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Data quality management in local authorities

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Contents

1 Executive summary

The availability of good quality data is vital to both the delivery and management of all businesses. The quality of data impacts on the full range of activities that organisations undertake from the time taken to find the right contact number for a customer to the taking of informed strategic investment decisions.

Having the right quality data available is particularly important to local authorities as they seek to deliver some of the services that have the greatest impact on people's lives effectively and efficiently.

This need for good quality data is generally well understood amongst those with a direct interest in it – 82% of respondents to a national survey run as part of this project thought that data quality was either 'very important' or 'critically important' to their organisation. There have been three key factors contributing to the current levels of awareness:

- **The impact of poor data quality management has become more high profile**. Well publicised recent examples of financial loss resulting from poor data quality include the payment of £73million in benefits to deceased individuals by Department of Work and Pensions and the write off of £1billion of overpaid tax credits by HM Revenues and Customs
- **The Audit Commission's 2007 voluntary standards (*Improving Information*)** provided guidance for public bodies aiming to improve in this area
- The **specific case for better management of data in local authorities** has begun to emerge. For example, the Data Connects-Tribal Customer Data Integration business case in 2008 found that poor quality customer data costs over £1million each year per authority.

However, in areas where there is no direct interest in data, the down-stream effects of collecting poor data are not well understood and there are challenges to investing in data quality management; it can be perceived as an additional overhead or a 'nice to have'.

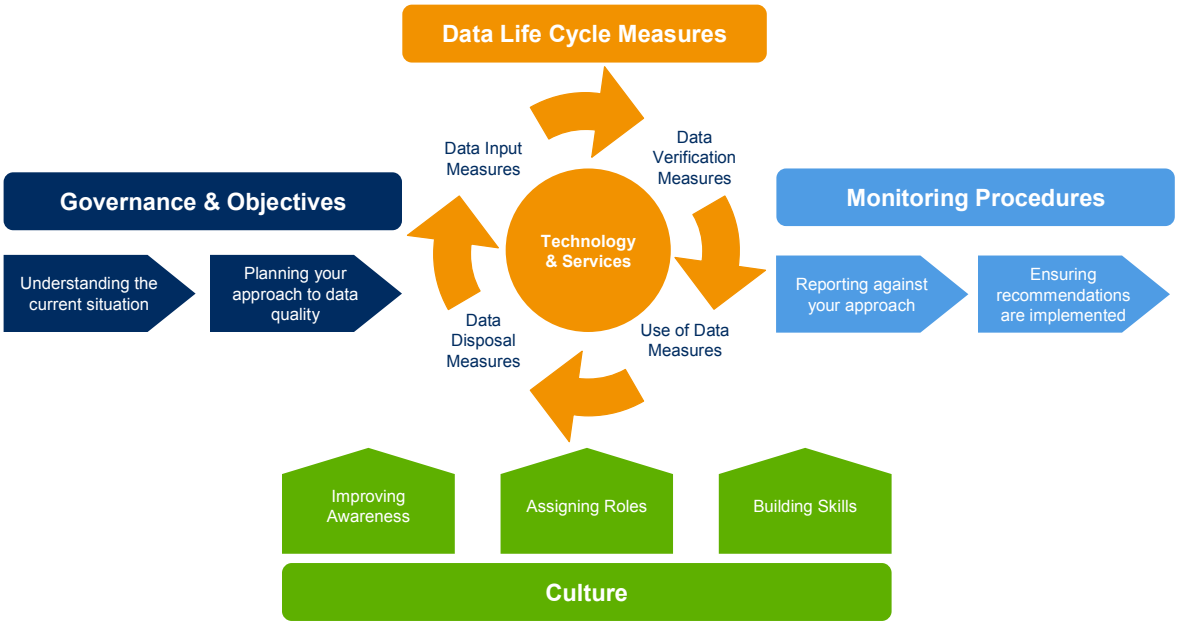
Even in areas where there is increased awareness, progress has been slow and there is no systematically applied best practice approach to data quality management in local authorities.

There are three main reasons for this:

- **A poor understanding of the impact of poor quality data** – it is rare for practitioners and performance managers to report on the impact of data quality issues direct to senior staff.
- **The perceived technicality and complexity of the area** – data quality is often seen as an ICT problem as datasets are often tied to particular systems and the range of services delivered by local authorities can make a consistent approach seem impractical
- **The prevalence of a performance indicator focused approach** – although the Improving Information voluntary standards have helped focus attention on data quality, our research suggests it has widely been interpreted by local authorities as a set of guidance that needs to be applied to performance data only

To overcome these barriers local authority officers need to focus on the business benefits that improved data quality can bring and use this to drive improved data quality management practices. Some local authorities are already making good progress with a range of approaches focusing on corporate reviews, culture change initiatives and the application of technology aids.

To help local authorities learn from the experience of others and make progress locally, Data Connects and Tribal have developed the new data quality management framework outlined below:



The framework combines the best aspects of existing approaches from local authorities and beyond to provide a comprehensive articulation of good practice for data quality management. This reflects the blended approach that the most data literate organisations are starting to take.

The full data quality management framework which includes example documents and approaches from other local authorities is available free on request from veni.kotak@brent.gov.uk or peter.dewsbury@tribalgroup.co.uk

2 Introduction

2.1 Context and background

The impact of poor data quality on any organisation can be dramatic, both in terms of cost and service quality. In 2002, a report by the Data Warehousing Institute estimated that poor data was costing American companies more than $600 billion a year (Eckerson, 2002).

In the public sector, the impact of poor data quality can have a significant impact on finances and services. Recent high profile incidents have included:

- HM Revenues & Customs (HMRC) being forced to write off £1billion of overpaid tax credits since introducing the system in 2003[1]
- The Department for Work and Pensions overpaying £73 million in benefits to families of deceased individuals in 2008[2]
- Cases such as Baby P where the state was unable to join up the information it had effectively enough to protect the child – this is the same issue that came to light in the Soham, Victoria Climbie and Child B cases; more effective co-ordination and 'joining up' of data between public sector bodies could have helped prevent these types of incidents
- Disputes between councils and the Office for National Statistics (ONS) over local demographics that impact on grant funding;.for example, Manchester City Council will receive over £100m of additional funding over 10 years following a correction to the ONS population statistics

In 2007, the Audit Commission developed voluntary standards for public sector organisations on data quality management[3]; this encouraged public sector organisations to improve the quality of the data they use. The Audit Commission also considers data quality within its Use of Resources Assessment, under Key Line of Enquiry 2.2[4].

Despite this increasing focus on data quality, and the need for it to be of a high standard, there appears to be little direct or practical support for authorities to improve in this area, especially when it comes to data wider than the performance indicators submitted to external bodies like Communities and Local Government.

The Data Connects Forum is a group of local authority officers interested in sharing best practice on data issues in local government. Since its inception in 2006, it has produced a best practice report on customer data integration (CDI), a generic business case for CDI and a Return on Investment

[1] http://www.publications.parliament.uk/pa/cm200809/cmselect/cmpubacc/311/311.pdf

[2] http://www.telegraph.co.uk/news/uknews/4957978/Dead-people-paid-millions-in-benefits.html

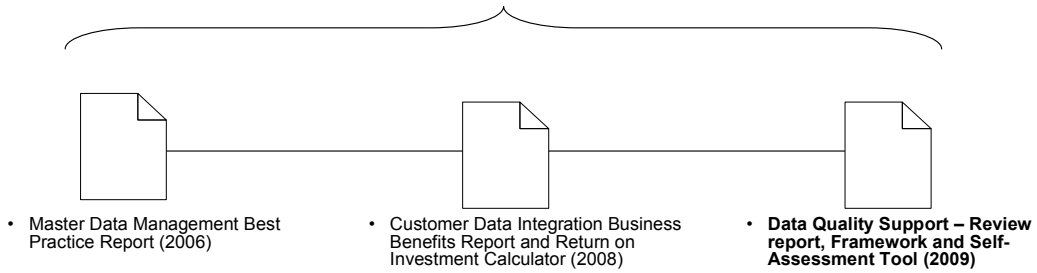
[3] Improving Information To Support Decision Making http://www.audit-commission.gov.uk/Products/NATIONAL-REPORT/AE298947-73F0-4dcb-AF77-D2520EECBCFB/ImprovingInformationToSupportDecisionMaking.pdf

[4] This asks authorities: "Does the organisation produce relevant and reliable data and information to support decision making and manage performance?'

Calculator for CDI solutions;[5] it has also held regular Forum meetings every three months where members share their latest developments.

In late 2008, the group turned its attention to data quality management – an area where it felt accessible and comprehensive guidance for local authorities was lacking. The group commissioned Tribal Consulting, who had previously delivered the CDI business case (as RSe Consulting) to address this gap.

DATA CONNECTS OUTPUTS



- Master Data Management Best Practice Report (2006)
- Customer Data Integration Business Benefits Report and Return on Investment Calculator (2008)
- **Data Quality Support – Review report, Framework and Self-Assessment Tool (2009)**

2.2 Objectives

The specific objectives of this work and the corresponding outputs for this project are:

Objectives	Outputs
1. Understand current attitudes and approaches towards data quality management in local government	**Data quality management in local authorities report** (this report)
2. Identify best practice in data quality management in local government	**Data quality management toolkit**. The toolkit consists of two parts:
3. Produce a toolkit that local authorities could use to assess their own data quality management practices and understand what steps they could take to improve	• Data quality management framework • Data quality management assessment tool

Data quality management in local authorities report: (this report) is based on desk research and interviews with ten local authorities[6]. It is intended to help readers understand the place data quality occupies in local authorities, the issues faced in improving data quality management and how local authorities are seeking to make improvements to their data quality management practices.

[5] To obtain copies of these outputs, please contact Tony Ellis, the Chair of Data Connects and Head of IT at London Borough of Brent on 020 8937 1400 or tony.ellis@brent.gov.uk

[6] These authorities were: the London Boroughs of Brent, Lambeth, Newham, Harrow and Southwark, as well as Leicestershire County Council, Manchester City Council, Warwick District Council, Westminster City Council and City of York

Data quality management framework – this provides a structured approach to the management of data quality in a local authority. There is further discussion of the framework in Section 6 of this report.

Data quality management assessment tool – this Microsoft Excel-based model provides users with the chance to rate and track their progress towards each aspect of the framework.

An aim of this work has been to build on – not replicate – the work the Audit Commission has done. This project complements the supporting documents that the Audit Commission provides and is targeted specifically at local authorities, as opposed to public sector bodies generally:

- It uses **language specific** to the local authority context
- The toolkit is presented in an **accessible format** that authorities can easily adapt to their own needs
- The toolkit includes specific **examples of good practice** from local authorities that users can directly apply to their own situation

2.3 Definitions and scope

An important part of any management approach is a clear definition of context and scope. For the purposes of this project the following definitions have been used.

Data: An item of record at the lowest level of abstraction used to represent facts about events or objects. Within local authorities this includes records about People, Businesses, Properties and Council Operations such as calls to a contact centre, bins collected, meals delivered etc.

For the purposes of this report it excludes financial data for which the required standards and controls are generally well defined, understood and adhered to.

Data Quality: The quality of an item or set of data as measured against six characteristics: Completeness, Accuracy, Validity, Timeliness, Reliability and Relevance.

Each of these six characteristics is defined in detail within the Audit Commission's 2007 report 'Improving information to support decision making: standards for better data quality'.

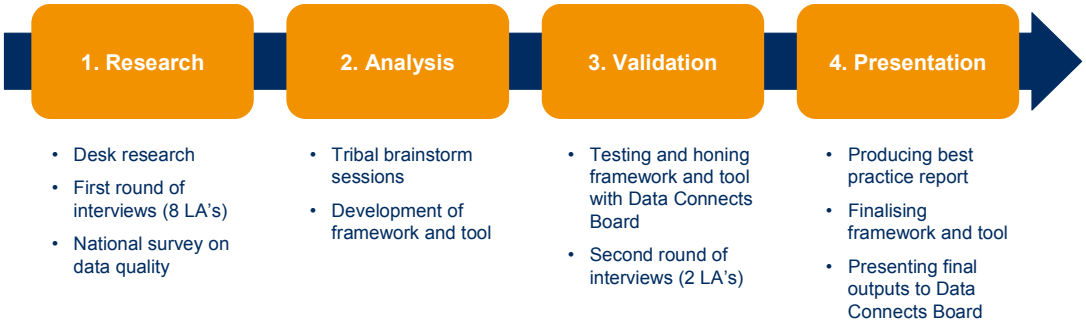
Data Quality Management: The set of activities undertaken to understand and influence the quality of the organisation's data to meet the standards required for the particular business purpose.

The project has been primarily concerned with the management of data at the lowest, or operational, level. It has not explored the way in which this data is aggregated and analysed to create secondary sources such as the number of calls handled in a day, or the processing time for a benefits application.

We have also focused specifically on data quality management and not explored wider 'information management', 'knowledge management', or concepts such as collection, processing and distribution or the different requirements for information to manage at operational, tactical and strategic levels.

2.4 Methodology

The project followed a four stage process outlined in the diagram below:



2.5 Report structure

This report is divided into the following seven sections:

- **Introduction** – this sets out the background, context, objectives and methodology behind the work
- **Data quality in local authorities** – this section looks at current attitudes towards data quality in local authorities and the data quality issues they face
- **Approaches to managing data quality** – this section explores examples of different approaches local authorities have taken to managing data quality
- **Conclusions and recommendations** – this describes the main findings and top recommendations for local authorities looking to see improvement in this area
- **Next Steps – Data Quality Management Framework** – this section introduces the Data Quality Management Framework for local authorities developed by Tribal and Data Connects to reflect the findings from this work
- **Appendix A: ContactPoint update** – a short update on the progress of two authorities in regards to the national ContactPoint project (an online directory of children that practitioners can use to find out which other practitioners have been in contact with a particular child)
- **Appendix B**: **Survey analysis** – this provides a more detailed breakdown of the questions asked in the survey and the findings

2.6 Acknowledgements

The report authors and Data Connects would like to thank the following local authorities for their contribution to this work: London Boroughs of Brent, Harrow, Lambeth, Newham, Southwark and Westminster City Council, as well as Leicestershire County Council, Manchester City Council, Warwick District Council, Westminster City Council and City of York.

We would also like to thank the project team's Tribal colleagues for their support with this work.

3 Data quality in local authorities

This section explores how data quality is currently perceived in local authorities and the challenges faced by those looking to make improvements. It is split into two parts:

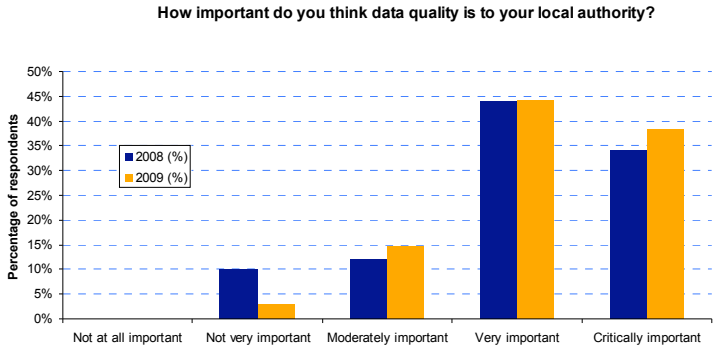
- Attitudes towards data quality in local authorities
- Data quality issues in local authorities

The findings are based on desk research, a national survey of local authorities about data quality and interviews with ten authorities on their approach to data quality management.

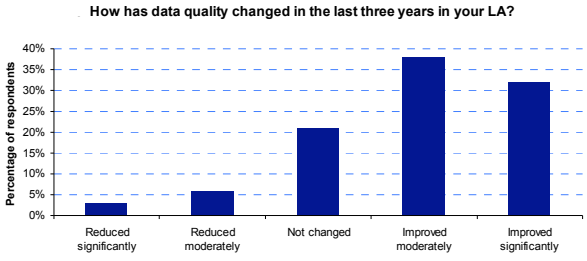
3.1 Attitudes towards data quality

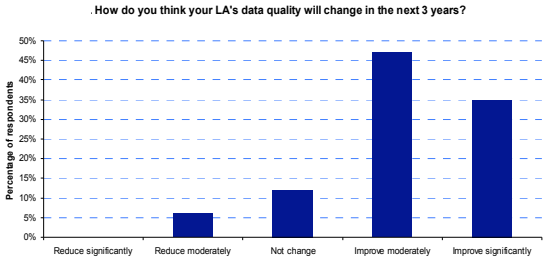
This sub-section examines what local authority attitudes towards data quality are, based on our questionnaire which was answered by 34 authorities. It is limited to the views of officers who are responsible for data quality, and does not cover the different views by level or service area and the results should be interpreted accordingly.

Based on our data quality management survey, most respondents (28 out of 34), think that data quality is either 'very important' or 'critically important' to their organisation. This relatively high level of importance attached to data quality is not surprising, and is likely to be much higher than the general opinion of Council officers as the survey will have been completed primarily by those with a direct interest in this area.



Most survey respondents felt that their data quality had improved in the last three years, and that it would continue to improve over the next three years. This confidence may reflect improvements resulting from increasing national focus on data, such as the Audit Commission's voluntary standards.

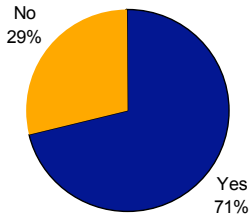




However, this confidence in past and future improvement did not necessarily translate into confidence in actual data quality. When asked 'how good is your authority's data quality?' 13 out of 34 respondents said it was 'good', 15 said it was 'average' and 5 said it was either 'poor' or 'very poor'.

Most respondents (24 out of 34) also believed that they have the skills required within their authority to improve their data quality. This suggests that authorities feel comfortable with their position in regards to data quality, though the Data Connects group's experience is that this capability is often limited.

If you were to improve data quality corporately, do you think your LA would have the necessary expertise?



The survey has presented a positive and confident picture of data quality in the local authorities that answered our questionnaire. The importance is well recognised, progress is being made and the skills are in place to make further steps forwards. Were this picture accurate, one would expect to find well developed data quality management practices and correspondingly high quality data matched to operational requirements. The next section (3.2) shows that this appears to be a distorted picture and that when challenged a number of fundamental issues for and barriers to the better management of data quality within local authorities have emerged.

3.2 Data quality issues in local authorities

Through a series of 10 in-depth interviews with local authorities to understand their data quality management practices a number of issues being faced when seeking to make improvements in this area have been discussed. These issues can be grouped into two closely related categories and are considered in turn within this sub-section.

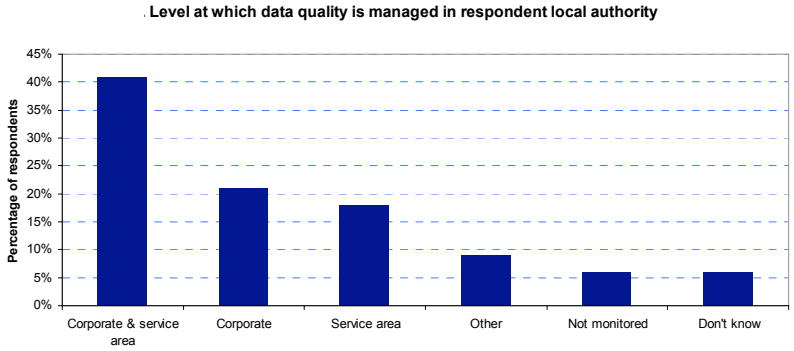
- **Governance issues:** the way that data quality is managed in terms of planning, and how data quality is monitored
- **Cultural issues:** officer attitudes towards data quality across the organisation

Governance issues

Governance is how authorities structure and control their approach towards managing data quality. Some of the most pressing data quality governance issues facing local authorities are:

The structure for how data quality should be managed is unclear in many local authorities

Our survey asked authorities at what level they manage data quality – the most common answer was that it was managed jointly between the corporate centre and service areas (14 out of 34 respondents).



Those interviewed agreed with this picture and clarified that in the majority of cases it is managed between a corporate Policy and Performance team, and separate service areas who look after their own data. The Policy and Performance team is mostly concerned with ensuring that performance indicators submitted to external bodies adhere to the standards set out by these bodies. Service areas will manage data quality to varying degrees, depending on how much it is prioritised by their leadership.

However, this division between 'performance' and 'service' area responsibilities is often unclear within an authority (even if it is present). This can lead to confusion about roles and responsibilities for securing good data quality processes within teams and in the authority overall. In addition, there is often a lack of corporate ownership or standards for data quality that applies to data wider than the performance indicators submitted to external bodies.

Applying consistent data quality standards to service areas and systems can be challenging

Comparing the quality of data between service areas and/or systems is difficult because each will usually have independent ways of recording information or external statutory requirements that they need to adhere to. For instance, one service area may insist on recording the title and full name of all customers (e.g. 'Mr John Smith') whilst another service area may not make this a requirement (e.g. 'J Smith' might be acceptable). Any inconsistency in data collection can create complications when datasets have to be compared, for instance between Health, Education and Social Services for Children's Services.

Data quality processes are not always well aligned with the authority's priorities

Data quality processes can sometimes be implemented without being connected to the authority's or service area's wider objectives. Data quality reports can be produced that are not relevant to the needs of the business. This can result in poor data quality persisting (as reports are ignored) and unhelpful and wasteful processes occurring.

Resourcing for improving data quality is minimal or unavailable as it is not viewed as its own subject

Resourcing for data quality was explicitly cited as an issue by two authorities and was mentioned by others; the argument being faced was that because data quality is not viewed as its own separate subject it does not warrant a high degree of funding. Though we support the view that data quality is part of 'doing the job', the lack of maturity of understanding of how to best manage data quality means that there is an argument for the deployment of dedicated resources.

Data disposal does not always follow agreed standards

Anecdotal conversations suggest that the disposal or archiving of data is a significant issue in terms of data quality and the wider subject of records management within a local authority. Policies may be communicated to teams about what their responsibilities are but these can be easily ignored.

Ensuring that external third party is to a high standard is a significant challenge for authorities

Authorities including London Borough of Lambeth (Lambeth), London Borough of Southwark (Southwark), City of York and Warwick District Council all highlighted third party data as a significant issue facing them in terms of data quality.

As partnership working develops through the Comprehensive Area Assessment and Local Area Agreements, the pressure on all local bodies increases to have good data management processes in place, to help with partnership working. This presents a complex set of challenges where different organisations use different standards and systems.

The importance of having good protocols is particularly relevant to two-tier authorities, as counties and districts are often mutually dependent on each other in the management of data.

There are also challenges faced in terms of obtaining high quality data from external suppliers, such as environmental services firms providing street cleaning or recycling support.

Cultural issues

Cultural issues tend to be 'softer' than the governance outlined above, and refer to the practices and awareness about data quality of all staff across the authority.

The consequences of poor data quality are not always understood at the frontline of service delivery and/or incentives to maximise data quality are not made clear

Poor data quality can often be attributed to poor collection practices at the frontline. The main issue is that there may not be an immediate or direct impact for frontline staff of providing or entering poor quality data.

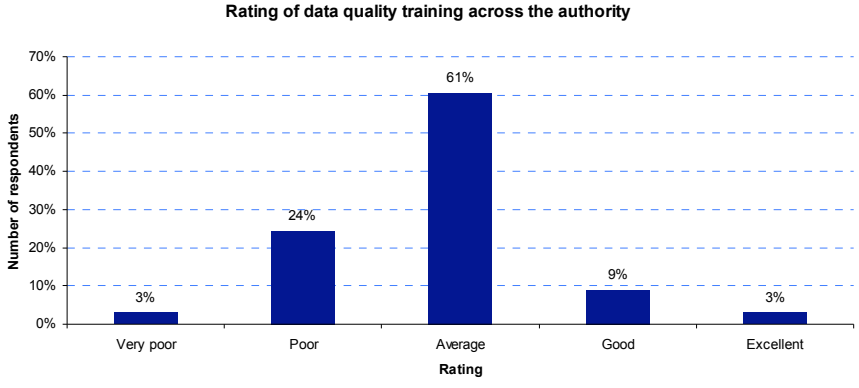
For instance, if an officer in Pest Control investigates a rat infestation in a property, it is enough for him to register the rat infestation problem and the property in a standard form. The officer may feel no immediate benefit to record further details such as the job start and end times, or even the job date.

This does not affect the officer's job in the short term. However, it does decrease the quality of data and affect management information, which is used to decide how to deploy resources most effectively.

Team leaders need to think carefully about the way in which their staff are incentivised. They need to ensure that the right balance is struck between encouraging maximum levels of direct productivity and maintaining the right level of data quality.

Training on data quality can be poor or non-existent altogether

Survey respondents mostly indicated that their data quality training was 'average' – this could be because they did not have a clear view. The second largest group indicated their



training was 'poor' and one respondent even stated his authority's data quality training was 'very poor'.

Training devoted to data quality does not always happen effectively in local authorities. Where it occurs, new starter processes tend not to include emphasis on the need to enter data correctly. No authorities interviewed indicated that they had a regular and formal training programme that includes data quality training at the moment.

It is important to note that this does not suggest that authorities should be running dedicated "data quality" training course for the majority of frontline practitioners. Indeed, an approach that promotes practices that produces high quality data and an awareness as to why those practices are important as part of standard training programmes is likely to be much more engaging for staff and therefore much more effective.

Some service areas feel little pressure to improve their data quality

Some services, such as Libraries, feel less pressure to improve the quality of their customer data as there is no external driver for them to do so as there is for a service such as Children's Services. However, the impact on any service can be negative as low data quality results in low quality management information, ultimately impacting the effectiveness of how resources are deployed.

Data quality is viewed as an ICT or Policy and Performance issue

Linked to the issue above on accountability is the view that data quality can be seen as a distant corporate issue, usually the responsibility of ICT or Policy and Performance. This can encourage frontline staff to under-estimate their vital importance in the data life cycle, in terms of inputting and verifying data. Their expertise allows them to make sense of good or bad data in a way that corporate teams cannot.

The population census and local authorities

In 2001, the Office of National Statistics (ONS) published its figures on population sizes for all local authorities. However, a number of authorities disputed their figures as they appeared to under-estimate the real numbers. The issue was particularly important because population size impacts the amount of funding an authority obtains.

The ONS agreed to investigate disputes with two authorities, one of which was Manchester City Council. Manchester maintained that its population was about 440,000 in 2001, whilst the ONS stated it was closer to 390,000. After 18 months of investigation the ONS acknowledged that it had omitted about 14,000 properties in its calculations, which corresponded to about 30,000 people. Over ten years (the period of time before the next ten years), this approximated to about £100 million in funding.

3.3 Key findings

The respondents to the national data quality management survey recognise the importance of data quality and are confident about the direction of the travel and their authority's capabilities to sustain it. However, more in depth interviews have suggested that a number of fundamental issues for data quality management remain.

It is likely that the survey respondents are disproportionately represented by those with an interest in data quality and therefore have a disproportionately high level of understanding of the importance of data quality to their organisations. The disconnect between the respondents optimism about their direction of travel in the survey and the interview findings with regards to data quality is more difficult to explain, but may reflect a poor appreciation of the true data quality picture at the front line of service delivery and management.

Based on the discussions during the interview phase, the primary issue for data quality management in local authorities is the lack of alignment at a senior level of the organisation's corporate goals and its data quality goals. This gap means that there is no clear leadership on the issue which in turn means that achievable standards are not set or enforced. This can result in a fragmented approach developing with issues being dealt with on an ad-hoc basis.

It is telling that interviewees did not discuss the technical or process barriers that exist to improving the levels of data quality. We suspect that this reflects the current level of maturity on the issue and that once clear leadership is in place and efforts are more focused the practical challenges to measuring and then changing current levels of data quality will emerge more strongly.

4 Approaches to managing data quality

This section looks at emerging approaches towards data quality management, based on a series of interviews with ten authorities. Our research showed that there are four principle approaches to managing data quality being taken by local authorities[7]:

- A performance indicator focused approach – this involves ensuring that the quality of indicators submitted to external bodies is of a sufficiently high standard
- A culture-focused approach – this involves improving awareness and attitudes towards data quality and what people's roles are
- A technology-focused approach – this involves using software tools to clean and improve data
- A corporate-led approach – this involves adopting a corporate approach towards data quality that tries to introduce common standards and an approach across the authority

However, it must be emphasised at the outset that there does not appear to be any generally recognised best practice authority in data quality management within the local government sector.

4.1 Performance indicator focused approach

The **most common approach** towards data quality management appears to be one where local authorities consider data quality in relation to the quality of performance indicators against the voluntary standards set out by the Audit Commission.

In this approach, responsibility lies chiefly with the Policy and Performance team, which collates performance indicators. Officers within the team will strive to ensure that the authority adheres to the 42 voluntary data quality standards put forward by the Audit Commission in 2007. Though the inspection process is becoming increasingly outcome focused, this approach is seen as a good way to perform well against the data quality component of Key Line of Enquiry 2.2, which is part of the Use of Resources Assessment (and it's CPA predecessor).

This approach is targeted and effective at demonstrating that the authority is considering the quality of its performance data.

However, authorities that adopt this approach may overlook the importance of ensuring that all data across the organisation is of a high standard. Focusing on the quality of a certain set of information may distract from the need to align work on data quality with the business objectives of the authority overall and therefore be seen as a burden, rather than a driver for improvement. In addition, the consolidation of the national indicator set may narrow the scope of this approach further.

[7] Note, this is not an exhaustive list as it based on interviews with ten authorities – it does however provide an indication of what authorities are doing in this field and is consistent with our wider experience.

The London Borough of Lambeth concentrating on improving the quality of its performance indicators

Central to the London Borough of Lambeth's approach to data quality of its performance data is high - examining data quality is also an important element of the body's Use of Resources assessment, as specified in Key Line of Enquiry 2.2.

Lambeth's Policy and Performance team ensures that the quality of the data for the 196 National Indicators (and its 35 priorities) is to a good standard. It is responsible for co-ordinating the indicators across service areas and verifying that they are based on sound collection processes.

Local authorities are increasingly working in partnership with other organisations like Primary Care Trusts and schools as part Local Area Agreements and Comprehensive Area Assessments. As authorities like Lambeth focus on performance data they are now turning their attention towards partners as well because they will be relying on their data.

4.2 Culture focused approach

Some authorities that are concentrating on data quality are doing so from the perspective of improving general awareness about its importance and the roles and responsibilities that everyone has. This approach involves stripping away the sometimes confusing and alien language about 'data quality' and relating it more to the real priorities of the authority or the service area.

London Borough of Harrow (Harrow), for example, has introduced activities as part of a programme to raise the profile of the issue. This has involved establishing reporting at a senior level so that leadership is kept abreast of the situation, alongside discussions with frontline workers about the information that they need to provide their service and how this can be made as accurate as possible:

- **Regular reporting to Senior Management Team** – there is a clear reporting structure within the authority on key indicators that the council has prioritised. The data quality improvement action plan is monitored by Senior Management Team (which is chaired by the Chief Executive). This provides a powerful message to the rest of the organisation that having good information is an important priority.

- **Data quality jargon is avoided where possible** – Harrow has tried to steer clear of using 'data quality' as a term when talking to service practitioners in particular, as this has tended to disengage people in the past. The emphasis is instead on clarifying with staff the key things their service needs to know in order to run their service well.

  For example, speaking to service managers in Children's Services may show that the key piece of information that the department needs to know is the number of children in different types of care inside the borough. Ensuring that this figure (and more importantly the underlying data it represents) is as accurate as possible is demonstrated as a key priority, and support can be focused to making sure that this accuracy is achieved. This type of interaction has proved more productive than a dry and theoretical emphasis on data quality.

  From this position, adequate processes can be put in place over time to ensure that information used for day-to-day operations and decision-making is as close to the truth as possible.

- **Good partnership protocols** – these have been developed through building good relationships with other partners such as the Police and the Primary Care Trust (PCT); again, the emphasis is on stripping out jargon to focus on the key things that services need to know

- **Data days** – these are days when all social workers come into the office to work explicitly on ensuring that the information they are providing adheres to standards and demonstrates the importance assigned to having good data

Taking a culture focused approach has worked well for Harrow and demonstrates a number of good practice traits that other authorities would do well to adopt. However, in order to maximise the impact of this awareness it is important that goals are clearly articulated and that process and system controls are able to prevent, detect and correct the errors that are made.

4.3 Technology focused approach

Local authorities seeking to use technology to improve their levels of data quality have primarily focused their efforts on customer data through the use of Customer Data Integration (CDI) solutions.

CDI solutions work by collecting and matching data from different data sets to create a single customer view. A by-product of this process is the creation of the highest possible quality data on each customer that the authority can put together – this combined data can then be used by different lines of business to improve the information they hold about customers and their address data. Some of the benefits of better data quality through CDI include:

London Borough of Brent (Brent) is pioneering the use of CDI through its Client Index. This has been rolled out for nine systems (including Electoral Register, Housing, Council Tax and Childrens and Adults Social Services) and the authority is confident that it will help improve its data. The Client Index is currently being used for look-up purposes only; this means that service areas must search the Index themselves to retrieve good data. In the next six months, the team in charge of the technology hope to enable the system to actively send out alerts to service areas.

- Detecting and reducing Council Tax fraud to maximise collection rates
- Identifying customers eligible for services who aren't currently in receipt of them
- Reduced staff time searching for correct customer telephone number
- Reduced time re-keying information into more than one system
- Finding customers more quickly because of fewer duplicates in system
- Reduced time entering duplicates onto system
- Reducing time spent cleaning up duplicate data

Though the application of technology such as CDI can lead to substantial improvements in data quality it is important to manage expectations as to the change they can effect. In particular, they are necessarily corrective in nature (working on existing datasets) and are only able to make changes on the basis of the application of logic rules to the data that has been entered – not all aspects of data quality can be corrected 'by machine' e.g. it will not prevent call handlers selecting the wrong customer to record a service request against.

The role of technology in data quality is not limited to sophisticated CDI solutions. The use of more operational systems to support business processes can have a strong positive impact on consistency and quality for a service. The role of technology in the data quality lifecycle is explored in more depth as part of the Data Quality Management Framework (see section 6).

4.4 Corporate led approach

Two authorities, London Borough of Newham (Newham) and London Borough of Southwark (Southwark), opted to carry out 'back to basics' reviews of data quality across their organisations by systematically assessing data quality management practices in priority systems or service areas respectively. The form of this is simple interviews by an individual or small team with representatives from each of the selected service areas or systems. This approach differed from the ones above as it:

- Focused on approaching each service area or system in a standard way by asking the same questions
- Assigned simple but comparable scores out of five to each service area or system in terms of their data quality and data quality management processes separately

This approach was beneficial in that it imposed clarity and structure over what were originally disparate set ups. In Newham, following interviews with each system representative, the main data quality issues facing that system were confirmed and collated into an 'issues list'. This document formed the basis for data quality improvement activity plans targeting each of the issues.

The process of reviewing each service area or system methodically and with the same set of questions enabled the authority to make relatively fair comparisons in a way that had not been done before. Doing this is crucial because as soon as services receive scores, the profile of the issue increases across the organisation.

Authorities that adopt this approach will need to carefully consider whether to look at priority service areas or systems. Many systems are used across several service areas and many service areas use several systems. One line of thought is that it is better to look at systems as their data quality can be assessed more easily and simply than by attempting to evaluate the data held by a service area, which will be across systems. However, finding the person or team responsible for the data quality in a system is harder than finding the person responsible for a service area. When it comes to assigning ownership for data quality improvement this becomes vital.

Examples of good data quality management practice from Newham

During Newham's review of data quality, a number of instances of good practice were highlighted, which included:

- **Rolling out use of the Local Land & Property Gazetteer** – Newham's Environmental Services and CRM systems now use address data from the LLPG; this common dataset has allowed an improvement in white goods collection & abandoned vehicles
- **Distributing proactive emails for changes in circumstances in Housing** – prior to significant changes in Newham's Housing system (for example, changes to a tenancy type), an email is sent to involved individuals to ensure the proposed change does not have an unforeseen negative impact
- **Adopting mandatory fields in the Housing system** – some fields in the Housing system have been made mandatory – this has led to an improvement in customer data capture, for instance, the percentage completion of Lead Tenant Date of Birth has risen from 75% in 2005 to 98%
- **Producing monthly data quality reports in Social Care** – the data quality manager in Social Care produces a monthly 'Data Quality Highlight Report' that includes progress against six key targets; this is presented at management meetings and circulated within the Directorate
- **Requiring customers to spell their name in full where possible** – Customer Services officers now ask customers to spell their names in full

4.5 Key messages

Each of the four main approaches to data quality management (performance indicator focused approach, culture-focused approach, technology-focused approach and corporate led approach) have their strengths and weaknesses.

The best authorities will combine the depth of investigation of the performance indicator focused approach with the clarity of language and awareness of the culture-focused, the facilitating potential of technology solutions, and the discipline and buy-in of the corporate led approach.

Section 6 of this report introduces a framework for data quality management in local authorities to help combine these approaches and achieve best practice.

5 Conclusions and recommendations

Good data quality management has proven importance to the public sector in general, and local authorities in particular.

The national survey run as part of this project showed that the 34 local authorities that responded appear to be generally confident about the robustness of their data.

However, upon closer inspection, our research has shown that there is no widely adopted systematic approach to data quality management and that despite recent developments in the area the pace of change is slow.

Based on the discussions during the interview phase, the primary issue for data quality management in local authorities at the moment appears to be the lack of alignment at a senior level of the organisation's corporate goals and its data quality goals. This gap means that there is no clear leadership on the issue to set and enforce achievable standards resulting in a fragmented approach developing on an ad-hoc basis.

In place of a systematically applied approach to data quality management in local authorities, four principle approaches are developing:

- A performance indicator focused approach – this uses the data quality standards put forward by the Audit Commission. However, it concentrates much less on the wider data used by an authority
- A culture focused approach – this focuses on persuading senior and frontline staff of the importance of data quality and the need for sustained effort to improve it. It involves directly aligning data quality with an authority's or service area's objectives, so that the subject is made relevant
- A technology focused approach – this involves using technology such as CDI or enrichment services to improve datasets. It tends to be one-off and must be accompanied by activities to improve data quality practices
- A corporate led approach – this involves a back-to-basics review of data quality in service areas or systems, and the centralisation of some resources on data quality. A key benefit of this is that it can encourage common standards across the organisation in regards to data quality

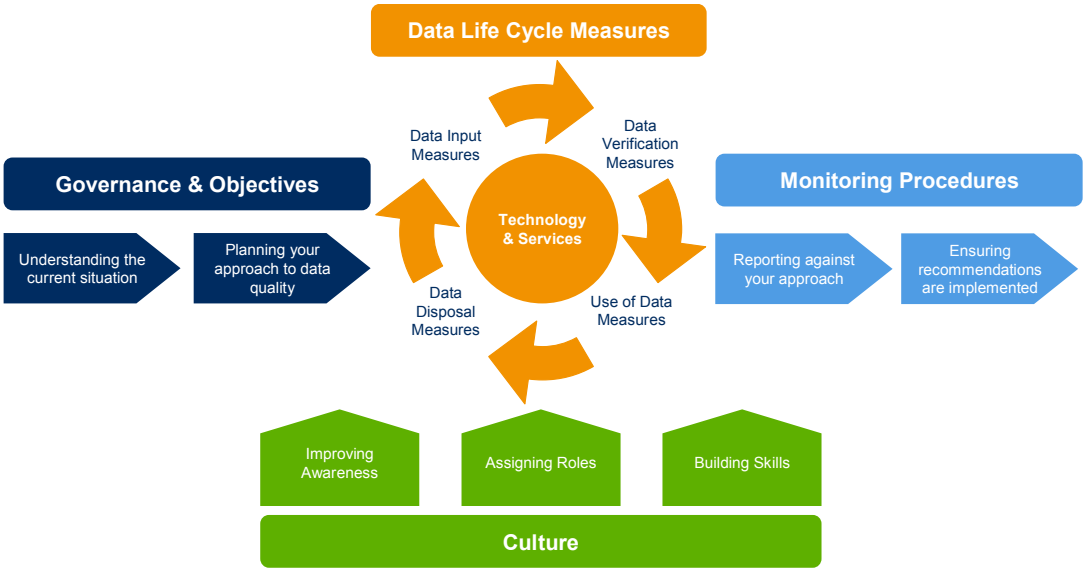
Each of these approaches has its strengths and weaknesses. The more data aware authorities will combine the depth of investigation of the performance indicator focused approach with the clarity of language and awareness of the culture-focused, the facilitating potential of technology solutions, and the discipline and buy-in of the corporate led approach.

Data Connects and Tribal have developed a data quality management framework to help authorities improve their data quality management practices. We recommend that local authorities use this structure to assess their own data quality management practices and identify the improvements they need to make to ensure data quality is managed to the right level for the organisation. The framework is introduced in Section 6 of this report. The framework can be downloaded free of charge from the Capital Ambition website and is available on request from mohammed.naqvi@tribalgroup.co.uk

6 Next Steps – Data Quality Management Framework

The key objective of this project is to encourage and aid local authority officers in their efforts to improve data quality management within their organisations. Through the background research and interviews it has become clear that there is no single systematic approach to managing data quality within the local government community.

To address this gap, the project team has developed a Framework for local authorities to use to design and implement the right data quality management practices for their local context. The framework draws upon the best of current practice to present a complete approach to this challenge. The framework has four key themes (shown below).



- **Governance and Objectives** - Governance refers to the organisational structures, procedures and documentation that determine and steer the organisation's efforts towards the right level of data quality for the business context. The Governance process begins with understanding the current situation with regards to data quality; this knowledge is then used to plan the authority's approach towards improving the situation.

- **Culture** - Culture refers to the people aspect of data quality management. Data quality roles must be assigned at corporate, service area and team levels throughout the organisation – these roles may be part of existing jobs or may be newly resourced full time posts. Local authorities must ensure that adequate skills are in place across the organisation for the different roles relating to data quality and that there is enough resource dedicated to the subject. Awareness involves increasing organisational knowledge about data quality and individual responsibilities for the proper usage of data; it is particularly important at a senior level as this sets the tone for the rest of the authority.

- **Data Life Cycle Measures** - The Data Life Cycle consists of four generic stages that data passes through (Input, Verification, Use and Disposal). Each stage of the life cycle presents a set of risks to data quality against which appropriate mitigating measures should be taken. This theme explores the types of measures that can be taken at each stage of the life cycle.

- **Monitoring Procedures** - Monitoring is an overarching type of measure that sits outside the data life cycle. It is essential to have good Monitoring Procedures in place to capture how effectively Data Life Cycle Measures are operating

The Framework is provided in the form of a PowerPoint pack. Each theme is broken down into a number of components (which are data quality activities or documents). Users can 'click' into these components to obtain relevant examples and templates from contributing authorities.

There are three principle ways in which the framework is intended to be used:

- as a best practice reference for data quality management in local authorities
- as a record of your own data quality management practices by editing the content and inserting links to your own documents etc (this could include publication on intranet site)
- as a tool to talk through what makes up good data quality management with local stakeholders when designing your own approach

Tribal and Data Connects hope you find the framework useful and would welcome any feedback you have. We would also like to expand the range of example material within the pack – if you have any examples or hints and tips that you would be willing to share, please e-mail them to mohammed.naqvi@tribalgroup.co.uk for collation.

Comparing the themes and approaches

The four themes in the data quality management framework are not to be confused with the four approaches local authorities were found to be taking to data quality management, though they are closely related:

- The 'Technology Focused Approach' is primarily referenced in components within the 'Data Life Cycle Measures' theme
- The 'Culture Focused Approach' is primarily referenced in components within the 'Culture' theme
- The 'Performance Indicator Focused Approach' demonstrates many of the components from across the themes, but against a narrowly focused sub-set of data
- The 'Corporate Led Approach' demonstrates components from across the themes, but is most strongly represented within the 'Governance & Objectives' and 'Monitoring Procedures' themes.

Appendix A - ContactPoint update

ContactPoint – an update from two authorities

ContactPoint is the online directory of children that will allow practitioners who work with children to find out which other practitioners have been in contact with a particular child. The directory requires public bodies who work with children – such as local authorities, schools and hospitals – to submit details on children in their area.

There have been a number of delays to the system but it at the time this report is being written it is due to go live in October 2009. Local authorities are required to submit high quality data before then, though the data updates process is currently on hold to resolve outstanding issues.

Please find below updates from two London Boroughs on the work they have done on ContactPoint to date.

London Borough of Newham

Newham is adopting a 'hub' approach towards meeting its requirements under ContactPoint. This will involve linking data from a series of data systems such as Carefirst, RIO (Health systems) and their Education and Youth Offending data systems.

The authority has so far matched records from two of its systems (75,000 from the education system and 43,000 from CareFirst). The initial exercise matched just 20,000 (the authority was expecting to match all 43,000 CareFirst records within the 75,000 in the education system).

The reasons for this are being investigated by the council. A small spot check sample of ten of these unmatched records revealed that six of them involved errors that would have required human intervention to determine the most accurate record or that two records were in fact about the same individual.

Newham is striving to improve the quality of these datasets before they are submitted to ContactPoint; the authority is actively trying to reduce the number of new duplicates through weekly monitoring. However, this is a time-consuming exercise which requires additional resource to complete effectively.

London Borough of Southwark

Southwark is also adopting a 'hub' approach towards meeting its requirements under ContactPoint, and is actually using this as a pilot towards managing data quality across the organisation.

A Local Children's Hub will be fed data from EMS, the social care and the PCT databases; the Hub will match this data and then submit it to ContactPoint. Core to this approach will be a monitoring module alongside the hub - this will run data quality reports that will be sent to 'data quality champions' within each of the three areas on a regular basis. These champions will be responsible for ensuring that the problems - such as duplicates or missing fields are noted, fixed or address. Alongside these data quality reports, key performance indicator (KPI) reports will be run at longer intervals. These KPI reports will sent to the managers of systems and will include, for example the number of duplicates found over a certain time period or the length of time required to resolve a duplicate. This feedback loop means that there will be continuous improvement.

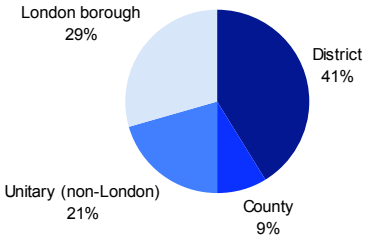
Appendix B – Survey analysis

Background

The survey was distributed to more than 370 local authorities in England, Scotland and Wales to Heads of IT or those with similar roles; a link to the survey was also posted on the Public Sector Forum website. As an incentive, respondents were offered the chance to enter a prize draw to win an iPod nano (8 BG).

After six weeks, the survey received 34 complete entries. This was less than the 50 responses that were received in 2008's survey on CDI which probably reflects the relative levels of interest in data quality compared to work directly related to the 'customer'.

2. Breakdown of local authority types of respondents



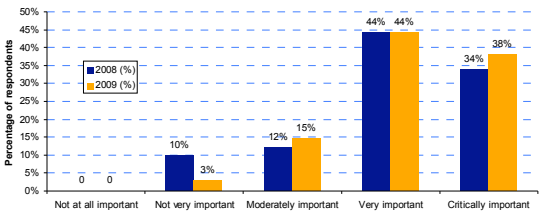
The breakdown of respondents is shown to the right; 22 out the 34 had a background in Information and Technology, but nine had a Policy and Performance or Business Change background (one respondent did not answer this question). This suggests that these areas are at the very least considering data quality. If the survey was to be repeated in the future, it would be distributed to Heads of Performance in addition to Heads of IT.

Overview

Survey Questions:

- How important do you think data quality is to your local authority?
- What tools do you have in place to manage data quality?
- At what level is data quality monitored in your local authority?

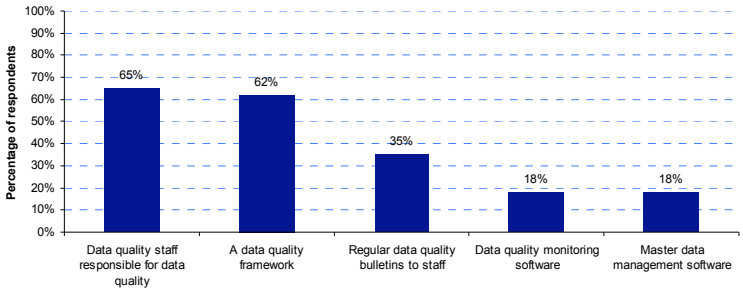
5. How important do you think data quality is to your local authority?



More than four out of five respondents believe that data quality is 'very important' or 'critically important' to their authority. Fewer respondents think that data quality is 'not very important' to their authority in 2009 than in 2008.

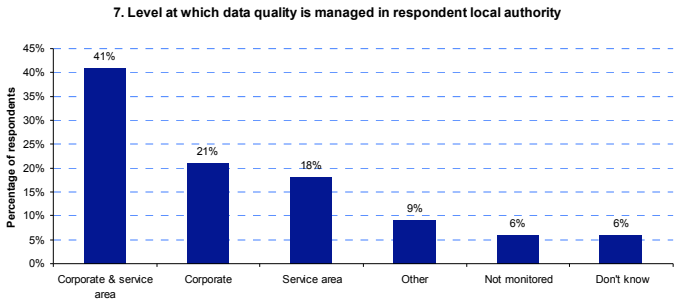
65% of respondents (22 out of 34 respondents) state that they have staff with explicit responsibility for managing data quality in their authority and 62% indicated the have a data quality management framework already in place. However, comments on this suggested that this was in relation to

6. Popularity of techniques that LA's employ to manage data quality



submission of Key Performance Indicators.

The majority of respondents stated that data quality is managed jointly between the corporate centre and service areas.



Service areas

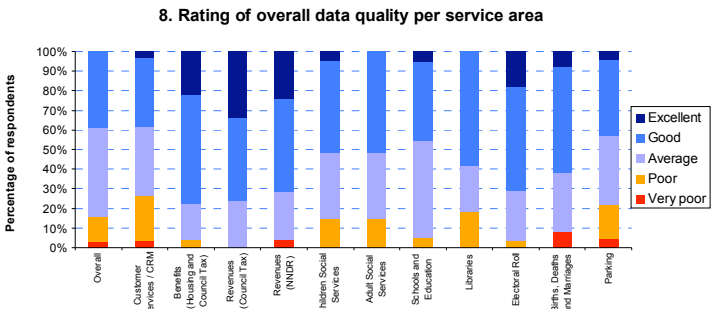
Survey Questions:

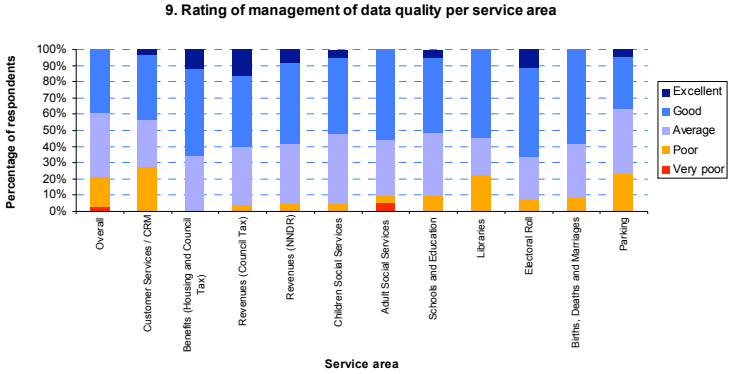
- How would you rate your overall data quality?
- How would you rate the management of data quality in your local authority?
- How would you rate the training staff receive in data quality in your local authority?
- How much of a problem do you think duplicates are in your local authority?
- What is the average cost of correcting a duplicate for your local authority?
- How well is address data linked to the Local Land & Property Gazetteer (LLPG)?
- How frequently do you monitor data quality in your local authority?

On average, 24 out of the 34 respondents provided an answer to the survey's questions on the rating of data quality (leaving an average of 10 who answered 'don't know').

82% of these respondents rated their overall data quality in their authority as 'good' or 'average', which was higher than expected. When asked to break down their views by service areas respondents generally indicated that services that involved financial data, such as Council Tax, Benefits or Business Rates were more likely to have 'excellent' data than services that did not, such as Libraries.

On average, 23 out of the 34 respondents provided a positive answer to the survey's questions the management of data quality.





A slightly smaller proportion of respondents thought it was 'average' or 'good' (78%) than those who thought their overall data quality was 'average' or 'good'. It is also worth noting that a fewer proportion overall thought that data quality management was excellent within service areas, and this included those with a financial background, which is partially consistent with our expectations.

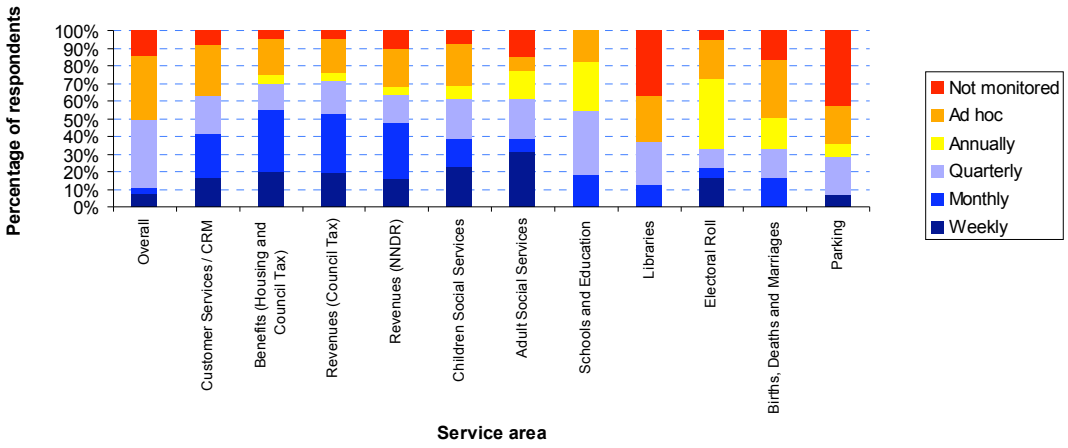
The service area with the most highly rated training on data quality by respondents was Customer Services – 15% of those surveyed indicated that they thought it was 'excellent'. At the same time it is worth noting that Customer Services scored the highest for the worst training received as 6% thought it was 'very poor'. Care must be taken however with these results as a large proportion were answered as 'don't know' by respondents. Only 21 out the 34 survey respondents provided a positive answer to this question (leaving 13, on average, who did not know).

Most respondents answered 'don't know' to the series of questions on duplicates. Just one respondent thought that duplicates were a 'critical' problem for his authority. No respondents were able to provide an answer as to the cost of a duplicate to their authority, demonstrating how difficult it is to place a value on poor data.

When asked how well address data is linked to the Local Land and Property Gazetteer (LLPG), 35% of respondents thought that it was 'good' or 'excellent'; 26% thought it was 'poor' and only 15% answered 'don't know'.

There appears to be a wide spread between authorities in terms of the frequency with which they monitor data quality, although it must be noted that a low average of only about 14 people answered this question positively (the rest answered 'don't know'):

14. Frequency of data quality monitoring



Although a large proportion did not know the breakdown for individual service areas, the most popular frequencies for monitoring data quality are either on an ad hoc basis (29% of respondents) or on a quarterly basis (32%).

Drivers, barriers to improvement and plans for the future

Survey Questions:

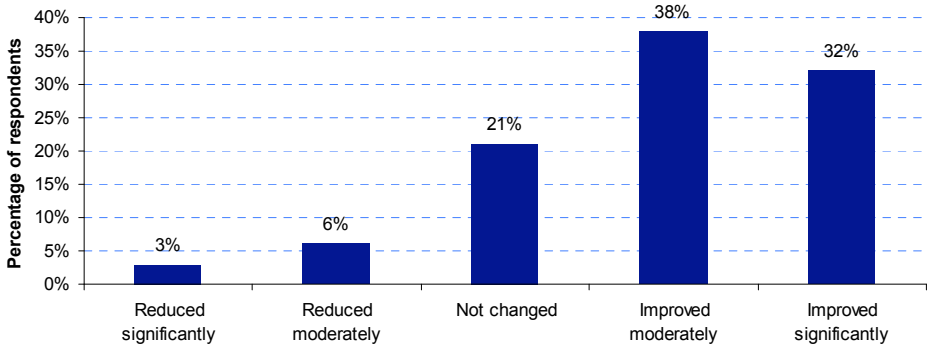
- How has data quality in your local authority changed in the last three years?
- Please indicate how important you think the following drivers for improvement in data quality

have been over the last three years

- Please indicate how important you think the following barriers to improving data quality have been in the last three years
- If you were to improve data quality corporately, do you think your local authority would have the necessary expertise?
- How do you think your local authority's data quality will change in the next three years?
- What plans do you have to improve data quality?

The vast majority of respondents stated that their data quality had improved moderately (38%) or significantly in the last three years (32%).

15. How has data quality changed in the last three years in your LA?

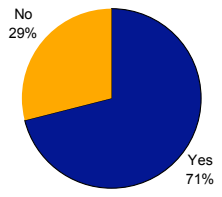


When asked to score a set of drivers for data quality improvement in the last three years, 32% of respondents indicated that improving information was 'critically important', followed by data sharing, which 24% of respondents judged to be 'critically important'. 59% of respondents thought customer service improvement was a 'very important' driver; 47% thought service performance improvement (for example, higher collection rates) was also 'very important'.

The biggest barrier to data quality improvement indicated by respondents was in terms of organisational culture, which 76% indicated was 'critically' or 'very' important. Resources and service area buy-in were rated as 'critically' or 'very' important by 68% of respondents. 32% of respondents also felt that 'progress had not been held back' in the last three years.

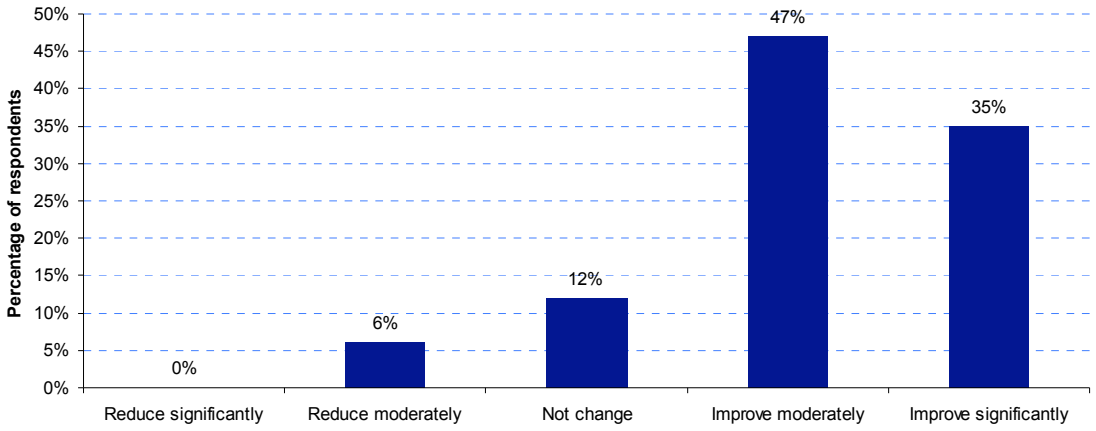
In relation to skills, more than 70% of respondents were confident that they had enough skills to improve data quality corporately at the moment. However, this means that about 3 in 10 would require additional support to foster improvement.

18. If you were to improve data quality corporately, do you think your LA would have the necessary expertise?



Unsurprisingly, the majority of respondents believe that their data quality will improve during the next three years; although none believe it will reduce significantly, a minority do think that their data quality will reduce moderately (6% of respondents).

19. How do you think your LA's data quality will change in the next 3 years?



In terms of plans for improvement, authorities seem to be considering a range of activities, with implementing a data quality framework chief amongst these (over 40%). However, 9% have no plans to improve their data quality.

20. What plans do you have to improve data quality?