Business Case

Improving Accessibility to Housing Data

CROYDON COUNCIL
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BUSINESS CASE

Programme/Project Name: Include a reference or identification number where applicable.	Improving Accessibility to Housing Data

Programme/Project Manager/Leader: Judy Pevan, Stock investment manager Responsible for delivery of the programme or project, accountable for the day-to-day management and team leadership. Responsible for compliance with relevant reporting process to the Programme or Project Board.	**Sponsor: Peter Brown, Director of housing needs and strategy** Accountable for the successful delivery of the project. Responsible for objectives, specification, budget, finished product. Owner of the project at Programme Board level.

REVISION HISTORY

Version	Revision Date	Status	Prepared by	Summary of Changes
0.1	15 06 12		WPI	

Insert additional rows as required.

APPROVALS

Role	Name	Signature	Date
Project Sponsor			
Project Manager/Leader			
Finance			
Procurement			
HR/OD			
Legal			
Communications - Internal			
Communications - External			
ICT			

Insert additional rows as required.

DISTRIBUTION		
Role	**Name**	**Date of Issue**

Insert additional rows as required.

EXECUTIVE SUMMARY AND PREFERRED OPTION

The Executive summary should distil what follows in the other sections, covering all the major factors that the decision-makers will need to know about.

Provide a clear outline of your recommendation, beyond which you can provide further detail if required. Please include:

- A clear, concise summary of the recommended solution to the problems identified with a full description of the preferred option having undertaken the options analysis
- Clearly indicate the objectives of the proposal
- Confirm that your proposal align with one or more of the Council's six priorities
- Summarise the cost, budget and funding implications of your proposal
- Outline next steps in progressing the proposal into a Project or Programme

(800 word limit max.)

Currently the Department for Adult Services, Health and Housing (DASHH) uses two independent databases – Apex and Open Housing Management System (OHMS). Apex is used on a daily basis for a variety of tasks, such as maintaining and accessing property information, planning programmes of works, and showing energy efficiency ratings. OHMS is used on a daily basis to manage tenants' information, repair history, rent accounts, and lettings. Within OHMS, there are five independent modules: Needs, Rents, Repairs, Decision Support, and Home Purchase Management, all of which contain information relevant to properties and tenants. However, currently there is no way to query information from all five modules and display it in one central, user friendly interface. Additionally, Apex and OHMS must be manually synchronized, which leads to information quickly becoming outdated and potentially inaccurate or at least, inconsistent.

The project began with the idea of finding a solution to allow tenants to access information on their homes via the web. The search for such a solution led to the identification of a range of benefits, in addition to web access for tenants, that if implemented could meet a number of strategic needs. As such, the use of middleware[1] was proposed as a possible solution to integrate the diverse data and databases and provide easier and more efficient access for council officers and tenants.

The proposed middleware solution focuses on enabling a real-time link between OHMS and Apex. Council officers would be able to combine data held on individual OHMS modules and/or with data from Apex and in this way, could use the information available to provide their services more efficiently and effectively. An internal survey of council officers has confirmed that there is interest in a central graphic user interface (GUI) that could be used to view housing information drawn from both the housing and stock databases. With this connection, Croydon's recently purchased iSMART geographic information system (GIS) software could be utilised to its full potential by providing more customisable, accurate, and visual information for planning purposes. Through the

[1] Middleware- A software overlay that encompasses all databases and provides an easy to use graphic user interface that can pull information from all systems.

provision of password protected access linked to individual tenant accounts, tenants could also view details about their homes such as planned improvements or rent account details. There is even the potential for this system to be used to support mobile working.

The potential benefits include:

- Allowing real-time links between OHMS modules and Apex;
- Promoting the ability to combine data held on individual OHMS modules;
- Displaying information geographically using GIS;
- Providing web-based password-protected access for tenants to specific data;
- Encouraging greater front-line support by the Contact Centre;
- Reducing demand for staff resources from tenants through self-servicing;
- Identifying and eliminating data inconsistencies;
- Increasing access to officers outside DASHH for specific data queries;
- Allowing officers to “self-service” data information requests
- Incorporating data from ‘standalone’ spread sheets (e.g. gas servicing); and,
- Enhancing the abilities of staff to work from home with secure mobile access.

Recommendation

Following an options appraisal, the recommended preferred solution is the use of **‘middleware’** to access information from OHMS and Apex using a single, central access point. This solution would also enable data to be visualised using the GIS. The system can identify inconsistencies between pieces of information within both databases so that administrators can resolve these differences (i.e., ongoing, interactive data cleansing). Administrators will be given greater access to the system and will use permission groups to control access to data by staff. The system will also link information from these databases to a separate interface that tenants will use to access information related to their dwellings. OHMS and Apex will continue to be used as at present to input information and run standard reports, but the middleware solution offers a further platform to deliver additional benefits.

BACKGROUND AND BUSINESS NEED

Project Background and Purpose:

This section is available to inform a reader unfamiliar with your proposal about its important context: background that will not be provided in other sections. Please include:

- The current situation and the problem(s) you seek to address with your proposal, using evidence, giving examples, illustrating with statistics and, where available, the opinions of users
- Where there is a legislative/regulatory need for a proposal, you should outline the source and the deadline for meeting the legislative requirement
- Where the proposal is a precursor or enabler of a larger piece of work, you should state it here
- In more detail, indicate how your proposal aligns with one or more of the Councils six priorities

1. Background

The two housing databases (Apex and OHMS), are disconnected and therefore data could be inconsistent. Additionally, various customised spread-sheets have been developed by staff over the years that hold data relevant to the housing department, but are not accessible directly by all officers.

The Council also supports GIS software developed by eSpatial; however, this data visualisation software (iSMART) has no live, dynamic link between it and housing information/databases and therefore only displays a small range of historic information. GIS has the potential to display information from Apex and OHMS geographically but cannot request data that would prove useful for future planning. If this was enabled, GIS could display the Council's properties and allow officers to request and view dynamically a more extensive range of data as geographic overlays.

At the moment if officers require a report from either OHMS or Apex they need to personally request the necessary information in the form of spread sheets prepared by a specialist officer. Officers explained that the lack of a dynamic connection between the two housing databases – Apex and OHMS – and GIS prevents them from seeing live updates. Specifically, a surveyor mentioned that the updating of Apex only occurred at bi-monthly intervals, and was not real-time. This can lead to inconsistencies and even lost data.

The Contact Centre regularly receives queries regarding planned improvements and whilst they have access to spreadsheets on certain programmes, they do not have access to all of the information requested. Contact Centre staff presently contact other departments within the Council, such as Planned Maintenance, Responsive Repairs, or the Stock Investment team to gather the information requested. Additionally, there are no direct routes for tenants to access this information without intervention by an officer. A member of the Responsive Repairs team explained that the Contact Centre officers, who receive calls from tenants, access information regarding repair schedules by communicating with the Responsive Repairs team. To avoid conflicts, the Repairs team then need to contact the Planned Maintenance team to ensure that no maintenance projects are already scheduled for that tenant's dwelling. Officers, including the Contact Centre, could work more efficiently if they had access to repairs and

planned maintenance information.

The purposes of this business case are:

- To identify the problem and discuss the need for change;
- To illustrate an array of options to improve Council officers' access to housing information;
- To determine the most viable options and evaluate the cost and benefits of each
- To offer recommendations regarding the preferred option, based on the research conducted

2. Fulfilling Croydon's Strategic Objectives

The comprehensive spending review carried out in 2010 reduced funding for local governments, directly impacting Croydon. In order to manage this challenge, the Council has introduced various transformation programmes to support more efficient working and reduce costs including 'LEAN' and 'Demand Management'.

The proposed solution, including an online interface, strongly supports the Council's agenda of 'Demand Management' and 'Avoidable Contact' as tenants that phone the Council for this information could, in the future, be self-serving. The project also aligns with the Council's Community Strategic priority of delivering high quality public services and improving value for money.

Croydon is also supporting projects that provide 'communication shift' i.e. from calls to self-service direct access via the web. Examples are the recent purchase of Techforge for corporate asset management. Within DASHH current projects include tenant access to individual rent accounts and future direct web access to report repairs and raise appointments.

The project outputs support a key context and driver for change and transformation, i.e. to reduce resident contact with the Council by allowing them to self-serve regarding stock and other information. Data will also be integrated enabling more effective decision making.

Various options have been analysed to determine the best avenue to support these initiatives including 'do nothing'. Although the Council itself has received less funding compared with previous years, there has been an increase in the repairs and improvements budget due to changes to the Housing Revenue Account (HRA) under the Localism Bill. This increase in funding comes with a responsibility to ensure that funds are targeted where they can be most effective, and this project directly supports these objectives.

This project will align with many of the Council's strategic priorities, specifically:

Delivering high quality public services: With the new system in place, DASHH will be able to provide tenants with a higher

quality service due to the increased amount of information directly available to them. Also, tenants would have access to online services that would enable them to request repairs and other services with ease.

Improving value for money: The new database organization will promote more up-to-date data with less maintenance and effort on the officers' part.

Demand management: Tenant self-access allows for the Council to further its demand management initiative by reducing the need for officers to answer queries personally, whilst increasing the information available for tenants to access.

Reducing avoidable contact: A direct benefit of the web interface is that there will be fewer telephone queries to the Contact Centre, Responsive Repairs department, Stock Investment team and other sectors. By allowing tenants to access information themselves, the Council will be able to reduce the number of avoidable contacts, such as "customer requests for a service or information, reports of failure to deliver a service, progress chasing and responses to Council correspondence".[2]

Transformation of service delivery: To keep current with upcoming trends of service delivery, the Council will be able to provide a new online delivery of housing information directly to tenants. This is extremely important for the Council to remain relevant, as there will be a changing future with respect to tenants using the Internet as their preferred mode of information delivery. Several other boroughs in London have already moved a majority of their services online, such as Richmond, with the Richmond Housing Project, and Westminster with CityWest Homes.

Mobile working: If officers were able to access housing and asset information from either a smartphone, personal digital assistant (PDA), or remote terminal outside of the Council building, (laptop, personal computer) they would be able to increase productivity by completing information requests onsite at a residence or whilst working from home.

3. Methodology and needs analysis

Whilst this project had been an objective for delivery by the stock investment section for some time, lack of resources, and conflicting priorities meant that there was never the time or dedicated focus to take it forward. Croydon's links with Worcester Polytechnic Institute, Worcester, Massachusetts, USA, provided the impetus to develop a project brief which resulted in two groups of students being placed in DASHH for 7 weeks each. The work of the second group has built on that carried out by the first group with the specific aim of group 2 to develop a Proof of Concept and produce a mature business case.

The data required for this business case was collected as follows:

[2] Communities and Local Government (CLG), *Reducing avoidable contact: a guide to NI 14*, accessed 20 April 2012, http://www.idea.gov.uk/idk/aio/8621612.

- A questionnaire was distributed to 297 tenants by Group 1 to determine the need for a web interface and found that 60% of respondents would like to access housing information online. They did, however, insist that the web interface should be user-friendly, secure and simple to navigate so that tenants who are not as technically proficient can still interact with the system. A web interface linked to the middleware solution will allow tenants to access information related to housing services from the two databases without needing to call the Contact Centre, provided that this information is consistent. Over time it is expected that more and more tenants will have web access either through a smartphone, pc ownership or via an alternative location such as a library and thus will want to use this form of communication (see Appendix A).

- A survey was distributed to 25 officers within DASHH to assess the need for improvements of the current housing management system. Results showed that 83% of respondents desired a system that would allow them to access the two databases simultaneously and view the data using GIS from one secure location. From the survey responses received, the most common request for functionality within the new system was the ability to have consistent data. Officers would benefit from then being able to retrieve various combinations of data from multiple sources and display this information within GIS (see Appendix B).

- A range of officers representing a variety of functions within DASHH attended two focus groups specifically aimed at identifying a) interest in the concept and b) potential areas of use. Many day-to-day users of the current system indicated that they only ever use one or two modules of OHMS, and many were completely unfamiliar with Apex and the information it contains. After further discussion, many agreed that access and easy visibility of all modules within OHMS, as well as some Apex stock information would be extremely useful. An example given was if the Housing Management department could possibly view Apex information regarding disability access (ramps, lifts, etc.) they could more accurately place disabled tenants in vacant properties. Other staff indicated that where environmental funding is linked to Lower layer Super Output Areas (LSOA), the proposed system would allow staff to map housing stock, existing energy ratings and works carried out together with socio-economic data in order to bid for available funding and draw up suitable programmes of work (see Appendix D).
- Phone conferences held with four local authorities who use similar database systems or have made recent improvements to their systems (see Appendix E).

- Conference calls with multiple vendors were made to estimate technical synergy and costs of both the middleware solution as well as complete replacement of the housing IT system (see Appendix F)

- Development of two options (in addition to the ‘Do Nothing’ - remain with status quo)

- Throughout the project there was input and involvement from the DASHH ICT project manager.

OPTIONS ANALYSIS

Present options considered:

Please indicate the list of options that has been considered: there should be a minimum of three - five options considered

- You should provide the relevant advantages and weaknesses of each option and conclusion if the option is chosen
- Include relevant costs and benefits of each option
- If a major programme or project a feasibility study may have been commissioned: the summary options should be quoted here, with the full report attached as an appendix

Ref:	Short Description	Main Advantages	Main Weaknesses	Conclusion/Impact if chosen
1	**Do nothing:** Continue to update and view housing management information from Apex and OHMS, exporting summaries to Excel as necessary.	• Officers know how to use the current housing management system • No cost • No short-term disruption or change	• Housing data remains inconsistent • Time delays in reporting information • Officers cannot access information from both databases at the same time • No continuous communication between current databases and GIS • No direct tenant access available • Officers outside of DASHH are unable to access necessary information	• No contribution to transformation agenda or demand management

2	**Middleware system (preferred):** Implement middleware that serves as a central access point for querying information from Apex and OHMS. Also offers links for displaying this information using Excel or GIS.	• User-friendly interface • Offers temporary views of GIS without overloading system storage space • Reduction in report delays • Central access to all databases • Can identify inconsistencies • Tenants able to access own data • Provide richer source of data through combining data sources	• New system will require training • Success dependent on officers' willingness to adopt	• Improved data quality • Improved data management • Improved employee efficiency • Cost (funding) • Reduction in direct contact with tenants
3	**Integrated system (total replacement of OHMS/APEX):** Migrate the information and functionality of Apex and OHMS into a centralized housing system, with the ability to view data using GIS	• One single, coherent database with functionalities of Apex and OHMS • No inconsistencies in data • No time delays in data updating • Continuous updates to GIS	• Very costly (commission, design and procurement) • Long implementation process (up to 3 years) • Training, familiarisation and adoption by officers • The need to keep both companies hosting at some period of time • Research has identified that asset management system element is not as rigorous/robust as existing	• Improved data quality • Improved data management • Improved employee efficiency • Costly (funding)

4. Options and Cost Analysis

The first group of WPI students in March and April tackled the initial problem assessment and identified two potential solutions, in addition to the possibility of doing nothing. These were as follows:

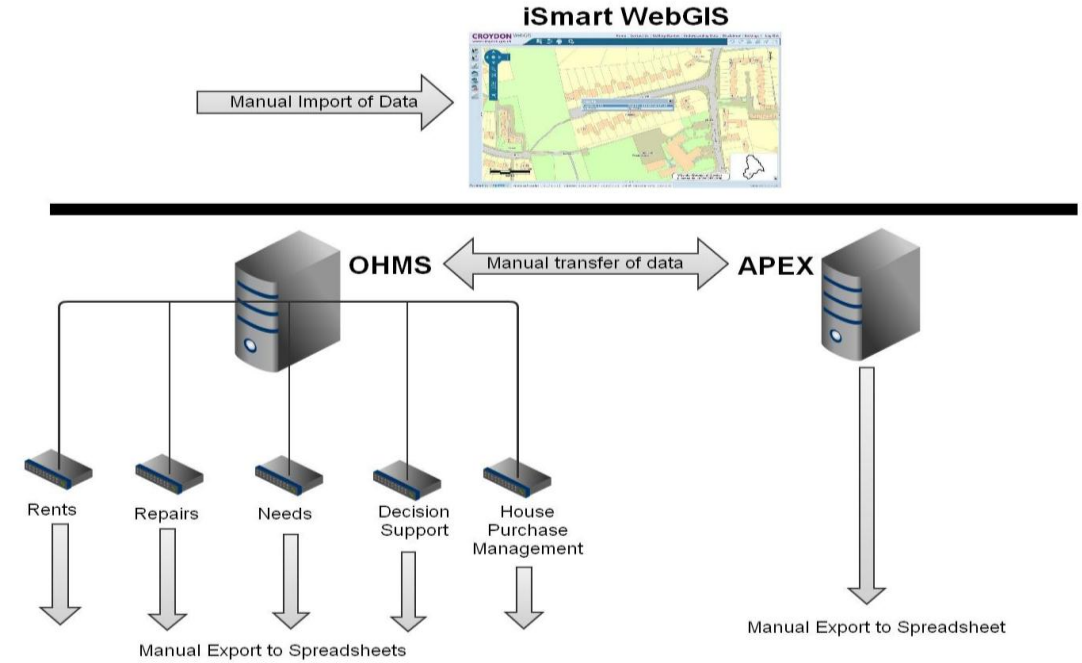
- Option 2: Middleware linking OHMS and Apex together to provide a single interface to query all information, as well as providing a live link to GIS; and,

- Option 3: Replacement of OHMS/Apex with a combined housing system that could be linked to Croydon's GIS.

In developing the business case for these options, Group 2 carried out further investigations ensuring consideration was made of not only the technical aspects, but also the costs associated with implementation (including those costs associated with supporting and maintaining software for five years following implementation – the Total Cost of Ownership (TCO)). The following sections summarize the major tradeoffs associated with each option.

Option 1: Do Nothing

If the Council decides to remain with the existing system (i.e., Option 1 as illustrated in Figure 1), they will continue to encounter the limitations associated with the current housing and asset management database systems. Because data is entered manually without cross-referencing or validating among the different databases, the databases will continue to contain information that is inconsistent and not up-to-date, leading to inaccuracies within officer reports. There is also the potential for loss of data, as some information would only be held in specific custom spread-sheets developed by staff for specific purposes but unavailable to other officers. If these individual sheets were not entered into the main databases and backed-up as necessary, the information might eventually be lost.



Graphic representing the current information flow within Apex, OHMS and with relation to the GIS.

Option 2: Middleware Solution

Middleware is a sophisticated user-friendly system that can access information from both OHMS and Apex using a single, central access point and allow officers to view these data using GIS (Figure 2). The system can also identify inconsistencies between pieces of information within both databases so that administrators can resolve these differences. This information was discovered and confirmed through phone conversations with middleware vendors. Administrators will have the most extensive access to the system and will use permission groups to control other officers' access to data. The system will also link information from these databases to a separate interface that tenants will use to access information related to their dwellings. This would also support mobile working in general. OHMS and Apex will continue to be used as they are presently to input information and run standard reports, the middleware solution offers a further platform to deliver additional benefits.

If this option were to be implemented, the Council will need to fund the maintenance of the middleware solution, as well as continue funding for the current Apex and OHMS databases. Our research indicates that the Council's current technical infrastructure would

be capable of supporting a new middleware solution with no changes and that it would be compatible with eSpatial's iSMART GIS software.

The middleware solution provides a convenient way for officers to recognise inconsistencies so they can then cleanse the information between both databases. Therefore, the purchase of the middleware software could facilitate the Council to move towards a single system if this was to be considered in the future.

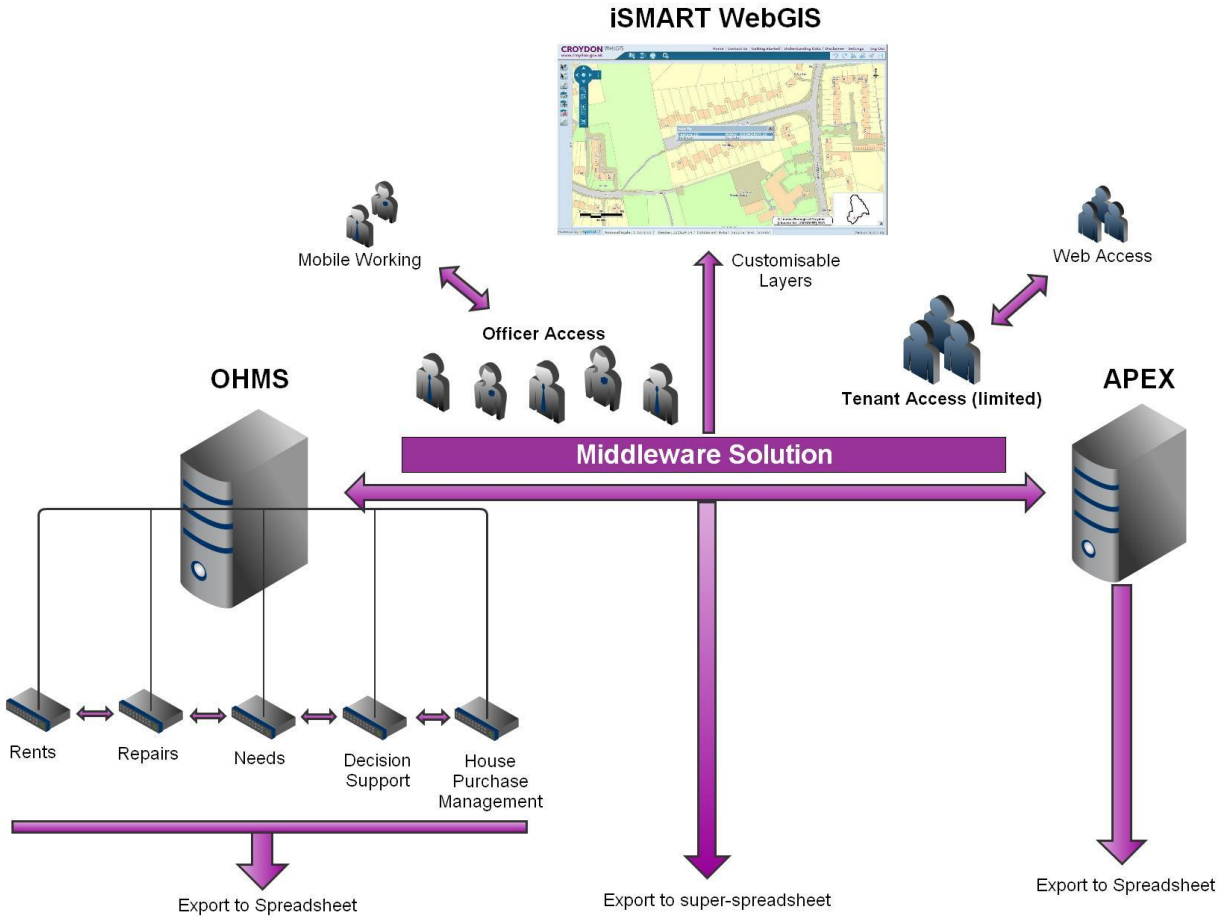
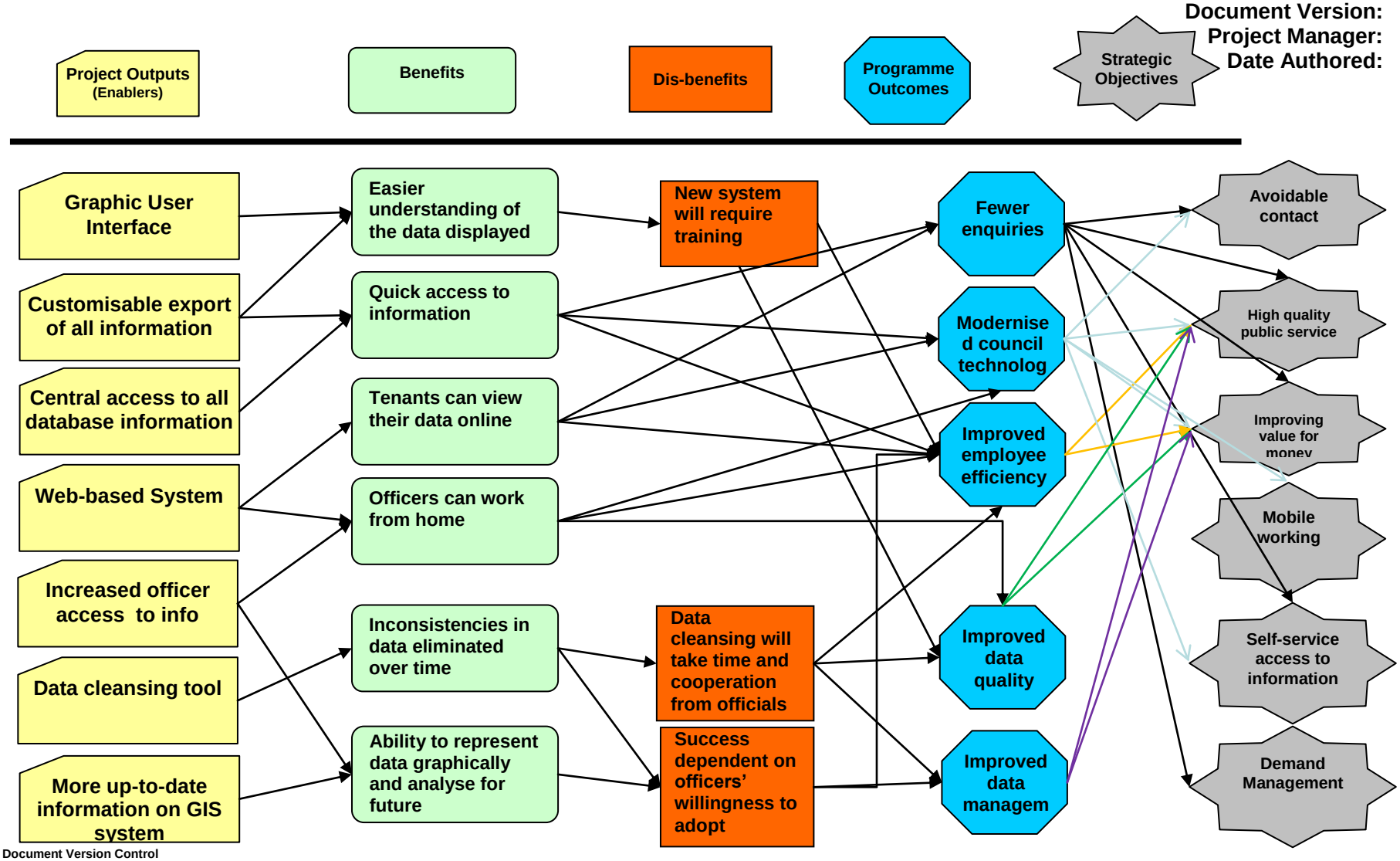


Diagram outlining the increased connectivity and data flow between all systems involved via the middleware overlay.

Project Benefits Map

Improving accessibility to housing information
Document Version:
Project Manager:
Date Authored:



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Option 3: Entirely New System

For the purpose of developing a comprehensive business case, it was suggested that a third option also be investigated, that of replacing the current Apex and OHMS databases with an integrated housing solution. Option 3 therefore would replace the existing housing and asset management system and will allow complete integration between both the housing and asset databases (Figure 3). Although Option 3 appears to be more costly, it would be expected to solve all the problems of integration and access associated with the current system and would allow easy expansion of future modules such as mobile working, web interface, information management, financials, workforce scheduling, etc. The borough of Westminster's housing department, CityWest Homes, has recently adopted an integrated housing and asset management system similar to the proposed 'Option 3' system. This solution is provided to Westminster by Orchard. The single, integrated database (Option 3) will require extensive data cleansing before data migration can occur, however. It is not clear whether the asset management system is as comprehensive as Apex. There would be a significant lead-in time in terms of commissioning; budget allocation; specifying and procurement, which also have resource and cost implications.

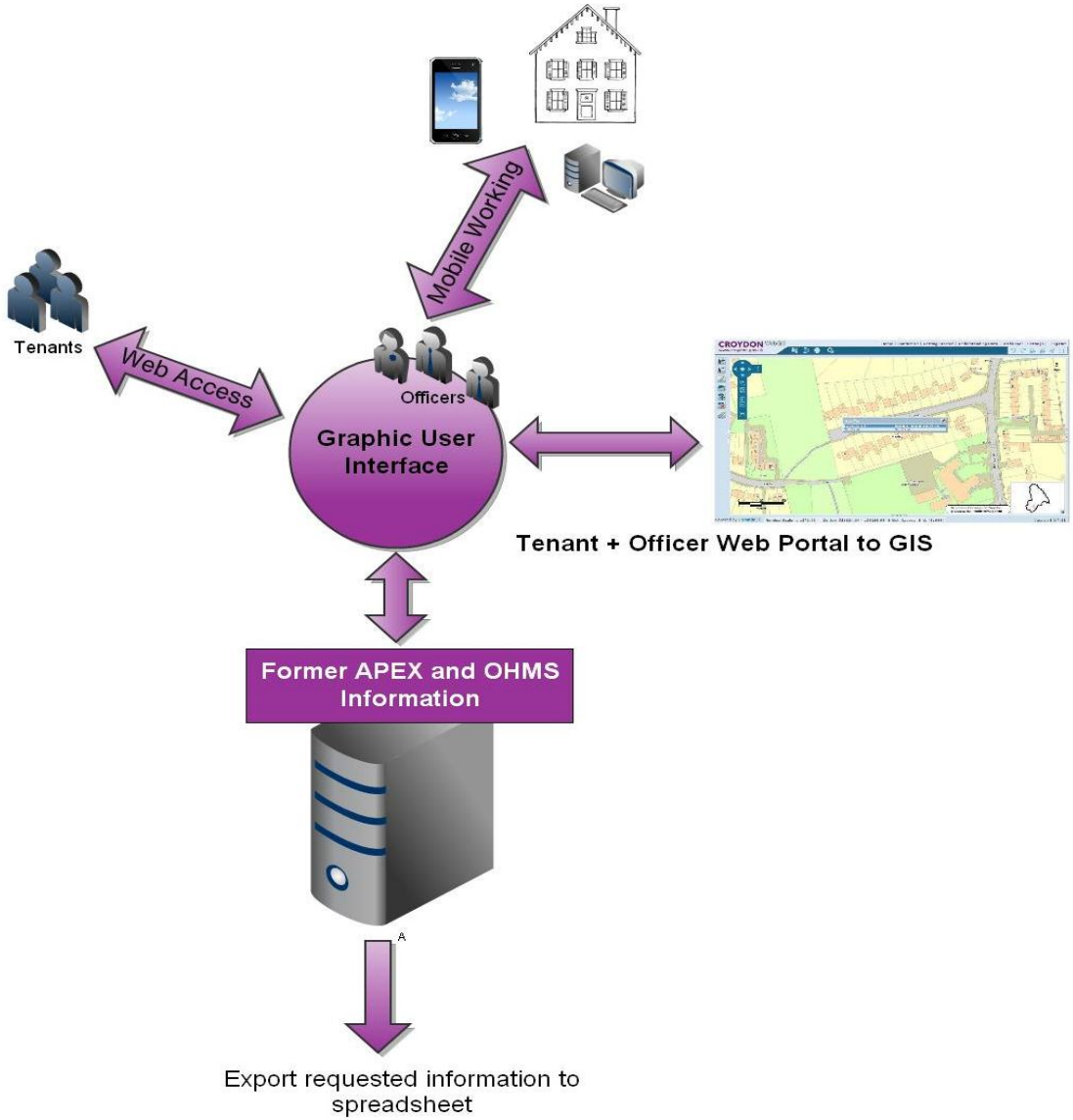


Diagram outlining the ideal flow of information with an entirely new integrated system, replacing Apex and OHMS.

COST SUMMARY / BENEFITS

Cost summary should be detailed with the financial years which the cost is related.

Benefits should be quantified, and measured in monetary terms; however this is not always possible. Even if monetary quantification is not possible, all benefits should be quantified numerically. Benefits may be related to 'Policy or legal requirement', 'Quality of service', 'Process improvement (productivity or efficiency)', 'Personnel or HR management', 'Risk reduction', 'Flexibility', 'Economy', 'Revenue enhancement', and / or 'Strategic fit'.

Benefits can be 'one off' or recurring each year. For guidance on Benefits Management see the Corporate Benefits Management Handbook

Table 1 : Implementation costs for the two proposed solutions

	Software	Hardware (Capgemini)	Implementation Consultancy	Training	Total Implementation
Option 1	N/A	N/A	N/A	N/A	N/A
Option 2	£220,000 (£5,500/core)	tbc	£4500 (3 days)	£3000 (1-day session)	£227,500
Option 3	£150,000 – £400,000	£	£100,000	Included in implementation	£250,000 – £500,000

Table 2 : Five-year costs for all three options.

	Year 1	Year 2	Year 3	Year 4	Year 5
Option 1	£113,690	£113,690	£113,690	£113,690	£113,690
Option 2	£227,500	£39,600	£39,600	£39,600	£39,600
Option 3	£250,000 – £500,000	£50,000	£50,000	£50,000	£50,000

Option 1 – annual costs based on APEX and OHMS support

Option 2 – based on £220,000 implementation cost in year 1 plus on-going maintenance and licensing

Option 3 – purchase and implementation in year 1 plus on-going maintenance, support and licensing

Options 2 and 3 do not include commissioning and procurement costs or costs for a dedicated project officer

FTE Implications Where there is likely impact on Full Time Equivalent [FTE] staff numbers, please indicate it here
Not currently available

Budget Please indicate the total cost of the programme or project	**Source of Funding and Budget Implications** Please identify the sources of funding for the programme or project (including external sources) and any budget implications
Not required at this time – this is a preliminary business case	

INTERDEPENDENCIES, RISKS AND ASSUMPTIONS

Interdependencies: Interdependency is any activity (programme, project, task) that is dependent on this programme/project delivering on time and within budget; or, this programme/project is dependent on to deliver on time and within budget.		
Name of interdependency Identify the activity(programme, project, task) which affects (or is affected by) this programme/project	**Explain dependency relationship** Describe how the activity (programme, project, task) affects (or is affected by) this programme/project	**Action to manage** Describe the action you will take to ensure dependencies are managed effectively - this is likely to focus on communications
Other DASHH web-based projects	Will use same 'front door' architecture	

Insert additional rows as required.

Provisional Risk Assessment:

Risk management is an ongoing activity throughout the programme/project. Risks must be identified and mitigating strategies drawn up.

List any potential events that could cause the programme/project to fail or go over budget, or delay it significantly. Identify what you will do to prevent the event/s occurring and the affect this will have on the risk assessment.

Detailed guidance on identifying, assessing and managing risk is included within the council's risk management toolkit at:

http://intranet.croydon.net/Finance/Performance/risk-management/default.asp or contact Malcolm Davies for information.

Please note that it is mandatory that all risks identified for major programmes or projects are added to the JCAD Risk System and reviewed regularly.

Please complete the attached Risk Register

E:\Risk_Register_08.xls

Not yet at stage where this has been developed

Assumptions:

Please include details of any key project-level assumptions made during planning on which plans, resource requirement, etc. are based

Not yet at stage where this has been developed

TIMESCALE / MILESTONE

Please provide a summary of the key milestones and overall time lines, including expected start date, end date and any time constraints which govern these dates. It is important that you give full allowance to the time required for gaining approval of your business case; including:

- Allowances for procurement
- Where there are new ICT systems, allow allowances for piloting, testing and reviewing new software
- Where there are HR implications, allow allowances for TUPE, redundancy consultation, redeployment, recruitment, severance processes

Dependent on review and adoption of business case.

Ref:	Task	Start	Finish	Owner
1				
2				
3				

QUALITY APPROACH

The Quality Approach is the standards/acceptance criteria which the proposal will need to adhere to e.g. BS certification, any data security and ICT security certification.

Please indicate what must be done for the proposal to be acceptable by the approving Board, including criteria which will indicate that your proposal has been delivered to an acceptable quality

If the project was approved it would need to meet Croydon's standard ICT security certification.

EVALUATION

Investment Appraisal

Consisting of:

- Costs (including capital expenditure, expenses and funding)
- Benefits - revenue generation (cashable benefits), cost savings, non-cashable and other benefits

Where there is substantial financial investment presenting the financial viability of the programme/project. Whether the programme/project's "Reasons" are purely commercial (i.e. selling a product/service) or imposed by external factors (e.g. new legislation, merging companies etc.); it is necessary to evaluate the impact of costs against the potential benefits received (transformed in money).

This may include NPV and IRR analysis

Outline costs are indicated above. Further work is required to further develop benefits against cost.

GLOSSARY

Please include details of any specialist terms, acronyms or jargon in this document

Term	Definition
Middleware	An overlying software that would join two databases and allow the simultaneously pulling of data from either one through a central interface.

Insert additional rows as required.

SUPPORTING DOCUMENTS

You should give readers the opportunity to access key documents which have led to your proposal

The following list indicates the attachments to this Business Case, please insert additional items as appropriate

1. Cost Summary and Benefits Tracker
2. Risk Register Template

Appendices:

Appendix A: Questionnaire to Tenants: Results
Appendix B: Questionnaire to Officers: Results
Appendix C: Case Studies
Appendix D: Focus Group Discussion
Appendix E: Borough Communication
Appendix F: Middleware and New System Communication
Appendix G: List of Croydon Council Officials Contacted
Appendix H: Timescale for Option 2: Middleware Overlay
Appendix I: Timescale for Option 3: Full System Replacement

Appendix A: Questionnaire to Tenants: Results

How many times on average do you contact housing services each month?

Option	Number of Responses	Response Percent
Daily	0	0%
Two or three times a week	2	3%
Weekly	2	3%
Two or three times a month	10	15%
Once a month	4	6%
Less often than once a month	46	69%
No response	3	4%

Why do you usually contact housing services? (Multiple responses possible)

Option	Number of Responses	Response Percent
Repairs requests	59	88%
Planned maintenance	8	12%
Rent account	17	25%
Other	12	18%

How do you currently contact housing services? (Multiple responses possible)

Option	Number of Responses	Response Percent
Phone call	63	94%
Text message	1	1%
Council visit	15	12%
Internet	17	25%
Post	7	10%
Other	1	1%

How satisfied are you with the ways you are currently able to contact us regarding housing services?

Option	Number of Responses	Response Percent
Very satisfied	22	33%
Fairly satisfied	34	51%
Neither satisfied nor dissatisfied	8	12%
Fairly dissatisfied	2	3%
Very dissatisfied	0	0%
No response	1	1%

Where do you have access to the Internet? (Multiple responses possible)

Option	Number of Responses	Response Percent
No internet access	18	27%
Home	39	58%
Mobile phone	10	15%
Public location	8	12%
Other	7	10%

If you have access to the Internet, how often do you use it?

Option	Number of Responses	Response Percent
Daily	32	48%
Weekly	8	12%
Two or three times a month	3	4%
Once a month	2	3%
Less often than once a month	4	6%

If you were able to directly access information about your home on a secure site online would you use it? (e.g. your rent account, planned maintenance)

Option	Number of Responses	Response Percent
Yes	40	60%
No	20	30%
No response	7	10%

If you said “yes” to question 7, what information would you be interested in seeing? (Multiple responses possible)

Option	Number of Responses	Response Percent
Repairs requests	36	54%
Planned maintenance	27	40%
Rent account	30	45%
Other	6	9%

How old are you?

Option	Number of Responses	Response Percent
18-24	0	0%
25-39	9	14%
40-59	28	44%
60-74	20	31%
75 or older	7	11%
No response	3	4%

Appendix B: Questionnaire to Officers: Results

What division of DASHH do you currently work for?

Option	Number of Responses	Response Percent
Adult care commissioning	0	0%
Personal support	0	0%
Housing needs and strategy	10	56%
Croydon landlord services	8	44%

Please fill in the table below to indicate how often you interact with each of the following databases for managing the Council's housing stock:

	Daily	Two or three times a week	Weekly	Two or three times a month	Monthly	Less often/ Never	Response Count
OHMS	5	3	2	2	1	5	18
Apex	0	0	0	0	0	17	17
GIS	0	0	0	4	2	12	18
Google Maps	1	0	3	5	2	7	18
Other	0	0	0	0	0	5	5

What key priorities do you envision the new system having that the systems you currently use lack? (Multiple responses possible)

Option	Number of Responses	Response Percent
Consistent data	13	72%
Central place to access information	15	83%
Fewer queries	5	28%
Faster response time for queries	6	33%
User-friendly interface	12	67%
Graphical representation of information	9	50%
Ability to view data from a variety of sources in one place	14	78%
Other(s)	2	11%

How would you like to learn to use the new system? (Multiple responses possible)

Option	Number of Responses	Response Percent
Training/workshops	14	78%
Tutorials	6	33%
Mentors/super users	10	56%
Other(s)	1	6%

Appendix C: Case Studies

In a case study, Suzanne Beaumaster explains that one of the most important aspects of transitioning to a new system effectively is properly training staff members. In particular, Beaumaster mentions that members of an organisation have different levels of technical proficiency, which makes it more difficult for management to plan beneficial training sessions. This case study highlights that the IT staff might need to contact external vendors to help assist in the training process. This assistance from vendors may cause additional expenses and introduce logistical difficulties such as scheduling. Ultimately, the organisation should support users through "continuous and on-going" training.[3]

A recent study from Oxford University analysed the application of GIS-based modelling software that was used to identify various $C0_2$ emissions on local properties. The DECoRuM (Domestic Energy, Carbon Counting and Carbon Reduction model) has allowed authorities to map baseline $C0_2$ emissions with great accuracy. DECoRuM uses the most up to date version of the Building Research Establishment Domestic Energy Model (BREDEM-12) linked to Standard Assessment Procedure (SAP) to estimate the annual energy use, costs, and $C0_2$ emissions of each property.[4] Annual $C0_2$ emissions are colour-coded on GIS software, and a visual picture of any facility can be displayed for further clarification. Authorities can use this software to break their properties down at a street level to help them plan future improvements for sustainable growth.

During a conversation with a GIS official at a local Council regarding the StatMap Earthlight software, he explained that the Council encountered several obstacles. The issues included technical obstacles, such as converting data into a GIS-compatible format, as well as social obstacles, such as "changing perceptions of users in seeing the advantage in having their data mapped".[5]

[3] Beaumaster, Suzanne, "Information Technology Implementation Issues: An Analysis" (PhD diss., Virginia Polytechnic Institute and State University, 1999).

4 Gupta, R. D. (2006). Applying CO 2 reduction strategies to existing UK dwellings using GIS based modelling: a case study in Oxford. ().Royal Institution of Chartered Surveyors.

[5] Alisdair Maclean, e-mail message to authors, 16 April 2012.

Appendix D: Focus Group discussion

Department	Difficulties with Current System	Benefits of a New System
All Departments	• Inconsistencies in data between APEX and OHMS • Lack of data cleansing • Current system is not intuitive and requires technical expertise • Most officers only work with a few modules of OHMS and never access other modules	• User-friendly interface • GIS display of any requested information for planning • Web module for tenant access • Limited access to APEX • History of changes • Note taking capability • Limited access for officers to edit info, but capability for all to view
Stock Investment	• Manual export of summarized information upon request	• Real-time communication between APEX and OHMS • A system that recognises inconsistencies and queries all similar data to aid data cleansing
Responsive Repairs	• Lack of stock information, leading to maintenance repair conflicts • OHMS has limited capabilities/restrictions • No two-way exchange of information	• Easier access to information with less restrictions • Photo capability for description of housing issues via text or email • Tenant access to personal information • Ability to see # of properties and # of repairs on GIS • Ability to see if requested repair is still under warrantee
Tenant Consultation Team	• Current website is not user friendly • No tenant accounts online	• Would prefer if their Sounding Board Access databases could interact with APEX and OHMS
Financial Services	• Irregular updating • GIS is slow to use and has limited data	• Capability to keep history of changes • Note-taking capabilities on tenant accounts • Compatibility with Oracle database
Sustainable Development and Energy	• Needs to request summarized information from Stock Investment that is manually exported • Patchy and incomplete data for private housing stock • Limited functions in GIS	• Consolidation of data • Would like to use GIS to view all information requested
Housing Needs and	• 3rd party proxy info is entered into OHMS but	• 3rd party proxy info flagged to show that there is

Assessment	cannot be accessed easily • Language barriers	another person to call (shared between all OHMS modules) • Tenant accounts include language translations and ability to apply for large print
Accounts	• £5,000 every time the Council takes a tenant to court • Inconsistent numbers lead to failed court cases	• Consistent numbers visible to both officers/tenants
Housing management	• Too much time in between matching tenants to facilities	• List of adaptations to property (handicapped access, stair climber, ramp, etc.)
Contact Centre	• Contact Centre passes calls off to officers in relevant departments	• Would have the ability to view information and answer tenant questions directly
Tenants	• No direct access route for self-service to information.	• Self-service access to information regarding rent accounts, repairs and other personal details • Would allow tenants to report incorrect information about their property

Appendix E: Borough communication

Topical area: State-of-the-art systems in other boroughs or private sectors

- How they choose their system?
- What are the benefits and faults in their system?
- What they wished their system would do?
- Additional contacts they may have that would be beneficial to our research.

Borough	Contact Name	System	External help	Recent/ Future Plans
Brent	Alisdair Maclean	2 database systems: *First Housing* and *Acolaid.* They use a batch update system. StatMap for GIS.	PostgreSQL Database Management System	
Brighton	Nick Hibberd			
Hounslow	Laura Shellard	Main Dh (Northgate) = Open housing Management system Codeman (Northgate) = Asset Management BPR + UPR #'s cross referenced GIS system currently isn't linked; standalone dB for Asbestos register, Masstech OHMS repair services internally data cleansing ESRI cost were expensive	Google for GIS	Looking to improve GIS
Richmond	Martin Baines	Doesn't have a GIS system		
Westminster		Works with Orchard	Orchard, Google for GIS	Just started working with Orchard system

Appendix F: Middleware and New System communication

Option 2

Middleware Vendor	Contact Name	Response?	Feasible?	Cost
Attunity	Martin Hamilton	Yes	Yes	£40,000/first year, £5940/year after
CONNX Solutions	Shirley McKinney	Yes	Yes	Waiting on costs
Integral Software Systems	Alissa	Yes	No	
Solace System	General Enquiry	Yes	No	
P3ople4U Inc.	Spiro Lecatsas	Yes	No	
Cambridge Semantics	General Enquiry	No	-	
Capitalware	General Enquiry	No	-	
Fetch Technologies	General Enquiry	No	-	
HiT Software. Inc	General Enquiry	No	-	
Iron Mountain	General Enquiry	No	-	
Lixto Software	General Enquiry	No	-	
METIS	General Enquiry	No	-	
Prolifics	General Enquiry	No	-	
SkyHawk System	General Enquiry	No	-	
Treehouse Software	General Enquiry	No	-	

With Option 2, the Council will need to fund the maintenance of the middleware solution, as well as continue funding for the current Apex and OHMS databases. Based on our research, which has primarily been conference calls with middleware vendors, we have discovered that the Council's current technical infrastructure could run a new middleware solution with no changes. Attunity, a middleware vendor that has expressed great interest, informed us that the purchase of their federate engine for 6 CPUs is £33,000. They offer consultation at £1,500/day (recommended 3 days) and their training costs are £3,000. Following years incur an annual fee of £5,940 (18% production fee). Estimated total costs for the first year are about £40,000 and an estimated timescale of implementation would be 30 minutes to install the software on each CPU (180 minutes total). They could not estimate the total

estimated timescale of the project due to the fact that they do not offer data realisation services and expressed that any data cleansing will need to take place within the Council or be performed by an additional company.
Attunity's middleware or "Federate engine" will indeed be compatible with eSpatial's iSMART GIS software as long as Croydon's internal ICT staff can define an interface between the two. They are confident that their Federate engine will be able to integrate APEX and OHMS databases, but expressed concern that the writing capability of the middleware is dependent on Northgate's licensing policies.

Option 3

New System Vendor	Contact Name	Response?	Feasible?	Cost
Civica	Mark Holdsworth	Yes	Yes	£400,000 / first year, £50,000 annual maintenance
Orchard	Graham Humphreys	Yes	Yes, limited	£150,000 to £200,000 / first year
Keystone	General Enquiry	Yes	No	
Yardi	Collin O'Reilly	Yes	No	
Capita	General Enquiry	No	-	
Sybase	General Enquiry	No	-	
Raima Inc.	General Enquiry	No	-	
TerraData Aster	General Enquiry	No	-	
Netezza	General Enquiry	No	-	
EMC	General Enquiry	No	-	
IBM	General Enquiry	No	-	
SAP	General Enquiry	No	-	

Option 3, unlike Option 2 excludes the use of current Apex and OHMS databases. Option 3 will completely replace DASHH's asset and housing management system and will allow complete integration between both the housing and stock databases. Although Option 3 may be more costly, it will solve all current problems with the current system and will allow easy expansion of future modules such as asbestos register, mobile working, information management, financials, workforce scheduling, etc. Based on our research, Westminster Housing Partnership has recently switched to an integrated housing and asset management system similar to the 'Option 3' system. The system is produced by Orchard. During a conference call, an Orchard sales consultant provided a cost estimate from about £150,00 to £200,000 for the initial system, as well as a £100,000 fee for implementation costs. Drawing from experience from similar projects, they estimated a timescale from six to nine months. This estimate is again based on how long it will take the Council to cleanse their data. The sales representative provided a previous example of a 20,000 unit system with a Dell power edge T710 server with 8 hard drives that required 32 GB of RAM. This was the most accurate analogy to system requirements he could provide at this time.

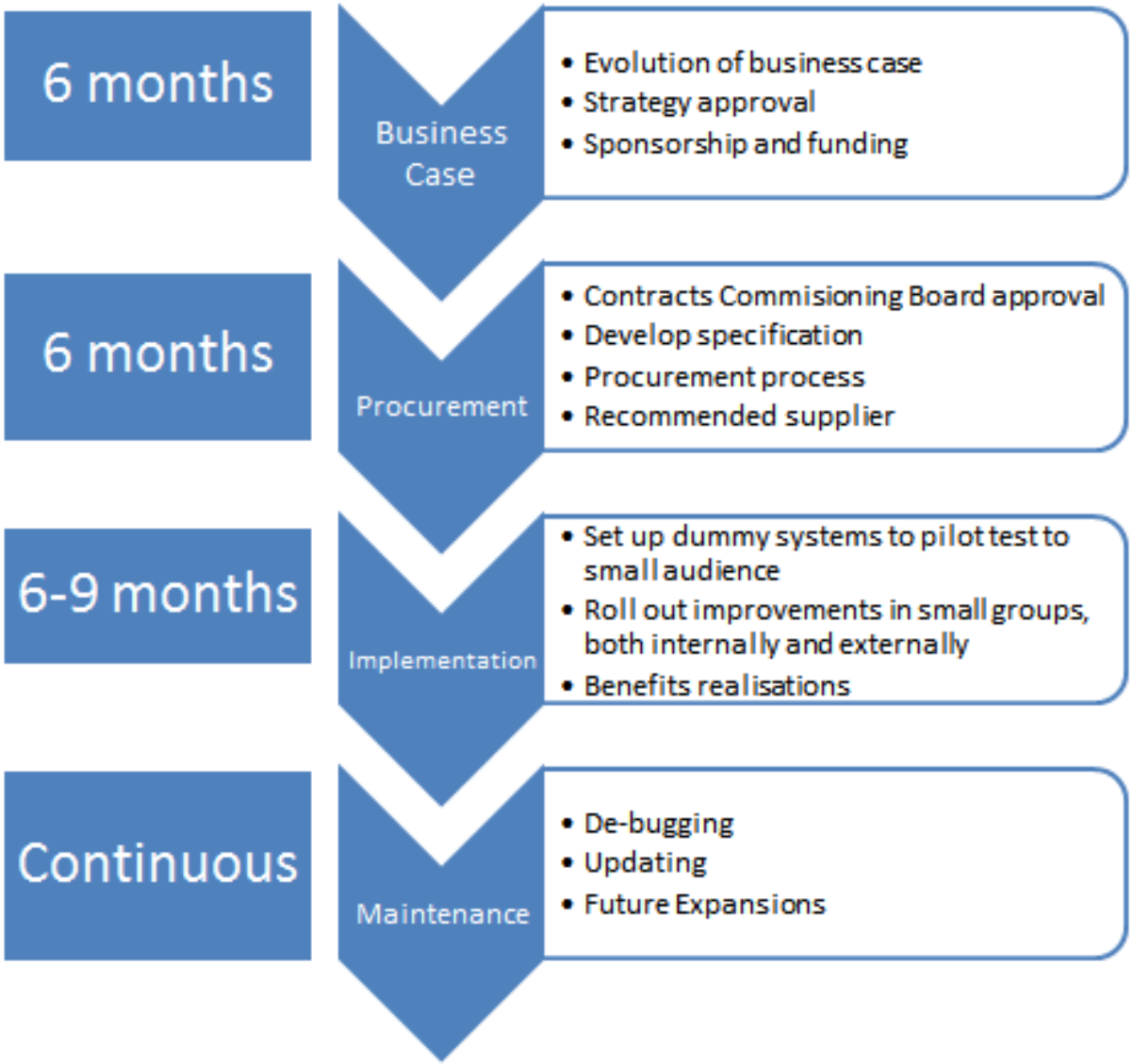
Appendix G: Officers with the Croydon Council Contacted

Officers within DASHH were interviewed personally to gain an initial assessment of need, and two subsequent focus groups were conducted. These two focus groups yielded many benefits that would occur should this project be completed. During these group sessions, officers were presented with diagrams showing both the current system with Apex, OHMS and the GIS disconnected, as well as a new system that had all the systems linked and a central data access point. From this, the officers enumerated many possible benefits resulting from the increased accessibility and consistency of information.

Officer Name	**Position**	**Officer Name**	**Position**
Carl Taylor	*Asset Management Team Leader*	Sharon Day	*Responsive Repairs Project Development Manager*
Judy Pevan	*Service Manager, Stock Investment*	Orville Beckford	*Stock Condition Surveyor*
Rupa Srivastava	*Repairs Policy Team Leader*	George Simms	*Energy Use Reduction Officer*
Emma Langhorne	*Repairs Policy Officer*	Lolita Shirto	*Lettings Manager*
Karen Crouch	*Consultation Officer*	Paul Edwards	*Rent Accountant*
Sam Hale	*Repairs Policy Officer*	Sharon Porteous	*Income Manager*
Sarah Nicholls	*ICT Systems Development Team Leader*	Andy Griffin	*Temporary Housing Placements Team Leader*
Mick O'Sullivan	*Finance Officer*	Bernard Sanders	*Tenancy Manager*
Margaret Padmore	*Tenancy Manager*	Tony Snook	*Risk and Project Manager*

Sean Hyden	*ICT Project Manager*	Tracy Stanley	*Project and Risk Officer*
Paul Cliftlands	*Management Accountant*	Sheryl Brand-Grant	*Finance Officer*
Christabel Acquaah	*Project Officer Mayor's Targeted Funding Delivery*	Mamood Sultan	*Senior Developer*

Appendix H: Timescale for Option 2: Middleware Overlay



Appendix I: Timescale for Option 3: Full System Replacement