



Improving the Evidence Base

The Quality of Information

Status Report and Recommendations of the EURIM Sub-group on the Quality of Information

June 2011

OBJECTIVES

After the worst financial crisis in living memory, with public sector spending also under unprecedented pressure, it is essential that decisions made by government are based on good quality information to avoid error, waste and worse. This report makes the case for a cultural change in the way information is treated to ensure that good quality information is at the heart of government and public sector decision-making at every level.

This report was produced by EURIM's Quality of Information sub-group chaired by Guy Daines, Chartered Institute of Library and Information Professionals. Contributors and reviewers included: Leonard Anderson (SOCITM); Nick Crouch (MET Police); Rhion Jones (The Consultation Institute); Roger Marshall (Past President, SOCITM); Natalie Penrose (Audit Commission); Ian Fish (BCS); Dr Louise Bennett (BCS). The drafts were circulated to external observers for comment.

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Improving the Evidence Base

The Quality of Information

“Without trusted information government would have to exist on hunch and guesswork.”

Tony Travers, Director, Greater London Group and the London School of Economics, 2010

Executive Summary

The drive to put central and local government data online, open to public scrutiny, has revealed the long standing problems of quality that lie behind the reluctance of departments and agencies to trust one another's data, let alone share their own lest its shortcomings be revealed. Decisions on spending cuts need to be based on good information, and seen to be.

Meanwhile demands from regulators and government agencies for the collection and retention of data that is not required for operational purposes (but “might” be needed in future) reduce UK competitiveness and add to public sector costs.

The scale and nature of current duplication, inconsistency, confusion and error (both random and systemic) derives from failure to apply the disciplines of information management. The consequences include personal tragedy, avoidable suffering, inefficiency, waste and policy decisions based on mythology, hunch and guesswork - rather than the well-informed analysis of timely and reliable data.

Key messages and recommendations:

- Many government departments need to recognise that they are comparatively minor players in a mature, global market for personal and business information, including identity registration and customer identification services and analyses of transactions and patterns of behaviour.
- The information they collect and maintain should be clearly relevant to the service delivered and aligned to the objectives of the organisation, using collection and validation processes (complexity, time taken etc.) that do not get in the way of efficient service delivery.
- Information should be treated as an asset, to be valued, maintained and protected lest it deteriorate and become an inaccurate and insecure liability http://www.eurim.org.uk/activities/ig/0911-Value_Summary.pdf.
- When information is re-used, the context in which it was originally collected needs to be understood, including its provenance: e.g. who collected it? Were they in a position to check its accuracy? Is it still valid and relevant?
- The public sector needs to rebuild its skills to manage and to use information, at all levels, including technical and professional, as a matter of urgency. The skills needed are different to those for managing change or technology.
- The demise of the Audit Commission and pressures for regulatory rationalisation, including information assurance and data protection, suggests the need for a single authoritative and independent guardian of public sector information and information management standards, under the aegis of the Public Administration Select Committee.

Quality of Information

- *Without trusted information government would have to exist on hunch and guesswork.*

Tony Travers; Director, Greater London Group and the London School of Economics and Political Science, February 2010¹

- *Where is the wisdom we have lost in knowledge?*
- *Where is the knowledge we have lost in information?*

T S Eliot: The Rock; 1934

1. Introduction

This paper emanates from the work of the Information Society Alliance (EURIM) Information Governance Group².

The original objective of the group was to rebuild confidence in the competence of the public, private and voluntary sectors to securely manage the sharing of identity and information services by identifying and publicising good practice. But it became apparent to the group that much of the data on file is not only insecure but unfit for purpose, sometimes lethally.

In the wake of the 2008 financial crisis, on November 24th 2008 the Alliance welcomed experts from across industry, government, the voluntary sector and civil service to a roundtable event to identify whether there was the will, on the part of large organisations and their legal advisors and auditors, to take a lead in rebuilding confidence that their information governance is fit for purpose in a world where data loss can destroy competitive advantage.

The crisis in the banking industry, with its revelations that those responsible for running or regulating major institutions lacked the accurate or timely information necessary to manage the risks being run, brought into sharp focus some of the challenges to the private sector.

The 2008 roundtable event chaired by Philip Dunne MP (then Parliamentary Chair of the Information Governance Group) and Stephen Darvill (the Industry Chair of the Information Governance Group) had identified the Quality of Information as central to the government making good decisions in order to provide public services at reduced cost.

In February 2010, the Alliance held a follow-up event, jointly with the Audit Commission, again chaired by Philip Dunne MP, at which participants focused on ensuring that data about public services is accurate yet timely, comprehensive yet easy to understand and above all, provides a trustworthy and truthful picture³.

The Roundtable concluded that the issue was of such importance to politicians relying on good quality information to make difficult decisions under huge budgetary constraints, that it would be useful for a working group to be set up with the aim of distilling existing reports and guidance into a report targeted at parliamentarians, councillors and a wider political audience of civil service observers and advisors and local authority leadership teams.

¹ Speaking at EURIM's Round Table, 'Uncovering the truth: Using information to deliver more for less': <http://www.audit-commission.gov.uk/subwebs/mailouts/events/eurim.htm>

² <http://www.eurim.org.uk/activities/ig/ig.php>

³ <http://www.audit-commission.gov.uk/subwebs/mailouts/events/eurim.htm>

2. What do we mean by Quality of Information – what is the problem?

This paper is about information quality and, within that, focuses on the internal information generated by public bodies, most of which is integral to their efficient and effective operational performance. It concerns especially the datasets collected by such bodies, their publication as information and the use that is made of such information. It is based on the premise that information needs to be properly managed as an asset and valued accordingly, or it risks becoming an insecure liability.

Some Basic Definitions

Data – as numbers, words or images that have yet to be organised or analysed to answer a specific question.

Information – as being produced through processing, manipulating and organising data to answer questions and adding to the knowledge of the receiver.

and

Knowledge – as that which is known by a person or persons and involves interpreting information received, adding relevance and context to clarify the insights the information contains.

Further discussion of the nature of good quality information will be found in [Appendix 2](#).

(Audit Commission⁴)

The value of good information is immeasurable. When decision makers use information well, public services improve. At its best, exploiting information to its full potential leads to excellent services, delivered with maximum efficiency. Using information can drive significant cost savings; and improve public services. At a time of major expenditure savings good information is vital to an intelligent targeting of cuts.

But at its worst, information not only affects the quality and cost of services – it can lead to tragic consequences. When public bodies hold inaccurate, incomplete or out-dated data, avoidable tragedies result from poor decisions. A failure to use and share information appropriately and well was at the heart of the tragic consequences in the Soham murders and in the death of Baby Peter. Poor information practice also makes fraud easier and less detectable and enables other forms of cybercrime. It also wastes public money. The UK public sector spends billions of pounds each year on information technology. If the data in IT systems is unfit for purpose, then the business benefits and savings that justified them will not be achieved and the spend wasted.

In addition, at a time when access to official information is regarded as pivotal to the transparency and Big Society agendas, its quality needs to be sufficient to support scrutiny at all levels and empower individual and community choice. Additional challenges will be introduced by the emergence, through the Big Society initiative, of a large number of community or employee-based organisations with responsibilities for the collection, holding and sharing of public information – they will need the skills required to exercise these functions responsibly and effectively.

Therefore information must be of sufficient quality to support the purposes to which it will be put. Problems are most likely to occur when information collected for one purpose is used in a different context, or when it is aggregated or shared across organisations.

⁴Improving information to support decision making: standards for better quality data, Audit Commission, November 2007. www.audit-commission.gov.uk/Products/NATIONAL-REPORT/AE298947-73F0-4dcb-AF77D2520EECBCFB/ImprovingInformationToSupportDecisionMaking.pdf

The same data may be:

- Originally collected to enable the efficient operation of a service.
- Aggregated to provide management information, often related to performance.
- Further manipulated and interpreted to support policy development in the area.
- Repurposed to support argument in a totally different context.

The further up this chain one goes – the further one gets from the original purpose of the data collection – the greater the likelihood that the information will not be fit for purpose. These problems are often exacerbated when information is shared or aggregated across a number of institutions. As an example [Appendix 3](#) sets out the complexities, problems and challenges of producing quality information within the schools sector and there is an additional comment on the health sector.

Public sector organisations must ensure that the effort they put into assuring the quality of information is commensurate with their investment in the technology and the business processes it supports. This requires organisations to adopt a professional, systematic and proactive approach to the monitoring of data quality and to introduce pragmatic and sustainable strategies to drive up standards. It also requires a user community with sufficient information skills to be able to assess the quality of information provided.

2.1 The Government Context

In government, information is used to justify the allocation of billions of pounds worth of public money. The Comprehensive Spending Review and the National Census, for instance, both contain data that is used to justify important national policy decisions. The Office of National Statistics calculated that, in 2008, the Department for Communities and Local Government and the Department for Health allocated £120 billion to Local Authorities and Primary Care Trusts in England largely based on census-driven population estimates and breakdowns. The implications of poor or wrong information in these instances are mammoth.

Currently the overarching priority for the government is reducing public expenditure by £81 billion over the next four years in order to address the national deficit. There has been no comparable cuts programme since the Second World War with every government department and public body expected to reduce expenditure on “backroom activities” by up to 34%. This has a number of very important implications for information:

- Good information will be essential if “intelligent” cuts are to be made which drive down costs, but at the same time seek to maintain high standards.
- There is the danger of unplanned loss of data as organisations are abolished - and this could easily result in gaps in the summary information provided to MPs and others when they are making the tough decisions required.

The Coalition Government is also committed to making much more information available to the public. “This government believes that we need to throw open the doors of public bodies, to enable the public to hold politicians and public bodies to account. We also recognise that this will help to deliver better value for money in public spending and help us achieve our aim of cutting the record deficit. Setting government data free will bring significant economic benefits by enabling businesses and non-profit organisations to build innovative applications and websites”⁵. Amongst a raft of proposals the key initiative is the establishment of the

⁵ The Coalition: our programme for government. Cabinet Office, 2010.
http://www.cabinetoffice.gov.uk/media/409088/pfg_coalition.pdf

Transparency Board⁶ under Cabinet Office Minister Francis Maude to oversee the process of making most public information freely accessible.

Such transparency is a laudable objective but the commitment is gargantuan as, prior to the expenditure cuts, there were around 35,000 public bodies in the UK and over recent years the amount of data produced by the public sector has risen exponentially. But is its quality sufficient to warrant such public disclosure and will it do more to misinform than inform? Or as one EURIM status report discussed “Is information a strategic asset or a toxic liability?”⁷. The implications of this debate form the basis of this briefing and the reason why it should be seen as a major issue requiring concerted action across the public sector.

2.2 Getting it Wrong: the consequences of poor information

At its worst, poor quality information not only affects the quality and cost of services – it can lead to tragic consequences. When public bodies hold inaccurate, incomplete or out-dated data, avoidable tragedies result from poor decisions. A failure to use and share information appropriately and well was at the heart of the tragic consequences in the Soham murders and in the death of Baby Peter. In the case of the Soham murders the Bichard report found that there was “...not one single occasion in all of the contacts with Huntley when the record creation system [of Humberside Police] worked as it should have done”⁸ (paragraph 14).

Baby Peter Inquiry

“The Inspection found that record keeping is inconsistent and sometimes of poor quality. This means that vital information which might help to form a complete picture of a child’s safety and welfare is not available. There is too much reliance on quantitative data – which is not always accurate or complete – and not enough focus on what makes a quality service on the ground. The Local Safeguarding Children Board fails to provide sufficient scrutiny and challenge”.

(OFSTED Press release, 1 December 2008)⁹

These high profile cases are exceptional in the sense of their human consequence and publicity but less so in the insufficiencies they illustrate in the provision of quality information to manage services and hold those services to account. Research by the Audit Commission¹⁰, for instance, has shown that only 5% of Councils are regarded as having excellent data quality, with many acknowledging that their data problems are fundamental.

In his contribution to the EURIM Roundtable, Steve Bundred, then Chief Executive of the Audit Commission, also noted a wide variation in the error rates for data entry within NHS Trusts from between 0% to 50% with an average of 11%, leading to data having to be rechecked and re-entered on a regular basis. The Audit Commission has led the way in researching the inadequacy of much information in the public sector and the table below illustrates how poor information has impacted on service provision:

⁶ For Transparency Board see: <http://data.gov.uk/blog/new-public-sector-transparency-board-and-public-data-transparency-principles>

⁷ From toxic liability to strategic asset: status report summary. EURIM, 2009. http://www.eurim.org.uk/activities/ig/0911-Value_Summary.pdf

⁸ Bichard Inquiry report. Stationery Office, 2004 (HC 653).

<http://media.education.gov.uk/assets/files/pdf/b/bichard%20inquiry%20report.pdf>

⁹ For full text of press release see: <http://www.ofsted.gov.uk/Ofsted-home/News/Press-and-media/2008/December/Haringey-requires-urgent-action-to-ensure-vulnerable-children-are-properly-protected>

¹⁰ Is there something I should know. Audit Commission, 2009. <http://www.audit-commission.gov.uk/SiteCollectionDocuments/AuditCommissionReports/NationalStudies/20090730istheresomethingishouldknowrep.pdf>

Research consistently finds that the public sector fails to capitalise on the power of information:

Information on value for money in schools ¹¹	<ul style="list-style-type: none"> • Schools have little comparative information on costs or how workforce deployment affects outcomes for children. • DCSF should improve the information available to schools and governors so that decision making can take better account of economy and efficiency without compromising effectiveness.
Investment and reserves ¹²	<ul style="list-style-type: none"> • Local government should use information more wisely, widening the use of information in treasury management and reducing the dependence on external advisors.
Preparing for an ageing population ¹³	<p>Councils should:</p> <ul style="list-style-type: none"> • Review their demographic profiles; • Understand and engage with their older communities; and • Link their local demographic profile and community information to age proof services.
Asset Management ¹⁴	<ul style="list-style-type: none"> • Only one in five directors of finance say their council has all the information it needs to manage the estate properly. • Only half of councils are assessed by auditors as having sufficient information about their estate.

Other recent examples of poor information include:

- More than £210 million of benefits being paid to the deceased over the last 3 years¹⁵.
- Six million citizens wrongly taxed over the past two years, totalling £3.8 billion¹⁶.

Further cases can be found in the government report “Managing Information Risk: A guide for Accounting Officers, Board Members and Senior Information Risk Officers”¹⁷.

It is not only the direct damage done by poor quality information but the associated damage to the reputation of public bodies that increases the mistrust many suffer from.

2.3 Getting it right: things happen as expected

But, there are positives too. Good use of information can contribute to improved services and/or significant savings to the public purse. Steve Bundred cited the success of choice-based lettings at the EURIM Roundtable. Other good case studies include VOSA (Vehicle and Operator Services Agency) and the London Fire Brigade (cited in “Valuing Information as an Asset. London Business School/SAS, 2009)¹⁸ which both improved their performance by improving the quality of data they use to support a greater emphasis on prevention rather than cure.

¹¹ Valuable Lessons - Improving economy and efficiency in schools [2009] Audit Commission

¹² Risk and return - Icelandic banks [2009] Audit Commission

¹³ Don't stop me now (Preparing for an ageing population) [2008] Audit Commission

¹⁴ Room for improvement (Asset management) [2009] Audit Commission

¹⁵ Answer to written parliamentary question from Philip Hammond MP by Helen Goodman, Junior Minister at Department of Work & Pensions, on 30 March 2010. See:

<http://services.parliament.uk/hansard/Commons/ByDate/20100330/writtenanswers/part016.html>

¹⁶ See for instance the BBC web news report of , Six million people in the UK have overpaid or underpaid tax -

<http://www.bbc.co.uk/news/uk-11186397>

¹⁷ Managing information risk: a guide for accounting officers... [2008] National Archives.

http://coal.decc.gov.uk/assets/coal/information_and_risk.pdf

¹⁸ Op. cit. 21

The National Fraud Initiative

The UK anti fraud programme helped trace £215 million in fraud, error and overpayments in 2008/9. And, since the initiative's start in 1996 the programme has helped detect £664 million in fraud. This has been achieved through data matching across organisations. The initiative compares information held by 1,300 organisations including councils, police, hospitals and nearly 100 private companies. This helps to identify potentially fraudulent claims, errors and overpayments, all hosted on a secure website.

(Source: Audit Commission¹⁹)

The Audit Commission publications provide a number of examples of good practice including, for instance, the development of effective information tools in Somerset to help councillors evaluate the performance and delivery of services and drive forward improvement (Is there something I should know? pp20-21)²⁰. Similarly, in central government, the work of the Knowledge Council in developing the General Knowledge & Information Management Network (GKIM) and an associated "Information Matters" strategy has been important in providing a framework for the development and promotion of good information management practice²¹. The Statistics Authority and the Information Commissioner's Office (covering data protection and freedom of information) also both exercise regulatory functions that pertain, in part, upon the quality of public information – their respective roles are set out briefly later in this paper (See section 4).

The Metropolitan Police

In January 2008 the Metropolitan Police were in a position where only 1 of their 32 boroughs rated "excellent" for data quality and 14 were rated "poor". Within 12 months they transformed their performance with 18 boroughs achieving an "excellent" rating and none being rated "poor". A key part of this transformation was the communication of the operational benefits of data quality to front line officers. One case concerned an offender who was arrested for a daytime burglary. When records showed he had separately been stopped at 3am the next morning and that there had been a reported mugging in the vicinity, he was placed in a line up and identified by the victim as the mugger – all within 24 hours, due to accurate and timely data. The Met's data-quality programme manager stressed that regular communication to and nurturing of stakeholders was critical to their success.

(Source: Higson and Waltho²²)

There are also a number of technical initiatives and developments taking place to address the issue of poor quality data. Local authorities are large and complex organisations delivering a wide range of services where core data – normally related to people or property – is required for many purposes. There will often be many variants of the same data across the various functions leading to confusion and poor service delivery at the operational level, and potentially misleading information being provided at an aggregate level. The Data Connects Group, formed in 2006, originally with representatives from a number of London Boroughs, has developed a "Best Practice Guide for MDM [Master Data Management] Implementations" bringing together knowledge of how to develop shared Indexes or Registries of Management or Reference Data (data that is key and common across a number of functions) that can be used across the data systems of all local authority services.

¹⁹ For National Fraud initiative see: <http://www.audit-commission.gov.uk/nfi/reports/pages/default.aspx>

²⁰ Op. cit 10

²¹ For information on the Government Knowledge and Information Network see: <http://gkimn.nationalarchives.gov.uk/>

²² Chris Higson and Dave Waltho. Valuing information as an asset. London Business School, 2009. <http://www.eurim.org.uk/activities/ig/InformationAsset.pdf>

This “sharing and integrating” is a way of bringing quality control to essential data as well as reaching the golden aim of collecting the same data once only²³.

2.4 Information Users

MPs and their research staff, councillors and those on the governing bodies of public sector organisations all need good quality information to exercise their scrutiny and policy development roles and will themselves be held to account by such information. In addition members of the public, as part of the “Big Society”, are being encouraged to participate more fully in public affairs including, as Eric Pickles puts it, acting as “armchair auditors” of public bodies. The extent of formal public debate in the UK is rarely appreciated. Central government (excluding the devolved administrations) undertakes over 300 formal consultations on matters of public policy each year; large local authorities can exceed 200 such exercises, and the NHS, police and other public bodies thousands more. Every one of these proceeds on an assumption that information provided is sound, and that participants can have confidence that dialogues take place on the basis of assured quality of information. Where this is disputed, the Courts have signalled a growing willingness to intervene. Both the public good and enlightened self-interest make it imperative that politicians address the issue of the quality of public sector information. Failure to do so will bring the political process and politicians into disrepute and further fuel public mistrust.

The rest of the briefing looks at the specific problems around information sharing, the challenges that need addressing, and makes recommendations to mitigate the problem and improve the quality of information produced in the public sector.

2.5 Information Sharing

Information is collected and stored because the organisation collecting it intends to use it for some purpose. The purposes are infinite. The information may be statistics to measure performance or to determine future policy. It may be personal data to deliver services to an individual or charge them for those services, and so on. In every case to achieve the objectives of the original purpose, it is essential that the information is “fit for purpose”. This means it must have a definition and meet a specified level of accuracy, currency and scope. If the information is to be shared these four characteristics – definition, accuracy, currency and scope must be known and understood by all parties, and be “fit for purpose” in the shared situation. In addition, if the information includes personal data, it will be covered by the Data Protection Act. Personal data can only be used by authorised people for a purpose for which it was obtained and for which the data subject has given their consent.

The following must be addressed for information sharing to be successful:

- a. Interoperability. To achieve interoperability the information definition is key. In addition, to collaborate and share information, each organisation must be trustworthy. Each organisation’s information management must be internally homogeneous and externally interoperable. It may be necessary to extract and convert information to an agreed format in order to achieve interoperability. The principles of this are described in the international interoperability standard, ISO 18876²⁴. It can be applied to complex things, such as personal details, or simpler things like a standard format for date, name or address.
- b. Joining systems together. Joining systems together involves technical, policy, process and people challenges. The technical challenge will be specific to the systems to be linked and will not be covered here. The policy challenges involve such things as: corporate policy, privacy regulations and export controls. Within an organisation intending to share data with another these policies will need to

²³ For the Data Connects Group see: <http://www.londoncouncils.gov.uk/capitalambition/projects/dataconnects.htm>

²⁴ For text of ISO 18876 see: http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=33702

be brought together and specified as a rule set and tools to cover the information sharing envisaged. In order that joining systems together achieves the purposes and objectives intended, a set of processes will need to be developed to cover the operational use and exploitation of the information. The final element that must not be forgotten is that where there is a need for manual intervention in the information sharing the people doing this will need to be trained to do it accurately and maintain data quality.

- c. Ethics & responsibility for shared systems. The overall risk and impact assessment associated with the information sharing should state how the risks are apportioned between parties and who is responsible for the information, its accuracy, integrity and security at all stages. Ethics are of particular importance if personal data is involved. Where this is the case then best practice is to take account of the following things, not least to ensure compliance with statutory obligations under the Data Protection Act (1998):
- Accountability
 - Before permitting others to use personal information ensure that they have effective operating procedures and security control mechanisms, including access control and data logging, to prevent improper access.
 - Maintain an accurate record of personal data shared with others.
 - Visibility
 - When collecting personal information and on websites make it clear that the personal information will be used by the other organisation(s).
 - Consent
 - Ensure that the necessary consent has been obtained from the data subjects for the purpose and use by the other organisation(s).
 - Access
 - Ensure that an audit trail of access to personal data is maintained.
 - Ensure that personal information is only to be accessed by those authorised to do so to meet a legitimate business need.
 - Stewardship
 - Treat the use of personal information by others in the same way as your own use, ensuring that before agreeing you will have visibility of the controls in place.

[Appendix 3](#) contains an example of information sharing data about schools.

3. Challenges

3.1 Current Challenges

There are a number of factors that continue to compromise the quality of information provided. These are:

- Politicians and public officials often fail to fully appreciate the value and power of information.
- The link between better information, better decisions and more cost-effective services is not always appreciated.
- The public sector is too often not organisationally equipped to deliver information that is fit for purpose.
- Data held by government departments, councils, schools, police forces and hospitals is not always good enough.

- Performance measures do not always achieve the right balance of aspiration, accountability and efficiency.
- Public bodies do not always have effective comparative performance and management information.
- There is duplication and waste at the heart of information collection.

The recent work of the Audit Commission across local government provides ample illustration of these factors. “Is there something I should know”²⁵ focuses on how Councils can make better decisions by making the most of information they have or can readily gather. Local government acknowledges it has fundamental problems using data and information²⁶.

- Less than 5 per cent of councils have excellent data quality and many acknowledge that their data quality problems are fundamental in nature.
- Almost 80 per cent of councils say a lack of in-depth analysis is a major problem.
- Two-thirds of councils say members struggle to understand information and half say that senior officers do. Yet half provide no formal training in this area and almost a quarter provide no support at all.
- Sixty-five per cent of councils still face problems sharing data with external partners. Many councils say their staff do not understand the Data Protection Act which means opportunities to reduce waste and duplication are often missed.

Many public sector managers acknowledge that their data quality issues are fundamental in nature²⁷

Duplication and inconsistency	'We have big issues on data quality. If a user of our customer records system can't find someone then we create another record – as a result one person features 67 times on one system.'
Basic data does not exist	'When you start scratching the surface you can find information is built out of sand. A year ago there were assumptions that were too optimistic – now we have a more realistic idea of where the organisation is. You can't start the improvement journey until you understand where you are. Some of the basic information hasn't been there at all – it wasn't wrong it didn't actually exist!'
Poor system design	'We have 300 people allegedly over 100 years old – this is because the default date of birth is 1900. We could spend 10 years on improving data quality!'
Inefficiency and confusion	'We need to put structure into the information we have got – which will make us more efficient. At the moment we might have 72 versions of the same file stored in several different systems. And we realise that information is being stored in places other than the core database. If this continues we will make poor decisions because our information will not be accurate, up to date or consistent.'

²⁵ Op.cit. 10

²⁶ op.cit. 10

²⁷ op. Cit. 10

Although this information relates to local government, the contributions to the EURIM Roundtable – Uncovering the Truth: Using information to deliver more for less²⁸ - suggest that it reflects a more general situation across the public sector. It is to the credit of local government that they have done most recent work in investigating the problem.

3.2 Information Literacy

One problem identified by the Audit Commission and others is the lack of skills in understanding, interpreting and using information intelligently. In part this may be addressed by the effective presentation and communication of information. A number of contributors at the EURIM Roundtable asked whether “raw” data or “well-dressed” data should be provided under the government’s programme of transparency. In concluding that both were necessary the latter was meant to help draw out the interpretation and meaning of the information for the non-specialist. However it is also important that non-specialists have enough skills and knowledge to be able to evaluate and understand the information they receive, including that which is “well-dressed”. This is often referred to as “information literacy” which CILIP (The Chartered Institute of Library & information Professionals) defines as:

“Information literacy” is knowing when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner²⁹.

This definition implies several skills including an understanding of:

- A need for information.
- The resources available.
- How to find information.
- The need to evaluate results.
- How to work with or exploit results.
- Ethics and responsibility of use.
- How to communicate or share your findings.
- How to manage your findings.

Similar concepts are addressed in “media literacy” (OfCOM)³⁰, and in the e-skills manifesto developed by e-Skills and supported by the British Computer Society³¹. The Digital Britain White Paper introduced the concept of digital literacy³². It is vital that politicians and senior managers have the skills and confidence to evaluate the information they are given effectively and when necessary to challenge it. In the new “Big Society” it is also necessary that the public are able to evaluate and interpret such information. This in itself would be a powerful driver to improve the quality of public information overall.

[Appendix 2](#) sets out the criteria that should be used in evaluating both data and information. But there are a few additional points that need consideration as well:

- When data is being collected it is most reliable when the people doing the collecting can see the value of the outcomes to their own work. Such data will be integral to the efficient and effective operation of the service concerned.
- Great care needs to be taken when using data (notably statistics) collected for one purpose in a different context. Often the data will not be robust enough to be used in such a fashion.

²⁸ Uncovering the Truth: Using information to deliver more for less: A roundtable discussion. EURIM/Audit Commission. February 2010 <http://www.eurim.org.uk/activities/ig/100222report.pdf>

²⁹ See <http://www.cilip.org.uk/get-involved/advocacy/information-literacy/pages/default.aspx>

³⁰ See <http://stakeholders.ofcom.org.uk/market-data-research/media-literacy/>

³¹ See <http://webarchive.nationalarchives.gov.uk/20100523112126/e-skills.com/about-us/2684>

³² See: Report of the Digital Britain Media Literacy Working group. OFCOM, 2009.

<http://stakeholders.ofcom.org.uk/binaries/research/media-literacy/digitalbritain.pdf>

- Requests for new data can involve heavy cost and should never be asked for lightly. For instance requesting additional information on the nature of crime could require over a hundred thousand police officers across the country recording this data: thus increasing bureaucracy and lessening the time of police officers on the beat.

Information must be seen as a strategic asset as much as finance or human resources and needs to be managed as such. This means training not only for the specialists but for those who use information as well. This is recognised in government's Information Matters Strategy and also forms part of the recommendations in the Audit Commission's report, "Is there something I should know?"³³. The needs of information users have to be addressed as well as those of information managers if quality information is to be provided and utilised effectively.

Our recommendations include a number of proposals relating to information skills and support for information users (see Section 5 for recommendations).

3.3 Future Challenges

Without action to reduce the impact of inherited and current challenges the situation will deteriorate as information proliferates. At best, the problems are increasing steadily. At worst they are about to undergo a step change. It is therefore pertinent to consider future challenges under five broad headings:

- Reducing budgets.
- The transparency agenda.
- Accountability.
- Competency.
- Virtual communities of practice.

Underlying all of these, as covered elsewhere in this paper, is the fact that there is strong agreement that much current information is far from fit for purpose. Wang & Strong (1996)³⁴ state that high quality data must be: intrinsically good; contextually appropriate for the task; clearly presented; accessible to the user. This can be considered a working definition of "fit for purpose" information quality.

Good quality information is essential to the effective and intelligent targeting of budget cuts. But there is also the risk that organisations will cut validation and security processes on duplicated systems instead of making greater savings by migrating applications to the systems of those organisations which have the better information management and not just the lowest apparent operating costs. A further risk arises when operations are closed or contracts terminated, eg that the equipment used will not be cleansed and data will be at risk of being sold on, including overseas to organised crime and fraudsters. The consequent losses could dwarf apparent savings, but can be prevented by following basic good practice, provided those responsible are aware of what this is and are mandated to follow it.

The transparency agenda of the government will not achieve its objectives of informed scrutiny and information reuse unless the information released is fit for purpose. Indeed, without appropriate quality of data there is a serious prospect of spurious issues and policy red herrings. In addition, the economic benefits intended to be built on the innovative use of publicly held information are unlikely to be achieved. In this context it should be noted that even a small quantity of poor quality data when combined with masses of good quality data can cause the result to be unfit for purpose.

Another challenge from the transparency agenda is that of maintaining privacy. Attempts will be made to anonymise data but the scale of some of the ambitions for use of the released

³³ Op. cit. 10

³⁴ Journal of Management Information Systems, Volume 12, Issue 4 March 1996

data raises potential problems: some of these can be seen from the recent release of monthly 'street-level' crime data in an open, standardised and reusable format. This is already one of the most commonly visited government websites (with visitor rates akin to those used for researching family trees) and the problems that arise from attempts to preserve anonymity are themselves, in consequence "transparent".

Accountability has been mentioned already but it also should be noted that the abolition and merging of organisations under budget cuts will mean that information will be transferred to new owners along with accountability for its quality. Accountability in these circumstances needs to be proactive and cannot just be assumed to be happening. Even if the absorbed information is of good quality and the extant information of the receiving organisation is also good the combination may not be. Accountability will need to be clear and precise. The Big Society and localism agendas mean that in many cases small community-based organisations or mutuals will be generating and handling official information and data. They will have a steep learning curve and require support in exercising their information management functions responsibly.

Although perhaps not obvious at first sight, competency of all stakeholders of information is a vital attribute of its quality. This is because quality of information does not exist in a vacuum but is the product of the information management lifecycle. The corollary of this is that there is a continuum of information quality competency requirements for the various stakeholders whether they are information professionals, consumers, policy makers, commercial organisations etc. Elsewhere in this paper, efforts to define and improve competency have been described but the future challenge is going to be spreading the appropriate competency across all stakeholders and not just for the professionals (see Section 3.2 on Information Literacy).

Another challenge will be to ensure that virtual communities of practice using online collaboration or social networking tools are producing a quality of information that is fit for purpose. Quality will no longer be, at one extreme, the product of the integrity of a single mind but could move, at the other extreme, to a "wiki-isation" which would produce quality as the survivor of a form of evolutionary pressure. Neither of these extremes is likely to fit the bill and the challenge will be to find an appropriate path.

The dramatic expansion of social networking poses particular problems, for it is accepted that no-one can police the data that is posted onto these sites. Yet they will play a growing part in informing public debate, so governments, companies and civil society cannot ignore them. The answer lies partly in monitoring their content and correcting the more damaging misrepresentations. But it also requires an effort to build confidence in defined information sources through establishing quality assurance metrics that are visible, well-understood and associated with public sector or government 'brands'.

4. The way forward

Many information professionals and commentators are concerned that developments in technology have outpaced the ability to manage information effectively. The "information revolution" needs to be managed if the hoped for benefits are to be achieved. However there have been a number of initiatives that address this shortfall.

"Information Matters"³⁵ is the knowledge and information strategy led by the Westminster government, managed by the National Archives and directed by the Knowledge Council. It sets out a framework for effective knowledge and information management to be adopted by all government departments and agencies and focuses especially on the information skills and knowledge required by civil servants at all levels, non-specialists as well as information specialists.

³⁵ Information matters; building government's capability in managing knowledge and information. Knowledge Council, 2008. <http://gkimn.nationalarchives.gov.uk/documents/information-matters-strategy.pdf>

The importance of information within government has also been recognised by including it as part of the responsibilities of Accounting Officers in each department and government agency and recognising it as a function of government alongside other professional areas such as finance, IT and communications. The National Archives also undertakes Information Management Assessments of government departments.

Representatives from both the National Audit Office and the Audit Commission indicated the importance they attached to proper information management at the EURIM Roundtable – “Uncovering the Truth: Using Information to deliver More for Less” – held at Portcullis House on 22 February 2010³⁶. The Audit Commission in particular has invested much in researching and publicising the shortcomings of information management within local government and the healthcare sector and its impact on the quality of services and political decision-making. Much of this is covered elsewhere in this paper. The abolition of the Audit Commission should not mean the end of such work as it is so important to the effective performance of local governance. It is to be hoped that the Local Government Group are willing and able to continue it.

Another important exemplar is the UK Statistics Authority³⁷. The UKSA has a specific remit to assess the quality of government statistics. It has achieved a better reputation for impartiality since 2008, when it began reporting to Parliament rather than the Treasury. In this it is similar to the National Audit Office.

It describes its role in monitoring the quality of statistics as:

“The Statistics Authority is required to monitor, and may report on, the production and publication of all official statistics (wherever produced), regardless of whether or not they are labelled as 'National Statistics'. The Statistics Authority must maintain a Code of Practice, a benchmark which allows independent assessment of the quality and integrity of official statistics (produced by ONS, government departments and the devolved administrations), before deciding to give them formal accreditation as 'National Statistics'”. The Agency has shown its willingness to intervene in matters concerning the responsible use of statistics - this was especially evident during 2010 in its comments on the use of National Crime Statistics.

The Information Commissioner's Office³⁸ too has regulatory functions under both the Data Protection Act (1998) and the Freedom of Information Act (2000) that pertain, in part, to promoting the quality of official information. In its role of promoting data privacy for individuals it seeks to ensure that the personal data kept by organisations is accurate (Data Protection Principle 4), and relevant and proportionate to the purposes for which the data was obtained (Principle 3) – these are also aspects of information quality. The relationship to information quality is less direct in regard to the Freedom of Information Act but a number of the recommended Codes of Practice – on records management for instance – are important in facilitating a proper approach to information management that will set a framework of excellence where information quality is more likely to flourish.

The Information Commissioner's Office (ICO) is an independent public authority set up to uphold information rights. It promotes good practice, ruling on complaints, providing information to individuals and organisations and taking appropriate action when the law is broken. The Information Commissioner is appointed by the Queen and reports directly to Parliament. Of all the bodies mentioned it has had the most impact on information management within official bodies as failure to comply with statutory requirements of these Acts is not only highly embarrassing but also very expensive. However its remit does not include assessment of the quality of information except in a few very specific areas.

³⁶ Parliamentary roundtable debate: uncovering the truth: summary of key points. EURIM/Audit Commission, 2010. <http://www.eurim.org.uk/activities/ig/100222report.pdf>

³⁷ For information on the UK Statistics Authority see: <http://www.statisticsauthority.gov.uk/>

³⁸ For information on the Information Commissioner's Office see: <http://www.ico.gov.uk/>

In our recommendations we look to build on these initiatives. In particular we would advocate a refreshed and revised Information Matters strategy within central government, reflecting the new political and organisational landscape, that is fully implemented. We recommend too that the Public Administration Select Committee takes a similar responsibility for information across the public sector that the Public Accounts Committee takes for finance and that an independent governance body for public sector information is created. The relationship of such a body with the existing Data.gov.uk service would be worthy of especial exploration as it is important that the information contained in the datasets provided on that portal should be quality assured.

5. Key messages and recommendations

- Information should be treated and valued as an asset. Good information is needed to underpin policy decisions and enable proper scrutiny as well as to drive operational efficiency and effectiveness. In the current financial context it is a vital component in making intelligent spending cuts.

Recommendation 1

- **Given the demise of the Audit Commission and the government plans for transparency and data re-use there is a need for an independent over-arching governance body for public sector information and information management standards with an independence and authority akin to that of the National Audit Office, Information Commissioner's Office or the UK Statistics Authority. Its relationship with the existing Data.gov.uk service, planned as the main dissemination channel for public sector data and information, would need especial consideration.**

Recommendation 2

- **Just as the Public Accounts Committee oversees public accounts so the Public Administration Committee should have a role in scrutinising government information standards and issues related to information quality and management.**
- Information must be managed by professionals with the requisite knowledge and skills, working within a robust framework of ethics and values. These will include experts in the collection, storage and dissemination of information including librarians, records managers, ICT specialists and archivists as well as those with the analytical skills to interpret information, such as researchers, statisticians and policy analysts.

Recommendation 3

- **The Knowledge and Information Strategy encapsulated in "Information Matters", published by the Knowledge Council in 2008 needs to be refreshed to reflect the new political and organisational landscape and fully implemented within government. Similar initiatives should be developed in other parts of the public sector. The public sector needs to rebuild its information management skills, at every level, including technical and professional.**
- Users need to have the knowledge and skills to assess the quality of information received, understand the limitations of its use within a particular context and the costs incurred to collect additional information. MPs and their researchers, councillors and those on the governing boards of public sector organisations need induction and training in this important aspect of their scrutiny and policy development roles. In the "Big

Recommendation 4

- **Induction and training in effective information use and evaluation should be provided to MPs, councillors and public sector appointees and also to public sector officers who are not information specialists.**

Recommendation 5

- **Key public bodies must issue guidance on how to use the information they produce, including how to evaluate it and what to do when errors are found.**
- Data collection is most likely to be accurate where it supports the business processes of the organisation concerned and can be seen to be important to operational efficiency. Where this is not the case the frontline staff who collect it will have no interest in the results or their accuracy.
- Collecting additional data has costs – for instance requesting additional information on the nature of crime could require over a hundred thousand police officers across the country recording this data: thus increasing bureaucracy and lessening the time of police officers on the beat.
- Care must be taken when using information collected for one purpose in another context – is the data robust enough to be used in this new context?

Recommendation 6

- **Any new governance body for public sector information should agree standards (with the relevant professional bodies) and enforce them, including standards for audit and accountability, covering information collected under statutory powers whether processed within the public sector or by outside contractors or partners.**

APPENDIX 1

The Political Context of Information

The recent NHS White Paper³⁹ speaks of the information revolution that is needed to underpin the reforms proposed for the NHS. In truth that information revolution has been with us for some time radically altering the way we deal with information. One iconic date often used to signal this change is 1990, the date the world-wide web was created. Over the past two decades the impact of developing technology has been immense, but the fear must be that the technology has often been in advance of the information management skills and knowledge necessary to deal with it effectively.

The fact that information has come of age can be seen in the increased political attention paid to it, and the nature of debate and discussions within the information industry. It is evident within the legislative landscape with major statutes passed governing our use of information including the Copyright, Designs and Patent Act (1989), the Data Protection Act (1998) and the Freedom of Information Act (2000). These Acts have spawned a host of associated legislation and regulation.

More recently the political debate has turned to how government, in all its manifestations, manages and capitalises on the value of its own information. At various times these concerns have focused on the commercial value of public information and also on the potential of information to give substance to ideas of “choice and voice” for consumers and citizens in the design and delivery of public services. There has also been a concern to improve the transparency and accountability of those exercising political power and to support evidence-based practice.

Key reports covering this ground include the report of the Office of Fair Trading on Commercial Use of Information (launched 28 July 2005, reported December 2006)⁴⁰, and the independent Power of Information Report (2007)⁴¹ authored by Ed Mayo and Tom Steinberg. The latter in particular focused on the need of government to engage with two new technology-empowered communities – participants in new web-based social networks and more sophisticated innovators with the skills and vision to add value to official information through “mash-ups” (combining different information sources to create a new product or service).

Other reports have focused on transforming the processes of government itself, improving efficiency and service outcomes and holding managers and politicians to account. An early report was “Transformational Government: Enabled by Technology”⁴² in late 2005 which set the agenda for subsequent initiatives in technology-driven change.

Coalition Government programme

This process continues with the programme of the Coalition Government. “This government believes that we need to throw open the doors of public bodies, to enable the public to hold politicians and public bodies to account. We also recognise that this will help to deliver better value for money in public spending and help us achieve our aim of cutting the record deficit. Setting government data free will bring significant economic benefits by enabling businesses and non-profit organisations to build innovative applications and websites”⁴³. Amongst a raft

³⁹ Equity and excellence: liberating the NHS. Department of Health, 2010. (CM 7881). ISBN: 9780101788120. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_117353

⁴⁰ Commercial use of public information. Office of Fair trading, 2006. <http://www.oft.gov.uk/OFTwork/markets-work/completed/public-information>

⁴¹ Ed Mayo & Tom Steinberg. The power of information: an independent review. Cabinet Office, 2007. <http://www.opsi.gov.uk/advice/poi/power-of-information-review.pdf>

⁴² Transformational government: enabled by technology. The Stationery Office, 2005. (CM 6683). ISBN: ISBN 0101668325. <http://www.official-documents.gov.uk/document/cm66/6683/6683.asp>

⁴³ The Coalition: our programme for government. Cabinet Office, 2010. http://www.cabinetoffice.gov.uk/media/409088/pfg_coalition.pdf

of proposals the key initiative is the establishment of the Transparency Board⁴⁴ under Cabinet Office Minister Francis Maude to oversee the process of making most public information freely available. Although it is the proposals that central government should publish details of all spending and contracts worth over £25,000 (and local Councils those over only £500) that have captured the newspaper headlines, the impact of some of the proposals may well be much more widespread and dramatic.

Professional

Broader developments in the information professions will also contribute to better management. Notably these include major initiatives aimed at developing the skills and knowledge of information practitioners including e-Skills and the British Computer Society's SofIA⁴⁵ – Skills for the Information Age – and CILIP's Framework for Qualifications and Accreditation⁴⁶. Professional bodies see such skills and knowledge being placed within a robust ethical framework underpinning professional practice. As part of the Information Matters programme the National Archives have developed a Government Knowledge and Information Management Skills Framework⁴⁷ bringing together the required skills across all the information professions. Meetings have taken place between the National Archives and a range of information professional bodies as to how the GKIM Skills Framework can be realised within government.

But it is not only the information specialists who need the skills and knowledge to perform effectively but also the users of information. This includes politicians and their researchers but also the public as part of general living skills. This "information literacy", as it is often referred to, is an important component in ensuring quality information. A discriminating audience, able to evaluate the nature of the information before it, will be an important driver for improving quality and ensuring that poor information is not used to justify decisions that turn out to be mistaken.

⁴⁴ For Transparency Board see: <http://data.gov.uk/blog/new-public-sector-transparency-board-and-public-data-transparency-principles>

⁴⁵ SFIA Foundation: skills framework for the information age see: <http://www.sfia.org.uk/>

⁴⁶ CILIP Framework of qualifications and accreditation see <http://www.cilip.org.uk/jobs-careers/qualifications/pages/qualifications-.aspx>

⁴⁷ Government Knowledge and Information Management Professional Skills Framework see: <http://gkimn.nationalarchives.gov.uk/framework.htm>

APPENDIX 2

What is Quality Information?

In approaching this topic it is helpful to understand:

Data – as numbers, words or images that have yet to be organised or analysed to answer a specific question.

Information – as being produced through processing, manipulating and organising data to answer questions and adding to the knowledge of the receiver.

and

Knowledge – as that which is known by a person or persons and involves interpreting information received, adding relevance and context to clarify the insights the information contains.

(Audit Commission)⁴⁸

The quality of information is therefore dependent on the quality of the data from which it is constituted. The Audit Commission have defined the characteristics that constitute quality data.

Six dimensions of good data quality

- Accuracy – accurate enough for the intended purpose.
- Validity – recorded and used in compliance with relevant requirements.
- Reliability – reflect stable and consistent data collection processes across collection points and over time.
- Timeliness – captured as quickly as possible after the event or activity and made available within a reasonable period of time.
- Relevance – relevant to the purposes for which it is to be used.
- Completeness – data requirements should be clearly specified based on the information needs of the body, and data collection processes matched to these requirements.

(Source: Audit Commission)⁴⁹

The six dimensions of good data quality are also useful criteria when evaluating information contained in reports and interpreting the performance information contained within datasets.

Additional criteria for evaluating information include:

- Provenance – especially important for external information. Which body is responsible for the information and who wrote it? What reputation do they have? In the digital world where “mash-ups” and information manipulation is increasingly common a history of the changes made to a document and by whom is also important.
- Presentation – is the data or information easily accessible? Is it accessible, or can it be made accessible, to those with a disability preventing easy access? Is the use of media appropriate to the topic concerned? Is there an executive summary or abstract?

⁴⁸Improving information to support decision making: standards for better quality data, Audit Commission, November 2007. www.audit-commission.gov.uk/Products/NATIONAL-REPORT/AE298947-73F0-4dcb-AF77D2520EECFCFB/ImprovingInformationToSupportDecisionMaking.pdf

⁴⁹Nothing but the Truth: a discussion paper. Audit Commission, 2009. ISBN: 1-86240-583-2. <http://www.audit-commission.gov.uk/nationalstudies/localgov/Pages/nothingbutthetruth.aspx>

- Clarity and coherence – Are the points in the argument clear and is the case well developed?
- Evidence – Where appropriate are sources of information identified and pointers given to other key resources?

Where information is managed effectively some of the above should be addressed in **metadata**. Commonly described as “data about data” it describes certain key characteristics of the data or information being considered including such things as dates of origination and amendment, authorship and publication details, intellectual property matters and other rights management issues, the purpose of the data, its file size etc. It is used predominantly within the digital environment although not necessarily restricted to it – an old library card catalogue could be regarded as an antecedent of metadata – and a number of schema for metadata exist with the Dublin Core⁵⁰ being one of the first. Work continues on establishing international standards to promote and enable better interoperability between systems.

However all the above must be subsumed into the most important question of all – is the information fit for purpose? Does it address the issues or questions that are at hand and meet the needs of its users and audiences? In the terms of this paper does it help improve public service performance, support consumer choice, aid decision-making and enable scrutiny and accountability?

⁵⁰ Dublin Core Metadata Initiative. See: <http://dublincore.org/>

APPENDIX 3

Information Sharing: the example of schools

Schools in the UK process the information of about 9 million children on a daily basis. The total volume is hardly noticed as it is performed in about 27,000 independent, self-contained locations. This is not just by the 400,000 teachers, but also by up to 90,000 administration staff and assistants. A school is typically involved in the operation of 10 different systems with records of attendance, achievements, school meals, libraries, parental addresses etc. Grossing up, there are about 250,000 operational systems.

Much of the data is shared, within a school, across schools, up to local authorities and to the Department for Education (DfE). They share childrens' names, addresses, dates of birth, nationality, parents' names, qualifications etc. Some data is a statutory requirement, such as registration of attendance, twice per school day. Some is necessary for the operation of timetables and recording of progress. Some is valuable for the transfer of children between schools, peaking at the beginning of a school year.

Is there an issue about data quality? The facile answer is "no"; we still teach children and administer their records. The more realistic answer is "yes"; for these reasons:

- There is a hidden administrative burden entering, correcting and transmitting school records. Often there is no automatic transfer of records, requiring manual re-entry of data – complete with transcription errors. Incoming electronic records may be invalid. It is said that 90% of the administration work is caused by 10% of the records ie those which are incorrect. Errors in one person's record could affect their entire career, but it has insignificant impact on school league tables or DfE statistics. All this is a high cost to the UK economy.
- Access to computer facilities by children and staff is now ubiquitous. Security is required to protect computer accounts from inappropriate access, malicious behaviour and bullying. Identity Management in schools and from home locations is essential. Data quality here means fitness for purpose. Usernames and passwords should be common across all systems used by teachers or students. Technology that is commonly used in universities is slowly spreading to schools. Allowing one sign on for accounts in many systems needs secure and reliable data sources.
- Whilst not applying to the vast majority of pupils, data sharing with external agencies cannot be ignored. Many of the high profile tragedies, such as Victoria Climbié and baby Peter, may have had better outcomes with appropriate sharing of personally sensitive data. The key to this is Identity Management and the ability to join records from different systems.

Research for Data Connects⁵¹ – "Data quality management in local authorities" showed four approaches: corporate led, performance indicator led, culture focused and technology focused. There was no generally recognised best practice, and schools are no different.

It is a mammoth task to resolve all the problems of data quality in so many schools. A vision of completely accurate, timely, secure and interoperable data may be clear, but not the method of getting there. It has to be tackled a bit at a time, in small digestible pieces. Leadership and an overall strategy are needed for the sector because no one organisation could complete the task. The power of the DfE is immense, but the independence of schools is sacrosanct. Legislation is needed to enforce any Departmental edict.

The context for data quality is:

- **Processes for daily operations in tens of thousands of locations and systems.** Basic quality principles, (Verifiability, Validity, Availability, Composition, Relevance,

⁵¹ Data quality management in local authorities. Tribal (for Data Connects), 2009. See: <http://www.eurim.org.uk/activities/ig/voi/Dataconnects2.pdf>

- **Governance of data collection and data sharing in schools, local authorities and DfE.** Empowering legislation is needed for heads, chief executives and everybody involved in processing data. The Data Protection Act governs what personal information may be shared; the identification of personal data is a key test. If data is to be joined, you must be sure that it refers to the same person.
- **Technology that supports processes and governance.** All too often the technology seems to be the driver, and it should not be so. As highlighted above, the operational cost of the technology adopted is enormous and it has resulted in systems that are not fit for national purposes. Systems have been locally optimised, producing a sub-optimal overall system.

The process and governance dimensions are largely agreed, although change is endemic and must be catered for. Schools need to operate independently, without undue hindrance from external authorities. The solution lies in **Standards**.

The need for interoperability requires standards; look at electric power, mobile phones, computer networks and rail tracks. Educational software is no exception. Standards have been developed for educational resources and administration for all levels of education. In a sense that was, and still is, part of the problem. Standards may be relevant in one context, but not another. Becta commissioned a study into the standards for administration systems⁵². The recommendation was to adopt the US originated Systems Interoperability Framework (SIF) and modify for use in the UK.

The SIF Association (UK) [Ref: <http://www.sifinfo.org/uk/>] was established as the meeting place for educational software suppliers, schools and representative bodies (such as Regional Broadband Consortia). Standards have been agreed and software developed that securely and accurately transfers data between any compliant systems. A certification process is in place. A computer hub at the centre of all communicating systems validates data against the data standard and ensures that it is correct for the receiving system.

One good example is the South West Grid for Learning, which has started integrating multiple applications for over 2,500 establishments⁵³. They can provide a simplified sign-on service, personal online learning space, collaboration tools and interoperability of many services. Quality is assured for all records that comply with the standard. Inevitably, such levels of integration highlight the poor quality of previous data. Slowly, but surely, the data can be cleansed and improve the efficiency and interoperability of school services.

A Note on Health

The situation in Education can be compared with that in Health that led to the “vision” of a single patient record, accessible to all at the point of need. Several billion pounds later that “vision” has resulted in an evaporation of enthusiasm and support because the resultant records are not trusted by clinicians, who feel they must maintain their own parallel recording systems or practice defensive medicine, repeating expensive tests (for example) because they feel they cannot trust what is on file.

Equally seriously the entry of statistical and management data, along with the need to enter “fictions” to cover what is not known but is mandatory for the transaction, can get in the way of treatment – even in the operating theatre. The consequences include the systemic mis-application of scarce resources.

The National Plan for IT has been described as a classic case of what happens when the disciplines of information management, let alone those of the clinicians who are professionally responsible for the quality of care, are overruled by political “vision”.

⁵² The strategic case for adopting the Schools Interoperability Framework (SIF) within the UK. BECTA, 2007. See: http://website.netmediaeducation.com/myportal/custom/files_uploaded/uploaded_resources/15/becta_case_for_sif.pdf

⁵³ For information on the South West Grid for Learning see: <http://www.swgfl.org.uk/Home>