AI/Machine Learning-based system capable of predicting forced displacement in near real time

The Frontier Tech Hub (FT Hub)

Deadline for applications: 4th June 2024 @ 23:59 UK time

Budget: up to £75,000

Want to contribute to the UK Civil Service's most innovative programme?

The Frontier Tech Hub (FT Hub) works with the UK Foreign Commonwealth and Development Office (FCDO) at the intersection of tech, innovation, and international development. We work across three main areas:

🚀 We work with FCDO colleagues to fund, test and scale frontier technologies worldwide, by calling for ideas to test frontier technologies in the real world. Since 2016, we've worked with 70+ FCDO staff on 58 pilots across 32 countries.

⚡ We connect FCDO colleagues with one another and the world of tech, helping them to explore the future, being critically curious about what radical technological transformation means for the future, and consequently, FCDO.

💡 We gather and share learnings from across our portfolio of pilot projects, sharing thought leadership from the frontier of tech for impact within the FCDO's work.
The FT Hub is managed by three partners: Results for Development (R4D), DT Global (formerly IMC Worldwide), and Brink. It's funded by UKAid from the UK Government. To find out more about the programme and its goals, [visit our website](#).

What's the opportunity?

In partnership with the Frontier Tech Hub, the FCDO are exploring development of an AI/machine learning-based system to predict forced displacement (including internal displacement and/or displacement across national borders) with high levels of accuracy in near real-time.

Beyond developing the system, FCDO would like to explore how any insights can be used by the UK government and its partners to improve the targeting of humanitarian aid and deployment of staff. The system is expected to use data that acts as consistent and generalisable signals that can be trained on historical displacement data rather than a determinant based model. Example signals data sources could include, but not limited to, Google Trends, social media activity, and instant messaging services.

The goal is to develop a proof-of-concept model within a limited geography, that could ultimately be scaled up to different geographies. If successful, we envisage that further funding could be made available to scale-up the model across a broader geographical area and/or to new geographies.

What we already know

- More timely and more accurate displacement data has the potential to greatly improve the targeting of humanitarian aid and deployment of staff.
- Machine learning-based systems are already being used to predict forced displacement with high levels of

accuracy. For example, the Danish Refugee Council's Foresight displacement forecasting model[1].

- By combining machine learning techniques with Google Trends data, ITFLOWS has demonstrated the feasibility of this approach to predict displacement in near real-time[2]. See 'Annex 1' for further examples.
- AI/machine learning-based systems are unable to predict forced displacement in the short-term following large shocks on a global scale such that it can guide the targeting of humanitarian aid and deployment of staff in near real-time.

Considerations for selecting the location where displacement will be predicted

- **High likelihood of success:** the aim with this pilot is to demonstrate that an AI/machine learning-based system can successfully predict forced displacement with high levels of accuracy in near real-time.
- **Data availability:** availability of displacement data and signals data to teach the model, test its effectiveness and confirm its accuracy.
- **Complementarity with UK humanitarian programmes:** refer to https://devtracker.fcdo.gov.uk to confirm that there are UK humanitarian programmes targeting displaced people in the proposed location.
- **Implementing partner experience:** preference will be given to proposals where the implementing partner has existing experience with predicting forced displacement and/or use of viable signals data, preferably in the proposed location.
- **User testing:** preference will be given to proposals that demonstrate a clear plan for user testing in the proposed location. This might include the implementing partner's country office(s) and/or UK humanitarian teams.

Risks to be mitigated

- Unethical/inappropriate data usage: the data produced by the model could be used to harm vulnerable displaced people.
- Barriers to accessing data: inability to access displacement data and signals data needed to develop a functional model.
- Technical feasibility: the model cannot predict forced displacement in near real time and/or doesn't accurately predict forced displacement.
- Scalability of the model: the model cannot be scaled-up across a broader geographical area or to new geographies.

Scope of work: Develop a proof-of-concept model that uses AI/ML to predict forced displacement in an agreed location that meets the needs of the relevant UK government humanitarian team(s)

We are looking for a partner(s) who will operate flexibly and adapt their approach as they go to achieve maximum impact and learning. During the pilot kick-off phase we will discuss and agree specific learning questions to be explored throughout the pilot. We anticipate these may include:

- Can AI/machine-learning be used to analyse live data sources and proxies for behaviour, such as Google searches and social media sentiment, to detect signals and indicators of events that are causing displacement?
- Is the use of readily available signals data more robust than determinant based models?
- Would this approach result in a model that can accurately predict displacement in the near term?
- To what extent can this approach improve the targeting of humanitarian aid and deployment of staff by the UK government and its partners?

Working in Sprints

The objective of every pilot in the FT Hub portfolio is to validate learning for a frontier technology in solving a development challenge. In order to do this quickly, the programme works in 'sprints', where a sprint is a period of

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[1] https://pro.drc.ngo/what-we-do/innovation-and-climate-action/predictive-analysis/foresight-displacement-forecasts/

[2] https://www.itflows.eu/wp-content/uploads/2023/03/1387.pdf

activity during which implementing teams focus on proving, disproving, or qualifying the most critical beliefs and assumptions related to achieving our hypothesis.

Activities in each sprint are targeted to help answer one of our key questions:

- Does the technology work in the challenging environment?
- Do end user(s) including engage with the technology?
- Is there a route to scale the technology after the project?
- Does the technology create a positive impact?

At the end of each Sprint, implementing teams are empowered to reflect on their experiences and share their learning with the FT community before proposing how subsequent sprints should be planned and implemented.

The planning for each sprint includes developing a budget for that sprint, which is approved by the FT Hub team on behalf of the FCDO. The length of sprints will be co-defined with the partner.

We reserve the right to discontinue a pilot at the end of every sprint, should there be a lack of progress on the pilot (in activity or learnings), or no viable route to scale. The FT Hub will work closely with the pilot team to explore every avenue that might unlock learning and scale over the course of the pilot.

Who we are looking for

We welcome bids from any individual(s) or organisation(s) able to deliver against our scope of work and encourage applications from consortiums or groups of individuals bringing their skills together to meet the needs of the pilot. We would particularly welcome proposals from female technologists or organisations with a female lead(s), and organisations employing people with disabilities.

It is envisaged that the organisation(s) will have a deep understanding of the challenges of predicting displacement flows in different contexts, and experience of AI/machine learning methods.

The methodology we will work with as part of the pilot necessitates a very strong working relationship between the selected partner and the other core team members, including the FCDO advisor, FT Hub coaches and independent experts we may consult. We therefore welcome proposals from teams that are committed to using the sprint methodology and importantly, the mission this pilot is working to achieve. Because of the advertised initial grant size, we would finally welcome co-investment opportunities that reflect commitment to the mission of the work.

Proposed Timeline for Delivery

- Due diligence and contracting – from w/c 24th June 2024
- Kick off / work commencing - w/c 1st July 2024, subject to contracting

The Project duration will be up to 12 months from the issue of the contract, and will terminate prior to the completion of the project depending on satisfactory completion of the "Sprints". We hope that securing additional funding would allow us to continue the work beyond this stated period. As stated above (see "Working in Sprints"), we reserve the right to discontinue pilots at the end of every sprint.

Budget

The funding amount available for the contract is up to £75,000 GBP.

Application Instructions

Please submit the following materials to FTLenquiries@dt-global.com (with "FT Hub - Call 8 - Displacement Prediction" in the subject line):
- A short covering letter outlining your relevant experience and proposed approach to the scope of work (no more than 400 words)
- A description of how you would approach the scope of work in no more than 8 pages including:
  - Proposed geographical location;

- o   Proposed geographical granularity of displacement predictions (national vs district level)
- o   Proposed data sources;
- o   Proposed use of AI/machine learning;
- o   Proposed displacement prediction timeframe;
- o   Proposed activities to test the model's accuracy.
- Profiles/CVs of key team members that would be involved in delivery of the scope of work, including details of any proposed partnerships or consortium collaborations.

We do not require a detailed budget as activities and associated budgets will be agreed sprint by sprint. However, we ask that you submit a commercial proposal including:
- Fee rates for individuals that might be involved across the scope of work
- Cost of technology that might be involved across the scope of work
- Cost of all expenses and other items that might be involved across the scope of work

Timeline for Application and Selection

- Application deadline: 4th June 2024 @ 23:59 UK time. Proposals received after the due time and date will not be considered.
- Assessment of written applications: 5th – 11th June 2024.
- 1-hour interview with the FT Hub team (15-minute presentation by candidates, followed by Q&A): 17th – 18th June 2024 (for shortlisted applications only).

Evaluation Criteria

Criterion	Points
Expertise Demonstrable experience and success working with: - AI/machine learning technologies. - Forced displacement-related data. Existing relationships with technology providers and humanitarian organisations.	25
Feasibility and relevance of the proposed approach Credible plan for developing an AI/machine learning-based system to predict forced displacement with high levels of accuracy in near real time. Proposed location complements existing UK humanitarian programmes. Commits to predicting displacement with a high level of accuracy. The targeted level of accuracy (in percentage form) should be specified, and be realistic and justified. Clear sense of how the project will make data available to be used by the UK government and its partners to improve the targeting of humanitarian aid and deployment of staff.	35
Scalability and sustainability of the proposed approach Application provides a vision for how the innovation will be sustained in the longer term. Clear ability to engage key stakeholders, partners, and leverage co-	20

investment. Application suggests a credible path for the solution to scale beyond the immediate pilot.	
Flexible and engaged partner Understanding of the FT Hub's learning objectives and commitment to working in lean / agile ways to maximise learning for FCDO. Clear motivation to become a partner on the pilot and commitment to explore the pilot's objectives through an iterative and collaborative approach.	10
Strength of the commercial proposal Value for money: we are looking for proposals which allow for an ambitious but realistic use of the funds.	10
Maximum points available	**100**

Enquiries

Please contact FTLenquiries@DT-Global.com for further enquiries regarding this Terms of Reference or for further information on the Frontier Technologies Programme. Title your enquiry 'Enquiry: FT Hub - Call 8 - Displacement Prediction'

Additional Contents page

SECTION 1: INFORMATION FOR RESPONDENTS

1.   Introduction

This tender process and any resulting contract for the Services will:
- be governed by and construed in accordance with the law of England and Wales and will be written in the English language;
- state the period during which the Services are to be performed;
- nominate specific key personnel and fees;
- include the Terms of Reference and supplementary information modified to incorporate any agreed revisions;
- Any contract placed as a result of this ITT will be subject to the Form of Services Agreement at Appendix 2, in addition to any conditions specified in this ITT. By submitting a tender in response to this ITT, the bidder is confirming acceptance of the terms of the ITT.

2.   DT Global Contact Point and Enquiries

Please address any inquiries via email to FTLenquiries@DT-Global.com

3.   Tenderer Contact Point

Tenderers must provide a single point of contact in their organisation for all correspondence relating to this ITT. DT Global shall not be responsible for contacting the Tenderer through any route other than the nominated contact. The Tenderer must therefore undertake to notify any changes relating to the nominated contact promptly.

4.   Conflict of Interest

Tenderers must disclose in their tender any circumstances, including personal, financial and business activities that will, or might, give rise to a conflict of interest by taking part in any resulting Contract. This also applies to any sub-contractors proposed by the Tenderer. Where Tenderers identify any potential conflicts, they should state how they intend to avoid such conflicts. DT Global reserves the right to reject any tender which, in DT Global's opinion, gives rise, or could potentially give rise to, a Conflict of Interest.

5.   Collusive Behaviour

Any Tenderer who:

a. fixes or adjusts the amount of their tender by or in accordance with any agreement or arrangement with any other party; or
b. communicates to any party other than UK Aid, the amount or approximate or amount of its proposed tender or information which would enable the amount or approximate amount to be calculated (except where such disclosure is made in confidence in order to obtain quotations necessary for the preparation of the tender or insurance or any necessary security; or confidence in order to obtain quotations necessary for the preparation of the tender or insurance or any necessary security); or
c. enters into any agreement or arrangement with any other party that such other party shall refrain from submitting a tender; or
d. enters into any agreement or arrangement with any other party as to the amount of any tender submitted; or
e. offers or agrees to pay or give or does pay or give any sum of money, inducement or valuable consideration directly or indirectly to any party for doing or having done or causing or having caused to be done in relation to any other Tender or proposed Tender, any act or omission,
f. shall (without prejudice to any other civil remedies available to UK Aid and without prejudice to any criminal liability which such conduct by a Tenderer may attract) be disqualified. Tenderers are required to sign and return the Declaration of Non-Canvassing and Non-Collusive Tendering provided at Appendix 1.

6.   Confidentiality

6.1. All material issued in connection with this ITT shall remain the property of DT Global, the Frontier Technologies Programme, and UK Aid and shall be used only for the purpose of this procurement exercise.

6.2. The contents of this ITT are being made available by DT Global on condition that:

6.2.1. Tenderers shall at all times treat the contents of the ITT and any related documents (together called the 'Information') as confidential, save in so far as they are already in the public domain;

6.2.2. Tenderers shall not disclose, copy, reproduce, distribute or pass any of the Information to any other person at any time or allow any of these things to happen;

6.2.3. Tenderers shall not use any of the Information for any purpose other than for the purposes of submitting (or deciding whether to submit) a Tender; and d. Tenderers shall not undertake any publicity activity in connection with this ITT within any section of the media without prior approval from DT Global.

6.2.4. Tenderers may disclose, distribute or pass any of the information to the Tenderer's advisers, sub-contractors or to another person to enable the preparation of this ITT.

7. Right to Cancel, Clarify or Vary the Process

7.1. Neither DT Global, or UK Aid shall be committed to any course of action as a result of:

a. Issuing this ITT or any invitation to participate in this procurement exercise;

b. communicating with a Tenderer or a Tenderer's representatives in respect of this procurement exercise; or

c. any other communication between DT Global, the Frontier Technologies Programme, UK Aid and any other party.

7.2. By taking part in this competitive procurement exercise, Tenderers accept that DT Global, the Frontier Technologies Programme, and UK Aid shall not be bound to accept any tender and reserves the right not to conclude a Contract for some or all of the services for which tenders are invited.

8. Costs of the ITT

Tenderers will remain responsible for all costs and expenses incurred by them, their staff, and their advisors or by any third party acting under their instructions in connection with this ITT. This will be regardless of whether such costs arise as a result of any direct or indirect amendments made to this ITT by DT Global or any other party to this Call at any time. For the avoidance of doubt, DT Global, the Frontier Technologies Programme, and UK Aid shall have no liability whatsoever to respondents for the costs of any amendments, changes, discussions or communications.

9. DT Global's Treatment of Your Tender

When you submit a tender, DT Global will:

a. Ensure tenders are registered upon receipt and held securely (unopened) until after the deadline for receipt of tenders.

b. Exclude tenders received after the time and deadline for receipt of tenders.

c. At our sole and absolute discretion disqualify any non-compliant tenders (i.e. Tenders failing to meet the terms of these instructions) received. The commercial details of such tenders will be recorded and marked as disqualified.

d. Ensure that all tenders are evaluated objectively, in line with the evaluation criteria specified in this ITT pack. During evaluation of the Tenders, DT Global or its partners Results 4 Development or Brink may, at its discretion, ask any Tenderer for a clarification of its Tender. The request for clarification and the response shall be in writing.

e. Once evaluated, DT Global will invite selected Tenderers to present their proposals to the evaluation team via a virtual call.

10. Duty of Care and Subcontractor Capability Assessment

10.1. All Subcontractor Personnel (including their employees, sub-contractors or agents) engaged under a UK Aid contract will come under the Duty of Care of the lead Subcontractor. The Subcontractor is

responsible for the safety and well-being of their Personnel and any Third Parties affected by their activities, including appropriate security arrangements. The Subcontractor will also be responsible for the provision of suitable security arrangements for their domestic and business property.

10.2. Subcontractors must comply with the general responsibilities and duties under relevant health and safety law including appropriate risk assessments, adequate information, instruction, training and supervision, and appropriate emergency procedures. These responsibilities must be applied in the context of the specific requirements the Subcontractor has been contracted to deliver (if successful in being awarded the contract).

10.3. DT Global will not award a contract to a Subcontractor who cannot demonstrate that they are willing to accept and have the capability to manage their Duty of Care responsibilities in relation to the specific procurement.

11. DT Global Business Ethics Policy

11.1. All Subcontractors must be willing to adhere to DT Global's Business Ethics Policy provided in Appendix 3. Lead Subcontractors and all joint-venture partners must complete, sign, and submit this document as part of their submission.

12. Due Diligence

Before signing a contract for the works, the Tenderer will need to complete and undergo due diligence checks by DT Global. Depending on the legal form of the relationship between the members of the consortium or partnership, the process should be completed by the lead organisation. It is expected that the bidder leading a partnership or consortium will carry out due diligence on their supply chain.

Where the legal form of the relationship means that members have joint and several liability, each member is required to complete the documents.

Failure to return the Due Diligence Questionnaire and pass the required checks (unless you have undergone Due Diligence with DT Global in the preceding two years) before contracting will prevent us from being able to sign a contract with you.

APPENDIX 1: Declaration of Non-Canvassing and Non-Collusive Tendering

Declaration of Non-Canvassing and Non-Collusive Tendering

The essence of the competitive procurement process is that the Contracting Authority shall receive bona fide competitive Tenders from all Tenderers.

We, the undersigned, hereby certify that this is a bona fide Tender and we have not nor has any other member of our supply chain:

1. Entered into any agreement with any other person with the aim of preventing Tenders being made or as to the fixing or adjusting of the amount of any Tender or the conditions on which any Tender is made whether in respect of this ITT; or
2. Inform any other person of the amount or the approximate amount of the Tender, except where the disclosure, in confidence, of the amount of the Tender was necessary to obtain quotations for the preparation of the Tender, insurance, performance bonds and/or contract guarantee bonds or for professional advice required for the preparation of the Tender; or
3. Caused or induced any person to enter into such an agreement as is mentioned in Para 1 above; or
4. Committed any offence under the Bribery Act 2010 or;
5. Offered or agreed to pay or give any sum of money, inducement or valuable consideration directly or indirectly to any person for doing or having done or causing to be done in relation to any other Tender for this ITT; or
6. Canvassed any other persons in connection with this Tender; or
7. Communicated directly with any Frontier Technologies personnel for the purpose of soliciting information or the transfer of related personnel into the employment of the Tenderer. 8. We also undertake that we shall not procure the doing of any of the acts mentioned in paragraphs 1 to 7 above before the hour and date specified for the return

Tender (as detailed in the ITT Covering Letter).

In this certificate, the word "person" includes any person, body or association, corporate or incorporate and "agreement" includes any arrangement whether formal or informal and whether legally binding or not.

Signed on behalf of [ ] ....

Name...............................Title.. Date....................

APPENDIX 2 - Form of Services Agreement

Please see this link: https://drive.google.com/file/d/136TCkez97I6-p1MAyFeN2laGeqCC21Mv/view?usp=sharing13

APPENDIX 3 – DT Global's Business Ethics Policy

Please see this link:
https://drive.google.com/file/d/1I2e39D02StulQ4U7sy0JDX5Va1ctLT00/view?usp=sharing14

APPENDIX 4 - Commercial Tender Template

In responding to the ToR the bidder is required to include in the **financial** proposal:

- Pricing details using the format of the tables below including the names and designation of all nominated key personnel proposed to work on the Project. **All rates and costs for reimbursable expenditure must be rounded to two decimal places**;
- The status of this proposal for the purpose of any government tax in the UK or Overseas. Any applicable taxes should be shown in the financial tables.

It is the responsibility of the Tenderer to propose their payment schedule, which should include a spread of results-based remuneration milestones against key deliverables across the life of the project.

The proposed payment schedule will be mutually agreed between DT Global and the Subcontractor.

1. **Submission Forms:**

PROPOSAL BREAKDOWN -KEY PERSONNEL INPUTS AND FEE RATES

NAME	PROPOSED POSITION	NO DAYS	DAILY FEE RATE IN GBP	COST IN GBP
Full-time staff				

Part-time staff				

Total Fees				

PROPOSAL BREAKDOWN - PROJECT EXPENSES

DESCRIPTION	UNIT	NO.	RATE	COST in GBP

	COST IN GBP
Total Expenses	

SUMMARY OF FEE RATES AND EXPENSES

	COST IN GBP
TOTAL FEES (A)	
TOTAL EXPENSES (B)	
SUB-TOTAL	
GOVERNMENT TAX (E.G. X% OF £)	
TOTAL	

For the purposes of the financial evaluation the VAT and Government tax will not be considered. Prior to conclusion of the contract the tax payable will be clarified and taken into consideration in the financial sum.

APPENDIX 5 - Response to Questions

Please submit your application to ftlenquiries@DT-Global.com including 'FT Hub - Call 8 - Displacement Prediction' in the subject or your email. This section will be updated with responses to all questions asked before the deadline.

ANNEX 1

Previous and ongoing projects from which we can learn include:

- Danish Refugee Council Foresight displacement forecasting model: https://pro.drc.ngo/what-we-do/innovation-and-climate-action/predictive-analysis/foresight-displacement-forecasts/

- ITFLOWS Migration Flow Prediction project: https://www.itflows.eu/

- Save the Children displacement forecasting model: https://resourcecentre.savethechildren.net/document/predicting-displacement-using-predictive-analytics-build-better-future-displaced-children/