

Data Quality

Oxford City Council

Audit 2007/08

March 2009

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Status of our reports

The Statement of Responsibilities of Auditors and Audited Bodies issued by the Audit Commission explains the respective responsibilities of auditors and of the audited body. Reports prepared by appointed auditors are addressed to non-executive directors/members or officers. They are prepared for the sole use of the audited body. Auditors accept no responsibility to:

- any director/member or officer in their individual capacity; or
 - any third party.
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Introduction

- 1 The purpose of this report is to summarise the findings from our work on data quality (DQ) for **2007/08**. The timing for this is specifically the Council's arrangements in place during the year between April 2007 and March 2008. We acknowledge that the Council has been making further progress since this, and these changes will be picked up in our next DQ review, under the new Use of Resources framework for 2008/09.
- 2 We undertook our review by carrying out fieldwork in stages: stage one between April and November 2008, stage two between July and September 2008, and stage three to November 2008.
- 3 Auditors' work on data quality and performance information supports the Commission's reliance on performance indicators (PIs) in its service assessments for comprehensive performance assessment (CPA).
- 4 Our work on data quality is complemented by the Audit Commission's paper, 'Improving information to support decision making: standards for better quality data'. This paper sets out standards, for adoption on a voluntary basis, to support improvement in data quality. The expected impact of the Audit Commission's work on data quality is that it will drive improvement in the quality of local government performance information, leading to greater confidence in the supporting data on which performance assessments are based.

Scope of our work

- 5 We have followed the Audit Commission's three-stage approach to the review of data quality, as set out in Table 1, against national key lines of enquiry (KLOE).

Table 1 Data quality approach

Stage 1	Management arrangements A review using key lines of enquiry (KLOE) to determine whether proper corporate management arrangements for data quality are in place, and whether these are being applied in practice. The findings contributed to the auditor's conclusion under the Code of Audit Practice on the Council's arrangements to secure value for money (the VFM conclusion).
Stage 2	Analytical review An analytical review of 2007/08 BVPI and non-BVPI data.
Stage 3	Data quality spot checks In-depth review of a sample of 2007/08 PIs from a list of specified BVPIs and non-BVPIs used in CPA, to determine whether arrangements to secure data quality are delivering accurate, timely and accessible information in practice. For the 2007/08 PI spot checks, the Audit Commission specified compulsory review of two housing benefit PIs at all single tier and district councils.

Case study - improving waste management

How a DQ focus helped achieve nearly 50 per cent improvement in recycling and composting in a year.

The Council's waste teams have made good use of data by ensuring its reliability and using regular reports on it as an active tool to drive significant levels of improvement.

By identifying service efficiencies and achievements, and capturing any fluctuations – based on hard data put into accessible formats – the service has been able to show where things have been going particularly well on waste collection, and using that to inform teams working in other parts of the city. Teams working on different waste rounds and types each have their own out-turn reports, and these have been shared across teams – meaning that all involved can contribute to continuous improvement. As a result, the service made some team restructuring and rounds changes, thus improving value for money.

The success of the approach lies in active data use and management. Underpinning it is an efficient and effective system for data accuracy, based on reconciling separate sources of data from landfill sites and the Council's round information. Checks include vehicle registration, weighbridge tickets, and trade and other waste, so that performance management has not been relying on a single data stream.

The data are more reliable, because they are actively cross-checked, and have been actively used to make some challenging decisions.

Case study - street cleansing challenge

Using DQ to set more challenging targets for better services

The Council's street cleansing team has been (reorganised) to help provide better services. BVPI 199 sets the standard for public cleanliness, through its criteria for the percentages of land that are heavily littered, or affected by graffiti or fly-posting. Previously the council was meeting the minimum required by the PI definitions (by selecting sufficient relevant land areas to include within it), but has now expanded the areas it selects to make the PI more relevant.

Oxford decided it would better represent local people's interests and concerns if it paid more attention to parks and open spaces by including them in its BV199 data collection – thus increasing the data's validity for Oxford's local context. This was supported by giving more team members responsibility for data collection, and by making sure they were also integrating DQ into performance management.

The teams were able to challenge each other's performance, using wider knowledge to improve self-checking (and thus data reliability). The team are geared to continuous improvement, rather than simply collecting data to pass on to others.

This was a bold move, as it included weaker areas in the council's overall figures – in effect, the opposite of 'massaging' the figures – but it meant the teams could gear themselves up to deliver some real improvements. The service supported the approach by encouraging the teams to play an active part in benchmarking with other local councils, thus using learning to help with their decision-making.

Summary conclusions

Stage 1 – Management arrangements

- 6 The Council's overall management arrangements for ensuring data quality are at minimum requirements. This represents a score of level '2' in the Audit Commission's assessment framework. The Council was at this level in its DQ arrangements in 2006/07, when level '2' was referred to as having 'adequate arrangements'. The case studies on page 4 show some good examples, but these are not Council-wide.
- 7 The Council was making plans to improve its corporate arrangements for DQ towards the end of our review period (i.e. year ending March 2008), through development of a corporate DQ policy and action plan. However, during the period of our assessment, much of the Council's specific progress on DQ issues remained at the same level as our previous years' DQ assessments and recommendations. An important exception is the much clearer and firmer emphasis on performance management, for which data are being actively used and reviewed.
- 8 The Council faces risks as a result of its current DQ arrangements, as its plans for change mean that it is heavily dependent on accurate, relevant and accessible data for effective decision-making, including for priority setting and resource allocation. This means that the Council's current level of emphasis on data quality does not reflect the scale and ambition of its improvement agenda.
- 9 Our PI checks suggest that the Council's data may be generally sound, with individual examples of effective audit trails, good responses to some internal audit reviews of data quality, and some instances of notable practice. However, validation processes are not comprehensive, including for external reporting. As a result, the Council is unable to assure itself over the accuracy of the data being used to manage its performance. An example of the risks arising from this is that our spot checks of two housing benefit PIs (which we conducted in much more depth - see paragraph 12 below) uncovered some significant weaknesses and inaccuracies, which the Council is now aware of and committed to reviewing.

Stage 2 – Analytical review

- 10 Our high-level analytical review work found that each of the 12 PI values that we reviewed could be explained by valid changes in either data management processes or service performance. As a result, we carried out no further testing of these 12 PIs.
- 11 This high-level evidence suggests that data for these PIs may be sound, but we did not review it in depth. The Council would therefore need to assure itself of the actual data quality, in the light of the range of risk factors reported in this review.

Stage 3 – Data quality spot checks

- 12 Our review and spot checks for the two housing benefit PIs specified for national review by the Audit Commission (BVPI 78a and 78b) found a number of data errors. Both PIs were unfairly stated because a significant level of claimant data was input incorrectly and recorded processing times were inaccurate. In a comprehensive case review of the same dataset we found a number of calculation errors within benefits

claims, resulting in incorrect payments. We report further on this in paragraphs 35 to 37.

Recommendations and action plan

- 13** An action plan has been agreed with the Council (see Appendix 1) to address the issues arising from this review. The review and action plan will be presented to the Council's Audit and Governance Committee in March 2009.

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Detailed findings

Management arrangements (Stage 1)

14 Overall, the Council's corporate DQ arrangements are at minimum requirements (level '2'). The case studies on page 4 show some good examples, but these approaches are not Council-wide.

Governance and leadership

15 The Council's governance and leadership of data quality meet minimum requirements, which is the same level as our previous DQ assessments.

16 Commitment to data quality is emphasised by the Council's increased focus on performance management, but is not embedded. Although the performance management framework is much stronger, it is not clear how far data quality issues have a specific and explicit place within it, nor in what ways councillors are involved, specifically, in DQ improvement. For example, the Council's service plans include a short generic statement about the importance of good data quality but there are no specific targets for data monitoring and improvement that would help ensure this actually happens. The Council's work to develop a data quality policy began in 2007/08, but responsibilities and approaches will not be formalised until after the policy and action plan signed off in August 2008 begin to have impact.

17 Although the Council has some good individual service-level examples of data management, there is no specific, systematic quality framework for the data being used, with increasing focus, for the Council's performance management. The Council does have a range of mechanisms for monitoring and reviewing data quality, focused around its CORVU systems and software, but the approach is not fully comprehensive. For example, it is not supported by clear, DQ-specific arrangements for either risk management or regular systems tests. As a result, the Council's decision-makers may be insufficiently aware of the strengths and limitations of the data on which they are making choices for local people.

Recommendation

R1 Strengthen the pace and depth with which improved data quality is being implemented and embedded, ensuring that it is fit for purpose through effective and consistent management and governance

- raise manager and councillor DQ awareness, and sharpen responsibilities;
- establish targets and performance management specifically for DQ; and
- establish risk management specifically for DQ.

Policies

- 18** The Council's policies for data quality continue to meet minimum requirements (level '2').
- 19** The Council has some adequate, operational-level protocols for data quality, which were being coordinated into a more comprehensive high-level data quality policy and action plan during 2007/08. This was signed off in August 2008. Monitoring procedures support these protocols, but most focus has been on BVPIs and the new national indicators, rather than local PIs.
- 20** The corporate performance team is active in providing updates and guidance to help ensure consistent application of current guidance notes and protocols. The Council's actions include regular email updates on data quality, automated prompts via CORVU, and a strengthening performance management system that encourages challenge where data varies from known and previous performance. Corporate staff also provide a helpdesk service. However, the approach is not fully consistent; for example because service-level staff do not consistently act on, review and report on data compliance issues.

Recommendation

- R2** Ensure that the DQ policy and action plan agreed in August 2008 is fit for purpose, proactive, embedded, and
- achieves a more consistent DQ performance across services and directorates;
 - supports the roles and responsibilities of councillors; and
 - is extended to meet the needs of local performance indicators.

Systems and processes

- 21** The Council's systems and processes to support effective data quality meet minimum requirements, with a mix of strengths and weaknesses. These findings are similar to our previous DQ assessments, and therefore remain level '2'.
- 22** Effective systems are in place to collect, record, analyse and report the data used to monitor performance, largely based on BVPIs. Data systems tend to be mutually reinforcing; for example in the way CORVU is linked with back office systems, and its built-in range and validity checks. Proformas support the 'right first time' principle. Data are widely used for performance management, hence a number of people at different levels and in different roles are scrutinising the outputs. However it is not clear that the six criteria for strong data quality (accurate, valid, reliable, timely, relevant and complete) are being covered in a consistent and comprehensive way.
- 23** Similarly, a range of effective data control systems is in place. These include CORVU levels passwords, input proformas, and the use of multiple forms of data output to help highlight discrepancies. However, with some exceptions covered by internal audit's work, there are no systematic reviews or performance reporting on data quality itself, and the concept is not yet linked sufficiently to job descriptions.

Detailed findings

- 24** Data security is adequate. This includes passwords and authorisation, secure servers, and nightly back-ups stored off-site. But the Council cannot demonstrate that it has an overall procedure for periodic data testing, and has no detailed risk analysis and planning specifically for data quality.
- 25** The Council's arrangements for third-party data sharing and supply are under-developed. Instances of data sharing have not been systematically identified. The Council is aware of some instances and has some validation processes (for example, for recycling) but has not carried out systematic audit and review. Data partnership policies were not in place in 2007/08, although work to develop a data sharing protocol among LAA partners is developing as part of the new LAA delivery plan and the Council agreed and adopted a data sharing protocol with the County Council during 2008/09.

Recommendation

- R3** Put in place systems to ensure that the six criteria for robust data quality are met, such that the Council can assure itself that its data are accurate, valid, reliable, timely, relevant and complete. To include:
- systematic audit, testing, review, and reporting on DQ
 - job descriptions reflecting an explicit range of DQ responsibilities
 - an agreed data sharing protocol with partners, actively managed.

People and skills

- 26** The Council has improved its emphasis on the staff skills needed to achieve data quality, and this is now at minimum requirements (level '2').
- 27** Staff skills are still not a strong area, however, as most awareness about data quality rests with staff with designated responsibilities, rather than being comprehensive and integrated. Roles have been considered, but are not yet formalised in job descriptions. Staff with data responsibilities tend to be isolated from each other, with insufficient opportunities to share and develop practice. Staff with data management and performance management responsibilities tend to be disconnected, with risks arising when data inputting staff lack the performance context and when performance managers lack detailed data understanding.
- 28** Some action has been taken to support training needs, for example during the further roll out of CORVU as a corporate reporting tool. Staff with specific performance responsibilities have been trained in data use and performance reporting. The Council supported this through other guidance and with procedure notes. However, full formal training, including for councillors, is not planned to take place until 2009/10. The first stage of this training roll-out was a workshop for data quality staff in January 2009, which was a significant step in bringing together staff with related responsibilities.

Recommendation

- R4** Accelerate all-staff development in relation to DQ, and its importance in performance management and service improvement, including by
- learning from good practice;
 - improving team-work and understanding between those responsible for data input and the service performance that it represents;
 - clearer DQ-specific roles, responsibilities, job descriptions and appraisal;
 - evaluating the staff and councillor training planned for autumn 2008, and ensuring further needs are followed up promptly;
 - supporting an internal data champions network, as a community of practice; and
 - ensuring that all services are able to benefit from effective and integrated challenge and support for DQ.

Data use and reporting

- 29** The Council's data use and reporting meet minimum requirements, and contain some strengths. These findings are very similar to those for previous assessment, and represent level '2'.
- 30** The Council has placed considerable emphasis on reinforcing the use of data for performance reporting, for example in committee and performance reporting, and including at operational level. A Corporate Performance Board was set up in 2007/08; executive directors were appointed with specific performance management responsibilities; detailed analyses were provided to scrutiny; and key PIs reported regularly to managers. Although these arrangements are not yet systematic in respect of data quality, the business transformation process set up in 2008 is being designed to support further progress.
- 31** Our PI checks suggest that data may be generally sound, with individual examples of effective audit trails; good responses to some internal audit reviews of data quality; and some instances of notable practice. However, our spot checks (which we conducted in much more depth - see paragraphs 35 to 37) uncovered some significant errors and inaccuracies. The Council is unable to demonstrate how it systematically validates data for external reporting, other than BVPIs, and could give very few examples for this. In general, validation processes are not comprehensive, and the Council is unable to assure itself over the accuracy of the data being used to manage its performance

Recommendation

R5 Ensure that all services meet higher, and consistent, standards for data in use

R6 Put in place systematic and comprehensive processes for data validation.

Analytical review (Stage 2)

- 32** Our high-level analytical review work found that each of the 12 PI values that we reviewed could be explained by valid changes in either data management processes or in service performance. As a result, we carried out no further testing of these 12 PIs.
- 33** This high-level evidence suggests that data for these PIs may be sound, but we did not review it in depth. The Council would therefore need to assure itself of the actual data quality, in the light of the range of risk factors reported in this review.
- 34** The findings are shown in table 2, on page 11.

Data quality spot checks (Stage 3)

- 35** Our review and spot checks for the two housing benefit PIs specified for national review by the Audit Commission (BVPIs 78a and 78b) found a number of data errors.
- 36** Both PIs were unfairly stated, with a number of significant errors (a margin over 10 per cent). We checked for the six criteria for strong data quality (accuracy, validity, reliability, timeliness, relevance and completeness) and found
- claimant data was input incorrectly, as some new claimants (BVPI 78a) were being processed as changes of circumstances (BVPI 78b) and vice versa; and
 - processing times were inaccurate, because in some instances the days taken were being attributed to start and/or finish dates outside the specific definitions for these data.

This means that decision-makers are not receiving the accurate data needed to manage and improve services

- 37** As part of our separate housing benefit grant claims work for 2007/08 we tested this same data set in detail, by a comprehensive review of the 80 cases. This supplemented and went beyond the PI definitions described above, and revealed some separate data quality issues. We found 4 cases where benefits were calculated incorrectly, resulting in inaccurate amounts being paid - in some cases too much and in others too little. Although the sums of money involved in these cases were relatively small, it does mean that some local people have been adversely affected by the Council's weaknesses in data quality.

Recommendations and action plan

- 38** An action plan has been agreed with the Council (see Appendix 1) to address the issues arising from this review. This will be presented to the Council's Audit and Governance Committee in March 2009.

Table 2 Analytical review findings (stage 2)

2007/08 Performance indicator	Assessment of performance	Comment
BVPI 82(a) Recycling performance (i and ii)	Real improvement	Fall in domestic waste and greater use of recycling facilities and round improvements.
BVPI 82(b) Composting performance (i and ii)	Real improvement	Fall in domestic waste and increased number of collection rounds.
BVPI 199 Local street and environmental cleanliness: (a) litter and detritus	No change	Review of data collection methods and new team of data collectors and managers. Wider area coverage.
BVPI 199 Local street and environmental cleanliness: (b) graffiti (c) flyposting	Real decline	Review of data collection methods and new team of data collectors and managers. Wider area coverage.
BVPI 184 (a) Proportion of non-decent homes	Real improvement	Challenging targets and priority setting that are above national level.
BVPI 212 Average re-let times	Real improvement	Service re-organisation. Consistent performance improvement over a three year period.
BVPI 183 (b) Average time in temporary accommodation: hostels	Other reason for change - see comment	Historic data backlog causing fluctuations year on year.
Non-BVPI Percentage of total private sector homes vacant for more than six months (HIP HSSA)	Other reason for change - see comment	Change in data source as per guidance from CLG.
Non-BVPI Repeat homelessness (HIP HSSA)	Other reason for change - see comment	No repeat homelessness within year due to tighter controls.

Appendix 1 – Action Plan

Page no.	Recommendation	Priority 1 = Low 2 = Med 3 = High	Responsibility	Agreed	Comments	Date
5	<p>R1 Strengthen the pace and depth with which improved data quality is being implemented and embedded, ensuring that it is fit for purpose through effective and consistent management and governance</p> <ul style="list-style-type: none"> • Raise awareness among managers and councillors, and sharpen responsibilities • Establish targets and performance management specifically for DQ • Establish risk management specifically for DQ. 	3	Performance Team	Yes	<p>Data quality Workshops held with data Handlers. New process for checking results brought in January 2009.</p> <p>Workshops to be followed up by visits from Perf Team to all data handlers and service areas where team will help to write procedures for data collection and data quality.</p> <p>Corporate data quality indicator in Performance Team targets.</p> <p>Met with lead member for data quality in Feb 2009.</p> <p>DW to shadow KPMG when risk register is reviewed to ensure that data quality is monitored as a risk.</p> <p>Data quality is part of the Use of Resources framework and by end of April 2009 1 year and 3 year improvement plans will have been developed with targets around data quality.</p>	<p>Jan 09</p> <p>Jan 09 – Apr 09</p> <p>Feb 09</p> <p>Feb 09</p> <p>Feb/March 09</p> <p>April 2009</p>

Page no.	Recommendation	Priority 1 = Low 2 = Med 3 = High	Responsibility	Agreed	Comments	Date
6	<p>R2 Ensure that the DQ policy and action plan agreed in August 2008 is fit for purpose, proactive, embedded, and</p> <ul style="list-style-type: none"> achieves a more consistent DQ performance across services and directorates supports the roles and responsibilities of councillors is extended to meet the needs of local performance indicators. 	3	Performance Team	Yes	<p>Performance Team will review and rank all indicators according to the data quality criteria and report via the performance board on a quarterly basis.</p> <p>Data quality is part of the Use of Resources framework and by end of April 2009 1 year and 3 year improvement plans will have been developed with targets around data quality.</p> <p>Reports will be discussed with lead member and will be included in quarterly reports to exec board.</p> <p>List of local indicators will be compiled by Perf Team and review/ranking of these in terms of DQ will take place</p>	<p>Begin Feb 09</p> <p>April 2009</p>
7	<p>R3 Put in place systems to ensure that the six criteria for robust data quality are met, such that the Council can assure itself that its data are accurate, valid, reliable, timely, relevant and complete. To include:</p> <ul style="list-style-type: none"> Systematic audit, testing, review, and reporting on DQ Job descriptions reflecting an explicit range of DQ responsibilities An agreed data sharing protocol with partners, actively managed. 	3	Performance Team	Yes	<p>Performance team will visit each service area to audit, spot check, review and report on data quality for all performance indicators.</p> <p>Responsibilities of data champions and Service Heads to be formalised in respect of data quality. Human resources and Policy, Performance and Communication divisions will lead</p> <p>Responsibilities of data champions and Service Heads to be formalised</p>	Begin Feb 09

Detailed findings

Page no.	Recommendation	Priority 1 = Low 2 = Med 3 = High	Responsibility	Agreed	Comments	Date
					<p>Performance team will compile a register of data that is shared with partners and ensure that the protocols are agreed</p> <p>Data quality is part of the Use of Resources framework and by end of April 2009 1 year and 3 year improvement plans will have been developed.</p>	
8	<p>R4 Accelerate all-staff development in relation to DQ, and its importance in performance management and service improvement, including by</p> <ul style="list-style-type: none"> • Learning from good practice • Improving team-work and understanding between those responsible for data input and the service performance that it represents • Clearer DQ-specific roles, responsibilities, job descriptions and appraisal • Evaluating the staff and councillor training planned for autumn 2008, and ensuring further needs are followed up promptly • Supporting an internal network of data champions, as a community of practice • Ensuring that all services are able to benefit from effective and integrated challenge and support for DQ. 	3	Performance Team	Yes	<p>The new procedures for data reporting will place the data champion at the centre of the activity.</p> <p>Joint sign off meetings on DQ reports with data champions and service heads.</p> <p>Quarterly data quality workshops to be held.</p> <p>Data quality is part of the Use of Resources framework and by end of April 2009 1 year and 3 year improvement plans will have been developed with targets around data quality.</p>	Begin Feb 09

Page no.	Recommendation	Priority 1 = Low 2 = Med 3 = High	Responsibility	Agreed	Comments	Date
8	R5 Ensure that all services meet higher, and consistent, standards for data in use	3	Performance Team	Yes	<p>Rolling audit and real time update of data quality pro formas. The audit will be as detailed in the Data Quality Visits document and will focus on the 6 data quality criteria.</p> <p>Data quality is part of the Use of Resources framework and by end of April 2009 1 year and 3 year improvement plans will have been developed with targets around data quality.</p>	Begin Feb 09
8	R6 Put in place systematic and comprehensive processes for data validation.	3	Performance Team	Yes	<p>Rolling audit. Checks via corvu and via PerfIndicators database application</p> <p>Data quality is part of the Use of Resources framework and by end of April 2009 1 year and 3 year improvement plans will have been developed with targets around data quality.</p>	Begin Feb 09

