

▶ **Gas
Transmission**

Digitalisation Strategy March 2022

national**grid**





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We cannot get to net zero without the industry understanding collectively what we need to do, and the transparent sharing of data is the only way to do this

I strongly believe the UK cannot achieve net zero without targeted investments in IT and data and this is principally important in decarbonising the energy sector.

Using data about the condition of our assets and what people need from our network ensures we can maintain a safe and reliable network for today, while also planning for a clean energy future enabled by hydrogen. Improvements in how we build, maintain and operate our network must be supported by investment in technology to help automate processes and drive better decisions across our business. Providing a safe and reliable network at a cost everyone can afford requires us to make informed decisions every day about the best course of action.

Establishing a hydrogen network as part of a cleaner energy system will not happen by accident and requires detailed understanding of what a future network might look like and how we'll get there. This means we need a deeper understanding of our assets and how they operate than ever before, and we must analyse new scenarios for the future. We cannot do this alone and sharing data will support others in making the right decisions for the whole energy network.

We cannot get to net zero without the industry understanding collectively what we need to do, and the transparent sharing of data is the only way to do this. I am excited about the opportunities for hydrogen and our investments in technology will provide a great foundation for us to get there.

Jon Butterworth
President, UK Gas Transmission

National Grid Gas

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What we do

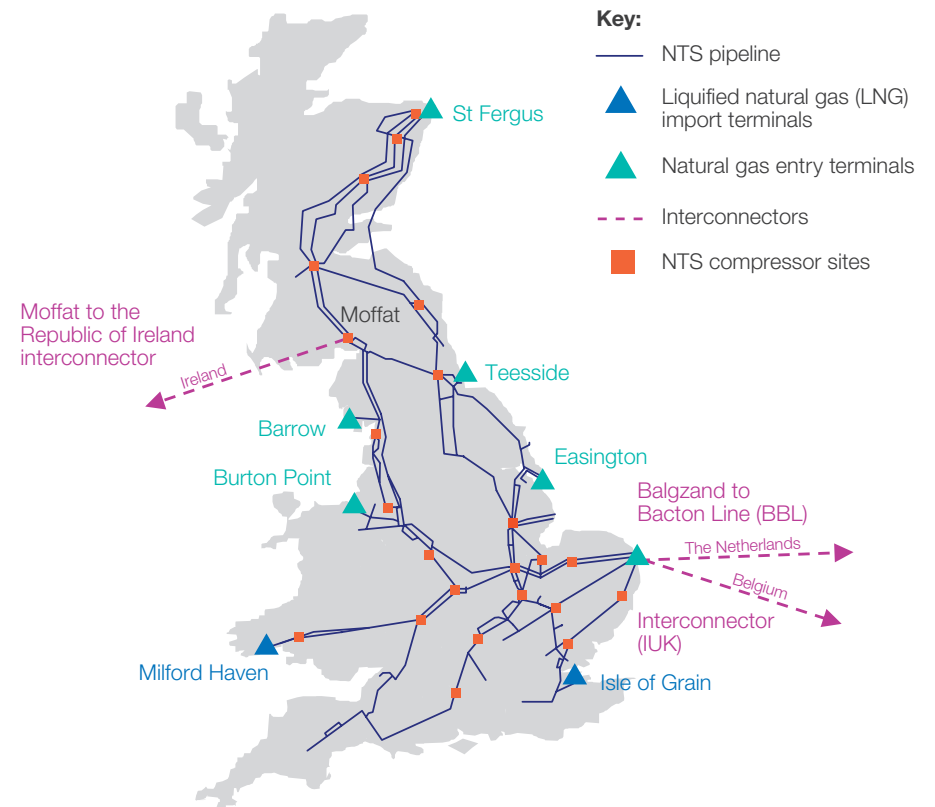
We are the operator and owner of the gas National Transmission System (NTS) in Great Britain. Our licence is established under the Gas Act 1986. It requires us to develop, maintain, and operate economic and efficient networks and to facilitate competition in the supply of gas in Great Britain. Our primary responsibility is to transport gas from supply points to exit offtake points safely, efficiently and reliably. We manage the day-to-day operation of the network. This includes maintaining system pressures with safe operating limits, ensuring gas quality standards are met and acting as the residual balancer for supply and demand when there is a market imbalance.

The Gas NTS System Operator also performs the Network Emergency Co-Ordinator (NEC) role, acting independently of National Grid Gas to prevent or minimise safety consequences in the event of a supply emergency.

Our network

The NTS plays a vital role in the secure transportation of gas and the facilitation of a competitive gas market. Our network includes approximately 7,630 km of pipelines, presently operated at pressures of up to 94 bar. Our network transports gas from entry terminals and storage facilities to exit offtake points. At exit offtake points, gas is transferred to four distribution networks (DNs) for onward transportation to domestic and industrial customers, or to directly connected customers including storage sites, power stations, large industrial consumers and interconnectors.

The National Transmission System



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Decarbonising the energy system requires us to face some large challenges including how we'll repurpose our assets for hydrogen, how we'll run the networks of the future and how we'll continue to provide a reliable and flexible gas system as the energy landscape changes.

All these challenges will be fundamentally supported by digitalisation of our processes and exploitation of data to make the right decisions, such as using data on our assets to guide our asset management strategy and data to support the real time operation of the network.

Using technology and our data in the right way requires us to consider what we need to do with it and who are we doing it for? It's therefore important we take into account the views of our stakeholders and look at how we can best meet them.

We cannot meet Net Zero alone and sharing data about how we run and use our network will help others in understanding where we sit in the energy landscape

We cannot meet Net Zero alone and of sharing of data about how we run and use our network will help others in understanding where we sit in the energy landscape. Likewise, we're reliant on data from elsewhere to help us to optimise our investment and running of our networks to ensure value for money.

- We will enable a shared understanding of gas as part of a whole energy system, providing transparent data about our network and how we run it.
- We will optimise the delivery of energy for today, ensuring a continued reliable and flexible network.
- We will underpin the decarbonised energy system of the future, optimising our decisions to drive value for money.



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We have long since recognised the importance of data and digitalisation.

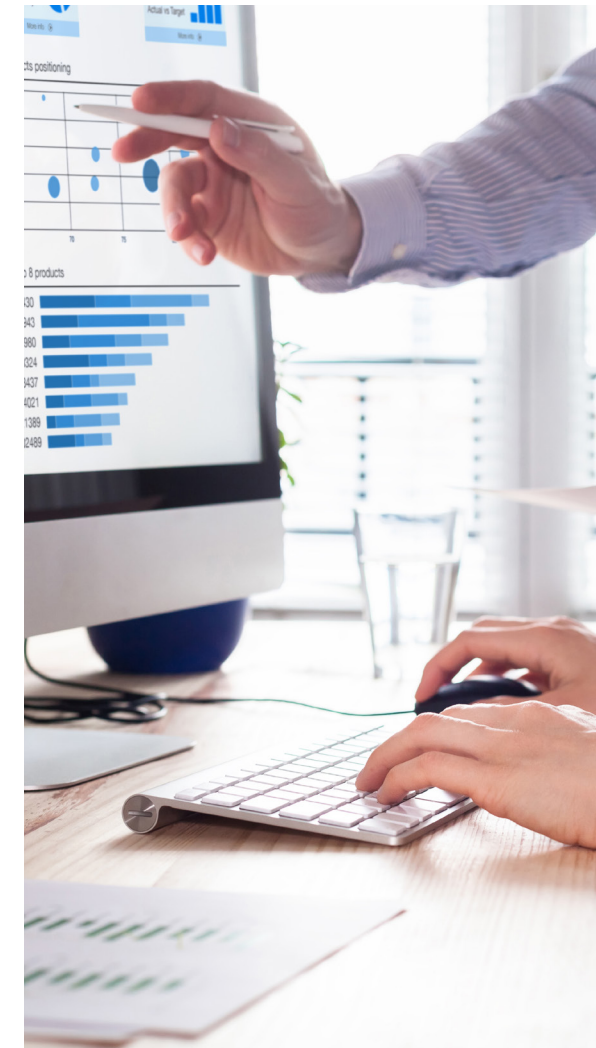
In 2007 we launched our data sharing platform and since then we have continued to work with stakeholders to expand the data sets available, which now include publication of data in near real-time and other timeframes.

Over the course of the last few years, digitalisation of the energy system has become a growing priority for our stakeholders. There is increased focus on the value of energy data and digitalisation for society, with organisations such as the National Infrastructure Commission, the Centre for Digital Built Britain, and the Energy Data Task Force from the Department for Business, Energy and Industrial Strategy (BEIS), Ofgem, and the Energy Systems Catapult – all emphasising the opportunity and outlining principles and steps needed to deliver that benefit for society. We have recognised the importance of data and digitalisation, and have invested in meeting the highest priority needs of our stakeholders and laying strong foundations for future work:

We have recognised the importance of data and digitalisation, and have invested in meeting the highest priority needs of our stakeholders

- We've rebuilt our core National Grid Gas Transmission (NGGT) data sharing platform (MIPI) and its front end to provide clearer visuals and easier to use API feeds for direct access to data, as well as proactively publishing new data.
- We've laid solid Data Management foundations: adopting best practices, training data practitioners, and creating data catalogues
- We've consolidated our key asset management systems and datasets, providing a unified understanding of our assets health and condition.
- We've adapted our organisational structure, bringing together data experts from across the business to establish a dedicated Data Team, a multidisciplinary team which supports our agile product model and value stream delivery, a centre of excellence for all things data and a driving force in our delivery of digital transformation.

There is plenty more to be done in the coming years, and this document sets out how we will approach using data and digitalisation to deliver benefit for our stakeholders and society.



Our Digitalisation Strategy

Delivering our digitalisation strategy will help us to realise our ambition to be at the heart of a clean, fair and affordable energy future for everyone.

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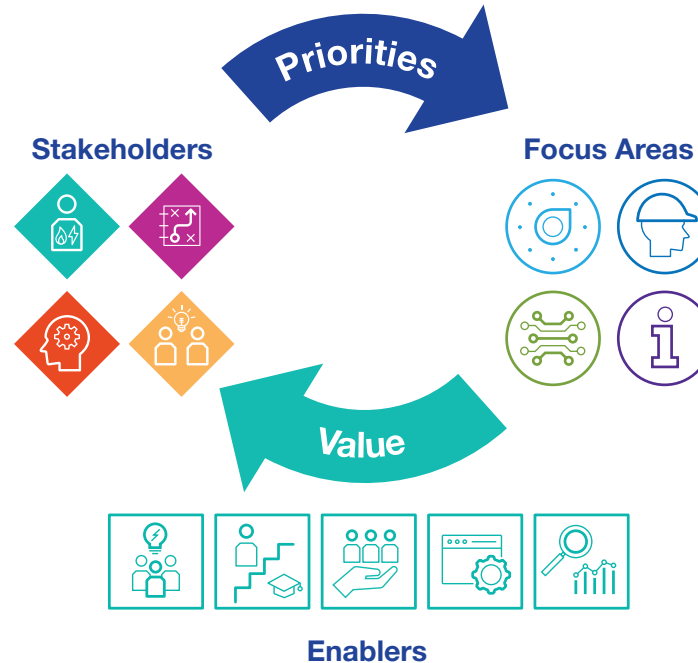
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The success of our strategy will be based on delivering value for our stakeholders.

We have categorised stakeholders according to needs. This is detailed in the **Stakeholder Personas** section.

Our stakeholder's ask of us is detailed in the **Stakeholder Priorities** section.



To deliver value to stakeholders we need to continue to develop the capability that will enable our digital transformation.

We have identified 5 key areas of enablement which will underpin the delivery of our strategy, these are detailed in the **Enabling our digital transformation** section.

To help manage delivery, our strategy has been broken down into focus areas. These are detailed in the **Our Focus Areas** section.

Running parallel to our digitalisation strategy is an **innovation strategy** which focuses on considering the future technologies that could be used to help us meet our objectives. Our innovation technology portfolio lead works closely with our internal data management and IT teams, ensuring that our innovation activities support our ability deliver our digitalisation strategy.

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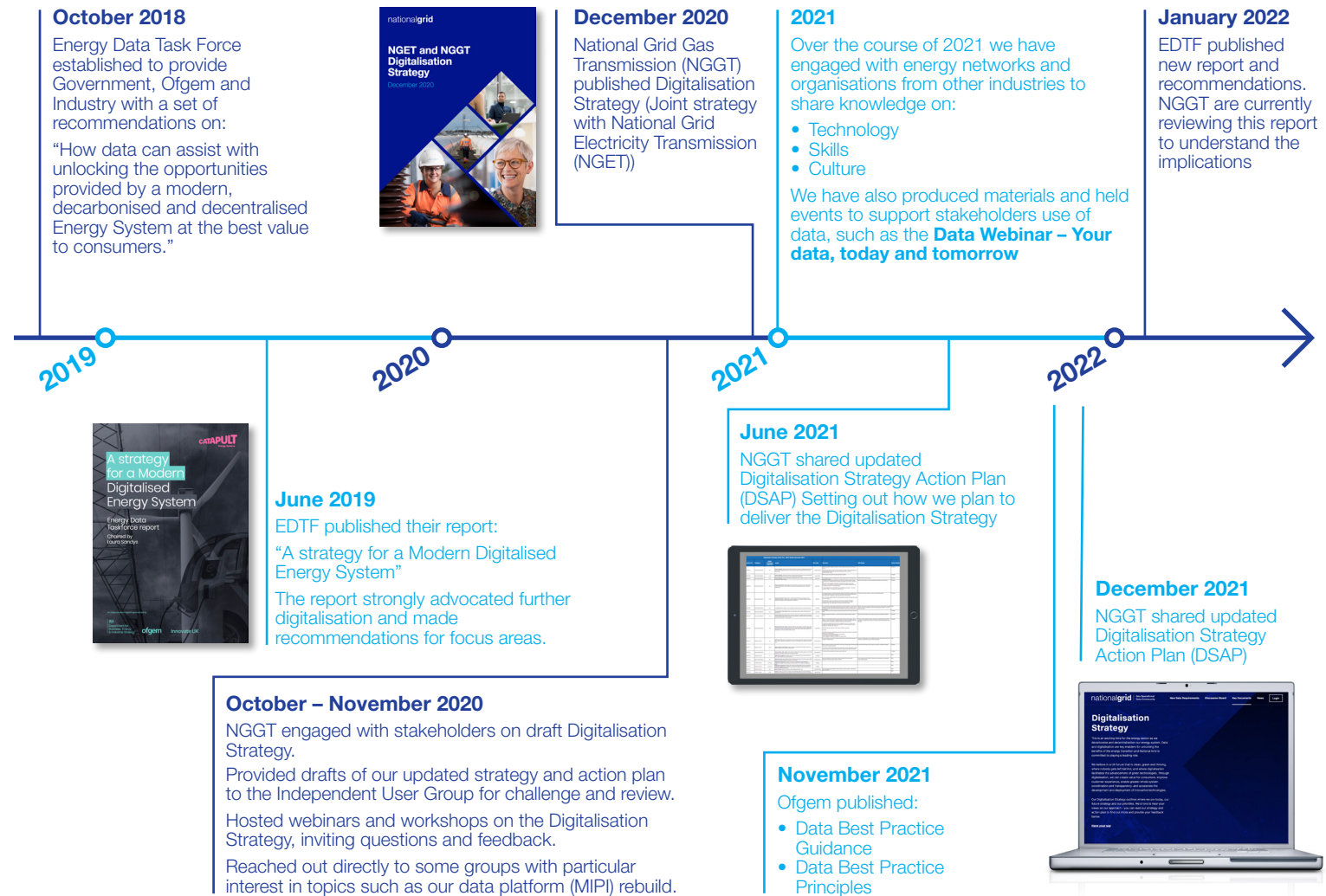
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Delivering our Digitalisation Strategy

We will continuously evaluate and adjust our plans to ensure that we are focusing on the opportunities that deliver most value.

More detail on the short-term activities related to delivering our strategy will be shared through our Digitalisation Strategy Action Plan.

Our digitalisation strategy is underpinned by our IT delivery plan and technology roadmap, which summarise initiatives across each of our focus areas over the next 5 years.

Our Digital Strategy Action Plan can be found here: <https://www.nationalgrid.com/gas-transmission/about-us>

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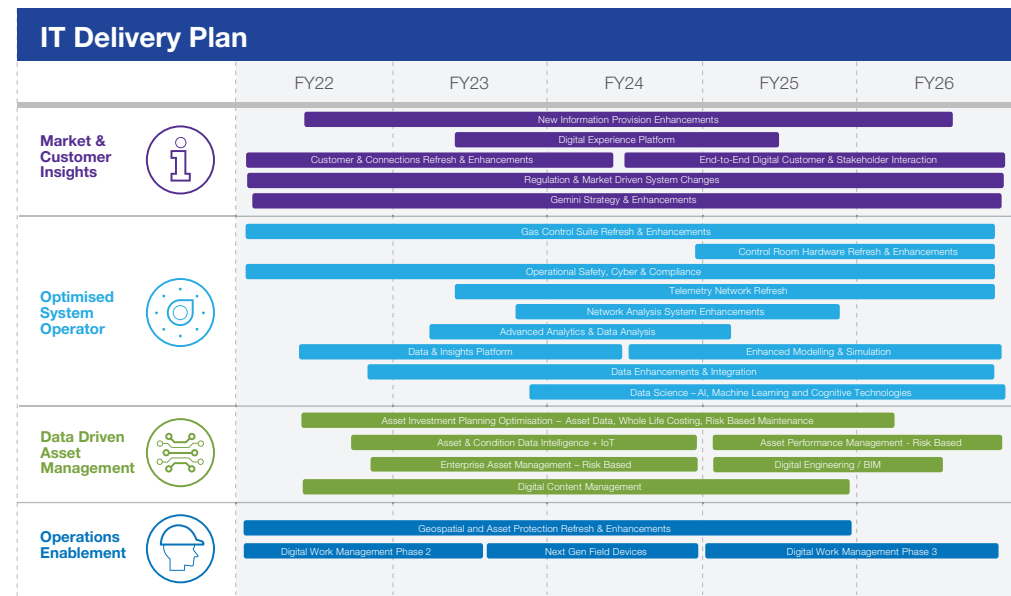
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Our digitalisation strategy is linked to our investment plans and we have in place robust governance to manage delivery and risks.

Our Digitalisation Strategy and Action Plan is owned at Board level by our Chief Information Officer. It is a core component of our overall business strategy and will be reviewed and updated at least every two years, with Action Plans updated on a six-monthly cycle in December and June.

Our digital strategy is not something that is developed or delivered by IT. It is built by and integrated into our business, driving our ambition, at the very heart of our clean energy future and delivered through a collaborative #oneteam approach. Our world and industry continues to change at a significant pace and our digital products will need to be able to re-act and adapt with it. Our aim is therefore very simple; modern, accessible and flexible systems that provide the business and stakeholders with the right data & insights, when and wherever they need it.

Richard Murphy
Chief Information Officer,
UK Gas Transmission

The Focus Areas outlined within the strategy are owned at Senior Management Level and align with our IT investment plan. The sanctioning of specific components (digital products) will follow the internal governance model ensuring benefits and outputs are defined to meet EDFT recommendations.

As part of the governance framework, risks are managed through the organisation at project level, with escalation routes to senior management where required.

We recognise that many of the core IT systems and platforms upon which our data and digital products depend will be reaching end of their life or support during RIIO-2 and will require refreshing or replacing. We coordinate this investment closely with our digital product development, whilst recognising that given the scale and nature of these systems they are typically more efficiently delivered by individual programmes with dedicated governance.

The Independent User Group also plays a critical role in challenging our plans and approach and holding us to account on our stakeholder engagement and action plans.



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Delivering value for consumers through our investments in digital is extremely important.

The majority of the activities to deliver on this strategy are funded under our RIIO-2 IT investment plans. Our plans focus on both unlocking new value for stakeholders and consumers through our digital investments as well delivering on our ongoing efficiency commitments with our core IT systems.

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Having access to timely and appropriate funding is key to delivering on our digitalisation we have identified further opportunities to unlock benefits as part of our construction transformation programme to enable us to digitalise processes. We are aiming to take the opportunity to utilise the Ofgem reopener process in FY2024 providing well justified business plans to seek further funding.



Stakeholder personas

In order to ensure we fully consider the needs of the subset of our stakeholders that are active users of our data we have developed a number of data user personas.

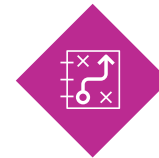
Personas help us to categorise and evaluate the needs of different user groups, ensuring we embed them in our thinking when developing and implementing our strategy.

They also help us to evaluate the relative benefits and costs of meeting different users' needs, ensuring we can balance transparency and the benefits of digitalisation initiatives against the cost to consumers to meet these needs. We have identified four key persona groups.

Stakeholders



Energy Industry Participants



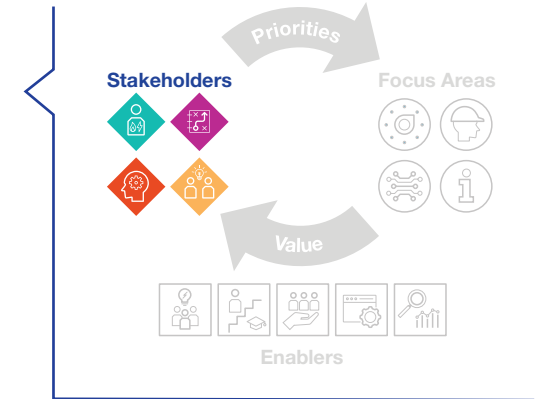
Network and Asset Decision Makers



Enquiring Minds



Policy Influencers



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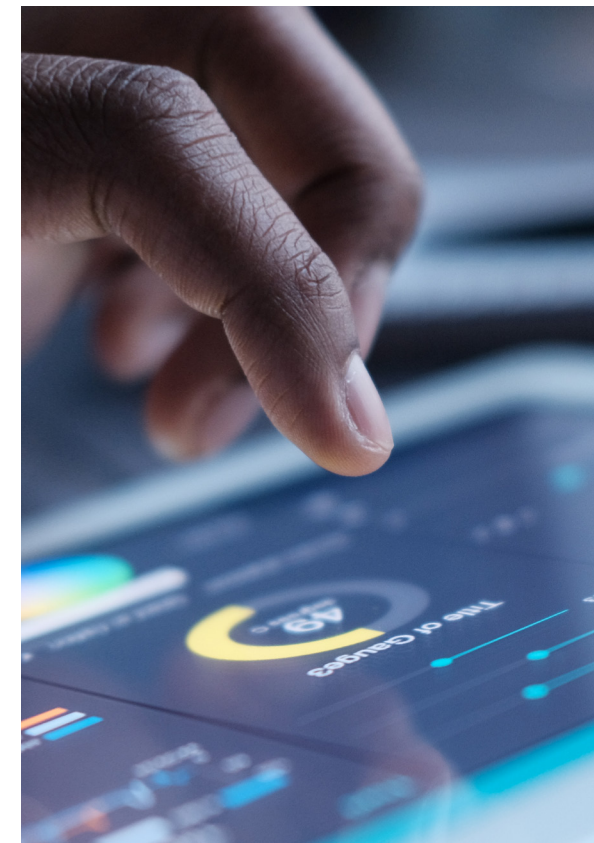
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Energy Industry Participants

Who are they?

Energy Industry Participants are groups that work in the energy industry. This group will include other network companies and immediate users of our assets and systems. They will be technically savvy about energy data and utilise it in their own activities.

What motivates them?

This group want to use data to inform their day-to-day operations as well as their long-term investments and decision making about their activities. Newer entrants want to be able to compete in the market and use our data to help them.

What data do they want?

Energy Industry Participants want detail about their connections to our networks. They want to understand where our assets are and what that means for them. They need operational data on how our network is running.

Behaviour and preferences

Because of their familiarity with the industry, many Energy Industry Participants will have quite technical needs. They can handle complex datasets and may require Application Programming Interfaces (API) in order to retrieve data directly. However, smaller/newer entrants to the market must be accounted for too. Some of this group will know how to request new datasets, but others may need signposting. They will often need named contacts in the company so they can talk to us directly.



Enquiring Minds

Who are they?

Enquiring Minds are interested in our assets and networks but may have unique needs for accessing our data. This could include members of the public, academia and wider energy innovators

What motivates them?

This group want to use our data (often combined with other data sources) to answer wider questions they are interested in.

What data do they want?

Enquiring Minds want detail about our assets and the operations of our networks. They may be particularly interested in where our assets are. They want our data to be easy to combine with other data sources. Innovators and academia may want to gather large historical datasets and have access to APIs. They may want access to novel datasets that are not currently published.

Behaviour and preferences

This group may not know where to start, with more guidance and sign-posting required to available datasets. Non-technical language will be required to explain what datasets are, where they come from and any potential limitations. They may not be familiar with how to talk to us or be sure how to request new data. Enquiring Minds might find our datasets through search engines instead of coming to us directly.

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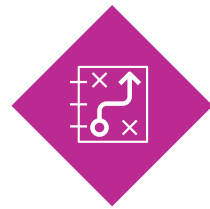
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Network and Asset Decision Makers

Who are they?

Network and Asset Decision Makers are often part of NGGT or companies that work closely with us (e.g. distribution companies, system operators and our contractors). They are responsible for making decisions about assets, work on those assets and the operation of the network.

What motivates them?

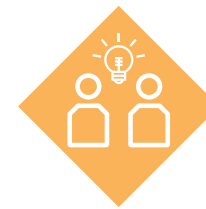
This group want to be able to trust they are using the right data and that it is accurate and consistent. They need to access data at the best place to support their ways of working and don't want to have to hunt for it.

What data do they want?

Network and Asset Decision Makers will require access to a large number of different datasets to support their activities. This will include details on assets and their condition, investment records, operational data, and performance and risk data about our business.

Behaviour and preferences

This group will usually know what they want and do not want to go searching for it. Data should appear in their day-to-day processes and provide them certainty about what is happening. They want to be able to correct errors in data easily and have assurance they can trust what the data tells them.



Policy Influencers

Who are they?

Policy Influencers will tend to work in organisations such as regulators and other government departments interested in energy. They may also include other influential organisations such as consumer groups.

What motivates them?

This group want to be able to access data that supports them in their strategic oversight of the energy industry as well as having access to data to inform long-term policy. They may also want to use our data in their wider service to the general public.

What data do they want?

Policy Influencers will require access to regulatory reporting data to ensure we're meeting the requirements of our regulatory framework. They may also be interested in larger and longer-term datasets to help inform their analysis and decision making.

Behaviour and preferences

This group will expect consistency in datasets and want to be sure they are interpreting our data correctly. This group can be diverse in their understanding of how the energy industry operates and may need appropriate sign-posting. Groups not directly working with us regularly will want key datasets to be easy to find.

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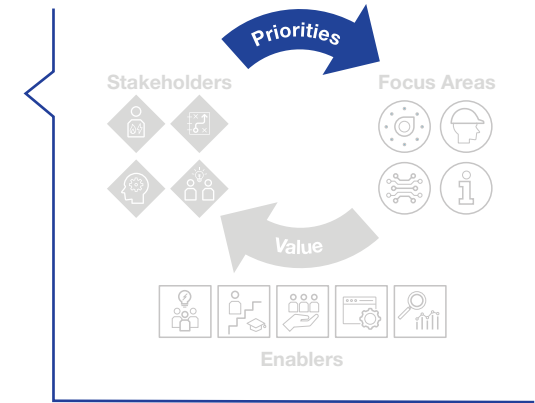
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Stakeholder priorities

Our stakeholders want us to facilitate the whole energy system transition by embracing innovation and transparency, whilst continuing to keep the system safe, reliable and affordable.

Through our stakeholder engagement we have identified a number of priorities. Delivering against these stakeholder priorities is critical to realising our aim; to be at the heart of a clean, fair and affordable energy future.



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Stakeholder engagement



Stakeholder priorities

Operate a safe, reliable and flexible transmission system

Drive sustainable value for our customers, stakeholders and shareholders

Lead the hydrogen transition for gas networks, enabling a net-zero future

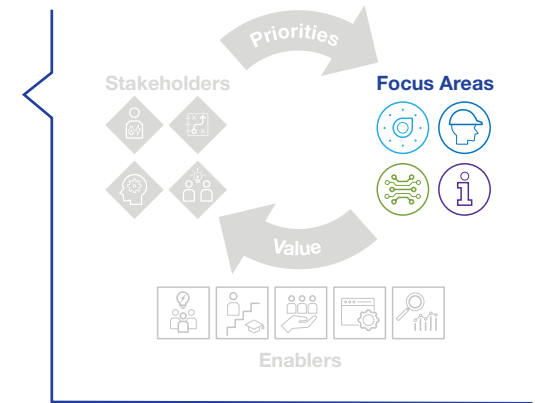
Shape the gas market of the future

Have a positive impact on our environment and communities

Invest in people for today and tomorrow

Our focus areas

We have broken our Digitalisation Strategy down into 4 focus areas. Our organisational structure is aligned to these focus areas, allowing us to maximise the efficiency with which we deliver the components of the strategy.



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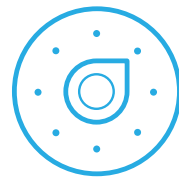
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Optimised System Operator

We will utilise **smart tooling** to help us understand the **drivers** and **behaviours** of our customers and the **impact** of our **actions** and **decisions**



Operations Enablement

Our Plant Operations field force will be **empowered** to make the **right decisions** and have everything they need on their **mobile** devices



Data Driven Asset Management

We will collate **more data** on our assets than ever before and use this to **understand risk** and make **informed decisions**



Market & Customer Insights

We will have **clear processes** and provide greater **understanding** of our **interaction** with customers and their needs



Focus area: Optimised System Operator

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Taking advantage of the opportunities that digitalisation provides will benefit the entire gas market and wider society; supporting our ability to make informed decisions, helping to ensure efficiency operating our network, and maximising the flexibility we provide to customers bringing gas on and off the National Transmission System.

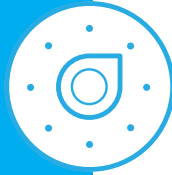
In our role as System Operator, we manage the day-to-day operation of the National Transmission System (NTS) delivering gas safely, efficiently, and reliably from network entry points (supply) to network exit points (demand). We are also responsible for balancing supply and demand, maintaining system pressures and ensuring gas quality standards are met.

We play a vital role in enabling a competitive gas market regime for the UK, for example, we share gas demand forecasting information with the market to help industry participants balance their supply and demand positions and enable market efficiency by discharging our role as Residual Balancer, meaning that we trade gas to encourage the market to act when there is an imbalance between supply and demand.

The gas landscape has changed considerably in recent years and as we move forward on the journey to a net zero future, we expect the pace of energy transformation to accelerate, requiring us to provide further flexibility and manage a network which is subject to increasing operational variability. Understanding how our network is operating in real-time, the ability to predict and simulate variable scenarios, and having the information available to make data-driven decisions on how we operate the network will be key to our ability to keep meeting the challenges of a changing gas system.

As we develop our digital capability, we will capitalise on opportunities to further increase the value we extract from our data, exploring opportunities to use advanced tools and techniques such as Artificial Intelligence and Machine Learning. We already use third-party data sources, for example using weather data to aid demand forecasting. We will continue to look for opportunities to enrich our solutions and benefiting the market further, by using more data sources.





Focus area: Optimised System Operator – Examples

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Using machine learning to improve demand forecasting

Demand Forecasts are used to assist the gas industry in balancing supply to, and demand from the NTS. More accurate demand forecasting enables efficient physical and commercial operation of the market.

We have created a solution which automates data ingestion, allowing more data sources to be considered in the demand forecasting process. The solution also makes use of machine learning techniques, allowing us to maximise the accuracy of our demand forecasts.

The solution is scalable, providing flexibility to add future data sources and the potential for continuous improvement of the forecasting model.

The new machine learning platform stood up as part of this project has laid the foundations of an advanced analytics platform that will enable future development of further machine learning models and data solutions that can be applied elsewhere.

Completed

Optimised Capabilities

By exploring technologies available to support further digitalisation and automation of our processes, we plan to build new capabilities that can drive greater value for consumers from the networks and markets. For example, by building tools to aid decision making in our control room and optimise how we utilise our network in an efficient way, adapting to changes in gas flows and market demand.

We also plan to improve our simulation modelling, to further enhance insights allowing us to better understand and manage risks effectively.

Planned



Focus area: Operations enablement

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Our field operations teams work across Great Britain to maintain and improve our gas network every day. They provide a critical service, ensuring reliability of the system and have a deep and close understanding of our assets.

It's important that they have access to all the information they need to complete their work and ensure the safety of the public and their fellow colleagues.

Continuing to meet high levels of reliability requires our field teams to have access to detailed records on our assets and how we're looking after them. Whether it's detailed condition data, telemetry about how we're running our assets or mapping data that tells us where assets are located, providing access to our engineers at their point of work helps them to make the right decision.

We have already used digitalisation to make transformational changes to how our engineers receive and process work and provide a richer experience in understanding pipelines and their location. We will continue to expand out the capabilities of our point of work applications, to take in other important elements of our maintenance and inspection processes. This will include delivering functionality on matching skills to work, ensuring we have the correct permits in place and understanding where we are spending time on managing our assets. In turn this helps us to optimise the deployment of our technical expertise, delivering the best value from our field workforce while making sure assets work as they should.

Making the right interventions on our assets requires us to have a good understanding of what assets we have and their condition. We are making changes to how our engineers can improve data quality and capture asset issues, which in turn improves our prioritisation and justification of investment – helping the long-term reliability our network.

To continue to ensure the safety of the public around our underground assets we have several layers of protection including helicopter surveys, line walking and aerial marker posts. Further enhancements to our geospatial systems will help us in managing these important protective measures in an efficient way while making sure we're aware of any improvements required.

Our objective is to empower our engineers to make informed decisions as they go about their daily work, while optimising where we're deploying resources to maintain and inspect our network. Improved access to quality asset data and systems that align to our processes are key to making this happen.





Focus area: Operations enablement – Examples

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Lemur – Offline Mapping

Across Great Britain we maintain approximately 7660km of high-pressure pipeline. Our pipeline assets cover the length and breadth of the country through often remote countryside, passing other infrastructures such as housing, railways, motorways, utilities as well as environmental features such as rivers, lakes, quarries, and sites of special scientific interest.

Understanding where assets are is critical to us ensuring the safety of the public and enables us to maintain and inspect our pipelines and the safety features around them such as aerial marker posts.

In September 2021 we introduce a new mapping platform for our field engineers called Lemur, providing interactive, easy access to pipeline data on a mobile tablet. This new application provides much richer asset detail and helps engineers to understand where our assets are and their condition. We've designed the new system to work offline so it can be used in remote locations with no mobile access ensuring mapping data can always be accessed to support maintenance or potential emergencies.

Completed

Digital Workforce Management

Our key point of work application currently provides our field engineers with key information to complete maintenance and inspection. This includes asset information, historical work carried out, work orders and the ability to capture asset condition.

We will continue to increase the capability of this system to further improve how engineers carry out their work, enabling them to spend more time on completing maintenance activities.

Improvements to how we manage skills and authorisations will give us increased flexibility in allocating work to staff and help us to deploy the right person to work – helping to improve productivity.

Enhanced time capture will improve our understanding of where we spend our time and help us in our asset management decision making.

Providing our engineers with increased flexibility to update and correct asset records will help maintain reliability by making sure we carry out our maintenance to policy.

Planned



Focus area: Data Driven Asset Management

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Ensuring the long-term reliability of our assets requires us to make informed decisions about the interventions we need to make, whether that's smaller interventions such as minor repairs or large-scale capital projects to replace whole assets.

Effective asset management requires us to properly understand what assets we have, their condition and how they will need to be used in the future. Alongside this we need to consider the risk that we have on our assets and what the cost will be to carry out repairs or improvements. In any intervention that we undertake, we want to make sure we're informed with the best data to make the best value decision.

Once we've decided to intervene on an asset, we want to ensure we carry out that intervention in the best way possible – ensuring we deliver exactly what is required, at the right time and to an acceptable cost.

We are standing up new capability to ingest asset telemetry into our data platform, enabling us to have a better understanding of how our assets are performing. Combining this data with network operational data and asset condition will help us in optimising our asset investment plans so we only spend money where we need to. We will also be better placed to provide additional automated services such as emissions monitoring and visibility of when assets don't perform as expected – helping maintain reliability.

Digitalisation of our construction processes will enable us to improve our collaboration with all construction partners, standardise our designs and keep our capital programmes to time and cost while achieving the quality we expect. By designing our systems and processes to consider the end-to-end view of the asset lifecycle, we can help reduce rework of asset data and make sure we have good quality data and records at the end of a project, in turn ensuring effective maintenance and operations of assets after they are built.

Further improvements to our geospatial systems will help us to prepare for climate change, allowing to understand the effects of changing weather patterns on our assets and what that will mean for future reliability.





Focus area: Data Driven Asset Management – Examples

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Unit Costing

Being able to make value-based decisions about our assets requires us to understand how much it will cost to carry out work. In preparation for RIIO-2 we have made significant changes in how we capture capital expenditure on our projects, making improvements to our processes, systems, and data structures.

Our improved processes now capture asset replacement costs, against clearly defined units related to types of assets and the type of work. For example, a unit might represent replacement of a particular size of valve.

By collating data against these units, we can then provide comparable estimates on replacement costs, helping us to drive efficiency within future procurement and supporting further investment cases. This enhanced cost capture will help us to ensure value for money in our asset investment and provides a key foundation for asset management decision making.

Completed

Digital Engineering & Construction

Our capital investment projects follow a typical project process considering design, optioneering, execution and close-out. At each stage of the project, multiple stakeholders will be working together to deliver everything required to move the project along.

We are looking at how we can digitalise our engineering and construction processes to help improve the speed of execution, make use of previous work through standardised designs, and optimise the overall cost of projects. We will also seek out opportunities to better articulate embedded carbon in our designs.

We will look to introduce a Common Data Environment to share and collaborate on project documents, drawings, and data thus enabling all members of a project to work together easily and helping us ensure higher quality of asset data handover at project close.

Understanding our construction processes end-to-end will help us work closer with our delivery partners and ensure projects finish on time to cost and quality.

Planned



Focus area: Market & Customer Insights

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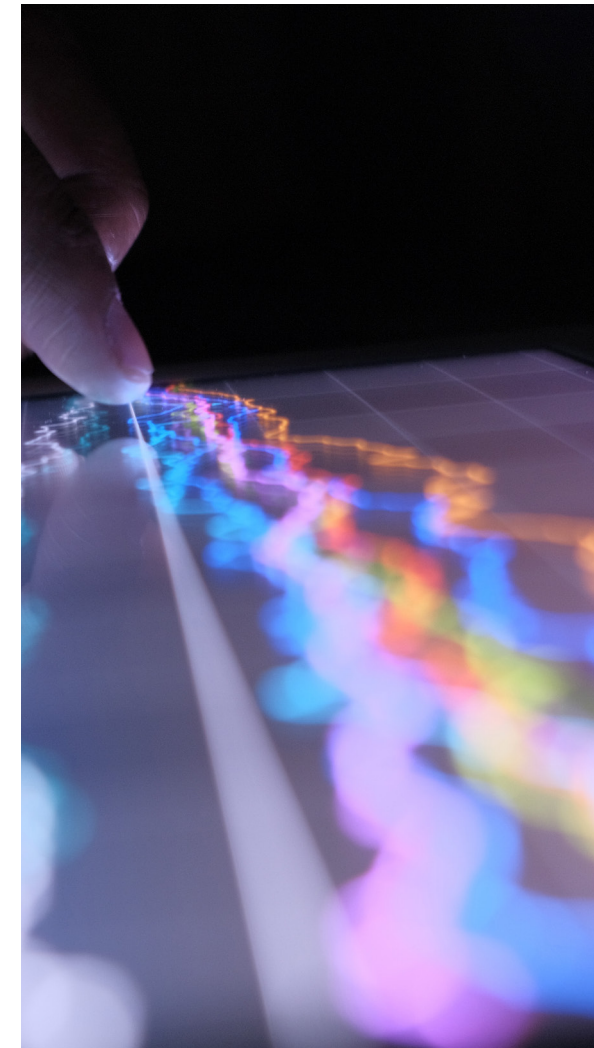
We believe that making data open and easily available has the potential to maximise benefits to society. We collect and collate large volumes of data, which if used appropriately have the potential to support innovation, accelerate the transition to Net Zero and lead to market efficiency through more data driven decision making.

By making more of that data available, we are supporting the use of data to provide richer insights to customers and market participants, supporting quicker review of day-to-day operations and commercial decision making.

We have already established a high-level Data Triage process which provides our customers with a mechanism for requesting data sets and which allows us to identify the data that will generate the greatest value, with a focus on contribution to the delivery of Net Zero and consumer value. As we move forward, we will continue to adapt and improve this process to ensure we focus on the data that generates the most value.

We are working to improve access to data, making it faster and easier to access large volumes of data.

We also recognise that increasing the value of our data is not just about making more data available, we also need to make the data we share easier to find and use. By enhancing descriptions of data, we will remove uncertainty, allowing users to have more confidence in the analysis and solutions they create from our data.





Focus area: Market & Customer Insights – Examples

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Industry Data Triage Process

We proactively supported the development of the industry Data Triage process within the Energy Network Association Digital Data Strategy Steering group workstream.

In parallel the process has been embedded into the Gas Transmission organisation to ensure ownership and transparency and timely response to the requester of data.

This has enabled us to publish usable data sets to the personas described within the strategy to support optimisation.

Completed

Data Discovery Improvement Project Initiated

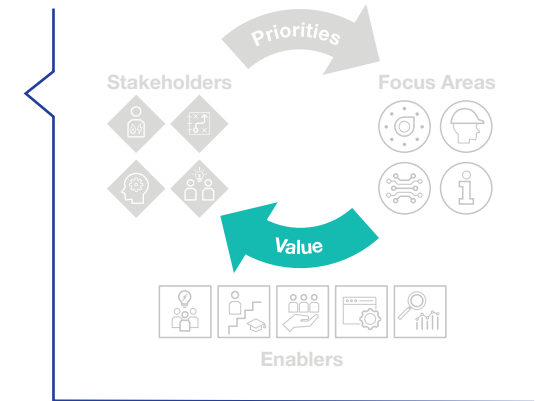
Customer & Stakeholder feedback during data webinars & work towards delivering Energy Data Taskforce recommendations we have initiated a Data Discovery Improvement project for the MIPI data platform.

We will look to work with the persona groups on how we can improve data discovery e.g., machine readable data, common API standard, searchable data sets and interoperability.

Planned

Mapping stakeholder priorities to focus areas

Linking the value delivered by each focus area back to stakeholder priorities will help guide us in determining which opportunities to prioritise.



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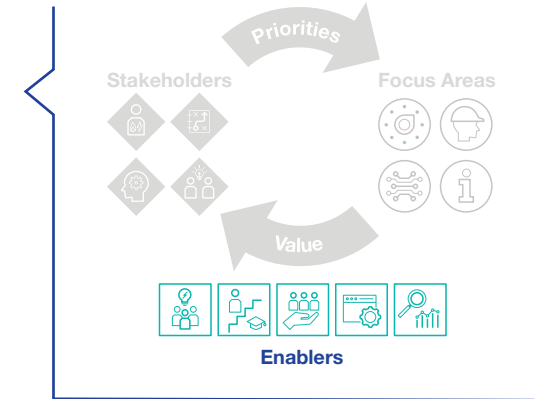
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Stakeholder priorities	Optimised System Operator	Operations Enablement	Data Driven Asset Management	Market & Customer Insights
Operate a safe, reliable and flexible transmission system	High	High	High	Low
Drive sustainable value for our customers, stakeholders and shareholders	High	High	High	High
Lead the hydrogen transition for gas networks, enabling a net-zero future	High	Low	High	High
Shape the gas market of the future	High	Low	Low	High
Have a positive impact on our environment and communities	High	High	High	Low
Invest in people for today and tomorrow	High	High	Low	Low

Enabling our digital transformation

To deliver against stakeholder priorities and achieve our aim of leading a clean energy future for everyone, we know that we will need to continue to develop the capability that will enable our digital transformation and support the delivery of work in each of our focus areas.



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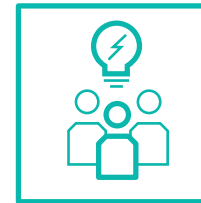
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- Collaboration
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We have identified 5 key areas of enablement which will underpin the delivery of our strategy.



Collaboration



Skills & Culture



Ways of Working



Data Platform & Management



Advanced Analytics & AI



Enabler: Collaboration

One area that came out very strongly during our digitalisation-specific engagement with stakeholders, was the desire for us to coordinate activities across the industry and adopt common approaches.

We recognise the value of collaboration and the way it shapes how we achieve all the other priorities, so have actively considered that throughout the development of our strategy

We are part of the ENA Data Working Group and have been discussing topic areas with other networks and are actively involved with the industry working groups e.g., Digital Data Strategy Group, Virtual Energy System Forum.

We have created the Gas Operational Data Community, an online platform which enables collaboration within the market. This provides further transparency of gas operational data and allows us to test concepts and gain feedback. It also allows stakeholders to speak directly to us, which allows us to support those with less technical understanding of our data.

We are also collaborating with organisations inside and outside of the industry, sharing ideas for the application of new digital tools and technology, ensuring that we are following best practice approaches and identifying opportunities to innovate.



ENA Data Working Group

The ENA Data Working Group was set up as an outcome of the Energy Data Taskforce report and is designed to ensure network companies work together to meet the recommendations. It coordinates delivery of industry-wide data initiatives and conducts related stakeholder engagement. We are focusing our involvement on the cases where stakeholders have made it clear that industry-wide standards are of particular importance to them – for example we are actively involved in workstreams on Network Mapping (“We want a single map of the entire network”) and Presumed Open/ Data Triage (“We want it to be easy to access/request data from multiple energy networks and combine it”). Stakeholder feedback has continually been solicited on the proposals being developed in these areas.

Case study

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Enabler: Skills & Culture

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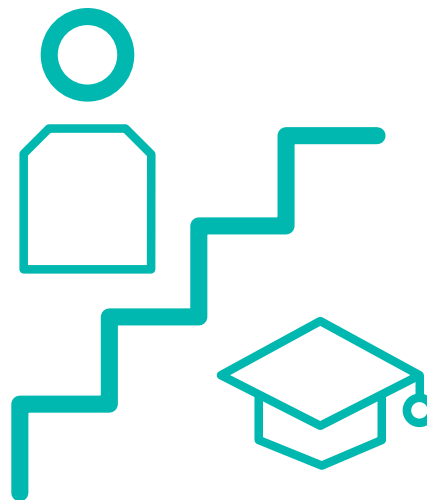
- Collaboration
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We know that ability to execute our digital strategy and harness the opportunities that our data offers depends on more than simply investing in technology.

We understand the need for our people to have the right skills and environment to take advantage of our investments in technology and enable digital transformation. We are committed to growing our capability, ensuring that our people have the skills needed to lead our digital transformation, and as we continue to onboard new technology on our digital journey, we will grow our people capability.

We recognise that future workforce trends show social learning to be an effective way of upskilling the workforce, so as part of our digital transformation we will create communities of practice to encourage and embed a culture of lifelong learning. We have already brought together data experts from across the business to establish a dedicated Data Team, a centre of excellence for all things data, and a driving force in our delivery of digital transformation.

We are committed to growing our capability, ensuring that our people have the skills needed to lead our digital transformation





Enabler: Ways of working

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We have embedded agile ways of working, specifically the Scaled Agile Framework (SAFe), to accelerate our digitalisation and innovation opportunities.

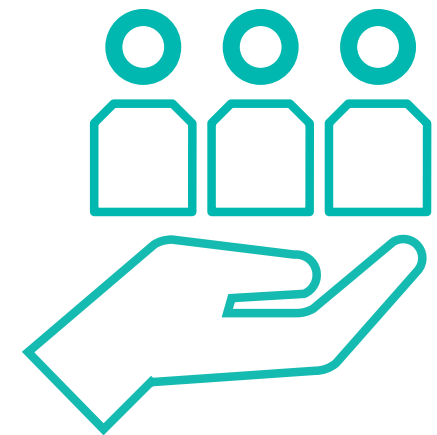
SAFe is an agile methodology for organising teams and delivering work that enables us to deliver maximum customer value in the shortest sustainable lead-time, whilst providing the highest quality IT product delivery.

We have structured ourselves as a multidisciplinary team, which supports our agile product model and value stream delivery. Additionally, we have embedded platforms and tooling, such as JIRA (a software development tool to easily plan, track and release work) and Mural (an online space for teams to collaborate visually and problem-solve faster), which have empowered our agile teams and allowed us to overcome the challenges of COVID-19 and hybrid working.

We have agile teams aligned to each of the themes outlined in this strategy, which provide continuous flow of value to our customers

We have agile teams aligned to each of the themes outlined in this strategy, which provide continuous flow of value to our customers, whilst collectively focusing and delivering on our cohesive digitalisation vision. These cross-functional teams are made up of IT personnel, internal & external business expertise and vendor partnership, allowing for continuous co-creation, collaboration, and innovation. This is further supported by maintaining focus on the 'Minimal Viable Product' to better understand the problem statement, removing risk early and ensuring rapid development; Helping to successfully meet our stakeholders needs and their expected outcomes. Our new ways of working have significantly boosted team morale in what has otherwise been a difficult time for many industries.

Being product centric allows us to focus on the product in total and the value it delivers to the end-user or consumer, as supposed to individuals or groups of components delivered through a project. This approach has helped to deliver many of our successes as mentioned in the use cases within this strategy and will continue to be used to accelerate the benefits for all future initiatives.





Enabler: Data Platform & Management

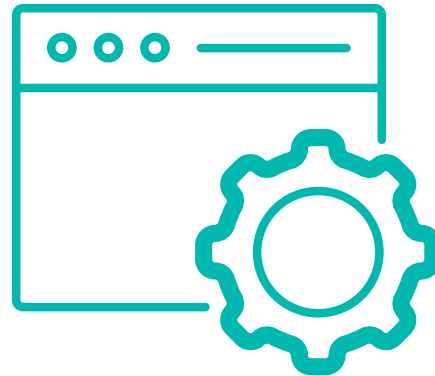
Our data platform is integral to our digital transformation strategy.

We are building a new platform that will bring together data from across the Gas Transmission estate together into a single, highly capable platform which will allow us to improve sharing and analysis of data, reducing the time to insight and unlocking operational efficiencies and benefits to customers.

Simplifying our data architecture and creating a single source of truth will provide a platform on which we are able to build more robust data governance and management which will provide the basis for us to share more of our data in the future as we move toward a 'presumed open' energy data future.

We are continuing to define and implement internal Data Management standards and as part of the work to upgrade our data platform, we are onboarding new tools and processes that will enable us to develop our data management maturity.

We are building a new platform that will bring together data from across the Gas Transmission estate together into a single, highly capable platform



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- **Data Platform & Management**
- Advanced analytics & AI



Enabler: Advanced analytics & AI

Scaling up our capability to use advanced analytics and AI will allow us to efficiently develop sophisticated solutions.

We are already using techniques such as Artificial Intelligence and Machine Learning, for example to improve the accuracy of our demand forecasting.

The use of such techniques can enable us to gain deeper insight into the operation of our systems and assets, enabling us to develop powerful solutions to support day-to-day decision-making. There are a wide range of opportunities to which advanced analytics techniques could be applied, from demand forecasting through to better understanding and predicting asset failure.

We plan to scale up our advanced analytics capability, allowing us to take advantage of the increasing volume and variety of data, to develop progressively sophisticated solutions and to solve more complex challenges, by being able to iterate quickly and deploy solutions at scale.

There are a wide range of opportunities to which advanced analytics techniques could be applied



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- **Advanced analytics & AI**



We welcome your feedback
on our digitalisation strategy.

Please contact us at:

.Box.OperationalLiaison@nationalgrid.com



**Gas
Transmission**

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