Impacting Methodological Innovation in a Local Government Context – Data Sharing Rewards and Barriers

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Abstract

In this paper we explore a methodological innovation in a practitioner based context - data sharing, the integration of data sets from different sources to improve organisational knowledge and strategic decision making. In this case the innovation is explored within public sector organisations. Evidence for the impact of such approaches is drawn from a case study at a UK local authority, which took part in a long term project to explore the issues of data sharing within their organisation. The paper highlights the issues that arise in trying to achieve data sharing in a live context and the breadth of barriers that such an innovation faces. However, it also highlights the value that can result from such practices, once implemented.

Keywords: Data sharing, knowledge management, public sector research, impact

Introduction - Drivers for Data Sharing

When the Labour Government took office in 1997 one of their key objectives was to improve public services (http://www.labour-party.org.uk/manifestos/1997/1997-labour-manifesto.shtml). Perri6 (1997) stated that

‘The core problem for Government is that it has inherited from the nineteenth century a model of organisation that is structured around functions and services rather than solving problems. Budgets are divided into separate silos for health, education, law etc. The vertical links between departments and agencies in anyone field and professional groups such as the police, teachers, doctors and nurses are strong. The horizontal links are weak or non-existent...’

Clarke and Stewart (1997) suggest that the inability of government to solve cross cutting issues such as discrimination, criminality and poverty was down to a lack of horizontal ties between agencies. In order to solve these issues government would have to adopt an approach that included the co-ordination and sharing of knowledge, information and expertise. Since 1997 both the former Labour and the present Con-Lib Coalition Governments have introduced initiatives such as Local Strategic Partnerships (Urban Forum 2006), the
Comprehensive Area Assessment (Local Government Association 2010), Total Place (HM Treasury 2010) and to an extent The Big Society (UK Government 2010) to encourage collaborative working across the public sector in order to improve the quality of life of local people.

Improving performance whether it is in the Public or Private Sector is becoming an increasingly complex challenge for organisations due to an ever growing competitive and complex global environment (Milner 2000). Private sector organisations are generally driven more by gaining a competitive edge over their rivals and tend to adopt new ways of working more actively (Cong and Pandya 2003). According to McAdam and Reid (2000) new ways of working are usually adopted in the field and then filter to other industry sectors. Cong and Pandya (2003) suggest that in order to follow in the footsteps of successful Private Sector organisations Governments tend to follow suit. Milner (2000) provides examples of techniques adopted from the private sector including Total Quality Management, Business Process Reengineering and Enterprise Resource Planning. However Cong and Pandya (2003) acknowledge that there is a difference between how public and private sector organisations are run such as ‘human resource management, policies and practices, the management of ethical issues decision processes’. Willem and Buelens (2007) mention that the difference between private and public sector organisations include the ambiguity of goals, difference of environment and political influences. This can lead to difficulties in the business practices successfully transferring between these two sectors.

From an organisational perspective there is continuous pressure to increase the productivity and also performance of public services at a reduced cost and consequently the development and adoption of new innovations in the sector is highly sought after – new knowledge and new technology can seen as a route to improvement (Finger & Brand 1999; Gershon 2004). Knowledge and Information management is a process that is now being adopted and explored. The concept of sharing knowledge to improve public services is one that can be seen in the policies that are made by Central Government. Terminology such as ‘joined-up Government’ is tied into Government initiatives such as e-Government and is rolled out through concepts such as the Shared Services Agenda which was seen as a major cultural shift in working would release efficiencies as outlined by Gershon (2004). It was at this time that Government introduced concepts into the forefront such as evidence-based policy-making, benchmarking, spreading good practice and learning from the best in order to improve public services (Rashman and Radnor 2005).

Since the turn of the century a number of high profile failures by public service organisations such as the Soham murders1, an attempted bombing by an individual with special educational needs in SW of the UK2, Victoria Climbié3 and Baby P4 are indicative of a lack of collaboration and/or joined up approach to service delivery across public sector organisations. Two of these high profile cases are explored further below. Sir David Varney presented a typical example of how public service organisations were unable to share information or join up service delivery between them in the 2006 Service Transformation Report (HM Treasury 2006) where a citizen needed to contact Government 44 times following the bereavement of a family member.

The Laming report (2003) which looked into the death of Victoria Climbié asserted that various public bodies had been aware of the numerous elements of Victoria’s case, however between them they were unable to fit all the pieces together. Four London Borough Councils (Haringey, Ealing, Brent and Enfield), two Metropolitan Police child protection teams, NHS hospitals (located in Central and North Middlesex) and a specialist centre that was run by the National Society for the Prevention of Cruelty to Children failed to raise the alarm to child protection workers when Victoria was admitted with clear signs of beatings. Child protection committees were supposed to be able to achieve successful information sharing; in reality the Laming Report describes them as ‘unwieldy and bureaucratic’ the report also went onto say that these committees ‘had limited impact on frontline services’.

Sir Michael Bichard was appointed in 2004 by the UK Home Secretary to enquire into the Soham murders and examine the effectiveness of the police forces involved. His report (Bichard 2004) stated that he found ‘errors, omissions, failures and shortcomings which are deeply shocking’ and outlines one of the key failings ‘…was the inability of Humberside Police and Social Services to identify Huntley’s behaviour pattern remotely soon enough. Huntley had lived in Humberside where the police were aware of eight allegations of sexual offences against him. The Social Services unit was aware of another three further allegations against
Huntley that he had sexual relations with 15 year old girls. However there were no records which suggested that these particular incidents had been reported to the police. However Huntley had been formerly vetted for his post as caretaker at the Soham School and nothing problematic had appeared. Failure to detect his pattern of behaviour was because both these agencies viewed each case in isolation and because Social Services failed to share information effectively with the Police’.

It was also because, as the Humberside Chief Constable admitted in his evidence, there were ‘systematic and corporate’ failures in the way in which Humberside Police managed their intelligence systems. Bichard stated that the Police officers responsible for recording the intelligence information were ‘alarmingly ignorant of how records were created and how the system worked’. The Child Protection database which was in place was largely worthless because the information put into it was …unreliable’. Bichard went onto recommend:

- A clear code of practice should be in place for all police forces covering the following aspects of records:
  - Creation
  - Retention
  - Deletion
  - Sharing
- A clearer understanding of the Data Protection Act is required as this hindered data sharing as an overly cautious approach was taken

In recent times pressures from the Worldwide Economic Crisis (International Monetary Fund 2009) and the growing budget deficit of the UK Government and the impending spending cuts (HM Treasury 2010) that have been outlined by the Con-Lib Coalition government; decision making in the public sector is becoming ever crucial.

Government often draws upon examples of information use in decision making within the private sector. With the retailer Tesco (Rigby 2006) often cited as the shining light from the private sector in the United Kingdom, whereby through their Tesco Clubcard scheme they as an organisation are able to track the shopping habits of upwards of 13 million British families for more than a decade. This makes use of a vast amount of customer data and enables Tesco to track their customer behaviour.

It’s recognised that Government at all levels holds a vast quantity of data on customers (Anderson et al 2009). However problems occur when it becomes apparent that information is not always readily available to decision makers as it can be difficult to extract from systems in place and the decision makers themselves often lack the necessary knowledge or skills to draw appropriate conclusions from what is available.

**Public Sector Culture**

Public Sector organisations develop and produce a vast amount of data (Luen and Al-Hawamdeh 2001). While Alvesson (1993) points out that this is in affect a characteristic of all organisations to an extent, the production of knowledge by experts for public consumption as a core product - is the characteristic of Public Sector organisations (Starbuck 1992).

The structure of public sector organisations has traditionally been compartmentalised. ‘Silo’ is the terminology that is used. Cong and Pandya (2003) suggest that the ‘need to know’ basis, ‘Knowledge is power’, ‘What’s in it for me’ and ‘Not invented here’ can also be described as mind sets of public sector staff and managers. Perrin (1997) and the National Audit Office (2001) also suggest that due to the manner in which the public sector has been divided into silos it is difficult to manage knowledge and work well in a joint manner. Hackney and McBride (1995) support this as they suggest this has resulted in issues such as the incompatibility between public sector organisations and their IT systems.

Willem & Buelens (2007) state that although the design of public sector organisations has been studied for a while, it still remains a controversial issue. Mintzberg and Westley (1992) discuss machine like bureaucracy as an organisational type is more common in public sector organisations due to the standardisation of processes. However a review by Boyne (2002) showed varied results in that only six out of eleven studies confirm the bureaucracy hypothesis and Boyne further suggests that there is empirical evidence to support the
fact that formalisation of processes and bureaucracy are just as important in the private sector. However, the review also stated that evidence also showed that levels of commitment were lower in the public sector organisations.

Cowell & Martin (2003) carried out a study looking at the integration of the local government modernisation agenda whereby interviewees were asked a range of questions on the barriers to joined up working. Problems cited included the volume of new initiatives that had required to be implemented, as well as data format issues and the willingness of individuals to give up ‘their’ data.

When taking into consideration the above; this sort of information and knowledge are hardly ever shared across different units and different organisational levels. However the sharing of knowledge for reasons such as reciprocity, reputation and prestige does occur. Cong and Pandya (2003) suggest that in order to change the attitude and behaviour of the people and reduce barriers, a data sharing culture needs to be created which would include:

- Raising awareness of the benefits that a data sharing culture can have
- Building an environment of trust whereby people will not be afraid to share knowledge
- Develop leaders who foster sharing as a role model (i.e. champions of data sharing)
- Recognise and reward those who not only share but are also willing to use others knowledge
- Develop and nurture Communities of Practice – which are in effect knowledge centres within an organisation wherein a group of individuals with similar work responsibilities but who are not part of a formal team share and use knowledge.

Case Study – Plymouth Neighbourhood Profiling

The following case study explores the issues involved in introducing data sharing into a live environment. The study was run as part of a Knowledge Transfer Partnership between Plymouth City Council and the University of Plymouth which aimed to explore the requirement for improved information usage at a strategic level within the authority. A major objective of the project was to explore data sharing between local authority departments and partners (employment, police, fire and health services) to improve the level of knowledge when making strategic decisions.

A participative approach was adopted for the study – a researcher was actively involved in the development of the data sharing strategy and implementing the profiling project. This provided effective access to stakeholders and ‘data owners’ during the project which allowed for in depth analysis of the issues involved in the deployment of such practices in the local authority setting.

Plymouth is a City which is bounded by natural features including the sea, rivers and the Dartmoor National Park. The average quality of life in the City is quite high however as with other areas of the UK there are variations within the City boundary. The more affluent of the City are located in the South West. However according to the Index of Multiple Deprivation 2007 some wards within the City have a quality of life that is amongst the lowest 10% in the UK.

One anecdotal indication of the need for such an approach was the claim that the authority had no clear measure of the number of citizens who lived within the city. While this at the first instance seems somewhat unbelievable when one considers the data available to the authority it becomes more apparent why this is the case. The UK Census implements a statutory requirement for all citizens to return data about themselves and families. This would, one might assume, provide a stable data set for information such as number of citizens. However, the UK census only takes place every 10 years and can therefore become stale extremely quickly. Council tax payment databases, electoral registers, doctors surgery records, customer relationship management systems and similar also provide potential measures but are all incomplete (i.e. a citizen has to engage in the electoral role, register with a surgery, etc.). This presents authorities with significant problems – given their funding can be reliant upon number of citizens, inaccurate measures can result in under resourcing.
Even with this single example, it can be seen that implementing effective data sharing can be extremely beneficial for authorities, and the examples discussed in the literature highlight that potentially poor information can result in the loss of life. However, the strategy for data sharing can, of itself, be complex.

Plymouth Neighbourhoods

The formation of a ‘Local Strategic Partnership’ (LSP), The Plymouth 2020 Partnership, recognised that there was a need to produce an area based strategy that would help to ‘ensure people living in the most disadvantaged parts of the City benefit from a better quality of life and at least receive a quality of service and opportunity equal to other parts of the City and elsewhere in the country.’

Plymouth is traditionally divided into 20 electoral wards which are geographical, political, and administrative areas that very often do not correspond with residents’ perceptions of the area in which they live. Development of the Plymouth neighbourhoods stemmed from a recognition by partners within the City that the geographic boundaries that had traditionally been used for service planning and delivery (i.e. the electoral wards) may not always be appropriate. All too often, deprived neighbourhoods were either ‘hidden’ within the larger electoral wards, or crossed the boundaries of two or more electoral wards. In either case, these areas never stood out in official statistics. Equally important was the fact that in recent years, Government initiatives aimed at improving social and economic conditions (known as ‘Area-Based Initiatives’) have tended to be targeted at neighbourhood areas rather than at electoral wards. There was therefore a need to develop a geography that all partners could adopt and use for planning, service delivery, monitoring, and evaluation.

The Plymouth 2020 Partnership identified that there is no perfect solution as to how policies and initiatives are targeted on specific communities and to different people and groups. Different areas within the City can be defined in differing ways, for example what shopping facilities are provided, where children in the area go to school, the type of housing provided to local people and the geography of the area (i.e. position and number of roads, parks and railways).

The Government has provided vague guidance on the physical structure and conceptual notion of Neighbourhoods. Barton and Tsourou (2000) indicate that Neighbourhoods are places that people live, which imply a sense of belonging and community as well as providing shared retail, leisure and educational facilities.

Creation of Neighbourhood Boundaries

A group drawn from the statutory, voluntary and community sectors within Plymouth met over a number of months to devise a neighbourhood map of the city. The following factors were taken into account:

- natural boundaries and geographic topography – the location of existing natural boundaries such as roads, green areas, parks, railways and rivers.
- population size – the ideal was regarded as an area large enough to support project delivery, but small enough to differentiate local problems and opportunities. The government has encouraged working with an area that residents can regard as their natural neighbourhood, the National Strategy Action Plan suggests that an area with a population between 4,000-6,000 people would be most sustainable.
- existing area-based initiatives – the areas covered by initiatives already in place for which individual neighbourhoods had already been identified as the unit of delivery were incorporated.

The Neighbourhood map

The 43 Neighbourhoods were officially adopted by Plymouth 2020 in January 2003 and define ‘real’ areas with which people can identify. The Neighbourhood Map can be seen below; the Neighbourhoods have been drawn into 6 clusters across the City known as Localities.
Originally the neighbourhoods were not intended to replace existing boundaries in the city and were not intended for political purposes. Instead they had been developed in order to allow service providers to:

- redistribute funding across Plymouth in a fairer and more equal way
- achieve improved outcomes for local people (i.e. improve health, education, housing, and community safety within the Neighbourhoods)
- encourage residents to have a say in how health, police, local authority and national services are run locally
- make services more responsive and accountable to local needs and preferences

However, since their introduction the Police have embraced the Neighbourhood geography and have re-aligned their police beat areas to correspond with this new level of geography additionally police resources have been allocated to these areas such as Neighbourhood Beat Managers and Neighbourhood Policing Teams. The NHS and Primary Care teams have adopted the Neighbourhood Geography and feel a sense of responsibility towards these areas in which their patients reside. Additionally the Public Health Development Unit in Plymouth now produces a Health Atlas which is based on this geography, this document is used to inform service planning for the Primary Care Trust. The major statutory organisations within the City are now working at the same geographic level that community and voluntary sector groups have preferred for many years.

LSP Existing Profiling Activities

When considering the availability of data sets that might contribute to the neighbourhood profiling, a review of existing documents that could have been construed as a type of socio-economic research was carried out and a number were found:
Joint Strategic Needs Analysis – produced by the Public Health Dispensary Unit of the Plymouth Primary Care Trust
Children and Young People’s Needs Analysis – produced by Plymouth City Councils Children and Young Peoples Directorate
Children and Young Peoples Locality Profiles – produced by Plymouth City Councils Children and Young Peoples Directorate
Crime and Safety Strategic Analysis – produced by Devon and Cornwall Constabulary
Sustainable Neighbourhood Profiles – produced by Plymouth City Council

While none of these documents are in the public domain, it highlighted that there are many attempts to aggregate data within the LSP. However, although these documents were produced in ‘conjunction’ with the other LSP Partner organisations, they were written from a thematic and not holistic perspective, there was a lack of consistency in appearance, legibility and data used. Each of these documents was produced at a different time of the year even though the process of gathering data was very similar. Information requests were sent out across the LSP for data/information. This was then made available to the organisation/individual leading on the report as and when the data was available and has undergone a quality checking process. Data/Information were generally sent electronically via the medium of email and in spreadsheet (usually MS Excel) format. This process was repeated for each of the reports being produced and lead to quite a significant amount of duplication of effort in not only collecting the data but also in the storage of the data itself.

It was therefore proposed to establish a data sharing project that would allow a detailed mapping of available data sets, formats, frequency and location. The term associated with the organisation by one of the strategic information team was that the organisation was ‘data rich but information poor’. Something that was clearly illustrated by the early benchmarking work and prompted the need for area profiling which would be across partners and not work in isolation.

It was considered that the benefits of developing an area profile implementing data sharing would include:

- painting a rich picture of the quality of life and service provision in the different areas;
- helping to focus on people and place;
- providing a different perspective on locally well rehearsed issues; and
- identifying priorities that cut across service boundaries.

Developing an area profile could also support a number of objectives:

- Updating sustainable community strategy or developing a local area agreement;
- Setting a baseline and monitoring progress on priorities;
- Preparing for an assessment or inspection;
- Providing information on quality of life and local services for the general public;
- Developing a better understanding of the contributions of particular sectors; or
- Understanding differences in quality of life for particular communities of interest, such as children and young people, those with disabilities or people living in rural areas.

**Initial Development**

Questions were raised as to the level of profiling that could be undertaken when starting from scratch. Initial discussions were held with the view to producing a City wide profile; this would have been reasonably straightforward to produce as the majority of data (both local and national) is produced at Local Authority level. However, it was questionable about the value of such in terms of achieving the objectives above. Therefore, there were a number of levels of geography considered for the profiling:

- City Wide (Local Authority level)
- Locality
• Neighbourhood
• Electoral ward

Obtaining data at Neighbourhood level would be the most challenging as a lot of data sets were not readily available at this level. However the areas of Health, Crime and Education readily provide data at this level of geography. Neighbourhood level data if shared effectively could be subsequently used to aggregate upwards.

Profile Design

With 43 Neighbourhoods to profile something quick and easy to read would be required that would allow for easy comparison across Neighbourhoods.

This design included a number of features including:-

• Neighbourhood Map – this would be used to provide a picture of what the shape of the Neighbourhood looked like but also its location relative to the City as a whole and the position of various services within the Neighbourhood.

• Facts and Figures – an assortment of details about the neighbourhood including demographic/population information, data on housing and details of what kind of public sector facilities are available in this area.

• Thematic Scorecard – this feature would present data on various thematic key performance indicators giving an indication of what life is like in the Neighbourhood. If possible this could be compared with the average for the City, South West Region and the UK. The core points of detail in the Neighbourhood Scorecard include:-
  
  o A traffic lighting system which is designed to draw the user’s eye to indicators that are either performing well or performing poorly. An indicator is assigned a specific traffic light according to the rank it has. The Rank is a figure which indicates the placement of the Neighbourhood in question with that of the other 42. A rank of 1 suggests that this neighbourhood is performing the best in comparison with the other 42 for a particular indicator. While a rank of 43 suggest that this neighbourhood is performing the worst in comparison with the other 42 for a particular indicator.
  
  o A 3 year trend which indicates the direction of travel for the indicator compared to its value 3 years ago (i.e. is it improving or getting worse).
  
  o A Plymouth average value this allows for direct comparison between the value of the Neighbourhood and the City.
  
  o Regional and national comparative data have been displayed where it was available/suitable for direct comparison between the Neighbourhood level data.
  
  o A standardised score is used to attribute the overall position for all indicators relative to their value for other Neighbourhoods. This score has a numerical value ranging between 0 and 100. Table 1.0 shows how this process was carried out, indicator 1 represents an example of a neighbourhood based dataset where rate per 1,000 resident population is the measure. In order to assign a score for 0-100 to each value the poorest performing value within the dataset is assigned a score of 100 and each other value is then scored using the formula

\[ X = (Y/Z) \times 100 \]

Where X is the score

Y is the value for which you are trying to establish a score

Z is the highest value within the dataset of Neighbourhoods
Table 1.0 Example of rank and score methodology

| Neighbourhood Name | Indicator 1 (Rate per 1000 resident population) | Rank | Score | Indicator 2 (number of residents in receipt of Benefits) | Rank | Score | Overall Score | Overall Rank |
|------------------|-----------------------------------------------|------|-------|------------------------------------------------|=-------|-------|---------------|---------------|
| Neighbourhood B  | 248.0                                          | 1    | 100.0 | 100.5                                              | 2     | 83.75 | 91.88         | 1             |
| Neighbourhood A  | 124.0                                          | 2    | 50.0  | 120.0                                              | 1     | 100   | 75.00         | 2             |
| Neighbourhood C  | 85.5                                           | 3    | 34.5  | 25.9                                               | 3     | 21.58 | 28.04         | 3             |

If the formula is applied to the values in Indicator 1 then the scores highlighted in grey are calculated as:-

- Neighbourhood A would achieve a score of 50 as a result of the above formula
  
  \[(14.0/248.0)*100 = 50\]

- Neighbourhood B would achieve a score of 100 as a result of the above formula
  
  \[(248.0/248.0)*100 = 100\]

- Neighbourhood C would achieve a score of 34.5 as a result of the above formula
  
  \[(85.5/248.0)*100 = 34.5\]

By application of this formula to each value within each dataset an overall score for each theme area and an all theme score can be achieved. To calculate a Neighbourhood overall theme score the total scores for each Neighbourhood were added together and divided by the number of datasets in the theme, this overall theme could then be ranked.

The same method of adding together theme scores and dividing the number of themes was then used to produce an all theme score for each Neighbourhood. The ranking of overall score can then be used to identify the Neighbourhoods which are the poorest performing; Table 2.0 provides an example of this.

Table 2.0 Example of rank and score methodology applied to Themes

| Neighbourhood Areas | Education Score | Education Rank | Crime Score | Crime Rank | Housing Score | Housing Rank | Health Score | Health Rank | Economy Score | Economy Rank | Overall Score | Overall Rank |
|---------------------|-----------------|----------------|-------------|------------|---------------|-------------|--------------|-------------|----------------|---------------|---------------|---------------|
| Neighbourhood A     | 84.31           | 3              | 51.30       | 2          | 53.23         | 18          | 82.39        | 1           | 100.0          | 1             | 74.25         | 1             |
| Neighbourhood B     | 94.48           | 1              | 38.40       | 3          | 50.11         | 25          | 78.84        | 4           | 90.26          | 2             | 70.42         | 2             |
| Neighbourhood C     | 77.98           | 5              | 100.0       | 1          | 63.74         | 7           | 59.83        | 12          | 47.16          | 8             | 69.74         | 3             |

- A spider diagram was used to display the overall theme scores. This diagram was used to clearly display the gaps between the poorest performing and the highest performing Neighbourhoods and also be used to provide a comparison of the Neighbourhood with the average scores for the City. Table 3.0 and Graph 1.0 provide an example of this.
Table 3.0 Example thematic score data for use in Spider Diagram

|               | Health | Housing | Education | Economy | Crime | Environment |
|---------------|--------|---------|-----------|---------|-------|-------------|
| Neighbourhood A | 70.7   | 51.6    | 70.3      | 100.0   | 53.6  | 75.4        |
| Plymouth      | 48.3   | 62.9    | 60.0      | 35.5    | 28.5  | 56.0        |

Graph 1.0 Example of Spider Diagram used for Thematic Comparison

Issues in Establishing Data Sharing Agreements

Initially it was anticipated that individuals from across the partnership would be charged with the procurement and provision of data for Neighbourhood Profiling. Key contacts were established with Health, Crime and Education data as these areas were already producing data at Neighbourhood level for analysis and strategic level intelligence documents. However it became apparent that not all themes could provide an initial contact. This resulted in the researcher having to take responsibility for various data sets in different themes.

It also became apparent that there was a limited capacity across the LSP to undertake new projects. Obtaining officer time was very difficult and this often led to delays in acquiring data. Human factors in the obtaining of data (which was readily available) were a constant issue. While everyone was in agreement that data sharing was a good strategic objective the operational issues in implementing such were extremely difficult. As well as issues of availability the ‘silo mentality’ that has been discussed earlier in this paper was clearly identified in this study. It seemed that ‘gate keepers’ of information in some instances were very unwilling to part with data – in one case the researcher was asked ‘what do you want to do with MY data?’.

In addition, where data was available it was not always immediately in the correct format for integration with other sources. In practical terms, data quality and availability were key issues – while in general data was held in MS Excel format, the lack of guidelines for data formatting meant that even basic information such as dates and postcodes could different between two data sources. More significant issues centred around the ‘level’ of data – given different agents within the authority collected data at different levels (i.e. city-wide, ward level, neighbourhood level) integration was sometimes only possible after further additional processing.
For example, Job Centre Plus (the employment service within the partnership) holds a vast amount of data on benefit claimants which can be provided at Local Authority Level and Ward level. Unfortunately the systems that were in place were not able to extract data exactly to a Neighbourhood level. Therefore the provision of benefit claimant data at Neighbourhood level was not possible without a high level of manual data conversion.

Qualitative Data had been used in the Neighbourhood Profiles to provide details on what services Public Facilities such as GP Surgeries, Children Centres and Community Centre provided to residents within each Neighbourhood. However the quality of this information has been extremely difficult to ascertain. For example data gathered from the NHS Choices website on services provided by GP Surgeries (NHS Choices 2010) varies in accuracy and completion. When consulting the GP Surgeries some of the Practice Managers are unaware of the NHS Choices website, whilst others had entered any data on to the website so were unsure where the information was coming from.

Qualitative data such as local priorities is also supplied by Devon and Cornwall Constabulary via community meetings. However these meetings involve consultation and engagement with residents of the Neighbourhood that actually turn up to meetings. Often this can be a handful of individuals, who can then quite easily set their own individual priorities as those of the entire Neighbourhood due to the small attendance.

Illustrating the value of data sharing

This study has shown that the practical issues in achieving effective transferral of data sharing as theory and at a policy level into an operational setting can be prohibitive. The study has complimented and developed issues identified in the literature that horizontal data sharing can introduce technical, social and organisational culture issues that are not easily solved and highlight the fact that data sharing has to exist in complex, human-centric systems beset with all of the problems therein. However we can also demonstrate the value of such data sharing if those barriers can be overcome.

As already discussed, this study took place during the economic recession of 2008/09 in the UK. Clearly there was a need by the authority in this time to determine the impact of this on the city as a whole. However, until data sharing practices had been implemented the data that made this possible was only available at a city or ward level. Therefore, it was impossible to see the scale of impact on different neighbourhoods. The integration of Job Seekings Allowance claimant data, mapped onto neighbourhoods and then postcode can clearly show impact. The data is then overlayed onto mapping data about the city and neighbourhoods to clearly illustrate the impact of joblessness over the period of the recession:
While the city as a whole can be seen to have been affected the neighbourhood level data shows that the impact is greater in some areas than others. This level of information would not have been possible without data sharing in place and shows the benefits of adopting such an approach.

Conclusions

Innovative data sharing is a mean by which a large organisation can extract greater value from the information it holds. However, this study has also highlighted the reality of transferring the concept of data sharing from an academic or policy domain into practical implementation can have significant issues in terms of data portability, cultural change and silo mentality. However, what is also clear is that if all of these hurdles can be overcome, the impact of such innovations can be significant and provide information that has not been possible prior to integration. It should be noted that, due to cuts of local authority budgets, the current data sharing project at Plymouth City Council is on hold. Clearly methodological innovation in a practitioner context is not simply a question of knowledge transfer and cultural change but of top level management buy in, and in a time of cost cutting such practice may have to suffer in order to deliver operational practice.

Notes

1. http://news.bbc.co.uk/1/hi/education/8406378.stm
2. http://news.bbc.co.uk/1/hi/england/devon/8505209.stm
3. http://news.bbc.co.uk/1/hi/education/7737174.stm
4. http://news.bbc.co.uk/1/hi/uk/7758897.stm
5. http://www.ktponline.org.uk/
6. http://www.communities.gov.uk/publications/communities/indicesdeprivation07
7. http://www.ons.gov.uk/census/index.html
References

Alvesson, M. (1993) *Cultural Perspectives on Organisations*, Cambridge, England: Cambridge University Press.

Anderson, R., Brown, B., Dowty, T., Inglesant, P., Heath, W. and Sasse, A. (2009) *The Database State*. The Joseph Roundtree Reform Trust. http://www.jrrt.org.uk/uploads/database-state.pdf. Accessed May 2011.

Audit Commission (2010) *Comprehensive Performance Assessment*. http://www.audit-commission.gov.uk/localgov/audit/cpa/Pages/Default.aspx. Accessed May 2011.

Barton, H. and Tsourou, C. (2000) *Healthy Urban Planning*. London, Spon and Copenhagen: WHO

Bichard, M. (2004) *The Bichard Inquiry*. http://media.education.gov.uk/assets/files/pdf/b/bichard%20inquiry%20report.pdf. Accessed May 2011.

Boyne, G. (2002) ‘Public and private management: What’s the difference’. *Journal of Management Studies* 39(1): 97–122.

Clarke, M., and Stewart, J. (1997) *Handling the Wicked Issues: A Challenge for Government*. Birmingham, UK: University of Birmingham, Institute of Local Government Studies.

Cong, X. and Pandya, K. (2004) *Issues of Knowledge Management in the Public Sector*, Electronic Journal of Knowledge Management, 1 (2): 25-33

Cowell R., Martin J. (2003) ‘The joy of joining up: modes of integrating the local government modernisation agenda’. Government and Policy 24(3): 403-421.

Finger, M. and Brand, S. (1999) *The concept of the ‘learning organization’ applied to the transformation of the public sector*. in M. Easterby-Smith, L. Araujo and J. Burgoyne (eds.) *Organizational Learning and the Learning Organization*, London: Sage

Gershon, P. (2004) *Releasing Resources to the Front Line – An Independent Review of Public Sector Efficiency*. http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/media/C/A/efficiency_review120704.pdf. Accessed May 2011.

Hackney, R. & McBride, N.K. (1995) *The Efficacy of Information Systems in the Public Sector: Issues of Context and Culture*. International Journal of Public Sector Management, 8(6): 17 - 29.

Laming, H. (2003) *The Victoria Climbie Inquiry report of an inquiry by Lord Laming*. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4008654. Accessed May 2011.

Luen, T.W. and Al-Hawamdeh, S. (2001) ‘Knowledge management in the public sector: principles and practices in police work’, *Journal of Information Science*, 27 (5): 311-18.

McAdam, R. and Reid, R. (2000) ‘A comparison of public and private sector perceptions and use of knowledge management’, *Journal of European Industrial Training*, 24 (6): 317-29.

Milner, E.M. (2000) *Managing Information and Knowledge in the Public Sector*, UK: Routledge.

Mintzberg, H. and Westley, F. (1992) ‘Cycles of organizational change’. *Strategic Management Journal*, 13, S2, pp39-59.

Perri 6, (1997) *Holistic Government*. London, UK: Demos

Rashman, L., & Randor, Z. (2005) Learning to Improve: Approaches to Improving Local Government Services. *Public Money & Management*, 25(1): 19 - 26.

Rigby, E. (2006) *Ethical Consumers: Supermarkets and clothes chains alike have realised that shoppers view the ethics of sustainability and ecological responsibility as core to their buying decisions*, Financial Times 12 June 2006, p.4.
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