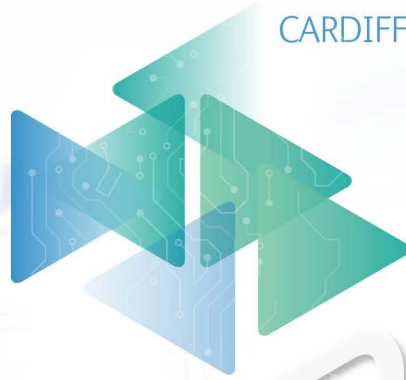


# DATA STRATEGY

CARDIFF COUNCIL



## PURPOSE

The Council recognises that data represents an asset which can support the delivery of corporate priorities and improve service delivery. Every organisation is responsible for the data they process and store. Treating data as an asset can lead to valuable productivity gains.

The Digital Strategy makes clear the requirement for a comprehensive understanding of data governance and its potential to support performance and service improvement.

Data, however, is often dispersed across different systems, organisations, and processes. Without a clear strategic approach, identifying the right data sets to support delivery across a large organisation can be challenging.

The Council has identified the need to improve and regulate how it not only shares, stores, and protects its data, but also creates, manages, and uses its data. Converting this data into an asset also requires specialist skills within the workforce, investment in software, and the adoption of new working practices.

The Data Strategy will support the Council to transition from being a data-rich organisation to being data-driven by setting out a systematic approach to managing and interrogating data. The Strategy complements the Planning and Performance Framework, which identifies corporate priorities and areas of improvement by deriving insight from all relevant data sets that the Council and its partners may hold.



## DATA-DRIVEN PERFORMANCE IMPROVEMENT

The Council's Planning & Performance Framework sets out the Council's delivery priorities and, through a comprehensive process of self-assessment, also identifies improvement priorities.

The Data Strategy will embed a structured approach to applying the Council's data to solve problems and improve performance in areas identified by the Council's performance monitoring framework.

Aligning the Council's Data Strategy and Planning & Performance Framework will therefore ensure a systematic approach to:

- Identifying priority areas of improvement via business-as-usual planning and performance processes. *For example, a consistently missed target, sudden low performance, or a predicted performance issue on the horizon (such as an increase in demand).*
- Identifying the datasets which can provide insight to a problem.
- Automating the collection and secure provision of management information
- Transforming raw data into meaningful information via data visualisation tools

The outcome of this new approach will be a more streamlined performance reporting process where data sourcing, quality, accuracy, and timeliness can be improved, enabling a greater level of intelligence and evidence-based decision making.

Key to its success will be the effective coordination of a range of capabilities and specialisms from across several Council service areas, including policy, performance and insight, data management, data engineering and data visualisation.



# BECOMING A DATA DRIVEN ORGANISATION

## COMPONENTS OF DATA USE

There are the five key components which support the use of data to drive service improvement. These are:

1. **Data Architecture** – This will provide a framework detailing how information is collected, classified, integrated, enhanced, stored, and delivered securely.
2. **Data Management** – This involves establishing standards and policies to ensure that data is of the highest quality and managed in accordance with legislation. Specifically, processes will adhere to the requirements of the:
  - Data Protection Act 2018
  - General Data Protection Regulation (GDPR) 2018
  - Freedom of Information Act 2000
3. **Data Governance** – This involves defining and assigning roles, such as information owners, to make it clear who is responsible for ensuring our data is secure and well-managed throughout its entire lifecycle.
4. **Business Intelligence** – This details the technology architecture that will enable the right people to gain access to the right data and at the right time. Data is collected and organised in a logical way into a centralised store (the 'Data Warehouse') and is drawn on by data visualisation software to produce reports and dashboards.
5. **Education & Culture** – This involves creating and supporting a data culture to enable data-driven decision-making and policy-making for our political leadership, managerial leadership, and service managers. It will also include the upskilling of members of staff who have a role in (a) the production of our reporting datasets and (b) bringing that data to life via engaging visuals.



There are seven core principles which shape the way that the Council will aim to use data to achieve its outcomes and aspirations. These are:

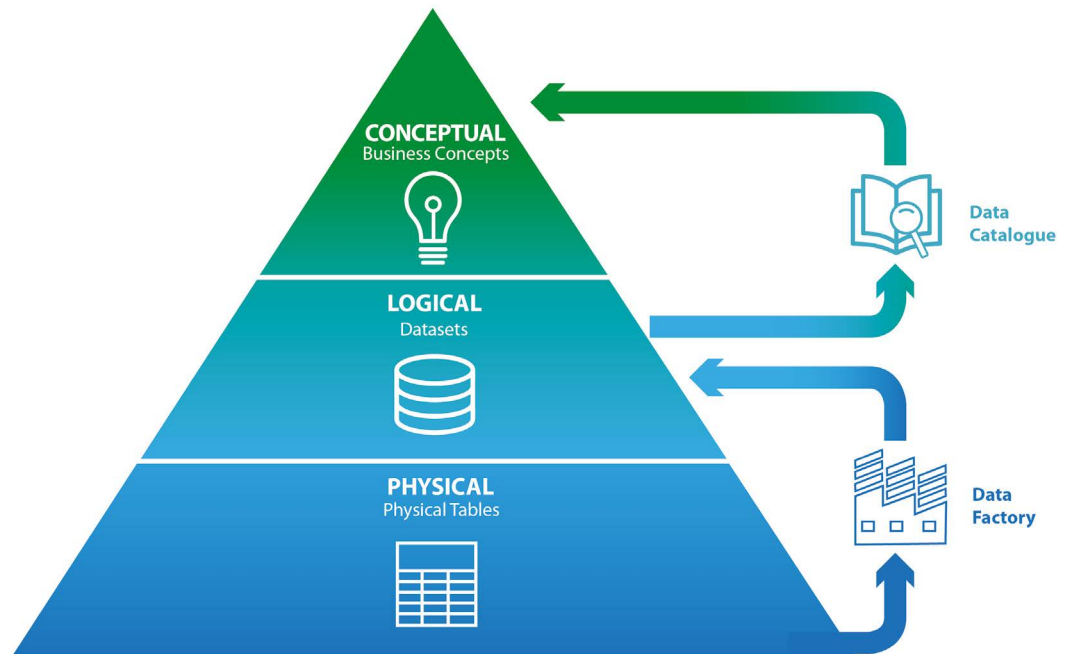
1. **DATA IS A VALUED ASSET**
2. **DATA IS MANAGED**
3. **DATA IS FIT FOR PURPOSE**
4. **DATA IS STANDARDISED AND LINKABLE**
5. **DATA IS REUSED**
6. **DATA IS ACCESSIBLE**
7. **SHARED SECTOR DATA**



## DATA ARCHITECTURE (DATA MODEL)

We will implement a consistent view of the data landscape by developing and implementing a consolidated data model using industry standard approaches such as those stipulated by the Local Government Association (LGA). We will establish a common vocabulary and set of data definitions to create a clearly understood “single version of the truth” with regards to our data assets.

The data architecture is a key enabler in implementing data management and business intelligence.



## DATA MODELS

- The **conceptual data model** is a high-level view of the data. The format will allow it to be easily consumed by business units across the organisation and will be delivered via the Data Catalogue.
- The **logical data model** provides a more detailed view of the data which will be used by the technical teams developing the ever-evolving datasets (structured collections of related information) and the dashboards and reports that will bring these datasets to life.
- The **physical data model** represents how data is stored in our back-office system databases.

### DATA CATALOGUE

The Data Catalogue empowers Officers to find valuable, trustworthy data. It gives insight into who is using the data, for what purpose, how it is formatted and where it originated from.

### DATA FACTORY

The Data Factory uses scheduled data-driven workflows (called pipelines) that can orchestrate data movement from disparate data stores and perform complex data manipulation.

### HOW WILL WE ACHIEVE THIS?

- We will adopt a bottom-up approach to the data modelling, starting with the business units for which the need is greatest.
- The Data Factory will be used to surface high value datasets that would benefit stakeholders.
- The Data Catalogue will be populated incrementally as new datasets are made available.

## DATA MANAGEMENT

We will implement an exemplary approach to data management. This will be realised through the introduction of policies, processes and automated tools which will support better data integration, data protection and enhanced data quality and management.

The main legislations that guide this framework are:

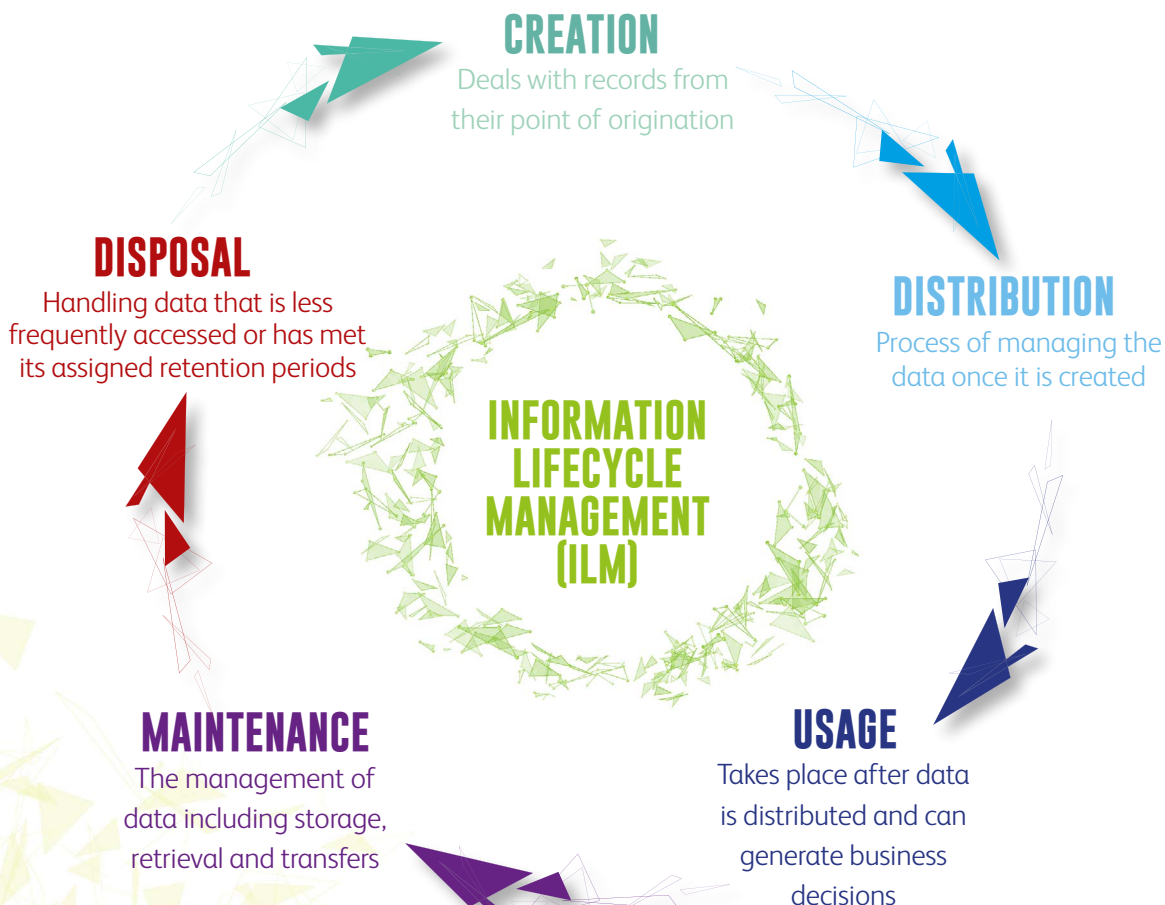
- Data Protection Act 2018
- General Data Protection Regulation 2018 (GDPR)
- Freedom of Information Act 2000

The three core capabilities developed and implemented are:

- Information Lifecycle Management (ILM)
- Master Data Management (MDM)
- Measuring and improving data quality

## INFORMATION LIFECYCLE MANAGEMENT (ILM)

The ILM capability covers the policies and procedures that support data quality, data logistics and data integration covering the following five stages:



## MASTER DATA MANAGEMENT (MDM)

The MDM capability provides the policies, procedures and solutions to manage and maintain master data within the ILM, and ensure that consistent versions of the same data are used throughout the organisation. The processes within MDM include:

- Capture and de-duplication of data
- Conflict resolution
- Distribution and sharing of master data securely

## MEASURING AND IMPROVING DATA QUALITY

Data quality will be monitored and measured as it is captured and transformed by the organisation's processes and is supported by automated toolsets where appropriate.

The key capabilities provided by data quality management are:

- Measuring data quality
- Maintaining data integrity
- Data cleansing
- Minimising data duplication

### How will we achieve this?

- Information governance champions will be embedded within the organisation and its culture
- Information governance champions will need to consider the whole lifecycle of the data, from identification of need, creation, quality assurance, maintenance, reuse and ultimately to archiving or destruction once the data has ceased to be useful
- The organisation will support best practice in data management and ensure everyone responsible for processing these business assets is appropriately skilled
- We will create an organisational plan detailing how to comply with legislation and regulations. This will be applied for both business as usual activities and when planning new ways of working





# DATA GOVERNANCE

We will implement a standardised approach to data governance, based on best practice, which integrate into the wider established framework.

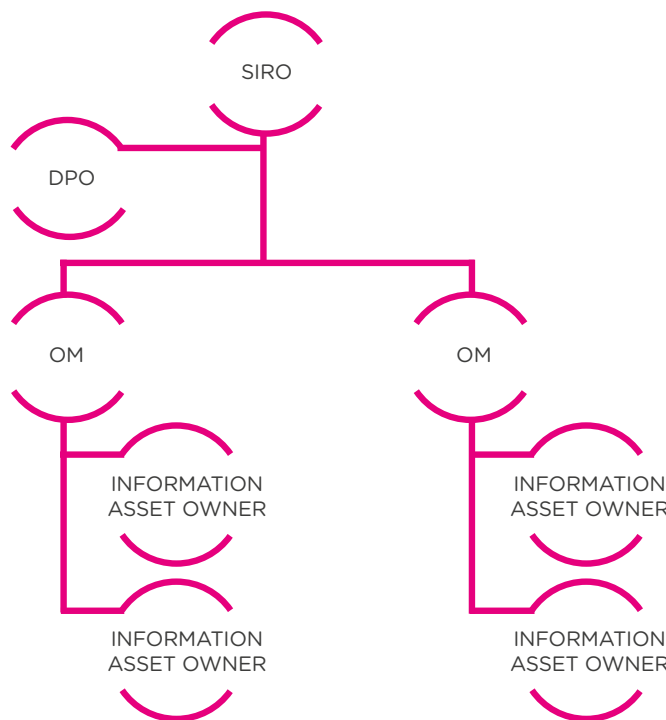
Specifically this includes:

- Ensuring data is secure and well managed, and risks to the organisation are contained
- Prevent and correct errors in data
- Measure data quality and provide a framework for data quality improvement that is monitored and assessed
- Define our standards to document data and its usage within the organisation

To deliver a data governance framework, we will continue to develop and grow data management skills and knowledge throughout the organisation. On a day-to-day basis the Information Governance unit is responsible for implementation of data governance and data assurance.

The main governance functions include:

- **Executive accountable officer for data** – includes the role of Senior Information Risk Owner (SIRO) and is ultimately accountable for the security and quality of data
- **Data Protection Officer (DPO)** – statutory role ensuring the organisation processes the personal data of its staff, customers, providers or any other individuals in compliance with the applicable data protection rules
- **Operational Manager (OM)** – accountable and responsible for data governance and data management for information within each business unit, ensuring all policies and procedures are implemented and data quality initiatives are implemented
- **Information asset owner** – responsible for the application of data governance, data management and data quality plans on behalf of Operational Managers



## How will we achieve this?

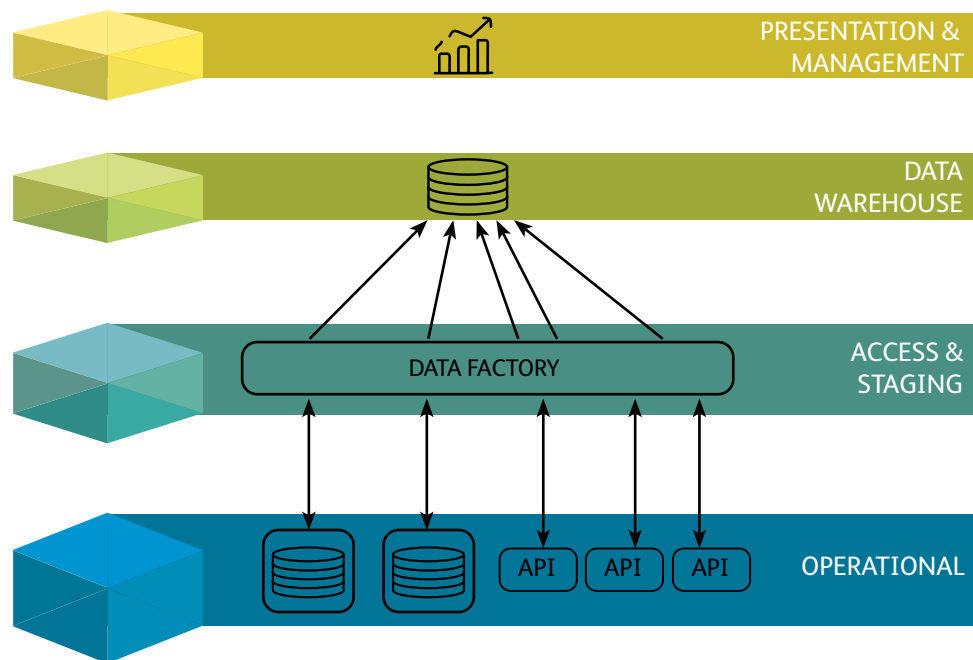
- Investigate the use of data trusts and learn from organisations which have taken part in pilots
- Work with the SIRO to lead on use of data
- A standardised approach to data governance in order to provide a defined accountability framework alongside policies and procedures will be adopted

## BUSINESS INTELLIGENCE

We will implement a corporate level analytics framework to enable the organisation to use its data well. This includes;

- Operational monitoring and reporting
- Impact assessment and evaluation of change requests
- Opportunities to offer our customers and stakeholders predictive analytics to provide decision support

The framework consists of four layers:



- **PRESENTATION AND MANAGEMENT** – Point of contact for the end users, e.g. reports and dashboards
- **DATA WAREHOUSE** – Central repository storing data from disparate systems in a clean and uniform format
- **ACCESS AND STAGING** – Consolidating, integrating and aggregating data from disparate sources, e.g. ETL (Extract – Transform – Load)
  - Data Factories – these allow the building of pipelines to move, prepare and integrate data.
- **OPERATIONAL** – Transactional databases of operational systems such as ERP and CRM systems
  - Application Programming Interfaces (APIs) - these are internet-based access points to back-end databases.

### How will we achieve this?

- We will open up services internally and externally through the use of APIs and Data Factories where appropriate
- Data will be available in a non-proprietary format through the provision of a data store repository
- Give employees the ability to visualise data using software
- We will create standards for the publications of public facing data

## CULTURE & EDUCATION

Working in a data rich environment, all staff are required to use and act upon data. This does not fall solely to the main governance functions defined in this strategy. Therefore it is imperative that Cardiff invests in its staff and culture, so that all within the organisation are fully aware of their responsibilities.

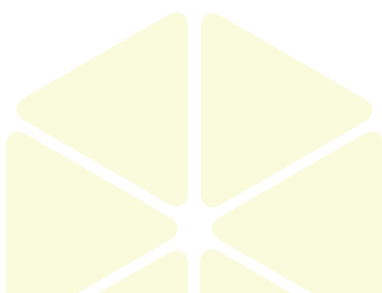
### How will we achieve this?

#### Culture

- Decisions and policy making is informed by data. The data culture within the organisation will be supported by leaders and senior managers
- Embed data responsibilities in job descriptions and reflect in recruitment and training programmes
- Provide a professional career path for core data management staff, with graded levels of responsibility for employees to progress through

#### Education

- Training will be developed for all staff to understand the ethics of data sharing - including what is and what is not permissible
- Implement data governance training as a core competency for staff so they understand their responsibilities, supplemented by tailored training for teams and roles where required
- By identifying employees who have a role in analysing data, we will invest in training and development in areas such as data analytics, machine learning and artificial intelligence
- Provide data management skills/competencies to help staff create, find, share, evaluate and organise data
- Introduce how to use and manage data in IT systems when user training is delivered
- Regularly review modern techniques and best practices, such as those developed by the LGA who have developed and run training days centred around the good use of data



## APPENDIX : PRINCIPLES

The following principles are statements that will support and guide the organisation to achieve outcomes and aspirations.

PRINCIPLE	STATEMENT
Data is a valued asset	<ul style="list-style-type: none"> <li>• Data should be understood and valued</li> <li>• Data is a corporate asset and the full value of data lies not just in its original purpose but also in its potential reuse</li> </ul>
Data is managed	<ul style="list-style-type: none"> <li>• Data should be stored, protected and leveraged – according to its value</li> <li>• Data owners need to consider the whole lifecycle of the information</li> <li>• A range of best practices need to be in place</li> <li>• Data needs to be governed as it moves through its lifecycle</li> <li>• Ensure the organisation has plans how to comply with relevant legislation and regulations</li> <li>• The organisational culture must support best practice in data management and ensure everyone responsible for processing these business assets is professionally qualified and appropriately skilled</li> </ul>
Data is fit for purpose	<ul style="list-style-type: none"> <li>• Data must be good quality and fit for both its primary purpose and reuse</li> <li>• This principle will be promoted and delivered through enterprise and data architecture, shared models, shared business terminology, reference data and taxonomy</li> <li>• Quality includes factors such as accuracy, validity, reliability, timeliness, relevance and completeness</li> <li>• The quality of data should also be regularly monitored to ensure that it meets the levels that have been assessed as necessary</li> </ul>
Data is standardised and linkable	<ul style="list-style-type: none"> <li>• Data should, wherever possible, follow a standardised format (e.g. Addresses adhering to BS7666)</li> <li>• Deploying a common set of data definitions across the organisation is a critical component in ensuring data quality</li> <li>• Linkable data allows the organisation to benefit from collaborating and sharing data both internally and between government, academic and third sectors, giving access to a much richer range of vital information</li> <li>• Data linked to geospatial information is a critical resource in enabling digital transformation in local government and public services</li> </ul>
Data is reused	<ul style="list-style-type: none"> <li>• Data is even more valuable if it can be used more than once and for more than one purpose</li> <li>• Sharing data with other organisations will promote more collaborative relationships</li> <li>• Data which initially appears unsuitable may be reusable if it can be reformatted. For example, operational data can be anonymised or aggregated and then be of wider value</li> </ul>
Data is accessible	<ul style="list-style-type: none"> <li>• Individuals and organisations must be able to access data about themselves, along with an explanation of how their data is used by others</li> <li>• Data is treated as being open and transparent unless it is personal or confidential</li> </ul>
Shared sector data	<ul style="list-style-type: none"> <li>• Where appropriate or agreed, customer and service data will be shared with staff, partners and others to improve the delivery of services</li> <li>• Consider the different channels available to publish information to the public. This includes internal publication processes, websites, open data feeds and relationships with third-parties such as commercial / academic publishers</li> </ul>

	CITIZENS VISITORS SERVICES	MANAGEMENT WORKFORCE ELECTED MEMBERS	PARTNERS BUSINESS EDUCATION
TRANSPARENCY	<p>We are open and transparent and customers are able to make informed decisions on service choice, influence future services and hold the Council to account</p> <p>We have integrated our services with personal data and given the control back to the customer</p>		
ACCESSIBILITY	<p>The public can easily find information on services they require online</p> <p>Customers can access their own personal data and see the progress of service requests</p>	<p>Data is easy to access through dashboards and common reporting tools to inform policy and service planning</p> <p>Data is easier to find because we describe it effectively and have tools to retrieve it.</p>	<p>Data can be reused and linked externally with other organisations, either within the sector or with private businesses and individuals</p>
AUTOMATION	<p>When customers inform us of a change of circumstances we are able to automatically update our systems and share with other relevant public sector systems to avoid duplication of effort</p>	<p>Automated business processes routinely collect transactional data to support continuous process improvement and help us manage our services more effectively</p>	
SECURITY	<p>Customer data is valued and protected</p>	<p>Data management principles and practices have been embedded in the organisation through training and culture shift</p>	
CONSOLIDATION		<p>We are able to use summarised and consolidated data to redesign, target and streamline our services</p> <p>We have established a single source of truth for all our data sets</p>	<p>We share data to deliver a more streamlined service to the public and improve their outcomes</p> <p>Data can be opened up to encourage collaborations with schools, colleges, universities, businesses and communities</p>



## APPENDIX : THE COUNCIL'S DATA PRIORITIES

The Council aims to improve the process of collating performance information, automating this where appropriate, and to improve the presentation of performance information in an easy-to-interpret way, through clear visuals and a self-service interface. These aims apply to both corporate and directorate level performance information.

### CORPORATE DATA PRIORITIES

- **Corporate Performance Reporting**

Improving the data collection and data presentation of performance information contained within the Corporate Plan and Directorate Delivery Plans

- **Management Dashboard**

Consolidating a range performance information which is considered essential for effective the management and delivery of Council services. This will include providing information to each manager of

- Mandatory Training Compliance
- Sickness Absence
- Staff Turnover
- Workforce Composition
- Citizen Satisfaction
- Agile Devices (enabling Hybrid Working)
- Information Governance
- Health & Safety

- **City Performance Dashboard**

Presenting high-level city performance data which measure Cardiff's performance across a range of economic, health, environmental, and community safety data sets, as defined in the Cardiff Public Services Board's Well-being Plan. These datasets enable the measurement of inequality gaps within communities relating to poverty, income, education attainment, qualifications, and health to support evidence-based decision making, responding to Socio-Economic Duty (Wales).

**SERVICE SPECIFIC DATA PRIORITIES**

- Children and Young People.**  
Consolidating all relevant data sets from across different services which work with children and young people- including Children’s Services, Youth Justice, Education, and Family Help- to develop a joined-up view of the lived experience of children in Cardiff.
- Integrated Single View of the Child.**  
Supporting better information sharing amongst Council Service Areas and Public Service Partners who are working to support children and young people in Cardiff. The aim is to draw together data from separate case management systems into a secure data warehouse. This will allow identified case workers to better deliver joined up intervention and preventative action to improve outcomes for young people
- Community Safety Dashboard.**  
Enhancing the Community Safety Partnership (CSP) ability to access and review crime data.
- Streets Scene and Cleanliness.**  
Scoping relevant data sets with a view to improving street cleanliness and waste collection through better data utilisation and data visualisation.



# DATA STRATEGY

CARDIFF COUNCIL

