

Housing Repairs Common Service Design: Discovery



Ministry of Housing,
Communities &
Local Government

Gravesham
Borough Council



Southwark
Council
southwark.gov.uk



CITY OF
Lincoln
COUNCIL


Lewisham
Homes

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Executive summary

The key question that we sought to answer was:

Is a common service pattern for end-to-end delivery of repairs possible?

We identified that a common service pattern for online repairs is possible. We carried out extensive user research to identify users, their needs and their barriers to going online. Our research has helped us estimate that a range of between 40% and 75% digital uptake could be achieved for different councils, depending on the characteristics of the council's organisation.

As part of the report we:

- conducted user research through listening in on 100+ calls in contact centres and carried out 80 customer interviews
- carried out research across a range of authorities and IT systems providers to identify best practice, lessons learned and known issues
- designed a common service pattern for end-to-end delivery of repairs and validated this with authorities that have already delivered online repairs
- designed a common online journey that is based on identified user needs, created a clickable wireframe prototype and tested it with users and organisations
- reviewed the HACT data standard to determine if this is an appropriate standard for Local Authorities and mapped the data standard against the common service pattern.

Key findings from user research

- <20% of customers from the 4 authorities currently report a repair online
- Between 40-70% of the residents do online shopping
- 50% of the reported repairs are in the bathroom or kitchen
- The most common type of repair is 'leaks' or 'heating'
- 40% of the calls in London authorities are about existing repairs (update, chase, check appointment)

Using the identified the priority user needs, we mapped the needs to key features and designed the common service pattern:

	REPORT	DIAGNOSE	APPOINT	LOG	SCHEDULE	COMPLETE	STOCK	FINANCE
Details	Customer accesses repair reporting channels when there is a fault and confirms property and person details.	Customer completes form to provide key repair details and evidence.	Available appointment dates and times are displayed so the customer can choose when the operative will attend to complete works.	Works order is raised on housing management system and confirmation supplied to customer.	Work is scheduled to operative for the date and time chosen.	Operative attends, fixes fault, updates SORs, job notes, materials used and provides photographs. Work may be eligible for post inspection.	Materials are ordered and supplied.	Completed job is approved for payment, subcontractor and stores purchases are invoiced and job costing completed.
Tasks	<ul style="list-style-type: none"> Access online service Confirm resident Confirm address Confirm leaseholder Confirm communal Assess responsibility Confirm emergency Provide contact details 	<ul style="list-style-type: none"> Confirm Location Confirm Priority Confirm Trade Provide Description Provide Photographs Assign SOR 	<ul style="list-style-type: none"> Retrieve available appointments Display available appointments Customer chooses preferred appointment 	Log job Confirmation to customer	<ul style="list-style-type: none"> Review repair request and appointment Identify health and safety issues Review joint access requirements Assign to operative Review photographic evidence - desktop pre-inspection Remind customer of appointment 	<ul style="list-style-type: none"> Attend site Manage access Assess variation or inspection needs Complete works Operative provides photographs Customer signature Update SORs on job Update timesheet Post Inspection 	Stock ordering and replenishment.	<ul style="list-style-type: none"> Review works Sign off job as complete Purchases for subcontractors and stores Invoices authorised for purchases Costs of job posted DLO income claimed
Data	<ul style="list-style-type: none"> Username (optional) Password (optional) Customer first name and surname Flat/house number Street Town/City Postcode UPRN/Property ID Block/scheme reference (optional) Customer ID/Tenancy ID Customer name Customer phone number Customer email Property status (leaseholder/communal) Contact name Contact phone number Contact email 	<ul style="list-style-type: none"> Where is repair - dwelling, block, communal Location (room) Type of work eg heating Trade - eg plumbing Faulty Item Text description Schedule of rate code Schedule of rate description Standard Minute Value against SOR Priority Photograph of fault 	<ul style="list-style-type: none"> Available appointments - date and time Appointment descriptions eg AM/PM/School run/All Day 	<ul style="list-style-type: none"> Job priority SOR code SOR description Job trade Appointment date and time Job description Job summary Work type Contract Contractor code Contractor name Job source code (optional) Property ID/UPRN Tenant ID Contact name Contact email Contact phone Job number Confirmation text/email Access details/notes 	<ul style="list-style-type: none"> Job number Priority SOR code SOR description Trade Appointment date and time Property ID/UPRN Access details/notes Property alerts eg asbestos Person alerts - vulnerability indicators Contractor Code Contractor Name Operative code Operative name Operative trade Operative skills (optional) Appointment number Component/asset details (optional) 	<ul style="list-style-type: none"> Job number Priority SOR code SOR description Trade SOR quantity Appointment date and time Property ID/UPRN Access details/notes Property alerts eg asbestos Person alerts - vulnerability indicators Appointment completion codes eg no access Job notes Stock code Stock description Stock quantity Appointment completion time Appointment completion code Additional works Job completion date Job completion time Job completion code Photographs Customer signature 	<ul style="list-style-type: none"> Purchase order number Purchase order details Supplier code Purchase order value Stock code Stock description Stock quantity 	<ul style="list-style-type: none"> Job number Priority SOR code SOR description Trade SOR quantity Job notes Stock code Stock description Stock quantity Appointment completion time Appointment completion code Job completion date Job completion time Job completion code Photographs Customer signature Timesheet code Timesheet notes Timesheet quantity Job audit history Job stage update
User need	<ul style="list-style-type: none"> As a resident I want to be able to easily report a repair online. As a resident I want to find out what I am responsible for. As a resident I want to sign in to my authority account so that I can keep track of all my reports in one place. As a resident I want to be able to amend or escalate the repair issue. As a resident I want to know if a communal repair has already been reported so that I don't have to report it. As a resident I want to report a communal repair. As an authority we want to stop duplicate repairs being raised. 	<ul style="list-style-type: none"> As a resident I want to understand what I am responsible for. As a resident I want to advice on how to fix my issue. As a resident I want to be able to report if the repair is to my property or to a communal area so that it can be diagnosed correctly. As an authority we want to know the location of the repair so that we can diagnose the issue and the trade and offer the correct appointment slots. As a resident I want to provide more details of the issue so that it can be diagnosed correctly. As an authority we want to know the detail of the repair so that we can diagnose the issue and the trade and offer the correct appointment slots. 	<ul style="list-style-type: none"> As a resident I want to know when my repair will be fixed. As a resident I want to be able to book a suitable appointment. As an authority we need to be alerted when appointment slots are not available so that we can move appointments around according to priority. As a resident I want to be able to reschedule my appointment. As a resident I want to be able to cancel my appointment. 	<ul style="list-style-type: none"> As a resident I want confirmation of my reported issue and appointment time. As a resident I want to easily add this appointment to my diary. As a resident I want to be given a unique reference no. so that I can amend my appointment or report in the future. 	<ul style="list-style-type: none"> As a resident I want to be reminded of my appointment slot so I don't miss it. As a resident I want to be able to amend or cancel my appointment. 	<ul style="list-style-type: none"> As an operative I need to have a summary of the job including location and issue so that I can carry out the job 	<ul style="list-style-type: none"> As an operative I need to know the type of job and materials needed so that I can fix this first time. As an operative I need to order replacement stock once I have used an item or running low. 	<ul style="list-style-type: none"> As an operative I need to be able to timesheet and account for time on job and travel time.
Known Issues	need to examine property data for all authorities to ensure address look-ups can work		All - need to establish if job needs to be created in order to bring back available appointments from scheduling systems	Lincoln - Universal Housing APIs may not be fit for purpose	This section relies on the organisation having a scheduling system such as Kirona DRS. If the system allows dynamic scheduling, which places appointments directly into operative diaries, then there is no need to carry steps (to be numbered) If dynamic scheduling is not an option then planners will need to manually check the appointment and job details and select the most appropriate operative. Amongst the partner authorities, Southwark would need to manually schedule as its scheduling system - Impact Response - does not have this functionality.	Lincoln do not have a suitable mobile working solution	Southwark use a paper based stores management	

We identified the benefits that we believe can be achieved by implementing this common service pattern. The key benefits we have focused on are:

- lower transaction costs
- improve customer satisfaction

- increase completion rates (and reduce the % of failure demand)
- increase digital take up.

For the individual authorities that participated in the discovery, we estimate that the savings between 2019/20 and 2030/31 could be:

- £5.08m for Southwark
- £9.03m for all 4 authorities
- £83.3m to £99.3m nationally

For the next alpha phase, we recommend exploring an end-to-end Minimum Viable Product (MVP) based on the common service pattern for one repair type - leaks, and integrate with existing legacy repairs systems. The alpha would cover steps 1-5 of the common service pattern and have the following functionality:

- reporting
- diagnosing (location, type and severity)
- scheduling an appointment
- receiving alerts and notifications about the appointment
- making changes to the appointment e.g. cancelling, rescheduling appointment and escalating the issue

The proposed roadmap is as follows:

Phase	19/20	20/21	Beyond
No of Councils	4	4	10+
Alpha and Beta MVP Develop a Minimum Viable Product focused on leaks. <ul style="list-style-type: none"> • Develop API connectors and integrate with Southwark repair systems • Develop using HACT Data Standard 			
Full Digital Product Development <ul style="list-style-type: none"> • Develop processes for all repair types • Test integrations and open API's with multiple vendors and councils 			
Full Digital Roll-out <ul style="list-style-type: none"> • Full roll-out • Develop integration adaptor library for faster roll-out 			

Supporting information:

- [Final report presentation](#)
- [Common service pattern](#)
- User flows - [front end \(online\)](#) and [back end](#)
- [Clickable wireframes](#)
- [Blueprints for reporting a new repair, reporting an existing repair, reporting a communal repair](#)

Introduction

Councils are responsible for providing repairs to their socially rented properties. Most users access the service by phone and it is typically the service with highest volumes. The service is attractive to provide digitally, however when an acceptable telephone channel exists, take-up is often low.

Consequently, housing providers do not always realise expected savings from channel shift and providing digital repairs services that meet the service standard may not be economical for smaller providers.

London Borough of Southwark, Lewisham Homes, City of Lincoln and Gravesham Borough Council, funded by MHCLG, wanted to discover whether a common service pattern for housing repairs is possible and what it could look like.

The national cost of repairs call handling is estimated at over £30m per year. It is estimated that only about 50% of calls are for new repairs, implying significant levels of failure demand. Take-up of online repairs is also low compared to telephone channels.

The aim of the project was to identify:

- barriers to adoption of digital repairs services
- elements best suited to automation/self-service
- optimal uses of technology to improve user satisfaction and reduce costs
- if a common service pattern for end-to-end delivery of repairs is possible
- how the service pattern can be mapped to the Housing Associations' Charitable Trust repairs data standard.

Approach / methodology

Hypothesis for discovery

We believe that: a common service pattern for end-to-end housing repairs is possible

For: council tenants and leaseholders

Which will achieve:

- lower transaction costs
- improve customer satisfaction
- Increase completion rates (and reduce the % of failure demand)
- increase digital take up

We will know this hypothesis is valid if we:

- design a common end-to-end service pattern and validate this with authorities that have already delivered online repairs and the 4 partner authorities
- design an ideal online journey and test this with users and colleagues in the industry
- carry out user research to identify that a common service pattern will meet the user needs and identify the expected digital uptake
- carry out analysis to understand if implementing the proposed common service

pattern will deliver financial and non-financial benefits

User research findings

In order to ensure that we undertook user research that was representative of the entire sector and could be considered valid at a sector level, we:

- Worked with 4 very different organisations (see details of the 4 authorities below).
These organisations represented a good cross-section of the sector. For example:
 - Regional and London Based
 - Very Large to Small organisations
 - Social Housing Provider and Local Authority
 - Different user bases: Percentage of english speaking and repair types
- Spoke to a number of Local Authorities and gathered details of previous user research and online repairs and repairs improvement projects:
 - Ardur and Worthing
 - London Borough of Barking and Dagenham
 - London Borough of Hackney
 - Yarlington Housing Group
 - MHS Homes
- Spoke to representative bodies in the industry
 - Housing Association Charitable Trust
 - HouseMark
- IT Vendors
 - Active Housing
 - OneServe
- International
 - Dutch data standard team

Details of the four Local Authorities that the majority of the user research was based on. See Appendix 2 for authority profiles.

	Southwark	Lincoln	Lewisham	Gravesham
# tenanted properties	40k	7.8k	13k	6.5k
# leaseholder properties	15.5k	300	5.5k	400
# repairs reported	300k	50k	116k	66.5k
Most common repair	Leak	Heating	Leak	Carpentry
% repair reported online	8%	3.70%	8%	0.70%
Population	314,232	97,541	301,307	106,121
% of social housing	41.90%	22.40%	27% (2014)	(13.2%).

Households without English	11%	6%	10%	5%
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Summary of the research activities

As part of the user research we carried out:

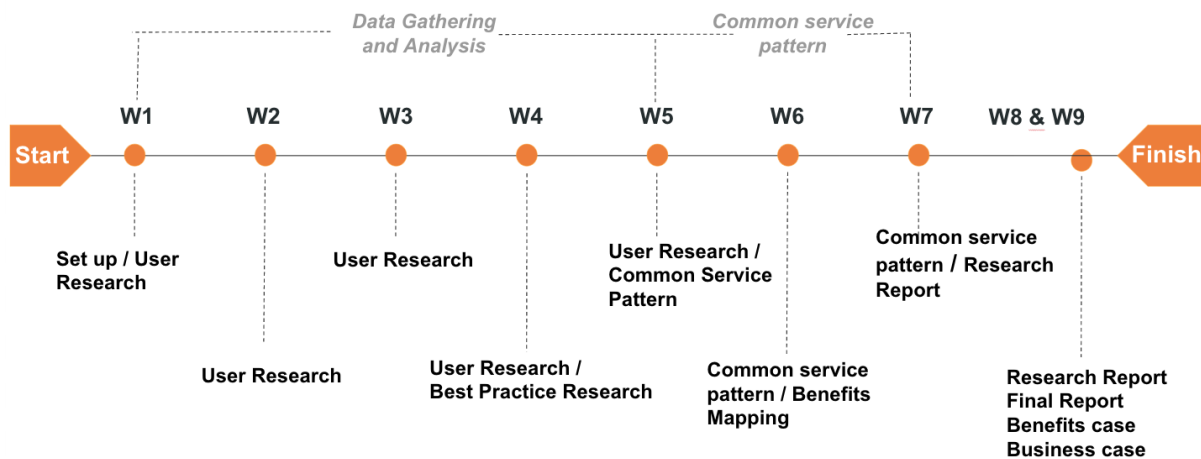
- 100 calls listened to in the contact centres
- 80 customer interviews
- 32 surveys
- 30 desk based reviews of Local Authority online repairs

We undertook the following activities during the discovery. Further details can be found in the research report.

User research <ul style="list-style-type: none"> • identifying users and common behaviours • call listening, interviews, surveys • online analytics and behaviours • blockers to going online • staff interviews and shadowing • customer journey mapping • demographic data and authority profiles • accessibility review • contact centre shadowing 	Best practice and industry research <ul style="list-style-type: none"> • best practice reviews • industry analysis • interviews with i authorities that have already delivered online repairs • interviews with software providers • surveyed other councils and housing associations
Designing common service pattern <ul style="list-style-type: none"> • designing end-to-end common service pattern • designing ideal online journey • validate this with colleagues in the industry • prototype and test online journey • recommendations for alpha 	Benefits and business case <ul style="list-style-type: none"> • gathered data from the authorities to understand the benefits that could be delivered if the common service pattern was delivered. • benefits case • business case • cost to develop alpha

Discovery timeline

We split this discovery project into 4 sections, which we ran over 5 sprints.











Personas and common behaviours

In total, across the 4 authorities we developed 20 personas including:

- 12 resident personas
- 4 contact centre agents,
- 3 operatives personas; and
- 1 customer service agent

We grouped the personas into behavioural types to make finding commonalities easier. We identified 8 personas with common behaviours. This helped us understand the propensity to go online and key blockers.

The table below highlights each of the behaviour types, identifies which ones have the highest and lowest propensity to use a digital channel and their priority user needs.

								
	KATE	ROSALYN	EMMA & JOHN	AMER	MEGAN	JAISALMER	SUSSIE	DORIS
BEHAVIOUR	Busy during the day and needs to be able to report this in her own time which is normally out of hours.	Will call to confirm the appointment and check where the repair operative is and what time he will arrive.	Report a repair or amend a repair booking on behalf of a tenant. Would like someone else to be present during the repair appointment.	He tried to do this online but had a bad experience so now chooses to call as he receives a better service.	Will not report a repair online as the service over the phone is excellent.	Believes his repair is an emergency when it is not. Believes he will get a better outcome over the phone.	Not very confident online but can do things online if they are well designed and easy to use.	Can't go online, does not have the skills, device or internet access
USER NEED	-To be able to report a repair online and book an appointment -To be able to reschedule and cancel appointments online or escalate an issue	-To be able to check details of the appointment and what time the repair operative will attend. -To receive reminders and alerts about her appointment	-To report a repair online or over the phone and book an appointment. -To add contact details of the person who will be home during the appointment.	To report a repair online and book an appointment	-To report a repair online or over the phone and book an appointment. -To understand what she is responsible for.	To understand what the priority of his repair issue is so that he knows when it will be fixed.	-To report a repair online or over the phone and book an appointment. -To have an easy to use and accessible online repairs service	-To be able to report a repair at a face to face office or over the phone
RELATES TO	Southwark and Lewisham	Southwark and Lewisham	All	All	Lincoln and Graveland	All	All	All
% CALL LISTENING/ INTERVIEWS	15%	12%	9%	5%	8%	19%	9%	23%
QUOTE	"I can't spend time on the phone during working hours as I'm in a very busy office."	"I want to know exactly what time the repair operative will arrive"	"I want to book the appointment on behalf of John and be there during the appointment as John is vulnerable"	"I've reported a repair online before but I had a bad experience so I'll call from now on"	"I receive an excellent service over the phone, so I why would I go online?"	"I would do it online but it's an emergency so I need to call"	"I really struggle with writing and I know my spelling is so bad"	"I can't go online, I don't know how to use a computer"
POTENTIAL ONLINE SHIFT	H	H	H	H	M	M	M	L

Full details of personas can be found in [Appendix 3](#).

Through the user research that we conducted, we found:

- less than 20% of customers have reported a repair online
- around 50% of the reported repairs are in the bathroom or kitchen
- the most common type of repair is a leak or heating problem
- around 40% of the calls in London authorities are about existing repairs (update, chase, check appointment)
- the average call time in London authorities is almost double the outside London calls
- over 50% of the online visits of Lincoln, Gravesham and Lewisham website come from a mobile device, compared to only 34% in Southwark
- residents of authorities outside London (Lincoln and Gravesham) are happier with the phone service than those inside London
- 40-70% of residents do online shopping
- eBay, Sainsbury's and Iceland are the main brands customers use online.

We identified the following barriers in the 4 partner authorities existing online repair services:

- Our research with customers identified that 23% are not capable of going online. According to the 2018 Lloyds Consumer Digital Index; 79% of the English population has all five Basic Digital Skills which is inline with our findings (16% cannot complete an online form).
- the phone service is much better than the online service. In all authorities the user gets a better experience over the phone, particularly in Lincoln and Gravesham where they offer residents an excellent service over the phone and a poor online service. Even though call waiting times are longer in Southwark, users choose this channel as it is still better than online.
- trust issues with authorities from previous interactions e.g. their repair issue took a long time to be resolved / was not fully resolved or their housing benefits were paid incorrectly which caused financial problems.
- mobile version of the service is not responsive, accessible or user friendly
- forcing a login is a blocker in particular for Southwark, where the user has to link their tenancy details to their MyAccount. Customers indicated that this process was difficult and our analysis indicates the process creates friction which dissuades users from completing the process.
- the reporting of a repair does not result in an appointment; the appointment is sent 24 hours later, leaving users unsure of next steps and which triggers another follow-up contact
- there is no way to view or amend an existing booking (which is a high-volume contact for Southwark and Lewisham).

From our user research findings and needs identified in the personas, we have identified the following key resident needs:

- As a resident (tenant & leaseholder) I want to find out what I am responsible for so that I know whether to report the repair or fix myself
- As a resident (tenant & leaseholder) I want to report a repair online
- As a tenant I want to be able to book an appointment for the repair to be fixed
- As a tenant I want to add my contact details so you can confirm my appointment and send me reminders and alerts
- As a tenant I want to add contact details of the person who will be home during the appointment so that you can contact them directly if you will be late or have issues locating the property

- As a tenant I want confirmation of my reported issue and appointment time
- As a tenant I want to be able to cancel my appointment
- As a tenant I want to reschedule my appointment
- As a tenant I want to advice on how to fix my issue
- As a tenant I want to report multiple repairs
- As a resident (tenant & leaseholder) I want to report a communal repair
- As a resident (tenant & leaseholder) I want to know if a communal repair has already been reported so that I don't have to report it
- As a resident (tenant & leaseholder) I want to be able to amend or escalate the repair issue
- As a leaseholder I want to add my contact details so can confirm that my report has been received
- As a leaseholder I want confirmation of the issue I have reported

We have identified the following user needs for staff:

- Call Centre Agent I need to be able to check the status of a property to see if the repair is the responsibility of the authority
- Call Centre Agent I need to log a repair on behalf of a resident
- Call Centre Agent I need to diagnose the repair and understand the priority and urgency
- Call Centre Agent I need to book an appointment on behalf of a tenant
- Operative I need to know the location of the job, type of repair and materials needed
- Operative I need to timesheet and account for my time on the job
- Planner I need to schedule the work for the operatives
- Planner I need to priorities emergency repairs
- Face to face operative I want to assist residents with booking an online repair

End to end repairs journey

To identify whether a common service pattern for end-to-end repairs delivery is possible, we began by looking at the work of the 4 participating authorities.

We interviewed the direct labour organisation (DLO) repairs managers, planners, contact centre managers, business improvement and performance teams. As a result of this we were able to comprehensively understand how each authority runs its operations and highlight changes they would like to see to their services.

This detail was used to do 2 things. Firstly, map the end-to-end process for each authority - so we captured the tasks they take to deliver repairs - and secondly identify requirements for a potential common model.

During this research we also looked at the software systems used and data that underpins each part of the process.

This information was analysed, along with examples from other authorities, to identify commonalities and differences. We established that a common pattern could be created and the level at which it could operate, while still reflecting the local needs of each partner authority.

We discussed the model with the DLO managers, authority leads and other staff members who were involved in show and tell sessions throughout the project.

This enabled us to refine the model in relation to communal repairs, improving information gathering for diagnosis, scheduling and engagement and feedback from customers in terms of keeping them informed of progress and confirmation that works have been carried out.

Feedback on attendance incentives for customers, and the value of operative photographs in increasing post inspections was also incorporated.

We spent time with each authority to understand how the current service is carried out and identify the key issues.

A list of interviewees can be found at [Appendix 4](#).

Summary of each authority and key issues identified

Southwark

Southwark provides a repair service to 55,000 units and raises 138,145 repairs a year.

The contact centre logs repairs into the Northgate housing management system, Repair Finder, to diagnose and they are scheduled using Impact Response. Repairs are delivered by 100 trade-based operatives working across 8 areas. [See Appendix 5a for 'As is' service pattern](#).

Key issues identified:

- there are issues with diagnosis, customer communication, stock and the number of follow on works
- incorrect diagnosis of the location and trade of repairs due to limited information from residents
- incorrect diagnosis leading to repairs not allocated enough time to complete
- stock process is paper based and increases follow on works
- jobs are cancelled when work has not been completed

Southwark would benefit from repairs logging being online to keep residents informed of job statuses, using photographs to improve repairs diagnosis and introducing a customer sign off process to prevent repairs being cancelled before completion.

Lewisham

Lewisham provides a repairs service to approximately 18,000 homes, raising 60,535 jobs a year.

The contact centre and planners are separate teams, working in the same office with 44 trade-based operatives. Operatives are paid by the job. Work is logged into the Open Contractor system and scheduled dynamically using Kirona's DRS system. All operatives

use the TBS mobile working solution to receive and complete works and account for materials used. [See Appendix 5b for 'As is' service pattern.](#)

There are issues with the quality of diagnosis and communication with customers:

- issues with identifying tenant responsibility
- issues with establishing the urgency of works
- appointment confirmation difficulties as mobile text message service is not used
- job updates not being completed by operatives

Lewisham's repairs team is keen to use photographs during the diagnosis process to improve the ability to assess the urgency and nature of repairs. The Repair Finder diagnostic tool is available but is underutilised, as staff have lost faith in its effectiveness and using it is not mandatory.

Lincoln

Lincoln provides a repair service for approximately 8,000 units contained purely within the city boundary.

Calls are taken by 10 full time staff who deal with repairs, housing and rents calls in a contact centre, separate from the DLO, which operates from a satellite depot with 47 operatives working on responsive works.

Repairs are logged into the housing management system - Universal Housing - and scheduled at the depot by planners using Kirona DRS. They use Servitor as a DLO management system for job costing and connecting works to operatives' PDAs. [See Appendix 5c for 'As is' service pattern.](#)

There are issues with the quality of diagnosis, being stringent on repair responsibilities and significant technical issues with the mobile devices. Some of the issues are:

- no diagnostic software
- incorrect diagnosis leading to insufficient time allocated for repair completion
- completing works that are the tenants' responsibility
- mobile software only works with Windows devices
- device availability and stability means only 22 of the operatives use PDAs - less than half the workforce
- paper-based working limits job information updates from the workforce, which affects customer service as key details are not available to discuss with residents

Lincoln's process would benefit from a robust mobile working solution and a structured approach to diagnosing repairs.

Gravesham

Gravesham provides a repairs service to about 6,500 homes and logs 33,131 jobs a year.

Calls are taken and scheduled by the same staff using the Oneserve system. Operatives

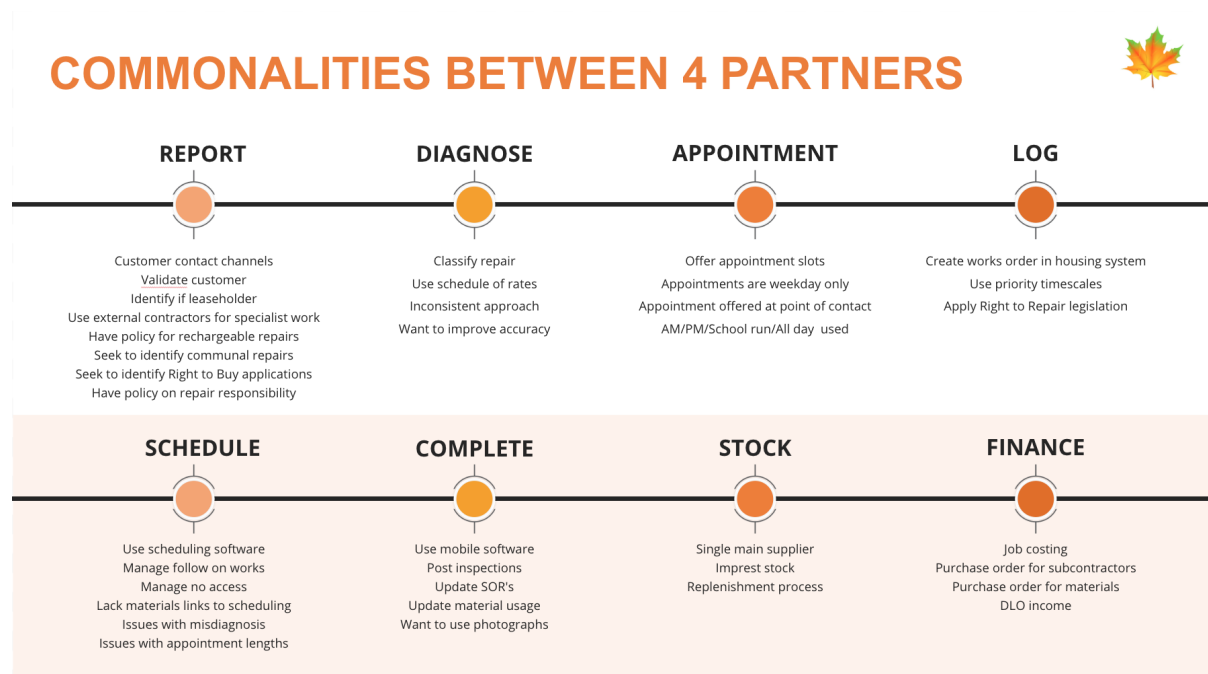
work on Oneserve's mobile solution and are able to see all the jobs they have to complete in a day - unlike the other sites which work on 1 job at a time. [See Appendix 5d for 'As is' service pattern.](#)

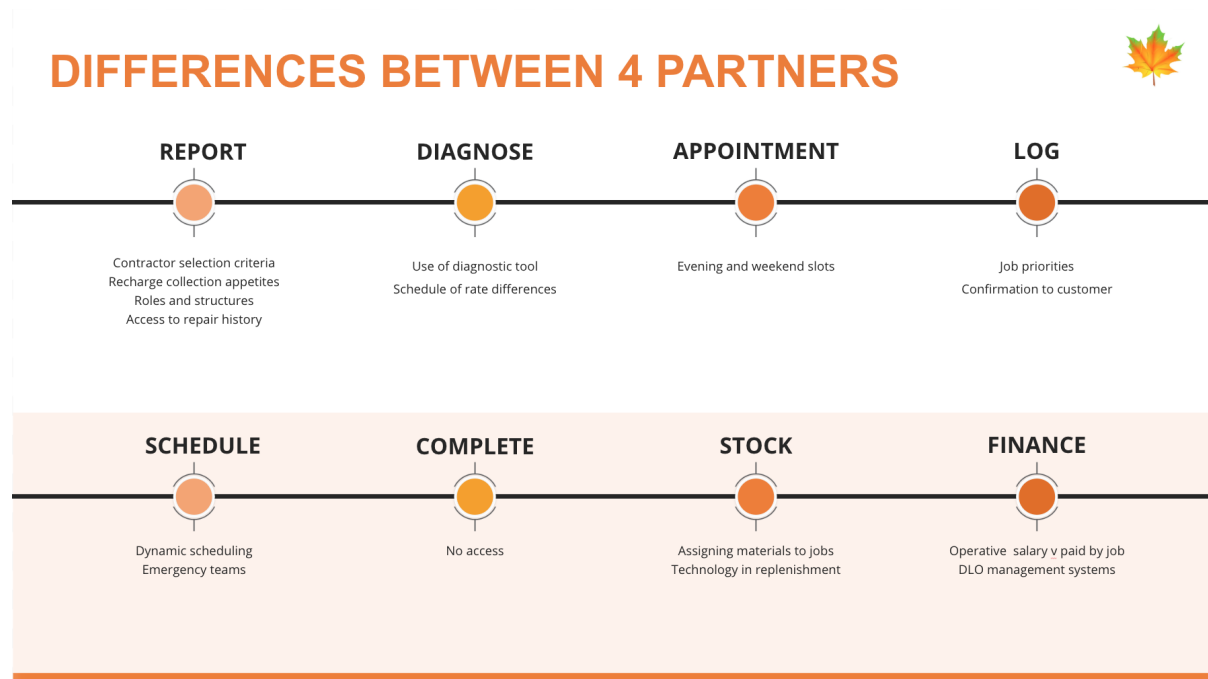
There are issues with the quality of diagnosis as a diagnostic tool is not in place - something the service is seeking to resolve.

Navigation to the repairs tool on the website is poor, resulting in increased calls to the contact centre

Commonalities and differences between the 4 partner authorities

We identified the commonalities and differences between all 4 authorities to identify whether a common service pattern was possible.





Research into existing online repair services

We conducted a detailed website analysis to understand how housing repairs are being delivered by other organizations. Some websites were selected, and an analysis was carried out against some standards of best practices.

The purpose of the analysis was to understand what the other authorities were doing in online housing repairs, and to detect good practices in order to consider in our prototype.

Standards Analysed

How to access to the service:

- Does the website provide an online report a repair service?
- Does the user need to create an account to report a repair online?
- Is the account mandatory?
- Which method is used to report a repair? (online forms, images, questions, other).

When the account was mandatory or if they asked private information, for example rent account number or post code, the usability and content analysis were not possible.

Usability: we assigned a level of usability (low, medium, high) to the repair online process according to the following criteria:

- Use of images
- Size of font
- Forms UI
- Mandatory fields
- Colours
- Number of steps to report a repair

Content: we assigned a level of content used (low, medium, high) to the repair online process according to the following criteria:

- Information asked
- How the information is asked (content)

We analysed 30 authority's websites around the UK, and chose them based on if they provide an online report a repair service.

The list of websites is the following:

1. Havering London Borough
2. Winchester City Council
3. Tower and Hamlets
4. Metropolitan
5. Newcastle
6. High Peak
7. Nottingham City Council
8. Waverley Borough Council
9. North Kesteven District Council
10. Northampton Borough Council
11. Milton Keynes City council
12. Stevenage City Council
13. Cambridge City Council
14. Bristol City Council
15. Gateshead City Council
16. Chesterfield City Council
17. Charnwood Borough Council
18. Edinburgh Council
19. Perth and Kinross Council
20. Darlington Borough Council
21. Rugby Borough Council
22. Harrogate
23. Islington
24. Cannock chase district council
25. Corby Borough Council
26. Crawley
27. Leeds
28. Southampton
29. Oxford City Council
30. Hackney

Key Findings from research on other authorities online repairs:

- In 8 of 30 authorities the resident has the option to log into an account to report a repair; only 3 make creating an account mandatory to report a repair
- 8 of 30 authorities provide a long online form to report repairs (similar to Lincoln and Graveland). This creates friction which ultimately leads to customers choosing an alternative channel
- 7 of 30 online repair services made the user go through pictures and images to diagnose the issue or repair (similar to Lewisham)

- 2 authorities give the option to book an appointment online (Oxford and Hackney)

Industry Interviews

We also spoke to authorities who have already delivered an online repair service during the course of the project to get their views and experience. These were:

- Active Housing - Simon Wilkes, business development manager.
Active Housing is a software company that specialises in repairs diagnosis and developing online solutions for housing associations, either through the use of its own product or linking to those provided by others
- MHS Homes - Matt Eddy, project manager
MHS is a housing provider in Kent, which has developed 2 solutions to improve online delivery for its customers
- Yarlington Housing Group - worked in partnership with Active Housing to deliver an online service for its residents
- Dutch data standard team - Arjen De Vries and his team have been involved in the development of a data standard for social housing in the Netherlands for the last 10 years

Key findings from industry interviews:

When we spoke to them, we concentrated on the front end of the repairs delivery pattern.

Step	Best practice	Lessons learned
Report	Collect photographs	Improves diagnosis and delivery - Dutch
	Concentrate on content	Can try to do too much and get a confusing solution for the customer - Active
Diagnose	Target Schedule of Rates - use a deployment set rather than the full rate book	Ease of set up and integration - Active
Appoint	Use a basket facility to collect rates	Enables easier integration with systems
Log	Clarity on integration requirements	Ensures the links between systems are possible - Active

	Provide repair history	Good communication with customer reducing return calls
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The common service pattern

The common service pattern has been developed into 8 major components that cover the end-to-end repairs journey. These are;

- report
- diagnose
- appoint
- log
- schedule
- complete
- stock
- finance

Using this approach has enabled us to collect the tasks that need to be undertaken, the data required and features of the pattern.

Below is a map of the common service pattern:

	REPORT	DIAGNOSE	APPOINT	LOG	SCHEDULE	COMPLETE	STOCK	FINANCE
Details	Customer accesses repair reporting channels when there is a fault and confirms property and person details.	Customer completes form to provide key repair details and evidence.	Available appointment dates and times are displayed so the customer can choose when the operative will attend to complete works.	Works order is raised on housing management system and confirmation supplied to customer.	Work is scheduled to operative for the date and time chosen.	Operative attends, fixes fault, updates SORs, job notes, materials used and provides photographs. Work may be eligible for post inspection.	Materials are ordered and supplied.	Completed job is approved for payment, subcontractor and stores purchases are invoiced and job costing completed.
Tasks	<ul style="list-style-type: none"> Access online service Confirm resident Confirm address Confirm leaseholder Confirm communal Assess responsibility Confirm emergency Provide contact details 	<ul style="list-style-type: none"> Confirm Location Confirm Priority Confirm Trade Provide Description Provide Photographs Assign SOR 	<ul style="list-style-type: none"> Retrieve available appointments Display available appointments Customer chooses preferred appointment 	Log job Confirmation to customer	<ul style="list-style-type: none"> Review repair request and appointment Identify health and safety issues Review joint access requirements Assign to operative Review photographic evidence - desktop pre-inspection Remind customer of appointment 	<ul style="list-style-type: none"> Attend site Manage access Assess variation or inspection needs Complete works Operative provides photographs Customer signature Update SORs on job Update timesheet Post Inspection 	Stock ordering and replenishment.	<ul style="list-style-type: none"> Review works Sign off job as complete Purchases for subcontractors and stores Invoices authorised for purchases Costs of job posted DLO income claimed
Data	<ul style="list-style-type: none"> Username (optional) Password (optional) Customer first name and surname Flat/house number Street Town/City Postcode UPRN/Property ID Block/scheme reference (optional) Customer ID/Tenancy ID Customer name Customer phone number Customer email Property status (leaseholder/communal) Contact name Contact phone number Contact email 	<ul style="list-style-type: none"> Where is repair - dwelling, block, communal Location (room) Type of work eg heating Trade - eg plumbing Faulty item Text description Schedule of rate code Schedule of rate description Standard Minute Value against SOR Priority Photograph of fault 	<ul style="list-style-type: none"> Available appointments - date and time Appointment descriptions eg AM/PM/School run/All Day 	<ul style="list-style-type: none"> Job priority SOR code SOR description Job trade Appointment date and time Job description Job summary Work type Contract Contractor code Contractor name Job source code (optional) Property ID/UPRN Tenant ID Contact name Contact email Contact phone Job number Confirmation text/email Access details/notes 	<ul style="list-style-type: none"> Job number Priority SOR code SOR description Trade Appointment date and time Property ID/UPRN Access details/notes Property alerts eg asbestos Person alerts - vulnerability indicators Contractor Code Contractor Name Operative code Operative name Operative trade Operative skills (optional) Appointment number Component/asset details (optional) 	<ul style="list-style-type: none"> Job number Priority SOR code SOR description Trade SOR quantity Appointment date and time Appointment number Property ID/UPRN Access details/notes Property alerts eg asbestos Person alerts - vulnerability indicators Appointment completion codes eg no access Job notes Stock code Stock description Stock quantity Appointment completion time Additional works Job completion date Job completion time Job completion code Photographs Customer signature 	<ul style="list-style-type: none"> Purchase order number Purchase order details Supplier code Supplier description Purchase order value Stock code Stock description Stock quantity 	<ul style="list-style-type: none"> Job number Priority SOR code SOR description Trade SOR quantity Job notes Stock code Stock description Stock quantity Appointment completion time Appointment completion code Job completion date Job completion time Job completion code Photographs Customer signature Timesheet code Timesheet notes Timesheet quantity Job audit history Job stage update

User need	<ul style="list-style-type: none"> As a resident I want to be able to easily report a repair online. As a resident I want to find out what I am responsible for. As a resident I want to sign in to my authority account so that I can keep track of all my reports in one place. As a resident I want to be able to amend or escalate the repair issue. As a resident I want to know if a communal repair has already been reported so that I don't have to report it. As a resident I want to report a communal repair. As an authority we want to stop duplicate repairs being raised. 	<ul style="list-style-type: none"> As a resident I want to understand what I am responsible for. As a resident I want to advice on how to fix my issue. As a resident I want to be able to report if the repair is to my property or to a communal area so that it can be diagnosed correctly. As an authority we want to know the location of the repair so that we can diagnose the issue and the trade and offer the correct appointment slots. As a resident I want to provide more details of the issue so that it can be diagnosed correctly. As an authority we want to know the detail of the repair so that we can diagnose the issue and the trade and offer the correct appointment slots. 	<ul style="list-style-type: none"> As a resident I want to know when my repair will be fixed. As a resident I want to be able to book a suitable appointment. As an authority we need to be alerted when appointment slots are not available so that we can move appointments around according to priority. As a resident I want to be able to reschedule my appointment. As a resident I want to be able to cancel my appointment. 	<ul style="list-style-type: none"> As a resident I want confirmation of my reported issue and appointment time. As a resident I want to easily add this appointment to my diary. As a resident I want to be given a unique reference no. so that I can amend my appointment or report in the future. 	<ul style="list-style-type: none"> As a resident I want to be reminded of my appointment slot so I don't miss it. As a resident I want to be able to amend or cancel my appointment. 	<ul style="list-style-type: none"> As an operative I need to have a summary of the job including location and issue so that I can carry out the job 	<ul style="list-style-type: none"> As an operative I need to know the type of job and materials needed so that I can fix this first time. As an operative I need to order replacement stock once I have used an item or running low. 	<ul style="list-style-type: none"> As an operative I need to be able to timesheet and account for time on job and travel time.
Known Issues	need to examine property data for all authorities to ensure address look-ups can work		All - need to establish if job needs to be created in order to bring back available appointments from scheduling systems	Lincoln - Universal Housing APIs may not be fit for purpose	This section relies on the organisation having a scheduling system such as Kirona DRS. If the system allows dynamic scheduling, which places appointments directly into operative diaries, then there is no need to carry steps (to be numbered) If dynamic scheduling is not an option then planners will need to manually check the appointment and job details and select the most appropriate operative. Amongst the partner authorities, Southwark would need to manually schedule as its scheduling system - Impact Response - does not have this functionality.	Lincoln do not have a suitable mobile working solution	Southwark use a paper based stores management	

We divided the journey into 2 parts:

1. The front-end journey captures the process of the repair being reported, assessed and diagnosed and appointed and scheduled.
2. The back-end journey focuses on the delivery of the repair within the DLO.

We didn't review the following steps as they were not part of the common service pattern:

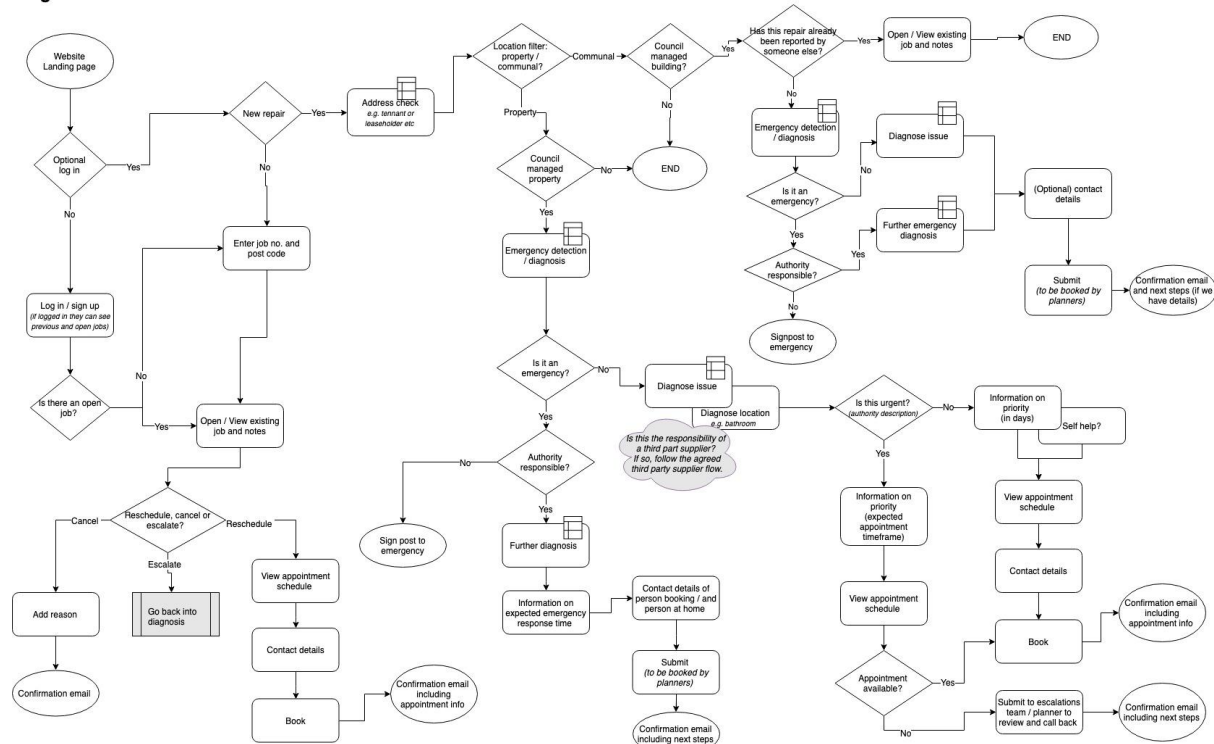
- complete
- stock (some elements could be automated)
- finance (some elements could be automated)

Front end journey

Based on the identified user needs, we designed and mapped a front end user journey flow with the 4 authorities, built a clickable prototype and tested the prototype with users. We also used the research and feedback from the industry reviews to ensure we included their findings, best practice and lesson lessons learned.

We were also able to identify the channels users preferred to transact on, what devices they use and what their normal online behaviour is. Most users had access to a mobile device which they use in their day to day lives for shopping, online banking and social media.

High level user flow



We considered a range of other potential options below to enhance the front end however decided not to currently prioritise the options with low return in benefit.

Options Considered	Stage	High Level Analysis	Cost	Benefit
Develop a chatbot or Alexa app	Report	Chatbots are better suited to simple questions and answers than difficult diagnosis and highly varying forms of asking the same information in different ways. There is relatively low uptake currently but may improve in the future. Doesn't resolve booking issues Partially meets customer need	£££	Low
Machine learning image recognition of fault	Diagnosis	Would only be viable for a small percentage of issues Long lead time to train the models Doesn't meet customer needs	£££	Low
Sensor prediction of faults	Diagnosis	Currently being trialled in other organisations. Low initial benefits - long lead time Doesn't meet customer needs	££	Med
Using photographs to	Diagnose	Only likely to be beneficial in	£	Low

better diagnose at desktop		small amount of instances Does not meet user needs.		
Develop a better appointment booking system	Appoint	There are a range of existing commercial systems and this would require ongoing support and maintenance Partially meets customer needs	££	High

Testing the prototype

To test the front end user journey we created clickable wireframes and requested feedback from the other authorities and users.

Industry feedback: Key comments

We sent this to colleagues in other authorities and demonstrated this at best practice visits to receive feedback on the flow.

Key messages from industry:

Step	Feedback	What we did with the feedback
Report	Don't use a calendar view to book appointments - list the available appointment slots (accessibility, usability and responsive issues)	Added to the design to be tested at Alpha
	The address look-up could be a problem, review this early on in the alpha phase The address lookup is only as good as the data in the housing management system	Added to risks for Alpha
Diagnose	Getting the diagnosis questions right is key, test quickly and often	Added to risks for Alpha
	Everyone thinks their issue is an emergency so they will pick the emergency options e.g. report a major leak	Added to risks for Alpha
	Try to identify the item in more detail as this has had a good impact on 'right first time' e.g. what type of tap is it	Added to the design to be tested at Alpha
	Pick a repairs process to focus on in alpha or you will get swamped with defining the diagnosis rules for all other items	Added to risks for Alpha

We also tested this flow with 6 users (3 council tenants and 3 leaseholders) to get their feedback on whether this flow would meet their user needs.

Key Findings from high level user testing of the prototype:

- would not login into an account to report a repair
- were able to navigate through the entire journey (3 communals, 2 new repair, 1 existing)
- tenants' feedback was positive, saying that they would rather go online if it was this easy

See [Appendix 7](#) for full details of the user feedback.

Blueprints

We have created a blueprint for each of the main flow types:

- [reporting a new repair](#)
- [making changes to an existing repair](#)
- [reporting a communal repair](#)

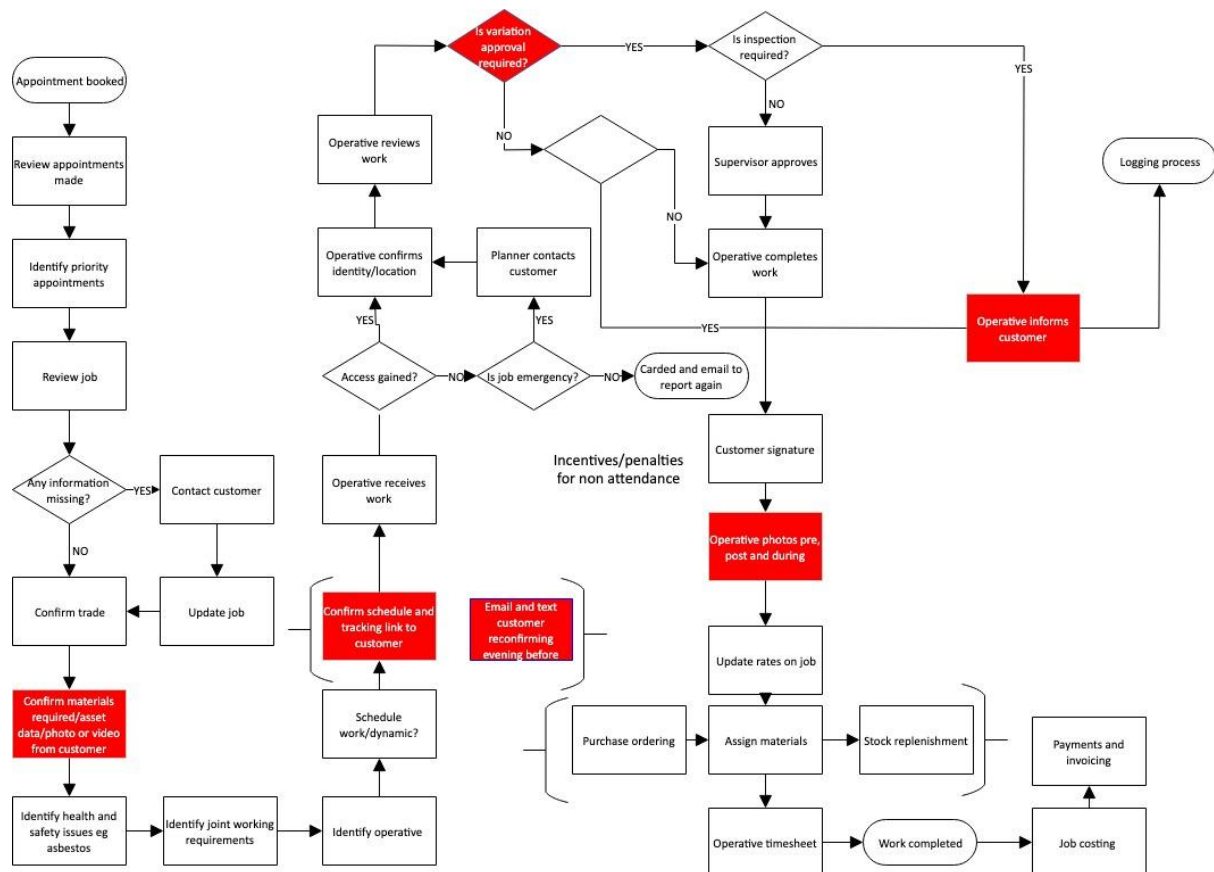
The blueprint of each flow type can be found in [Appendix 6](#).

Back-end journey

We used the feedback from interviews with staff, best practice review and industry feedback to design the back-end journey so that the journey meet residents' needs and the authorities' needs.

We were then able to highlight the common issues identified and add solutions into the new service pattern. The solutions to issues are in red on the flow below.

We then mapped the flow and validated this with the 4 participating authorities and 2 industry leaders.



Option analysis for adopting the common service pattern

We considered 4 options for improving the uptake of digital repairs and ensuring the adoption of a common service pattern:

Option One: Develop a product that improves a specific stage of the process (e.g. Diagnose or Book a Repair)

Strategic Case

The research we conducted across the 4 Local Authorities and 30 digital online products of Councils identified that there were specific stages in the process where most local authorities struggled to meet user needs.

Focusing on each one of these, potentially one at a time could allow Local Authorities to replace their legacy applications for these areas and improve the online experience.

Strengths

This would provide a clear roadmap for improvement. It would also help resolve some of the most important steps for customers.

Weaknesses

In most cases, the customer would still not be able to complete a transaction online (e.g. diagnose and then book the repair). It would not meet all user needs until the subsequent

phases in the project.

Option 2: Work with existing suppliers to develop a more integrated and customer focused solution

Strategic Case

The buy-not-build argument: There are around 500 Local Authorities and Market forces should drive the development of new technologies.

Strengths

The existing IT vendors have a strong foothold in the industry and could lead the change to better technologies.

Weaknesses

- It is unlikely the lead IT vendors will adopt a common service pattern as it creates the ingredients for newer products and vendors to develop specific applications reducing potential revenue and market share.
- New technologies are not likely to be adopted at pace in a non-competitive environment.
- The existing IT landscape in repairs appears to be lagging other sectors with products generally not meeting user needs as a whole.
- The process of having to sell to hundreds of local authorities is also inefficient, although this is consistent with other products focused on the Local Authority marketplace.

Ultimately it will be up to vendors to consider how they respond to this report.

Option 3: Develop a new integrated portal solution that provides a minimum standard for repairs reporting nationally and takes key data out of existing applications

Strategic case

This option recognises that there are very few systems (particularly legacy systems) that meet user needs by bringing together reporting a repair and booking a repair together with a friendly customer interface. The solution is designed to allow local authorities to not be encumbered by their legacy applications.

Strengths

The option is likely to give the biggest return on investment as it can be implemented by most local authorities and should see the largest channel shift. Councils could adopt the technology to provide a minimum standard for all Local Authorities.

Weaknesses

This option doesn't need to leverage innovative technologies so runs the risk of being considered mainstream. It doesn't involve doing things with new technologies.

Costs

The full scope of the project hasn't been finalised. Based on similar project it is estimated

that this project could be delivered for approximately £500k.

Option 4: Develop a national repairs portal

Strategic case

This option aims to create a minimum standard online repairs reporting portal. The portal would allow anyone to book a repair in the country. Like option 3 it recognises that there are very few systems (particularly legacy systems) that meet user needs by bringing together reporting a repair and booking a repair together with a friendly customer interface. The solution is designed to allow local authorities to not be encumbered by their legacy applications.

Strengths

This option reduces the overhead for a council of having a repairs service. The product could provide a 'minimum standard' for all Local Authorities.

Weaknesses

There is significant risk in trying to come up with a single model for all of the different processes and repair types. This option may not even be possible. Councils will need to set up integrations from the platform to allow the best outcomes and most efficient processes - Councils may not have the experience or skills to do this.

Costs

The full scope of the project hasn't been finalised. It is difficult to estimate as the amount of variation that may need to be built into the online processes is quite large. The overall budget could be over £1m. The annual overheads would also grow and a business model for funding the ongoing support and maintenance would need to be considered.

Recommended Option: Step change to Ideal

The recommended short term solution is Option 3. In the case of online housing repairs the step change will come from having all local authorities able to use a minimum standard of online repairs solution. At present there are very few examples of Local Authorities that are doing this well (we reviewed 30 digital services) and legacy systems haven't kept pace with either user centred design or technical innovation.

Option 1 is not considered ideal as it does not allow councils to meet user needs and provides a fragmented solution. Option 2 Work with existing suppliers, doesn't ensure the industry adopts a common service pattern which ultimately limits the uptake of new technologies in the sector and inhibits the best outcomes for customers and Local Authorities.

There is an opportunity to move to Option 4 after option 3 has been proven. This could radically fast track the uptake of a digital solution that meets user needs across the country. By implementing option 3 first, it reduces risk and decreases central overhead.

In our financial model we have estimated that benefits associated with Option 3 will be achieved after 3 years. The majority of the benefit will be achieved by increasing digital take up which will reduce demand on the contact centre. We have modelled the benefits for the 4 local authorities as well as the entire country.

The following should be incorporated to deliver the most benefits in a shorter time frame:

- **implementing the ideal online journey** and developing an online repairs product that meets the priority user needs. It is important to develop a modular or 'microservices' type approach to ensure Local Authorities can use this alongside their existing legacy applications. This may have cost implications but will result in the highest financial benefits (impacting both contact centre operational efficiency and costs and costs actually completing the repair). This will also have the highest immediate impact on customer satisfaction and reducing complaints and digital uptake.
- **Channel Shift** - To achieve the desired uptake online there will need to be some channel shift work in order to make the online channel more appealing. Our research identified some areas of focus:
 - Contact centre staff should offer the same service as online. Residents should receive the same experience as online and not get preferential treatment when they call.
 - Marketing and promotion - a proportion of users didn't know that they could report a repair online. Targeting specific messages to different behavioural personas is likely to get the best results and authorities should consider using nudge techniques and analyse results.
 - use user friendly language and good design
- **Contact centre version of online repairs** - For the authorities with 'legacy' systems that require the contact centre agents to jump between systems (all but Gravesham), we recommend developing a contact centre version of the online repair product. This will ensure that the user receives the same experience on all channels and will also speed up call times and improve accuracy.
- **Pre and Post inspection** - The other main benefits you can achieve in the short term is reducing the pre and post inspections by using photos/videos as a desk based inspection rather than a physical inspection.

In the longer term we have recommended that Local Authorities adopt a common service pattern and aim to ensure new systems are using the service patterns. This will allow much more flexibility and versatility in relation to common IT components, such as those described above, but also new technologies.

New technologies are being developed all the time and the development of new technology solutions have never been as rapid as it is today. In the short term this could include sensors and new forms of payment and longer term blockchain initiatives or machine learning

technologies (e.g. to classify repairs images and predict preventative maintenance or lifetime of alternative replacement parts). By doing this, as new technology products are released into the market, Authorities will be able to more easily adopt these and achieve the related benefits.

Longer term this is likely to lead to reduced cost. It should become easier, quicker and more accurate to report a repair using a system that is designed to meet ALL the user needs. An example of this would be Gravesham who use a system (which is also used by Sky to manage their operative schedules) which allows the repair to be reported and an appointment booked in the same screens. This is reflected in their call handling times which are the lowest of all partner authorities.

This transition will take time and implementing a common service pattern will most likely only be achievable through Authorities mandating the use of the pattern in products they are procuring or asking suppliers to provide API's to connect to other products that have adopted the pattern.

Benefits

Local authorities will be able to realise a broad range of financial benefits as a result of implementing the ideal customer journey.

This section of the report highlights those that we have been able to work with the lead and partner local authorities to quantify - by collecting a range of cost, resource, performance and workload data to enable us to do this.

It also highlights the range of other financial benefits associated with the successful implementation of the ideal customer journey that have been identified as part of this project.

These have not been quantified as part of this. However, they demonstrate the much broader financial opportunity that local authorities implementing the ideal customer journey can expect to realise - above and beyond the more narrowly defined and quantified set of benefits detailed below.

The basket of quantifiable benefits we worked to quantify with the lead and partner local authorities was as follows:

Quantifiable benefit category	Quantifiable benefit
Completion of repairs for qualifying customer groups	<ol style="list-style-type: none"> 1. Leaseholders 2. Tenants with a Right to Buy application 3. Repairs for households accommodated in Temporary Accommodation

More accurate diagnosis	<ol style="list-style-type: none"> 4. Out of hours repairs 5. Rechargeable repairs 6. First time fixes 7. Variation orders 8. Pre and post inspections
Responsive repairs calls: appointments, (re)scheduling and updates/confirmation	<ol style="list-style-type: none"> 9. Missed appointment calls 10. Rescheduling appointment calls 11. Update/confirmation calls

This enabled a combination of qualification, call/contact centre, diagnostic and service delivery staff benefits to be calculated across the ideal customer journey, as follows:

Quantifiable benefit	Description of benefit calculation
Leaseholders	<ul style="list-style-type: none"> • reduction in the number of responsive repairs currently being completed for leaseholders where their status has not been identified as such at the point of order • increase in the identification of communal repairs involving leaseholders being reported where the s.20 threshold is likely to be exceeded, resulting in an increase in the recovery of s.20 charges
Tenants with a Right to Buy application	<ul style="list-style-type: none"> • reduction in the number of non-emergency responsive repairs currently being completed for tenants who have submitted a Right to Buy (RTB) application
Repairs for households accommodated in Temporary Accommodation	<ul style="list-style-type: none"> • reduction in the number of responsive repairs currently being completed for households accommodated in temporary accommodation where the local authority is not responsible for the completion of these
Out of hours repairs	<ul style="list-style-type: none"> • reduction in the number of responsive repairs currently being completed out of hours as an emergency as they are <i>either</i> not emergencies <i>and/or</i> can be safely completed during office hours
Rechargeable repairs.	<ul style="list-style-type: none"> • reduction in the number of rechargeable repairs undertaken by the local authority as tenants are clearer on their repairing obligations (reporting less of these) and recharge policies are more consistently applied
First time fixes	<ul style="list-style-type: none"> • reduction in the number of visits undertaken by operatives as a greater proportion of responsive repairs are completely fixed during their first visit
Variation orders	<ul style="list-style-type: none"> • reduction in the number and average value of variation orders as a result of the more accurate diagnosis of responsive repairs at the point of order

Pre and post inspections	<ul style="list-style-type: none"> reduction in the number of responsive repairs that are physically pre and post inspected as the proportion completed desktop (using photos or similar such media) increases
Missed appointment calls	<ul style="list-style-type: none"> reduction in the volume of missed appointment calls made to a local authority contact centre / similar, enabling resourcing levels to be reduced reduction in missed appointment calls by operatives to tenants' properties, enabling resourcing levels to be reduced
Rescheduling appointment calls	<ul style="list-style-type: none"> reduction in the volume of rescheduling appointments calls made to a local authority contact centre / similar, enabling resourcing levels to be reduced
Update/confirmation calls	<ul style="list-style-type: none"> reduction in the volume of update/confirmation calls made to a local authority contact centre / similar, enabling resourcing levels to be reduced

Headline results

The results of our analysis indicate that the lead and partner authorities will realise the following total net benefits (i.e. adjusted to take account of inflation) between 2019/20 and 2030/31 as a result of implementing our ideal customer journey:

- £5.08m for Southwark
- £9.03m for all 4 authorities

Extrapolating this nationally, across a proportion of the remaining authorities in England with more than 1,000 units of accommodation, would enable the realisation of £99.4m to £83.4m in total net benefits (i.e. adjusted to take account of inflation) between 2019/20 and 2030/31 as a result of their implementation of our ideal customer journey.

Southwark

The benefits case for the lead local authority has been calculated by working out the maximum achievable benefit for each of the above quantifiable benefits (where information has been provided to enable these to be calculated) and then:

- reducing this in reflection of the proportion of tenants that our research has indicated are likely to use on-line services (in the lead local authority this has been established to be 46%), and;
- profiling the realisation of these as follows:
 - 33% of the digitally achievable benefit being realised in year 1 (19/20)
 - 66% of the digitally achievable benefit being realised in year 2 (20/21)
 - 100% of the of the digitally achievable benefit being realised in years 3 to 12 (21/22 to 30/31)

The maximum annual gross benefit (i.e. without taking account of inflation) for the lead local

authority, which we have estimated will be realised from 2021/22, is £573k.

The total net benefit (adjusted for inflation) realisable by the lead local authority between 2019/20 and 2030/31 is £5.08m (£128 when expressed per general needs/sheltered property).

Measure	Financial year (£'000)						
	19/20	20/21	21/22	22/23	23/24	Total 24/25 to 30/31	Total
Gross Benefit (£)	189	378	573	573	573	4,013	6,299
Net Benefit (£) <i>(adjusted for Inflation)</i>	189	366	535	517	500	2,974	5,080
Net Benefit <i>(per general needs/sheltered property)</i>							0.128

Detailed calculations of all those benefits set out above for the lead local authority are contained in the benefits input template that accompanies the discovery project's business case.

Partner local authorities

The benefits case for the partner local authorities has been calculated on the same basis as for the lead local authority, similarly taking account of the proportion of tenants that our research has indicated are likely to use online services in each of these (Lincoln 58%; Lewisham 75%; and Gravesham 42%) and profiling the realisation of the quantified benefit over time.

The maximum total annual gross benefit (i.e. without taking account of inflation) for the 3 partner local authorities, which we have estimated will be realised from 201/22, is £439k.

The total net benefit (adjusted for inflation) realisable by the partner local authorities between 2019/20 and 2030/31 is £3.95m (£151 when expressed per general needs/sheltered property).

Measure	Financial year (£'000)						
	19/20	20/21	21/22	22/23	23/24	Total 24/25 to 30/31	Total
Gross Benefit (£)	145	290	439	439	439	3,073	4,824
Net Benefit (£) <i>(adjusted for Inflation)</i>	145	280	410	396	383	2,339	3,952
Net Benefit <i>(per general needs/sheltered property)</i>							0.151

Detailed calculations of all those benefits set out above for the partner local authorities are contained in the benefits input template that accompanies the discovery project's business case.

Average local authority (in England)

A benefits case has also been calculated for the average local authority in England adopting and implementing our ideal customer journey.

This has been calculated by working out the maximum realisable benefit for each of the quantifiable benefits set out above for the average English local authority.

There are 161 local authorities across England managing council stock (excluding the 4 local authorities participating in this discovery project). Each has an average of 9,452 general needs/sheltered properties.

The maximum benefit for each has been calculated by working out the maximum quantifiable benefit for the 4 local authorities participating in the discovery project, per property, and then calculating this for the average local Authority in England.

A high case and low case have been calculated in reflection of the proportion of tenants that our research has indicated are likely to use online services:

- high case; 62%, based on the upper quartile proportion of tenants our research across the 4 local authorities participating in the discovery project indicates, are likely to use online services
- low case; 52%, based on the median proportion of tenants our research across the 4 local authorities participating in the discovery project indicates, are likely to use online services

Finally, the realisation of these benefits has been profiled over time, similarly to the 4 local authorities participating in the discovery project.

The results of our analysis indicate that the maximum annual gross benefits (i.e. without taking account of inflation) for the average local authority in England, based on the above are:

- high case: £170k
- low case: £143k

The total net benefit (adjusted for inflation) realisable by the average local authority in England are:

- high case: £1.53m
- low case: £1.28m

Measure		Financial year (£'000)						
		19/20	20/21	21/22	22/23	23/24	Total 24/25 to 30/31	Total
High case	Gross Benefit (£)	56	112	170	170	170	1,190	1,868

	Net Benefit (£) (adjusted for Inflation)	56	108	159	153	148	906	1,530
Low case	Gross Benefit (£)	47	94	143	143	143	998	1,568
	Net Benefit (£) (adjusted for Inflation)	47	91	133	129	124	760	1,284

National

Using the figures for the average local authority in England we have also calculated the extrapolated beneficial impact of adopting the ideal customer journey nationally, based on a:

- maximum take up of 50% of all local authorities in England with more than 1,000 units of general needs/sheltered properties (161, excluding the 4 local authorities participating in the discovery project)
- the following adoption profile:

Measure	Take up: number of local authorities						
	19/20	20/21	21/22	22/23	23/24	Total 24/25 to 30/31	Total
Total local authorities	0	20	40	60	81	81	81

The results of our analysis indicate that the total net present value benefits (adjusted for inflation, and allowing for the authority's share of the alpha product development costs) realisable nationally as a result the adoption of the ideal customer journey are:

- high case: £99.4m
- low case: £83.4m

Measure	Net Benefit (£ '000)						
	19/20	20/21	21/22	22/23	23/24	Total 24/25 to 30/31	Total
High case benefits	0	1,122	3,291	6,465	9,589	78,917	99,384
Low case benefits	0	941	2,760	5,423	8,042	66,189	83,355

Other financial benefits (non-quantifiable)

In addition to the financial benefits associated with the successful implementation of the ideal customer journey we quantified as part of this project, we also identified a range of other benefits that will have a beneficial financial impact on local authorities' responsive repairs services that we have not quantified as part of this project. These are summarised in

the table below:

Theme	Other (non-quantified) financial benefits
More comprehensive & accurate repairs data	<ul style="list-style-type: none"> Pro-actively managing repairs ordering for tenants reporting dis-proportionately high numbers of repairs by: <ul style="list-style-type: none"> providing further advice/information, to support behaviour change targeting the bulk completion of repairs on selected properties where there are multiple repair issues bringing more repairs together as planned works using data about trends in levels and types of repairs using better and more comprehensive data to produce more accurate s.125s as part of the right to buy process
Better diagnosis	<ul style="list-style-type: none"> using more accurate repairs diagnosis, linked to underlying property level repairs data to: <ul style="list-style-type: none"> reduce warranty repairs undertaken as responsive repairs ensure repairs subject to planned/cyclical maintenance are either not undertaken, or completed on a more limited 'fix and make do' basis reduce the potential for repeat orders, for the same repair, by enabling this to be checked in the background enable the targeted ordering of materials linking repairs diagnosis to Schedule of Rates (SoR) items and combining this with comprehensive information on variation order levels, average values and types ensures better control of repairs budgets by enabling: <ul style="list-style-type: none"> committed spend to be tracked against budgets targeted reduction of variation order numbers and average values using targeted web-chat (which appears automatically on certain pages when a customer pauses on these for an unexpectedly long period of time ie they appear to be 'stuck' assumption) to additionally improve repairs diagnosis reducing the level of rechargeable repair and non-emergency repairs ordered out of hours by tenants by using a range of automatically generated warnings at appropriate points during diagnosis (and the broader online ordering process) to discourage them from doing so enabling customers to indicate when previously reported repairs have deteriorated and the urgency of these has increased as part of repairs diagnosis (or the broader online ordering process), ensuring stock is kept in best order

Appointment and contact data	<ul style="list-style-type: none"> • Using avoidable contact data to enable specific issues with the repairs service, where improvements can be made, to be identified; for example, this might involve looking at: <ul style="list-style-type: none"> • follow-up calls by contractor - eg for missed appointments • contractors and different trades where there is less risk of variations or poor quality work and tailoring the subsequent allocation of work accordingly • reducing the number of missed appointments and missed appointment calls by ensuring that information is captured for the person who will be in the property when the operative attends the appointment, as part of the online reporting process • Using a combination of appointment/job completion data, SoR codes and operative timesheets to enable local authorities to: <ul style="list-style-type: none"> • challenge and refine Schedule of Rates (SoR) time allowances to increase service efficiency • identify and analyse levels of non-productive time
Other	<ul style="list-style-type: none"> • increasing the number of repairs covered by contents insurance by using the online repairs reporting process to proactively promote this • using predictive modelling, AI and the greater richness of data generated across the online customer journey, in combination with existing repairs information to improve strategic and operational management information by using this to model (and better plan) individual dwelling, communal, planned, cyclical and major works • increasing customer propensity to channel shift (and the consequential realisation of additional financial benefits) by ensuring that online and phone-based service offerings are consistent with one another (with the phone-based service effectively being an assisted version of the online service offering) • better managing customer expectations throughout the online customer journey – so that service levels (and expectations thereof, including timescales for the completion of different types and priorities of repairs) are clear from the outset to help reduce the number of (and officer time spent dealing with): <ul style="list-style-type: none"> • members' enquiries • missed appointment calls • confirmation/update calls

Should the sector adopt a data standard?

We considered if the local authority sector should adopt a data standard for housing repairs. This analysis concluded that a common data standard would provide significant short- and longer-term benefits and as a result a data standard should be adopted.

Some of the benefits we identified for adopting a standard are listed below:

Reduce costs:	<ul style="list-style-type: none"> the ability to reduce the complexity of the IT estate by having standard interfaces (internally and externally with third parties). This is particularly important for companies with multiple systems doing similar tasks.
Better decision making:	<ul style="list-style-type: none"> being able to bring data together more easily and more quickly across multiple systems moving to predictive modelling more quickly by reusing what has been developed by providers in the market
Adopting new technologies	<ul style="list-style-type: none"> providing the ability for organisations to build specific innovative or best practice technologies and easily connect to existing systems increases the pace of change. the ability to more easily adopt home connection and automation technologies. Examples include Chatbots and new channels such as Apple Siri and Google Alexa.
Share data	<ul style="list-style-type: none"> the ability to share data for benchmarking, government returns, investigations or supply chain analysis is enhanced if data is standard and common.
Flexibility and agility	<ul style="list-style-type: none"> the ability to swap out technologies and systems easily gives the organisation a greater ability to adapt and change.

The HACT Common Data Standard

We were asked to consider if the HACT data standard could be adopted as a standard for Local Authorities across the UK.

What is the HACT Data Standard

The Housing Associations' Charitable Trust (HACT) is an independent not-for-profit agency

which specialises in providing advice on technology and business change innovation within the housing sector.

HACT has partnered with OSCRE International – an American organisation which has been developing data standards with businesses and groups which own or are involved in property for the last 15 years.

HACT and OSCRE began work on the UK Housing standard 2 years ago. Version 1 of the HACT standard covered property and people data, voids and allocation processes. Version 2 covers responsive repairs which was released in January this year. The next version - due for release in the autumn, includes care & support, planned maintenance, and income collection standards.

HACT works with housing providers to generate the standard for specific areas of housing delivery.

The HACT Data standard has 3 elements:

- a reference business process
 - a sample process for end-to end repairs delivery
- a data model, currently comprising
 - a list of 505 data entities
 - Including property information, appointment, works order details.
- Use case standards
 - there are currently 12 standard models which facilitate the storage and/or exchanging of housing data
 - these can be used for data transfer and integration between software systems both within or outside of an organisation, or in data modelling activities like documenting an enterprise data model, software selection processes or master data management
 - the currently published data standards are:
 - customer data
 - property types
 - nominations
 - job status updates
 - available appointments
 - raise repair
 - request additional work approval
 - request appointment response
 - request appointment
 - request available appointments
 - schedule repair
 - works order complete

Comparing the proposed common service pattern for repairs to HACT

HACT developed a reference repair process as part of its work developing Version 2 of its housing data standard. They worked with the housing providers Coastline, Halton Housing Trust, L&Q, Lewisham Homes, Magna, Metropolitan Thames Valley, Poplar HARCA and Settle to do this.

HACT has provided a summary high level process and then 2 more detailed process maps covering repair to appointment and undertaking works to invoicing subcontractors.

HACT process maps can be found at Appendix 8.

How we assessed the HACT data standard

First, we developed a common process for the 4 local authorities. We mapped the service pattern to the end-to-end process developed. We identified data entities that would be used to cover the steps in the repairs journey. We reviewed the details within the service pattern one by one and we identified the gaps.

The mappings are shown in the 2 tables below:

Report to log

Report	Diagnose	Appoint	Log
Username (optional)	Where is repair - dwelling, block, communal	Available appointments - date and time	Job priority
Password (optional)	Location (room)	Appointment descriptions eg AM/PM/School run/All Day	SOR code
Customer first name and surname	Type of work eg heating		SOR description
Flat/house number	Trade - eg plumbing		Job trade
Street	Faulty item		Appointment date and time
Town/City	Text description		Job description
Postcode	Schedule of rate code		Job summary
UPRN/Property ID	Schedule of rate description		Work type
Block/scheme reference (optional)	Standard Minute Value against		Contract
Customer ID/Tenancy ID	SOR		Contractor code
Customer name	Priority		Contractor name
Customer phone number	Photograph of fault		Job source code (optional)
Customer email			Property ID/UPRN
Property status (leaseholder/communal)			Tenant ID
Contact name			Contact name
Contact phone number			Contact email
Contact email			Contact phone
			Job number
			Confirmation text/email
			Access details/notes

Schedule to financial

	Schedule	Complete	Stock	Financial
Data	Job number Priority SOR code SOR description Trade Appointment date and time Property ID/UPRN Access details/notes Property alerts eg asbestos Person alerts - vulnerability indicators Contractor Code Contractor Name Operative code Operative name Operative trade Operative skills (optional) Appointment number Component/asset details (optional)	Job number Priority SOR code SOR description Trade SOR quantity Appointment date and time Appointment number Property ID/UPRN Access details/notes Property alerts eg asbestos Person alerts - vulnerability indicators Appointment completion codes eg no access Job notes Stock code Stock description Stock quantity Appointment completion time Appointment completion code Additional works Job completion date Job completion time Job completion code Photographs Customer signature Timesheet code Timesheet notes Timesheet quantity Post inspection code Post inspection details Post inspection appointment Post inspection notes	Purchase order number Purchase order details Supplier code Supplier description Purchase order value Stock code Stock description Stock quantity	Job number Priority SOR code SOR description Trade SOR quantity Job notes Stock code Stock description Stock quantity Appointment completion time Appointment completion code Job completion date Job completion time Job completion code Photographs Customer signature Timesheet code Timesheet notes Timesheet quantity Job audit history Job stage update Job value Purchase order number Purchase Order details Supplier code Supplier name Invoice number Invoice status Invoice amount

Gaps identified with the common service standard and HACT data standard

Data Fields

There are 92 potential data fields across the 8 sections of the common repair pattern. The areas where there are gaps in the HACT standard are:

- stock/materials data
- timesheets
- purchase orders
- invoices to suppliers
- component or asset details

This reflects the aim of the first iteration of the standard which was to focus on points of data exchange rather than each individual process step.

HACT is working on Version 3 of the data standard. Planned maintenance will include asset data.

Data Flows

There are some minor differences between the flows.

In the common service pattern developed in this report we have included stock, timesheets and dealt with online reporting specifically in the steps which is not included in HACT. HACT has details about paying invoices for work carried out by subcontractors.

These differences reflect the different focuses of the projects. When HACT worked on the standard they concentrated on priorities set by the customers they work with. When we met HACT they told us that job status updates were their area of focus.

In our work the online reporting journey and stock were the priority needs that emerged.

The similarities between the journeys show that there are common steps within repairs delivery and that a common pattern can be used by providers.

Should the sector adopt the HACT data standard?

Whilst we mapped the HACT data standard to the common service pattern that we developed and found it to be relatively complete, there are other factors we have considered to ensure the standard would be suitable to be adopted by the Local Authority sector. We considered the following areas:

Completeness: Is the standard complete and representative of the data sets required?

Community: Is it freely available and easily accessible to the entire sector (community)?

User friendly: Documentation should be user friendly, clear, and able to be understood by the industry. Processes for updating the code and making recommendations and changes should be simple and easy.

Neutrality: The standard is not tailored to any particular vendor or business model. Connecting other applications and systems should be easier as the standard applies equally to all. This also relates to regulatory reporting which should be able to be generated from the data sets and systems built on the standard. Do the intellectual property rights allow the sector to gain access to the standards equally and without cost.

Our Assessment

We assessed if the HACT service assessment should be adopted by local authorities:

Completeness	<ul style="list-style-type: none"> There are 92 potential data fields across the 8 sections of the common repair pattern. We found 5 areas that weren't covered. However, the pattern is being improved and further releases are being developed. We reviewed all elements of the data standard that related to the common service pattern. We weren't able to immediately identify any deficiencies in particular fields, although there were 5 areas we identified that hadn't been defined (as above).
Community	<ul style="list-style-type: none"> The standard has been developed in conjunction with around 40 housing associations and thus has an appropriate community. At present there is no local government community and this would need to be agreed with HACT.
User friendly	<ul style="list-style-type: none"> We spent significant time reviewing the details of the standard. Our assessment was that the standard could be improved in relation to user friendliness. None of the local authorities had an understanding of the standard, how to apply it or what benefits it could add to their

	organisation.
Neutral	<ul style="list-style-type: none"> • We found that the standard was neutral and could be applied to all four organisations that were part of the partnership. We also considered if this was extensible to the industry and found that the standard was extensible. • The Standard is published on a Creative Commons licence full details available here: • https://www.hact.org.uk/uk-housing-data-standard-license
Customer focused	<ul style="list-style-type: none"> • One of our concerns was that the service pattern may have been developed more from a technology perspective rather than being based on user needs. Our assessment in mapping a common user journey to the standard is that the standard would allow the common user journey and service design to be adopted.

Further Details provided by HACT

'We will continue to publish future updates and iterations on this licence for perpetuity. The Standard is developed by HACT and OSCRE in collaboration with sector partners [a full list of those who have been involved can be found here](#). HACT as a charity working with a mandate to support the UK social housing sector alongside OSCRE a non-profit organisation that creates Data Standard internationally are committed to creating an open standard that benefits the sector. Alongside housing providers we aim to bring in key stakeholders such as software providers, service providers and other parts of the supply chain to contribute to the development and particularly around implementation but the Standard will always be technology agnostic and all final decisions relating to the content of the Standard will be taken by the housing sector participants in the interest of the sector.

We welcome organisations to suggest changes and modifications and work with us to develop new use case that expand the UK Housing Data Standards coverage.

The process for changing and expanding the Standard is as follows:

1. For small changes and amendments to existing areas users can contact HACT and request a change. Changes will be incorporated into future versions subject to sector approval.
2. Larger changes that require the creation of a new use case will need to be funded. HACT welcomes organisations to propose new areas for development and will work with them to find additional partners from across the sector that could also support and contribute to the development. The cost of development is relative to the size and complexity of the area. HACT works to ensure the Standard is representative of the diversity of organisations in the sector and in previous versions has used banded pricing so that larger organisations subsidise the cost of development for small organisations. All newly developed use case are put to a sector and public consultation.

For organisations that wish to have access to more tools and support or that wish to build their own use cases (for internal consumption not published) OSCRE membership is available and provides a range of products and services to support this end. More details:

<https://www.oscre.org/Membership>

Next steps

The report recommends that a data standard should be adopted.

There is also a recognition that the HACT data standard has a body of support, good community for ongoing development and that the initiative has both driven awareness of the benefits of data standards in the sector and progressed their adoption further than previous initiatives. The organisation is not-for-profit and there are existing processes to allow minor and major updates of the standard.

The report recommends the HACT data standard be adopted by the industry, however, there needs to be further work done to make the standard more user friendly. Specifically, there should be greater support documentation provided for organisations to understand what the standard is, why it is beneficial and how it should/could be applied by Local Authorities to support their own organisation and the industry as a whole.

Developing an alpha product

Analysing whether this project should progress to an alpha stage

We considered the options and recommended Option 3: Develop a new integrated solution that provides a minimum standard for repairs reporting nationally and takes key data out of existing applications (integrated). A summary of the options considered is provided earlier in this report.

We recommend to explore in an alpha phase how a common repairs service pattern can be integrated with existing housing repair systems.

We believe that by creating an alpha product, delivering elements of the ideal customer journey, we can prove our assumptions that it will deliver the expected benefits and meet the user needs.

It will also prove the assumption that a common service pattern can be implemented regardless of the authorities' systems and business rules.

Options for alpha

The partners considered a range of options for the alpha product. The decision was taken to focus on 1 repair type end-to-end and to focus on 'leaks'. The key reasons for selecting this option are:

- it will deliver the majority of benefits for most authorities (both within the participating authorities and across the industry): i.e. it is high volume
- it includes existing repairs which is around 50% of the calls and one of the largest areas of failure demand
- the scope includes areas that were considered particularly important for meeting user needs and that were considered to have failed when user research on existing

products was conducted

Scope alpha

The recommended scope of the alpha product includes:

- reporting
- diagnosing (location, type and severity)
- scheduling an appointment
- receiving alerts and notifications about the appointment
- making changes to the appointment e.g. cancelling, rescheduling appointment and escalating the issue

This scope should exclude:

- communal repairs: not MVP and usually a different process
- all other repair types: this increases complexity and reduces ROI
- optional customer account integration: not considered best practice - increases friction
- a contact centre version of the online tool: added complexity (not MVP)
- complex leaks: added complexity (not MVP)

Measure of Success

We will know the Alpha phase has been a success if:

- If the online common service pattern can be applied to all authorities
- If 90% of users can complete the task during user testing
- If the user diagnosis the correct issue and priority 80% of the time during user testing
- If a repair can be reported online in less than 3 minutes

Proposed roadmap and cost

The project has assumed 3-4 months to deliver the alpha phase (plus any funding timescales) at a cost of no more than £100,000. The proposed roadmap is as follows:

Phase	19/20	20/21	Beyond
No of Councils	4	4	10+
Alpha and Beta MVP Develop a Minimum Viable Product focused on leaks. <ul style="list-style-type: none"> • Develop API connectors • Integrate with Southwark repairs systems • Develop using HACT Data Standard 			
Full Digital Product Development <ul style="list-style-type: none"> • Develop processes for all repair types 			

<ul style="list-style-type: none"> • Test integrations and open API's with multiple vendors and councils 			
Full Digital Roll-out <ul style="list-style-type: none"> • Full roll-out • Develop integration adaptor library for faster roll-out 			

Appendix 1 - Research report

Appendix 2 – Authority profiles

Appendix 3: Personas

Appendix 4: Interviewees for participating authorities

Appendix 5: As is process maps

- Southwark
- Lewisham Homes
- City of Lincoln
- Gravesham borough council

Appendix 6: Blueprints

Appendix 7: User feedback on prototype

Appendix 8: HACT process maps