for the planned field research trips, which took between 4–7 working days in each location—Romania, Kenya, and Afghanistan.

Day 1: Establishing a Baseline on the use of Data and ICTs in Programme Delivery

Time	Activity / Session
9:00 – 10:00	<p>Briefing with Senior Management</p> <p>The research team will brief the Representative and Deputy Representative on the purpose and objectives of the field mission, as well as the broader Data Responsibility for Children initiative.</p>
10:30 – 11:30	<p>Informational Interview: Child Protection</p> <p>This semi-structured interview will seek to identify how Child Protection staff and their partners use ICTs and data in their work, as well as how they interact with established processes articulated in available (internal and external) programme documentation. The interview will establish a baseline understanding of the different data and data systems being managed by UNICEF and its partners in delivering Child Protection programmes in the country context.</p>
12:00 – 1:00	<p>Informational Interview: Education</p> <p>This semi-structured interview will seek to identify how Education staff and their partners use ICTs and data in their work, as well as how they interact with established processes articulated in available (internal and external) programme documentation. The interview will establish a baseline understanding of the different data and data systems being managed by UNICEF and its partners in delivering Education programmes in the country context.</p>



1:30 - 2:30	<p>Informational Interview: Health</p> <p>This semi-structured interview will seek to identify how Health staff and their partners use ICTs and data in their work, as well as how they interact with established processes articulated in available (internal and external) programme documentation. The interview will establish a baseline understanding of the different data and data systems being managed by UNICEF and its partners in delivering Health programmes in the country context.</p>
3:00 - 4:00	<p>Informational Interview: Nutrition</p> <p>This semi-structured interview will seek to identify how Nutrition staff and their partners use ICTs and data in their work, as well as how they interact with established processes articulated in available (internal and external) programme documentation. The interview will establish a baseline understanding of the different data and data systems being managed by UNICEF and its partners in delivering Nutrition programmes in the country context.</p>
4:30 - 5:30	<p>Informational Interview: WASH</p> <p>This semi-structured interview will seek to identify how WASH staff and their partners use ICTs and data in their work, as well as how they interact with established processes articulated in available (internal and external) programme documentation. The interview will establish a baseline understanding of the different data and data systems being managed by UNICEF and its partners in delivering WASH programmes in the country context.</p>



Day 2: Establishing a Baseline on the use of Data and ICTs in Programme Delivery

Time	Activity / Session
9:00 – 11:00	<p>Informational Interview: Emergency</p> <p>This semi-structured interview will seek to identify how Emergency staff and their partners use ICTs and data in their work, as well as how they interact with established processes articulated in available (internal and external) programme documentation. The interview will establish a baseline understanding of the different data and data systems being managed by UNICEF and its partners in delivering Emergency programmes in the country context.</p>
11:00 – 1:00	<p>Informational Interview: ICT</p> <p>This semi-structured interview will seek to identify how ICT staff support UNICEF programme colleagues and their partners in the use of ICTs and data in their work, as well as how they interact with established processes articulated in available (internal and external) programme documentation. The interview will establish a baseline understanding of the different data and data systems being managed by UNICEF and its partners across programmatic areas / sectors. In turn, it will offer the researcher team a chance to understand the support services offered by the ICT team.</p>
2:00 – 3:30	<p>Informational Interview: Planning, Monitoring and Evaluation (PME)</p> <p>This semi-structured interview will seek to identify how PME staff support UNICEF programme colleagues and their partners in the use of ICTs and data in their work, as well as how they interact with established processes articulated in available (internal and external) programme documentation. The interview will establish a baseline understanding of the different data management exercises (including for research, situational analysis, and related activities) managed by UNICEF and its partners. In turn, it will offer the researchers a chance to understand the support services offered by the PME team.</p>
4:00 – 5:30	<p>Informational Interview: Other</p> <p>Depending on the country context, there may be additional areas of focus for baseline interviews to be scheduled in this remaining time.</p>



Day 3: Observation of Data in Practice

Time	Activity / Session
9:00 - 1:00	<p>Observation Visit #1</p> <p>The purpose of field-level observation is for the research team to observe data management first-hand in different sectors and at different stages of the data lifecycle. The visit may involve on-site observation of a particular data system being used (e.g. data collection in schools or data analysis at the Ministry of Health), a focus-group discussion with end-users / frontline workers, or other similar activities. The UNICEF CO and its counterparts should determine the most appropriate and informative observation opportunity/ies for the team. Engagement with children and caregivers is out of scope for this activity.</p>
2:00 - 5:00	<p>Observation Visit #2</p> <p>The purpose of field-level observation is for the research team to observe data management first-hand in different sectors and at different stages of the data lifecycle. The visit may involve on-site observation of a particular data system being used (e.g. data collection in schools or data analysis at the Ministry of Health), a focus-group discussion with end-users / frontline workers, or other similar activities. The UNICEF CO and its counterparts should determine the most appropriate and informative observation opportunity/ies for the team. Engagement with children and caregivers is out of scope for this activity.</p>



Day 4: Data Responsibility Workshop

Time	Activity / Session
9:00 – 5:00	<p>Data Responsibility Workshop</p> <p>The data responsibility workshop will bring together UNICEF and its key counterparts from sectors of focus to review and expand on observations and findings from the earlier exercises (e.g. interviews and observation). Participants will work together to fill gaps / complete the different framings of data systems, data use, and the related governance and decision-making processes in place that support (responsible) data for children in the context. Some of the key activities will include a data ecosystem mapping exercise, a data ‘footprint’ or profile for children, and key business processes / service journeys of priority data systems.</p> <p><i>NB: If the UNICEF team feels it would be more productive or appropriate to conduct two smaller, half-day workshops targeted at only 1–2 sectors, this is also an option. This should be determined in initial discussions between GovLab and the different UNICEF CO teams.</i></p>

Day 5: Synthesis and Next Steps

Time	Activity / Session
9:00 – 10:00	<p>Senior Management Debrief</p> <p>A final read-out and opportunity for the Rep and Dep Rep to provide feedback to the team on key observations and recommended next steps.</p>
10:30 – 12:00	<p>All-Staff Meeting: Debrief and Next Steps</p> <p>This is an opportunity for the GovLab team to brief the broader CO team on key observations, findings, recommendations, and next steps.</p>