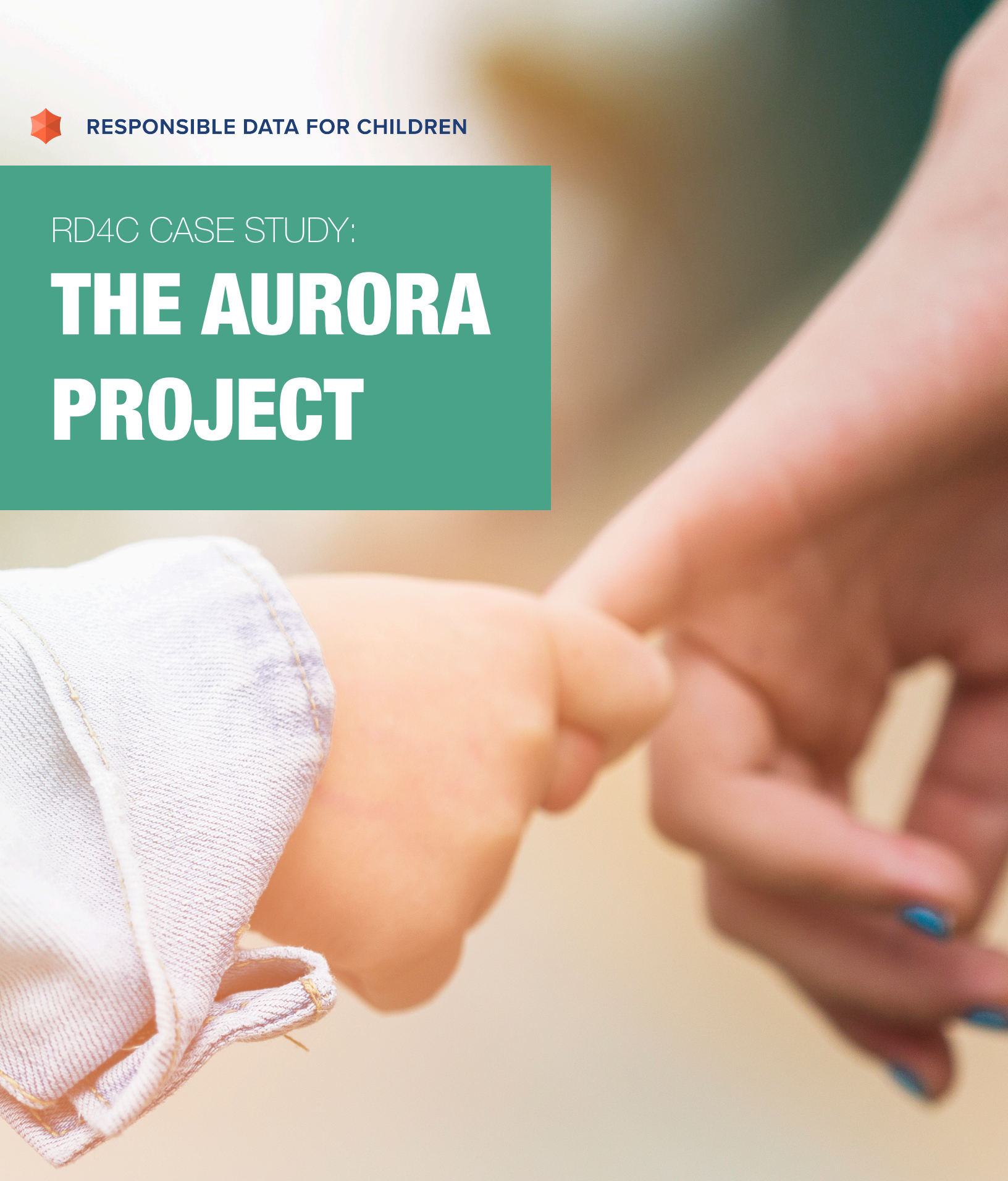
RESPONSIBLE DATA FOR CHILDREN

RD4C CASE STUDY:

THE AURORA PROJECT



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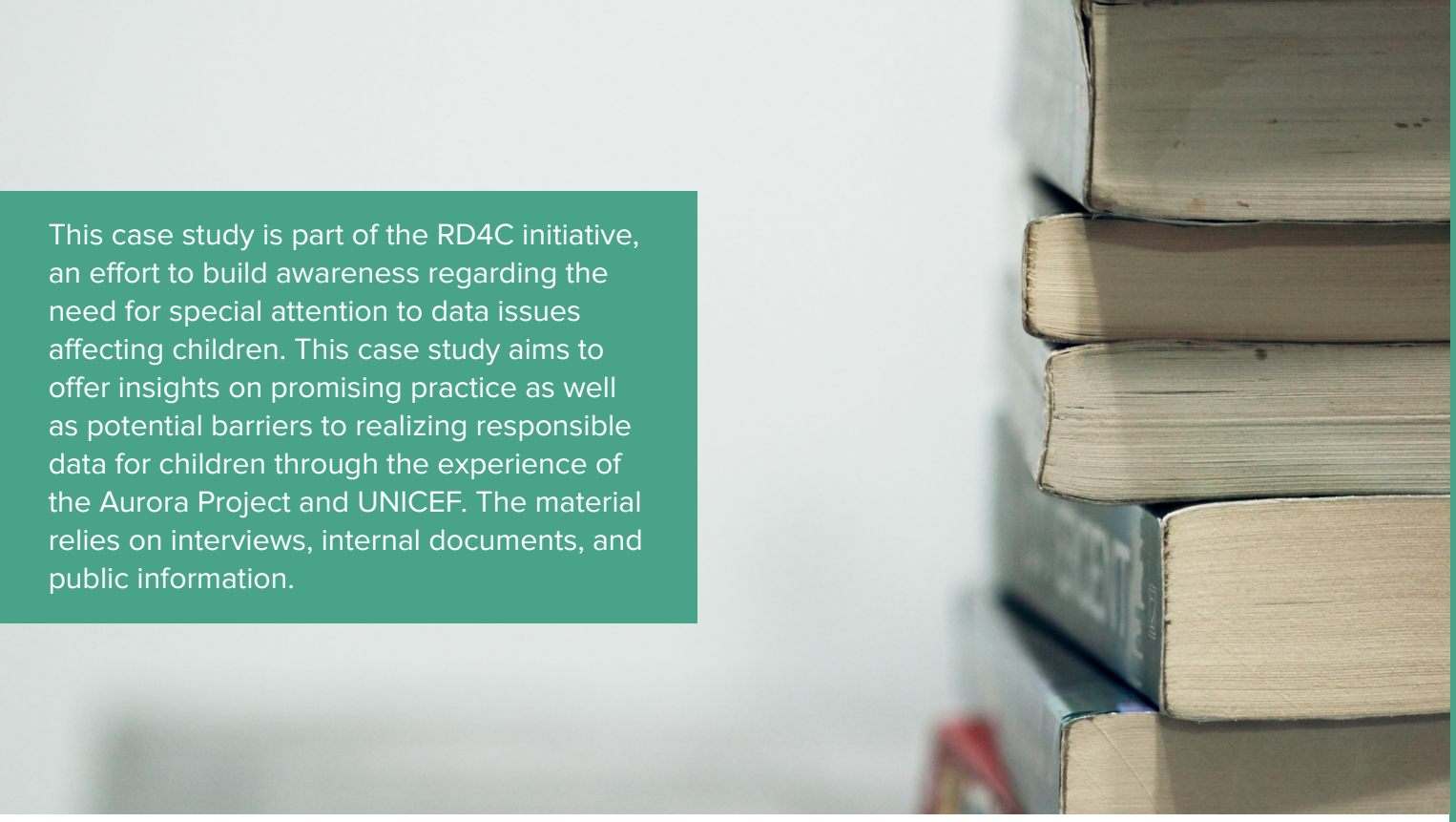

This case study is part of the RD4C initiative, an effort to build awareness regarding the need for special attention to data issues affecting children. This case study aims to offer insights on promising practice as well as potential barriers to realizing responsible data for children through the experience of the Aurora Project and UNICEF. The material relies on interviews, internal documents, and public information.

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ABSTRACT

The Aurora Project is a child protection platform developed by UNICEF Romania in collaboration with NGO and government partners. The system enables social workers and community health care providers to diagnose and monitor vulnerabilities experienced by children and their families. Through the administration of a child protection questionnaire, the system supports the determination of a minimum package of services needed by children and their families. It also enables child protection evaluation and planning work at the national level. The Aurora Project reflects many of the RD4C Principles through its collection of data for clear and well-defined purposes and the various training and guidance materials provided to users. UNICEF Romania and counterparts in the Romanian Government are still working to address challenges related to sensitive group data and the potential for disproportionate data collection and retention.

Tags: **Protective of Children's Rights; Professionally Accountable; Purpose-driven**

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I. THE ISSUE

In 2011, UNICEF Romania launched the "First Priority: No More Invisible Children!" project to improve the impact of social services for the country's poorest and most excluded children who are often "invisible" to the child protection system.[1] During early phases of the project, UNICEF Romania identified 5,758 such "invisible children" and sought to understand the threats facing them. Out of these, over 3,400 vulnerable children subsequently received a variety of services that ranged from diagnosis to information provision, counseling, accompaniment and support, referral, as well as monitoring and evaluation. While UNICEF Romania found community authorities to be best at delivering this support, local authorities in Romania faced serious budgetary and human resource constraints. These issues especially affected rural communities in the eight counties of Romania's North-East region.[2]

Based on these findings, UNICEF Romania personnel saw value in an easy-to-use application and platform that could allow these local authorities to quickly identify vulnerable children in an efficient and effective manner.[3] In 2014, UNICEF Romania began using an online, mobile application called Aurora that local child protection and health service providers could use to diagnose vulnerabilities experienced by children and their families. The system also allows staff NGO and government personnel to monitor child protection indicators aggregated at local, county, and national levels. Following successful deployment, the system, discussed below, will transfer from UNICEF Romania control to national government control in the near term.

II. ACTION

UNICEF Romania worked with NGO partners and a Bucharest-based software company to develop an algorithm-enabled application for measuring child well-being against internationally accepted indicators and a platform that could fill monitoring and evaluation functions. Guided by UNICEF Romania's requests, software engineers built what would become the Aurora

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[1] Manuela Sofia Stănculescu, et al. "Helping the 'invisible' children (HIC): Second Evaluation Report. UNICEF. October 2013. https://www.unicef.org/evaldatabase/files/Romania_2013-005_HIC2_Evaluation.pdf

[2] *Ibid.*

[3] UNICEF, Camino, International Consulting Expertise. "Summative Evaluation of 'First Priority: No More 'Invisible' Children!' Modelling Project 2011-2015."https://www.unicef.org/evaldatabase/files/Romania_2018-001-Summative_evaluation-Eng.pdf

Image: Freepik.com

Project. UNICEF Romania has led the development and implementation of the Aurora Project during its pilot stage and initial scaling, with the intention of handing over management of the system to counterparts in the Romanian Government by the end of the second modelling project in 2019.

SERVICE

Directed by UNICEF Romania, Aurora Project personnel developed a tool around several requirements. First, the product needed to support empirical diagnoses of child vulnerability. Second, it needed to be effective in collecting data in the field and storing it securely in a central location. Third, the data collected through Aurora needed to be aggregatable at different levels of administration. Last, there needed to be a public version of the platform to help raise awareness of child protection issues (the public version is set for release by mid-2020). These requirements led to the development of a system with several parts: a mobile application; a backend system; business analytics; and a web application.

The **mobile application** is used by social workers and accessed through tablets while they perform home visitation and conduct beneficiary consultations. The mobile application eases the ability of these individuals to collect data from families and understand any vulnerabilities. The application uses an interview guide with over 300 questions divided into seven sections. These sections are:

- General Information (e.g. household composition, income source, education, etc.);
- Household members ages 1 to 5;
- Household members ages 10 to 17;
- Female household members aged 10 or older who have had a partner;

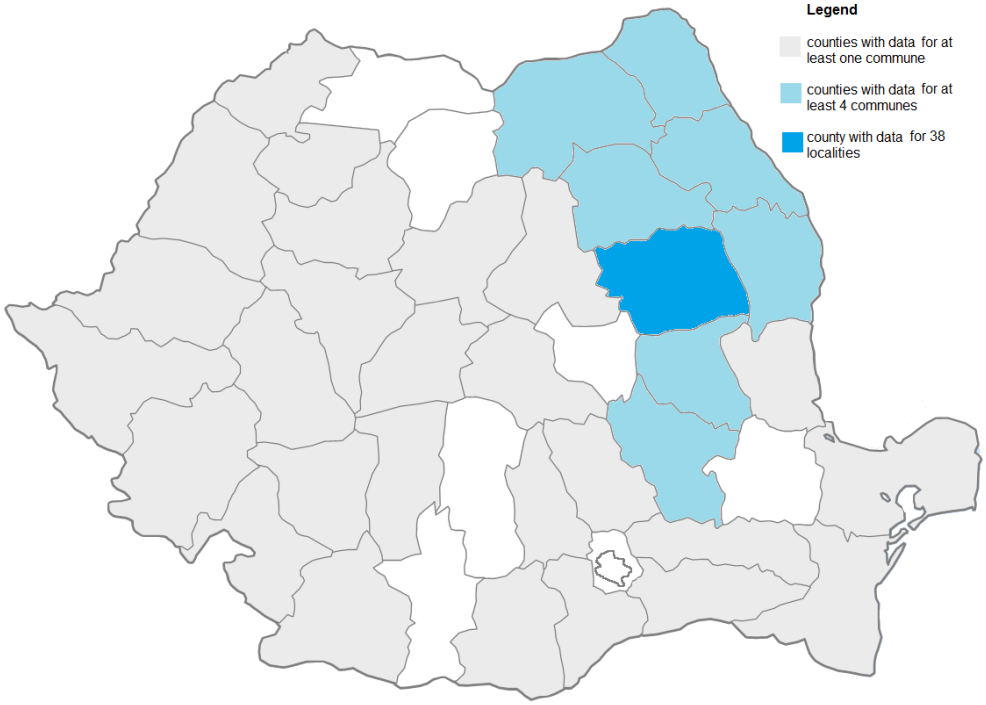

Figure 1: Counties where Aurora was piloted. Graphic taken from Aurora internal documents, 2018.

- Household data (e.g. household social benefits, earnings and expenses, living conditions); and
- Household data as evaluated by the community professionals (e.g. social workers, Roma health mediators, and school counselors).

The questions posed to children and family members are drawn from this common questionnaire but dependent on the circumstances at hand. Some of these questions target specific household members ("How often does the father talk to the child?") while others are directed at the entire family ("How often does the child bathe?"). Questions can be closed or open, with open questions requiring the social worker to fill in concise text responses. Community professionals will receive an alert if they attempt to submit results before completing all applicable questions. Upon submission, the mobile application will display the vulnerabilities for each child in the household and the basic social services that should be available to them (also known as the "minimum package of services" or MPS). Human service providers then review these recommended actions to inform their decision-making regarding necessary follow-up actions.

In addition to the mobile application, the Aurora Project contains a **backend system** responsible for securely storing all collected information. Each tablet with the mobile app automatically

uploads its data to the backend system over the mobile internet (3G). If internet is unavailable, the app will store the information locally until the tablet can be reconnected to the Internet. The platform uses Java and other open-source technologies.

The backend system, in turn, feeds into the **web application** and the **business analytics**. The web application can be used by anyone with access to the Aurora Project's software, community professionals working at local level and their supervisors and specialists who work at the county level who provide methodological support and coaching. The web application allows users to examine collected data, perform certain case management functions, and generate reports and other documentation. They can also explore aggregated collections of data at the local, county, and national level in real time to evaluate or design interventions, projects, and policies.

The business analytics portion, meanwhile, allows for designated users to conduct complex analysis on the data. Users can select any of the indicators collected and review how these indicators have changed over time. The business analytics system uses Saiku, an open source business intelligence tool. As the data and analysis can be sensitive, the system captures user login information. Individuals can be assigned different access privileges by system administrators, restricting the granularity of their analysis. New Relic, an application performance software, conducts regular error reporting and performance checks.

DEPLOYMENT

UNICEF Romania used pilot projects to test the Aurora Project before launching it more widely. These pilots centered on communities in Romania's North-East region. The pilots sought to ensure the system could respond to dynamic situations and was user-friendly for professionals working in the field.

Following an early pilot engagement in 2011 in 8 counties of the North-East Region targeting 1,426 households, a major rollout occurred in Bacau county in 2015. This deployment occurred in 34 rural communities and 4 cities, involving community professionals from 3 sectors: health, education, and social protection personnel as well as local stakeholders. The 300 community workers using the Aurora Project identified 10,566 vulnerable households of 48,305 interviewed, which included 22,000 vulnerable children. Local authorities deployed 500,000 services to support these groups. UNICEF Romania considered this deployment to be

largely successful because it allowed users to identify children who had previously not received services and, subsequent to that identification, allowed organizations to provide services that led to positive improvements in their vulnerabilities. However, an evaluation noted the software could only be used with adequate training.[4]

Another pilot involved a project with Romania's National Authority for the Protection of Child Rights and the World Bank. Between September and November 2018, 300 workers used the Aurora Project to create a development plan for preventing child separation in communities. This work involved an estimated 9,000 households and 16,000 children, and was organized by 16 coordinators and 6 supervisors.

Subsequently, the project was built to work at the national level, with the backend system incorporating all Romania's territorial administrative units. The Aurora Project reported 550 active users in late 2018, and is in the process of rolling out nationwide as of early 2020.

III. IMPACT

The Aurora Project has both consequences on the immediate situation in Romania and larger implications for the field of data responsibility.

IMMEDIATE OUTCOMES

Projects like Aurora can be useful because they empower a community's chosen representatives to improve the condition of their constituents. They build capacity, improve local legitimacy, and fulfill rights and address needs by enabling the delivery of the MPS.

In these respects, UNICEF Romania considers the Aurora Project a success. The organization found, with the right training, Aurora was a user-friendly software that enabled local government workers to collect data, manage cases, and do complex analysis needed for service delivery. Speaking about the value of the application, one user noted:

> "We managed to group children who were not going to school, to know exactly how many there are. Then, with this application, a series of services have been generated, which have helped us

[4] UNICEF, Qures. "Summative evaluation of the Minimum Package of Services component of the 'Social inclusion through the provision of integrated social services at community level' modelling project in Romania, 2014-2018." https://www.unicef.org/romania/reports/minimum-package-services-evaluation

> out a lot, as we were able to decide on a strategy for a larger number of children."[5]

UNICEF Romania personnel also found that Aurora can help to identify so-called *data invisibles*. For example, personal identity numbers (PINs) are essential for all Romanians seeking public services across sectors. Despite the prominent belief that all Romanian births are registered, the Aurora system identified many children who are not included in the PIN database. Since a PIN is required for enrolling in schools, children lacking such identification rely on sympathetic school administrators to "pencil them in." More troublingly, children lacking PINs are likely to struggle to access health services because health insurers do not receive reimbursements if they cannot provide a patient's PIN, disincentivizing treatment for children who are data invisible. Staff also noted that the number of children affected by poverty decreased at a higher rate for those registered among the target group of the MPS than the county average, which suggests the work had a notable impact.

The platform is supporting new knowledge generation and dissemination regarding vulnerabilities experienced by children in Romania. In addition to the 550 active users across 400 communities, UNICEF Romania estimates the project has data on about 59,000 households. These households include 550,000 children and others. Of these 550,000, the platform has identified 30,000 vulnerable children. During the month of September 2018, the platform received 46 requests per minute, a statistic that suggests regular usage.

[5] Fondation Botnar. "Social Inclusion Intervention: Romania." Facebook. August 6, 2019. https://www.facebook.com/FondationBotnar/videos/483437222229631/?v=483437222229631

INSIGHTS RELEVANT FOR ADVANCING RD4C LOCALLY AND GLOBALLY

ENABLING RD4C: PRINCIPLES AND PRACTICES

- **Purpose-Driven**: The Aurora Project was developed to support information collection and the delivery of a minimum package of needed services to vulnerable children in Romania. This specific focus and ongoing engagement with the frontline workers who represent the primary users of the platform ensures that the technical system and the processes surrounding it are highly purpose driven.

- **Professionally Accountable:** The effective use of the Aurora system relies on responsible and professionally accountable practices among several stakeholder groups, including county-level decision-makers, national government representatives, UNICEF Romania personnel, frontline social workers and healthcare providers, and other professionals such as the school counselor and school mediators. UNICEF Romania supports these frontline practitioners with in-depth documentation and hands-on training in the responsible use of the Aurora system.

- **People-Centric:** The Aurora platform, the questionnaire that forms its basis, and the procedures that guide its use were crafted in recognition of the influence and importance of not just a child's experience and needs, but also that of their caregivers. Frontline workers using the system are guided through a clear and well signposted process of engaging and drawing relevant information from children and others in the household. This supports a more structured and holistic assessment of the current state of household as it relates to child protection, safety, and health.

BARRIERS TO RD4C: CHALLENGES TO NAVIGATE

- **Proportionality and Indefinite Data Retention:** The Aurora system's long and detailed questionnaire generates highly sensitive data on a large number of

children and families. While the system is purpose-driven, the amount of sensitive data points collected about a particular child or family could be disproportionate to that child or family's particular needs. Moreover, Aurora, UNICEF Romania, and government counterparts all lack clear policies guiding data retention and destruction decision-making. This indefinite data storage strategy can lead to disproportionate retention of the highly sensitive information generated through the Aurora questionnaire; data could be stored over a longer period of time than is necessary to deliver on the reason for its collection.

- **GDPR and the Group Data Blindspot:** As part of the European Union, the General Data Protection Regulation (GDPR) is highly influential on data holders in Romania. GDPR is likely the leading data protection policy in the world, which means that efforts to remain in compliance with it can help to advance data responsibility. GDPR is, however, uniquely focused on issues of personal data protection. GDPR does not require clear protections to address risks related to group data or demographically identifiable information (DII). For Aurora and the broader children's data ecosystem in Romania, the notion that data responsibility is "handled" as a result of GDPR compliance could lead child protection actors to overlook harms that could arise from aggregate data. Group data (such as color-coded maps presenting the prevalence of certain vulnerabilities in a given country or village) could be sensitive, particularly when combined with other datasets that could help to identify or target vulnerable groups.

- **Lack of Auditability:** Aurora has a number of access controls in place and a change-tracking system to monitor which users alter case records. The system would benefit, though, from additional audit functions to help track unauthorized access or data retrieval. For instance, Aurora does not create an audit trail when a user accesses a given case record unless the user edits the record in some way. Given the breadth of case records available to certain users—including notably administrators at the county level who can view all records in their region—this lack of auditability represents a gap. Similarly, the system does not track (or restrict) certain activities that could lead to unauthorized retrieval and storage of data from the system, such as taking a screenshot of a case record or copying large chunks of text and transferring them out of the system.

Photo by Edi Libedinsky on Unsplash

IV. CONCLUSION

Aurora is a purpose-driven data system that supports frontline workers and service delivery institutions in their identification of children's vulnerabilities and targeting of services to address them. The system is the product of a complex, inter-sectoral collaboration and relies on frontline human workers to use the application effectively and responsibly. Aurora was developed and is in the process of being deployed in a methodical and sequential manner, which serves to enable learning and iteration as more users and beneficiaries engage with the system.

UNICEF Romania has fostered Aurora's development and deployment, playing a key role in ensuring trust in the system to date. Going forward, the decision-makers behind Aurora will be faced with a range of challenges and opportunities for amplifying its positive impact. The forthcoming handover of the system from UNICEF Romania control to national government control will likely be the greatest challenge in the near term. The National Authority for the Protection of Child Rights will take over as the administrator of the system, and, as of early 2020, was the National Authority is supporting the development of a new management information system for children that incorporates Aurora.

Ensuring that the RD4C Principles are embedded in both the Aurora application and the procedures and policies surrounding it will likely be a key determinant of the effectiveness of this complex handover process

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