Brent	**Resources and Public Realm Scrutiny Committee** 4 December 2019
	Report from Strategic Director of Customer and Digital Services

DATA LED SERVICE DELIVERY

Wards Affected:	All
Key or Non-Key Decision:	Non-Key
Open or Part/Fully Except:	Open
No. of Appendices	None
Background Papers	None
Contact Officer(s)	Peter Gadsdon, Strategic Director of Customer and Digital Services Peter.Gadsdon@brent.gov.uk Sadie East, Head of Transformation Sadie.east@brent.gov.uk

1.0 Summary

1.1 This report discusses the Council's approach to using data to target services and improve service delivery and how it intends to develop this as part of the programme of work to implement the Brent Digital Strategy 2019-23.

Using Data for service improvement within Brent Council

2. Introduction

2.1. Local Authorities, including Brent, have to meet increasing demand whilst delivering accessible services for residents. The latest population projections[1] indicate that by 2041 Brent's population is expected to grow by 25% (faster than the London average of 22% representing an increase of 84,800 Brent residents). Alongside this rise in the population, Brent will also be affected by an increase in the number of residents aged 65+. (See fig 1). In this context it is vital that Brent uses data to plan and focus resources to ensure that the best value services can continue to be provided for our residents.

2.2. Data is a valuable asset, which using the opportunities provided by new technologies, can be used to transform the way we deliver services and target resource where it is needed most. We are currently using data in a range of ways, both corporately through the Client Index (our Master Data Management system) and at a departmental level. We are also doing more to make data available to communities, businesses and academics via our Open Data platform. This report describes these in more detail. In addition, through the programme to deliver our Digital Strategy we are developing new approaches which will enable us to view data and insights through a single platform to better inform decisions, predict trends and help manage demand.

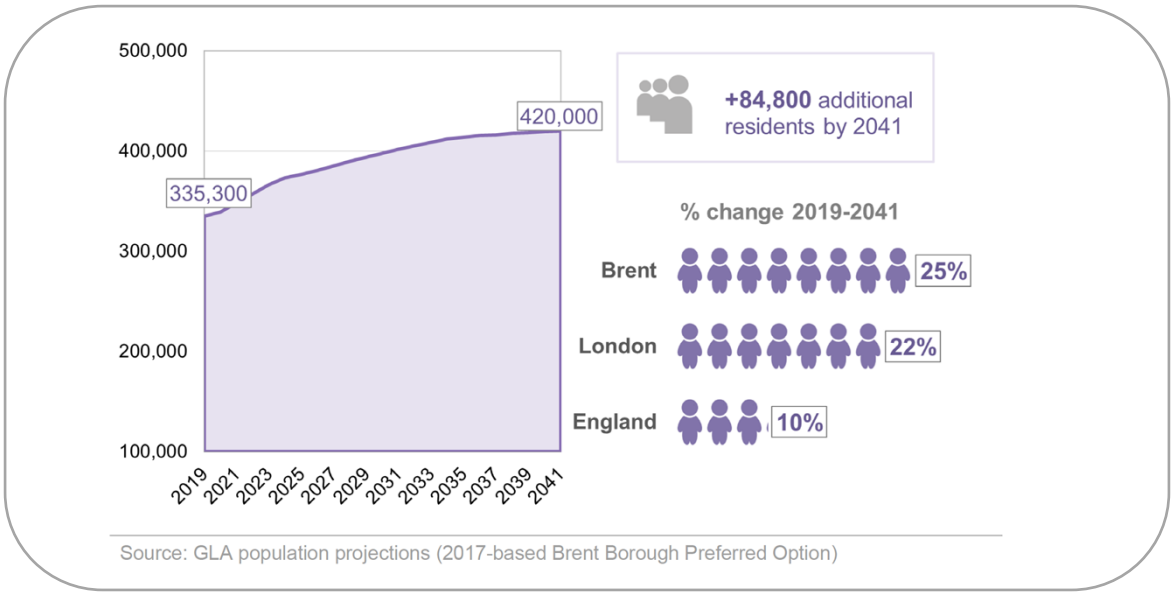

Fig 1: Population projections for Brent, 2019-41

[1] ONS (Office of National Statistics) website October 2019

3. Our current position

3.1. The Council currently uses data analytics and visualisation to aid service improvement and deliver services to meet the needs of residents in the following ways:

- **Analytical research:** Critical thinking using data and information from various internal and external sources.
- **Open Data:** Bring data from multiple agencies to improve inter-agency working with residents.
- **Geospatial analytics:** Adding maps to websites and mobile apps to help residents and businesses find out where to access services.
- **Predictive analysis:** Work is underway to develop and test approaches to combining demographic data about service users and their needs on a map with data from internal systems and external sources. This can be used to identify trends and patterns in order to ensure services are meeting people's needs.

- **Example 1 – supporting council-wide planning and reporting**

  The Business Intelligence Team (Customer and Digital Services), supports all Brent Departments by providing, research and intelligence (using internal data sources and open data), customer segmentation and GIS data. This enables Brent Services to target, design and improve service delivery.

  The team provided research, information and performance data to inform and support the 2019-2023 Borough Plan. Performance data was used to establish baselines and assist target setting for the plan's desired outcomes and the 2019/20 action plan.

- **Example 2 – Open Data**

  The Business Intelligence Team also administers the Council's open data microsite (see figure 2). The site is a public data repository currently hosting 280 datasets and had 1,348 page views during the last 30 days (7 October – 5 November). The data sets include Brent and external public open data including the Greater London Authority (GLA) Data store and the ONS (Office of National Statistics).

  This site enables residents, businesses and others to access and work with data more effectively, empowering them to use data to contribute to improving lives and opportunities in the Borough. We intend to continue to increase the data available via this platform.

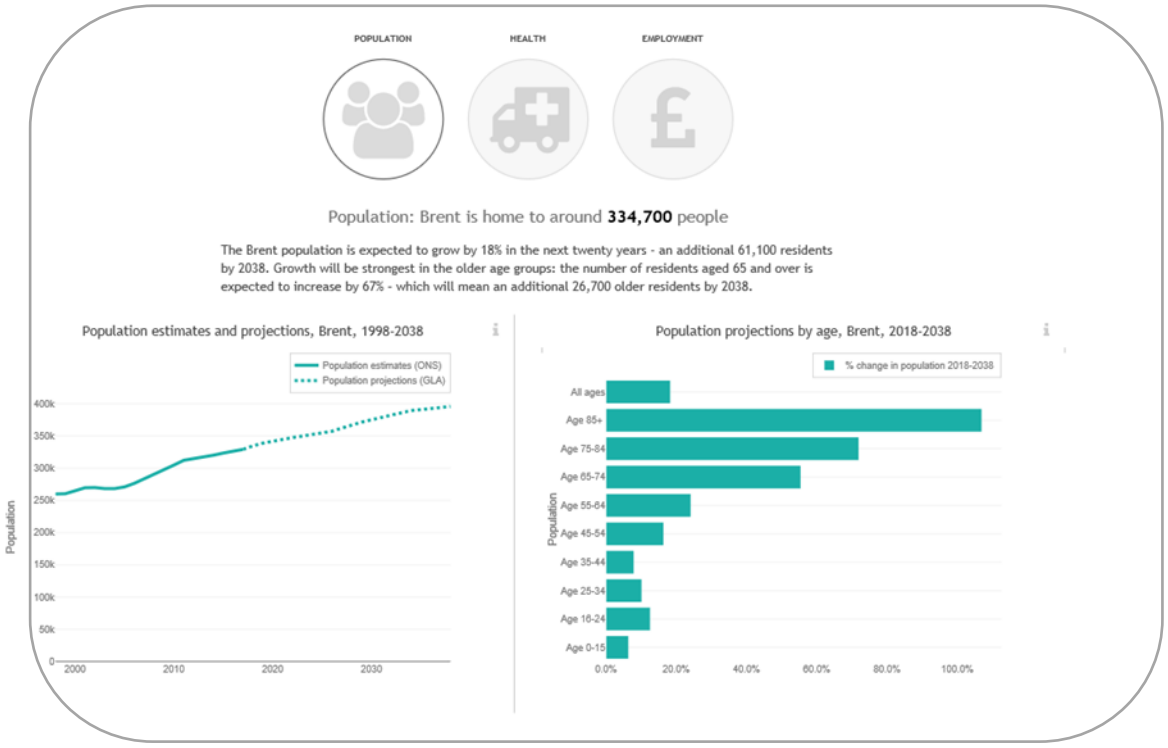

Fig 2: Brent Open Data Population home page

- **Example 3 – the Client Index**

  Brent's Master Data Management System (MDM), the Client Index, brings together information from across eleven council systems. This data is used by service areas, for example Early Years and Children's Services are able to use the system to identify families with under-fives who have recently arrived to the area. More widely, this system also enables us to improve the quality of the data which the council holds by ensuring updates about residents in one system can be reflected in other systems. This results in a better service for residents who do not have to change their details individually with separate council departments but also increases the accuracy of our data which means it can be more effectively used to understand demand and improve services. As part of our digital transformation programme we will be building a new central data repository, or data lake, which will bring together accurate data across a wider number of systems. This system, which will ultimately replace the Client Index, is described in more detail in the next section.

- **Example 4 – the JSNA**

  The JSNA (Joint Strategic Needs Assessment) analyses data from numerous internal and external sources of intelligence and information including:

  - Public Health England (PHE) Brent health profile
  - PHE Public Health Outcomes Framework

- Health and Social Care Information Centre
- Annual Population Survey (Office of National Statistics - ONS)
- Business Enterprises ONS

The JSNA provides a comprehensive picture of the current and projected health needs of the local population, encapsulating the main health issues and inequalities which exist in different parts of the borough to inform the work of a range of agencies/commissioners etc.

- **Example 5 - 'Troubled Families' scorecard**

The Children and Young People department (CYP) brings together data from the following datasets into a 'troubled families' scorecard:

- Missing from Education
- Exclusions
- Missing from Home/Care
- Brent Offenders
- Child Sexual Exploitation (CSE) -
- Education, Health and Care Plan (ECHP)
- Poor Attendance
- Looked After Children (LAC)

Bringing the disparate datasets into a single location enables the CYPS Senior Leadership Team to allocate resources based on a sound evidence base and address data quality issues. Analysis of the data also empowers the service to identify trends and put in place effective service delivery improvement plans.

This has had a positive impact on outcomes for example a reduction in Looked After Children (LAC) with fixed term exclusions.

- **Example 6 – Single View of the Child**

In August 2018, as part of its Digital Transformation Programme, Brent prototyped a dashboard model to support decision making by social workers. The analytics platform created a single view of a child based on risk and service provision, bringing together data from a number of sources. The dashboard presented information about environmental factors which are known to increasing the likelihood of a child joining a gang and becoming a perpetrator or victim of crime.

The dashboard was tested with three front line social work teams and feedback was very positive. Of particular value was the ability to see a range of data about a child in one place which supported professionals in making more informed decisions and reduced time previously spent accessing multiple systems. Work is now underway to further develop and roll out this system operationally.

- **Example 7 – Environment Services**

The Community Protection Team analyses Anti-Social Behaviour (ASB) and crime data to identify high risk hotspot locations. The identified hotspots are presented to external partners and internal services at monthly Action Groups. The data allows the group to identify emerging hotspots and monitor the effectiveness of the partnerships response on existing hotspots. The Community Protection Teams use of data to tackle priority ASB locations was awarded at the 2018 Metropolitan Police Problem Orientated Partnership Award.

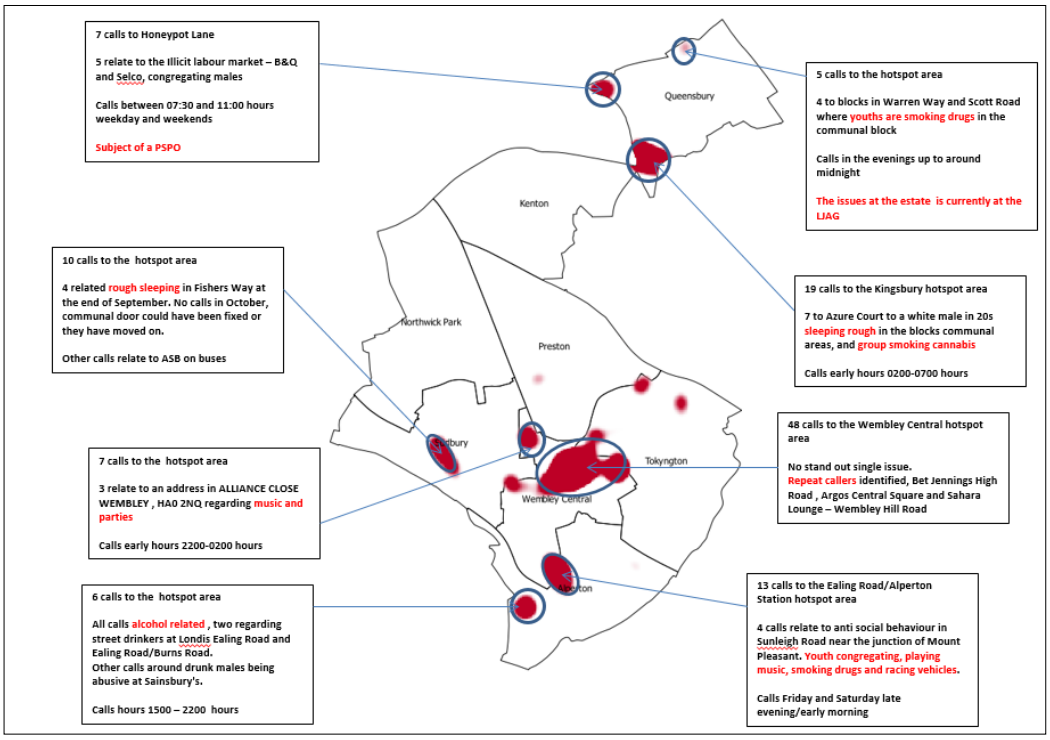

Fig 3: ASB hotspot map to support the Brent Joint Action Group to tackle priority ASB issues

4. Our digital strategy 2019-23 – transforming the way we use data

4.1. The Council's 2019-23 Digital Strategy recognises the benefits of effectively using data to design service models around what users need, allowing us to better prevent and respond in ways, which were not previously possible. It also recognises the importance of keeping data secure and ensuring citizen's identities are protected as well as the ethical issues, which are inherent in using data in new and innovative ways.

4.2. A key element of the programme to implement our digital strategy is the development of a 'data lake'. A data lake is a system or repository of data stored in its natural/raw format (see figure 3). A data lake enables data to be used for tasks such as reporting, visualisation, advanced analytics and machine learning. A data lake can include structured data, semi structured data, unstructured data (emails, documents, PDF) and binary data (images, videos, audio)".

4.3. For Brent, the data lake will enable us to better use the vast amount of data we collect across multiple systems to understand our residents and ensure services are designed to meet their need, enabling resources to be targeted where they are most needed and ensuring we can intervene early to prevent issues escalating.

4.4. It is estimated that implementation of a data lake can result in 40% faster access to live analytical information, transforming operational capability and facilitating quicker and better decision making. The Data Lake also provides an opportunity to address data quality issues in primary data sources, ensuring decisions are based on accurate information. Our refreshed Data Quality Strategy, currently being developed, will also contribute to this.

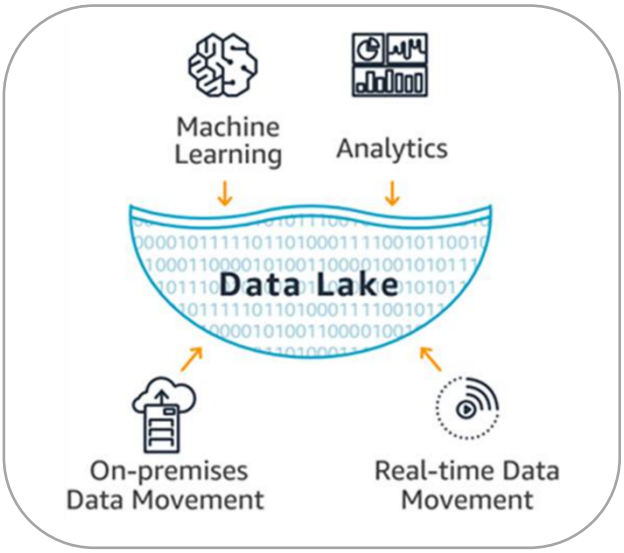

Fig 3: Data lake architecture

4.5. The first iteration of the Data Lake will build on the prototype we have developed and deliver a single view of a child based on data from four different databases. The single view will support safeguarding professionals to make better informed, quicker decisions. Other use cases which are being developed including better management of ASC care packages, supporting earlier intervention to support people at risk of going into rent arrears and better identification of unlicensed properties.

4.6. The development of a Data Lake will also underpin our ability to benefit from Internet of Things (IoT) capabilities. IoT is a network of connected physical devices that collect and exchange data with minimal human intervention. One area where we are exploring the benefits of IoT is in Adult Social Care. Applied to social care, it allows us to monitor ourselves and our environment in real-time - for example, heart rate, temperature, blood sugar, the list is endless - enabling professionals to decide if any next steps or intervention is needed.

4.7. By monitoring environmental factors and taking actions such as altering room temperature, reminding people to take their medication and go for a walk, IoT devices can empower the elderly to take control of their everyday routine. Weight, blood pressure and Electrocardiogram (ECG) can also be monitored remotely, allowing problems to be detected early on and in the moment.

4.8. IoT can also connect home-bound people with a social support system, reducing vulnerabilities such as experiencing a medical emergency when alone. For example, if a person was unable to push a button because she became unconscious, the IoT device would alert emergency services.

4.9. This technology extends beyond houses into the communities where people live and work. We are exploring using IoT to remotely monitor traffic lights, air quality, sound levels, and other factors that affect people's lives on a day-to-day basis, managing these factors to improve overall quality of life and cut down on problems.

4.10. The Data Lake is vital to underpin this as it will enable us to collate and process the data in real time. This data accumulated from IoT devices can also be shared with other agencies – including health, transport and voluntary sector partners in order to maximise the benefits to residents.

5. Considerations

5.1. The benefits offered by the ability to more effectively use data, including making information more widely available and accessible, need to be balanced against the risks and ethical considerations. Alongside its digital strategy, Brent has also agreed a Cyber Security strategy which sets out our approach for protecting our information systems and the data they hold to ensure the services we provide are secure and our residents, businesses and stakeholders can safely transact with us.

5.2. Working in collaboration with all London Authorities, Brent is contributing to the Mayor of London's Chief Digital Officer's Smart London Plan outlining a digital strategy for the city. The Chief Digital Officer, Theo Blackwell, is building a coalition to enable boroughs to join forces, share data and improve London's digital services. In addition, as a member of LOTI (London Office of Technology and Innovation), Brent, alongside fifteen other London Boroughs, is establishing a data ethics board which will consist of diverse representation (academics, NHS, residents, members, etc.).

5.3. The ethical collection and use of data is addressed by the General Data Protection Regulation (GDPR), but it is also vital to have an ethical framework to underpin the use of data, especially if it is being used to predict potential outcomes. To ensure we have this in place to underpin our digital development, Brent has procured bespoke ethical training from the ODI (Open Data Institute) for relevant officers across the council. The training will address these concerns and introduce an ethics framework in line with council priorities and the Data Quality Strategy. In addition,

we have met with academics from the Department of Computer Science at University College London (UCL) who are keen to work with us on developing our approach to data analytics, including sharing experience of working within an ethical framework.

5.4. There are also considerations inherent in using customer data proactively to target residents with specific information. The Council's Privacy and cookie policy details how Brent uses personal information. Other considerations including.

- **Limitations on data integration and data quality of the data sources** The quality of the data within systems, is there missing data, is the data accurate etc.
- **Ethical and legislative context** the rule of law, data protection and GDPR, misuse of data, right of the individual versus the right to privacy in analysed aggregated data. A data protection impact assessment is required for any use of personal data.
- **Rights and data sources** -was the data collected for the purpose it is proposed to use it for.
- **Transparency** How open should Brent be? Will the project / analysis be able to bear up to independent scrutiny?

5.5. This is also a new way of working for councils, and staff will need appropriate training and support to work in a more data driven environment. Increased use of data analytics is only part of the process and this needs to be used alongside human intervention to minimise risk and maximise benefits. New roles and skills will also be required including data scientists and data architects. Brent's approach is to grow this capability in-house and give our staff opportunities to develop new skills.

6. Examples from other councils

6.1. Brent is not unique in developing its work in this area and other councils, public bodies and private companies are exploring new ways of using data.

- **Durham** police are using artificial intelligence to predict the risk of future offending. The algorithms are trained on data from 2008 to 2013, with 88% accuracy in predicting high-risk cases, and 98% accurate for low-risk cases. This is used to inform bail applications.

- **Newcastle City Council** with support of partners, including Newcastle University, have attached IoT sensors to bins and street lamps to gather real-time data on bin capacity/waste management and lighting. Their Smart City initiative also monitors the city's traffic levels, air quality and parking. The collected data is analysed in the following ways:

Data on waste shows, which times/days bins fill up more quickly so that collections can be planned more efficiently, based on need. This is creating a cleaner, better spaces for people, as well as cutting costs.

Traffic flows and air quality monitoring help Newcastle City Council understand the extent of congestion levels and their environmental impact, helping it explore how to alleviate these issues.

Predictive analytics on road surface wear and tear by using traffic level data estimates, which roads require maintenance and when. This helps with forward planning, reducing the disruption caused by emergency repairs and potholes.

- **Leeds City Council** established the Leeds Data Mill (LDM) as a means of providing an engagement platform for data across the city, which could engage residents, developers, innovators and partners in the use of data. The LDM brings together data from multiple sectors across the city. It uses dashboards to help people use and visualise the data in engaging ways. To engage with the developer and SME community, the LDM uses Innovation Labs to find solutions for problems in the city. This challenge method has been used to develop solutions to issues such as the number of empty homes, encourage recycling, and the provision of data about schools' admissions.

- **London Borough of Barking & Dagenham** has commissioned The Borough Data Explorer to bring together data the borough's manifesto indicators in a GIS dashboard (the Data Explorer) comparing the borough's performance against all London Authorities. The dashboard is capable of showing a 3-year trend for the majority of the 117 indicators that have been visualised under the following themes:

    - Community Engagement
    - Employment and Enterprise
    - Housing
    - Safety
    - Environment
    - Health and Wellbeing
    - Skills and Education
    - Deprivation

7. Conclusion

7.1. Brent has a clear vision for how we can benefit from making better use of our data to improve the lives of people in Brent. We are also very conscious of the risks and ethical considerations, which go alongside this and are ensuring this is a key strand of our digital development work.