

Everything Happens Somewhere

Address and street data: a common standard for digital transformation



Introduction

Transforming the way services are delivered provides a key to delivering critical services with less. Sharing data is a cornerstone of being able to do this, but sharing data is a huge challenge in itself.

However, it is also a huge opportunity, with many reports and studies estimating that millions of pounds could be saved by embracing data sharing and collaboration.

The address and street information produced and maintained by locally by councils enables data sharing by exchanging information from different council departments together to give a property or street level view of service delivery.

This report outlines core activities that can be carried out by councils today to save and deliver better tomorrow.

Councils can achieve this by:



1. Building a strong foundation - adopt the UPRN and USRN as your council's definitive master location references

2. Maintaining the data as a corporate asset for your council to avoid duplication and erroneous data

3. Creating a culture of sharing - ensure that the UPRN and USRN are linked with council functions and services

4. Using the data to enable partnership working between organisations at a local level

About this report



GeoPlace works with every local authority across England and Wales to build and maintain the National Address Gazetteer and the National Street Gazetteer. In doing so, we have developed a community of local authority Address and Street Data Custodians with whom we work in partnership.

Each year we run an annual conference which focusses on facilitating knowledge transfer, promoting best practice and includes a number of practical sessions providing support and training and present Awards to authorities who use their address and street datasets to enable efficiency savings or service improvements. Jason Kitcat, former Leader of Brighton & Hove City Council, was a keynote speaker at the conference and provides a foreword to this briefing.

Many of the examples of best practice within this report are taken from the conference and Awards. This report provides scalable examples that demonstrating how this data, already freely available and held within every local authority in Great Britain, can create efficiencies, enable data sharing and bring services together.

Implementing the four activities stated on the previous page will help councils to realise the benefits from:

- 1. Harnessing standardised data**
- 2. Providing a platform for interoperability**
- 3. Reducing fragmentation**
- 4. Using data to make savings**
- 5. Service redesign and transformation**
- 6. Bringing public services together**

GeoPlace is a public sector limited liability partnership between the Local Government Association (LGA) and Ordnance Survey. GeoPlace was set up in 2011 by government in recognition of the national value of address and street data and works in collaboration with its partners in local government and Ordnance Survey.

Foreword by Jason Kitcat

Public services face extraordinary times: On the one hand demographic changes and budget reductions present us with huge challenges. Yet on the other hand the opportunities to collaborate and redesign our services have probably never been greater, mostly thanks to digital technology.

The citizens we serve expect more open, flexible and effective services than ever before. They are comparing how their public services operate with their experiences of mobile phone networks, online shopping and 24/7 banking. At the moment the comparison isn't always a flattering one.

So one thing is certain: change is a must.

How can we seek change for the better in such straightened times? This noteworthy report gives concrete examples of how we can build the

faster, better, cheaper digital public services of tomorrow. How?

- Through collaboration across places, within places and between diverse levels of services regardless of whether they are directly publicly owned, or not.
- By agreeing common standard and frameworks which enable far more effective linking to the data we already hold.
- By re-using that fantastic data we already store. We collectively are so rich in data which sadly too often is left to languish in the splendid isolation of a departmental corner.

GeoPlace is a remarkable success story, a true collaboration across the entirety of local government and beyond. Yet the potential for the data it produces has not yet been fully realised. The examples in this report show how much more could be achieved if wider

use of the fruits of GeoPlace's work became embedded in all that public services do. This report makes a special contribution by not just setting out the case for digital transformation, but by giving real examples of how it can be done.

In reading this report we see how vital Custodians are to creating the data infrastructure we must build our future services on. Yet sadly not enough senior officers, nor politicians, know Custodians even exist! It's time for Custodians and their colleagues to speak up, to educate decision makers and to be proud of what they achieve. Being loud and bold is the order of the day.

We are so incredibly lucky to have GeoPlace and Custodians curating the national infrastructure of standard address and street data. Now we need to build on that to deliver the public services of the future.

I hope we all agree that change is inevitable and that through digital tools we can save significant sums and we can build better services too. Please use the reams of evidence in this report to be bold, proud agents for public service transformation.

Let's go!

Jason Kitcat is an independent advisor to local and national government on digital transformation. He is the former Leader of Brighton & Hove City Council and winner of the 2015 LGiU Judges' Special Award for Contributions to Local Government.

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Foreword by Claire Holloway

Head of Corporate Governance, LGA

Local authorities are at the forefront of local decision making, commissioning and public service delivery to support and engage with people, local business and community groups to improve people's life and the environment they live in. This includes local transport, planning and development, environmental protection and conservation, public health, adult social and child care, trading standards, leisure and culture to name just a few.

However, the way services are provided are fundamentally changing due to cuts in funding, an increasing pressure on services due to demographic changes, and the way we interact increasingly in digital ways. Local authorities have to transform to meet these changing demands. Devolution, shared or combining services, commissioning and digitisation of services are part of the local transformation to do more with less.

Data play an important role as it provides answers to questions about the what, where, who and helps in the decision making process to find solutions. There is a growing recognition in the public sector of the rich value of data as a resource to save money and target stretched resources where they are needed most. Data has also been used to promote economic and social growth by understanding which interventions make the most difference or are a direct source of revenue.

The digitisation of services increasingly relies on high quality interconnected data. Much of the data revolves around people and places. Address and street data are an important identifier of places and where people are. Local authorities have long recognised the importance of consistent address data for defining places through their land and property gazetteers. The address and street gazetteers become nodes for linking vast amount of data within and between authorities and other organisations.

Geoplace has worked with local authorities for many years through the 'Everything Happens Somewhere' programme to understand the potential of the address and street gazetteers and to use the Unique Property Reference Number as a common identifier to link data from a diverse range of systems and services and relating them to the same place, property, person, business or service. Bringing data together through a common reference dataset such as the address and street gazetteers saves money as it avoids duplication and provides linkages fast and efficiently. The power of this common address identifier starts to be understood in a range of policy areas.

Linking these pieces of information is helping to paint a picture where local authorities provide services and where people are in need. For example it helps to immediately identify a vulnerable person that needs special support in case of an emergency. Recent emergencies in flooding demonstrates the power of this data to link information about flooded

properties to the needs of its people, the impact of the flooding on business and livelihoods. It does not replace the individual story but it helps to assess and to evaluate the extent of need to plan, coordinate and deliver support and help quickly.

The aim of this publication is to understand the value of this data in services delivery and transformation and the need to manage this resource to support the current and future requirements of modern local government. The examples are countless ranging from social care, to council tax, waste management, troubled family, fraud, welfare reform. The breadth of applications is overwhelming and the case for using the data so convincing. If you have not made the most of your data, this book makes a compelling case for the wider use and sharing of data and should be a must read for anyone who wants to transform their services, make savings, and provide better citizen services.

Public Sector Mapping Agreement

By Graham Hughes, PSMA and OpenData Agreement Manager

The PSMA is a 10-year agreement between Government and Ordnance Survey allowing public sector organisations to use centrally funded, geographic spatial datasets from policy development to delivery of key citizen services. It provides access to the most accurate maintained core geographic datasets from Ordnance Survey that cover Great Britain - from a national view down to single building detail. Spatial data is proven to deliver significant benefits right across the public sector and the contract is managed by Department for Business, Innovation and Skills on behalf of all public sector organisations in England and Wales.

Since April 2011, the PSMA offers many efficiency and cost saving benefits for those who use it within public sector organisation in England and Wales. More specifically it:

- Offers a common location data framework for joining up policy and services for the citizen
- Reduces duplication
- Allows the organisation to make

informed decisions, which result in time and cost savings and efficiency improvements

- Enables better planning to meet e-governance targets and initiatives
- Improves cross public sector partnerships

Having all members under the same terms also means there are no limits to sharing data between organisations, as part of delivering public sector 'core business' activities. This includes sharing data with contractors and other parties who are working in partnership on a particular project.

The benefits of the PSMA have been captured in a range of case studies, which are created by the PSMA Members and Ordnance Survey. They describe the specific challenge or issue that arose, the solution implemented and the benefits achieved. The benefits identified by PSMA Members are often expressed as financial return on investment or as wider policy benefits. By 31 March 2015, there are 157 published case studies of which 71

PSMA members identified over £57 million per annum of customer stated efficiencies and savings supported by the use of PSMA data.

With the introduction of the PSMA, Ordnance Survey has focused on working more closely with the public sector on collaborations, which will bring benefits to both parties and support wider public sector initiatives and policies. Two examples of this is Ordnance Survey's support to the **Natural Hazards Partnership** and **ResilienceDirect**. Mapping data has been used to improve the hazard warning service to categories 1 and 2 responders and web portal provision for Civil Contingency Secretariat, on behalf of local resilience forums - all of which have been in action during the past 12 months.

PSMA data has been used to support the planning and creation of a wide range of key government policy initiatives including:

- The Cabinet Office's Electoral Roll Transformation Project;

- The Department for Work and Pensions (DWP) 'Tell Us Once' programme;
- The DWP Universal Credit programme;
- The Office of National Statistics 'Beyond 2011' programme, looking at the use of AddressBase data to support future censuses;
- The use of AddressBase data by HM Revenue & Customs, in its back-office systems to help identify tax evasion and other fraudulent activities.
- Working with the Cabinet Office on the mapping for emergencies service and the wider Global Monitoring for Environment and Security (GMES) capability.
- Royal Mail PAF Public Sector Licence for all public sector organisations using AddressBase
- One Public Estate programme, releasing excess government land and property
- Supporting local communities through Neighbourhood planning, Localism Act

Executive summary



When resources are tight and the job in hand still needs to be done, it's hard to take the time to see if there is a better way of doing things. The case studies in this report demonstrates that there is value in reassessing how things are done, both in the short and the longer term.

Whether it is managing school admissions, planning street works, routing emergency services or online identity verification via the CRM -the majority of service delivery has a location. Using a standard location reference base of streets and addresses with unique identifiers provides the intelligence needed to understand what is happening at a particular place – a property level.

- An average local authority has 30 core application systems that rely on address information. This is based on analysis of the SOCITM Software Application
- The use of local address data information has already brought efficiency savings of £54 million per annum to local authorities and a proposed productivity increase of up to £24 million as outlined in a report by the Centre for Economics and Business Research

- An LGA study identified a cost benefit of 1:2.5 for implementing standardised addresses in local authorities and productivity increases of up to £24 million.
- GeoPlace has commissioned a further study examining the return on investment in address and street data for local authorities. The report will be available in April 2016.

The provision of local government address data through the Public Sector Mapping Agreement (PSMA) provides a mechanism for linking systems across public sector bodies and obtaining even larger transformation benefits.

The wide adoption of the use of this standard address reference base in local government and in the wider public sector would enable significant efficiencies and transformation to take place.



Harnessing standardised data

Local authorities in Great Britain create local address and local street databases for their administrative areas which are maintained by the authority Address and Street Custodian through local government's statutory responsibility to name and number streets.





Harnessing standardised data

A | Standardised data

Standards define data in a common way to have the same meaning and structure so that data can be easily combined and compared with other information. This provides the connection between data and services.

Common data standards, allow different IT systems 'to talk to each other' to enable an end-to-end solution.

Local authorities build their local address and street databases to conform to the British Standard BS7666 – Spatial Datasets for Geographic Referencing. The national standard specifies a standard format for holding details on properties and streets in the UK. The datasets are also maintained to a common format which ensure consistency of data across local government.

This means that there is a common data standard for 'location' for identifying and referencing land, streets and property.

Council address and street databases are updated each day by councils from intelligence received from a wide range of internal business areas such as planning and building control, taxation, environmental services, streetworks, street naming and numbering, waste management, licensing, social services and housing.

The appendix demonstrates the comprehensive nature of the information held within the address and streets databases.



Harnessing standardised data

B | Unique identifiers for linking datasets

Each record in the local address database contains a Unique Property Reference Number (UPRN) which is the unique identifier for every addressable location in Great Britain. Each record in the local street database contains a Unique Street Reference Number (USRN) which is a unique identifier for every street.

These unique 'keys' are created by local authorities who have the statutory authority to name and number every street and property within their local area and Ordnance Survey who identifies objects on the landscape which may otherwise not attract an address such as churches, community centres, depots.

The UPRN is a comprehensive, complete and consistent identifier throughout a property's life cycle - from planning permission and street naming through to demolition. The UPRN is an underpinning linking mechanism that removes errors in data exchange and communication, and delivers efficiency gains in operational processes. The UPRN provides a consistent point to join information together from different databases.

In the same way that addresses are used to communicate information about the world around us, the UPRN performs the same role in digital data sharing. Like every citizen has a National Insurance Number, every internet-enabled device has an IP address and every book features an ISBN number, every addressable location has a UPRN.

Using the UPRN, information related to that property such as planning applications, business use, council tax, waste collection, living address of vulnerable people or school age children can be understood. Linking these pieces of information is helping to paint a picture where local authorities provide services and where people are in need.

For example it helps to immediately identify a vulnerable person that needs special support in case of an emergency. The UPRN acts as a key identifier to link the pieces of information and enables local authorities to offer services in the most effective way.



Harnessing standardised data

c | Making data available

Councils across England and Wales have a contractual agreement to supply their address and street databases, together with updates, to GeoPlace which manages the local inputs into national datasets, the National Address Gazetteer and the National Street Gazetteer.

GeoPlace receives over 6,000 update files per month with around 2 million attribute changes, demonstrating the huge volume of change within land and property across the country. GeoPlace also takes land and property data from national organisations such as the Royal Mail, Valuation Office Agency and Ordnance Survey which ensures that the data within the National Address Gazetteer is the most complete, maintained address dataset available.

Ordnance Survey takes this data and through the Public Sector Mapping Agreement (PSMA) makes it widely available, free at the point of use for the entire public sector through the AddressBase® range of products.

This means that as well as local authorities using the data to run their services, collect taxes and manage their electoral registers, the same data is being reused for emergency response by the Blue Light Services, by HM Revenue and Customs to collect taxes, by Department of Work and Pensions to pay benefits and by the Environment Agency to produce detailed flood plans as well as other agencies



Providing a Platform for interoperability

A master index of addresses provides extensive efficiency savings by eliminating the requirement to maintain multiple address datasets across the authority. There is no need to re-key and maintain information in many departments when it can be managed in one place and made available to anyone that uses address information in the authority. The following examples demonstrate the benefits to councils.

One central database of addresses rather than information dispersed across the council in separate, isolated silos

Reduces duplication within and across authorities

A single consistent register of address and property information to provide a single property view

Offers a repository for councils to access 'out of area' information



Providing a Platform for interoperability

A | One central database of addresses rather than information dispersed across the council in separate, isolated silos

Wychavon District Council

The address team at Wychavon District Council carried out an extensive data cleansing exercise of the authority address data. Through the improved data quality, the team can support digital transformation by using the validated address data to link up information across the authority to provide a consistent, joined-up view of data.

There are several key outcomes as a result of this exercise:

- Weekly reports for council tax, NDR and Electoral Register have been created which notify the local address team of any new records requests. All new requests are matched to a UPRN or if there is a query, checked to verify the authenticity of the property
- Similarly, the address team are able to notify internal departments e.g. Council tax, NDR, Electoral Register of any new properties
- Any new request for an address is checked to see if there is planning permission. If there isn't, the planning department is notified - joining up services together
- Properties that have not been paying council tax have been located through linking together with the electoral register
- Further unknown properties have been located through linking to the new bin request forms.



Providing a Platform for interoperability

B | Reduces duplication within and across authorities

Wiltshire County Council

Wiltshire rationalised their services by creating a definitive centralised repository of address and property data to provide a single consistent view of address and property information across core applications within the organisation.

Wiltshire's strategy was:

- to provide a strategic vision and leadership to ensure an inclusive, co-ordinated and pragmatic approach to Wiltshire' address data
- to provide access up-to-date and accurate address data that can be delivered with the best use of resources
- to develop and promote the use of address data across the organisation and to partners improving the accuracy of data held in existing systems
- to promote the appropriate technical and professional standards for efficient and effective use of address data within Wiltshire Council.

The overall benefits of using address data as a corporate resource has had significant benefits:

- the availability of standardised and accurate location data, essential for delivering reliable and efficient integrated services
- it has enabled the exchange of precise location information across departments seamlessly (other partners in the future)
- created efficiencies by removing the need for multiple staff to enter addresses
- ensured communications reach the intended recipient/customers through accurate addressing
- ensured a single customer view shared within the organisation allowing the authority to maintain a positive image.



Providing a Platform for interoperability

C | A single consistent register of address and property information to provide a single property view

Wiltshire County Council

After undertaking some internal research it was clear to Wiltshire that multiple savings could be made by ensuring key business systems utilised the local address dataset as their address database rather than updating systems independently by multiple officers.

This would eliminate the need for hundreds of staff to update systems in silos each day and allow these staff to focus on other priority work. The research revealed that some systems only had one or two staff updating addresses but other systems had 100+ staff updating addresses on a daily basis as part of their job role. This prompted the justification for sharing the address data to assist with efficiencies as part of a drive to share data and operate in a more cost effective and efficient manner.

Wiltshire now updates its address data on a daily basis and shares it with council departments as well as partners. Many of these departments now rely totally on the address data and users do not enter addresses into their systems - these are only updated once the address dataset has been checked or in some cases, when the weekly update has been loaded. This has implemented a positive element of control on addressing from which Wiltshire are now reaping the benefits.

Using address data to transform business

Using the council's local address data as a master index enables customer information from every department to be linked to a property or geographic location providing an intelligent view of what services are being provided at a specific property.

This approach of using an identifier to link across different datasets enables the centralisation of information rather than information being dispersed into separate, isolated data silos each being run by a different department.



Providing a Platform for interoperability

D | Offers a repository for councils to access 'out of area' information

Sharing information, sharing services

Traditionally, councils had little data on places outside their boundaries which creates a serious problem for sharing services or solving strategic cross-boundary issues such as areas of deprivation and school catchment areas.

It can also impact on services such as 'Find my nearest', where 'my nearest' may be in a neighbouring authority or demand for library services which fall at the intersection of council areas.

Where councils decide to share services, the data acts as a common reference layer across councils.

GeoPlace takes address feeds from every local authority, collates them into one national database

and then provides this data to Ordnance Survey to distribute as the AddressBase range of products.

Under the PSMA, these datasets are freely available to councils across Great Britain, providing 'out of area' access to the national datasets and enabling strategic decision-making on issues that involve more than one authority or partner.

Reducing fragmentation

Local government consists of many independent organisations with their own remit to deliver services to people within their administrative boundaries. Inevitably this means that the sector as a whole is fragmented as information has been collected in different ways to comply with, sometimes closed, proprietary systems or local policies.

But when data from multiple local authorities is brought together, matched, cleaned and linked up, there are many opportunities to deliver better outcomes. Using the UPRN as a data enabler, authorities are able to join up their systems together and realise cross-boundary efficiencies.

Co-ordinating activity between delivery teams

Joining up partners

Using the UPRN

Reducing fragmentation

A | Co-ordinating activity between delivery teams

Barnsley Metropolitan District Council

Information is often also fragmented within an authority because ways of working were devised before technology became an enabler, or simply because departments provide their own services without recourse to what other departments within the authority are also providing.

As a result, people with complex needs from different departments within an authority can face a traumatic time dealing with various departments, providing the same information to the authority over and over again.

The Troubled Families programme is based on identification of families with multiple needs within local authorities, targeting key issues including anti-social behaviour; worklessness; and school absenteeism. Where a council identifies a troubled family, according to a series of indicators, the government provides financial input for care workers and other targeted support. If the council could then demonstrate improvements for the families over time, the government provides further funding.

In Barnsley, the council did not have a single system that provided a common view of families across the borough. The various data sources which would help identify troubled families were disparately stored and not easily compared with one another.

This meant identifying possible families who would benefit from the targeted support was difficult without bringing data together.

Barnsley had been rationalising its property address information using a framework of uniquely identified individual properties. Taking advantage of this work, the council decided that creating a property level view of troubled families would be a beneficial way of bringing information together to identify who may be in need of support.

Utilising the UPRN, the council was able to link together eight different datasets, including Education and Benefits systems, to a property address to evaluate whether individual records met the Troubled Families programme criteria.

The resulting database was used to interrogate the various data sources at property level to build up a more detailed picture of families in Barnsley and provide support to those in need.

Reducing fragmentation

A | Co-ordinating activity between delivery teams

London Borough of Hillingdon

Managing the commercial premises at Heathrow has always been problematic for the London Borough of Hillingdon, due to the fast turnover of companies; refurbishments; plus a complete re-build of a Terminal. This meant keeping track for business rates and also foods standard checks was challenging. Co-ordinating intelligence between teams was also difficult as different address data was used.

Combining the council's master address data with an interactive map provided a cheap and easy solution to link the same properties. This has provided benefits to the authority through enhanced cross team working; and greater efficiencies for the authority.

Following completion of the project, the Trading Standards team commented:

"Administering the airport premises database has always been a challenge...even the shop keepers in the terminals did not know their own addresses. The locations of premises were ever-changing and Trading Standards data input staff were prone to make up premises' names and addresses as they went along. The main benefit to users was the ability to convert an accurate and user friendly list of traders' name and addresses into an electronic site plan of each trading floor within each Terminal.

This proved to be a great success as officers no longer waste valuable inspection time wandering the floors of a Terminal searching for a particular trader. It also means that when the inspection results are written up, the officer can be confident that the work will be entered against the correct premises record. Additionally, the next officer who has occasion to visit those premises can now easily find the previous inspection results."

Reducing fragmentation

B | Joining up partners

Cambridgeshire County

The National Fraud Authority estimates that social housing tenancy fraud costs the public purse £1.8 billion per annum.

A partnership of five authorities across Cambridgeshire, aimed to; detect, investigate, prevent and, where appropriate, prosecute, and recover properties for social housing tenancy fraud.

All partners are committed to creating a cross boundary Housing Fraud Partnership, using shared data from various sources to prevent, detect, investigate and, where appropriate, prosecute social housing tenancy fraud.

The project involved cross boundary data sharing, creating a hosted data-warehouse located at Huntingdonshire District Council. The address dataset was key to this project as it provided a

standard property address with which to link records, as it is embedded in many internal applications.

The monthly extract of data from 24 datasets into the Fraud Data Warehouse includes around 270,000 addresses. All of these records are 100% synchronised by the Address Custodian, enabling addresses to be applied in the data warehouse structure and allow data analysis. Datasets included were:

- Council tax
- Sundry debtors
- Environmental health
- Benefits
- Housing register
- Resident permits
- Season ticket parking permits
- Registered social landlord tenants
- Licensing
- Electoral register

- Payroll

There have been a wide range of financial benefits realised including:

- decreasing the level of fraud, using current estimates of loss of £18k per property (Audit Commission/Cabinet Office /DCLG estimates), should deliver ongoing savings of around £864k and £1.72M to the public purse
- an additional benefit to Huntingdonshire was the identification of fraud in Benefits and Council Tax Discounts which could add a further £250k in savings
- 79 Fraud files have been raised
- 17 cases have identified nearly £7,000 of overpayments

Reducing fragmentation

B | Joining up partners

Emergency Services collaboration

The Association of Chief Police Officers (ACPO) has been working with the Cabinet Office, Welsh Government and ACPO members from both the emergency services and the commercial sector to look at the problem of exchanging incidents between agency control rooms.

One of the areas identified for improvement is the way in which emergency responders share information across and between organisations. This isn't just confined to major incidents, there are a range of circumstances where coordinated responses might be needed - from dealing with instances of graffiti, to road traffic collisions, right through to civil emergencies such as flooding or the result of a terrorist attack.

Every day the UK's emergency services deal with thousands of incidents of differing priority, urgency and complexity. Evidence from Wales suggests that for every 4 calls received from the public, the emergency services make 3 calls to their colleagues in other control rooms to relay information regarding incidents.

Joint Emergency Services Group (Wales)

The Multi Agency Incident Transfer (MAIT) standard provides a solution to the problem of emergency responses by providing an agreed structure for the data elements that need to be shared between organisations.

The UPRN is used as the common identifier. The UPRN, when used as a key reference identifier, facilitates greater accuracy, effective and efficient public service information sharing resulting in tangible service provider benefits that ultimately lead to better outcomes for citizens.

By providing a common operating picture (same information provided to all responders) the overall risk to personnel has been reduced and ensures that responders respond to same location (this has caused major delay in the past).

Using the UPRN

The MAIT project resulted in a schema that could be the catalyst for future systems development for information sharing across the public sector. It has demonstrated that the UPRN, when used as a key reference identifier, facilitates effective and efficient public service information. This results in tangible

service provider benefits that ultimately lead to better outcomes for citizens.

The approach undertaken has established a proven, long term and scalable solution to secure multi-agency electronic information exchange. This has been achieved by having a clear vision of the value of the UPRN to underpin information exchange as well as close on going collaborative engagement with stakeholders.

There is no doubt that MAIT has clearly changed the information sharing landscape and demonstrated the potential operational, cultural and financial improvements that can be achieved through wider UK implementation. These benefits and potential outcomes have exceeded all expectations and cannot be ignored.

As Tony Bracey the MAIT project manager said "I think in the future we'll not only be sharing information related to emergency incidents, but also overlaying those with other public sector-relevant information".

Reducing fragmentation

C | Using the UPRN

Common operating picture

MAIT has resulted in a reduction in the operational response times in relation to emergency incidents and improvements in the quality and timeliness of incident data from over 4 minutes per call to 16 seconds.

Within Wales, over 300,000 calls are made per annum across the three emergency services offering a potential to save over 18,000 hours of emergency service control room staff time spent telephoning other agencies. Ongoing integration with local government and the Single Non-Emergency Number (101) will easily double this saving.

Faster incident response times reduces the impact on those involved in an emergency and increases confidence in the incident location.

Reduction in time transferring incidents to other agencies mean operators can spend more time with callers gathering more information and allocating appropriate resources.

The use of UPRN has resulted in a 20% accuracy in address data in emergency services datasets.

By providing a common operating picture (same information provided to all responders) the overall risk to personnel has been reduced and ensures that responders respond to same location (this has caused major delay in the past).

The following benefits have also been identified:

- improved decision making and shared situational awareness
- improved confidence that other agencies have the same incident information and will arrive at the same location
- opportunity in the very near future to share pictures and/or video clips of an incident
- reduction in abandoned calls
- increased time with the caller to gather intelligence and provide support
- faster response times to incidents have a positive impact to those involved in the incident
- improved health and safety of responding organisation personnel by the timely relay of accurate information

- reduced pressure on staff at peak times.

This project has now created an environment whereby the pilot organisations have the ability to securely and effectively share location based information/intelligence with one another which goes beyond simply transferring details of incidents. This includes for example violence at work registers. Historically this type of information held by different organisations has not been freely shared even though many public sector workers could be visiting the same potentially dangerous households.

The UPRN now being used to share vulnerable household information between Social Services and Fire and Rescue Services to provide targeted Free Home Fire Safety Checks to vulnerable households.

Utilising the MAIT schema, there is also an ongoing project for wider intelligence sharing between the fire service, health and social services to identify vulnerable properties where citizens are in receipt of an authority care package



Using data to make savings

Councils are dealing with significant financial pressures. They need to make savings wherever possible and part of that means using spending power wisely and strategically. Using an evidence base for procurement and contract management can secure value for money.

Providing an evidence base for procurement

Underpinning service improvements

Sharing data to discover discrepancies



Using data to make savings

A | Providing an evidence base for procurement

London Borough of Bromley

The LGA's National procurement Strategy for Local Government in England 2014 set out a vision for local government procurement and encourages council to engage with the outcomes in a number of key areas including contract management, risk management and performance monitoring and transparency. Implementing a procurement that 'ticks the boxes' is indicative of best practice.

Most activities within local authorities have a geographic context; people vote at polling stations, school catchment areas are calculated as distance from the school and bins are emptied according to a routing routine. However, geography isn't always utilised.

The London Borough of Bromley tendered its street cleansing contract by creating a schedule of streets and paths based on its local street dataset.

The streets based dataset was key to visualising and modelling different frequencies and projecting potential savings by re-engineering schedules of work.

The process facilitated evidence based decision making of the tender document, resulting in substantial annual savings of £800k. The data is now used for monitoring of the contract within an open source mobile web GIS platform.



Using data to make savings

B | Underpinning service improvements

London Borough of Harrow

Utilising and feeding back information from one service area to another can provide all round benefits and improve the overall service offered by the council.

At Harrow a comprehensive project that dealt with the overhaul of every aspect of its waste and recycling provision promised £3.2m of savings over the next decade.

Over £2.6m of that figure is due to an 18.8% reduction in land fill that the project is already delivering compared to an average national recycling rate of 44%. The systems introduced to bring about these changes are entirely underpinned by the council's local address dataset. In a fast growing borough like Harrow, with a number of new developments, the accuracy of the addressing has

been vital in maintaining and increasing these levels of service efficiency

The waste management system handles three bin types for each property: recycled waste, general waste and organic waste, each linked to a UPRN. The system, which has mobile wireless extension in vehicle cabs, is linked to the call centre CRM and receive updates from the Address Custodian every 24 hours. Web forms on the 'MyHarrow' web portal are also linked to the CRM and the Waste Management system.

The integration has many benefits, not only to the citizen but also in terms of cashable savings and efficiencies. Route optimisation has made the rounds more efficient, leading to a 15% fuel reduction valued at £11,000 in the first year alone.

- In the Access Harrow call centre overall call volumes are down by 3%. Those associated with the environment down by 7%, and those specifically to do with missed bins down by 25%.
- The reduction amounts to over 200 fewer calls per week, with 95% of remaining calls being resolved at first contact.

- The number of outbound follow-up calls has been slashed by 95%
- Call duration has also been cut by 45 seconds on each average 248 second call
- Costs, too, have been reduced significantly from £2.23 per enquiry in 2006/7 to £0.82 in 2009/10.

In effect, by using the local address dataset, as well as projected savings of over £3.2m over 10 years, the council has seen improvements in recycling rates and a reduction in the number of waste related calls received by its call centre: in other words, improvements all round.



Using data to make savings

C | Sharing data to discover discrepancies

Salford City Council

Sharing information between directorates leads to greater customer intelligence.

In Salford, the local address and council tax teams share their address intelligence. The purpose of this is to ensure that the council has maximum understanding of the changes in the city and in turn make sure residents pay the appropriate council tax revenues and receive the services they require. The improved working arrangements led to outstanding queries being reduced by 43% over a 5 month period and uncovered a number of previously unbilled properties and lead to additional properties being billed for council tax.

The drivers for the project came essentially from the wide-spread public sector efficiency changes over recent years. Staff had to deliver the same level of service with fewer resources, and this is where good use of existing intelligence was key.

The team responsible for calculating and collecting council tax had an overarching goal which is to have a fully accurate address database to calculate and collect council tax fairly across the authority. Previous ways of working relied heavily on an expert team of council tax property inspectors who had a range of sources for council tax intelligence, including street naming and numbering sources to general knowledge from knowing the city.

The issue was that despite the excellent skills of staff, the method of collection and verification of new addresses was time consuming and at times inconsistent. Essentially, there was no central repository of all the intelligence gained by the staff members to enable sharing of information with other departments.

The team responsible for the council's local address data were keen to work with the team responsible for council tax. The address team felt that their data could enhance the knowledge of the council tax team. To initiate the discussions about working together more closely, the local address team shared parts of their local address data with the council tax team.

They were able to demonstrate that the data included residential addresses, but also classifications of the data down to what is called tertiary level - this drills into the data to record for example whether it is a house boat; a bungalow or a terraced property. This helped demonstrate to the council tax team that the local address data team did have valuable, detailed information which could be of value to them.

This level of detail also provided further reliability and trust for the users of the data. Based on the initial discussions, the teams agreed to share their data monthly with one another and due to the success of the project, data is now shared weekly.



Using data to make savings

C | Sharing data to discover discrepancies

Leeds City Council

A similar project has taken place in Leeds City Council, between the local address data and council tax and business rates records. Through this work, the team have discovered £92,826 additional annual revenue.

Since the matching process began, the team have located 58 assessments in total (44 council tax properties and 14 business rate eligible properties) which equates to a total annual revenue of £92,826.27. This includes seven assessments that were back dated for five years or more (therefore generating additional income not included in the annual revenue figure). The highest single assessment was for a missing office building which pays an annual figure of £11,076.00. This doesn't include total revenue generated for every subsequent year and so purely captures one years' revenue.



Using data to make savings

C | Sharing data to discover discrepancies

Huntingdonshire District Council

Huntingdonshire District Council is an exemplar for linking its master address dataset to many other systems throughout the authority.

Cambridgeshire County Council is responsible for maintaining the public rights of way (PROW) for the county and has recently provided each of its districts with the PROW information within their authority boundary, which for Huntingdonshire was 1,350.

Huntingdonshire added the PROW information into its address dataset. As each PROW was added, the resulting mapping was viewed to see if any additional information on land and property was revealed.

During this process, a sewage treatment works was identified. When comparing the resulting data with the NDR database, it was discovered that it wasn't being charged rates. This prompted a closer look at all of the sewage treatment works within the authority where it was found that another two weren't being billed.

These were passed to the VOA and have now been rated. The annual combined charge this year for these 3 properties is £50,000. Additional back charging in the first year, which collectively brought in £230,000 in the first year of billing. At a time when the council is looking to either cut cost or identify new income, the annual additional income of £50,000 in perpetuity is a pleasing unexpected windfall.

Service redesign

True digital transformation means rethinking the business and ensuring that the most appropriate data, at the right granular level is utilised.

Devising services for the benefit of the recipient

From channel shift to digital by demand

Focussing on the user rather than the technology

A consistent view of address and property information to provide a place-based approach

A | Devising services for the benefit of the recipient

Colchester City Council

Refuse collection is a very visible service delivered by councils. It can also be a very costly service and, as such, efficiencies made in waste management can have high returns in terms of a better service for the recipient and efficiency savings for the council.

In Colchester, following a review of the Operational Services department which manages waste collection, the council became aware of the need to review and develop improved waste collection data.

The existing data used for waste management were not exact enough to provide an optimum service because, in many streets, the mix of housing types presented different demands in collecting refuse and recycling.

The solution required a method of creating and managing refuse collection data for approximately 200,000 property records. The council's address dataset was used as the basis of the waste collection data and new waste collection routes were developed - 150 in total. Using the UPRN meant the new routes were accurate, realistic, and importantly, at the individual property level. This means that queries - for example refuse collection day - can be done by property rather than by street which vastly improves accuracy as one street can contain several collection types.

By using data about individual properties, the council was able to create a much more accurate digest of waste management information which was used to tweak collection routes, communicate with residents about collections and liaise with councillors. And most importantly, provide a much more efficient and cost effective service.

Service redesign

B | From channel shift to digital by demand

Newport City Council

Like any responsive business, councils need to meet the needs of its citizens who pay for their services through local taxation. Knowing who the customer is, where they live, what services they use is crucial in crucial in trying to understand how to best serve them.

Understanding customer needs and requirements – the customer journey is fundamental if the council is going to provide an end-to-end service. Councils need to aim to deliver digital services that are so straight forward and convenient that all those who can use them will choose to do so. Simply pointing people to a website to download a form, which is then filled-in off-line and posted back is

cumbersome, time consuming and frustrating for the citizen.

Newport City Council has transformed the way it delivers its services to ensure it continues to meet the needs of its citizens with a clear vision of ‘improving people’s lives and providing the best affordable services’.

Through a programme of transformation which included changes to the council website and increased availability of online services, the council has achieved significant success in moving people to its website to self-serve. A range of campaigns designed to encourage and promote behavioural change has made a real difference to the customer journey.

The UPRN has provided the glue to embed online services and improve integration between the customer relationship management system and back-office applications. It does this by enabling the council to use the most accurate and up-to-date address information and share information from one system to another more efficiently.

The council has embedded customer insight profiling as a key improvement priority to help better understand communities, and from there build a detailed picture of citizens’ needs and preferences, behaviour patterns and trends.

Using the UPRN, Newport was also able to understand ‘where’ events took place and analyse the results of targeted projects such as:

- electoral registration participation and take-up
- waste management landfill deposits and recycling rates
- library and leisure service provision
- the number of ‘pay as you play’ leisure customers to active members.

The council has as a result been able to develop a resilient delivery framework driven around efficiencies yet ensuring citizens continue to get the services they need - making the choice to use the website an easy and satisfying.

Service redesign

Focussing on the user rather than the technology

Northumberland County Council

In Northumberland, as part of a wider transformation to enhance online customer interactions, the council decided to add location tools to its online reporting portal for issues relating to street lighting faults; missed bin collections and potholes.

The tool uses the address and street datasets to perform an address search and zoom to a map of the required location and report the fault via back office software to the relevant service area using the UPRN, USRN and mapping coordinates.

As a result, the council has devised a streamlined, user friendly way for the public to report issues to the council. It has brought efficiency savings by automatically linking reports to the correct location.

It now has a template that it can rollout to future services in minutes rather than hours or days. Future developments for the extension of the 'Report It' service include; recycling sites; fly tipping; littering and lost or stray animals, road flooding, broken road signs, broken or dangerous pavements and public toilets.

D | A consistent view of address and property information to provide a place-based approach

South West Region

Back in 2011, South Gloucestershire Council won funding to enable public sector partners in the South West to jointly use land and property assets in a smarter, cost effective way. In essence, the project used digital technology and data to enable a place based approach to integrate local public service organisations.

One of the main aims of this project was to share the property asset data of all the public sector partners, including local authorities, PCTs, police, fire and ambulance services, and then to create a comprehensive asset map. The map would enable partners to gain an understanding of the property assets across the sub region and their respective service requirements. This would allow them to work in a more coordinated way, share best practice and generally make better use of the property assets they owned.

The result was a portal for asset managers to record potential surplus assets and records their requirements in particular locations with savings of £1.5m per year.

Bringing public services together

- One customer journey, for right across government

Services don't start and end with local government, they often require input from a central government departments or agencies as delivery partners.

Enabling interoperability and the sharing of data right across central and local government brings improvements in many areas such as:

- Increasing flood resilience; mitigating, responding to and recovering from floods
- Implementation of the Care Act
- Local land charges and the Land Registry
- Verifying parking and vehicle ownership with the DVLA
- Better benefits processing with the DWP.

The availability of local government's address information through the Public Sector Mapping Agreement in the form of the AddressBase range of products provides a platform for identifying people, linking systems across public sector bodies and obtaining even larger transformation benefits.

Bringing public services together

Office for National Statistics (ONS)

ONS is the UK's largest independent producer of official statistics on the economy, population and society of England and Wales at a national, regional and local level. ONS conducts a census in England and Wales every 10-years, the last being in 2011, taking data from over 32 million questionnaires.

The information from the questionnaires is then processed and turned into invaluable data and statistics which can then be used to inform and support government policy, decision-making and services in the public and private sector. For the 2011 Census, a National Address Register (NAR) was created specifically as a household frame as there was no national product at the time which met ONS needs.

At the heart of population statistics is a comprehensive address register, and in 2013, ONS conducted a review of AddressBase to assess its' suitability to underpin the next address register for Census 2021. The review concluded that AddressBase in its current form met 97% of ONS overall requirements and it has been chosen to provide the addressing framework for the 2021 Census. The gap of 3% came from Communal Establishments i.e. nursing homes, caravan parks, student halls, prison etc. Ordnance Survey and GeoPlace are now working with ONS to explore how best to capture and add these additional communal establishments to AddressBase Premium.

Her Majesty's Revenue and Customs (HMRC)

Following on-going meetings with HMRC stakeholders re the use of PSMA and AddressBase data in the fight against fraud and error, HMRC have adopted the use of AddressBase within their Connect Risk Engine.

Connect is a key platform within HMRC for detecting fraudulent activity across all HMRC's Heads of Duty tax systems. The information Connect produces is accessed by more than 3,000 investigators, who use the integrated compliance environment (ICE) desktop interface to bring up a unique financial fingerprint on taxpayers.

This powerful system links taxpayers to more than one billion pieces of information held in the system which is fed from 28 data sources from organisations such as Companies House, the Land Registry, Benefits Agency etc.

It then compares that data with the taxpayer's self-assessment return or flags up that a return has not been received when one would seem appropriate. Since its inception, it has helped to secure an additional £3bn of tax revenues. It produces a spider diagram linking a taxpayer to property addresses and other data and works across direct and indirect taxes.



Bringing public services together

Department for Work & Pensions (DWP)

AddressBase data is now being utilised in DWP Systems as part of the Electoral Commission Lead Individual Electoral Registration (IER) programme.

The UPRN is used to match registered details with DWP databases to confirm voter eligibility. AddressBase and the UPRN is also being used within the Tell us Once Service which allows people to report a birth or death to most government organisations in one go.

The UPRN is facilitating the joining up of information between DWP, HMRC, the Passport Agency, DVLA and all local authorities. For the citizen the service reduces the amount of time they need to spend contacting these government departments and organisations, because they provide all the information to the Department for Work and Pensions (DWP) who then pass that information on to the other government agencies.

Health and Safety labs (HSL)

The 'FIND-IT' tool, developed by the Health and Safety Laboratory (HSL), uses AddressBase to search and filter results to pinpoint geographical locations across a suite of Ordnance Survey raster datasets.

The product enables the Health and Safety Executive (HSE) staff to rapidly identify and prioritise high-risk businesses for inspection along with their locations. This information is combined with other (often very disparate) datasets held by HSE and others, which enables HSE to target its inspections and allows information to be checked and validated prior to any visit.

The system also provides a clear, evidence-based audit trail showing why each visit has been made and where it took place. This can then be used in the HSE's management information, to drive continual improvements and maximise efficiency. For the HSE, a key challenge has been to reduce the number of 'redundant' site visits; and supports UK Government commitment to reducing the impact of regulation on businesses

The Department for Energy and Climate Change (DECC)

To inform and monitor policy effectiveness such as Green Deal, Energy Companies Obligation and Fuel Poverty; DECC has combined data from a number of different sources to create the National Energy Efficiency Data-Framework (NEED).

Utilising the Unique Property Reference Number (UPRN) from AddressBase, the result is consistent cross referencing of data (eg DCLG's Energy Performance Certificate database), increased collaboration and efficiencies. National Energy Efficiency Data-Framework (NEED) provides insights into how energy is used and the impact on energy efficiency measures for different types of property and household.

By utilising AddressBase, data is address-matched once, each record is assigned a UPRN and is then used many times. The original data can still maintain the unique identifiers that link back to the original systems. The DECC statistics department has also matched UPRNs with meter reference numbers for its National Energy Efficiency Data Framework (NEED), for both electricity and gas meter references - to an accuracy level of 97% domestic properties and around 50% for non-domestic properties.



Bringing public services together

Other central government applications

OFCOM

OFCOM uses AddressBase to support spectrum planning and to share data with Digital UK and potentially the BBC.

OFGEM

Through engagement with OFGEM, Ordnance Survey has been invited to become a member of the joint fuel address working group (energy suppliers) looking at standards, data quality issues and value of UPRN in the central registration system of the next day switching policy due to go live in 2019. Following industry and stakeholder engagement, government policy will be to not mandate the UPRN in the same day switching process, but its use is highly recommended in conjunction with effective customer address management.

DVLA

AddressBase is helping the DVLA deliver their digital exemplar services such as the removal of the tax disc system and the paper counterpart driving license. Having the most accurate and up to date addressing ensures this process is as accurate as possible, improves efficiencies by reducing errors and helps to eliminate fraud.

HS2

MasterMap Topography has helped with the route planning phase and now Address Base is assisting the property acquisition programme, by using the most comprehensive addressing data available.

Environment Agency

AddressBase and the UPRN is used to identify properties at flood risk and is shared with local authorities using the UPRN for planning, identifying vulnerable people at risk plus response and post recovery analysis.

DEFRA RPA

Use AddressBase for accurate identification of farms in order to pay around £2 billion of Common Agricultural Policy EU farm subsidies per annum.

North East Ambulance Service (NEAS)

The Trust provides ambulance services to 12 primary care trusts. Last year, the service responded to 360 000 emergency calls, almost a third of which are assessed as being potentially life threatening and require a response time of under eight minutes.

Having recently been awarded the contract to provide a non-emergency 111 around-the-clock telephone service for the North East the need for accurate addressing has never been greater.



Bringing public services together

NEAS now uses AddressBase in its command and control and computer-aided design (CAD) systems, providing call centre staff with the most detailed and up-to-date geography available, enabling them to quickly and accurately identify the correct locations of incidents.

The historical changes to addresses included in AddressBase also identify locations where the caller may not have the most up-to-date address details. AddressBase is also used for the new 111 service, and non-emergency calls will also benefit;

South West Ambulance Service NHS Foundation Trust (SWAST)

SWAST utilises AddressBase in their command and control systems. In addition Ordnance Survey has helped them to append ceremonial boundaries and creating a GB place names gazetteer for Ordnance Survey Open Names. The data will be used in their 'virtual gazetteer', that covers South West's 999 system and Great Western's 999 system;

South Devon Healthcare NHS Foundation Trust

The Trust are now using AddressBase for Patient Transport Services within their command and control systems in response to increasing demand in Torbay area where there is an ageing demographic, resulting in 6000 extra annual journeys since 2013;

North West Ambulance Service (NWAS)

NWAS is using AddressBase partly as a result of a couple of high profile tragic cases of ambulances failing to reach newly occupied addresses;

Appendix

What information is contained within AddressBase?

- Local authority address
- Royal Mail (PAF) address
- Royal Mail's delivery reference systems - PAF UDPRN
- Geographic coordinates
- Historic address (an address that the property was previously known by)
- Alternative address (for example, the owners of 6 Acacia Avenue call their house Hillcrest)
- UPRN
- Classification - residential, non-residential
- Cross reference with third-party datasets such as Valuation Office Agency
- Lifecycle information

What information is contained within the National Street Gazetteer (NSG)?

- street name and location details
- road length
- junctions road centre lines
- street geometry
- motorways
- classified principal streets including trunk roads and other classified numbered streets
- other publicly maintained unclassified numbered streets
- prospective publicly maintained streets
- private streets known to the highway or roads authority
- cycle ways
- remote footpaths
- subways that are publicly maintained
- footpaths where maintained or metalled
- type 61 Interest Records
- type 62 Construction Records
- type 64 Height, Weight and Width Restrictions
- type 63 Special Designation Records including:
 - traffic sensitive streets
 - streets with special engineering difficulties
 - speed limit data
 - level crossing safety zones
 - environmentally sensitive areas
 - streets with special surfaces
 - streets with priority lanes
 - streets with special construction needs
 - height, weight and width restrictions
 - direction restrictions