# **Birmingham City Council - Offline data input tool for field working council staff**

## 2. Lead authority details

**2.1 Lead authority name**

Birmingham City Council

**2.2.1 Full name**

James Gregory

**2.2.2 Role**

Head of IT&Digital Programmes

**2.2.3 Email**

james.e.gregory@birmingham.gov.uk

## 3. Project details

**3.1 Project title**

Developing a Local Government Field Worker Platform to enhance the experience and efficiency, and address pain points, of staff providing customer-facing services in the field

**3.2 Project description**

The project will bring field workers into a single platform which will deliver a consistent user experience as well as addressing a number of common pain points experienced by all groups of field workers.

Key benefits of the platform will be to present casework in a consistent format; to provide the ability to assign 'risk markers' to people or places, thereby better safeguarding staff; give the ability to record work electronically whilst in the field, with or without connectivity; provide better means of communicating with customers whilst on the move - all without the need to access multiple line of business systems.

The result will be less time spent waiting for documents and updates to upload in real time; less time spent in typing up manually-collated notes; greater officer safety; and ultimately, more time for the expert staff to spend with customers.

For authorities using proprietary field work applications (total Mobile, for example) or point solutions per service, this platform will be much better value with the added ability to control future development.

**3.3.1 The platform name and company**

We will be developing on MS Azure (Power Platform) and MS Xamarin/.net Maui

**3.3.2 Do you have the platform already or do you have approval to procure the platform? For example, you have written a business case and the business case has been approved**

Yes - Power Apps and Xamarin/.net Maui are licenced and ready for us to use

**3.3.3 Does the platform have a library to share modules/code that other councils can access? If yes, please tell us the URL**

Mobile/Web App/common patterns will be available on Github, integrations will be

available on request from BCC.

**3.4 Describe how you will research the problem area and user needs arising from it?**

Using Xamarin and Power Apps (hosted in Azure) we will develop a common platform for any field worker to be able to view and update their case files. Our 8-week discovery phase identified several pain points common across most field workers, in the following categories:

Connectivity - inability to connect to wifi or to tether to a phone makes accessing and updating files difficult, leading to manual data capture and duplication once back in the office. It restricts officers to have to start and/or finish the working day in an office. Often, notes taken in the field are illegible and this raises the risk of improper recording of information

Information capture - where officers can connect online, the time it takes to upload large documents (photos, file attachments, etc) in real time wastes a lot of time and gives a poor impression to customers.

Job scheduling - usually needs to be done from an office, with little or no real-time communication with customers - which leads to higher than necessary levels of Did Not Attends (DNAs) which waste the time of officers and limits their effectiveness in the field.

Lone working - there is no consistent way of keeping people safe, with teams often relying on schedules written on a whiteboard at the start of a day and checking back in periodically. A risk marker database exists but only within service area line of business systems - therefore a risk raised by one service cannot be seen by another service, thus exposing staff to avoidable risk.

The proposed platform will address all these pain points by providing offline access to case files; the ability to upload documents in the background; and by giving better visibility of the whereabouts of staff to help keep them safe.

The project will aim to:

- Reduce the instances of data being input on several systems, saving staff on time spent on doing their job.

- Reduce the average error rate from multiple data entry

- Reduce admin effort if we can input the data ourselves on the go

- Increase field workers capacity to deliver better service to citizens

- Reduce the frequency of unnecessary travels due to missed appointments

- Keep field workers safer.

The platform will be developed to enable any field work team to be onboarded onto the base platform, with the possibility to configure each specific user journey with minimal effort. We have identified several early adopter service areas who will be involved in our private beta.

Our wider aim is to take cost out of the LG sector which spends £m's on point solutions or expensive proprietary platforms for field working.

All pain points and user needs were captured in a Discovery report which is attached for reference.

**3.5 Tell us about your users**

The scope for the platform is not restricted and will be assessed on a business case basis. The field worker discovery and alpha enabled us to understand our users a lot closer. Through these phases our research showed three distinct personas: Investigator, Enforcer and Supporter. These are described in more detail in the Discovery report attached. We already have our scope for the MVP, which includes 2,040 field workers in the following teams:

Fire & Risk

SEND/SENAR/SENCO

Pupil Connect

Elective Education

Educational Psychology i.e. Occupational therapists

In total, we believe there are around 5,250 field workers in Birmingham alone who could benefit from being onboarded to the platform - future releases post-MVP are being lined up based on an assessment of the cost to onboard vs the benefits to the service.

We have included a business change manager in the delivery team to ensure that the benefits of onboarding to the platform are maximised. As part of the onboarding process, detailed user journeys will be mapped and improved before configuring the platform for the service area. This will ensure that poor processes are not replicated electronically.

**3.5.1 Upload supporting documents (optional)**

[FINAL-REPORT-FIELD-WORKING-DISCOVERY-Local-Digital.pdf](https://www.localdigital.gov.uk/index.php?gf-download=2021%2F09%2FFINAL-REPORT-FIELD-WORKING-DISCOVERY-Local-Digital.pdf&form-id=39&field-id=160&hash=25c9750dc870fd9c4c11f3d2cfa7c394a306fefeb1fd728a268dc9726bc1c087)

**3.6 Describe how your project team will have the skills and time available to deliver the project in an iterative/agile and user-centred way?**

Birmingham is at the start of its agile delivery journey and a conscious decision has been taken to invest in agile/digital capability as part of our emerging digital strategy. In order to run the discovery for this project, a small team of expert contractors were engaged to work alongside Birmingham. This had the dual benefit of ensuring the best people and techniques were used as well as achieving skills transfer within the internal team. As a result of the discovery and into Alpha, some of the external team were retained but there was a greater representation from permanent Birmingham employees. An experienced project manager worked alongside our external Agile Coach and effectively ran Alpha under that support and guidance. Through that process, the PM has learned a lot about how to deliver an agile project and will lead the Beta discovery - again with guidance and support from our external agile coach. We have achieved the same result in User Research, with one of our very capable BAs working alongside the Agile Coach and contract UR to gain new skills which he will take into Beta. The full core team of resources required will be allocated full time to the project to avoid other distractions, and agreement has been made to co-opt a number of other internal expert resources in at agreed times in the delivery.

Due to Birmingham's relative new foray into agile delivery, a number of critical roles do not yet exist in the organisation. Through Alpha, we have worked hard with a group of service users to educate them in the role of Product Owner. They have worked together very effectively to co-design the MVP and to make other key decisions about the product. This group has been coached by an external Product Owner who will stay in place to guide them through Beta. Other specialist roles that will initially be bought-in to deliver the Beta include:

- UX Designer

- Front-end Devs

- Integration Devs

- Agile BA

- User Researcher

- Product Architect

- Agile Testers

The principle is that the mixed team will be in place to deliver the MVP to ensure (a) quality of delivery; (b) the agile approach to delivery continues; and (c) continued and accelerated skills transfer to Birmingham staff. Alongside this, recruitment will start to introduce some of these specialist roles as permanent positions in Birmingham's structure - with contract staff starting to be replaced with permanent staff as soon as possible after delivery of the MVP.

Microsoft are a trusted partner to Birmingham and have committed to provide access to a number of expert resources for free through the duration of the project.

The project will be overseen by our Head of IT&Digital Programmes and with guidance from our new CIO who has many years' experience of agile delivery.

**3.7 Tell us about your delivery plan**

Discovery and Alpha stages are complete (reports attached for further detail). The Alpha stage achieved its aim of identifying possible solutions (including a soft market test exercise to test a range of solutions including proprietary platforms); and then testing the most risky elements of the preferred solution.

A date of early October is set for the start of Sprint 1. Sprint planning has been completed with a clear plan of sprints set out to complete the delivery of the MVP in February 2022 (assuming a 3-week break for Christmas within that timeline). The wider team is being onboarded through September.

There will be little engagement with suppliers over and above those we already work with (Microsoft) to purchase Azure components and Xamarin/.Net Maui. This will not require a market procurement exercise.

The delivery will be split across 3 agile squads, each focusing on one of the 3 key elements of the solution: Integration platform; mobile/application layer; and the central risk marker repository. This will be managed along typical agile lines, with a scrum of scrums to deal with delivery cadence, alignment and dependencies. Daily standups, retrospectives, show and tells and sprint planning will all be regular features of the delivery. The following gives more detail about the key dates and milestones:

- Sprint 0 - 27/09/2021 - 8/10/2021 (Sprints typically 2 weeks)

- Sprint 1 to 9 - 11/10/2021 - 25/02/2022

- Private Beta - 28/02/2022 – 11/03/2022

- Start Public Beta - 14/03/2022 – 25/03/2022

- Go-live – 01/04/2022

Note, more detailed sprint plan attached.

Our solution can be adopted by local authorities in two ways:

1. leveraging the code base from Github and directly contacting BCC regarding the integrations

2. BCC will share the field worker design principles/patterns which can be used locally for other local authorities to build similar solutions on other platforms/technologies.

**3.8 Describe how you plan to build your proposed beta**

The solution will be established on a Microsoft technology stack, below we have listed some of the key components that make up the solution:

1. Azure Data Lake

2. Azure SQL Services

3. Azure Analysis Services

4. Azure Data Factory

5. Power Platform

6. Restful API Development / Azure API Management

7. Azure Functions and Logic Apps

8. API Management / API Gateway

9. Event Grid / Managed event service

10. Azure Redis Cache and Azure Storage

11. xamarin/.net maui

Data security has been carefully considered throughout the project. A Data Architect and Cyber-Security Consultant have been involved throughout the Discovery and Alpha phases to guide the team as key decisions were being made regarding the platform.

The field worker solution will be accessing data via API's from several line of business applications and holding that data temporarily within the platform while it provides it to the users via a mobile app. We have ensured our solution has end to end data security with both application and infrastructure security.

We have clearly detailed the benefits within our business case and placed measurable indicators, so once we go live with our first service, we can measure the impact the solution will have on each and every service area. Areas we will be monitoring are, reduction in time spent at each appointment, reduction in DNAs, reduction in Admin time per visit, etc. We have also appointed a dedicated business change manager to manage the benefit realisation throughout the project after the MVP goes live.

The digital platform will be a first for Birmingham, therefore we are evolving our thinking around support. We have planned to deliver a flexible support model, that allows our operational teams to have the control they need but also giving the flexibility to our users they require. We have chosen to give some level of flexibility to a small set of superusers to be able to do some limited configuration, while leaving the more complex configuration to our application support department. As for changes and bugs, we will have automated regression packs for testing and an automated deployment process using the DevOps functionality within MS Azure.

**3.9 Explain how your beta will consider the wider context of operating a live service**

We have successfully conducted a Data Protection Impact assessment, which covers the GDPR adherence guidelines (please refer to answer to question 3.8 regarding data security and adherence).

BCC has chosen to build the product internally with some help from external contract resources. The IP (intellectual property) will be BCC's, however we as explained previously we will be looking to make our mobile/application code open source, for others to benefit as well as the design patterns. Birmingham is not seeking to profit from re-use of the platform within the LG sector, but will look to cover some of the costs associated with supporting other authorities adopting the platform.

We are eager to setup a local government community of practice/Network within the West Midlands that can support BCC within the ongoing development of the digital product we are building, we would welcome any support from MHCLG in setting this up.

We have seen a lot of interest from our partner organisations including Birmingham Childrens Trust, as well as other local authorities including Havering, Dudley, Leeds, West Northants and Northumberland. We intend to explore with these, and other interested authorities, the practicalities of wider adoption of the platform as we progress through Beta.

**3.9.1 Upload supporting documents (optional)**

[Outline-sprint-plan-MVP.pdf](https://www.localdigital.gov.uk/index.php?gf-download=2021%2F09%2FOutline-sprint-plan-MVP.pdf&form-id=39&field-id=159&hash=cc7a3d0aa79be041a5340985b8bb5fd34fb05ba66d75bf568bffca4032bfa33e)

[Alpha-Report-baselined-Version-Digital-Fund.pdf](https://www.localdigital.gov.uk/index.php?gf-download=2021%2F09%2FAlpha-Report-baselined-Version-Digital-Fund.pdf&form-id=39&field-id=159&hash=147fbec4d9ea1b931a474547b8434b083351749fcfb201e530d81e87849e49a1)

**3.10 How will you openly share the learnings and outputs from the project as the work develops, both with the sector and MHCLG?**

The team will have several ways of sharing the learnings and outputs from the project. We plan to be open and transparent in many of our Agile ceremonies, we plan to record them, with the recordings and the key project outputs make them available through several key platforms listed below:

- LG Pipeline

- LG Slack channel updates

- Twitter

- Blog

- Weeknotes

- Code/patterns/guides will be shared in GitHub.

We are also keen to share our experiences in person within the LocalGovCamp and localGov strategy forums. Due to the interest shown by other local authorities around the work we are doing, as long as the benefits we are seeking are evidenced within our product, we would be interested after MVP in doing a local authority “roadshow” to showcase the work we have been doing alongside MHCLG and Microsoft.

**3.11 Describe the estimated return on investment of the beta service / product and the development platform, both at a local level and to the sector, and how you plan to validate these estimates during the beta**

The investment case for Birmingham is built on the following benefits:

- Initial investment is £1m

- £886k annual savings for MVP cohort, giving a 2-year ROI

- Cashable savings of £2.3m per year are achievable if all 5,250 Birmingham field workers onboard.

Regarding benefits across the sector, we feel that this project is true disruptive technology solution. For some time now local authorities have been placing point solutions for their field workers thinking they work in a unique manner. We have challenged this thinking and come up with a solution that will innovate within field workers and allow local authorities to take a greater level of control on how they manage their staff within the field. This will lead to a major reduction in point solutions and could lead to very significant savings within the local authority sector by using an easier configurable platform available open source.

Scaling up nationally, assuming ALL field workers nationally in LG adopt the platform, annual savings of up to £130m could be achieved.

Acknowledging that Birmingham has greater economies of scale to achieve savings, an assumption that 25% of these savings could be achieved, a more realistic national saving of £32m per year can be assumed.

SEE ATTACHMENT FOR CALCULATIONS AND ASSUMPTIONS

Additional benefits of the platform (excluded from the savings assumptions) are:

- Increased revenue through enablement of taking payment in the field (future release not included in the MVP)

- Reduced frequency of unnecessary travels re missed appointments (DNA’s Do not attends or Unsuccessful visits) by 10%

- Increased safety for BCC Fieldworkers on the front line (Risk Marker notification and lone worker functionality)

- Assured compliance and reduced error rate by everyone working to the same processes and no need for paperwork

- Increased face to face contact through the reduction of paperwork and more automated processes

- Increased and improved communications between citizens and field workers

- Reduction in spend on point solutions for field workers.

The base platform will be free for local authorities, the only components they will need to build are integrations which are custom to each local authority and some process configuration around their own processes. We will be looking to encourage the local authority community as they use the platform to start sharing the way they configure and develop their processes within the platform.

Within question 3.8 we describe the manner in which BCC will measure benefits throughout the project. As for validation of the numbers stated above this will be a combination of the measurements of the benefits and actual spend within the project, which will be strictly controlled all the way through.

**3.11.1 Upload supporting documents (optional)**

[LDF-savings-assumptions-and-calculations.pdf](https://www.localdigital.gov.uk/index.php?gf-download=2021%2F09%2FLDF-savings-assumptions-and-calculations.pdf&form-id=39&field-id=162&hash=92f52553ee9f28420af2fdd019ce189c9d2502d5cf078f2fef5cb09368f7ca57)

**3.12 How much funding are you applying for to complete the project?**

£350,000

**3.13 How will the total project budget be used?**

| **Resource (e.g. staff time, supplier, contractor, etc.)**  | **Time / Quantity** | **Total cost / Value** | **Who will pay (e.g. Local Digital funding or a particular project partner)**  |
| --- | --- | --- | --- |
| Product Owner (agency) | 6 months | £66,000 | Local Digital Fund |
| Agile Coach (agency) | 6 months | £72,000 | Local Digital Fund |
| UX Designer (agency) | 6 months | £54,000 | Local Digital Fund |
| User Researcher (agency) | 6 months | £48,000 | Local Digital Fund |
| Delivery Manager (agency) | 6 months | £60,000 | Part Local Digital Fund, Part BCC funding |
| Agile BA (agency) | 6 months | 60,000 | Local Digital Fund |
| Business Change (BCC permanent) | 6 months | £24,000 | BCC funding |
| Application SMEs (BCC permanent) | 6 months | 24,000 | BCC funding |
| Testers (BCC permanent) | x2 6 months | 24,000 | BCC funding |
| Mobile Dev (agency) | 6 months | £54,000 | BCC funding |
| Integration Dev (agency) | 6 months | £60,000 | BCC funding |
| Full Stack Dev (agency) | 6 months | £54,000 | BCC funding |
| ETL Dev (agency) | 6 months | 54,000 | BCC funding |
| Solutions Architect (agency) | 6 months | £66,000 | BCC funding |
| Data Architect (agency) | 6 months | £66,000 | BCC funding |
| Tester (agency) | 6 months | £48,000 | BCC funding |
| Security Consultant (agency) | 6 months | £72,000 | BCC funding |
| Cloud SME (Microsoft) | 6 months | £96,000 | BCC funding |
| Integration SME (Microsoft) | 6 months | £96,000 | BCC funding |