unite for children

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TERMS OF REFERENCE (TOR) FOR INSTITUTIONAL CONTRACTORS

PART I		
Purpose of Assignment	**Inclusive education evaluation by using Big data source of information (descriptive analytics)**	
Location of Assignment	Remote	
Duration of contract	7 months	
Start period (estimated)	From: December 2022	To: 31 July 2023
Reporting to:	Raushan Ibrasheva, CRM Specialist	
Budget Expiry Date	**31 December 2022**	

Introduction

UNICEF in Kazakhstan in collaboration with the Ministry of Education of the Republic of Kazakhstan (former Ministry of Education and Science) is commissioning a formative evaluation to assess to what extent the state education programmes in Kazakhstan implemented within the period of 2011-2021 have been contributing to inclusion of children of different levels of ability. The evaluation aims to produce evidence-based recommendations for strengthening the education system, to contribute to increased knowledge on the national inclusive education agenda, and to improve national capacity to advance attainment of the Sustainable Development Goal 4 targets. The data collection will start in January 2023 and is expected that the final report to be completed in March 2023.

In November 2022, UNICEF Kazakhstan CO starts the traditional formative evaluation of inclusive education in Kazakhstan, this particular evaluation aims to complement and strengthen the data evidence and recommendations using an alternative data collection method for evaluation using Big data as a source of information. In this digital world, the data is generated automatically by the online interactions of Big data applications. The Big data is used in the evaluation of emerging form of information. Social media nowadays derives its meaning more from public insights than from just a means of communication. Since being initially developed for connecting people, social media has evolved into a completely new entity.
The overflow of posts, comments, likes and dislikes, followings and followers that appear from social media sources, like top 3 leaders - Facebook, Youtube, Instagram, vividly demonstrates the deployment of Big data strategies. According to Statista, with 2.38 billion monthly active users in Q1 2019, Facebook is not going to lose ground and once again proves the effectiveness of Big data analytical methods.

UNICEF is looking for an institution with deep commitment and strong background in innovative evaluation and relevant subject matter to undertake this exercise.

Background

In Kazakhstan there are more than 160,000 children with special needs and this number is growing yearly. Every year the network of special educational organizations increases in the country, providing educational services and correctional support for children with special educational needs, including children with disabilities. As of the beginning of the 2020-2021 academic year, 403 special educational organizations were operational. According to the Ministry of Education of the Republic of Kazakhstan, in 2020 there were 42 special kindergartens in the country with a total of 4,229 children, 335 groups. 534 special groups have been created in 217 preschool organizations covering 8,229 children. At the beginning of the 2020-2021 academic year, the share of schools that claims to have created conditions for inclusive education was 74.9% (2016-2017 academic year - 44.7). The number of school-age children with disabilities was 107,348, of which 41,581 (38.7%) are attending mainstream schools or studying online (25.95% in the

2016-2017 academic year)[1]. A significant change in 2020 was the introduction of teachers-assistants at all levels of education to provide pedagogical support for a child with disability.

In addition, in 2020, there were 2,214 children from migrant families, 625,000 children in low-income families, 5,714 children in residential care, 23,410 orphans and children deprived of parental care, and 114 children in detention[2].

The knowledge generated by the evaluation will be used by the Government to address existing gaps and adjust reforms if needed so. The evaluation of the Programme will feed into the next education policy framework and will further contribute to the implementation of the national project "Educated Nation" 2021-2025.

Since inclusive education is a stigmatized topic, gathering information can be difficult and sufficient data on support and services is still missing. Understanding of inclusive education in Kazakhstan is rather limited focusing mainly on inclusion of children with disabilities, while in an international context the concept is interpreted more broadly. In light of growing awareness around inclusive education - it is critical to reach parents and teachers at a wide-scale and cost-effective manner. The Internet is a powerful tool with the potential to reach target audience where they are increasingly seeking entertainment, information, and support. The overall advantages of using Big data are as the following:

1. It's crucial to understand what inclusive education discourse, stigma and services look like among parents and teachers at primary and secondary schools. By understanding their digital footprint (for instance: geolocated messages from social media), a larger strategy can be developed to inform interventions and policies around improvement of inclusive education for children.

2. Public sector analytics can benefit from Big data in terms of future predictions of beneficiaries' behaviour and needs (for instance based on available information[3] on schools in Kazakhstan, we can identify how many of them are inclusive ones), particularly when possibilities of collecting data are limited and when circumstances are volatile, frequently changing. The similar work, visualizing connectivity disparity across schools using Big data has been already done by Office of Global Innovation[4] with UNICEF Kazakhstan.

3. In this challenging context, there is a need to develop a methodological tool that can complement evaluations when responding to the OECD-DAC evaluation criterion - RELEVANCE. Relevance looks at the relationship between the needs and problems in society and the objectives and design of the intervention. Analysis should identify if there is any mismatch between the intervention and the needs or problems. For example, the wrong "problem drivers" may have been identified during a preliminary phase of the project, incorrect assumptions may have been made about the cause-and-effect relationships, circumstances may have changed, and the needs/problems now are not the same as the ones looked at when the intervention was designed. Relevance analysis is very important – because if an intervention does not help to address present needs or problems then it does not matter how effective, efficient or coherent it is – it is no longer appropriate. This is key information that will assist policy makers in deciding whether to continue, change or stop an intervention.

Objectives, Purpose & Expected Results

The purpose of the formative evaluation is to examine the public opinion (parents/ caregivers/ teachers) on to what extent the state education programmes in Kazakhstan implemented within the period of 2011-2021 have been contributing to inclusion of children of different levels of ability in the education system in the country as well as to examine the enabling conditions and bottlenecks which will require further improvement. Internet public opinion can

[1] The 2020 annual report of the Child Protection Committee on the situation of children in Kazakhstan
[2] Bureau of National Statistics, TransMonEE 2020, National report on Education - 2020
[3] Project Connect (unicef.org)
[4] Unicef Giga Kazakhstan

be disseminated by e-mail, forum, blog and other means of social media interactions. Public opinion[5] information appears in the form of network comments, but network comments include spam comments, subjective comments and objective comments. The classification of these comments needs to extract the user's feelings. Subjective comments involve a large number of user ideas, rather than subjective comments containing incorrect opinions and lack of emotional statements. It is meaningful to get subjective comments from a large number of online comments. This particular assignment will serve as a good addition to the formative evaluation and provide the Government of Kazakhstan and UNICEF with sound evidence and conclusions to inform planning the future strategies and work in this area.

Within this framework, the e evaluation will have the following specific objectives:

1. Through the analysis of the perspective of individuals, in particular parents, teachers and youth and overall public opinion
   1.1. assess some of the immediate results and good practices of what is working, for whom, and what is not working, from the perspective of parents and general public opinion in the inclusive education.
   1.2. identify existing challenges, barriers and gaps in the education system and provide strategic recommendations aimed at creating an inclusive and resilient learning environment for every child.
   1.3. develop recommendations for future strategies in sustaining results and good practices and addressing existing challenges and barriers.

2. Through the analysis of geo/special data:

   2.1. disaggregate schools by level of education (pre-school, primary and secondary) with access to inclusive education, using Project Connect (unicef.org)
   2.2. Analyse child population access to inclusive education regionwide

   This assignment's objective contributes to objectives of the formative evaluation in a complementary way as it is:
   - Complements the official statistics by adding unique and up-to-date data that can be used to form a complete and present picture of a situation and updating this with snapshots over time to see how situation evolves.
   - Serves as a baseline of how public discourse of inclusive education perception changed over time to allow monitoring of the effectiveness and reach future inclusive education programmes/campaigns, including how media communicates about inclusive education.
   - Measures awareness and understanding inclusive education in Kazakhstan among parents/caregivers and teachers, including knowledge of available educational services and correctional support for children with special educational needs, including children with disabilities is provided mainly in special educational organizations.

The outputs of the assignment will include i) an analytical tool and comprehensive methodology that enables a near real time population level of current discourse on inclusive education that translates outputs in a meaningful way to the end-users (Government of Kazakhstan and UNICEF); ii) a report, including data visualisation, presenting the findings of the big data analysis and responding to the specific objectives described above; iii) a methodology toolkit for sustainable big data analysis in Kazakhstan building on the experience and lessons learned; iv) a methodology toolkit that can be adapted and replicated in other countries outlining the key requirements for success This should inform a tool and capacity building workshop to equip UNICEF Kazakhstan, so data collection and analysis is sustained beyond the scope of this project.

[5] Public Opinion Analysis of Big Data Based on Machine Learning, Xuegang Chen et al 2019 J. Phys.: Conf. Ser. 1302 022035

Geography Scope: Kazakhstan

Time scope: Big data will be analysed retrospectively, in order to potentially capture changes overtime, before, during and after the introduction of national measures and initiatives on inclusive education, starting from 2011-2022.

Description of the Assignment

The approach should first gauge the digital footprint of teachers and parents/caregivers through a digital ecosystem analysis and identify service provision. However, we very much welcome practical and efficient approach for rolling out this particular assignment.

It is assumed that the assignment will have three main stages:

(1) Digital Ecosystem Analysis

The research team should collect and de-noise data from a cross-section of social media platforms (Facebook, YouTube, Instagram, Tik Tok, Twitter, Vkontakte, and Yandex, for example), news, blogs and discussion forums and search behaviour reflecting the real information individuals are looking for. The machines should ingest and de-noise millions of data points, giving qualitative, culturally backed insights at scale. NLP technology could be used to understand inclusive education awareness through analysis of social media and news content.[6] Contractor is welcome to use available open-source AI and ML tools for data collection, data analysis and data visualization.

Data Collection: Through an iterative approach, the team should create a list of keywords/concepts/hashtags related to inclusive education that will help analyse individuals' search behaviour and the type of information they are seeking. These key works should be validated with face-to-face focus group discussions, surveys and/or other means to ensure the discourse is based on the correct parameters. The keywords will also include terms in the local languages (Kazakh and Russian). It will then collect data from relevant digital platforms. This is usually categorised into three online behaviours: a) search, b) stated, and c) consumed; and the intents related to the discourse there should be an objective related to the search a) informing oneself; b) seeking help; c) action-oriented search.

For search, the team should look at:

- Google, Bing, Yandex etc. to understand the real information individuals are looking for.

For stated and consumed behaviour and intent, the team should look at:

- Facebook, YouTube, Instagram, Tik Tok, Twitter etc. Finally, online news, blogs and discussion forums will also be covered to gain insights on what information online users ingest and publicly state about a topic.

[6] UN Global Pulse, Understanding Immunisation Awareness And Sentiment Through Analysis Of Social Media And News Content • UN Global Pulse

(2) Data Processing and Analysis: The collected data should be classified using proprietary machine learning models. The machines should analyse and denoise millions of data points, giving qualitative, culturally backed information at quantitative scale. Text (and potentially images and video data points) should be analysed by machines to help to identify the key concepts, ideas and values that circulate in their world regarding a particular topic. This also provides insight on what engages a certain audience and what they talk about. Scripts of the machine learning model will be needed to be available for UNICEF and provided as an open source. Natural Language Processing can be used to perform a variety of tasks such as automatic summarization, sentiment recognition and topic modelling, in particular NLP[7] techniques may be used to increase the efficiency and effectiveness of the compilation and analysis of unstructured text data in our case. All produced algorithms will stay with UNICEF and will belong to UNICEF property.

Sizing and Categories: After collecting the stated, unstated and consumed data, and then classifying it into text (and potentially image and video), the research team should support the Country Office in how to gain insight from the data outputs, looking at the cultural context (the why), demographic analysis (age, gender, socio-economic background and location) and semiotic decoding (the how). Using the examples above, the Country Office should be able to gain insights by:

a) The size of conversations around inclusive education (e.g. migrant children's education, use of hardware for children with special educational needs, lack of knowledge on inclusive education among parents/teachers, availability of pre-schools and schools vs # of children living in these areas (urban/rural) and any good and bad consequences that are discussed.
b) How individuals, in particular parents and teachers, and youth express themselves across platforms in relation to inclusive education. For example, how they engage with discourse on Facebook versus post about on Instagram.
c) Categories of requests/ searches on topic of inclusive education and specific keywords that have the highest search volume and rate of change.

Contractor should take into account that using NLP and ML methods for data processing and data analysis implies the formatting, so that standard statistical programming languages such as e.g. R or Python can read text into their internal storage system to then perform analyses on data.

(3) Data visualization

- After the data is analysed, the research team should provide a visualization. The contractor in consultation with UNICEF may choose the most appropriate approach for visualization depending on data analysis results. Comparison stories typically work best with bar graphs. The changes over the time could be well presented with line charts. Categorical definitions could require tree charts.
- Colour and visualization branded elements should be aligned with UNICEF brand book requirements.

Deliverables

Deliverable #1: Inception Report

The team will present the methods to be used for this work, the scope, project plan with timelines, the triangulation/validation methods.

The research team responsible for this assignment should be part of existing reference group to actively coordinate and engage during presentations at a workshop. The workshop will be delivered with participation of research team responsible for formative evaluation, reference group, programme staff and external stakeholders. This will include validation or rebuttal of the recommendations by the stakeholders.

[7] Debate Comments Analysis (unglobalpulse.net)

Deliverable #2: Digital Ecosystem Analysis

Technical Report should include:

- Analysis of the perspective of individuals, in particular parents, teachers and youth and overall public opinion, which is consist of some of the immediate results and good practices of what is working, for whom, and what is not working, identifying existing challenges, barriers and gaps in the education system and provide strategic recommendations aimed at creating an inclusive and resilient learning environment for every child, with recommendations for future strategies in sustaining results and good practices and addressing existing challenges and barriers.

A Digital Ecosystem Analysis Report:

- Size and demographic breakdown of conversations around inclusive education.
- Discourse across platforms and how each platform is used.
- Media communication approaches about inclusive education.
- Geo spatial data on availability of inclusive school's vs # of children living in these areas (urban/rural)
- Technologically related deliverables: data used for the analysis and scripts for the categorization
- Methodological note

Deliverable #3: Final package with methodology and tools and capacity building

1.1. Full Methodological note validated that can be adopted by other countries outlining the key requirements to enable adoption (data availability, workshop processes, etc): A Methodological note

1.2. Data architecture: including algorithms used to captures, analyse, and utilise information

- *An analytical tool* that provides and enables a near real time population level view of current discourse on inclusive education that translates outputs in a meaningful way to the end-users. The tool should allow monitoring data every quarter. The tool should include social and search data that breaks down demographic skews and overall discourse and trends around inclusive education. It should include the digital ecosystem analysis for the Kazakhstan and should aim at expanding to other countries. It should serve as baseline of how public discourse of inclusive education perception changed over time to allow monitoring of the effectiveness and reach future inclusive education programmes/campaigns.

1.3. Manual for the tool on the steps ahead to make it sustainable

1.4. 1 capacity building online workshop that ensures UNICEF Kazakhstan implementing partners (Ministry of Education) and relevant staff are equipped to leverage digital data for programs and policies based on this particular assignment. The workshop should provide training and manuals and training materials.

Ethical considerations

1. Potential contractors will need to agree to meet the standards set in the UNICEF Procedure on Ethical Standard in Research, Evaluation, Data Collection and Analysis.
2. Potential contractors need to supply evidence of having undertaken ethics training or commit to undertake ethics training if capacity development is a priority and researchers with ethics training are unavailable.
3. Monitoring can identify relevant potential ethical issues and mitigation strategies relating to potential harms and benefits, informed consent, privacy and confidentiality and payment and compensation. If applicable, include specific considerations for research related to children and/or sensitive issues (such as violence against women and girls) and reference appropriate additional sources of guidelines and standards (e.g. UNICEF's guidance on children in research, WHO's guidance on violence research).
4. Ethical review will be undertaken if necessary.
5. It's preferable that a contractor has a third-party agreement with online platforms (Google, YouTube, Facebook, Instagram etc) which secures the digital data usage.

Challenges and risks:

1. Depending on the data source, country legislation and data collection methods there might be UNICEF ethical restrictions.
2. Information on the marginalized groups of population that are not using electronic devices with social media applications might be limited.
3. Information on sensitive topics (i.e. violence, abuse etc) that are not open/widely discussed in social networks might be limited.
4. Some bias on the provided information might be considered due to more representativeness of some groups of population depending on the data source.
5. Big data science challenges facing humanitarian organizations https://www.unhcr.org/innovation/10-big-data-science-challenges-facing-humanitarian-organizations/.
6. Depending on the data source the detailed disaggregation (by demographic, geographical dimensions etc.) might be limited.

Deliverables, timelines, and payment schedule

Deliverables	Timeline	Schedule of Payment
1. Detailed Inception Report (IR) in English	Estimated three weeks after contract signing	**20%**
2. Draft of Study Report in English *(compiled Digital Ecosystem Report and technical report)*	Estimated eight weeks after contract signing	**40%**
3. Final package *with methodology and tools and capacity building*	Estimated twenty-four weeks after contract signing	**40%**

The Contractor should propose a timeline to submit the deliverables in their implementation plan (in his technical proposal).

Reporting Requirements

Contractor should submit the following:

- Inception Report
- Progress updates on a bi-weekly basis using teams' platform
- Draft and Final Digital Ecosystem Analysis Report including technical report
- Workshop materials
- Presentation material for reference group meetings (see deliverable # 1 p.6)
- Short Workshop report (upon the completion of the workshop)

All documentation should be submitted electronically, in English, to Raushan Ibrasheva, CRME Specialist UNICEF Kazakhstan (ribrasheva@unicef.org)

Location and Duration

Tentative starting date for the assignment: 15 December 2022
Tentative finishing period for the assignment: 31 July 2023

Activity	Duration	
1. Producing a detailed Inception Report (IR) in English with the additional requirements, presentation	3 weeks	
2. Quality assurance (QA) review process of Inception Report;	2 weeks	
3. Digital Ecosystem Analysis Report (including technical report), in English with the additional requirements, including data and scripts, presentation	8 weeks	
4. Round of reviews and feedback	2 weeks	
5. Full Methodological note	3 weeks	
6. Capacity Building Workshop. Preparation and delivery.	2 week	
7. Submission of the finalized report in English	2 week	
8. Final Presentation of the monitoring study outcomes to UNICEF	1 day	
TOTAL	24 weeks	

The timeframes are negotiable. Contractor should reflect the proposed timeframe in the workplan as a part of the application. Once contract is signed deliverables schedule may be shifted upon mutual decision between UNICEF and Contractor prior its occurrence but should stay withing the overall duration of the project.

Qualification Requirements

UNICEF is seeking to hire a Contractor, fulfilling the following requirements:

- Proven experience in conducting Big data monitoring (not less than two years).
- Potential contractors shall provide evidence of their capacity in terms of the above.
- The Contractor shall provide CVs, diplomas and certificates of a minimum leadership team: Team Leader, Key Experts.
- The proposed team must correspond to the minimum criteria – team composition and minimum experience of the proposed staff

Team Leader:

- Master's or equivalent degree in Management, Big data, Behavioural Science, Data Science, Inclusive Education and Communications or other relevant education.
- Have training experience (organization staff) working with end users.
- Have experience working with UNICEF and/or on a similar project
- At least 2 years of experience in project management (for Team Lead).
- At least 2 years of experience in data science (for Experts).
- Fluent English languages (for Team Lead).

IT experts:

- relevant academic qualifications and programming experience; capacity to manage personnel that can iterate technology based on user testing.

The equal share of female and male experts is highly valuable as UNICEF is committed to diversity and inclusion within its workforce and encourages all candidates, irrespective of gender, nationality, religious and ethnic backgrounds, including persons living with disabilities.

In case of deviation, the offers may be considered technically not compliant.

Potential contractors must provide the next information:

1. Basic details

The full name of organization	
Date of foundation	
Address	
Area of interest	
The total number of staff	
Description and composition of the staff	

2. CVs, diplomas and certificates of team members, who will be leading the project.
3. The list of minimum 3 company's implemented projects (surveys, studies) relevant to the topic. The list should include the name of clients; the names of projects; the duration of projects; links to reports if they are publicly available.
4. A list of three contacts for references from different projects for the last three years.
5. Brief technical approach and methodology according to ToR, (5 pages maximum) including risk mitigation measures. Methodological brief should outline technical possibility to answer on key monitoring questions: What and How much?; Who?; Why and What?
6. Workplan and project implementation timeline.

Evaluation process and methods

Please make sure to provide sufficient information/substantiating documentation to address all technical evaluation criteria.

The evaluation and award criteria that will be used for this RFP is composed of a Cumulative Analysis evaluation (point system with weight attribution). The weighting ratio between the technical and financial proposals will be 70:30. The respective importance between technical and financial scores will be weighted as 70% and 30%.

An offer is considered technically acceptable (and therefore eligible for opening of financial offers) when it obtains a minimum of **70** Points out of **100** during the course of the technical evaluation. The final selection of the contractor will be based on a combination of the technical and financial proposals with a weighting of 70% for the technical proposal and 30% for the financial proposal. In the case of cumulative analysis, the proposals scoring below 70% of the available technical points will be considered as non-compliant and will be rejected and not further considered.

Technical quality will be evaluated using the criteria outlined below.

Item	Technical Evaluation Criteria	Max. Points Obtainable
1	**Organization's experience in relevant studies, surveys, assessments**	**20**
1.1.	Relevance of studies, surveys or assessments to the ToR	20
2	**Appropriate methodology and plan of actions according to the ToR**	**60**
2.1	Brief technical approach and methodology, including quality assurance (3 pages)	50
2.2	Detailed workplan	10
3	**Experience of staff that will work on the project**	**20**

3.1	Relevance of education	10
3.2	Experience in the relevant studies, assessments using Big data	10
TOTAL TECHNICAL SCORES		**100**

Financial proposal should include all possible costs related to implementation of the tasks under the present TOR and specify the total budget estimated in USD as well as a detailed breakdown of budget items provided for Component 1, 2. Payments shall be based upon delivery of the services/tasks specified in the ToR as per the payment schedule.

Financial proposal must be submitted in **a separate file of non-editable format** (e.g. PDF) and shall not contain any taxes included, as UNICEF is tax exempt.

UNICEF General Terms and Conditions

UNICEF's general terms and conditions will apply to the contract awarded to the selected contractor. Please note that, in the evaluation of the technical merits of each proposal, UNICEF will take into consideration any proposed amendments to the UNICEF General Terms and Conditions. Proposed amendments to the UNICEF general terms and conditions may negatively affect the evaluation of the technical merits of the proposal.

UNICEF reserves the right to withhold all or a portion of payment if performance is unsatisfactory, if work/outputs is incomplete and not provided timely as indicated in the individual work plan of the contractor.These ToR are an integral part of the contract (PO) to be signed with the international consultancy.

UNICEF retains the right to patent any intellectual rights, as well as copyright and other similar intellectual property rights for any discoveries, inventions, products or works arising specifically from the implementationof the project in cooperation with UNICEF. The right to reproduce or use materials shall be transferred with a written approval of UNICEF based on the consideration of each separate case. Selected contractor should always refer to UNICEF Kazakhstan support in developing the materials when publishing the results of the research conducted while in Kazakhstan in academic journals, books and websites.