

Low Code Waste Services Phase 1 Report

A DLUHC Local Digital Fund Round 5 project

Background / Business Case

Rugby Borough Council were awarded funds by the Department of Levelling Up, Housing and Communities (DLUHC), as part of Round 5 of the Local Digital Fund which was focused on the use of low code and/or open source development platforms, and how they would enable councils to design and build various front-facing services.

The proposal that Rugby submitted was aimed at “exploring the use of an open source low code digital platform to develop user centred digital services for Waste Services” and included several council partners (Dorset Council, Northumberland County Council and Kingston & Sutton Councils).

The partners had all recognised that each of them had previously invested time and money in solving the same problems, duplicating effort and spend, to create digital services for their residents. In many cases these services used older platforms and technologies that the councils wanted to replace. In others they relied on the skills and knowledge of one or a few individuals in the council, with the risk that entailed.

Each of the project partners used a different back-office waste management system, but all had adopted Placecube’s open source ‘Digital Place for Local Public Services’ SaaS platform and wanted to enhance the low code capabilities of the platform. The intention was for these enhancements to be used to create easily configurable low code digital Waste Services that could be adopted and tailored by the partners, and by any other council who wanted to reuse the open source code, or become a Digital Place customer.

The [funding application / business case proposal](#) was submitted to DLUHC in September 2021. They shortlisted and approved the project in November 2021, with the funding released in late December 2021. Placecube was appointed to provide professional services to build on the Digital Place platform and started work from January 2022.

Budget

DLUHC awarded £350K of funding for this first Beta phase, which was used for both supplier & council resource costs. The project budget was managed by Rugby Borough Council (Mike Connell) with wider oversight and governance being provided by a project Steering Committee, which was in turn supported and advised by the assigned DLUHC Engagement & Collaboration Manager (Leon Ackie).

Project team

Council partners:

- Rugby Borough Council (Project Lead)
 - Mike Connell, Chief Officer - Digital & Communications. Project Sponsor / Lead & Subject Matter Expert
 - Nelson Nkwenkam, Senior ICT Officer, Digital Business Analyst / Subject Matter Expert
 - Matthew Deaves, Communication Consultation and Information Manager, Comms Lead
 - Jayne White, Customer Services Advisor, Subject Matter Expert
- Dorset Council
 - Lisa Trickey, Service Manager - Digital Strategy & Design, Lead for Dorset
 - Lee Kevern, Delivery Manager - Digital & Change, Subject Matter Expert
- Northumberland County Council
 - Will McLean, Head of Digital Delivery, Lead for Northumberland
 - Jim Bolland, Digital & Social Media Comms Lead, Subject Matter Expert
 - Joanne Southern, Digital Service & Design Team Leader, Subject Matter Expert
 - Phillip Donnelly, Development Team Leader, Subject Matter Expert
 - Ryan Fitzpatrick, Information & Development Manager, Subject Matter Expert
- Royal Borough of Kingston & London Borough of Sutton
 - Tom Bates, Corporate Head of Digital Delivery, Lead for K&S
 - Katie Fielder, Change and Improvement Analyst, Subject Matter Expert

Supplier:

- Placecube Ltd were commissioned to deliver a range of services including delivery management, user research, business analysis, product management, technical architecture, user experience (UX) design, development and testing services required to deliver the aims of the project in this phase.
 - Gavin Beckett, Product Director
 - Sarah Goodall, Delivery Manager
 - Bal Takhar-Cummins, User Researcher
 - Martin Lowe, Business Analyst
 - David Burrows, Technical Architect
 - And between 4-10 developers and testers through the project lifecycle

Vision and Objectives

The partners set out a vision and objectives for the project:

- *Customers should be able to access waste services and up to date information seamlessly at their convenience, and the system will proactively update the customer during the process.*
- *Processes should be delivered efficiently, incorporating automation within the constraints and limitations of the local authority.*
- *The journey, best practice and learning from this journey will be shared openly, encouraging local authority maturity in digital waste service provision.*
- *The project will be made up of reusable components which can add value to local authority processes and be published as open source.*

Initial Scope

The council partners outlined their desired Minimum Viable Product (MVP) of the Waste services to be developed using low code components on Digital Place for Local Public Services.

The prioritised list of MVP services was defined as:

- Find My Bin Collection Dates (based on location)
- Request Assisted Bin Collections (known as 'Bin Pull-Outs' in Rugby)
- Subscribe to Garden Waste Collections (paid for service)
- Book a Bulky Waste Collection (paid for service)
- Report Fly Tipping
- Report Missed Bin Collection
- New Bin Requests
- New Household Bin Requests
- Service Disruption Notifications
- Customer communication (including Reminders and Renewals)
- Reporting

This scope was much broader than most Local Digital Fund Beta projects, which would typically develop a digital service for one service (for instance, Report a Repair) and the project team recognised that an agile iterative approach with a fixed cost and time would mean that the scope had the flex to fit.

Placecube were asked to provide the skills and expertise required to analyse these services, identify which low code components were needed to build them, and where these components need to be enhanced to support ease of reuse by councils in the future.

Following this initial research and analysis stage, the project required technical architecture and design, followed by development and testing of the low code components and integration connectors for each of the Waste Management systems in use by each of the council partners (Webaspx, Bartec, Echo and Mayrise). The final part of the project was to develop the MVP Waste Services, using the new low code features and connectors.

Project Delivery Approach

This Beta phase was delivered using Agile-based methodologies - building on the earlier work that had been undertaken individually by each of the partner councils, during their various Discovery and Alpha phases.

The development team held daily stand-up meetings, with Sprint Retrospectives and detailed Sprint Planning meetings held every 2 or 3 weeks (depending on the sprint length).

At the end of every sprint, we held an open review / Show & Tell covering the work that had been completed by the team, as well as a high-level view of the work planned for the next sprint.

The team 'worked in the open', sharing as much as possible, transparently and publishing updates externally online.

The work undertaken was broken down and phased as follows:

- Review of waste service customer journeys, As-Is processes and existing levels of integration.
- Analysis of the variations between councils to identify all of the areas where configuration would be needed to meet local needs, and therefore identify what components were required.
- A parallel track of developing enhancements to the underlying case management and integration frameworks, which laid the foundations for further low code development.
- Review of existing plans to develop enhanced low code components, and prioritising of that work to dovetail in with the needs of this project.
- Design and development of the low code components needed.
- Design and development of each of the Waste Digital Services using the low code components.

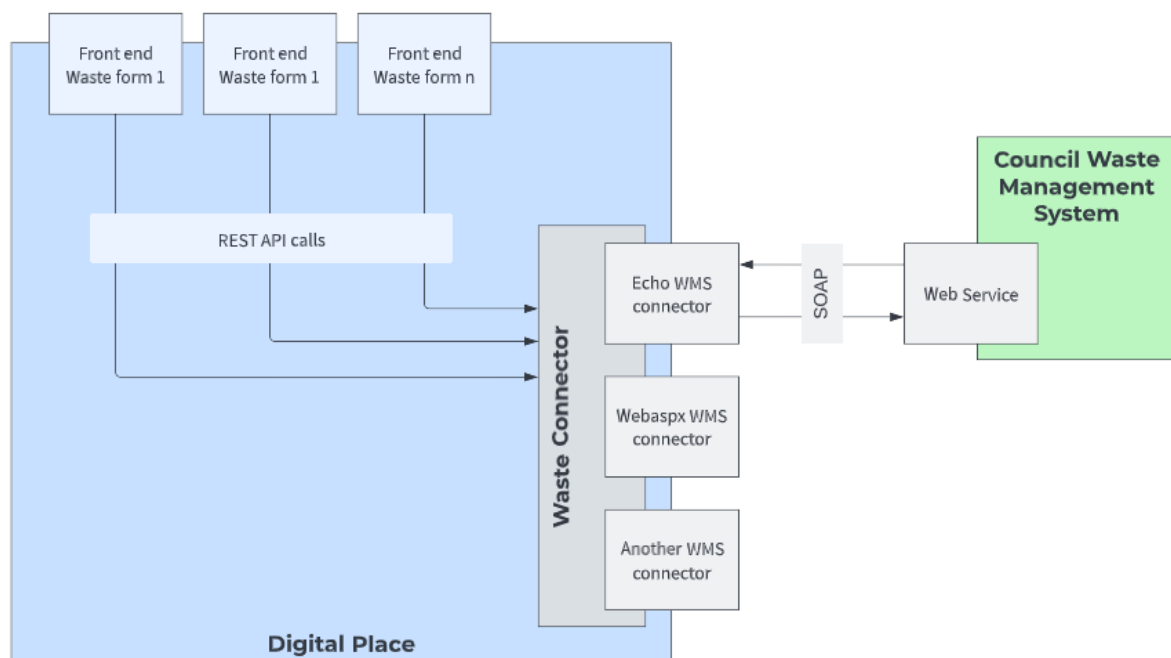
| | 2021 | | 2022 | | | | | |
|----------------------------|------------------|-------------------------------------|----------|---|---------------------------------|--------------|--------------|---------------|
| | Nov | Dec | Jan | Feb | Mar | April | May | June |
| | | | Sprint 0 | Sprint 1 & 2 | Sprint 3 & 4 | Sprint 5 & 6 | Sprint 7 & 8 | Sprint 9 & 10 |
| Project Approval & Funding | Project Approved | Funding released | | | | | | |
| Inception & Mobilisation | | Supplier contracted, team mobilised | | | | | | |
| Business Analysis | | | | Process documentation gathering, review, mapping and analysis | | | | |
| User Research Review | | | | User Research gathering, review, analysis and wireframe development | | | | |
| Technical Architecture | | | | Technical Architecture definition | Story writing and TA oversight | | | |
| Development | | Case Management low code UI | | | Low Code forms & WMS connectors | | | |

What was delivered?

The Beta project team delivered the following products:

- Improved and enhanced low code components
 - New form fields and capabilities including the ability to
 - Refer to the value of fields in other fields and read-only content
 - Add HTML content to forms
 - Add customisable mandatory and validation messages to fields
 - Move fields from page to page, and change order of pages in the form while developing
 - A new GUI to improve low code configuration of Digital Place's Case Management module, making it easier for council digital teams to create case types that can be used by the back office teams for services that do not integrate with a Waste Management System

- Integration connectors



- The development team created integration connectors for two back-office Waste Management Systems - WebAspx and Echo. These connectors wrapped the SOAP web services provided by the suppliers, and exposed all of the methods available as a set of REST API calls that can be used with any of the services created in the project - and any future services built by councils.
- Outside of the project Placecube also created a connector for the Whitespace WMS for another customer, which widens the reusability of the services built by this Local Digital funded project.

- We updated the Microsoft365 bookings integration connector that was originally built with Rugby to provide Bulky Waste collection appointments.
- Low Code Waste Services
 - A set of generic low code Waste Services (ready to be configured, tested and implemented by councils, depending on their current local needs).
 - Find My Bin Collection Dates (based on location)
 - Request Assisted Bin Collections (known as 'Bin Pull-Outs' in Rugby)
 - Subscribe to Garden Waste Collections (paid for service)
 - Book a Bulky Waste Collection (paid for service)
 - Report Fly Tipping
 - Report Missed Bin Collection
 - New/replacement Bin Requests, including New Household Requests
- Supporting materials
 - A Service Adoption Playbook ([link when available](#)) (an implementation guide to help enable future scaling and use of the new services by other councils).
 - A UR/UX review [report](#) summarising the findings from the available user research on waste processes across the partner councils, and other best practice information that was reviewed, along with UX insights, service pattern design recommendations and mini-wireframes.
 - A [project microsite](#) - where the Sprint Notes and Show & Tell session recordings can be accessed, along with other various blog posts and outputs.
 - A [Monitoring & Evaluation Plan](#) (detailing how the project impact and benefits realisation over time will be measured).

What wasn't delivered?

As we progressed through the project, and various barriers and issues arose, the project team recognised that not all of the services / functionality identified could be delivered in this phase.

- Integration connectors
 - The development team partially built a connector for the Bartec system but were not able to get access to a test system in Dorset to complete the work. Dorset's IT team are looking into provision of a test system, but were not able to do so within the life of the project.
 - A connector for Mayrise was also investigated, however as Northumberland has an in-house middleware layer with APIs that can be called directly from Digital Place it was agreed that development of a Mayrise connector should be de-prioritised.

- Low Code Waste Services

The ambitious scope for the project was determined before engaging Placecube as a partner and planning how much capacity would be available for the allocated budget. As work progressed it was clear that some work would not fit within in the sprints available. The steering group wanted to deliver as many of the public facing waste services delivered as possible, so the team recommended de-prioritising some of the functional components that would provide back-office improvements but are less visible to residents. These included:

- Service Disruption Notifications
- Customer communication (including Reminders and Renewals)
- Reporting

Collaboration and working in the open

All of the councils used Microsoft Teams, making it the obvious choice as the platform to help facilitate internal day-to-day communication, collaboration, and file-sharing. Rugby Borough Council set up and hosted a site for all partners.

A MS Planner board was used to manage team tasks and high-level epics, alongside a more detailed backlog which was managed by Placecube using JIRA (e.g. the service and system requirements, expressed as epics and User Stories).

The team worked in the open, sharing what they were doing through various different methods and channels:

- A dedicated [project microsite](#) was created and hosted on Rugby's instance of Digital Place to enable the publication and consolidation of all project-related content and outputs. This included:

- Progress updates (Sprint Notes) every 2 or 3 weeks
- Sprint Review (Show & Tell) session recordings and briefing slides
- Blog posts
- Final project reports
- Link to the open-source code repository (<https://bitbucket.org/pfiks/>).
- A Twitter account [@digitalwastesvc](https://twitter.com/digitalwastesvc) was also created, to help share project information via this platform, raise wider awareness, increase external engagement and help direct any interested external parties to the project microsite for more information.



- A dedicated '[funded project](#)' page was set-up on the DLUHC Local Digital site and this was linked to the project blog / microsite.
- Public events
 - Mike Connell and Gavin Beckett presented the project at the [Public Sector Insights Week](#) event in March 2022.
 - Mike presented again at the [Digital Leaders Week](#) event in June 2022.
 - Mike also shared his experiences of 'doing more for less' at the [Excellence in Local Government event in September 2022](#).

Risk and Issue Management

Risks and issues identified by the delivery team were captured and either mitigated or managed as needed, via the MS Teams channels.

The main issues / risks experienced were:

- An overly ambitious set of initial deliverables
- Limited availability of team members at times due to:
 - Competing priorities / demands of other work over-running
 - Sickness absence (Covid)
 - Planned annual leave
 - Public holiday reducing sprint lengths
- Availability of other key people (council SMEs) to input when required, provide critical information, and help shape, or deliver, the work required.
- This led to the risk of not being able to deliver on the full initial scope being realised, and mitigated by agreeing a reduced scope during discussions with the steering group at the end of May.

Lessons Learned & Recommendations

We held a retrospective session with Steering Committee members in July 2022 after the development sprints were completed. Attendees shared their experiences and thoughts using a [Trello board](#) with topics then discussed and explored in more detail.

The key lessons learned and recommendations for Phase 2, and other similar projects, are:

| Issue / Area for Improvement | Recommended Action/s |
|---|---|
| 1. Set a more realistic/less ambitious scope | In the kick off workshop with all partners, including suppliers, review the desired scope, identify potential constraints and challenges to delivery. Revisit initial agreement at the end of discovery and formally agree any revisions to scope. Actively monitor throughout sprints. |
| 2. Invest more of the budget in product/delivery management and design roles to help the project to run more smoothly | Build product, delivery management and design roles into the plan first, then allocate development capacity. |
| 3. Hold a very active kick-off discussion to set out ways of working, and establish expectations that all partners (including suppliers) agree can be met | Run a kick off workshop with all partners during “sprint 0” mobilisation phase, with an explicit agenda of discussing ways of working and expectations, paying attention to risks of lack of engagement, and how the team will act if issues arise. |

| | |
|--|--|
| <p>4. Establish a minimum staff commitment from each partner</p> | <p>Within kick off workshop, identify who needs to be involved as SME's from each partner organisation, then through planning know when workshops/review activities will be needed to give better notice, build in internal communication activity and invite them to show and shares.</p> |
| <p>5. Build in more contingency to the plan to allow for sickness/impact of external factors on council teams and the realism that collaboration across multiple orgs takes longer</p> | <p>Add firebreaks to plan during national holiday periods. Ensure the sprint plan identifies bank holidays.</p> |

In addition, a positive lesson was learnt by all partners about the richness that comes from this way of working, having diverse roles, skills, expertise, and how that benefits all organisations as a result.

Service Implementation (Public Beta)

The release of the new low code Waste Services was dependent on the wider planned upgrade of the Digital Place platform to V3. Placecube delivered this upgrade and customer implementation testing in a rolling programme between August and November 2022.

To go live with the products of the Local Digital Funded project, each council will need to configure the services that they want to implement, to meet their own local needs and back-office system requirements. Placecube worked with Rugby BC during November and December 2022 to support this process, and their new Waste Services are due to go live in early 2023. The council will be able to monitor usage and provide feedback from users.

Dorset, Northumberland and Kingston & Sutton councils do not plan to adopt the services immediately, but will take advantage of the new features in line with planned changes to their existing forms platforms and programmes of work. Kingston & Sutton councils use Echo so will be able to adopt the forms and connect them to their back office waste management system without further investment. Northumberland have created their own in-house API for their waste management system, so will also be able to adopt the products of this project without further investment. Dorset use the Bartec Collective WMS, so would need to work with Placecube to complete the testing of this API, requiring a relatively small amount of investment.

Monitoring & Evaluation of Expected Impacts

One of the key activities and outputs expected was to develop a Monitoring & Evaluation Plan ([link when available](#)) to track benefits realisation over time, measuring the impact and success.

Phase 2

A proposal for a second phase, to be led by Dorset Council has been drafted.

The proposal recommends that work is continued on the main functional area that was excluded from phase 1 – the capability to manage mass communications with customers, including sending renewal reminders, service disruption notifications, or awareness campaigns e.g., when a new type of recycling is being rolled out to a specific locality. Whilst the existing forms and integrations enable users to request services effectively, they do not enable councils to operate more efficiently or effectively in dealing with their households. Most councils use a third-party proprietary service for mass communications, and would use it across multiple service areas, so adding this feature set to the open source Digital Place platform would enable customers to reduce costs.

Beyond this functional area, the other service that was excluded from phase 1 was Commercial/Trade Waste. This service is provided by many councils and can generate significant income, but has to compete with private sector providers. Providing a well-designed front-end to the service, and building in a Business Account and related low code features for traded services to be managed would help councils to market their services and increase income. This will be based on existing discovery work that has already been undertaken by Dorset Council.

The proposal for phase 2 outlines how we would create this commercial waste and traded services capability, which would be available via Digital Place, and downloadable as open source code.