

Northern Gas Networks Digitalisation Strategy

April 2024 – March 2026

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Version Control

Version	Description	Published	Author	Position	Approver	Position
1.0	Digitalisation Strategy 2024 - 2026	31/03/2024	Tom Pollock	Head Of Digitalisation	Matthew Little	3iG Director

Classification

This Document has been classified as **OPEN** – Available to any member of the public without restriction.

1 Introduction

1.1 About us

We are Northern Gas Networks (NGN), the gas distributor for the North of England. We keep 2.7 million homes and businesses cooking on gas, through our vast underground pipe network.

We are committed to providing a safe, reliable and great value service to our customers and stakeholders, while delivering a program of continuous digital transformation that is helping to provide a sustainable future for all. Digitalisation is a key enabler in everything we do – whether we are replacing pipes, fixing leaks, developing low carbon energy solutions or supporting our most vulnerable customers.

By thinking differently, listening to our colleagues, customers and stakeholders, working closely with our partners and considering our communities, we are pushing the boundaries and redefining the capabilities of a utility company.

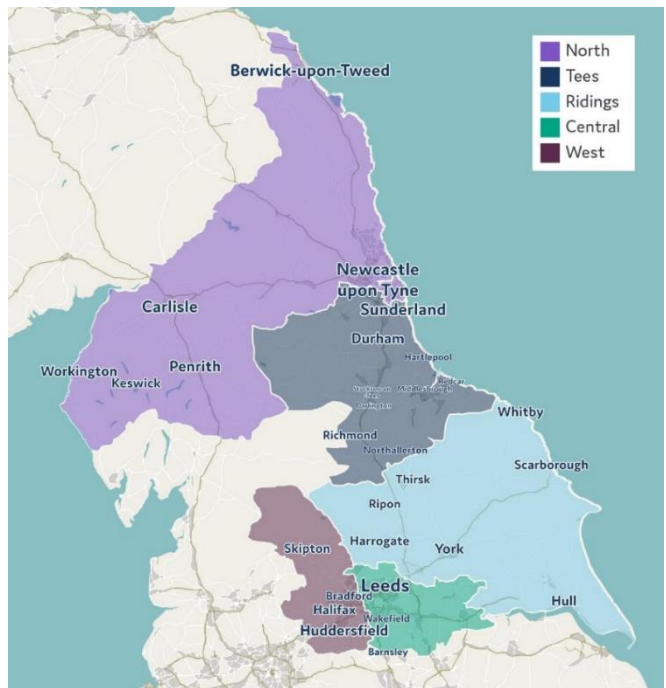


Figure 1 - Our Network region

1.2 About this document

This is NGNs Digitalisation Strategy for the period 1 April 2024 to 31 March 2026, publication of which is a licence obligation for the RII0-2 gas distribution price control. This document has been completed in accordance with Digitalisation Strategy and Action Plan Guidance, Version 2.0, Ofgem, 7 August 2023¹ and should be read in conjunction with our Digitalisation Action Plan.

¹ Ofgem's document can be found here - <https://www.ofgem.gov.uk/sites/default/files/2023-08/Track%20Changes%20Digitalisation%20Strategy%20and%20Action%20Plan%20Guidance%20v2.0.pdf>

2 Our Vision for Digitalisation

2.1 Integrated Information Management

The vision of our strategy has always been Integrated Information Management. It is a phrase you will come across a lot in this document. Our work towards this vision is supported by four main pillars:

- Collect data at source, store it securely and use it wisely.
- Build applications and processes that are easy to use by our colleagues, our partners and our customers.
- Deliver world-leading technology that keeps us at the frontier of efficiency, safety, customer and integrity.
- Never lose sight of the fact that it is our colleagues who will make this technology work

Integrated Information Management has been the core vision of our digitalisation work for almost a decade, and it has delivered remarkable results. So far, through our digital transformation, we have maximised the value, governance and control of our data assets through a simplified enterprise architecture that balances people, process and technology. Following the principle that the data we generate and use should be mastered in a single, consistent schema, but be available to be consumed by multiple applications, we have been able to streamline processes and enable our colleagues to make decision based on data that is always available, that is always up-to-date, and always consistent.

Throughout our digital transformation we've learnt, sometimes the hard way, that digitalisation is all about people. The best technology in the world is pointless if no one uses it. We are passionate about maintaining that balance between people, process and technology, and we've learnt that actually the three are in no way incompatible, as there is one amazing, powerful and beautiful thing linking them all: Data. More often than not, when we get the data right, it is easier to engage with stakeholders, easier to define the correct processes, and easier to choose the right technology. That is why, in developing our digital products and services, we always have people-driven design and a data-driven architecture.

Future Ways of Working through Integrated Information Management

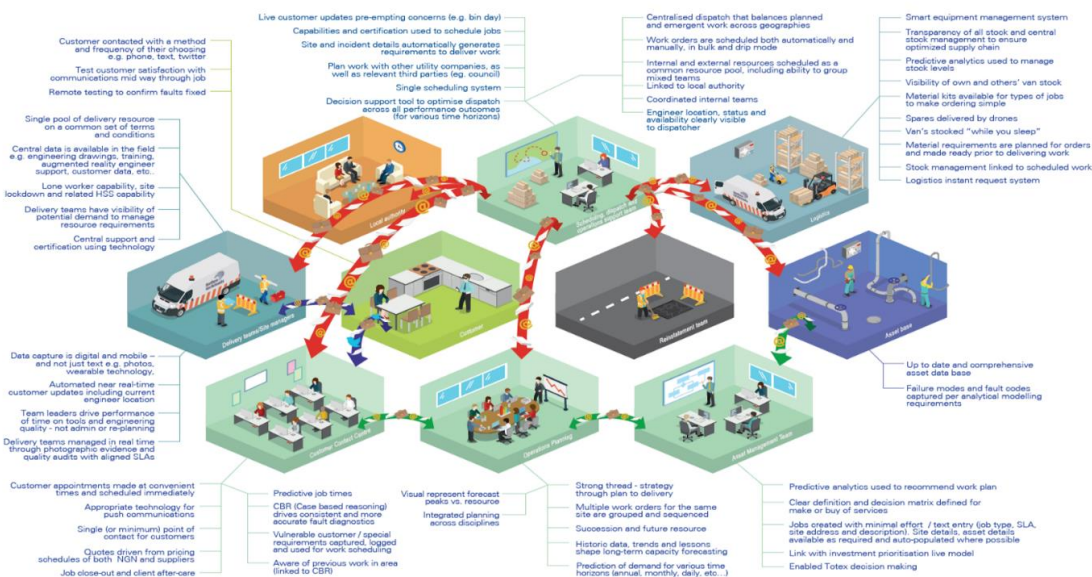


Figure 2 - Our Vision of Integrated Information Management in NGN

2.2 Designing solutions driven by our stakeholders needs

Our Stakeholders, both internal and external, are in the best position to know what they want, and at NGN we want to use digitalisation to deliver the best way to get what they need. This means working closely with our stakeholders to define requirements, and applying design-thinking methodologies to come up with the right solution. In that way we can ensure that not only is the outcome correct, but the route to that outcome is also optimised. This can be seen in the approach to many of the products and services described in this strategy.

In some cases, we will use our growing knowledge of digitalisation to put in place design principles and strategies that support our customers long-term needs. For example, we have a principle of 'configuration not customisation', which basically means that we will wherever possible use the standard functionality of any technology that we implement. As technologies improve, this approach allows us to upgrade and introduce new functionality quickly and easily, so we can adapt to stakeholders evolving requirements and relationship with technology.

2.3 In-house support & development

Enabling a continuous and sustainable programme of digitalisation is extremely important to us, that is why, early in our digital transformation, we knew that the best way to achieve that sustainability was by growing an in-house team to develop our digital products and services, and support them when they are implemented. We have been very successful in doing this, and we now have in-house capability to fully administer our cloud infrastructure, our SAP systems and our mobile applications. This not only provides major benefits in terms of efficiencies, it enables us to provide a better service to our stakeholders and deliver what they need in the best possible way, through collaboration, shared goals and values.

2.4 Enabling Innovation

This is not an Innovation Strategy. We will not be listing every innovation project we have going on². Having said that though, digitalisation is a key enabler for innovation, and as part of our digitalisation strategy we are building the digital platform that will drive innovation in all areas of the business. We will talk through a couple of innovation projects that have been enabled by our Digitalisation Strategy.

2.5 Looking to GD3 and beyond

This is the last Digitalisation Strategy to be published prior to the commencement of our next Price Control period (RIIO-GD3) in 2026, so although this strategy covers the period 2024 -2026, it is important that we also make reference to our intentions for RIIO-GD3, and demonstrate that what we are doing now is helping to build a strong foundation for the work that we will need to do in the future. One thing will remain consistent though, our vision of Integrated Information Management will still be the core of our Digitalisation Strategy throughout GD3 and beyond.

² The Smarter Networks Portal gives a comprehensive list of the innovation projects carried out by all the network companies - <https://smarter.energynetworks.org/search-results/?dateType=start&query&sort=>

3 Stakeholder Engagement

Northern Gas Networks plays an important role on a local, regional and national stage, and our stakeholders range from local business and charities to UK Government. We passionately believe that digitalisation will improve not only the service that we provide to our stakeholders, but also our relationship with them, the way that we interact, the way that we share data and information, the way that we work together to achieve common goals. Our stakeholders are at the forefront of our digitalisation strategy.



Figure 3 - NGN Stakeholder Map

We use this map to identify key stakeholder groups, and apply them prior to the development of each of our digital products and services. We can then utilise our stakeholder database to ensure full engagement with the relevant groups.

4 Making sure no one is left behind

As we know that digitalisation is all about people, we know how important it is to reach everyone, especially those who may have difficulty accessing digital services, or who are hesitant of doing so. NGN has commenced focused engagement with hard-to-reach stakeholder groups, with digitalisation as one of the key areas of discussion.



Figure 4 - Identifying Hard-to-Reach Stakeholder Groups

5 Digital Skills

At NGN, we've long recognised that the best way to achieve sustainable digitalisation is to ensure that we have a vision that is not only driven by, but also delivered by, our colleagues. During the GD2 period we have invested a significant amount of time in expanding the skills we need to achieve our vision of Integrated Information Management. We have upskilled colleagues in the project management skills needed to deliver well-governed, results-driven digitalisation projects, with a number of our project management team now having achieved Prince2 accreditation. We have trained colleagues in the particular skills needed to provide business analysis for RPA or AI developments. We have grown a highly skilled infrastructure team of AWS, Linux and Wintel specialists. We have developed the skills of our ICE and DICE teams (more on them later), in data management, data modelling, coding and analytics. We have given the opportunity to colleagues from all areas of the business to learn valuable, and extremely marketable, skills in the functional and technical elements of SAP.

In many cases these colleagues started their NGN careers in radically different roles, but expressed a desire to learn and a passion for our digitalisation work that you simply cannot teach people. Most importantly, they know the business, they know our operations and they know our customers. Providing an environment where these colleagues can develop into highly skilled team members who are delivering the amazing products and services we will go through in this document is something NGN is extremely proud to have done.

It takes a village to raise a digital child, which is why NGN knows it is important that we don't just focus on the skills of our IT department, but work hard to grow the knowledge and confidence of all our colleagues in what digitalisation means, and why it is so important not just to NGN as a company, but the energy sector as a whole. This ethos can be seen in our approach to our digital transformation, where we took the deliberate step of embedding business colleagues with functional and technical experts. Taking this one step further, in our Process Optimisation Programme we introduced 'Digital Accelerator' sessions, designed to guide colleagues through some of the common digital technologies, like automation and AI, whilst providing tips on how to identify improvement opportunities in their ways of working, and in their interaction with other colleagues and customers. As we always strive to walk the talk, our next steps will be to focus on what we can do to digitise how our colleagues can acquire digital skills, using our e-learning solutions.

6 Our GD2 Commitments

In our previous Strategy³, we talked through a number of general areas that would form the basis of our digitalisation work. We've gone from strength to strength in both our understanding, and practical application, of digitalisation, and we are now able to talk much more specifically about our digitalisation work, and the direction in which it is going.

6.1 Process Optimisation Programme

We have built a solid digital foundation with S/4HANA and other complementary technologies, and we can now maximise the efficiency of processes in place across all our back office functions, whilst introducing innovative solutions to problems around data quality, manual data input or transformation, and lack of actionable information. This is why we started the Process Optimisation Programme (POP). One way of making these improvements is the introduction of Robotic Process Automation (RPA). This is the development of bots, like little virtual assistants, to carry out repetitive, logical tasks. Bots don't get tired or bored, and if they've been programmed right, they don't make mistakes. Giving these repetitive tasks to bots frees up our colleagues to use the data, not just wrangle it, increasing job satisfaction and retention, which in turn improves the service provided to our customers.

The brilliant thing about the digital foundation we have built, with Integrated Information Management as its core vision, is that we can apply RPA at scale, across every area of the business, without having to use point solutions that bring with them increased complexity and cost. Staying true to our design principles, we will use the RPA components of our two main software providers, SAP and Microsoft.

Another thing that sets us apart is that we know that RPA should not be the only solution to process improvement, and with POP, it forms only a part of the approach, so that we can broaden the scope of our activities to include automated reporting and workflow, improved UI, targeted training and application development.

6.1.1 Specific Stakeholder Engagement & Benefits

At the moment POP is very much focused on enhancing our internal processes, but as it expands it will incorporate more and more activities that touch an increasing number of our stakeholders, and we will ensure that engagement is a priority. Even now, with the focus on internal processes, there are still major benefits to our stakeholders and customers.

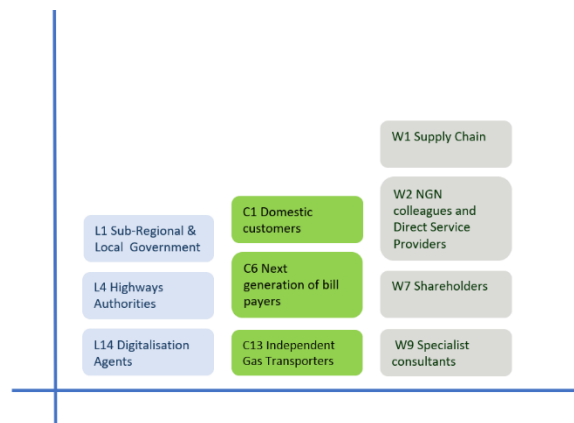


Figure 5 - Stakeholder Groups specifically engaged on POP

³ This can be found on our Open Data Portal - <https://northerngasopendataportal.co.uk/dataset/14>

6.1.1.1 An Example

Once we've completed a repair or any kind of maintenance on our underground pipes, we need to fill in any hole that we have made, this is known as reinstatement. A request is made to a specialist contractor to carry out this reinstatement work. Due to using a third-party contractor, this reinstatement request had always been a manual process. We have introduced a bot to automatically generate the request, verifying the address and making sure all the relevant information is available. However, we have also introduced new tasks that would not have been sustainable in the old, manual process, so that the bot now identifies and highlights any vulnerable customers included in the reinstatement requests, helping the contractor to prioritise those customers. It is a clear example of a service enhanced through digitalisation that benefits both our colleagues and our customers.

6.1.2 How this helps with our Vision for Digitalisation

With process optimisation and automation, we are ensuring that data flows through our systems without impediment and with as little intervention as possible. Data has more integrity, consistency and completeness, and because we know that this data is created, collected or enriched through this process, it can be made available to be used anywhere in our integrated systems. Automation frees up our colleagues' time to act on the data that is processed, rather than actually doing the processing themselves, ultimately giving a better service to our colleagues and customers. This is what Integrated Information Management is all about.

6.1.3 How we're Measuring Success

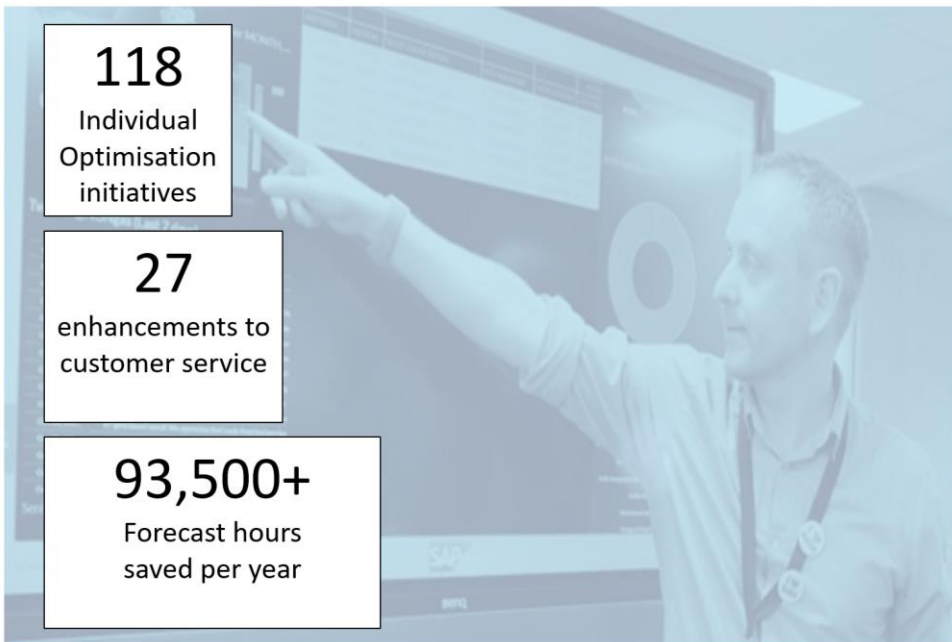


Figure 6 - Statistics relating to POP

6.2 Open Data Portal

Our Open Data Portal⁴ went live in August 2023, making a number of our data assets that are classified as open freely available to all data users. The portal provides a quick and easy way for data users to find, understand and download the data assets that are available. We've applied the Creative Commons BY 4.0 open data licence⁵ to each data asset published on the portal, to simplify its use as much as possible. We'll be working hard over the next few years to improve the portal, and increase the number and diversity of data assets available on it, all the while making sure that we listen and adapt to the needs of our stakeholders.

Open data is a priority for us, but it does come with challenges. We have a responsibility to make sure that we only classify as Open, data that is safe to make freely available. We have to be cognisant of the potential of misuse or mis-appropriation of our data, and guard against that as much as possible. We'll go into a bit of detail on how we are making sure that open data is the best and most secure it can be below.



Figure 7 - NGN Open Data Portal

6.2.1 Data Best Practice

Complete, consistent and highly available data is an essential element in the transition to a Net Zero energy system. Our Regulator, Ofgem, fully recognises this, and to ensure a consistent approach from all network companies to data management and data-sharing, they have published the Data Best

⁴ <https://northerngasopendataportal.co.uk/>

⁵ <https://creativecommons.org/licenses/by/4.0/deed.en>

Practice (DBP) Guidance⁶, a principles-based guide to help and support the energy sector to open up their data and make it as easy as possible for data users to find the data that they need.

NGN are committed to complying with Data Best Practice as the minimum standard for our work in open data and in all other data-sharing activities. We are passionate about playing our part in unleashing the potential of energy data to help a secure and fair transition to a Net Zero energy system, and there are a number of things we are doing to achieve that.

6.2.2 Data Triage

As important as it is to ensure that the right data is open for all data users to easily find and access, it is equally important that we have robust processes in place to ensure data that could be used to pose a threat to society is not shared openly. We follow strict Data Triage guidelines each time we either receive a request for a particular dataset, or where we have identified a dataset that we think could be published on our Open Data Portal. Our Data Triage procedure⁷ is based on an industry standard developed by all network companies⁸, and guidance published by the National Protective Security Authority⁹.

We will continue to collaborate with other network companies and all of our regulatory and government partners to ensure that we have Data Triage that is robust and consistently applied across the energy sector, whilst remaining fair and not putting unnecessary obstacles in the way of legitimate data users.

6.2.3 Data Classification

As NGN generates and holds a wide variety of data assets that must be protected against unauthorised access, disclosure, modification, or other misuse, we have implemented a robust policy on Data Classification. Efficient management of data assets is necessary to comply with legal and regulatory obligations such as relevant Data Protection legislation, and to ensure efficient handling of data requests. Different types of data require different protection measures, therefore applying classification markings to data assets is vital to ensuring effective information security and management.

Specifically in terms of Data Best Practice Guidelines, data classification is essential

Highly Confidential:	Available only to specified and relevant members, with appropriate authorisation. Contains data which is sensitive and justifies heightened protective measures to defend against determined and capable threat.
Confidential:	Available only to specified and / or relevant individuals/organisations, with appropriate authorisation. Contains data which is sensitive because it is personal data, commercial or legal information, or data that is under embargo prior to wider release.
Internal:	Available to any authenticated employee of the company. Contains non-confidential information where dissemination is restricted for business or contractual reasons.
Open:	Available to any member of the public without restriction. Contains company-held or generated data that can be seen by anyone.

Figure 8 - NGNs Data Classification definitions

⁶ For the latest version of the DBP Guidance see - <https://www.ofgem.gov.uk/sites/default/files/2023-08/Track%20Changes%20Data%20Best%20Practice%20Guidance%20v2.0.pdf>

⁷ For a copy of this procedure please contact the Data & Information Centre of Excellence - DICE@northerngas.co.uk

⁸ This standard can be found here - <https://www.energynetworks.org/publications/ena-data-triage-playbook>

⁹ <https://www.npsa.gov.uk/resources/triage-process-publication-or-disclosure-information> - The NPSA is the UK Government's national technical authority for physical and personnel protective security, whose parent agency is MI5

to maintain open data standards in a secure and compliant way, ensuring that data is shared in a way that is appropriate to any risk that it could pose. Again, consistency across all network companies is key to providing the best possible service to the data user, and NGN will continue to work closely with all organisations to promote a consistent approach to data classification.

6.2.4 Data Catalogue

To help data users to find out if the data they need is available, we have published a Data Catalogue¹⁰ that provides a comprehensive list of data assets that have gone through our Data Triage process.

We continue to work closely with other network companies and Ofgem to make iterative improvements to our catalogue to ensure consistency across the energy sector and enhance the experience of the data user.

6.2.5 Metadata Management

Metadata is an incredibly useful resource in its own right, not simply as a way of managing content, but as an analytical asset containing real insight. Consistent Metadata also gives data users the ability to explore multiple data assets to find the information that is useful to them, and if the metadata is consistent across different organisations, then this further facilitates the exploration of their data assets.

NGN's data catalogues and associated metadata will continue to be designed to be interoperable between systems, and available for reporting and analysis. All the data available through our Open Data Portal has the 15 metadata elements defined in the DCMES (Dublin Core Metadata Element Set) applied to them. NGN will continue to work with other network companies to ensure that the application and interpretation of these metadata elements remains consistent.

6.2.6 Interoperability

The goals and aspirations of the energy sector around Open Data will fundamentally come to nothing without data interoperability. If the data shared by one organisation cannot be easily integrated with data from another, then analytics is made extremely difficult. Likewise, if gas data cannot interoperate with electricity data, and vice versa, then automated, in-the-moment whole systems decisions will be next to impossible.

The road to interoperability is not a short one, but NGN is committed to working with other GDNs, DNOs and Transmission companies to get there as quickly as possible. We're starting at home, making sure that where possible different data sets on our Open Data Portal share the same consistent naming convention, and where there are unavoidable deviations, building a comprehensive glossary that allows data users to understand how each data item relates to others. This glossary will be published in 2024.

¹⁰ This can be found on our Open Data Portal - <https://northerngasopendataportal.co.uk/dataset/9>

We've collaborating with the other GDNs to make our most popular data assets interoperable, starting with our geospatial asset data. This is a massively important piece of work, and will help ensure that any data user can gain insight from each networks data in as straightforward a way as possible.

On top of all this, we're working with networks from the electricity and water sectors to build interoperability into our respective Priority Service Register customer data, increasing each organisations visibility of their vulnerable customers¹¹. This will unlock the potential for additional support to the most vulnerable members of society, especially in the event of an incident.

6.2.7 Specific Stakeholder Engagement & Benefits

As open data covers a vast span of use cases, we have engaged with a large number of stakeholders on how we can best service the needs of all data users, whilst maintaining proper governance, data integrity and security.

The benefits of this engagement, and the Open Data Portal that it is helping to shape, are many. Stakeholders get access to the data they need, but also discover other data assets that would be useful to them, that they didn't realise we owned.

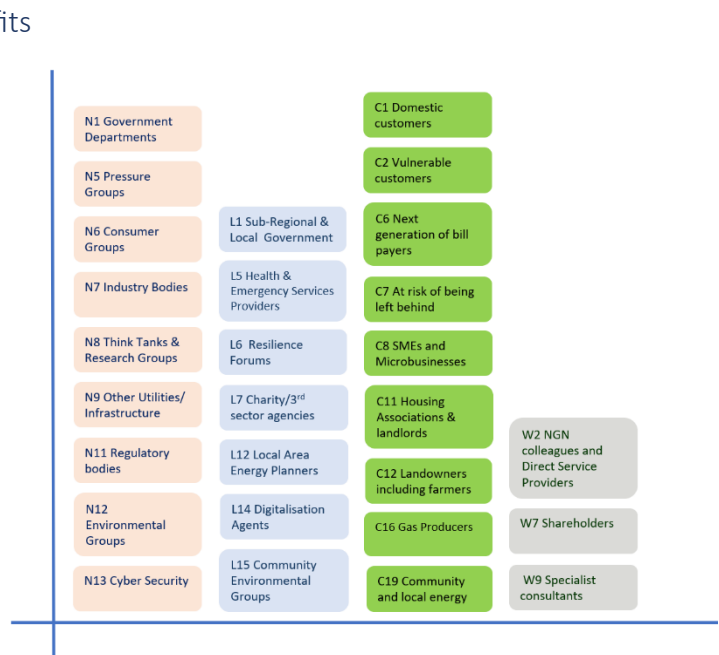


Figure 9 - Stakeholder Groups specifically engaged on Open Data

6.2.7.1 An Example

In 2023 we published data relating to carbon monoxide events that we had attended as part of our Emergency Response work on our Open Data Portal¹². Separately, our VCMA¹³ colleagues in NGN were approached by a leading data science firm that were developing a national tool to collate all carbon monoxide data collected by, amongst others, Gas Distribution Networks, the UK Fire Service, the Coastguard and appliance manufacturers. This tool would provide vital insight into how carbon monoxide incidents can be reduced. We were able to direct the consultancy firm to the data published on our Open Data Portal, and when they required data that had not been published openly, they were

¹¹ More information can be found here - <https://waterinnovation.challenges.org/winners/support-for-all/>

¹² This can be found on our Open Data Portal - <https://northerngasopendataportal.co.uk/dataset/7>

¹³ The Vulnerability & Carbon Monoxide Allowance. For more details see - <https://www.northerngasnetworks.co.uk/current-business-plan/vulnerability-and-carbon-monoxide-allowance/vcma-application-form/>

able to contact us through our Portal, and we worked with them to make sure that they got the data they needed to optimise the product they were developing.

6.2.8 How this helps with our Vision for Digitalisation

Integrated Information Management is all about making data available to be used, and open data is a logical extension of this. Our architecture is designed to be data-centric and fully integrated, and we will continue to follow this design principle in everything that we do.

6.2.9 How we're Measuring Success

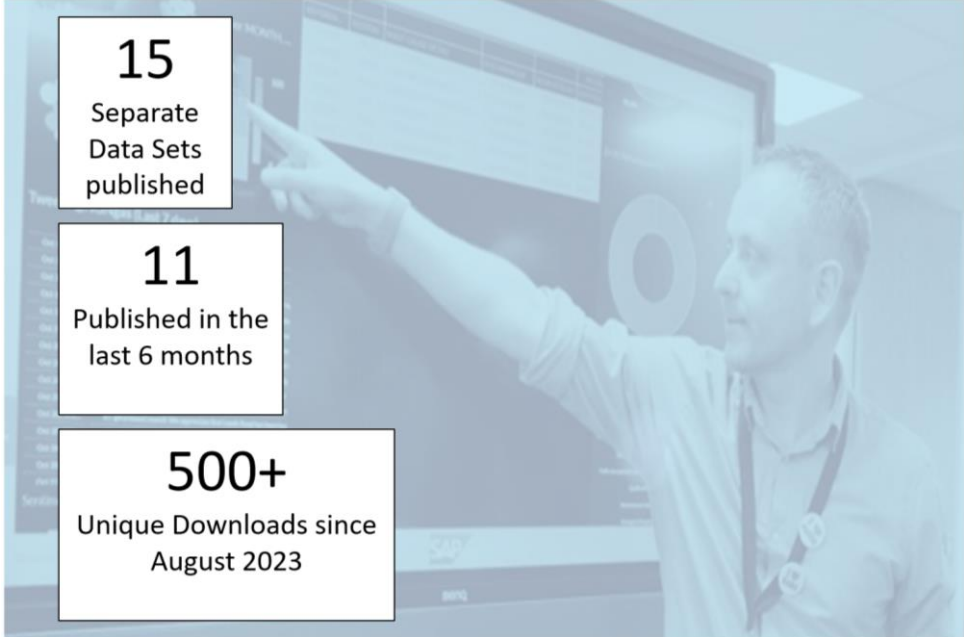


Figure 10 - Statistics relating to our Open Data Portal

6.3 Maximising the Value of Data

Data powers digitalisation, and the quality of data is crucial to the effectiveness of any digital transformation. Good data means good digitalisation: efficient processes, optimised resources and forward-thinking innovation. Bad data means bad digitalisation: inefficient processes, resources spending all their time wrangling data rather than using it, and innovation focused on filling the gaps.

6.3.1 Data & Information Centre of Excellence

NGNs Data & Information Centre of Excellence (DICE) was established in 2018 and continues to provide leadership in all data management activities. A centralised function consisting of dedicated, full-time colleagues, the DICE is a real success story for NGN. In the last year alone, the team have analysed and cleansed nearly 50 thousand individual data items, making sure that a single consistent schema is applied to ensure full interoperability. They have applied a strong governance regime whilst ensuring that it is not rigid, with the flexibility to adapt to changing stakeholder needs without compromising on integrity. Using the principles defined in this governance regime, they have built automated assurance reports to continuously scan the data, apply pre-defined business rules and parameters, and either correct or highlight discrepancies.

The DICE will continue to be a driving force for the optimisation of data use in NGN.

6.3.2 Artificial Intelligence & Machine Learning

The growth in digital technologies incorporating Artificial Intelligence is creating new and exciting opportunities for utilities to build products and services that can help them to better serve their customers and communities. It's also helping write sentences like that last one (the rest of this strategy was written by an individual with no access to intelligence, artificial or otherwise). At NGN we absolutely must take into consideration all of the benefits that AI can bring, but we are determined to do so in a responsible, safe and prudent manner - taking full advantage of the digital foundation we have built.

One area that we have identified as a really exciting and practical use case for AI in the business is in data quality management. We have incorporated real-time validation of asset data at the point of entry into our S/4HANA system, with alerts notifying and educating the user. Based on business rules, these are multi-characteristic, high-complexity algorithms. On top of this we have built an Artificial Intelligence component that scans all 1.5 million asset records every hour, assessing the quality of the data. The AI was originally fed the existing business rules, however, statistical relationships were not hard-coded, with the solution utilising Machine-Learning to develop new validation processes. Real-time dashboards visualise large datasets in a dynamic way that allows the user to focus on outliers, to drilldown, verify and correct anomalies. Any new rules, once signed off by the business owner, can be added to the rules-based component. Staying true to our design principles, we have used only standard functionality of our core systems, something that Integrated Information Management has made possible.

We will continue to explore new ways to apply Artificial Intelligence in our data management processes, whilst also exploring ways that we can leverage the exciting advances in Generative-AI and Large Language Models in other areas of the business.

6.3.3 Intelligence Centre of Excellence

Also established in 2018, the Intelligence Centre of Excellence is our world-class reporting and analytics team, building a suite of real-time dashboards and other analytic applications. Taking full advantage of our Integrated Information Management, the ICE team have built an impressive catalogue of reports, covering every aspect of our business, and including the automated generation of a number of tables from our Regulatory Reporting Pack (RRP). The work that the ICE team has done has brought huge benefit to NGN in the real-time visualisation of business-critical data, helping us make informed decisions based on the information at hand.

The ICE team will continue to push the boundaries of what is possible in the area of reporting, whilst also building wider, more adaptive models to facilitate self-service analytics for our colleagues.

6.3.4 Geospatial Data Enhancements

In 2021 NGN embarked on a significant upgrade of our Geospatial Information Systems (GIS) which included a move to a Utility Network Data Model (UNM) - a first for a utility in the UK. The UNM allows for a richer set of network devices, network structures, sub domains, and relationships to be modelled; empowering us to model the network to a previously unobtainable level of detail. One of the most important capabilities of the UN data model is that it now also supports connectivity by association whereas, in the past, connectivity was only supported on the basis of geometric connectivity. During the upgrade we developed rules and techniques to build and maintain the connectivity and quality of the network as part of the data migration. These rules enabled associated assets in the network so that a fully connected data model can be built, meaning that all the operational and analytical benefits of upgrading to UN have been realised.

6.3.5 Specific Stakeholder Engagement & Benefits

In our quest for the liberation of information, we've engaged with multiple stakeholder groups to gain insight into what they need, how they will use the data and information we provide, and how best we can visualise it. This can range from a simple table to complex graphical or geospatial representation, but the benefit of Integrated Information Management is that we can furnish all these requirements using the same base of quality, consistent and available data.

We've explored stakeholders expectations and reservations about Artificial Intelligence, and incorporated that into our approach. We've also been able to leverage the exceptional technical and business knowledge of our Centres of Excellence to provide innovative, efficient and effective solutions to stakeholder requirements.

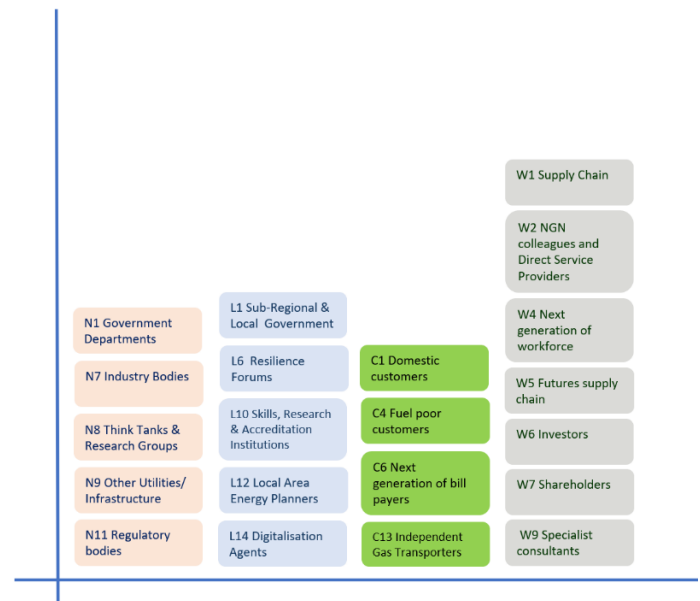


Figure 11 - Stakeholder Groups specifically engaged on Data Analytics, visualisation and AI

6.3.5.1 An Example

Our 24/7/365 Emergency Service protects customers lives and property in the North of England, with our First Call Engineers responding to around 65,000 public reported emergencies each year.

We have built an analytics solution to forecast when and where emergency calls will be received, based on the weather, the geography and the location of our pipes. The solution uses predictive models to come up with the forecast, machine-learning to continuously improve the accuracy of the models, and our world-class visualisation tools to produce the information our operational colleagues need in the best format for them, be that interactive dashboards or automated email notifications.

If we have a better idea of when and where emergencies are likely to be reported, we can make sure that we have engineers in the right place at the right time to respond. This means they could get there quicker, providing a better service to our customers and reducing their carbon footprint by minimising travel. It also means we will be more confident that we have resilience going into winter.

6.3.6 How this helps with our Vision for Digitalisation

The guiding principle of our digitalisation strategy, Integrated Information Management, is all about making accurate data available to all who need it, in the right time, on the right device, and fully contextualised to allow data-driven decision making.

6.3.7 How we're Measuring Success

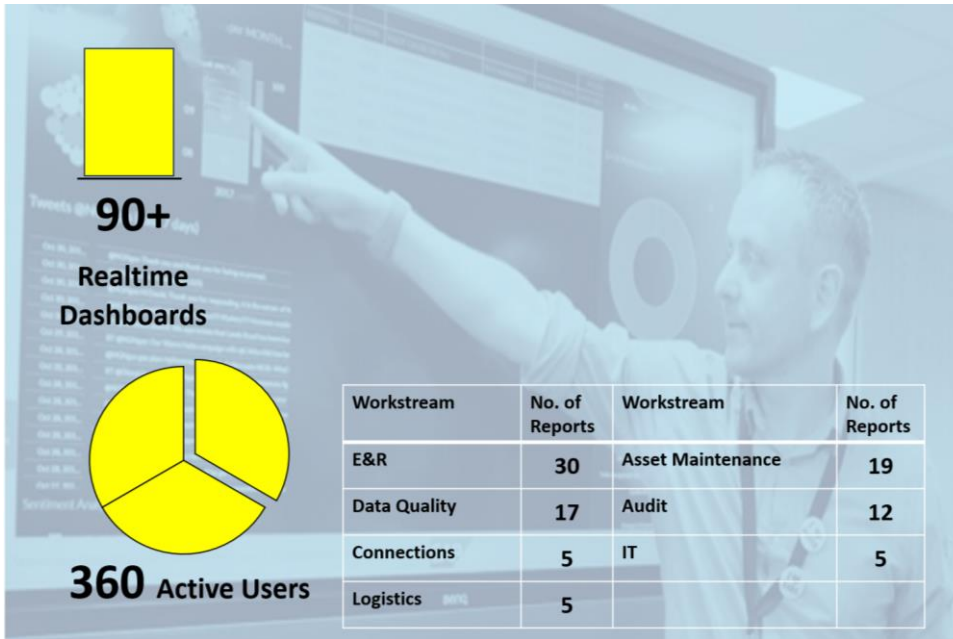


Figure 12 - Statistics relating to Realtime Reporting in NGN

6.4 The National Energy Research Village

We have taken one of our gas sites at Low Thornley, near Gateshead, and transformed it into the National Energy Research Village (NERV)¹⁴, a facility specifically designed to enable research of cutting-edge technologies and techniques to accelerate energy innovation and support the transition to Net Zero, with digitalisation at the heart of everything.

Nine buildings, representing a broad spread of the residential properties in Great Britain, have been fitted with thousands of sensors, measuring everything from temperature and humidity to ambient radiation and noise. Data collected by the sensors is virtualised and streamed to a secure platform where we have the capability to share in real-time with multiple partner organisations. So that we can perform analytics, the data is pushed into our SAP Analytics Cloud, where real-time dashboards visualise the readings from each sensor, so that we can see the impact of the different hardware, software or structural changes being tested in the property.



Figure 13 - Futures Close in the NERV

¹⁴ <https://ebusiness.ncl.ac.uk/projects/customer-energy-village/>



Figure 14 - Monitoring temperature levels in SAC

We already have several industry and academia partners using NERV, as well as non-energy utilities, and NGN is committed to continuing to grow NERV as a practical and digital hub for research and development.

6.4.1 Specific Stakeholder Engagement & Benefits

We truly believe that the NERV is a great resource for research & development in the delivery of a just and secure transition to Net Zero, and we want to talk to as many people as possible about it. We've engaged with multiple stakeholder groups about using the facility for R&D or educational purposes, and hosted a number of visitors to our site at Low Thornley.



Figure 15 - Stakeholder Groups specifically engaged on the NERV

6.4.1.1 An Example

We have partnered with Newcastle University on a project to assess the factors that support or limit the adoption of smart and digital technologies in the home¹⁵, with research especially focussing on the difficulties that low-income and vulnerable customers face in making their homes more energy efficient. The NERV plays a key role in this project, providing real, practical facilities where research can be carried out.

6.4.2 How this helps with our Vision for Digitalisation

What we are building at NERV, with its free movement of data and flexible architecture designed for innovation, would not have been fully realised without our vision of Integrated Information Management. Now it will help drive that vision forward, generating new and varied use-cases, whilst providing a platform for stakeholder engagement.

6.4.3 How we're Measuring Success

It's still early days, and at the moment we are measuring success at the micro-level, monitoring the performance of the 1,800+ sensors we have set up in the 9 properties, and the successful flow of data being pushed in real-time into our interactive dashboards. As collaborative projects get up-and-running we will publish more macro-level performance measures in our Digitalisation Action Plan.

¹⁵ For more details - <https://www.ncl.ac.uk/press/articles/archive/2022/03/sifsmarthomes/>

7 Looking ahead to RIIO-GD3

7.1 Aligning with other strategic priorities

We know that data and digitalisation will be a major area of specific focus for many of our stakeholders in RIIO-GD3, whilst others will see it as a means to best achieve important outcomes. We are determined that digitalisation will be a golden thread that flows through all of our plans for GD3.

As well as playing a major part in our Future Energy strategic thinking, we know that data and digitalisation will drive better environmental performance, and we will align our digitalisation work with our Sustainability Strategy¹⁶ to wherever possible find digital solutions for data capture and predictive/ prescriptive analytics.

We are committed to using digitalisation to provide a better service to our most vulnerable customers, both directly through improved products and services such as our Customer Relationship Management solution, and indirectly, as we use digital and analytical means to find better ways to serve hard-to-reach groups and the digitally disadvantaged. This will be in full alignment with our Vulnerability Strategy¹⁷.

Digitalisation will be an important component of our work on network and asset resilience, and in our continuing work to strengthen and enhance our Operational Technology, as we use data to drive maintenance and investment decisions. Digitalisation will continue to play a vital role in our operations. Our Digitalisation Strategy will be a key enabler for our Network Asset Management Strategy.

7.2 Expanded Data-Sharing

We've made the liberation of information one of our key digitalisation targets in GD2, and the same principle will be driving the entire energy sector in GD3 as a Data Sharing Infrastructure is built to facilitate the secure sharing of data between organisations¹⁸. This is a vital component in the opening up of Energy Data, and will certainly facilitate the transition to a whole systems energy future and a net zero energy sector. We will make sure that our GD3 plans are aligned with the requirements of the Data Sharing Infrastructure, and will work with Ofgem and the other network companies to make this important initiative a success.

7.3 Enhanced Data Best Practice

The importance of Data Best Practice as a consistent set of principles for all energy data generators to follow will only grow in GD3, especially with the advent of any Data Sharing Infrastructure. NGN will continue to work to optimise the benefits of DBP both internally and across the energy sector, and we will ensure that our GD3 plans are aligned to make the best of Data Best Practice.

¹⁶ You can find our Sustainability Policy here - <https://www.northerngasnetworks.co.uk/wp-content/uploads/2022/06/Sustainability-Policy.pdf>

¹⁷ Our Customers in Vulnerable Situations Strategy can be found here - <https://www.northerngasnetworks.co.uk/wp-content/uploads/2023/12/Customers-in-Vulnerable-Situations-updated-strategy-June-2022.pdf>

¹⁸ For more details, see - <https://www.ofgem.gov.uk/sites/default/files/2023-10/FSNR%20workstream%205%20consultant%20recommendations.pdf>

Contact Us

This Digitalisation Strategy should inform and bring value to you. If there is any clarification, question or comment regarding this strategy document, we would love to hear from you. Please get in touch with us via one of the communication channels listed below.

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