The Local Datavores - Research Workshop Report

April 2016

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Introduction

The local datavores programme is a series of research modules which seek to explore how local authorities can use data better to drive more value for people and communities. Councils have access to more data now than at any point in history. From council tax collection to protecting vulnerable people, this data can provide insight into how we can improve outcomes for people and communities with ever decreasing resources. This comes at a point where the need and opportunity for transforming the way local authorities meet local needs has never been greater, with budget cuts and devolution creating pressure to change traditional ways of working. If used effectively, local authority data can be a major tool of innovation, helping to achieve efficiencies and radical service transformation. The sophisticated use of data and analytics can be a key enabling tool in this process.

This report relates to the work to date on the in-depth case study module of the research, supported by the Local Government Association. The aim of the case studies is to enable us to understand in detail how data can be used to innovate, transform and drive value in local authorities and to communities. Developing this granular understanding will help us to uncover the key enabling factors for better use of data in local authorities. We will follow methodically the link between using data and what it means for changing working practices and improving outcomes for local residents, businesses and communities.

Summary of desk research

At the outset of this work we undertook desk research to establish where previous research has concentrated and identify where there are gaps in research relating to data use in local government and the wider local public sector. This was done to help us gauge where our case studies could focus to be of most use to the local government sector. We looked primarily at literature from the policy (including local government and third sector), academic and think tank community. The following write-up summarises existing research and highlights gaps which could be filled by our case study work.

The desk research indicates that there is a growing interest in how local governments can use data to improve the way they respond to citizen needs. However, the existing research also tends to focus on this as an emerging trend, with many of the reports highlighting a small number of leading-edge examples.

The relatively recent advances in the amount of data available, tools to analyse it and understanding of the ways this can enhance public governance and service delivery means that research has not typically provided in-depth, detailed analysis of how and why data projects (a term for the purposes of this report which includes data science and data
management and use) have been successful. This suggests that there is a gap for case study research which provides a highly granular understanding of the conditions and success factors for local government data projects.

Our desk research found a number of reports which indicate that local governments, in the UK and abroad, are not yet fully realising the value of data, both big and small. The potential of Big Data was highlighted by Policy Exchange in their 2012 report *The Big Data Opportunity*. This identified some of the key ways in which data could be harnessed by governments and the public sector, such as for providing real-time information, increasing the personalisation of services, and in better allocating resources through sophisticated risk models.

NLGN's *Demystifying Data* highlights some leading examples of good local authority data use, but situates this within the common challenges councils encounter when trying to do more with their data. The report identifies 5 key challenges for better data use: the need for appropriate IT infrastructure such as fast broadband; opening up data and generating demand for its use from the private sector; a lack of data analytics skills and understanding of how to use data; a lack of trust in the capability of data analysis and the uses of open data; and difficulties associated with information governance which prevent sharing.

We also found that there has been a strong focus on open data, following the prioritisation of openness and transparency by central and local government in recent years. For instance, the LGA have published case studies which promote good practice and ways to realise value from open data. McKinsey research has highlighted the value of open data to economic growth. Research undertaken by Deloitte on behalf of the Department for Business, Innovation and Skills in 2013 placed a financial value of £1.8bn from public sector data to consumers and businesses. Combined with estimated social benefits, Deloitte calculate the total value of open public data could be between £6.2-7.2bn. The report also identified three barriers which may prevent the UK from realising the full value of open data: legislative, economic and access barriers.

In 2016, Policy Exchange’s *Smart Devolution* identified the devolution agenda as a major opportunity for data-led innovation within local public services. This takes a strategic view of how central and local government can work together to make more of [three] key areas of opportunity presented by better data use;

- Offices of Data Analytics which can combine data and provide accurate diagnosis of problems affecting cities
- Stimulating economic growth through City Data Marketplaces which bring data together from the public sector, companies and individuals, and finally

More recently, the Bloomberg ‘What Works Cities’ network report *The City Hall Data Gap* identifies the gulf in the aspiration to use data in decision making, and the ability to actually do so, for city governments in the US. This study looked at four components of data use: public engagement, releasing data, performance management and taking action (informed by data). It found that on all counts, city governments were convinced of the argument for
using data, but had not yet translated this fully into action (see figure 1 below). This is a helpful confirmation of the need to undertake further research about how to bridge this gap.

**Figure 1 - The City Hall Data Gap - What Works Cities - Bloomberg Philanthropies (2016)**

<table>
<thead>
<tr>
<th>PUBLIC ENGAGEMENT</th>
<th>81% have engaged the public on a strategic goal</th>
<th>19% publicly communicate their progress on meeting that goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELEASING DATA</td>
<td>72% have invested in a tool or platform to release data to the public</td>
<td>18% have an established process for regularly releasing data publicly</td>
</tr>
<tr>
<td>PERFORMANCE MANAGEMENT</td>
<td>64% of cities have a performance management program to track progress toward key goals</td>
<td>30% have a process in place for analyzing and following up on the information</td>
</tr>
<tr>
<td>TAKING ACTION</td>
<td>70% are committed to using data and evidence to make decisions</td>
<td>28% modify existing programs based on the results of program evaluations</td>
</tr>
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Our desk research also found a number of reports which look at the potential of data in large cities, in particular by following the New York model and methods of its dedicated Mayor’s Office of Data Analytics (MODA). MODA was established to help New York agencies improve the delivery of services, share data between agencies and encourage best practice in data analysis, use analytics to provide insight for economic growth, and to model the impact of proposed legislation. In addition, MODA also acts as a data broker between New York’s many agencies. **Big Data in Big Apple** is an in-depth case study of the MODA and exploration of how it could be applied to London. **Cities, Data, and Digital Innovation** uses two case studies – London (U.K.) and Toronto – to examine questions about using data to drive economic growth, improve the accountability of government to citizens, and offer more digitally enabled services. These reports are a useful contribution, but are highly context-dependent and are of most relevance to large city governments.

It is also notable that there is limited documented evidence of the financial savings that can be generated for councils through data use. The Deloitte market assessment for BIS provides a detailed analysis of the economic value created by data at a macro-economic level, but does not help to quantify the direct financial benefits gained by the public authority that owns the data. The LGA’s report about the value of geospatial data in local public service delivery makes the case for a specific type of data. The report finds that the use of geospatial data can be an enabler for better service delivery, saving councils £ 230 million over 5 years. This is based on an average annualised cost-benefit ratio of using geospatial data of 1:2.5, creating a 0.2% improvement in productivity. The review found that there is a lack of this kind of detailed analysis for internal data use more broadly in local government.

These reports all confirm that data is an area of significant opportunity for local government, but do not provide in-depth understanding about how to realise this. In particular, there is a
lack of case study research about internal local authority data projects, their outcomes and key success factors. Filling this knowledge gap will be a key aim of this research project.

Advisory Group meeting

On the 14th March the Local Datavores advisory group met to discuss the focus of the case study module of the programme. The feedback from the group was that the case studies should:

- Have a broad spread of types of local authorities and region
- Have a broader focus than just the financial benefits (including social and environmental benefits), but should also create a framework for thinking about value creation
- Be weighted towards people-centred services, where examples are more persuasive than examples of back-office programmes (for which there will be more analogues with the private sector)
- Feature a mix of councils with varying capabilities, not just the leading-edge of councils
- Provide a compelling account of the power of data to improve decision making, services and outcomes
Summary of research workshop

On 18th March we held the first case study research workshop, attended by approximately 40 delegates from a range of local authorities.

Aims and Objectives

● To gather views from local government stakeholders about the opportunity of data use for councils, the challenges faced in realising this, and potential success factors
● To test from a local authority perspective what would be most useful for the case studies to focus on
● To share examples of innovative data usage supporting public transformation

Research Questions

● How do local authorities currently use data to support service transformation and make efficiencies?
● Where are the biggest opportunities for local authorities from doing more with their data?
● What are the key challenges in using data in decision making, service management, delivering digital services and transformation programmes?
● What are the enablers and success factors to better data use in local authorities?
● From a local authority perspective, which are the most important and helpful areas for the case studies to focus on?

The findings of the workshop have been used to help determine the focus of the case study research.

Speakers

At the beginning of the event, Tom Symons (Nesta) gave a short presentation about the research programme. Nesta is undertaking this work as the organisation has a long-standing interest in how data can be used to solve social issues. With big increases in the amount of data available to councils, and the power of analytical tools, local government is an area where there is significant untapped potential for data to improve services.

Gesche Schmid (LGA) spoke about the work the LGA has previously undertaken in this area and how the local datavores project helps to develop on this. In particular, the LGA are keen to work with Nesta to explore in detail the ways in which the use of data and analytics can help to create value for local authorities. The LGA is also very interested in producing insight about the role of data as part of work to design services around user needs, engage citizens, drive efficiencies, promote economic growth and create greater transparency.
**Cllr. Theo Blackwell** (Cabinet Member for Finance and Technology Policy, LB Camden) spoke about the way in which Camden have looked to the private sector and leading city governments from around the world to inform their use of data. Through the Camden digital strategy, the council has placed data at the heart of its decision making and operating system and uses it to remove silos, inform processes, and also acts as a portal which provides transparency about the council to people.

- Camden now uses data to produce its annual financial strategy. The use of data has enabled the council to move away from departmental budgeting to outcomes based budgeting.
- Data dashboards provide real time monitoring and visualisation of services. For instance in the housing management service dashboards provide real time information about repairs and voids. This helps to improve void turnaround time, which saves money and helps with a wider range of factors such as homelessness and temporary accommodation usage.
- Data is used to produce the ‘resident index’ and the Camden integrated digital record. The integrated digital record provides a complete picture of a citizen at the point of service delivery and can provide updates to frontline professionals about changes in circumstances. In addition, these tools can provide socio-economic and demographic information to other teams in the local authority.
- Data is used to make the council more open and accountable, through Open Data Camden. This gives residents direct access to data - which they can download, visualise and analyse. Examples include data about parking tickets, which enabled 45% of Freedom of Information requests about parking to be answered by directing people to the portal.

Camden are now exploring the use of data to further enhance decision making and the customer experience. For instance, trialling data-driven variable pricing for parking and implementing sensors in bins can better calculate tonnages, enabling the better targeting of behaviour change work which can increase recycling rates and reduce landfill tax payments.

**Michael Soper** (Head of Research, Cambridgeshire County Council) spoke about the approach his local authority has taken to incorporating data more in its work. The council is focused on two core strategic objectives: driving local economic growth and managing funding and demand pressures in social care services. Cambridgeshire’s journey towards making better use of data has been one of incremental change and improvement, rather than step-changes in performance. Michael provided some examples of how Cambridgeshire has used data to make improvements:

- Data analysis to enable pupil forecasting and planning of school places - bringing together data from the county council, district council and NHS to provide an accurate picture of future pupil numbers.
Cambridgeshire Insight OpenData - provides local information to people through a portal, with ‘data explorers’ to enable straightforward analysis as well as downloadable data sets.

Greater Cambridge Smart City Management Platform - a city-wide sensing project, which pulls information from a network of sensors and then processes and structures it for use. The data is used in three main ways
  - City management - such as optimising traffic light sequencing or traffic, street lights and digital information signs
  - Analytics and visualisations
  - Open data for 3rd party app developers

Eddie Copeland (Director of Government Innovation, Nesta) spoke ahead of the second breakout session about some of the potential opportunities for data use in local government. Eddie highlighted examples from the private sector whereby companies have made improvements or efficiencies on the basis of insights gained from data science. There is a growing number of people working in and around public services who now see such approaches, which take huge datasets, analyse them and look for patterns and insights, as a lead which the public sector should now follow. In doing so, Eddie offered three ingredients of good data science developed by Marc Warner, the CEO of ASI Data Science, as a guide to using data to develop solutions. These are:
  - Good data
  - A well-defined challenge
  - The potential for big impact

For councils, this can be one of the tools required to tackle a period of continued budget reductions, especially if they are able to use it as a means of averting problems rather than reacting to them. Through data analytics and other digital technologies, this could enable councils to move to a world where councils could use data to identify the early indicators of problems such as fly-tipping or even child abuse, helping public servants to prevent them happening.

Eddie offered some examples of where this could be used. For instance, predictive analytics could be used to identify potential troubled families earlier, and to put in place interventions which could support them before they reach crisis point, saving considerable sums. For example, in Oldham thirty-one separate organisations can be involved in supporting a troubled family and their interactions can be numerous, complex and expensive. The estimated total cost of responding to just one particular family in 2011–12 was £47,235.

The example of Newham was given, where they are bringing together data from different line of business systems to spot households which are inappropriately claiming single person council tax discount.
Eddie also gave examples of some of the leading pioneers of data science in local government, such as the Mayor’s Office for Data Analytics in New York where they are using combined data sets and analytics to predict where fires are most likely to occur, which restaurants are most likely to be illegally disposing of cooking oil, and where to respond to emergencies.

Local authorities in England have the opportunity to use data to far greater effect than they currently do. In order to do so, they will need to ensure that they can access quality data from multiple sources, that they can ask the right questions of the data, and that decisions can be taken that are informed by the insights provided which have the potential for significant impact.

**Breakout Session 1 - the challenges to using data more effectively**

In the first break-out session we asked attendees to discuss the common challenges they encounter when trying to make better use of data. The responses from each group were analysed and can be grouped into four broad themes

1. **Challenge of sharing and integrating data**

   In many local authority contexts, the benefits of data are greater when data is shared with other council departments or public agencies. Participants suggested there were two main challenges. Firstly, data sharing is technically difficult because the data is often stored in legacy IT systems which struggle to talk to each other, and for which there are a lack of common data standards. Secondly, data is often held diffusely across organisations according to traditional top-down silos. Extracting data from these silos in order for it to be integrated creates information governance difficulties, as there are both restrictions on and a common lack of understanding about how data can be shared. More prosaically, data sharing, as well as analysis, can be made more difficult by poor data quality or data management.

2. **A lack of buy-in from senior managers and politicians about the value of data**

   The discussion groups all highlighted the need for senior manager buy-in and leadership for successful data projects. This was seen as crucial to having the authority to then tackle other challenges, such as information governance. Many respondents reported that when there is a lack of senior leadership behind data projects it creates a challenge. This was attributed to a lack of awareness from chief executives, senior managers or council leaders about the value of data, or sometimes a lack of data literacy. It was also noted that this can result from a lack of a compelling business case being available to support data projects.

3. **A lack of data scientists and analysts, and data science skills in local authorities**

   The discussion groups highlighted that there is frequently a lack of sufficiently skilled data scientists and analysts in local authorities. This means that there is a technical capacity gap, limiting the types of analytics that can be attempted. It also restricts thinking about the
The lack of skilled data scientists was attributed to both a lack of understanding about the role of a data scientist, and a lack of funding or flexibility within pay bands to pay the market rate for data scientists.

4. A limited organisational culture about how and why data can and should be used

One of the challenges for council's is the approach they could take to data use. For example: some councils struggle to understand the potential of data use simply because they struggle to ask the right questions about data and how they can be used to provide the intelligence to target services and improve outcomes. It was also noted that councils do not approach data use in an agile, iterative way and instead seek to develop the technology without knowing first what problem it will solve or how it will be used. This contrasts with other councils where data use is led by problems which need to be solved, and each project is used to generate a ‘proof-of-concept’ which can be used to support further data projects.

Opportunities for local authorities to make more of their data

In the second breakout session, we asked attendees to discuss the opportunities to make better use of their data available to their local authorities. This produced a wide range of ideas about where there is potential for councils to get more from data. These included:

- Predictive Analytics
  - In children’s social care, to provide greater risk management at the front door
  - In business licensing, to predict which premises are most likely to violate their licenses
  - Predicting future social care needs
- Business Process Efficiencies
  - Business intelligence models to find efficiency savings
  - Providing intelligence to suppliers
  - Digital tools to reduce manual data entry and searching requirements
- Social housing management
  - Maintenance and repairs work - such as information for repairs engineers on age and repairs history of boilers etc
  - Improving void turnaround times and speeding up the process of getting families out of temporary accommodation
- Multi-agency working
  - GPs recording data which is relevant to social care needs
- Community engagement and development
  - Data as a means of establishing needs and engaging with citizens
  - Impact of welfare reform
  - Quality of private rental market
- Smart places
Optimisation of transport, energy

City/town sensing projects which use networks of nodes to measure temperature, light, noise, motion, electricity consumption of attached devices, vibration of attached Internet of Things devices

Public Health

Providing early identification and prevention of public health issues

Infrastructure, planning and growth

Forecasting population growth and infrastructure and service needs e.g. school places

Planning for new transport and housing schemes

Assessing impact of policy changes on local infrastructure

We concluded the event by asking attendees what they thought should be the focus of our case studies. The key recommendation was to produce tangible materials which can be used to persuade senior decision makers of the value of data.

Nesta together with the LGA will be using this feedback along with other research to develop a methodology for further case study research.