

Supporting COVID-19 Response

Ministry of Housing, Communities and Local Government | April 2020

MHCLG needs urgent additional capacity and data science capability to provide critical analytical work to inform its response to the COVID-19 crisis. Specifically, MHCLG has already identified two areas where immediate support is required:

1. Analysis of free text collected by MHCLG to gain insights on how local areas are coping with and responding to the COVID-19 crisis
2. Topic analysis of Social Media to understand public perception and emerging issues of concern to HMG arising from the COVID-19 crisis

Successful delivery of such work is likely to require a mix of the following range of analytical and technical capabilities:

1. Identification, exploration and setup of data sources
2. Application of data science and machine learning on data provided by MHCLG and Social Media data.
3. Development of interactive dashboards which summarise the above activities into an easily consumable interface to inform policymakers

We propose to support the MHCLG internal team with a high-performing team of data scientists, engineers and, if needed, a UI/UX designer to work directly alongside MHCLG analysts to deliver these capabilities. The intention is for this to work as a single team, working in a highly agile and responsive way to allow you to respond to rapidly changing needs and requirements.

We expect that a high degree of collaboration between teams will be required for successful delivery. We have identified a provisional start date of **Thursday 16th April 2020**. The team will work under direction of MHCLG on a time-and-materials basis, with an estimated project duration of **3-6 months**, depending on rate of draw down.

Team, timelines and commercials

We are proposing to staff an experienced technical and commercial team to support the delivery of this project, including data scientists, a data engineer, the option of a UI/UX designer and a delivery manager.

In order to bring the required blend of skills to bear on this project whilst maintaining a compact overall team size, we have opted for the blended team profile outlined below. This composition allows us to deliver the best of Faculty's technical and commercial expertise whilst maintaining an average of 2.7 FTEs for the first two weeks of the project then an expected ~3.9 FTEs moving forwards, subject to scope and requirements established in Phase 1.

The senior stakeholder group will keep resources and spend against activities under review for the duration of the engagement, and will take a forward look on scaling up or down Faculty resources, giving Faculty at least 2 weeks notice. These decisions will be made collaboratively taking into account current draw down, project requirements and any changes to scope.

Phase 1 (2 weeks)

For the initial 2 weeks of the project, we propose a small focused team that will work collaboratively with MHCLG to help define and understand MHCLGs priorities in greater detail regarding the two projects already identified and

in parallel providing general *ad hoc* data science support to MHCLG 's team. This will include a rapid discovery of needs and review of available datasets. Faculty will outline the outcomes of these two weeks in an updated scope document, for review by the project's senior stakeholders. This document will contain recommendations for moving forwards on scope and likely resource needs.

Once this stage is complete we would expect the team to expand as needed, in discussion with MHCLG, to a larger team reflecting the updated scope..

This team composition most closely matches that of G-Cloud 11 Team 3.

Leadership:

- **Director (1 dpw)** - Oversight and regular strategic input into the work. Substantial relevant experience in overseeing the delivery of AI/data science projects.
- **Engagement Manager (3 dpw)** - Responsible for successful project delivery with experience in managing public sector and built environment projects.
- **Lead Data Scientist (1 dpw)** - A technical specialist with deep experience in the application of AI and ML in the built environment sector and productioning AI models as software. Will provide technical quality assurance and guidance.

Delivery:

- **Data Scientist (5 dpw)** - Two technical experts with expertise in a variety of statistical and machine learning methods will take primary responsibility for analysis and delivery of the modelling/ML components of this work.
- **Machine Learning Engineer (1 dpw)** - A data engineer with expertise in the development of production data pipelines and model deployment. Will be responsible for data engineering and software engineering tasks.
- **Associate (2.5 dpw)** - Experienced in project managing data science/AI strategy projects, and advising organisations on organisational capability.

13.5 total days per week = 2.7 FTEs

The weekly fee for the above team is **£*REDACTED* + VAT**. The actual weekly team composition will be agreed with MHCLG in accordance with scope and priced in line with our G-Cloud rates, which are themselves a discount to our standard commercial rates, and associated rate card.

Full Team

Following the initial two weeks, we will set out our findings and recommendations to MHCLG in an updated scope document. At this point we would expect the size of the team to increase, the appropriate scale of which will be determined during scoping but it is our expectation that it will most likely reflect the structure outlined below.

This team composition most closely matches that of G-Cloud 11 Team 3 although - given the possible needs of this work - we include an additional full-time Data Scientist and more substantive, dedicated effort from UI/UX Designer.

Leadership:

- **Director (1 dpw)** - Oversight and regular strategic input into the work. Substantial relevant experience in overseeing the delivery of AI/data science projects
- **Engagement Manager (2 dpw)** - Responsible for successful project delivery with experience in managing public sector and built environment projects.

- **Lead Data Scientist (1 dpw)** - A technical specialist with deep experience in the application of AI and ML in the built environment sector and productionising AI models as software. Will provide technical quality assurance and guidance.

Delivery:

- **2x Data Scientist (5 dpw)** - Two technical experts with expertise in a variety of statistical and machine learning methods will take primary responsibility for analysis and delivery of the modelling/ML components of this work.
- **Machine Learning Engineer (2 dpw)** - A data engineer with expertise in the development of production data pipelines and model deployment. Will be responsible for data engineering and software engineering tasks.
- **UI / UX Designer and Front End Developer (1 dpw)** - An expert in the design and development of user-facing applications will support the design of intuitive tools and interfaces for communication of results to stakeholders.
- **Associate (2.5 dpw)** - Experienced in project managing data science/AI strategy projects, and advising organisations on organisational capability.

19.5 total days per week = 3.9 FTEs

The weekly fee for the above team is **£*REDACTED* + VAT**. The actual weekly team composition will be agreed with MHCLG in accordance with scope and priced in line with our G-Cloud rates, which are themselves a discount to our standard commercial rates, and associated rate card.

Additional Information

The core project will also benefit from ongoing strategic guidance from the wider Faculty team as appropriate. In addition, they will be assigned a separate "Red Team" who will provide outside scrutiny and challenge to the project team approach on a fortnightly basis.

In anticipation of changing needs and requirements of this project, we also present the following rate card for additional resource requirements as needed on this engagement. Any changes to the resourcing structure of the project will be pre-agreed with MHCLG through the senior stakeholder group.

RATE CARD TABLE REDACTED

Deliverables

This project team will work alongside the MHCLG team on a T&M basis and we therefore expect that the shape and ultimate output of the project will evolve over the duration of the project.

Given our current understanding of your objectives we consider that the following would be primary deliverables of this engagement:

- **Rapid discovery of needs, and review of datasets:** Discovery into user requirements for this work; review of data sources and how to make them accessible. The outcomes of this will be outlined in an updated scope document which will be reviewed by the senior stakeholder group after week two.
- **Social media data sources:** Data pipelines to ingest and process data from relevant sources
- **Technical models:** Production-ready code deployed in your systems to allow for ongoing execution
- **Analyses and reports:** Written documentation and analysis outlining our technical approach and findings

- **User-facing application(s):** Interactive dashboard(s) which synthesise key outputs of this work into an easily-navigable interface to flag emerging trends and risks for policy-makers.

Assumptions

The proposed approach below has been made with the following assumptions about working and technical environments:

- Faculty staff will be provided access to the relevant data collected by MHCLG
- Faculty staff will be provided access to subject matter experts to refine our understanding of the problems
- Faculty will utilise the Faculty Platform development environment to speed development of solution components that can later be migrated to MHCLG systems.
- Given the exceptional nature of the COVID-19 pandemic we expect that remote working will be the default mode for project members for the duration of this project.
- We will identify a sensible cadence of meetings to ensure ongoing collaboration between project team members. An example might be daily (virtual) team standups with weekly status updates and fortnightly senior stakeholder meetings. We will agree the exact format of this with the MHCLG team at the project kick-off meeting