# Northumberland County Council – Data & Business Intelligence Strategy

## The case for change. Why do we need a Data & Business Intelligence Strategy?

Data is the raw material on which Northumberland County Council (NCC) operates. It describes the past and enables us to be better prepared for the future. Best use of data will allow NCC to understand where we are now, and chart a data driven path into the future, to the benefit of our residents, businesses, employees, and visitors.

NCC is a large and complex organisation, catering for over 300,000 residents with a complex IT environment.

This IT environment has resulted in an equally complex data environment. NCC is no exception to a common pattern where the structure of an organisation's IT systems mimics the organisational structures they are part of (Conway's Law[1]). This pattern has onward impacts on data; siloed IT has led to siloed data.

These challenges were also highlighted as part of an independent look at data in 2023. Four key points of note were:

- Services use different legacy systems. Collating information across these is difficult.
- A number of data professions, such as data architecture and engineering, are missing from the organisation.
- Despite a desire for openness, data stays protected within siloes.
- Siloed data storage makes integrating data difficult.

To deliver on our corporate plan we must break down technical and cultural barriers. This is why we need this strategy. NCC must deliver an exemplar approach to data for its residents, businesses, employees, and visitors.

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[1] *"Organizations which design systems…are constrained to produce designs which are copies of the communication structures of these organizations."* [Wikipedia page for Conway's law](#)

# What do we mean by data?

Data at NCC is typically considered to be the raw values, facts, figures, text, and images that are input or collected as part of our operational systems or processes.

We have deliberately included the term "Business Intelligence" in the title of this strategy. A direct reference to the fact that collecting data for the sake of it is not the intent. Data gives us the raw material we require to achieve our goals, to drive decision making and improve outcomes.

Typical examples of NCC data include:

- Customer services resident interactions.
- Cyber security events.
- Data collected by [Northumberland Fire and Rescue Service](#) (NFRS).
- Data that we publish openly or as part of our legislative obligations.
- Internal data in Human Resources, Payroll and Finance.
- Our Local Land and Property Gazetteer (LLPG) and wider geospatial datasets.
- Personal data that drives our operational delivery such as adult social care, education management or council tax.
- Population health management data.
- The NCC electoral register.

# The vision

This is a five-year strategy with a vision:

> "NCC is all in on data, setting an exemplar approach in local government.
> NCC harnesses data to improve service delivery for residents, businesses,
> employees, and visitors."

NCC will use the guiding principles of the national data maturity framework[2] to advance our data maturity level – our capability, effectiveness, and readiness to use data – and set an exemplar approach for data in local government.

We recognise that the scale and breadth of operations in NCC means that "centralising all things data" is both unfeasible and inappropriate. Instead, we will take an enabling and collaborative approach. A corporate data team, in collaboration with data leaders from across the organisation, will take collective responsibility to ensure every part of NCC is harnessing data to improve service delivery.

Acting on this strategy will take NCC on the journey towards being driven by data, by default.

Three core principles of this strategy are:

1. **Principle 1 - ENGINEERING: Advance the practice of collecting, storing, and using data.** Treat data as a high value asset that underpins the work we do and decisions we make. Make leveraging high-quality data the default.

2. **Principle 2 - SKILLS**: Ensure our **people** are data literate and skilled. Build a community of experts and invest in their professional skills.

3. **Principle 3 - CULTURE**: Embed a data-driven **culture** across the organisation.

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[2] [Data Maturity Assessment for Government: Framework](#)

# Principles – the details

## Action plans and a roadmap(s)

The GOV.UK service manual describes a roadmap as *"a plan that shows how a product or service is likely to develop over time."*[3]

Roadmaps will provide the means to translate strategic intent into real world delivery.

We will use a roadmap to articulate what we are prioritising **now**, what we intend to do **next**, and emerging **future** ideas.

## Principle 1 - Advance the practice of collecting, storing, and using data.

NCC has a vast array of operational systems that constitute the backbone of every service we deliver.

These systems typically meet the needs of their respective business users in isolation, but present challenges when it comes to sharing and using that data beyond operational tasks. Ensuring that high standards of data input, consistent use of foundational reference data (such as Unique Property Reference Number, UPRN), and a consistent approach to Information Governance (IG), is often challenging.

As a result, the approach to data analysis and reporting is inconsistent. This has resulted in local data extracts and a plethora of reporting/dashboard solutions being the *de facto* approach.

In seeking to improve this, NCC will provide a corporate data analysis platform. Twinned with a best practice approach, this will allow NCC to scale the impact data analysis can have and empower staff to make informed decisions.

Enabling NCC staff is only one component of the strategy. We recognise that residents, the wider public, businesses, and government colleagues are also users of our data. NCC is committed to using platforms such as data.gov.uk to meet the need for open data publishing and for open data metrics to become part of the success criteria of data at NCC.

Considering the number of service-aligned operational systems NCC has, it is also a long-term goal to use cloud technology to reduce the maintenance burden of this wide array of systems.

NCC will seek to reduce the use of local data solutions such as individual spreadsheets, replacing them with best practice solutions.

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[3] Developing a roadmap - Service Manual - GOV.UK (www.gov.uk)

## The importance of geospatial data

Geographic Information Systems (GIS) are tools used to collect, manage, analyse, and visualise geospatial data. Activities such as development control (planning), emergency response, route optimisation and maintenance of public infrastructure such as roads, parks and broadband all have a significant location component.

In 2023, NCC established a new Geospatial team that is playing a vital role in delivering improved public services and supporting the delivery of the corporate plan. The team will unlock the substantial opportunities offered by location data, applications, and services and advance Northumberland's geospatial expertise.

## Artificial Intelligence

As little as five years ago, it might have seemed farfetched that a local government data strategy would include the words "Artificial Intelligence (AI)." However, in 2024 AI technology is at peak hype and expectation[4].

AI as a term encompasses a significant array of tools and methods that the Office for Artificial Intelligence[5] describes as, "…the use of digital technology to create systems capable of performing tasks commonly thought to require intelligence…" that, generally involves machines using "…statistics to find patterns in large amounts of data."

The recent growth in public awareness and use of the term "AI" is associated with the development of Large Language Models (LLMs). A form of AI also known as generative AI. ChatGPT[6] is probably the most established example in the public consciousness.

A recent AI state of play report (July 2023)[7] from The London Office for Technology and Innovation (LOTI)[8] summarises generative AI as:

"…'generative AI' tools can almost instantly respond to questions and prompts by generating original text, images, data, code and sounds, hence the term "generative AI"."

A full treatment of AI and its applications is beyond the scope of this strategy, but readers are encouraged to read the LOTI report referenced above. However, NCC recognises the need to be on the front foot when it comes to AI use cases and technology. Used appropriately, tools such as generative AI could have a transformational impact on the way aspects of services operate.

We note that any new technology, AI included, brings with it risk that needs to be understood in the context of a use case. NCC will develop an approach, aligned with those of other local authorities, to extract the benefits AI can offer.

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[4] [What's New in Artificial Intelligence From the 2023 Gartner Hype Cycle™](#)
[5] [A guide to using AI in the public sector 1.7 (publishing.service.gov.uk)](#)
[6] [Open AI](#)
[7] [Generative AI and local government: What is the current state of play?](#)
[8] [London Office of Technology and Innovation (loti.london)](#)

## What we will do

To shift the NCC approach to data, to ensure we treat data as a high value asset that underpins the work we do and decisions we make, we will:

- Publish a data roadmap.
- Develop a data catalogue to enable visibility into the NCC data estate and set the foundations for data governance and sharing.
- Develop a trusted data framework. Build trusted, shareable, and high-quality data products that power insights across NCC. Make collaborating across services possible, consistent, and well governed.
- Make centrally managed, foundational reference data available to operational systems.
- Document a data architecture.
- Maximise the NCC investment in existing cloud data technologies and services. Build an analytical and reporting data platform that provides a consistent set of patterns for data analysis, sharing and reporting.
- Stop creating single person points of success, start creating enterprise grade, supportable, high quality data products.
- Invest in a single, organisation-wide dashboarding tool. Build accessible visualisations appropriate for their intended audience.
- Start a data governance programme. Establish clear policies, roles, and responsibilities for managing data quality, security, privacy, and compliance.
- Measure and track data quality over time.
- Agree a framework for publishing open data.
- Agree and publish a Geographic Information Systems (GIS) strategy. Invest in geospatial skills and demonstrate the value of location.
- Recognise the impact of established and emerging AI technologies on NCC business. Establish a set of rules/guidelines on use of AI in NCC.

## What will the impact be?

- Staff across the council can find data easily, know how to improve it and who to ask about it.
- NCC Data is sharable and trusted.
- Innovative use cases and collaborations across council services are possible.
- Data analysis is timely and insightful.
- NCC has high confidence in the decisions it makes.
- Corporate performance reporting is consistent and automated.
- NCC gets value for money from existing technology investments.
- NCC will develop specialist skills in agreed technology choices.
- High quality data is championed, accurate and reliable.
- NCC makes best use of AI.
- NCC data complies with relevant regulations and policies.
- Greater transparency via open data.

# Principle 2 – Ensure our people are data literate and skilled.

There are several teams across NCC who are adept at data analysis.

Typically, analysts are embedded within service areas, but have limited ability to focus on data engineering, architecture, and quality. This gap in skills has limited the ability for NCC to get maximum value from the data it collects.

With the establishment of a Corporate Data Team, NCC has already started the investment in the leadership and skills necessary to put data first. This investment should not stop. The core skills of data engineering and architecture will enable the delivery of a modern data platform and scale out of best practice data collection, storage, and use.

Data skills are not distributed evenly across NCC. That creates inconsistent approaches to analysis and reporting.

Outside the data profession, those commissioning analysis and acting on data insights would benefit from higher data literacy, upskilling, and awareness of what is possible.

Building a data literate organisation is necessary if we are to raise our data maturity level.

## What we will do:
- Start at the grassroots. NCC has commissioned a Data Academy, a thirteen-month level three apprenticeship in data for an initial cohort of fifty people. We will review this early to understand the potential for funding a further cohort in the 2024/25 financial year.
- Start communities of practice that can provide leadership and support in specific areas of interest. This has already proven valuable with the GIS community, led by GIS professionals, and enabling users of spatial data throughout NCC.
- Ensure Information Governance is always part of our decision-making process when using data.
- Create Data Engineering[9] and Data Architecture[10] professions.
- Embed data stewardship into the organisation. Equip people with knowledge about data quality in their systems and tools to improve it.
- Develop a curriculum of training for service managers.

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[9] Data engineer - Government Digital and Data Profession Capability Framework and CDDaT skills framework - skills families | Local Government Association

[10] Data architect - Government Digital and Data Profession Capability Framework and CDDaT skills framework - skills families | Local Government Association

## What will the impact be?

- NCC will have capable, resilient communities of experts that will allow us to deliver high quality end-to-end services at scale.
- NCC staff consider data a priority.
- Retention of data skills will improve as staff recognise a commitment from NCC to their profession.
- Data quality will rise in operational systems. People will recognise the difference they make.
- NCC will develop a data literate workforce with a self-service capacity. Analysts can take on higher value work.
- Reduction in bottlenecks with specialist skills being more readily available.

## Principle 3 - Embedding a data driven culture across the organisation.

An effective data culture is the most important outcome of this strategy.

Without it, the work of the best technical teams will go unused and the ability for the organisation to operate effectively will be diminished. The NCC corporate plan aims to establish a learning and continuous improvement culture and this strategy will contribute to this aim.

One of the overarching purposes of investing in data is to improve our business intelligence[11]. As we become more knowledgeable about how we operate, we will be able to identify ways we can improve as an organisation and subsequently improve the services we provide to our residents and businesses.

On its own, data is useless. Establishing a culture that understands and defaults to using data will enhance our ability to deliver.

NCC has already invested in ensuring we have enabling structures with the establishment of a Corporate Data Team, a Head of Data role, and a Data Leaders' forum.

The Data Leaders' forum functions as a cross-organisation means to implement this strategy and as a network who understand and champion data best practice.

### What we will do:
- Establish the management structures NCC needs to lead and champion the data community.
- Publish Terms of Reference for the Corporate Data Team and Data Leaders' forum.
- In collaboration with policy and performance colleagues, deliver a new performance framework and associated dashboards.
- Professionalise performance reporting.
- Make NCC data aware. Make it easy for anyone to understand the data NCC has, its quality, and to take informed actions.
- Write a data blog. Provide an insight into the value data can bring and raise the awareness of what is possible.
- Approach business units and services with a partnership mindset.
- Measure and communicate the use of our data.
- Collaborate with Information Governance colleagues to ensure we use data ethically.
- Promote data integration and collaboration across NCC and with partner organisations.

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[11] Lower case "B" and "I" are intentional here. This is not about dashboards.

## What will the impact be?

- NCC will have senior leaders responsible for the success of data. Leaders are aligned on standards, process, and priorities.
- NCC performance will be well defined and measured.
- Decisions will be data informed.
- Collaborative working with partner organisations is enabled, maximising the value of data to address complex challenges.