nationalgrid

Annex 05

RIIO-T3

Digitalisation Strategy and Action Plan

National Grid Electricity Transmission's Business Plan

December 2024

Overview of this Document

Purpose of this annex

This document, our Digitalisation Strategy & Action Plan (DSAP), details our RIIO-T3 plan and investments to deliver digitalisation initiatives and digital actions. Where appropriate we have included links to other documents that support this strategy. This includes links to the business plan data tables (BPDT), supporting Engineering Justification Papers (EJPs) and our latest published Digital Strategy and Digital Action Plan, March 2024, available on our website[1].

Note: Our published Digitalisation Strategy and Action Plan required under our licence conditions[2], is referred to as our March 2024 DSAP. At the time of writing, our latest published DSAP documents are our Digitalisation Strategy (March 2024 DSAP), and Digitalisation Action Plan Update, published in June 2024.

How to navigate this annex

The table below provides a short summary of each section and where information requested in the Business Plan Guidance has been provided.

Section	Detail	BPG reference[3]
1	**Executive Summary** – provides context for this annex and background detail	
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[1] National Grid Electricity Transmission. 2024. Digital Strategy and Action Plan (DSAP). https://www.nationalgrid.com/electricity-transmission/about-us/digitalisation-strategy-and-action-plan

[2] Part B of Special Condition 9.5 (Digitalisation) of the RIIO-2 price controls for Electricity Transmission, Gas Transmission and Gas Distribution

[3] These are the Business plan guidance (BPG) requirements relevant to this Annex. These requirements may also be addressed in other business plan submission documents.

Ambitions, Commitments and Success Measures

Our plan is anchored on our three ambitions, each underpinned by clear objectives, commitments and success measures for the RIIO-T3 period. These allow us to target stretching levels of performance and track progress. The specific ambitions, objectives and commitments that are most relevant to this annex are shown below:

Our Plan Objectives		Our Commitments: We will:		Success Measure / Target
C4	Leverage digital and data capabilities to transform how we work with our stakeholders, maintain and operate our network	C4.1	▸ Take a digital approach to enable real-time collaboration, provide predictive analytics across our delivery portfolio, improved supply chain visibility, and contribute to lower energy bills for consumers in the long term.	▸ Reduce costs caused from changes to in-flight projects, including a saving of 2.5% of such costs over five years in our largest projects designed to increase the capacity of the network
		C4.2	▸ Keep stakeholders central to our planning by collaborating with local authorities, regional development bodies, customers, and our staff team to deliver an integrated platform that provides seamless, personalised engagement across all touchpoints	▸ Provide real-time visibility of project milestones and progress updates to stakeholders, improving informational flows and connection arrangements
		C4.3	▸ Deliver a digitally enhanced and data-led infrastructure to optimise our operations and ensure a reliable network for consumers	▸ Reduce unplanned outage resolution time through improved predictive monitoring and early intervention, improving resiliency and efficiency ▸ Provide more detailed insights on the operation of our network in all timescales, including on constraint costs, enabled through increased automation and use of AI in power system studies
		C4.4	▸ Unlock the full value of our data assets across the business and develop our Data Sharing Infrastructure (DSI) to foster increased whole-systems collaboration	▸ Achieve seamless data flow between NGET, Ofgem, and the wider energy sector through integration of the Data Fabric with the Data Sharing Infrastructure (DSI) by the end of second year of RIIO-T3
		C4.5	▸ Continue to build our digital skills and capabilities to actively make the cultural shift towards a 'Digital Business', attracting the best digital talent.	▸ 80% of relevant stakeholders complete training course on data concepts, terminology, and best practices within the first year of RIIO-T3

Introduction to our key documents

This document index serves as a guide to each of the documents that form our RIIO-T3 IT & Digital (IT&D) submission. Many of these are referenced in this annex with document numbers below.

Document	Overview	Read this is you want to know about	No.
RIIO-T3 Core Business Plan: 5.3 Our digitalisation and data strategy	Strategic narrative that explains the context and drivers for our IT&D plans and how they support our overall business plan.	• Context and drivers behind IT&D plans • Key themes, including digital underpinning the wider investment plan • Operating context • RIIO-T3 ambitions & delivery needs • Stakeholder priorities • Costs and cross-cutting themes	MBP
Business Plan Data Tables	Master of financial submission for our RIIO-T3 business plan. Includes proposed IT&D spend.	• All financial data tables & models • Proposed IT&D investment spend	BPDT
Digitalisation Strategy and Action Plan (DSAP) This document	Consolidated view of our digital transformation strategy that informs our Digitalisation Action Plan, published in June 2024. Explores our key objectives, digital ambition, stakeholder engagement and core digital initiatives.	• Current operating context • Stakeholder engagement & methodology • Digital vision & ambition • How we are building on our RIIO-T2 investments • Digitalisation risks & mitigations	A05
IT and Telecoms Annex	IT policies, business strategy, assessment methodologies, and key considerations for sustainability and deliverability, to achieve the proposals set out in the Business Plan.	• Information Technology and Telecoms (IT&T) strategy • Operational IT&T risk reduction • IT&T network maintenance • IT&T operational efficiency and telecommunications network resilience.	A13
Data Best Practice Compliance This document	This appendix to our DSAP outlines our competency at complying with Ofgem's Data Best Practice Guidance and our RIIO-T3 ambitions.	• DBP guidance and compliance • Commitment to data management and digitalisation • Alignment between all proposed investments with regulatory standards	A05 App. B

Document	Overview	Read this is you want to know about	No.
Engineering Justification Papers	Detailed investment papers outlining the specific needs case and drivers behind proposed digital initiatives. These include optioneering, costs, and overall benefits.	• 17 Engineering Justification Papers (8 digitalisation and 9 BAU IT) • Specific needs case and drivers behind proposed investments • Enhancements from RIIO-T2 investment • Investment optioneering • Anticipated benefits & overall costs. • Evidence of stakeholder scrutiny • Alignment with key customer, stakeholder and staff priorities	IDPs
Cost Benefit Analysis (CBA)	Analysis documents to explain proposals. CBAs provide optioneering and an understanding of assumptions that support proposals.	• Demonstrates value for money for consumers • Additional investment decision-making justification.	IDPs

Overview of our Engineering Justification Papers (EJPs) & interdependency mapping

With our DSAP focusing on the digital aspect of our business plan, the Digitalisation EJPs are referenced throughout the document, with specific analysis in section 6. We describe the further development of core digital products and services, as we build upon previous funding and invest in innovative solutions to support our RIIO-T3 commitments and deliver widespread benefits for our stakeholders.

We have outlined an integrated portfolio of investments which demonstrate end-to-end digital capabilities to transform how we maintain and operate our assets, accelerate the connection of clean energy, and improve the experience for our customers, partners, and communities. Our digital capabilities are highly interdependent and have many interactions. As we coordinate the implementation of complementary solutions, there is a significant reliance on the delivery and success of digital capabilities, to help drive core business and operational efficiencies. The portfolio has been phased to maximise efficiency and consumer value, through the proven deliverability of mature and scalable technologies. The digital investments will support in minimising costs, reducing potential risks, and helping deliver our digital ambition of becoming an Intelligent Connected Digital Utility to enable net zero and a clean, fair affordable energy future for the UK.

Below, we have outlined the key dependencies recognised across our proposed investment portfolio. Please note that the Group functions & DPIT (Digital Platforms & Infrastructure Technology) are representative of our BAU IT investment portfolio outlined in Annex A13: IT & Telecoms Strategy, with all others being part of our Digitalisation investment portfolio.

Contents

1. Executive summary

1.1. Our digital ambition and strategy

The Digital Strategy & Action Plan (DSAP) sets out an integrated portfolio of [redacted] of digital investments to transform how we will maintain and operate our assets, accelerate the connection of clean energy and improve customer and stakeholder experience. These investments underpin our ambition to be an Intelligent Connected Utility. When combined with [redacted] investment in our underlying IT & Telecoms infrastructure, it sets out how we will enhance our digital capabilities and strengthen our ability to support the safe and sustainable delivery of the UK's transition to a decarbonised energy system.

We aim to adopt new technologies and use digital and data capabilities to achieve benefits, mainly from efficiency savings and cost avoidances. Our DSAP explains how our digital investments will improve our operations, speed up clean energy connections, and enhance experiences for customers, partners, and communities. This growth will help us meet delivery challenges and is expected to generate over [redacted] in benefits for consumers.

1.2. Our digitalisation priorities

We have set five key digital priorities to support the successful delivery of our wider RIIO-T3 commitments, which are referenced throughout our core business plan:

1. **The Great Grid Upgrade:** Enabling the scale and pace of infrastructure development and deployment through a digitally enabled partner ecosystem to support the UK's net zero goals.
2. **Delivering for customers and stakeholders:** reducing the time and cost for customers to connect to our network through an improved end-to-end connection process, ensuring that connections are completed within the required timeframes.
3. **Intelligent asset & network:** enhancing our network monitoring and control to access deep insights across our assets and operations through targeted and deliberate asset management interventions, to maximise network availability, reliability and resilience.
4. **Building trust through data transparency:** empowering our people to maintain the quality and management of data, through decentralised ownership and specific team accountabilities. We will enhance the quality, visibility, and reliability of our data to enable transparency of our insights.
5. **Digital culture:** establishing a Digital-first approach to enable our business operations and enhancing our skills and capabilities to empower our teams to thrive in a technology-led environment. We will empower our people to make more informed, data-driven decisions, as our workforce effectively utilises the entirety of our digital capabilities.

These five key digital objectives lay the essential foundations and capabilities needed to achieve the ambitions outlined in our RIIO-T3 Business Plan. Our DSAP builds on our RIIO-T2 investments to enhance foundational digital capabilities and embed a learning environment to deliver mature, scalable technology essential for meeting complex grid network expansion requirements. The successful adoption of digital capabilities will underpin the entirety of our business operations, from large-capacity infrastructural enhancements with AI-enabled optimisations, through to supporting our teams through new learning environments and offerings, such as our new Data Academy Apprenticeship for data specialists.

1.3. Our RIIO-T3 Investments

- **Construction optimisation:** approaching construction differently by taking a holistic, digital approach to improve collaboration, planning, cost estimation, risk management, supply chain visibility and material management.
- **Transforming our Enterprise delivery management:** leveraging digital tools to streamline processes and enhance our decision-making capabilities.
- **Customers and stakeholders:** investing in an integrated experience and relationship management solution to empower customers, stakeholders, and our employees.

- **Operational management:** investing to make further improvements to our asset management applications, adopting [redacted] and a product team to deliver and maintain data products for network control data.
- **Digital twins and power systems:** continuing to optimise our current capabilities, upgrading and connecting them, fed with near real-time data for enhanced capabilities.
- **Enabling data:** supporting our strategic priorities and digital investments by ensuring compliance with Data Best Practice (DBP).
- **Safety and compliance:** continuing to optimise our platform functionalities, integrating advanced technologies and data-drive solutions – enhancing core operational safety and compliance functions.
- **Common platforms:** unlocking the full value of our Data Sharing Infrastructure and enhancing our ability to support whole-system collaboration through the extending of our Geospatial Information Systems (GIS) platform, and enterprise management platforms

1.4. Guided by our stakeholders

Success in our digitalisation strategy is not only tied to the delivery of our overarching Business Plan but also measured by the experience and engagement of our customers and stakeholders.

In developing our digital objectives, we have engaged extensively with a wide variety of customers and stakeholders to understand their needs and the value we provide. This engagement has directly informed the digital products and enhancements we will be delivering – which range from enhancing our visualisation capability to give more transparency to our plans to upgrade the network, to investing in upgrades to our relationship management system.

We are collaborating with a broad range of stakeholders, including local authorities, regional development bodies, customers, consumers, and our own dedicated teams of colleagues. Our DSAP summarises this engagement and highlights how our portfolio investments address these needs. The investments outlined within this DSAP will enable us to operate our network more intelligently, deliver value to our customers and stakeholders, and ensure the safety of our people and resilience of our network whilst delivering the decarbonisation of the energy system.

1.5. Conclusion

In this DSAP, we make several commitments to meet our objective of leveraging digital and data capabilities to transform how we work with our stakeholders and maintain and operate our network. This annex sets out our operating context, dependencies, vision and ambitions and our key objectives, risks and mitigations.

2. Who we are and what we do

2.1. Who we are

We are National Grid Electricity Transmission (NGET) and are responsible for the ownership and maintenance of the high-voltage electricity transmission network in England and Wales. Every time a phone is plugged in, or a switch is turned on, we have played a part in connecting you safely, reliably, and efficiently to the electricity you need – and it all happens via our network of overhead lines, pylons, cables, and substations.

With the next decade being crucial for delivering the UK's decarbonisation commitments, our network maintenance and development are integral to the overall efficiency and reliability of the electricity transmission system. To read more about who we are and the crucial role we play, visit our website[4].

2.2. Our operating context

The energy transition is accelerating at pace, with a rapid shift from conventional fossil fuels to a net zero electricity system by 2030. We are seeing the swift deployment of renewable energy technologies and so grid infrastructure must also evolve to accommodate the diverse mix of inherently variable and decentralised sources of electricity generation.

There has never been a more important time to deliver the grid of tomorrow needed for Great Britain's future growth and decarbonisation. We are at a crucial point in history to deliver value for consumers with a more affordable, long lasting, reliable, and cleaner energy solution. Given the velocity of change required, and critical constraints faced across our industry, digital technologies and transformation are needed to safely deliver net zero goals, working simultaneously alongside our skilled workforce. Digitalisation enhances grid capabilities, redefining possibilities, as we operate faster, more flexibly and more efficiently. [redacted] We are reliant on digital capabilities to support our growing workforce, as we identify critical areas that require specialist skills, improve the quality of training, and reduce the overall time to competency. We must mitigate potential skills gaps and ensure a seamless transition during high periods of growth – digitalisation is essential to making this possible.

The following strategy document highlights specific digital opportunities, to enable and accelerate the UK's progress to net zero through collaborative, innovative, and whole-system solutions, to support policymakers and consumers alike. We will deploy advanced technologies spanning AI, Digital Twins, Cloud, Cyber-security, and Internet of Things (IoT) to accelerate the build of new infrastructure, driving time and cost efficiencies, as we operate our network more intelligently, delivering value for our customers and stakeholders, and keeping our people safe. We are certain that by working together, we can deliver the investment required to maintain a cleaner, reliable and resilient network, whilst keeping consumer bills lower in the longer term.

Our operating context provides a continuation from our March 2024 DSAP[5], exploring the current climate and digital landscape that we are navigating, as we strive to deliver our RIIO-T3 commitments. It sets out how digital innovation and adoption can address potential inefficiencies and complexities, we face as a business, and as a nation. Leveraging digital products and services across our business will be fundamental as we tackle the following 9 areas:

- The energy transition & net zero
- Stakeholder expectations
- Whole system
- Environmental sustainability
- Social sustainability
- Global energy markets & geopolitical uncertainty
- Constraints & digital opportunity
- Digital transformation
- Network strategy

[4] National Grid Electricity Transmission. 2024. https://www.nationalgrid.com/electricity-transmission/
[5] National Grid Electricity Transmission. 2024. Digital Strategy and Action Plan (DSAP). https://www.nationalgrid.com/electricity-transmission/about-us/digitalisation-strategy-and-action-plan

2.2.1. The energy transition & net zero

Mature, scalable, digital innovation to enable the acceleration of a just energy transition.

The UK government is committed to achieving net zero greenhouse gas emissions by 2050, with an interim ambition of fully decarbonising the electricity grid by 2030. This will see offshore wind capacity reach 54GW by 2030 up from 18GW today and current solar capacity to more than double to 41GW by 2030 from 16GW today. Over the coming few years, our energy landscape will undergo significant transformation, creating the foundations of a new energy frontier. This transition will not only change how we consume energy but will also require substantial expansion and enhancement of our current infrastructure, to meet future demands.

To facilitate the seamless integration of renewable energy sources into the grid, our focus and strategic investments will continue to be directed towards innovation and digital transformation. We must invest in digital to help meet our RIIO-T3 commitments, as we help optimise our network, ensuring it can handle the complexities of a renewable-dominated energy system. By fostering a forward-thinking, resilient, and adaptable infrastructure, we will not only meet the energy demands of the future, but also play a pivotal role in achieving a sustainable, net zero future for the UK. This is discussed further in Annex A02: Climate Resilience Strategy and in Annex A01: Environmental Action Plan.

2.2.2. Stakeholder expectations

Meeting and exceeding our stakeholders' digital expectations and priorities

As seen throughout our ongoing engagement, stakeholders' expectations continue to change, alongside the rapid advancements in digital technologies, such as Artificial Intelligence (AI), and Internet of Things (IoT). An increasingly digital consumer experience and lifestyle, proliferate across society and our stakeholders continue to expect organisational innovation[6], as we look to integrate advanced technologies, helping offer personalised and improved digital experiences, with high levels of data transparency.

We continue to listen to our stakeholders' asks and constantly iterate our approach to meet their needs. Our rich repository of data will be fundamental as we seek to put the power of data into everyone's hands, continuing and exceeding compliance with Ofgem's Data Best Practice guidelines. By taking a leading position in the industry on data, enabling whole system outcomes and benefits, we will deliver the data foundations needed for us to deploy AI across our business. It will enhance our ability to simulate scenarios and inform real-world decisions, fostering a more robust, resilient, and efficient energy system for all.

National priorities are already shifting decisively towards proactively addressing climate change and promoting sustainability. Given the numerous benefits of digitalisation and the imperative to achieve net zero ambitions, our stakeholders are reliant on us to effectively leverage emerging technologies and help facilitate this transition.

2.2.3. Whole system

Leveraging enhanced digital products and services to enable a whole system approach to grid decarbonisation and operational efficiencies

Adopting a whole system approach, looks beyond simply addressing industry challenges. It extends across the entire energy system, optimising the interconnectedness and true collaboration of a highly interdependent ecosystem. We look to provide a holistic perspective across our operating context, ensuring we use the best balance of energy, delivering reliable, resilient and economic infrastructure services to the UK economy.

A whole system approach allows industry infrastructure and developing technologies to be integrated with policy, market, stakeholder, and all other energy vectors. Our network planning will consider the developments of each element within the whole system, finding the best solution, whilst unlocking true value from collaboration and coordination. The establishment of our Automated Programme Office will support this with improved integration and analysis capabilities, as we transform our data into actionable project planning efficiencies and management.

[redacted]

A highly structured approach is fundamental as we continue to improve coordination across the electricity industry, taking a more strategic direction. We will focus on collaborating with our stakeholders and our colleagues to optimally plan, develop, and operate the transmission network, protect vulnerable customers, and deliver whole system benefits while ensuring the delivery of the energy transition by 2050. By embedding digital across the entire energy system, we can leverage enhanced capabilities to help enable innovation and scalability, putting stakeholders and their specific needs at the forefront of our operations.

Building and maintaining stakeholder networks and relationships will remain key to our success. Genuine whole system collaboration will be delivered through increased transparency, efficiency of the network investments we need to deliver, and visibility of our work to our supply chain, customers and broader stakeholders. Digitalisation will serve as a key enabler for improved consumer involvement, as we enhance our Data Sharing Infrastructure, to accommodate the seamless transfer and utilisation of information across Ofgem, the wider energy sector, and our business. Digitalisation enhances our entire system, built upon resilient and adaptive energy infrastructure, capable of meeting the future demands of a sustainable and net zero energy landscape.

2.2.4. Environmental sustainability

Transforming digital to support a nature positive future

At National Grid, our vision is to be at the heart of a clean, fair, and affordable energy future. We play a leading role in enabling and accelerating the transition to a clean energy system. In doing so, we must also reduce our own carbon emissions and environmental impact, whilst enhancing the natural environment. It is the right thing to do – for society, environment, and our business.

We have updated Annex A01: Environmental Action Plan and re-defined our environmental priorities into three focus area commitments for the coming years:

- **Net zero**: We will achieve net zero by 2050, ensuring alignment to climate science and industry best practice to avoid the worst effects of climate change on people and the planet.
- **Nature positive**: We will contribute to the preservation, restoration and enhancement of the natural environment and contribute to the wider global Nature Positive goal to halt and reverse nature loss by 2030.
- **One planet living**: We will operate within the limits of our planet by seeking to eliminate pollution and restrict the use of finite resources, so that humanity can continue to develop and thrive for generations to come.

By embedding digital throughout the energy system, we will not only improve our operational efficiency and resilience but also meet and exceed sustainability targets, outlined in our Annex A01: Environmental Action Plan, driving the transition towards an accelerated net zero future. Digital solutions will change the way we have previously thought about environmental sustainability. The effective use of digital products and services such as Internet of Things (IoT), Artificial Intelligence (AI), Machine Learning (ML) will enhance big data collection and analysis to help understand project impact on landscapes, whilst we optimise planning tools to meet biodiversity net gain obligations. Examples extend beyond the direct support cases, where we are actively minimising our carbon footprint, through everyday changes. This could look towards the deployment of cross-site communications equipment with secure data transfer to a new IoT gateway server. This will provide us with real-time data, helping support predictive maintenance, and ultimately reducing resource wastage and downtime. These updates will indirectly support environmental sustainability, as we reduce carbon emission-related production, transportation, and waste. This is explored further in both Annex A01: Environmental Action Plan and Annex A02: Climate Resilience Strategy.

Our universal approach to sustainability, ensures that every aspect of our work is actively contributing towards the reduction of adverse environmental impacts, driving both national and global sustainability initiatives. Ongoing engagement is a critical part of our plan so we can work towards a fair transition on a local, national, and global scale. It's not just what we do, but how we do it, that matters.

2.2.5. Social sustainability

Adopting digital innovation to continue doing the right thing for our consumers, communities and the environment

Acting as a responsible business is at the heart of everything we do. It is our purpose and has clearly been outlined in our refreshed Responsible Business Charter (RBC), articulating what 'responsibility' means for us:

- **Our environment**: Beyond emissions reductions, there are other areas where we can have a positive material impact on the environment, including managing the impact of the delivery of energy infrastructure on our communities and the natural environment.
- **Our customers and communities**: In leading the energy transition, we will ensure a fair transition where no one is left behind, and in doing so, we create social value and impact for our customers and communities. While we work to achieve net zero and deliver a clean and affordable future energy system, we must also work to deliver that fairly, equitably, and justly.
- **Our people**: We aspire to be among the most diverse, equitable, and inclusive organisations. We are looking to accelerate our progress on diversity, setting clear targets to increase ethnic and female representation in our workforce. We are also committed to creating an environment where colleagues can openly discuss and seek help with mental health and where physical wellbeing risks are continually assessed and mitigated.

As we look ahead, we aim to maximise the social value created through our operations and effectively utilise digital solutions to leave a lasting, positive legacy for our communities. Digital platforms such as our Stakeholder Relationship Management tool will help to keep us closely connected to our stakeholders, as we integrate social value into daily and strategic decision-making, measuring impact and reporting transparently, to build trust. We recognise the importance of collaboration, both internal and external, to co-create our strategy, evaluate progress in its implementation, and effectively communicate the outcomes. Digital capabilities such as our Experience Management tool will be utilised to provide a full view of interactions, enabling tailored communication and proactive engagement with our key stakeholders and consumers. Digitalisation is vital to meet the growing needs of our people and customers.

2.2.6. Global energy markets & geopolitical uncertainty

Leveraging digital and data capabilities to transform how we maintain and operate our assets, improving efficiencies and reducing overall risk

With global energy market fluctuations often exacerbated by volatile geopolitics, the demand for secure, clean, and affordable energy has never been more critical. Energy markets have become increasingly more unpredictable, gas prices have reached record highs, and global supply chains have been disrupted by geopolitical tensions.

Digital transformation is essential as we navigate these levels of volatility. This will become particularly apparent as we consider network control and supply chain visibility. During RIIO-T2 we have established the foundational development of a digital tool and planning application to support the efficient scheduling of work. It applies an intelligent planning algorithm to minimise network disruptions, supporting enhanced delivery. These strategic investments will be built upon further as we utilise AI-capabilities to effectively monitor activities in near real-time, against current constraints. The adoption of this optimisation tool, as the single source of truth for work impacting our network, will make the delivery risks and system constraints visible. Digital capabilities like this will be synchronised with our Network Control System to support advanced power flow analysis and constraint mitigation. This will not only focus on system access constraints but consider wider implications for network users and our supply chain, creating efficiencies in the planning process that benefit all consumers.

Digital technologies are supporting our everyday work, as we monitor and respond to frequent market changes and geopolitical events. They will enable us to dynamically adjust strategies and operations, enhancing our energy security, as we strive for long term energy stability and resilience for consumers, regardless of the global geopolitical landscape.

2.2.7. Constraints & digital opportunity

Taking digital opportunities to enhance our network capabilities and accelerate the connection of clean energy

Our industry faces significant challenges as we look to rapidly decarbonise the grid, and wider energy system. Digitalisation and the adoption of emerging technologies, provide key opportunities to help address constraints, related to supply chain issues and bottlenecks, asset maintenance, and limited skilled resources, to name a few. We plan to continue removing manual tasks and empowering our people by leveraging data and AI to optimise processes, enhance safety, and improve decision-making, whilst fostering a culture of continuous learning and collaboration. By digitalising our assets and operations, we will enhance cyber resilience, integrate information and operational (IT/OT) technologies for advanced network capabilities, and implement industry-leading practices to deliver future-ready assets, ensuring a secure, efficient, and sustainable grid.

We will continue to actively invest in digital opportunities, as we operate with a digital-first approach. We must continue to take advantage of key digital opportunities, transforming constraints into strengths, driving operational excellence and sustainable growth across our business.

2.2.8. Digital transformation

Driving efficiencies and maximising value by reimagining data and digital across our business

Digital transformation is critical, as we leverage advanced AI and cybersecurity to maximise the value we provide and overall protection of our assets, ensuring they operate at peak efficiency and reliability.

AI driven process automation and predictive maintenance:

- Underpinned by advanced analytics, it helps facilitate enhanced predictive maintenance
- Optimises performance and extends asset lifespans
- Reduces costs and overall service delivery

Cybersecurity

- Concurrently supports the protection of our digitally enabled assets
- Cyber threat detection and data integrity,
- System resilience against potential cyber-attacks
- Improved regulatory compliance and risk management

Digital transformation enables agile ways of working as we proactively respond to market demands and consumer needs. It is integral to our wider strategy, as we validate and collectively promote the scaling and embedment of innovative solutions, across our operational landscape. Digitalisation will continue to revolutionise how we operate, deliver services and drive value for our consumers.

We will continue to actively invest in digital opportunities, in a digital-first approach. We must continue to take advantage of key digital opportunities, transforming constraints into strengths, driving operational excellence and sustainable growth across our business.

2.2.9. Network strategy

Leveraging data and digital to enable the fastest, safest, and most economically viable infrastructure solutions

Our Network Strategy focuses on taking a more strategic, probabilistic approach to delivering the energy transition, and is made possible through the adoption of digital. We look towards three strategic planning principles to help guide the approach:

- **Enabling investments**: we will move away from the current focus on ‘no regret’, deterministic investments. We will instead plan and build a future ready network platform that utilises advanced simulation tools such as digital twins for adaptive designs, allowing for scalable infrastructure that can adapt to future requirements.
- **Do it once, do it right for the future:** we will plan the scope and timing of network investments with the help of AI to optimise scheduling and logistics for network development and upgrades. We will address multiple drivers at once, supported by unified portfolio platforms that integrate data from various sources such as Geographic Information System (GIS), to help create a comprehensive view of the network. We will coordinate delivery to reduce system access requirements, increase efficiency and minimise disruption to communities, managed via our digital community engagement and stakeholder relationship tools.

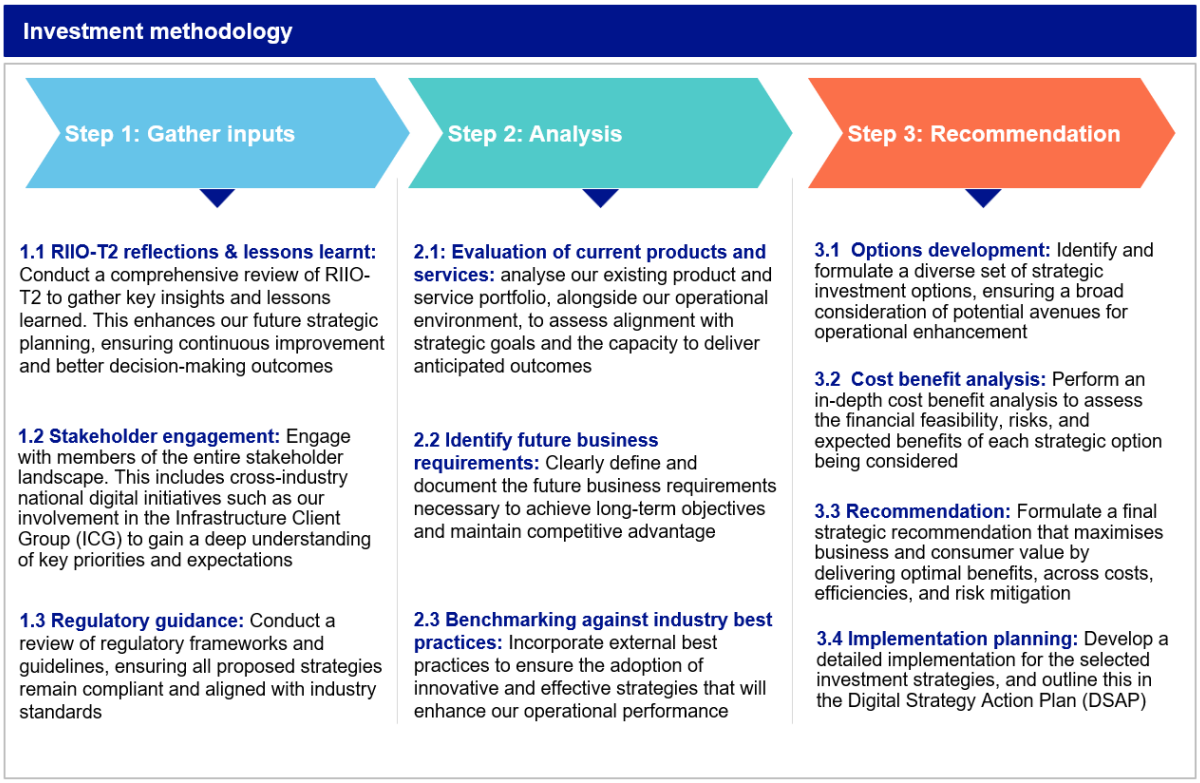
- **Whole system network planning**: we will continue to develop cross-sector collaboration and facilitate seamless data sharing and coordination with other utilities, across vectors, and with stakeholders at all levels, to ensure planning and delivery of our future network is coordinated and optimised for UK plc.

The future development of our transmission network is inherently linked to alternative energy infrastructure, and the various parties connecting into this infrastructure. We will achieve the fastest, safest, and most economically viable infrastructure solutions, by working closely with our stakeholders and understanding the interactions across the entire energy system.

3. How we have developed our plan

Our RIIO-T3 IT & Digital investment plan has been developed based on a clear and robust investment methodology to meet our digital ambitions and deliver our modelled consumer benefits, see section on Understanding our key objectives. This has been built around three core phases to help deliver specific digital initiatives. Our approach has been developed with our customers, stakeholders, colleagues, and partners of industry leading IT-specialists, to ensure our investments are strategically aligned with our objectives, effectively meeting immediate and long-term priorities, delivering the most cost-effective solutions for our stakeholders. Our approach to stakeholder engagement can be seen in more detail in the Putting stakeholders at the centre of our plans section.

Figure 2: Summary of our investment methodology



3.1. Portfolio dependencies

3.1.1. Data and portfolio dependencies

Our proposed digital investments will help us to achieve end-to-end digitalisation. The digital products and services are reliant on one another, with their success being dependent on the collective adoption and delivery of digital products and services, as we drive innovation and operational efficiency across the organisation. Data and digital are fundamental in achieving key business-wide efficiencies, as we remove siloes, promoting co-creation and collaboration, underpinned by core organisational agility.

An example of this is our Enabling Data EJP. Data remains the backbone of our digital ecosystem, and the Enabling Data capabilities outlined later in the DSAP, help to accelerate the delivery of more complex models and data analysis. Our future reporting will be reliant on critical insights, analytics,

and data-driven decision-making capabilities, as we deliver on our digital ambition of becoming an Intelligent, Connected, Digital Utility to enable net zero and a clean, fair, and affordable energy future for the UK.

- *EXAMPLE: We need to be able to develop highly complex and intricate models to make more informed, data-driven decisions that centre around consumer value. This is currently difficult to achieve without utilising the correct advanced technologies, capable of managing the scale of data points involved. We will utilise and enhance a range of foundational data products and services, currently being developed in the Data Fabric, to help generate actionable insights. These insights will support our business units and teams with more informed data-driven analysis, improving overall decision-making, with enhanced precision and agility. Similarly, the success of our Digital Twin investment is reliant on the effective implementation of our Data Fabric strategy and the development of network data products, all of which are fundamental to the accurate collection and processing of data.*

3.1.2. Dependencies within our proposed RIIO-T3 digital investments

Our EJPs provide a more thorough overview of all the dependencies and options relevant to each investment. Within each EJP, there are dependencies between our proposed digital capabilities, as some are reliant on one another to ensure complete deliverability and success of digital initiatives. This explains the specific groupings of our digital capabilities and the need for funding to be secured at an EJP level.

- *EXAMPLE: The implementation of the CRM (Customer Relationship Management) and XM (Experience Management) solutions, within our Customer & Stakeholder EJP, must be assessed in tandem to avoid excessive associative costs and a potential loss in key benefits. The capabilities are highly reliant on one another and so we must ensure the joint delivery of investments, to achieve overall EJP capability success. It is also a requirement to help support our RIIO-T3 business plan. One of the key success factors / targets for our RIIO-T3 business plan ambition of 'Deliver the grid of tomorrow, today', is an 'Increase customer satisfaction rating from 7.2 to above 7.7 in the Quality of Connections Survey'. The implementation of our digital solutions, outlined in our Customer & Stakeholder EJP are fundamental in helping to meet this.*

3.1.3. Summary

Our investments show dependencies at both a portfolio level, and an individual capability level. Our EJPs provide a more thorough overview of all the dependencies and options relevant to each investment. Understanding and managing the mutual reliance of digital products and services, across our investment strategy, remains crucial to the success of our digital transformation initiatives. By recognising this, we can ensure that our approach is both cohesive and robust, considering all the interrelated complexities of a digital transformation. Providing this strategic alignment maximises the value of our digital initiatives, strengthening our overall capability in delivering on our key objectives and digital commitments, driving value for our customers, stakeholders, and consumers.

4. Putting stakeholders at the centre of our plans

We recognise that we play a leading role in the UK's energy system, and it is imperative that our stakeholders remain at the heart of our planning, ongoing delivery, and decision making. We have an ambitious plan that represents clear progression from our approach to IT & Digital in RIIO-T2, where we consider revolutionary digital technologies to deliver value for money for our customers and stakeholders, as we prioritise efficiency.

As we accelerate grid construction and operations and drive energy system decarbonisation, stakeholder demands continuously evolve and it is our priority to ensure that we are providing benefits and best value to all of those who pay for our products and services.

4.1. Principles of stakeholder engagement

The effectiveness of this strategy document and the overall action plan is reliant on high quality information and insight around stakeholders and their digital and data-related needs. Our ongoing engagements have been documented in Annex A07: Stakeholder Engagement & Decision Log, showing the true benefit of keeping stakeholders central to our planning. We focus on four core principles for effective stakeholder engagement:

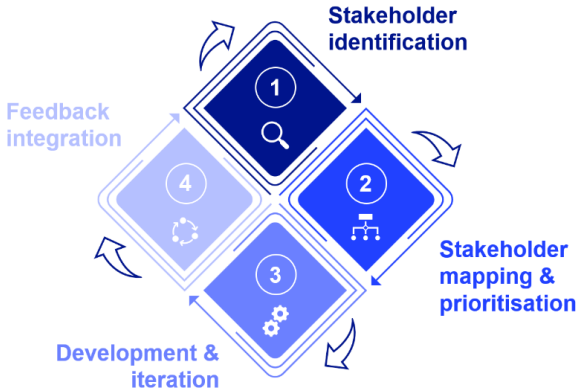
- **Stakeholder-centric design**: we begin by understanding the individual needs, concerns, and primary goals of our stakeholders. This involves creating a robust data-gathering framework to help us capture insights and expectations from diverse groups across the stakeholder landscape, ensuring that the engagement strategy is tailored to address specific stakeholder interests.
- **Inclusive & transparent communication**: we utilise a broad range of communication tools (please refer to our Stakeholder Engagement & Activities section of this document) to ensure clarity, accessibility and inclusivity. This ensures that all stakeholders, regardless of technical expertise, can understand the challenges, proposed solutions, and ultimately the value their insights and opinions bring. The goal is to foster a common understanding and shared vision amongst all stakeholder groups.

- **Collaborative development & co-creation**: we encourage open collaboration amongst our stakeholders to co-create solutions. We can then rapidly iterate on designs and processes, allowing for flexible adjustments in response to technological changes, market dynamics, and most importantly, stakeholder feedback. This joint approach enhances innovation as we consider and integrate novel solutions to accommodate all our stakeholders.
- **Continuous improvement through iteration**: We adopt a cyclical process of feedback and refinement. Regularly revisiting and adjusting our digital strategies, informed by stakeholder input, helps to identify potential issues early, reduce risks, and build trust with communities. This iterative approach maintains dynamic and responsive engagement activities as needs and conditions evolve.

4.1.1. Engagement process methodology

Whilst our principles guide our engagement strategy, it is also imperative that our development process is participatory and inclusive. We have carefully considered how and where to apply the latest technological advancements across our business and have relied on close stakeholder engagement and relationships to inform our decision making. We are applying data and digital technologies that are mature, scalable, and cost-effective, as we consider what is best for our growing stakeholder landscape. To help us refine and truly understand our stakeholder groups, we continue to follow a phased approach, ensuring the full range of our stakeholders are involved and informed throughout.

Figure 3: Our cyclical engagement process



Stakeholder identification: we leverage our extensive network of partners to help identify and update key stakeholders across the energy sector and other relevant domains, including local government, environmental organisations, and consumer groups. Given that our operations impact most residents across England & Wales, it is vital that we engage with a vast network of individuals.

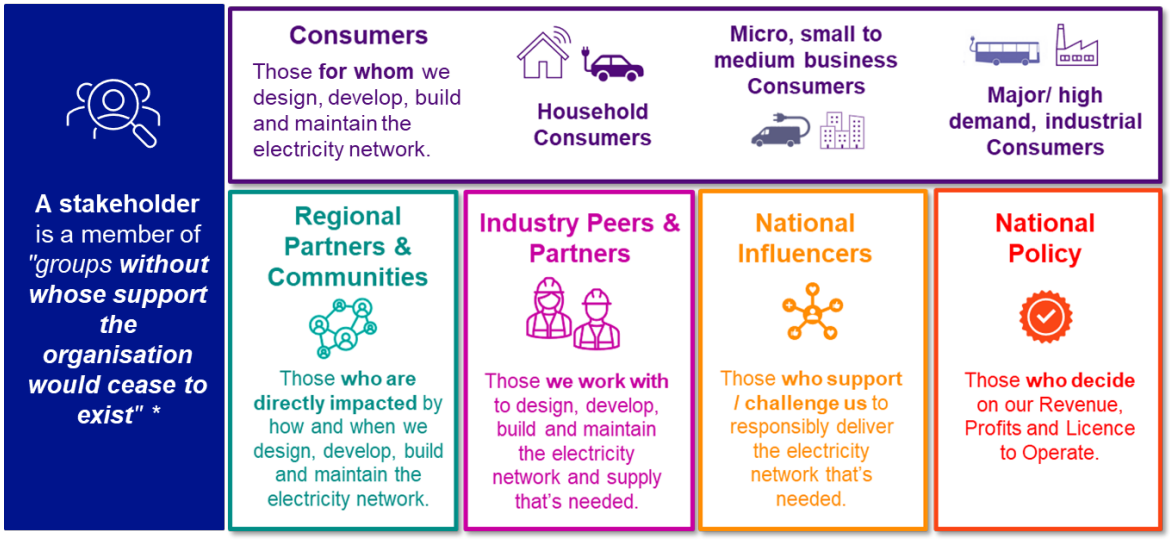
Stakeholder mapping & prioritisation: we categorise our stakeholders based on their influence but also the individual user group that they would likely fall under, for example, residential and business customers who consume electricity and pay for our transmission network, are grouped within our 'consumer' stakeholder persona. By conducting this analysis, it helps us guide the prioritisation of engagement efforts, ensuring that all key players are closely involved, and engagement methods are tailored to specific groups.

Development & iteration: we have established a comprehensive engagement plan, detailing when, how, and with whom interactions will take place throughout the various project lifecycles. This plan is regularly updated based on feedback and evolving stakeholder dynamics, ensuring our engagement strategies remain relevant and effective for all stakeholder groups.

Feedback integration: we seek stakeholder feedback at every stage of our engagement process and use this to help refine and iterate our engagement plan. We use learnings around specific data and digital needs to refine and improve our future stakeholder engagement activities. This ensures the various projects remain aligned with stakeholder needs and expectations, and any emerging challenges are promptly addressed.

Our engagement process methodology has helped establish a broader stakeholder landscape view, as seen below:

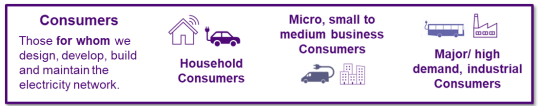
Figure 4: Our stakeholder landscape



*As defined in the first usage of the word in a 1963 internal memorandum at the Stanford Research Institute

Within this stakeholder landscape, we can then further define the key personas that we interact with. This additional granularity helps us to better understand the segmentation of interested and impacted groups, whilst also considering the potential overlap in requirements and needs. These personas are regularly updated, to ensure they remain accurate and relevant.

Table 1: Our data and digital stakeholder personas

RIIO-T3 Stakeholder Group	Stakeholder persona	Persona description	Primary needs	Challenges
	Consumers 	Residential and business customers who consume electricity and pay for our transmission network.	Expect energy providers to deliver an affordable and resilient network, underpinned by digital innovation, whilst simultaneously decarbonising the energy system.	As electrification and digitalisation becomes more prevalent in our lives, the uninterrupted supply of electricity becomes even more crucial. Ensuring electricity bills remain affordable is also essential. If IT & Digital investments are implemented to help drive efficiencies, consumers need to be able to see the financial benefit.
	Connecting customers & energy insiders 	Stakeholders that work in, or closely with the energy industry, such as network companies, system operators, and connecting customers.	Require data to inform their day-to-day operations, long-term investments and decision making. Require access to many different datasets to support their activities, such as details on assets and their condition, operational data, and performance.	Require information sharing agreements to be create. Often these are non-existent and lengthy to put in place. Connecting customers have a limited view of connection application statuses and want to connect cheaply and quickly to the grid.
	Innovative thinkers 	Stakeholders who are interested in our assets and network and may have unique or wide interests for accessing our data, such as members of	They will develop new use cases. Require our data (often combined with other data	Data is often inaccessible, with various non-technical terms, making it difficult for innovative thinkers to understand where the data

RIIO-T3 Stakeholder Group	Stakeholder persona	Persona description	Primary needs	Challenges
		the public, communities, academia, technology companies, and wider energy innovators.	sources), including the accuracy and granularity to answer wider questions they are interested in. May not know what data they need and rely on us to share and collaborate to meet their outcomes.	derives from and any potential limitations.
National Policy Those who decide on our Revenue, Profits and License to Operate.	Policy influencers & decision makers	Stakeholders such as consumer groups, regulators and other government departments who oversee the energy sector, the public interest, and consumer protection.	Require access to longer term data that supports them in their strategic oversight, long-term policy making and decision-making. Require our data in their service to the public.	They expect complete, high quality, and consistent datasets to inform their thinking, which is often not available or a work in progress.
Consumers Those **for whom** we design, develop, build and maintain the electricity network. **Household Consumers** **Micro, small to medium business Consumers** **Major/ high demand, industrial Consumers** **Please note that the 'Digitally excluded' are a subset of the 'Consumers' stakeholder group. Their primary needs and challenges will differ slightly, given the access related needs and user-friendly requirements.*	Digitally excluded	Stakeholders who do not have the ability to interact with the online world due to a lack of access to devices, data packages or are missing the skills to accomplish this.	Locally affected communities that would like to hear about updates on both outages and also future development projects, through traditional channels such as telephone, mail, and face-to-face interactions. Require user-friendly website with voice command integration, multilingual content to facilitate simple navigation.	This group faces 4 main challenges: Access: The ability to go online and connect to the internet Skills: The ability to be able to use the internet Motivation: Do not understand how the internet can be a source of good Trust: Concerns around online crime and other internet-related issues.

4.1.2. Examples of our stakeholder engagement activities

From the initial development of our digitalisation strategy, we have focused on the needs of our stakeholders through proactive engagement methods, using key insights to help inform, shape, and prioritise elements of our digital action plan. The engagement is specific to our digital investments and overall digital ambition, and includes:

- **Interviews & surveys**: we conduct in-depth consumer, customer and stakeholder research both directly and through 3rd party specialists to gather detailed insights from all key stakeholder groups. This includes qualitative interviews, various polls and surveys from key events and webinars, customer satisfaction surveys, Accelerated Strategic Transmission Investment (ASTI) consultation surveys, consumer deliberative workshops and online surveys, stakeholder priority research, and voice of supplier surveys.
- **Workshops & listening groups**: our overarching engagement programme provides access to stakeholder opinion through interactive workshops with a regular cadence. These allow us to co-create solutions and refine plans, in an inclusive manner. This includes regional hybrid workshops focused on the pathway to net zero, our Forming our Business Plan workshop, innovation workshops, and various workshops with Distribution Network Operators (DNOs) and Combined Authorities.
- **Townhalls & webinars**: we hold both virtual townhalls and webinars and in-person sessions, with local communities and stakeholders to keep our customers and consumers informed, giving them space to vocalise their thoughts and any concerns. The digital format allows us to reach a broader audience, whilst our in-person sessions accommodate for those digitally excluded or less confident with digital technologies. This includes our Environmental Annual Report webinar, and Strategic Infrastructure (SI) impacted consumer townhalls and Webinars for various ASTI consultations.
- **Industry forums & conferences**: we often participate in and contribute towards industry events and working group sessions, to share knowledge, gain insights, and build alliances across different networks. These sessions fall under three categories, ensuring we gain maximum value out of industry collaboration:
    - Energy industry - we leverage insights from regulatory bodies, task forces, and stakeholders within the energy and utilities industry to drive significant digital progress. This ensures regulatory alignment as we engage with directives from Ofgem and DESNZ, focusing on expectations for digitalisation, and new licensing conditions, whilst also ensuring our digital strategies comply with recommendations from the Energy Data and Digitalisation Task Force reports, and all Data Best Practice guidelines. We also attend and present at various forums and conferences such as Utility Week Forum, Utility Week Future Networks, and Innovation Zero.
    - Wider energy sector - we promote cross-sector collaboration to enhance digitalisation, share best practices, and drive innovation across the utilities sector, engaging with other energy stakeholders, such as retail suppliers, to understand their digital needs and share our own experiences. We are part of both the Distribution System Operator (DSO) and Connections forums and contribute towards various industry working groups to support sector-wide initiatives.
    - Cross-industry – we apply learnings from broader digital developments and explore cross-industry collaborations to enhance our digital strategy and address shared challenges. We contribute to national digital initiatives through our involvement in industry programmes like the Infrastructure Client Group (ICG), bringing together the UK's most progressive economic infrastructure clients across transport, water, energy, nuclear and broadband. By benchmarking our digital practices against those of other industries, we can promote a cycle of continuous improvement.
- **E-mail and postal newsletters**: as we look to address the priorities of our entire stakeholder landscape, we ensure that both e-mail and postal newsletters are issued, providing key updates and awareness. We have registration forms related to regular mass communications that include The Great Grid Upgrade, ASTI project updates, podcasts, supplier communications, RIIO-T3 newsletters, post-election communications, and customer connections updates.

4.2. Planned changes to our approach

Following active engagement activities, we focus on integrating stakeholder's digitalisation priorities and needs, helping refine our methods of engagement, and continuously representing the public's best interest. We have an established process that gathers the views of all stakeholders to constantly inform our plans. This approach is reviewed on an ongoing basis to ensure maximum reach and quality of input. To this end, we do not envisage major changes to our approach over and above careful evolution.

4.2.1. Stakeholder engagement activity overview

During the listening phase of our RIIO-T3 Business plan, as part of our extensive stakeholder engagement programme (please refer to Annex A07: Stakeholder Engagement and Decision Log), we reached over 12,000 stakeholders and consumers to understand their respective needs and priorities in terms of the energy transition to net zero. This engagement has been integral to support our DSAP as we understand the core priorities of customers and stakeholders and identify key digital products and services that can support across the entire stakeholder landscape.

For example, we along with our industry partners – DNOs and the NESO, have co-hosted hybrid workshops at a regional level, reaching 616 stakeholders representing all sectors and local government. This activity gathered over 5000 verbatim comments relating to expectations, needs and priorities in terms of the energy transition to net zero and our role in it. We triangulated this with insight from a further 280 quantitative survey responses, all helping to inform our RIIO-T3 business plan. By conducting multiple engagements, across different channels, targeted at different audiences, we have established an iterative engagement process. This allows for open feedback loops, that have helped refine our digital strategy, putting emphasis on cross-sector collaboration and looking beyond the energy sector for a forward-looking approach to digitalisation. It has helped define a value-driven approach where each of our digital products and services are tied to a clear value proposition that ultimately benefits stakeholders and aligns with their individual needs. The responses from these sessions and wider engagement activities, have helped inform our digital strategy, as we strive to meet evolving stakeholder priorities.

We will continue to enhance our Stakeholder Relationship Management (SRM) tools, as we provide targeted stakeholder engagement with proposed projects, up-to-date information of stakeholder needs and requests, cross-business visibility of interactions, coordination of engagement overlaps between teams, and the provision of a single, traceable information source. More information can be found in our delivering for customers & stakeholders' section of our digitalisation key objectives.

We have collated all of the key outcomes from various RIIO-T3 stakeholder engagement forums and presented this alongside the actions that we have taken, to address key priorities and concerns. This clearly demonstrates our efforts, as we actively listen to our stakeholders, maintaining an open line of communication, and produce actionable outcomes to tackle their primary concerns.

For more information on how our stakeholder engagement has helped shape the plan, optioneering and testing phases for RIIO-T3, please refer to Annex A07: Stakeholder Engagement & Decision Log.

Table 2: Specific RIIO-T3 engagement and action taken

Channel	Date	Stakeholders engaged	Brief description	What was the outcome?	What did we do?
Industry workshops	May 2024	DNOs NESO	We asked our stakeholders: 'What do you see as the key areas the industry needs to focus digitisation on?'	• Data quality • Interoperability of systems and tech • Cyber security • Digitisation of all documentation relating to legal & consents • Use of Power BI in Analytics • Whole system data sharing • Supply chain & life cycle	We have included specific investment proposals to enhance data sharing and transparency for our National Energy System Operator (NESO) and DNO peers in our 'Enabling data' investment proposal for RIIO-T3. We also have included investments in BIM and supply chain collaboration platforms.
			We asked our stakeholders: 'What do you need from us as Transmission Operator to help meet whole system digitisation?'	• Open data and data sharing • Transparency in digital solutions, transparent open-source data • Digitise protection & control • Higher use of BIM & virtual for construction & maintenance	
			We asked our stakeholders: What do you need from us as Transmission Operator to help meet your digitisation strategy?	• Digitising the full legal/consents process. • Intuitive, self-learning, standard suite of documents and practises • Sharing of lessons learnt so strategies and processes can be aligned	

Channel	Date	Stakeholders engaged	Brief description	What was the outcome?	What did we do?
Strategic discussions	September 2024	[redacted]	[redacted] We had an opportunity to be educated on, and understand the future growth of the data centre, following the Government announcement in September 2024 that data centres will now be classed as 'critical national infrastructure'	• [redacted] are spending a lot of time with the Department of Science and Information Technology to help Government understand the data centre industry and future landscape. • We were asked if we would be interested in collaborating in education sessions with Government as they develop a UK data centre strategy	We have set up a quarterly strategic meeting with [redacted] and NESO to ensure industry collaboration Outlined our roles and responsibilities in whole system energy. We are also working with data and digital teams to design an infographic to detail our roles and responsibilities, which is due to be published on the website.
Internal business engagement	Throughout 2024	All internal delivery vehicles	It is important that our digitalisation approach for RIIO-T3 is business led and not done 'for the sake of digital'. As such, we have conducted extensive, detailed engagement with each of our core business areas (we call these 'delivery vehicles') to determine their priorities for digital and data	• We have ensured that we have full alignment between our business plan, strategy and digital strategy and investment plan • We understand the benefits that our digital investment plan for RIIO-T3 will deliver for our internal (e.g. productivity) and external (e.g. reduced connections times) stakeholders	We have developed an integrated investment proposal for RIIO-T3 across our digital investment areas We have ensured the products and services selected will drive operational efficiencies, and remain in the public's best interest, as we look to support our entire stakeholder landscape, addressing their core priorities and needs We have revised our digital operating model. This has embedded product line directors into the business, ensuring that a business-led approach is incorporated from the start

Channel	Date	Stakeholders engaged	Brief description	What was the outcome?	What did we do?
Optioneering & benchmarking	Throughout 2024	[redacted]	We engaged with leading technology companies including [redacted] to understand trends and leading practice from across industries. This leading practice has informed our RIIO-T3 investment approach and importantly we understand the risks & challenges involved in delivering value from digital	• We have updated our investment proposals based on best practice from our industries, and other industries and focused on the digital platforms and data that deliver the stakeholder value • We have refined our cost estimates using detailed benchmarking of our digital proposals completed by [redacted]	Refined our investment plan for RIIO-T3 to ensure that it delivered additional value
Customers & stakeholders	Throughout 2023/24	Customers & stakeholders from regional listening workshops Customers involved in satisfaction surveys	We have held several listening workshops as part of the listening phase of our overarching engagement programme, as well as providing customer satisfaction surveys. this programme has helped us understand core priorities related to digital products and services.	• For our customer & stakeholder digital investments, we have heard about: • Fragmented systems • A reliance on manual and inefficient process with a risk of misaligned information • Lack of information on future state of the network • An ongoing dependency to continue with stakeholder engagement, refining our data products. • Co-creation with our industry stakeholders (e.g., NESO, DNOs) is essential to determine data sharing needs via the Data Sharing Infrastructure.	A move from fragmented systems to an integrated approach to provide deeper understanding of customer/stakeholder needs across our activities. An enhanced quality of service through timely and relevant customer/stakeholder engagements. Self-serve/two-way information and data provision on the current, and future state of the network to better inform our customer/stakeholder investment decisions. Improved end-to-end workflow management, enabling genuine cross-industry/cross-sector collaboration.

4.2.2. Considering the digitally excluded in our stakeholder engagement

We understand that our role is part of a whole system of data and digitalisation initiatives that demands greater integration, openness, and accessibility. Understanding specific needs is essential, and we will continue to consider the digitally excluded stakeholders, ensuring inclusivity and equal access. We look to maintain direct engagement with our stakeholders to ensure those who may lack digital skills and access, are given the opportunities to provide inputs on their needs, objectives and feedback across our products and services. To further enhance their involvement, we will:

- Conduct internal sessions within the organisation to disseminate insights gained from our engagements and relevant findings to ensure all employees understand the implications of digital exclusion in building digital products and services.
- Work with community leaders to identify hard-to-reach groups and employ a mix of communication channels to make materials accessible for all.
- Adapt our material and approach to specific needs accordingly, through the provision of translations and visual aids.

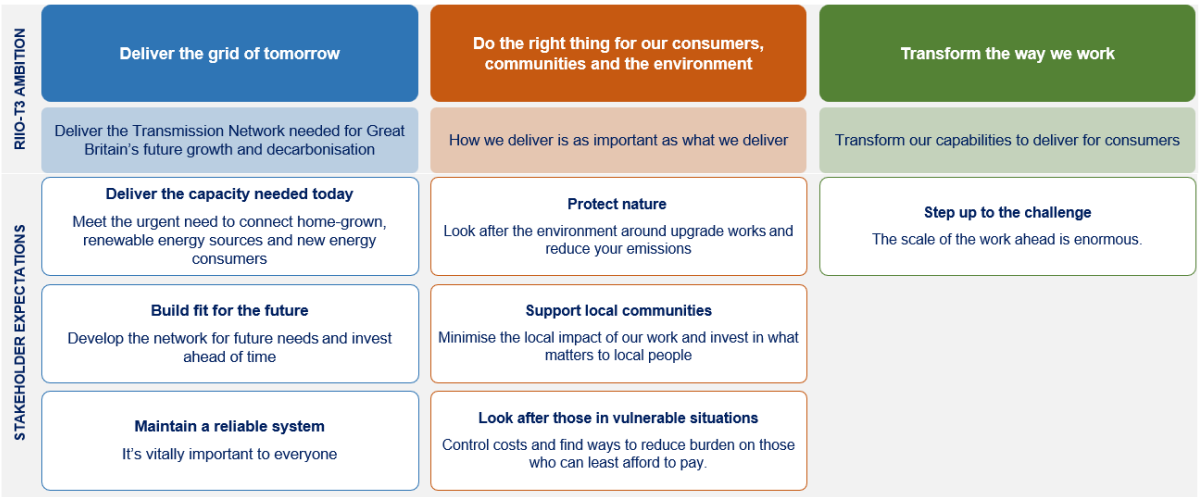
4.2.3. Understanding our stakeholder priorities

We have set a long-term vision of delivering a future-ready electricity network, whilst growing our understanding of stakeholder needs. This will be accelerated through enhanced digital processes, as we seek specific customer & stakeholder investment funding in RIIO-T3.

Stakeholder-centric engagement, building key relationships, coordinating with industry peers, and ensuring robust governance and performance tracking, will enable genuine collaboration and keep stakeholders at the core of our decision-making. Our stakeholder priorities have been derived from our overarching engagement programme listening phase and ISG meetings conducted throughout 2023 and 2024, discussing our RIIO-T3 plans and the specific digital aspects within them.

Figure 5 highlights our core stakeholder priorities that build upon those previous documented for RIIO-T2. It is a synthesis of what we have heard from our stakeholders and the themes are broadly similar to RIIO-T2, with the exception being that for RIIO-T3 we are now going further in providing additional fidelity to stakeholder priorities, ensuring they are representative of views from across the entire stakeholder landscape. The selection of our digital investments for RIIO-T3 are reflective of these priorities. The stakeholder feedback summaries can be seen in Appendix A. These have been utilised by our digital teams to help shape and evolve the portfolio.

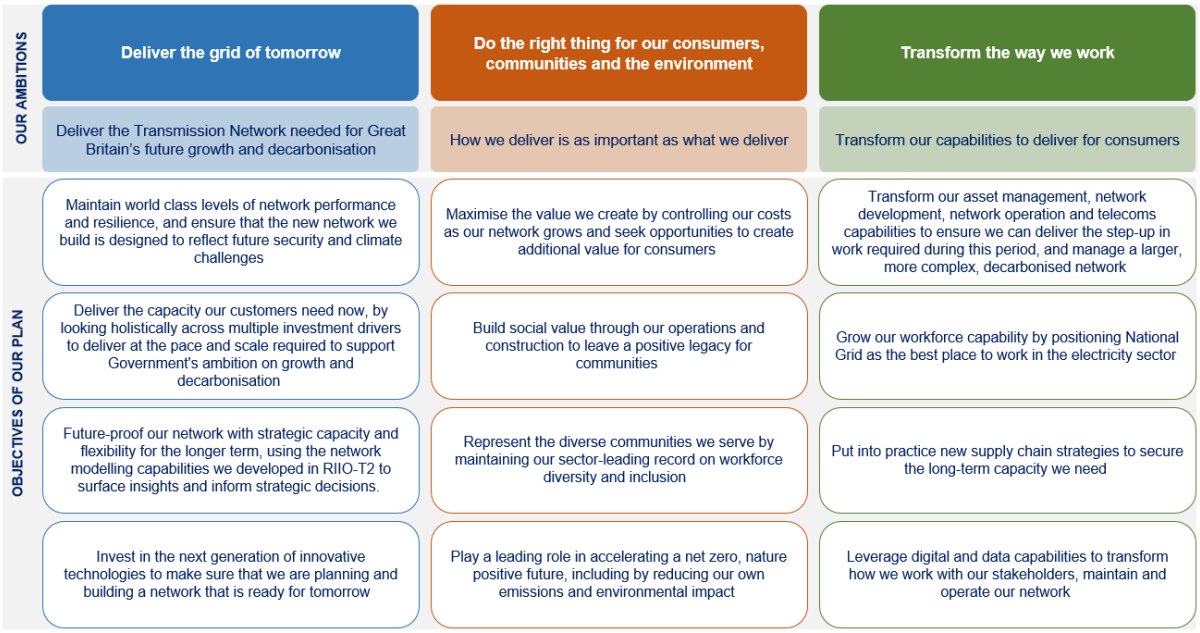
Figure 5: Our stakeholder priorities



These stakeholder priorities have been fundamental in helping shape our RIIO-T3 business plan, ensuring our objectives are closely aligned with what are customers and stakeholders have been telling us. This is essential when selecting digital products and services, that remain in the public's best interest, as explored further in the Understanding our key objectives section.

Each of our business plan ambitions derive from stakeholder feedback and these are then broken down further to create a refined list of core business plan objectives, as seen in Figure 6.

Figure 6: Our RIIO-T3 Business Plan objectives mapped against the core three stakeholder-informed ambitions



Whilst the business plan objectives in Figure 6 are related to our entire RIIO-T3 business plan, it is particularly useful to understand how we aim to address key stakeholder priorities. From a digital perspective, we are predominantly focused on the Transform the way we work ambition, as we look to Leverage digital and data capabilities to transform how we work with our stakeholders, maintain and operate our network (see Figure 9 later in this document for further context). However, our investments into data and digital are crucial as we look to address the full array of stakeholder expectations, spanning each of the three business ambitions. It is essential that we demonstrate this, identifying clear links to the things that mean most to our customers and stakeholders. This is explored in depth in the Understanding our key objectives section, where we have identified how we meet these expectations.

4.3. Utilising stakeholder engagement for our Digitalisation Action Plan

Our Digitalisation Action Plan, published in June 2024[7], outlines progress made against our digital strategy. It is reliant on thorough stakeholder methodology and engagement to help shape both our Digitalisation Strategy and our Action Plan, as we gather key insights of diverse stakeholder groups. The evidence accrued through the application of our stakeholder engagement methodology has ensured we adhere to our core principles of stakeholder-centric design, focused on inclusive communication, collaborative development, and continuous improvement. Maintaining a robust data-gathering framework has allowed us to optimally design an engagement strategy to address specific stakeholder interests and needs, all of which can then be measured in our Action Plan.

An example of this can be shown with our connecting customers and energy insiders. Outputs from our engagement has highlighted issues with fragmented systems and insufficient information provision, especially when considering the future state of the network. In response to this, we are seeking RIIO-T3 investment funding for the creation of high-quality data products (integrated with our Data Fabric) that will provide accurate and reliable information to drive decision-making, both internally to better measure our performance, and externally for our customers and stakeholders, helping inform their investment decisions. It will provide secure and structured end-to-end capture and management of event-driven customer data throughout the lifecycle of the connection journey to create an up-to-date single-source of truth for customer data. It will provide our stakeholders with simple, direct, and easy to access data and information. This is one of many examples that help

[7] National Grid Electricity Transmission. 2023. Digital Strategy and Action Plan (DSAP). https://www.nationalgrid.com/electricity-transmission/about-us/digitalisation-strategy-and-action-plan

contextualise the necessity of extensive stakeholder engagement. Understanding specific stakeholder needs can then be translated into clear and specific actions for the RIIO-T3 period. For more information, please refer to Appendix A: What our stakeholders have told us and our Customer & Stakeholder EJP.

The iterative process of feedback and refinement ensures that our digital strategies remain current and reflect the needs of our stakeholders, as we operate in the public's best interest. Our Action Plan continues to align with stakeholder expectations, enhancing innovation whilst building trust and fostering a shared digital vision, as we demonstrate progress and developments in a highly dynamic and evolving operational setting. Our DSAP publications, both past and future, consult with members from across the stakeholder landscape, ensuring it is representative of customers, consumers and stakeholders' best interests. As explained earlier, refinement is key and we will continue to develop our plans as we provide future communication and feedback events with stakeholders, to demonstrate how their needs have defined the DSAP objectives and associated actions. We recognise the increasingly important role that technology will play as we digitise our business and our services for Customers and Stakeholders. As such, we will be stepping up our stakeholder engagement for digital over the next 12 months and beyond, offering more events, engagement and collaboration opportunities across industry. This will provide our stakeholders with ample opportunities to obtain more detailed information about our digital plans, products and services. It is a collective effort towards decarbonising our grid infrastructure and delivering on our RIIO-T3 commitments, and so it is key that our stakeholders are involved throughout the entire process.

4.3.1. Supporting customers & stakeholders throughout reforms and consultation periods

As the Government focuses on net-zero ambitions and key reforms, such as NESO's Connections reform, engaging customers becomes imperative. Customer and stakeholder engagement, throughout the current UK grid reforms, continues to prove crucial in ensuring initiatives remain effective and transparent, especially when considering our digital investments. This engagement follows our core methodology, with additional refinement as we focus on:

- Provisioning timely, accessible information and updates to our stakeholders, ensuring they are informed throughout the reform and consultation process
- Gaining deep insights from a diverse range of stakeholders to understand their perspectives and needs throughout
- Leveraging this information to inform and enhance the reform outputs, ensuring customer and stakeholder priorities align with our digital investments

This approach is widely beneficial with support being given to our stakeholders, and their feedback being an essential element to help inform and validate the specific digital capabilities and their prioritisation, that we plan to invest in, over the RIIO-T3 period. A strategic study of the network and our stakeholders' needs continue to support our holistic decision-making on future developments.

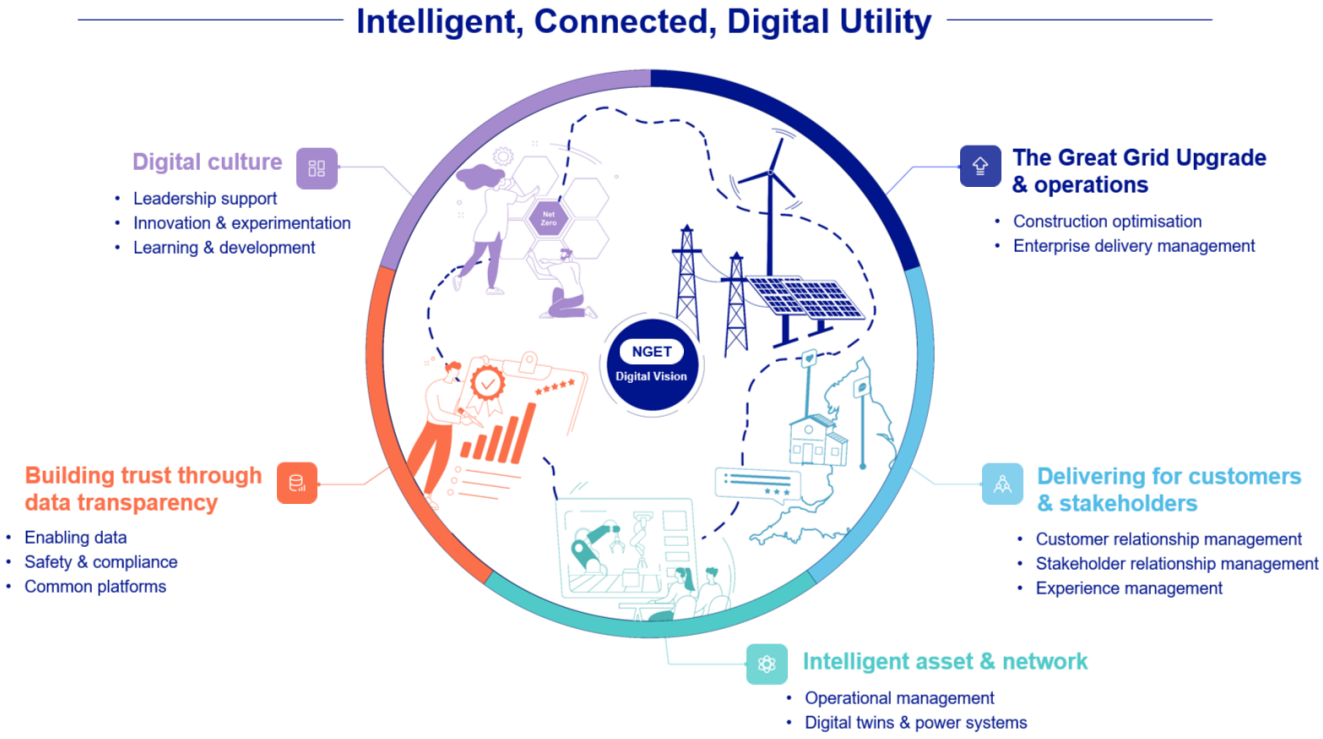
5. Our digital vision & ambition

5.1. Digital vision

We are transforming the power system, creating an Intelligent, Connected, Digital Utility, to enable net zero and a clean, fair, and affordable energy future for the UK. By leveraging digital and data capabilities, we will transform how we maintain and operate our assets, accelerate the connection of clean energy, and improve the experience of our customers, partners, and communities.

John Pettigrew (National Grid CEO) – 'As we consider the increasing constraints on the current 'supergrid', we are once again at a pivotal moment. A moment in time that requires innovative thinking and bold actions to create a transmission network for tomorrow's future.'[8]

Figure 7: Our digital vision



5.2. Ambition

Our digital ambition is to create an Intelligent Connected Digital Utility to enable net zero and a clean, fair, affordable energy future for the UK. We will leverage digital and data capabilities to transform how we maintain and operate our assets, accelerating the connection of clean energy, and improving our customers, partners, and community experience. We are confident in tackling complexities with a digital-first approach, as we thrive in a connected, technology-driven environment.

We have a highly ambitious digital plan, that advances on from our RIIO-T2 investments to enhance foundational digital capabilities and deliver the mature and scalable technology, fundamental to meeting the complex grid network expansion requirements. By deploying advanced technologies such as AI, Digital Twins, Cloud, Cyber-security, and IoT, we can accelerate the build of new infrastructure, driving time and cost efficiencies, as we operate our network more intelligently, delivering value for our customers and stakeholders, and keeping our people safe. The successful adoption of digital capabilities will underpin all our business operations and range from large-capacity infrastructural enhancements with AI-enabled optimisations, such as AI and ML being used in construction materials management to enhance decision-making throughout the construction lifecycle, all the way down to

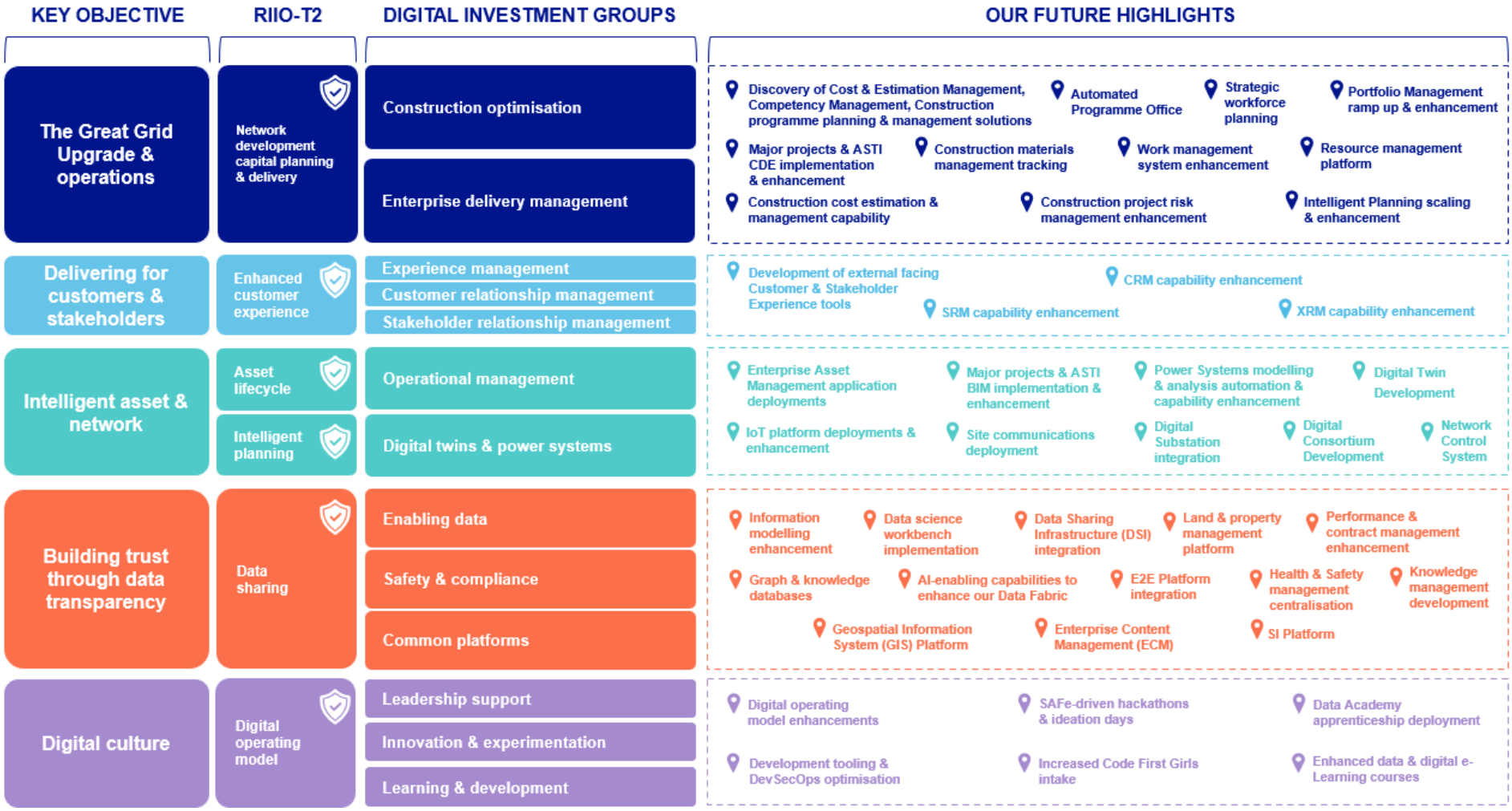
[8] John Pettigrew. 2024. Transforming the supergrid of the 1950s to a network built on an electrified future for generations to come. https://www.linkedin.com/pulse/transforming-supergrid-1950s-network-built-future-come-john-pettigrew-jpbcf/

an individual employee level, where we will support the official accreditation of our data specialists through an executive-sponsored Data Academy apprenticeship.

Our digital ambition focuses on tangible value-add, risk-averse, and regulatory compliant enhancements to support us in leading across a rapidly evolving digital landscape, generating over £382m in benefits. It is easier to go together if everyone has a shared destination and belief that it is worth getting there. This is our digital ambition.

We have created an ambition roadmap, that summarises the work that will be completed in the RIIO-T2 period, and then looks ahead towards the future of digital. Our digital investments span 5 key objectives and undergo various enhancements, throughout the coming years. This reflects our ongoing agile approach to product development and wider operations, continuously focussing on improvements to help drive efficiencies, sustainability and long-term affordability for our stakeholders.

Figure 8: Our digital ambition roadmap



6. Understanding our key objectives

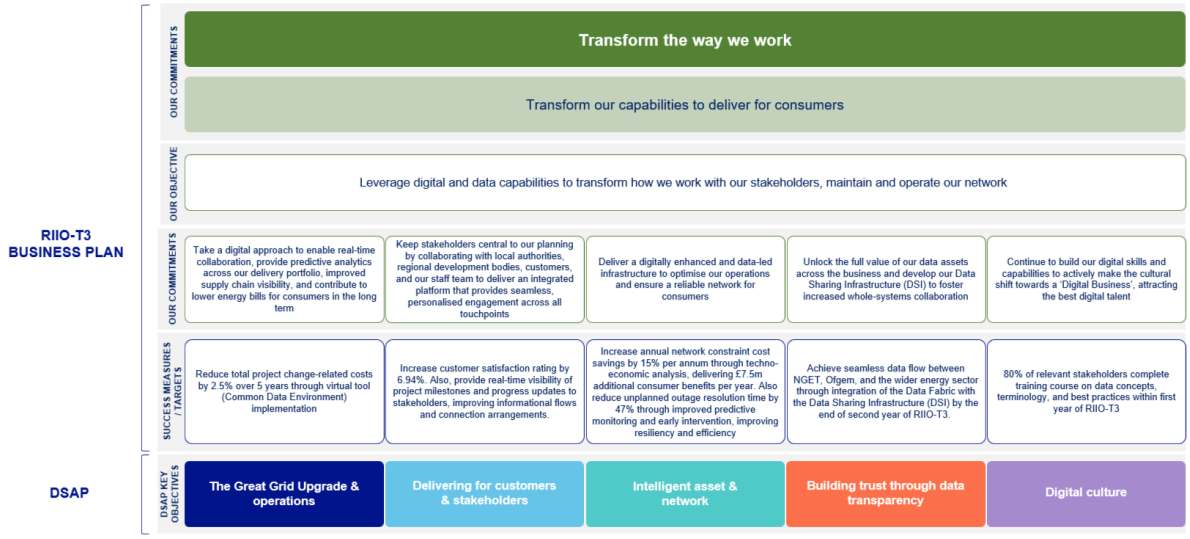
Our key objectives are closely aligned with our stakeholders' priorities, the Energy Data Taskforce recommendations and the Digitalisation Strategy and Action Plan (DSAP) guidance from Ofgem. We are taking full advantage of the various opportunities available to us to further iterate improvements and build upon digital products and services and the foundations put in place during the RIIO-T2 regulatory period. All of which helps target key benefits for all our stakeholders, as we address core priorities that we have heard from them.

Table 3: Our key digital objectives, RIIO-T3 success measures / targets, and customer & stakeholder priorities

Key objective	RIIO-T3 success measures / targets	Customer & Stakeholder priorities
The Great Grid Upgrade & operations	• Reduce costs caused from changes to in-flight projects, including a saving of 2.5% of such costs over five years in our largest projects designed to increase the capacity of the network • Reduce PMO staff costs by 4.7% through CDE / Building Information Modelling (BIM) implementation	There has been an emphasis around the need for **sustainable practices** and increased **use of virtual tools** for construction and maintenance **to balance affordability, reliability, and net-zero goals**.
Delivering for customers & stakeholders	• Increase customer satisfaction rating from 7.2 to above 7.7 in the Quality of Connections Survey • Provide real-time visibility of project milestones and progress updates to stakeholders, improving informational flows and connection arrangements.	We must enhance data transparency, informational flows, and connection arrangements, while better utilising data to support **collaborative regional planning**.
Intelligent asset & network	• Provide detailed insights on the operation of our network in all timescales, including on constraint costs, enabled through increased automation and use of AI in power system studies • Reduce unplanned outage resolution time through improved predictive monitoring and early intervention, improving resiliency and efficiency	A fundamental digital transformation is needed across the sector. **The transition to net zero must use a flexible, resilient and efficient energy system that works for everyone**. We must ensure a net zero energy system is operated **at least cost for consumers**
Building trust through data transparency	• Achieve seamless data flow between Ofgem, the wider energy sector, and ourselves, through integration of the Data Fabric with the Data Sharing Infrastructure (DSI) by the end of second year of RIIO-T3.	From a planning perspective, it is **crucial to have access to open and accurate data and greater transparency around grid queue** to ensure access to the necessary information to inform decision making. Data accessibility must be enhanced, and once published, the datasets must be accurate for practical utilisation. A **holistic approach to data sharing and planning across the ecosystem is needed**.
Digital culture	• 80% of relevant employees complete training course on data concepts, terminology, and best practices within first year of RIIO-T3.	To successfully achieve the ambitious initiatives supporting the digitalisation of the grid, our **workforce must be fully equipped to drive this transformation**.

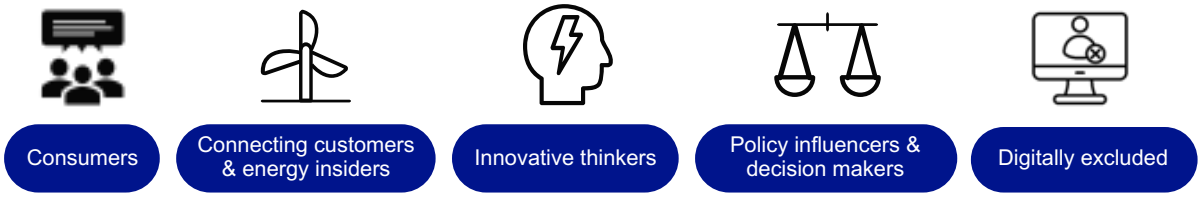
There is a deep alignment and mapping of our five DSAP key objectives against the major ambitions, objectives, and associative commitments and success measures / targets, of our wider RIIO-T3 business plan. The most pertinent of which, focuses on the third ambition, to 'Transform the way we work'. Our digital investments are inextricably interlinked, enabling the success of our business plan ambitions, as we transform our capabilities to deliver for consumers:

Figure 9: DSAP-specific mapping against our RIIO-T3 ambitions



Leveraging digital and data capabilities is integral to the success of our wider RIIO-T3 business plan, as we look to transform the way in which we work with our stakeholders, whilst maintaining and operating our network. Each of our DSAP key objectives align with the specific RIIO-T3 business plan commitments and success measures / targets. Although there is an additional degree of granularity, when considering the stakeholder landscape. To demonstrate this, we have identified the primary stakeholder personas that are most likely to benefit and interact with our digital investments. These investments have been targeted to deliver benefits to consumers, stakeholders and remain in the public's best interest, as early as practical, with a highly cost-effective approach – the progress of which is tracked in our Digitalisation Action Plan, published in June 2024. We have also outlined the main RIIO-T3 business plan commitments, against each of our objectives below, further outlining the decisions taken to deliver for our stakeholders. To effectively measure success, we adopt a dual approach where we consider both internal perspectives of our colleagues, and external stakeholder insights. Success for us extends beyond meeting our digital ambitions and looks to fully integrate the delivery of customer and stakeholder benefits.

Figure 10: Key for our primary stakeholder personas



The following sections provide an overview of our direct portfolio of digital products and services, that have been developed using Specific, Measurable, Achievable, Relevant and Timebound (SMART) objectives. The EJPs are referenced in the 'Digital capability' column of the tables below. For more details, including information on our approach to optioneering, costs, and deliverability, please refer to the respective EJPs. We have also outlined the primary RIIO-T3 business plan commitment and target that is being addressed, for each of our future digital solutions (RIIO-T3 delivery). Please note that this is not an exhaustive list, as our digital solutions are responsible for meeting multiple business plan commitments, with all of them underpinning the second commitment of doing the right thing for our consumers, communities, and the environment.

6.1. The Great Grid Upgrade & operations

Our commitment

C4.1

Take a digital approach to enable real-time collaboration, provide predictive analytics across our delivery portfolio, improved supply chain visibility , and contribute to lower energy bills for consumers in the long term

The Great Grid Upgrade is the largest overhaul of the electricity grid in generations. Whilst we have successfully delivered 165km of extension over the last 31 years, the scale and complexity of delivery that is underway, and will continue over the coming decade, requires a highly differentiated approach to historic processes. We will require a more integrated digital landscape, integrating cloud-based capabilities, AI and automation, across our construction programmes to improve how our teams and delivery partners collaborate, developing new and improved ways of working. Optimising our construction activities and operations will be integral as we support the anticipated large-scale grid development for both the Great Grid Upgrade, and our 10-year vision to deliver Great Britain's next supergrid.

Table 4: The Great Grid Upgrade & operations - digital capabilities, RIIO-T2 progress, and future RIIO-T3 digital solutions to be delivered

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
Construction optimisation: Our work volume is due to increase 5x on an annual basis so we must approach construction differently by taking a holistic, digital approach to improve collaboration, planning, cost estimation, risk management, supply chain visibility and material management. In doing so we can help simplify processes, enhance data accessibility, and fulfil our Great Grid Upgrade strategy.	• Funding has been directed towards the implementation of CDE capability for an initial subset of the ASTI projects.	Common Data Environment (CDE)	Enhancements of the CDE will utilise cloud-based capabilities to create a more streamlined and collaborative environment throughout the construction lifecycle and across the supply chain. It will incorporate document workflow and management, with appropriate governance and audit capabilities, empowering us to make well-informed decisions, enhance efficiency, and foster seamless collaboration throughout the construction lifecycle and supply chain.
	• Planning – the creation of a separate instance of our [redacted] planning tool [redacted] • Digital Platform – a platform enabling collaboration and information exchange whilst carefully controlling access to data.	Construction programme planning & management	We will create an Automated Programme Office with greater integration and analysis capabilities, allowing us to increase reporting rate and understand programme level issues. This will transform our data and information provision in project planning and management to ensure that both governance and delivery teams have access to the right information, at the right time. We will also assess the use of AI and advanced analytics to automatically examine project delivery information, helping manage complex work assignments and status reporting, involving 3rd party construction vendors.
	• There has been no RIIO-T2 funding	Construction materials management	We will streamline the entire supply chain for construction materials by tracking each component. We can then ensure that the location and condition of all materials are known and precisely planned for. We will leverage AI and ML

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
			capabilities to enhance decision-making throughout the construction lifecycle and predict risks like material shortages, supporting more accurate work plans.
	• Implementation of [redacted] Software to enhance estimations, planning and cost control of our construction projects.	Construction cost estimation & management	We will deliver a digital capability that creates a "closed loop" system for cost estimation and management. This will facilitate the improvement and updating of estimation models, allowing the integration and analysis of various separated data sources. Cost estimates will be more precise, and we can continuously refine the estimates to get accurate data, setting benchmarks for future projects.
	• Introduction of [redacted] risk tool • Trial of forecast schedule risk tooling to identify and manage risk • Discovery of Quantitative Schedule Risk Analysis (QSRA) tools	Construction project risk management	We will reorientate our approach to forecasting probabilistic schedule risk on major projects and portfolios through the implementation of industry leading capital delivery risk management practices. We will embed ML and use predictions to support the management of risk proactively and holistically.
Enterprise delivery management: Transforming our Enterprise Delivery Management will leverage digital tools to streamline processes and enhance our decision-making capabilities. This is key to sustain network resilience and reliability amidst an increasingly challenging landscape. As we look ahead, we will continue to optimise our foundational RIIO-T2 capabilities, with the additional deployment of six	• Funding has been allocated to help develop a digital tool that captures load-related drivers to support RIIO-T3 investment planning [redacted]	Portfolio management	The enhancement of this will provide a unified view of all potential work items, spanning infrastructure construction through to operational maintenance, enriched by insights into ongoing activities. An advanced decision-making tool will also evaluate various activities from financial, temporal, and engineering perspectives, ensuring optimal grouping and prioritisation for maximum consumer value.
	• We have implemented a new planning application to enhance operational efficiency and decision-making. Key features include: • Efficient worker-task matching	Intelligent planning	This capability will use AI-capabilities to effectively assess activities in real-time against real-life constraints. It will encompass supply chain dynamics, resource availability, and site access, and will effectively support the enablement of whole system data sharing, with improved transparency of immediate data and insights.

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
core digital products, creating a digitally integrated environment for cohesive enterprise delivery management of all work aspects. 	• Seamless work schedule publishing [redacted] • Scenario modelling to predict outcomes under changing conditions • Machine learning models that optimise outage scheduling [redacted]		
	• There has been no RIIO-T2 funding	Competency management	All work activities will be covered by competency management, including field and back-office, mapping required competencies to team profiles. It will help identify and address skills gaps through recruitment and training, ensuring tasks are assigned to adequately skilled personnel.
	• There has been no RIIO-T2 funding	Strategic workforce planning	Implementation of a digital, comprehensive strategic workforce planning solution, utilising AI-driven capabilities to provide real-time project pipeline visibility, advanced forecasting and resource planning, and detailed competency mapping. It will identify workforce mismatches and ensure enhanced data integrity, as we operate more efficiently in an agile and dynamic manner. It will improve our ability to identify critical skill gaps, ensure targeted hiring and training investments, and allow dynamic adjustment of workforce plans.
	• There has been no RIIO-T2 funding	Resource management	Adoption of a unified platform to provide a holistic view of all resources which provide up-to-date information, accessible across departments, enhancing coordination and collaboration. Advanced forecasting capabilities will predict future resource requirements, aligning resources with project needs. Automation of routine tasks will then reduce manual effort and free up time for strategic planning. This will support customers and stakeholders as we plan what work

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
			people will do more efficiently, driving more reliable and cost-effective project delivery.
	• We have enhanced our legacy systems by introducing a foundational work management platform. • This platform was loosely integrated with a new portfolio management and planning capability, focusing initially on modelling the macro network development process for our organisation.	Work management	A unified work management platform to increase efficiency with a streamlined workforce and minimal manual data entry and administration. Accelerated onboarding and enhanced data-driven decision-making capabilities. It will boost our stakeholder relations as we provide our partners with greater transparency into relevant work information, promoting better collaboration and resulting in more coordinated and successful project outcomes.

6.1.1. Success measures

- Programme schedule & safety: Performance of our major programmes of work against the programme schedule should improve as we make data-informed decisions. This will allow for closer collaboration and better relationships with our supply chain partners, whilst our world class safety record is maintained.
- Operational efficiency & programme quality: Improved efficiency with streamlined cost controls, and productivity improvements of process automation. Customer-centric metrics will be supported by optimised project execution, ensuring compliance, and elevated overall experience. The quality of programme deliverables will improve with reduced programme delays, trade-offs and costs.
- Workforce utilisation & competency: Our workforce will be better engaged in projects, with improved competencies, following enhanced training programmes. Skills will be aligned and available in a timelier manner, matching specific project task requirements.
- Local stakeholder communication: Our environmental commitments will be met through better data-driven decision making across the construction lifecycle, including better construction material management, and clearly communicated to our stakeholder groups.

Table 5: The Great Grid Upgrade & operations - stakeholder expectation alignment

Stakeholder expectations	Our ambitions	Objectives of our plan	How are we meeting this
Deliver the capacity needed today Meet the urgent need to connect home-grown, renewable energy sources and new energy consumers **Build fit for the future** Develop the network for future needs and invest ahead of time **Maintain a reliable system** It's vitally important to everyone	**Deliver the grid of tomorrow.** Deliver the Transmission Network needed for Great Britain's future growth and decarbonisation	Maintain world class levels of network performance and resilience, and ensure that the new network we build is designed to reflect future security and climate challenges	Our digital transformation initiatives will streamline cost estimation, materials management, and planning processes, driving down costs, enhancing reliability as we can better foresee needs and outcomes, and supporting sustainable practices to balance affordability, reliability, and net zero goals. We are utilising cloud-based, AI and advanced analytic capabilities to reorientate our approach to delivering the capacity required for today and the future, underpinned by reliability.
		Deliver the capacity our customers need now, by looking holistically across multiple investment drivers to deliver at the pace and scale required to support Government's ambition on growth and decarbonisation	
		Future-proof our network with strategic capacity and flexibility for the longer term, using the network modelling capabilities we developed in RIIO-T2 to surface insights and inform strategic decisions.	
		Invest in the next generation of innovative technologies to make sure that we are planning and building a network that is ready for tomorrow	
Protect nature Look after the environment around upgrade works and reduce your emissions **Support local communities** Minimise the local impact of our work and invest in what matters to local people **Look after those in vulnerable situations** Control costs and find ways to reduce	**Do the right thing for our consumers, communities and the environment.** How we deliver is as important as what we deliver	Maximise the value we create by controlling our costs as our network grows and seek opportunities to create additional value for consumers	By integrating AI-driven strategic workforce planning and a holistic planning solution, we will ensure effective long-term resource allocation and continuous improvement without compromising on short-term affordability. In doing so, we will broaden our recruitment to a national scale, attracting the highest quality talent from a diverse range of backgrounds and supporting local communities. Our investments will support in generating social value, as we drive efficiencies and enable an accelerated path to net zero, establishing a positive legacy across our communities.
		Build social value through our operations and construction to leave a positive legacy for communities	
		Represent the diverse communities we serve by maintaining our sector-leading record on workforce diversity and inclusion	
		Play a leading role in accelerating a net zero, nature positive future,	

Stakeholder expectations	Our ambitions	Objectives of our plan	How are we meeting this
burden on those who can least afford to pay.		including by reducing our own emissions and environmental impact	
Step up to the challenge The scale of the work ahead is enormous.	**Transform the way we work.** Transform our capabilities to deliver for consumers	Transform our asset management, network development, network operation and telecoms capabilities to ensure we can deliver the step-up in work required during this period, and manage a larger, more complex, decarbonised network	Our comprehensive digital and data capabilities will enhance safety and reliability through optimised workforce management, ensuring a smooth and cost-effective transition to net zero, whilst maintaining high safety standards and operational efficiency. This will allow for improved provisions of electricity, minimising outages and delays in infrastructure delivery, providing a more secure and resilient network, as we step up to deliver for our consumers.
		Grow our workforce capability by positioning National Grid as the best place to work in the electricity sector	
		Put into practice new supply chain strategies to secure the long-term capacity we need	
		Leverage digital and data capabilities to transform how we work with our stakeholders, maintain and operate our network	

6.2. Delivering for customers and stakeholders

Our commitment

C4.2

Keep stakeholders central to our planning by collaborating with local authorities, regional development bodies, customers, and our staff team to deliver an integrated platform that provides seamless, personalized engagement across all touchpoints

As we undertake the largest network upgrade in generations, our stakeholder landscape will continue to grow exponentially. Looking ahead over the coming years, we must manage a higher frequency of interactions with our customers and facilitate the delivery of the industry-wide Connections Actions Plan. A comprehensive approach to managing the customer and stakeholder experience and associative interactions, with the use of AI, ML, and predictive analytics is therefore essential, as we operate in an increasingly more complex environment.

Table 6: Delivering for customers & stakeholders - digital capabilities, RIIO-T2 progress, and future RIIO-T3 digital solutions to be delivered

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
Customers & stakeholders: The evolving needs of our growing customer and stakeholder base and intensifying workloads necessitate building upon the foundations from our RIIO-T2 investments with a more sophisticated, robust and unified approach to experience management. We plan to invest in an integrated experience and relationship management solution to empower customers, stakeholders, and our employees, as we accelerate plans towards delivering The Great Grid Upgrade and connect increasing volumes of customers to enable the UK Government's 2030 ambition. Our customers and stakeholders remain our key priority and	• CRM solution has been developed as a core system to underpin customer contracts. • Management of customer interactions. • Management of surveys across the customer journey. • Data has been used to create content for customer webinars and to support the Transmission Works Review (TWR), identifying opportunities for earlier connections	Customer relationship management	We will enhance the existing CRM platform to ensure a single source of truth for customer data, with increased analytics and data products to optimise business processes and improve information flows to customers and wider industry. Improved data and integration with other products will enable efficient manage of complex portfolios, improving productivity and value for the consumer. We will also leverage analytics and forecasting models for more informed understanding of customer behaviour, whilst enhancing work processes with automated workflows and AI to optimise core business processes.
	• Roll-out of foundational Enterprise SRM platform to a small user base – to cover mailshots, contact capture, event invite management and consultation surveying. • Tools currently used include: • Notebooks, spreadsheets, email, [redacted]	Stakeholder relationship management	Building on the foundation stakeholder relationship management (SRM) enabling the stakeholder engagement specialist teams. We will enhance with centralised contact and data management across our operational teams, providing them with collaborative planning tools, and advanced event and campaign management capabilities. This solution will improve data collection, query handling, engagement, and sentiment analysis, to help minimise project delays. Data products identifying stakeholder interests and preferences will facilitate tailored engagement, enable the critical 2-way access and data sharing through the experience

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
so it is essential that we enhance our digital tools and technology to support them throughout our operational and development plans.	(foundation SRM platform).		management solution, limiting stakeholder fatigue and ensure data quality is maintained as interactions grow in volume and complexity.
	• National Grid and NGET Website development • Ongoing development of Research Assistant - this has been repositioned from management of customer leads in the pre-application phase to provision of information on connection timescales and key regional information. • Experience management currently consists of website, surveys, analytics, social media, email, and telephone. •	Experience management	Creation of a seamless, connected experience across engagement channels for external parties, enabling improved efficiency of engagements and provision of improved network visualisations. Enhanced customer and stakeholder solutions with timely project updates and relevant information, whilst also leveraging AI, ML and predictive analytics to understand customer & stakeholder behaviours, needs and preferences. Our enhanced channel solutions and targeted engagements will provide a connected experience across customer and stakeholder journeys, improving the overall experience whilst we leverage deeper insights to inform strategic planning. External facing experience management capabilities are underpinned by our CRM and SRM platforms. We will enhance the available tooling to enable self-serve of high quality, contextual information to support a range of stakeholders, as well as provisioning data to industry, supporting the future Data Sharing Infrastructure (DSI).

6.2.1. Success measures

- **Data transparency and quality**
  - Increasing access to high quality data, measured via the number of data products made available externally and through product Data Confidence Scores. The scores are weighted incorporating elements such as completeness, accuracy, validity, timeliness and uniqueness.
- **Adoption and use**
  - Evaluates stakeholder access to relevant information and resources provided by us. Suite of measures encompassing elements such as number of unique users, bounce rates, journey analysis and user satisfaction scores.

- Both internal and external stakeholders will be able to seamlessly access content and approved data, according to their preference. Accessibility will be built in through our design processes to ensure inclusivity for all users.
- This will be measured in real-time using web-based analytics such as [redacted]

- **Customer and Stakeholder Satisfaction Score**
  - A measure used to quantify the degree to which customers and stakeholders are satisfied with our services and interactions.
  - Increased customer satisfaction, as currently measured by current Quality of Connections (QoC) score of 7.2 (2023-2024). Improved to meet and exceed Ofgem regulated target (7.7).
- **Timeliness of connection**
  - Assesses the efficiency and speed with which new connections to the electricity transmission network are completed. This will measure overall connection duration, plus comparison of planned and actual dates across BP500.

Table 7: Delivering for customers & stakeholders - stakeholder expectation alignment

Stakeholder expectations	Our ambitions	Objectives of our plan	How are we meeting this
Deliver the capacity needed today Meet the urgent need to connect home-grown, renewable energy sources and new energy consumers **Build fit for the future** Develop the network for future needs and invest ahead of time **Maintain a reliable system** It's vitally important to everyone	**Deliver the grid of tomorrow.** Deliver the Transmission Network needed for Great Britain's future growth and decarbonisation	Maintain world class levels of network performance and resilience, and ensure that the new network we build is designed to reflect future security and climate challenges Deliver the capacity our customers need now, by looking holistically across multiple investment drivers to deliver at the pace and scale required to support Government's ambition on growth and decarbonisation Future-proof our network with strategic capacity and flexibility for the longer term, using the network modelling capabilities we developed in RIIO-T2 to surface insights and inform strategic decisions. Invest in the next generation of innovative technologies to make sure that we are planning and building a network that is ready for tomorrow	Our digital investments have been selected to enhance efficiency, customer and stakeholder satisfaction, and proactive engagement. Our unified SRM/CRM system will enable improved data management related to connecting customers, helping future proof our network. AI enhancements will support core business process optimisation as we deliver at pace and scale. Additionally, our XM solution will enable customers and stakeholders to self-serve high-quality data, along with timely project updates through preferred channels. By creating a unified, connected experience across our engagement channels for external parties, we can understand the varied needs of our customers and stakeholders, ensuring we build a resilient grid for the future and meet the priorities of those reliant on it.

Stakeholder expectations	Our ambitions	Objectives of our plan	How are we meeting this
Protect nature Look after the environment around upgrade works and reduce your emissions **Support local communities** Minimise the local impact of our work and invest in what matters to local people **Look after those in vulnerable situations** Control costs and find ways to reduce burden on those who can least afford to pay.	**Do the right thing for our consumers, communities and the environment.** How we deliver is as important as what we deliver	Maximise the value we create by controlling our costs as our network grows and seek opportunities to create additional value for consumers Build social value through our operations and construction to leave a positive legacy for communities Represent the diverse communities we serve by maintaining our sector-leading record on workforce diversity and inclusion Play a leading role in accelerating a net zero, nature positive future, including by reducing our own emissions and environmental impact	Our Customer & Stakeholder capabilities are being enhanced to deliver true value for our consumers. Our SRM/CRM system and advanced data management tools will enable effective long-term, accessible network planning and continuous improvement to the processes that connect the renewable sources of energy to our network. We are building extensive social value through enhanced channel solutions of our XM functionality, ensuring customer and stakeholder journeys are improved, as we provide a seamless and connected experience throughout our engagement channels. We are supporting local communities with improved data collection, engagement, and sentiment analysis, as we help understand the needs of our customers and stakeholders, whilst supporting the vulnerable.
Step up to the challenge The scale of the work ahead is enormous.	**Transform the way we work.** Transform our capabilities to deliver for consumers	Transform our asset management, network development, network operation and telecoms capabilities to ensure we can deliver the step-up in work required during this period, and manage a larger, more complex, decarbonised network Grow our workforce capability by positioning National Grid as the best place to work in the electricity sector Put into practice new supply chain strategies to secure the long-term capacity we need	Our integrated digital platforms will optimise processes and enhance communication, ensuring a safe and reliable transition to net zero. The enhancements in XM and SRM/CRM will increase our operational and delivery efficiencies, ensuring customers and stakeholders have improved energy access, key touch points, and elevated satisfaction levels. Utilising advanced digital tools, such as AI, and the power of data will support our efforts in improving grid reliability, data-driven decision-making and seamless stakeholder interactions, as we step up to the challenge and help maintain and operate our resilient network.

6.3. Intelligent asset & network

Our commitment

C4.3

Deliver a digitally enhanced and data-led infrastructure to optimize our operations and ensure a reliable network for consumers

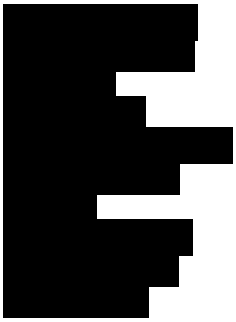
Given the dynamic shifts in our operational environment as we expand the network, it is vital that we embrace digital tools such as AI, IoT, digital twins, VR / AR, and quantum, to leverage the power of data and optimise how we manage, operate, and control our infrastructure. Through creating an intelligent network and assets, we will be able to respond with greater agility and speed, meeting consumer demands with enhanced resilience and efficiency.

Table 8 Intelligent asset & network - digital capabilities, RIIO-T2 progress, and future RIIO-T3 digital solutions to be delivered

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
Operational Management: The urgency for investment is paramount, given the expansion of our network infrastructure and the dynamic shifts in our operational environment. Our digital investments will be able to effectively manage an increased number of assets, distinct types, and aging assets. Together, they will drive operational efficiency, helping us to accurately track total cost of ownership and cost-effectiveness, alongside improved security of our digital infrastructure.	• Funding has been used to transition from our current Enterprise Asset Management (EAM) system, [redacted]. • We are also undergoing a large business transformation to allow for the future benefits aligned to Enterprise Asset Management in RIIO-T3.	Enterprise Asset Management	Adopting a more intelligent approach to optimise asset performance and reliability. A flexible Enterprise Asset Management capability that will make managing assets easier for our teams, as we empower them to make better decisions and drive business efficiencies. [redacted] We will leverage AI and predictive analytics to optimise network maintenance, maximise asset availability, reduce catastrophic failures and downtime, and extend the overall asset lifetime.
	• We have developed an IoT platform that is only compatible with specific sensor types [redacted]	Internet of Things (IoT) Platform	The deployment of cross-site communications equipment to facilitate the secure transfer of data back to a new IoT gateway server connected. This will provide real-time data collection and support predictive maintenance. The adoption of [redacted] will support data storage and facility management, with data products to help empower our business teams to utilise insights in their decision-making process.

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
	• RIIO-T2 funding was provided to support the delivery of the [redacted] programme. •	Network Control System	We will manage and secure our network with enhanced phasor data concentrators to capture resilient synchronised system measurements and ensure RIIO-T3 compliance, alongside improved system visibility to spot potential disturbances, and the development of key data and digital products to drive efficiency and support our stakeholders in providing more accurate network control data. By investing in a product team to deliver and maintain data products for network control data, we will also support our Digital Twin investment. [redacted]
	• There has been no RIIO-T2 funding. • However, we have successfully tested the digital substation principles in RIIO-T2, allowing us to now move forwards with deployment, starting with a small number of implementations to assess scalability and cost.	Digital Substation	We will build the digital foundations at substations to enhance intelligent network capability in the future. By conducting an intelligent substation pilot, and subsequent blueprint alignment, we will evidence edge compute capabilities, product development and a fully virtualised Protection and Control proof of concept ready for deployment. We will leverage centralised control approaches, [redacted] automation, AI and ML for improved asset control and capability within our substations and provide protection against current and future threats (including cyber, climate, site incidents), as well as supporting the enhanced asset lifetime and maintenance process. Further product development will be delivered to enhance automation capability within our substations.
	• There has been no RIIO-T2 funding •	Site communications	[redacted]

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
Digital twins & power systems: As we manage the increasing demand on the electricity transmission network, a space, or a 'sandbox', to model possible physical and functional scenarios and impacts before making physical interventions on the overall network system, becomes more of a necessity. Following RIIO-T2 investments, we will now continue to optimise our current capabilities, upgrading and connecting them, fed with near real-time data for enhanced capabilities.	• There has been no RIIO-T2 funding	Digital consortium	We will work with a consortium of partners from industry and academia to determine a cutting-edge option for the future. This could include connected digital twins, AI, ML, VR/AR and quantum simulation to create unlimited scenarios.
	• Funding has been directed towards BIM capability being implemented for an initial subset of the ASTI projects	Building Information Modelling (BIM)	BIM will be rolled out across our ASTI construction portfolio to enhance coordination and design collaboration, with improved visualisations allowing our stakeholders to interact with designs in a more immersive way. It will provide a more defined mechanism for the systematic capture of digitally native data, whilst enabling better environmental impact assessments and cost estimation throughout the project lifecycle. BIM sets the foundations for creating digital twins of assets for enhanced maintenance and operation.
	[redacted] • Initial investments in digitised, automated, long-term, strategic, regional network & business planning capabilities, [redacted] • Lighthouse digital transformations to leverage ML and AI automation projects to reduce the time to model scenarios. • Further discovery to reduce the backlog and impact of manual handling, processing and workflow activities. • [redacted]	Power systems modelling & analysis	An integrated digital twin master system will be created by integrating and sharing data between different systems to start to build an online 'sandbox' fed with real / near-real time data where available. AI and ML will be utilised to generate increased scenarios and decision-making options. A shift to probabilistic modelling and automation will allow more scenarios to be assessed without additional manpower, reducing the manual work and enabling smarter, agile engineering and cost impact assessment.

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
			

6.3.1. Success measures

- **Asset management strategy:** Enhanced approach to managing the condition of our assets, diverging away from a time-based system, towards a condition-based approach. We will then be able to improve the reliability of our network, amidst evolving external challenges.
- **Manual effort reduction & Whole System Data Sharing:** Improved operational efficiency through automation and preventative maintenance to reduce early asset replacements. Effective use of our experienced teams to add value through data-driven decision making, whilst supporting whole system data sharing.
- **Enhanced communications and transmission infrastructure:** Enhanced communication between our Control Centre and substations, alongside a robust network, facilitating seamless data transmission from our sensors. Our business teams will be capable of seamlessly accessing both new and existing sensor-related projects.
- **Operational efficiency & programme quality:** Efficiencies will be driven through streamlined contracting, cost controls, and productivity improvements, as a result of process automation. We will improve customer-centric metrics by optimising project execution, ensuring compliance, and elevating overall experience. The quality of programme deliverables will then be achieved with reduced programme delays, trade-offs and costs.

Table 9: Intelligent asset & network - stakeholder expectation alignment

Stakeholder expectations	Our ambitions	Objectives of our plan	How are we meeting this
Deliver the capacity needed today Meet the urgent need to connect home-grown, renewable energy sources and new energy consumers **Build fit for the future** Develop the network for future needs and invest ahead of time **Maintain a reliable system** It's vitally important to everyone	**Deliver the grid of tomorrow.** Deliver the Transmission Network needed for Great Britain's future growth and decarbonisation	Maintain world class levels of network performance and resilience, and ensure that the new network we build is designed to reflect future security and climate challenges	Our digital investments in enterprise asset management, IoT platforms, and digital twin capabilities will optimise network maintenance, maximise asset availability, and reduce downtime, lowering costs whilst enhancing reliability and safety. These technologies will support sustainability and net zero goals by promoting efficient asset usage and predictive maintenance as we deliver the capacity needed for today and the future. Our investment into creating a digital consortium will utilise the latest technological innovation to create unlimited scenarios, as we plan and build a reliable network system of tomorrow.
		Deliver the capacity our customers need now, by looking holistically across multiple investment drivers to deliver at the pace and scale required to support Government's ambition on growth and decarbonisation	
		Future-proof our network with strategic capacity and flexibility for the longer term, using the network modelling capabilities we developed in RIIO-T2 to surface insights and inform strategic decisions.	
		Invest in the next generation of innovative technologies to make sure that we are planning and building a network that is ready for tomorrow	
Protect nature Look after the environment around upgrade works and reduce your emissions **Support local communities** Minimise the local impact of our work and invest in what matters to local people **Look after those in vulnerable situations** Control costs and find ways to reduce	**Do the right thing for our consumers, communities and the environment.** How we deliver is as important as what we deliver	Maximise the value we create by controlling our costs as our network grows and seek opportunities to create additional value for consumers	By leveraging AI, predictive analytics, advanced visualisation, and digital twins, we will ensure effective long-term planning and continuous improvement. This approach will balance short-term affordability with sustainable practices, extending asset lifetimes and supporting proactive maintenance strategies for a resilient and future-ready energy network, supporting local communities and the vulnerable with improved. The investment into digital substations will provide improved asset control and capability to improve protection against potential climate threats, whilst the roll-out of BIM will enable better
		Build social value through our operations and construction to leave a positive legacy for communities	
		Represent the diverse communities we serve by maintaining our sector-leading record on workforce diversity and inclusion	
		Play a leading role in accelerating a net zero, nature positive future,	

Stakeholder expectations	Our ambitions	Objectives of our plan	How are we meeting this
burden on those who can least afford to pay.		including by reducing our own emissions and environmental impact	environmental impact assessments, helping protect nature and our environment.
Step up to the challenge The scale of the work ahead is enormous.	**Transform the way we work.** Transform our capabilities to deliver for consumers	Transform our asset management, network development, network operation and telecoms capabilities to ensure we can deliver the step-up in work required during this period, and manage a larger, more complex, decarbonised network	Enhancing our common platforms with modern tools and integrated systems will enhance operational excellence and security, enabling seamless data transmission and real-time performance management. Enterprise Asset Management, our Internet of Things platform, and remote management capabilities, will ensure a safe, reliable, and efficient transition to net zero, as we step up to the challenge in delivering long-term value and efficiencies, for our consumers.
		Grow our workforce capability by positioning National Grid as the best place to work in the electricity sector	
		Put into practice new supply chain strategies to secure the long-term capacity we need	
		Leverage digital and data capabilities to transform how we work with our stakeholders, maintain and operate our network	

6.4. Building trust through data transparency

Empowering our people is vital in maintaining the quality and management of data, through decentralised ownership and specific team accountabilities. We want to drive value for those who know the data best, encouraging traditionally non-digital teams to reassess the use of data as a product, and ultimately foster greater data connectivity, as we eliminate data silos.

We will continue to measure ourselves against Ofgem's Data Best Practice (DBP) guidelines and the Energy Data Taskforce's recommendations, to ensure ongoing compliance. Please see Appendix B: Embedding Data Best Practice for a detailed overview of our approach. DBP serves as a licence condition but the effective practice of it will enable greater connectivity, understanding and insights from our data. Our digital investments will provide the flexibility required to meet evolving enhancements of DBP principles, allowing us to quickly adapt to potential future changes, such as the introduction of AI best practices and greater standardisation and interoperability requirements. We believe this will be required as the DSI evolves over the coming years, and additional DBP requirements will be needed to improve its overall impact. We will therefore look to exceed guidance and objectives, as we position ourselves favourably to comply with new, rapidly changing expectations.

Table 10: Building trust through data transparency - digital capabilities, RIIO-T2 progress, and future RIIO-T3 digital solutions to be delivered

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
Enabling Data: this ensures compliance with DBP and incorporates updated guidance and the DSI. This investment remains crucial for supporting our strategic priorities and digital investments. By adopting DBP principles, we aim to improve data quality, enhance governance, and foster innovation through advanced analytics, AI, and digital twins. Our goal is to enhance interoperability, data security, and efficient data sharing to meet regulatory requirements and achieve our strategic objectives.	• A Data re-opener for the building and deployment of the Data Fabric. Focus has been directed towards transitioning fragmented data into an integrated Data Fabric - aimed at connecting, cataloguing, and providing access to data for product teams	Data enablement	The data enablement elements empower us to continue transforming our approach to data management, with seamless data integration, connecting the Data Fabric to the DSI, enhanced data quality tooling, improved storage technology for real-time data, and fostering innovation through advanced analytics and AI tooling that utilises Data Products provided in the Data Fabric. We will deliver the following assets: • DSI Integration with Data Fabric – to enable seamless flow of information across Ofgem, the wider energy sector, and us. This will align various stakeholders' efforts towards common goals and standards, whilst remaining agile and adaptive to evolving future regulatory needs and technology enhancements It will improve our centralised planning, all complying with DBP principles and will be essential as we support the facilitation of whole system collaboration and decentralised data ownership. • Data Fabric – continuing investment in our Data Fabric technology to enable the creation, management and publication of our data products. • Information Modelling Services – Further enables cross-industry data

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
			sharing, by providing an ontology of organisational, and cross industry terms, agreed with stakeholders, which allows data products produced by us and shared through the DSI to be understood by industry partners • Data Quality Tooling – to automate and continuously assess data quality using verified, business-owned rules. This will improve trust in data by implementing tools to assess and report data quality, allowing for prioritised corrective actions. • Data Literacy and Education – Develop and deploy a training programme that builds and accelerates our transformation to a data-driven organisation as we equip our colleagues to understand data, collect, analyse, and derive insights to make informed decisions. • Data Governance and Ownership - Establish automated rules and processes to govern data within the organisation going beyond existing frameworks, to ensure that the data used is accurate, secure, used responsibly. • Data Innovation – Provides a safe and secure environment, for the businesses to develop and test new ideas for how to collect, use, and solve business problems using data. • Graph and Knowledge Databases –  • Data Science Workbench – A unified platform to help Data Scientists to collaborate and implement artificial intelligence (AI) in our operations, making processes smarter, more efficient, and helping to solve complex problems.

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
			Generative AI (GenAI) - Investing in GenAI within our Data Fabric will enable us to harness advanced data analytics and natural language processing capabilities.
		End-to-end platform integration	Our investment offers drag-and-drop automated workflows and integrations to connect various enterprise applications, reducing the time to share data, improve processes, and provide better services. By enhancing availability and support hours, and investing in generative AI, we enable more business-critical services and reduce errors, ultimately improving service availability and reducing costs.
Safety & Compliance: Safety and compliance remain integral to our ongoing operational deliveries and infrastructure developments. It underpins all of our work and so ensuring we continue to enhance our practices, throughout the RIIO-T3 period remains essential. As we look ahead, we must continue optimising platform functionalities, integrating advanced technologies and data-driven solutions, as we enhance core operational safety & compliance functions	• Digitisation of Easements provided by one of Electricity Transmission Provider's (ETP) Land Rights and Referencing framework suppliers • [redacted] agreement and licences • Work Management Tool • Land registry accounts (various) • Licensing for GIS (Geographic Information System) • [redacted]	Land & property management	We will build a unified data platform that connects information from disparate sources. This will integrate GIS with various systems, adopting an enterprise-based licensing model. We will also look at digitising wayleaves and easements and securing funding for increased CRM licensing numbers. The Work Management Tool will be integrated with the CRM solution and the existing tool, whilst the title/deed storage system will also be digitised to streamline the land registry process, reduce licensing costs, and enhance decision-making in property management.
	Our Performance • Development of performance finance product and running three	Performance management	We will enhance performance management and reporting by developing 16 data products and a holistic digital product with predictive capabilities. It will improve data

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?

	months' ideation to determine the full scope
	• Integrated data service on Insight (different data and content types: Conditional and Operational) with core asset register to support asset performance and risk analysis
	RRP (Regulatory Reporting Pack)
	• Supporting forthcoming RRP modernisation.
	• Automation of key tabs, including:
	  • Cost and volume reporting
	  • Lookup table
	• Project metadata
	• Additional tabs to evaluate for Automation subject to feasibility
			interoperability, create an aggregated performance database, and use data science for root cause analysis and forecasting. A monitoring system will support Ofgem's Forward Work Program as we deliver a more resilient energy sector, improve standards and protections for energy consumers, and encourage investment in new low-carbon infrastructure while keeping costs low for consumers.
			For RRP the focus will be directed towards automating table production and mobilising a product engineering team to follow Ofgem Data Sharing Infrastructure and guidance on RRP modernisation. Total Cost Ownership (TCO) will quantify asset costs throughout their lifecycle [redacted]

	• [redacted]	Contract management	The investment will enhance reporting capabilities and contractor asset integration through a unified platform. It includes AI-based in-app coaching for users, enhanced datasets for [redacted] reporting, and an integration hub for various software systems. Benchmarking will help identify patterns and improve efficiencies, [redacted]
	• Analysis of all SHEC (Safety, Health, Environmental and Construction Management) requirements undertaken with each senior SHEC stakeholder • Prioritisation of requirements	Health & safety management	We will centralise contractor data, enhancing sickness and absence reporting, and improving the Lost Time Accident Frequency Rate calculation. It aims to streamline contract evaluation with an AI-based scoring algorithm and automate sustainability data collection. A centralised action tracking system and digitisation of health and safety data will be implemented, along with wearable devices for worker safety and predictive analysis for risk

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
	completed with SHEC senior leadership team • [redacted] • Undertaking a Proof of Concept (POC) for digitising documents for SHEC Performance team • Review of digital risk assessment tool against acceptance criteria to determine whether to procure		management. Quality and risk will also be assessed as we consider the potential of AI technology for ISO (International Organisation for Standardisation) integrated quality management.
	• There has been no RIIO-T2 funding	Knowledge management	We will develop a solution roadmap that includes an ideation exercise, a centralised knowledge repository, and integration with existing systems. This will enhance communication, alignment, and knowledge sharing across departments, leading to higher cross-functional project success rates and improved team communication efficiency. It will also prevent siloed working by enabling central document storage and access, fostering collaboration between different teams.
Common Platforms: Our investment is fundamental in unlocking the full value of our data assets, supporting the development of our Data Sharing Infrastructure (DSI), and enhancing our ability to support whole-system collaboration. We must continue to build upon RIIO-T2 foundational capabilities, to help meet updated regulatory requirements, and	• Current GIS platform developed in RIIO-T1 and RIIO-T2 • This platform is foundational Digital Infrastructure for ASTI.	Geospatial Information Systems (GIS) platform	The extension of our GIS platform will move it to the cloud, enabling integration across our digitalisation systems, as we support the maintenance of safety and standards across the network, allowing users to map out key assets and their data. It is a critical enabler for both quantitative and qualitative benefits for ASTI, as we look to standardise access to geospatial visualisations across all of our services (internal and external). This will create delivery efficiencies through reduction in time to visualise assets and inspect data, whilst we integrate workflows into common organisational processes. The investment will supply better data quality, governance and consistency across our core asset management solution [redacted] and our GIS

Digital capability	Current progress (RIIO-T2)	Future digital solution (RIIO-T3)	What will we deliver?
help mitigate an increased potential of cyber security risks. For our consumers, this investment will result in better value for money through streamlined processes, optimised resource utilisation, and improved operational efficiency			platform, as we drive our DSI goals through increased interactions for externally facing geospatial content.
	• There has been no RIIO-T2 funding	SI Enterprise Platform	A new platform established for Strategic Infrastructure to meet compliance and security requirements, whilst simultaneously enabling the collaboration with an increased number of external partners. The SI Enterprise Platform offers multiple digital services that comprise the ability to provide secure user communication and collaboration, and control access to suitable compute, data, and storage service capabilities required by us and our external partners in the delivery of the ASTI programme. Beyond the establishment of service management and automation approaches for [redacted] the platform will enable AI and ML services, and support services for enhanced encryption security. The platform is essential in reducing the onboarding time for external supply chain partners, increasing our overall agility and control access to business products, and ensuring continued cyber security controls.
	• ECM platform established	Enterprise Content Management (ECM)	An extension and significant upgrade to the existing ECM platform and migration to the latest cloud model, allows both our internal and external users to create, store, distribute, discover, archive and manage unstructured content (such as scanned documents, email, reports, certificates and office documents) and ultimately analyse usage to enable us to deliver relevant content to users when and where they need it. It will leverage audio and video media to securely manage and repurpose content being published, alongside the automation of digital eSignatures, and enhanced search capabilities via AI automation. The investment delivers simplified, repeatable workflows for capturing project development documentation, alongside a complete audit trail, as we digitalise processes for documentation management.

6.4.1. Success measures

- **Self-service & data empowerment**: Reduction in the level of manual effort (e.g. copying and pasting data between systems), as self-service is promoted across our organisation and beyond. People become empowered to truly utilise the data that is openly shared across the industry.
- **Secure data management & Data Best Practice compliance:** Enabling greater access to available data with dynamic flexing. Data is made available dependent on individual sensibility controls, with enhanced data management security to further promote whole system data sharing. Data governance and management is prioritised, whilst Data Best Practice compliance is maintained throughout our data products and operations.
- **Enhanced programme schedule:** Reduction in time taken to establish a connection and integrate with a new data source, such as a database, API, or file system. Real-time data is connected to provide the latest updates, supporting the performance of our major programmes of work against the programme schedule. Accelerating and improving the quality of data-driven intelligence improves operations and delivery as we focus on risk aversion and data-informed decision making.
- **Local stakeholder engagement & cultural changes:** We provide improved engagement with local stakeholders and help minimise disruption, through better land & property management, enabled by real-time data. Customers and stakeholders are supported to help gain the most out of improved data provisions, as a data-centric culture continues to develop.
- **Environmental commitments:** Responsible land management and environmental commitments through optimised processes. Measured through various KPIs:
    - Wayleave/easement acquisition cycle times
    - Biodiversity net gains achieved
    - Land rights approval success rates
    - Geospatial data quality/accuracy metrics
- **GIS efficiencies:** We aim to see a significant increase in the number of core platforms / capabilities connected to the geospatial platform via data products / integrations, and associated reduction in time to visualise asset / inspection data, compared to current manual load processes.

Table 11: Building trust through data transparency - stakeholder expectation alignment

Stakeholder expectations	Our ambitions	Objectives of our plan	How are we meeting this
Deliver the capacity needed today Meet the urgent need to connect home-grown, renewable energy sources and new energy consumers **Build fit for the future** Develop the network for future needs and invest ahead of time **Maintain a reliable system** It's vitally important to everyone	**Deliver the grid of tomorrow, today** Deliver the Transmission Network needed for Great Britain's future growth and decarbonisation	Maintain world class levels of network performance and resilience, and ensure that the new network we build is designed to reflect future security and climate challenges	Our investments in data integration and advanced analytics will enhance service reliability and cost efficiency, directly addressing stakeholder concerns. The development of an integrated Data Fabric, supported by our data enablement investments including our knowledge graph technology and data science tools, will enable intelligent insights and innovation, fostering a more efficient and reliable network while supporting net zero objectives through improved data-driven decision-making. We are leveraging mature and scalable data and digital innovation to help efficiently deliver the capacity needed today and the future, as we continue to establish reliability across the system.
		Deliver the capacity our customers need now, by looking holistically across multiple investment drivers to deliver at the pace and scale required to support Government's ambition on growth and decarbonisation	
		Future-proof our network with strategic capacity and flexibility for the longer term, using the network modelling capabilities we developed in RIIO-T2 to surface insights and inform strategic decisions.	
		Invest in the next generation of innovative technologies to make sure that we are planning and building a network that is ready for tomorrow	

Stakeholder expectations	Our ambitions	Objectives of our plan	How are we meeting this
Protect nature Look after the environment around upgrade works and reduce your emissions **Support local communities** Minimise the local impact of our work and invest in what matters to local people **Look after those in vulnerable situations** Control costs and find ways to reduce burden on those who can least afford to pay.	**Do the right thing for our consumers, communities and the environment** How we deliver is as important as what we deliver	Maximise the value we create by controlling our costs as our network grows and seek opportunities to create additional value for consumers Build social value through our operations and construction to leave a positive legacy for communities Represent the diverse communities we serve by maintaining our sector-leading record on workforce diversity and inclusion Play a leading role in accelerating a net zero, nature positive future, including by reducing our own emissions and environmental impact	By establishing a comprehensive enterprise-wide digital transformation programme, we will ensure long-term efficiency and grid resilience. This considers the consolidation of data through a unified Data Fabric, enhanced performance management, and AI-driven contract management. These initiatives will help to balance short-term affordability to support our local communities and the vulnerable, whilst integrating sustainable practices to protect nature, preparing us for future technological advancements and continuous improvement.
Step up to the challenge The scale of the work ahead is enormous.	**Transform the way we work** Transform our capabilities to deliver for consumers	Transform our asset management, network development, network operation and telecoms capabilities to ensure we can deliver the step-up in work required during this period, and manage a larger, more complex, decarbonised network Grow our workforce capability by positioning National Grid as the best place to work in the electricity sector Deploy new strategies that give our supply chain long-term signals to invest, so we can secure the equipment & skills needed Leverage digital and data capabilities to transform how we work with our stakeholders, maintain and operate our network	Enhancing our technology landscape with advanced analytics, AI-capabilities, and automated processes will optimise core functions and improve safety and compliance. Automated health and safety data collection and a centralised knowledge management system will further ensure a safe, reliable transition to net zero, delivering long-term value and cost-effectiveness for stakeholders, whilst maintaining the highest level of safety standards. We are stepping up to the challenge and improving the reliability of grid infrastructure, ensuring enhanced provision of electricity for our customers and stakeholders.

6.5. Digital culture

As we strive to become an Intelligent, Connected, Digital Utility, the digital culture of our organisation must also continue to develop. Digital culture remains a vital enabler, empowering our people to make more informed, data-driven decisions, as our workforce effectively utilises the entirety of our digital capabilities. As we encourage a fundamental shift away from conventional processes and technology, we must continue to invest in our teams to truly cultivate a digitally informed growth mindset.

A digital mindset is "a set of attitudes and behaviours that enable people and organisations to see how data, algorithms, and AI, can open new possibilities and create a path for success, in a business landscape increasingly dominated by data-intensive and intelligent technologies"[9]. We want our workforce to be able to think digitally, solving problems of the future with an alternative perspective on collaboration, efficiency and performance. To help drive digital culture within our business, we will continue to direct our focus towards three key pillars:

- Leadership support
- Innovation & experimentation
- Learning & development

6.5.1. Leadership support

Support for digital reinvention and the growth of a collectively digital mindset requires strong leadership sponsorship, employing a top-down approach to drive change. Our leadership team continue to be at the core of our digital transformation, leading the entire digital agenda and fostering a positive cultural shift. By actively championing digital initiatives and modelling desired behaviours, our leadership teams will instil the confidence and clarity needed for complete digital success.

As part of this transformation, we have adopted a revised digital operating model where we continue to support the development of digital culture across our business. It embeds digital leadership practices, supporting a shared digital mindset and we will continue to refine and develop our Digitalisation Roadmap with engagement and feedback from our key stakeholders. Ongoing reviews will help to provide clarity over what we need to do whilst retaining flexibility to adapt to changing stakeholder needs, as the industry continues to evolve with additional technological advancements.

Our executive team has recognised the demand for data skills and will continue to integrate clear data measures into leadership scorecards. Data quality can then be accurately measured through to success, with a continuous review cycle, aligned with specific business priorities. This is both endorsed by senior leadership and adopted at a more granular business unit level, driving maximum impact across the business. Standard data quality measures will continue to be used, aggregating to a single data confidence score for easy interpretation and universal comparison. Currently this practice is being enhanced with our customer connections teams, as we look to extend data measure scorecards, across the business.

Development tooling will also be improved, enabling the effective adoption of DevSecOps, as we promote collaboration between our development, security and operations teams, creating a culture of shared responsibility and accountability. This commitment will ensure the prioritisation of digital transformation and complete integration across every facet of the business, over the coming years. Leadership support will remain crucial in setting standards and aligning our strategic vision against our digital ambition, providing all necessary resources, and empowering employees to embrace new technologies and processes.

6.5.2. Innovation & experimentation

Cultivating a digital mindset will be reliant on people empowerment and engagement. To support this, we will continue to run hackathons, innovation days, and digital showcases, providing various forums and platforms for our teams to share ideas, contribute towards organisational change, and feel valued as they drive digital culture at National Grid. Our hackathons have been delivered across the RIIO-T2

[9] Harvard Business Review. 2022. Developing a Digital Mindset. https://hbr.org/2022/05/developing-a-digital-mindset

period and have been specifically focused on sustainability and leveraging cloud tools to solve operational pain points. This has already supported in driving efficiencies, following the creation of improved alarm monitoring capabilities for our Transmission Network Control Centre. This has helped to improve responses to network faults and issues, ensuring the safe movement of energy around the network. We have run 3 digital showcases, and we currently have data and geospatial innovation communities where employees can submit ideas for exploration. All of these activities foster a collaborative environment, encouraging open dialogue and creative ideation and problem-solving, gathering diverse perspectives that will continue to encourage digital innovation, improve operational efficiencies, and enhance service delivery.

Our revised digital operating model reorients digital solutions, enhancing iterative capabilities across all our products. We will continue to align with the Scaled Agile Framework (SAFe) to direct our delivery approach and set portfolio and change management standards. The SAFe methodology supports our customer connections focused hackathons and ideation days, as we continually explore digital solutions with our group innovation teams, running pilots and discovery activities, over agreed timelines. The methodology also extends beyond innovation and provides the additional assurance of organisational coherence, helping drive business efficiencies. It is vital that SAFe practices continue, as we tackle the ongoing complexities of a changing business environment and maturing digital landscape, over the coming years.

We have already driven cultural change and will continue to see progress, with multi-disciplinary product teams embedded within our business lines focused on addressing specific customer, stakeholder, or business needs, with delivery teams reporting to directors of each department, enhancing our internal capabilities. These positive changes will continue, as internal specialist teams are embedded across the business. More information can be found in our A09: Innovation Annex.

6.5.3. Learning & development

Ensuring our workforce is well-equipped to understand and support a positive digital culture requires individual investment through learning and development. Upskilling is essential to help our teams navigate and leverage digital technologies effectively. We will therefore continue to support our current learning opportunities and programmes such as Code First Girls. We have 5 Code First Girls deployed across the various teams of information modelling, product management and software development. In addition to the 50 hours of volunteering associated with the programme, providing educational sessions, development and support, we also have our employees contributing towards the Grid4Good scheme. Powered by our charity partners, volunteers from National Grid and our energy industry peers, Grid for Good is our global flagship community investment programme. It connects young people between the ages 16-25 with upskilling and job opportunities in the energy industry. To date, we have already helped over 3000 young people and have over 1000 National Grid employees registered as volunteers.

Upskilling also includes our various e-learning materials and investment into the provision of specialist tech-education programmes. By partnering with Udacity, we plan to offer our employees short-term nano degree programmes, focused on emerging digital technologies such as Generative AI, Machine Learning and blockchain. We will run a pilot with our customer connections team, as we look to promote the roll-out of the fully funded, curriculum structured programme, across National Grid.

We have recognised the growing demand for data skills across our business units and specialist teams. We have launched an executive-sponsored Data Academy pilot looking to ensure 107 of our employees become officially recognised as data professionals, within the first 12-24 months. Funded by government levy, the Data Academy will offer three apprenticeship levels: Data-driven Professional (Level 3), Data Analytics (Level 4), and Data Engineering (Level 5). Starting in October 2024, our first cohort of around 20 data professionals will enrol, with new intakes planned quarterly. These 100-hour accredited programmes will receive company support for three hours of training per week, with the future potential for participants to top-up their programme and advance towards a bachelor's degree equivalent. This initiative will be essential as we continue to upskill our workforce, enhance data quality, and drive value for our business and stakeholders.

We want to further establish a sense of community, as we drive organisational success through a well-informed and digitally advanced workforce. Learning programmes and initiatives will be aligned with our key digital objectives, as we focus on improving individual learning journeys, empowering our teams to take ownership of their digital literacy, and allowing our workforce to excel in a digital landscape.

7. Risks and mitigations

Digital transformation represents a fundamental change, and we acknowledge it comes with risks. We continually review our key risks and monitor the effectiveness of the mitigation actions we have identified.

Table 12: Summary of key digital risks and mitigatory measures

Theme	Potential risk	Potential impact	Mitigatory measures
AI safety	**Operational errors & bias** – incorrect assumptions and failure to adapt to unforeseen situations.	Operational disruptions, reduced stakeholder trust, and potential legal issues.	Implement rigorous AI testing and validation protocols, continuous monitoring & regular reviews, human oversight and assessment, and regular AI safety updates.
Data security	**Cybersecurity** breaches – unauthorised access to digital systems and data via malicious cyber actors.	Data loss, financial loss, reputational damage, and legal consequences.	Create awareness around vulnerabilities and provide guidelines for assessing risks, develop preventative and corrective policies, enhance security measures with encryption and multi-factor authentication, regular security audits, incident response plans, and ongoing cybersecurity training.
Data quality	**Poor data quality** – reducing the overall effectiveness and accuracy of digital tool and capability outputs.	Misrepresentative data, inaccurate data-driven decision-making, operational inefficiencies, increased operational costs, reduced stakeholder trust, regulatory and DBP non-compliance.	Implement robust data governance policies, regular review cycles to assess data quality, improved data management and DBP guidance for employees, regularly audit and cleanse data, establish clear data ownership and accountability.
Outdated digital regulations & policy	**Misalignment with regulations & policy** – with new government changes enforced to meet revised energy goals alongside reduced timescales.	Delays in the adoption and deployment of new technologies, increased compliance risks, missed opportunities for innovation and net zero goal achievements, potential legal issues.	Support policy research and development of technological innovation, establish collaborative forums for regulators, industry, and academia, implement proactive regulatory monitoring and advocacy programmes.
Stakeholder engagement	**Ineffective articulation of specific needs** – our stakeholders cannot clearly	Misinformed stakeholder needs, inefficient resource	Conduct regular stakeholder engagement workshops, utilise digital

Theme	Potential risk	Potential impact	Mitigatory measures
	define their priorities, resulting in a misalignment with our digital strategy and business direction.	allocation and financial investment, decreased stakeholder satisfaction and reduced delivery impact.	surveys and feedback tools to gather input, align with independent stakeholder groups and any stakeholder advisory boards, implement collaborative planning tools to facilitate communication and total alignment.
Talent attraction & retention	**Talent & digital skill acquisition** – fail to retain or attract colleagues with correct digital skills, given competition from all sectors.	Skills gap, decreased innovation, lower productivity, higher recruitment costs, potential safety risk with incorrect staff resourcing.	Invest in continuous always-on learning and digital development programmes, foster a strong digital company culture, implement mentorship and career growth opportunities, utilise AI for staffing-forecasting.
Technological advancements	**Obsolete technologies** – fail to maintain relevance with digital technologies and updates (e.g. AI, machine learning, quantum computing, cyber).	Outdated existing legacy systems, reduced competitiveness, security vulnerabilities, operational inefficiencies, poorly skilled digital workforce.	Establish a dedicated technology innovation team, collaborate with research institutions and technology partners to keep up to date, undergo regular review cycles and update technology roadmaps, invest in ongoing training and development for our colleagues.
Timely delivery	**Supply chain issues & delivery delays** – we cannot deliver quickly enough to meet 2030 targets.	Delays in network development, inability to meet electricity demand, increased costs, missed sustainability targets, loss of stakeholder trust.	Implement agile project management methodologies to accelerate delivery and track progress, advanced project tracking tools for real-time monitoring and adjustments, increase resource accuracy for critical projects.

8. Conclusion

The coming years will be some of the most pivotal in our journey towards achieving net zero targets and aligning with the government's ambition of decarbonising the grid by 2030. The landscape we operate in has already proven to be highly complex and rapidly evolving, making it imperative that we leverage advanced digital capabilities to stay ahead. Our digital strategy and action plan have been meticulously designed and shaped by our stakeholder priorities to ensure affordability, reliability, and net zero, as we directly address key societal and business needs.

Digital transformation will be the foundation of our approach, serving as the key enabler to accelerate our operations and development. It will help us continue to optimise our processes, drive innovation, and ensure that we deliver maximum value to our consumers. Our digital investment will provide us with the core insights and agility needed to help navigate the challenges ahead.

Just as our predecessors built the first Supergrid in the 1950s, we now have the opportunity and responsibility to secure our electricity network for future generations, with a complete overhaul of the grid. Through a unified and strategic digital approach, we are committed to building a new Supergrid that meets the demands of the future. Digitalisation and the ongoing adoption of emerging technologies will help us to enhance resilience, improve efficiency, and support the transition to a sustainable energy future.

We will continue to work closely with our stakeholders, ensuring transparent communication and collaboration as we deliver the critical infrastructure required for tomorrow. We are ready to lead the charge becoming an Intelligent, Connected, and Digital Utility, ensuring that we establish a new energy era for Britain, enabling net zero, and a clean, fair, and affordable energy future for all.

Appendix A: Stakeholder engagement channels and feedback

Throughout 2023 and 2024, we have focused on understanding our stakeholders' expectations and needs for a just energy transition, to net zero. This engagement has taken place through several channels, particularly at a regional level, as we understand the specific considerations needed to help design the future network

Table 13: Stakeholder engagement channels and feedback summary

Channels	Stakeholders engaged	What did we learn?	How do we take this forward into RIIO-T3?
• Overarching Engagement programme – Listening phase • In-person bespoke workshops (either stakeholder-specific or topic-specific) • Broad interest, multi-topic webinars • Qualitative and quantitative Market Research by expert teams at Yonder Consulting, Mintel Consulting and Sustainability First, including day long deliberative focus groups in Cardiff, Manchester, and Glasgow (Aug '22 - Aug '24) • Hybrid regional workshops in Exeter, Cardiff, London, Leeds, Cambridge, and Manchester, [redacted] (Sep-Oct '23) co-hosted for the first time with our industry partners. • Regionally focused forums and stakeholder led workshops, led by our industry partners (to limit	**Consumers**: Residential and business customers who consume electricity and pay for our transmission network.	Having access to information and managing expectations is important.	We are delivering a range of digital products and enhancements for our customers. This includes enhancing our visualisation capability to give more transparency to our plans to upgrade the network
	Connecting customers and Energy Insiders: Stakeholders that work in, or closely with the energy industry, such as network companies, system operators, and connecting customers	From a planning perspective, it is crucial to have access to open and accurate data. Greater transparency around grid queue to ensure access to the necessary information to inform decision making	• Feedback and outputs from our webinars have helped to inform our Customer & Stakeholder EJP, as we outline key digital products and services (CRM, SRM, XRM) to support our customers • We are developing a Data Portal Infrastructure (Data Fabric) which will enable the creation, enrichment and access to data ensuring that consumers have full visibility of available insights. This can be found in our Enabling Data EJP and further outlined in our Customer & Stakeholder EJP as the data fabric will provide our stakeholders with simple, direct, and easy to access data and information, whilst providing visualisation and context for customers through our XRM capability.
	Innovative thinkers: Stakeholders who are interested in our assets and network and may have unique or wide interests for accessing our data, such as members of the public, communities,	Data accessibility must be enhanced, and once published, the datasets must be accurate for practical	Our pivotal role in developing a Virtual Energy System will grant stakeholders across the ecosystem access to integrated data and modelling capabilities.

Channels	Stakeholders engaged	What did we learn?	How do we take this forward into RIIO-T3?
engagement fatigue).	academia, technology companies, and wider energy innovators.	utilisation. Holistic approach to data sharing and planning across the ecosystem is needed	This will enhance data driven decision-making for both investments and operations.
	Policy influencers and decision makers: Stakeholders such as consumer groups, regulators and other government departments who oversee the energy sector, the public interest, and consumer protection	Need transparency around data, which is accurate, to incorporate it into plans. Greater engagement from us to ensure they can better understand the impact of their proposed plans on communities.	We are developing a Data Fabric which will enable the creation, enrichment and access to data ensuring that Stakeholders have full visibility of available insights.
Data Best Practice (DBP) consultation	Ofgem	Helped to inform the development of our data strategy and roadmaps	We updated our data product roadmaps to reflect the guidance given in a revised industry data standards publication. Alignment to these standards means we remain compliant in how we share, integrate, and use data for stakeholder benefit
Internal	Internal	Internal stakeholders wanted more transparency and insights into customer interactions	In July 2023, we adopted a single Stakeholder Relationship Management (SRM) system to improve our interactions with stakeholders. This system provides up-to-date information of stakeholder needs and requests, cross business visibility of interactions, coordination of engagement overlaps between teams, and the provision of a single, traceable information source. This has been fundamental in supporting ensuring we have the latest customer and stakeholder insights to

Channels	Stakeholders engaged	What did we learn?	How do we take this forward into RIIO-T3?
			help inform our RIIO-T3 plans.
Digital exclusion research	[redacted]	In 2023, we collaborated within a consortium of three energy networks: [redacted] to produce the research report titled “Digital exclusion: The challenge of communicating with all energy consumers”. This report summarises insights from other leaders and highlights best practice in engaging with digitally excluded consumers to improve engagement and communication strategies, and deployment of local initiatives to benefit our communities	• We will conduct internal sessions within the organisation to disseminate insights to ensure all employees understand the implications of digital exclusion in building digital products and services. • When developing consultation strategies on projects, we work with community leaders to identify hard to reach groups and employ a mix of communication channels to make certain materials accessible for all • When a specific need is identified, we adapt our material and approach accordingly for effective engagement strategies for example, provide translations, and visual aids.
Webinars for our Connections Customers	Connections Customers	Webinars have been introduced to support our customers through the pre-application process. Open and accurate data is essential, especially for the planning process.	• Feedback and outputs from our webinars have helped to inform our Customer & Stakeholder EJP, as we outline key digital products and services (CRM, SRM, XRM) to support our customers • Our Customer & Stakeholder satisfaction score is currently

Channels	Stakeholders engaged	What did we learn?	How do we take this forward into RIIO-T3?
			measured by current Quality of Connections (QoC) score of 7.2 (2023-2024). We aim to improve this to meet and exceed the Ofgem regulated target (7.7). • We are developing a Data Portal Infrastructure (Data Fabric) which will enable the creation, enrichment and access to data ensuring that consumers have full visibility of available insights. This can be found in our Enabling Data EJP and further outlined in our Customer & Stakeholder EJP as the data fabric will provide our stakeholders with simple, direct, and easy to access data and information, whilst providing visualisation and context for customers through our XRM capability.
Virtual Energy System Project (Ongoing)	National Energy System Operator (NESO)	We are collaborating with numerous industry parties on the 'Virtual Energy System' project headed by the NESO to improve network planning, operations, and to drive innovation.	• We have a much better understanding of the use cases that are important to stakeholders across the industry. We have maintained and built new relationships with stakeholders that will be important as this programme moves into delivery,

Appendix B: Embedding Data Best Practice (DBP)

Introduction

We are compliant with Ofgem's Data Best Practices (DBP), and this was recognised in our March 2024, RIIO-T2 DSAP. Through the enactment of our Data Strategy in RIIO-T2, we have implemented a Data Mesh. As an organisation, we have been transformed, creating clear business value aligned Domains. Systems of Record (SoR), subject matter experts, and the Data Products have been aligned to these Domains.

As part of our work to incorporate DBP we have implemented Federated Computational Governance, to support the Data Mesh, and provide interoperability between Data Products. We have two complementary components which work in concert to an automated governance process that ensures adherence to DBP. We are also in the process of deploying the Fabric, which will provide a marketplace for Data Products, supporting Open Data. All future DBP enhancements can be found in the Enabling Data EJP, please refer to this for additional information.

Data Best Practice

Our starting point for the entire RIIO-T2 and RIIO-T3 plans was to utilise key stakeholder expectations, derived from our extensive customer and stakeholder engagement methods, to then build a strategy that leverages and enhances the guiding principles laid out in Data Best Practices. This is inclusive of Ofgem's 2023 decision on DBP guidance for DSAPs.[10] With focus on the key components, we looked across the framework to ensure that all capabilities and content would adhere to the principles, but could also react to changes and enhancements, as they arise.

Figure 11: Data Best Practice principles

The objective for the strategy was to ensure that all capabilities, from data capture to product delivery, data quality to governance, had enabling and automated tooling that ensures the seamless adherence to the framework, and the associated benefits.

[10] Ofgem. 2023. Decision on Data Best Practice guidance and Digitalisation Strategy and Action Plan guidance. https://www.ofgem.gov.uk/sites/default/files/2023-08/Decision%20on%20updates%20to%20Data%20Best%20Practice%20Guidance%20and%20Digitalisation%20Strategy%20and%20Action%20Plan%20Guidance.pdf

Meeting Data Best Practice (Compliance Routes)

Our primary governance utilises two components to provide management and control of data, the first being our Contract, and the second, our Catalogue.

Figure 12: Data Best Practice compliance

Data Contract: Domain aligned, data SMEs build Data Products from either the SoR (the information storage system or recognised source of the data), within their Domain or from other Data Products. Each Data Product has a corresponding Contract. The Contract is a machine-readable document that defines the structure, format, semantics, quality, and terms of use for exchanging data within the Data Product. It also includes:

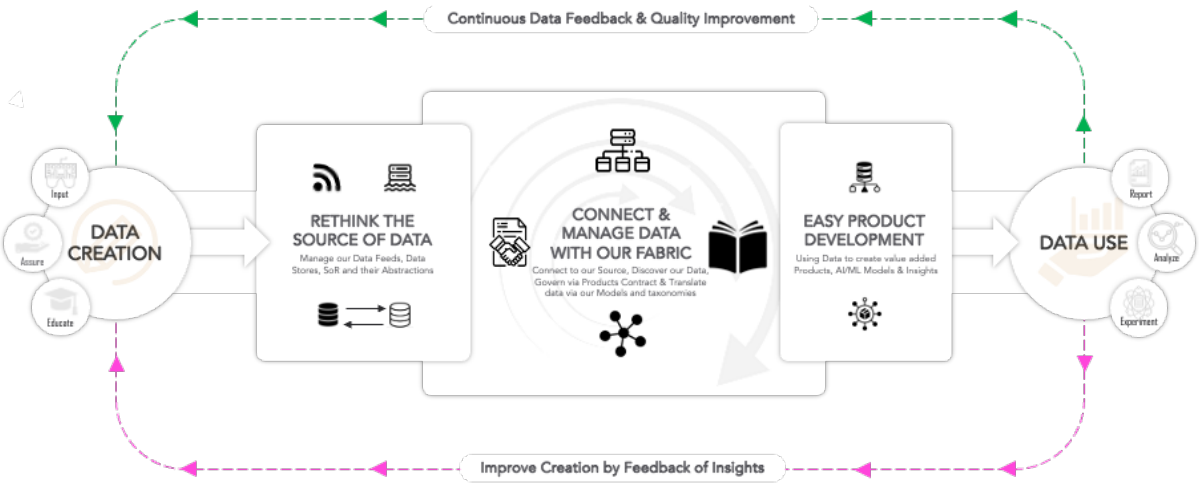
- Details of the Data Product Owner, the business terms and how this maps to the common business ontology (Glossary).
- Schema and semantics of provided data attributes.
- Service-level objectives, such as availability and support times.
- Access requirements and the output port to connect to.
- Dublin Core standard metadata vocabularies are used.

Data Catalogue: The Catalogue allows customers to browse, search, and discover Data Products. The Data Catalogue has a common searchable ontology, linked to the business model. It exposes all the details held with the Data Product's Contract in a user-friendly interface. Users can search across domain, entity, concept, which shows the inter-relationship between the different Data Products. Users can see the current versions and versions history, provide feedback, and request updates to and new Data Products. Our platform combines both source and product cataloguing, so that it serves as a tool for product creators to access foundational data, and a marketplace for data customers to consume value added content.

RIIO-T2 Implementing Architecture to Support Data Best Practices

The reopener in 2024 was to build the foundations of a Data Enabling capability so to support our Mesh Operating Model and the DBP aligned Product Delivery Model. This involves the implementation of a Data Fabric, which enables us to connect to and share data from any location. It provides the essential components of a catalogue, contract and marketplace to provide the desired observability and interoperability required for DBP compliance.

Figure 13: Data Fabric



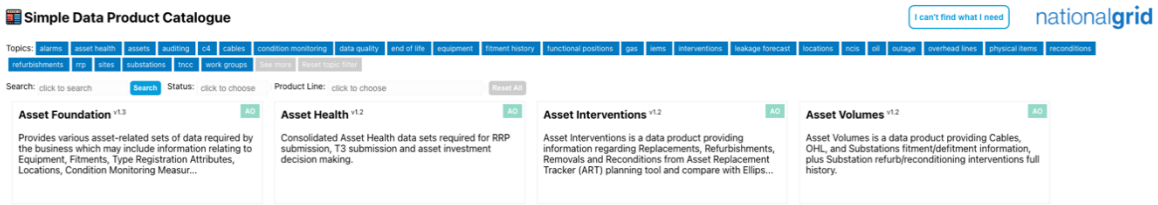
These foundations serve as the baseline for the RIIO-T3 planning, that looks to enhance our DBP compliance and capability and provide greater flexibility and automation. The ability to adapt to changing conditions, multiple models for products, industry standard ontologies and taxonomies and open data requirements via the DSI, will be an essential to ensure that 'routes to sharing' as efficient as possible. This will lead to further enablement capabilities throughout RIIO-T3 to enhance modelling, quality, interoperability, insights, analytics and open data available.

Managing data products & requests

In RIIO-T2 we are implementing a full Data Fabric. This will form part of the Data Improvement plan and the reopener that we received final approval on, in May 2024. The Fabric will automate current capabilities of product or data requests and associative feedback. Currently, we manage this via engagements with our Data Product Managers, the request inboxes that are responsible for routing queries to the appropriate data teams, and via our published Data Product Portfolio.

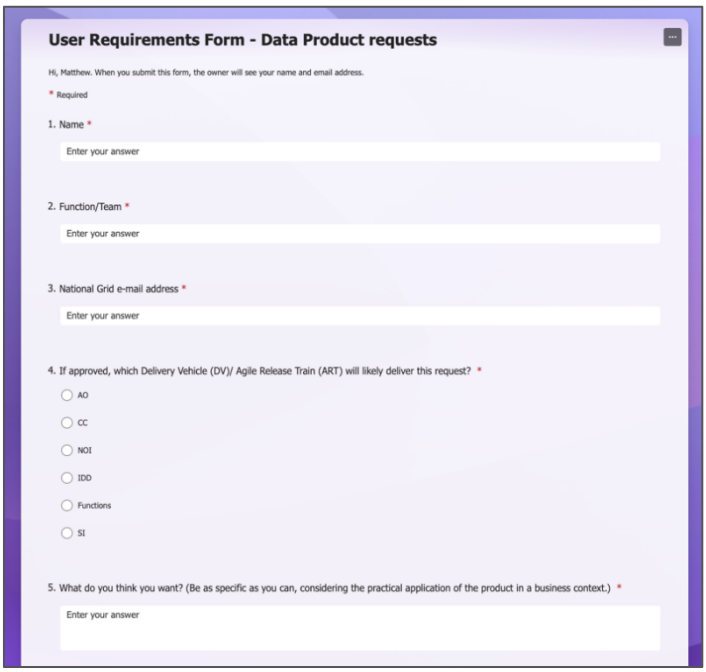
Currently, all products are made available via a Product Marketplace. Whilst this will be replaced and integrated into our Fabric by the end of RIIO-T2, the principles will remain the same:

Figure 14: Simple Data Product Catalogue



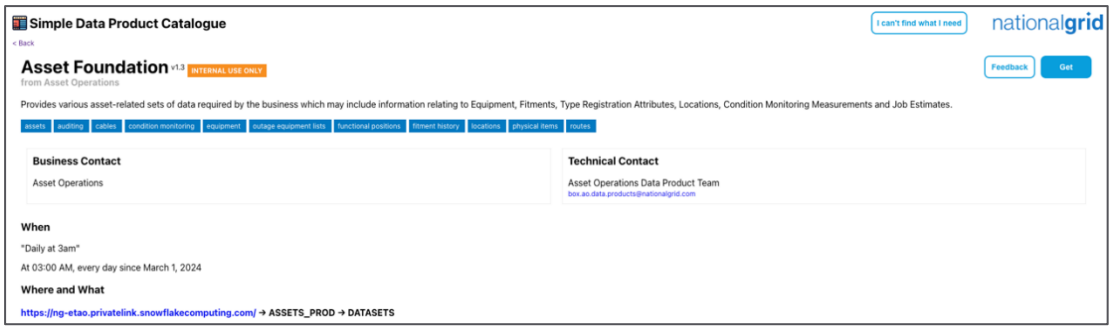
New requests for data products are initiated from within the Marketplace and this functionality will remain the same for the integrated fabric. From here, internal customers make new requests for data products, which are then routed to the Data Team to then provide support. This functionality will also remain the same in the Data Fabric.

Figure 15: User requirements form



Full details around each of the products can be found on the marketplace. This includes product details, attributes, owner, and all other relevant information. The customer can then provide both additional feedback or details on how to access the product, by using this Data Contract. The Data Fabric will enable direct access to the data product, both internally and externally, and will also retain the feedback / issues log for reference.

Figure 16: Product details view



Each product is prioritised via our Data Guild which includes the Data Product Managers from each function, the Data Enablement team, and Portfolio teams. Every product has its own card which covers its assessment, prioritisation, value case, urgency, or impact.

Figure 17: Data product card example

All products are then managed across all requests and products to ensure we deliver the most valuable and highest priorities in the right order.

Once a product is developed from within the portfolio, it is subject to a Data Contract as defined. The concept of Data Triage, Open Data and Licensing of the Data Products themselves are crucial to the Contract.

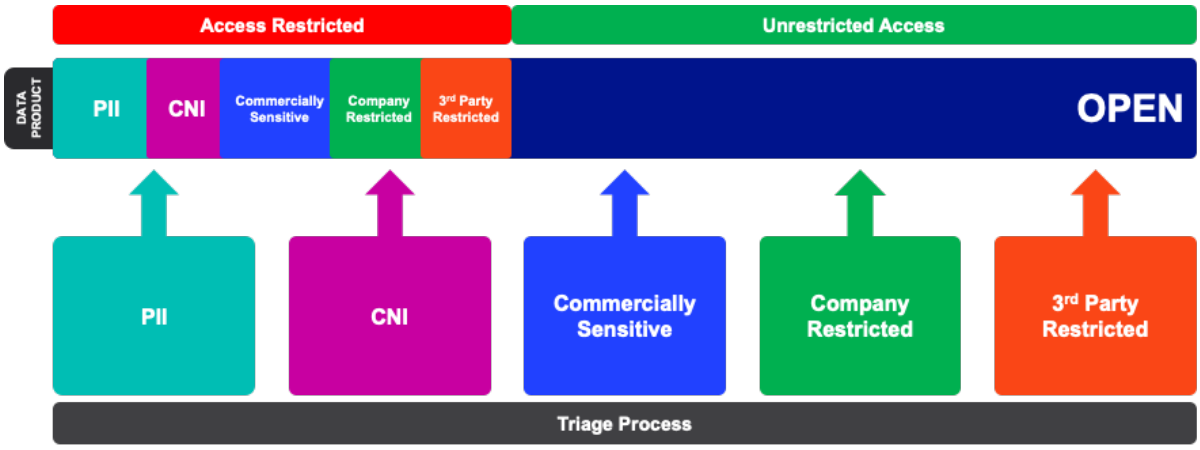
Every product starts its triage process by assuming that it is open by default. It is then triaged at an attribute level to determine any reasons why the product could not be shared or would require any kind of restriction, across both access and visibility.

Our Triage looks at 5 areas where data may become closed:

- **PII** – Does the product contain Personal Identifiable Information which cannot be shared or violates GDPR / ISO regulations
- **CNI** – Does the product contain data which refers to Critical National Infrastructure and potential threat markers of exposing the data
- **Commercially Sensitive** – Does the product contain sensitive data which would expose restricted commercial agreements
- **Company Restricted** – Does the product contain data pertaining to our internal operations which would not be appropriate to share in an open fashion

3rd Party Restrictions – Does the data product contain data which is restricted by a third party which creates and owns that data

Figure 20: Data triage process



Assuming data does not violate the triage process, the product contract would define the appropriate sharing level and restrictions, suitability for open sharing, the open data licence determining the types of use, and dynamic security paths to flex visible data accordance against these rules.

It is worth noting that as part of the DSI pilot, we intend to further embed the TRUST framework within the internal Triage framework. This will help enhance and simplify the transition from available product to open shared product, via the infrastructure, with minimal disruption.

Examples of Products running through DBP Processes outlined would be:

SF6 Data Product

The SF6 Data Product is Open and is mandatory as part of the requirement to report on its tracking and status. The Data is at an aggregated level, does not include CNI or PII data, and is not subject to internal, commercial or 3rd party restrictions. This is given an Open Licence as a result and is free to share both internally and externally.

Customers of the product have said that it aids planning and Engineering Justification Reports as part of our prioritising of work and justification for removing and reducing the amount of SF6 on the network. The Commercial and Portfolio team are active users when considering new connections and it is being used as part of Exec reporting as it is a key part of the Net Zero Plan in reducing the SF6 impacts. Since its introduction, SF6 leakage is significantly reduced.

[redacted]

RRP Data Product (WIP)

The RRP Reporting is driven by a Data Product which relates to Commercial and Financial Performance and is used in conjunction with Regulatory Reporting. This product has a restrictive licence and audience because of commercial sensitivity, it meets all regulatory requirements but would not be shared widely outside of the RRP process.

Customers of the product say it has reduced processing time from weeks to minutes in the preparation of the data sets for RRP, and upon release of the product via the Open Data Portal (Or Fabric) we expect it will reduce the number of queries as exploring the data will be more accessible.

[redacted]

[redacted]

RIIO-T3 Investments to Enhance Data Best Practices

The RIIO-T3 investment plan for Enabling Data extends the capabilities being implemented in RIIO-T2, to meet the extended or enhanced DBP asks, as well as enhancing that foundation further. The capabilities include:

- Improvements and upgrades to the Data Fabric, making it more feature rich and extending its service to allow analytical and operation data needs to be met. This also includes integration of the Fabric and Data Sharing Node for the DSI.
- Data Literacy training across the organisation, covering tooling, governance and processes. To embed a Data first culture.
- New Data Governance tooling and processes, improve federated computation governance, within Domain, cross Domain, and across the industry.
- New Data Quality Tooling, to push data quality into the Systems of Record, helping improve data quality throughout its lifecycle.
- Data Abstraction, allowing the Fabric to connect to a wider variety of sources and data types. Allowing us to store, archive and provide access to data and Data Products, in a sustainable manner.

Our RIIO-T3 Investments for DBP evolution.

Figure 21: Data best practice evolution

Preparation for DBP Compliant use of the DSI

The objective of the preparation and foundational capabilities throughout RIIO-T2 and into RIIO-T3, are to ensure that any product shared [redacted] incorporates all the elements of data best practices. Our foundational RIIO-T2 data platform work (following the data reopener final determination[11]) is designed to ensure that there is integration with the DSI, something that will be tested fully through our engagement with the pilot, however given the DSI is in development we are expecting to have to further develop our platform to accommodate the DSI as it evolves.

[redacted]

The most significant component of the DSI and DBP is the content by which the principles are applied and the DSI consumes. These are the data sets or products which are requested or expected to be made available to share.

It is key design point in RIIO-T2 and RIIO-T3, that the "route to sharing" and the creation of compliant and quality products for consumption is as flexible as possible as the needs represents an element of the unknown to the changing and increasing needs for data across the industry. We have shown how we will deliver the DSI in our Enabling Data EJP for RIIO-T3 investment.

[11] Ofgem. 2024. RIIO-2 non-operational IT capex re-opener final determinations and directions 2024: Cadent, NGET, SHET, SGN and WWU. https://www.ofgem.gov.uk/decision/riio-2-non-operational-it-capex-re-opener-final-determinations-and-directions-2024-cadent-nget-shet-sgn-and-wwu

Appendix C: How we will measure success

We are accountable to our stakeholders and recognise the importance of tracking and measuring our commitments to ensure we are meeting our business goal and outcomes.

In this section we set out the key success measures which we will use to hold ourselves to account and provide transparency to our stakeholders:

Table 14: Summary of success measures and stakeholder benefit

What success looks like for us	What success looks like for our stakeholders	How we will measure ourselves
The Great Grid Upgrade & operations		
• Make optimal decisions to build new infrastructure and modernise existing infrastructure at the pace required to accommodate the integration of significant renewable energy sources into the grid. • Make optimal decisions to reinforce our network at pace, to increase our capability to connect significant renewable generation • Use data insights to create new products and services to efficiently meet net zero targets	• We effectively and efficiently design a robust and compliant network that will help meet the government's target of 50GW of offshore wind connected by 2030. • We optimise our data and insights to deliver infrastructure projects on time, within our allowed expenditure, with minimum damage to the environment. • Switching UK consumers to clean energy and ensure their electricity network and supply is secure, clean, and affordable. • We continue to engage with stakeholders on projects and what data and services they require to be kept informed of delivery progress.	• We will report on any new products and services developed to meet stakeholder objectives. • We will measure adherence to projected costs and scheduled timelines to ensure effective project management and resource allocation. • Reduce costs caused from changes to in-flight projects, including a saving of 2.5% of such costs over five years in our largest projects designed to increase the capacity of the network • Reduce PMO staff costs by 4.7% through CDE / Building Information Modelling (BIM) implementation •
Delivering for customers & stakeholders		
• Reduce the time and cost of connections to our network through an improved end-to-end connections process • Develop internal processes to facilitate external outcomes prioritised by stakeholders • Successfully manage an increasing number of interactions with a growing stakeholder landscape, ensuring clear communication and collaboration.	• We are easier to deal with and customers have better choice about how to interact with us, with digital and non-digital options (accommodating for all of our stakeholder personas). • We continue to improve the connections journey for our customers by reducing the time and cost of connections • We deliver our licence obligations efficiently and provide value for money for stakeholders • A smooth connection is provided – all the details customers need are readily available. • •	• We meet our ambitious targets to reduce cost and time to connect for our customers. • We will provide real-time visibility of project milestones and progress updates to stakeholders, improving informational flows and connection arrangements. • We continue to meet our licence obligations and incentive targets, such as the Quality of Connections incentive. • We will increase our customer satisfaction rating from 7.2 to above 7.7 in the Quality of Connections Survey
Intelligent asset and network		

What success looks like for us	What success looks like for our stakeholders	How we will measure ourselves
• Harnessing real-time insights from asset data to unlock greater value within our asset operations and maintain network reliability at an affordable cost for our customers, and a step change in productivity. • Creating an intelligent network and assets to respond with greater agility and speed, meeting consumer demands with enhanced resilience and efficiency.	• We maintain high network reliability, safety, and resilience. • We ensure affordability and value for money for consumers today and in the future by justifying our network refurbishments and replacements. • We share and make our asset data easily discoverable, so that stakeholders can find the data that they need	• We continue to meet our licence obligations and incentive targets, for example, our Network Asset Risk Metrics commitments, the Security and Quality of Supply Standard and Energy, and Energy Not Supplied (ENS) incentive. • We will measure ourselves against the data best practice guidelines, ensuring that we maintain or exceed compliance • We maintain high network reliability and continue delivering excellent safety operation. • We will measure our ability to optimise our network operating costs and whole asset lifecycle costs • We will provide more detailed insights on the operation of our network in all timescales, including on constraint costs, enabled through increased automation and use of AI in power system studies • We will reduce unplanned outage resolution time through improved predictive monitoring and early intervention, improving resiliency and efficiency
Building trust through data transparency		
• Deliver a Data Fabric platform which will connect, catalogue and provide access to data, enabling all users to retrieve information seamlessly and rapidly as needed. • Transform our portfolio management approach, enabling us to make optimal decisions on work locations and timings. • Empowering our people to maintain data quality and management through decentralised ownership and specific team accountabilities, driving value for those who know the data best and fostering greater data	• Increased discoverability by providing users with access to Data Products which are readily available for consumption. • Fast, open, user-friendly access to all Data Products. • We continue to engage our stakeholders on the Data Products they are interested in. Enhanced project outcomes achieved within shorter timeframes and lower costs. • Provision of digital investments with the flexibility to adapt to evolving DBP principles, AI best practices, and greater standardisation	• Interoperability through industry engagement and collaboration on cross-industry programmes • We will monitor how frequently our Data Products our used • We will actively monitor the feedback submitted by users to better understand the data quality of our Data Products. • We will achieve seamless data flow between Ofgem, the wider energy sector, and ourselves, through integration of the Data Fabric with the Data Sharing Infrastructure (DSI) by the end of second year of RIIO-T3.

What success looks like for us	What success looks like for our stakeholders	How we will measure ourselves
connectivity by eliminating data silos. • Maintaining and exceeding compliance with Ofgem's Data Best Practice (DBP) guidelines and the Energy Data Taskforce's recommendations	and interoperability requirements.	
Digital culture		
• Developing a digital culture to empower our people to make informed, data-driven decisions, fully utilising our digital capabilities, and investing in our teams to cultivate a digitally informed growth mindset. • Encouraging a shift away from conventional processes and technology, focusing on leadership support, innovation and experimentation, and learning and development to drive digital culture across our business.	• They benefit from improved operational efficiencies and enhanced service delivery, driven by multi-disciplinary product teams addressing specific needs and embedded specialist teams across the business. • Stakeholders experience a well-equipped workforce that supports a positive digital culture through continuous learning and development, • Stakeholders see the establishment of a community focused on digital innovation and data skills, aligning with key digital objectives and promoting individual ownership of digital literacy.	• 80% of relevant employees complete training course on data concepts, terminology, and best practices within the first year of RIIO-T3. • Increased data professional recognition with officially recognised data professionals risen from 0.7% to 3.5% within 12-24 months, through the Data Academy. • Successfully aligning with the Scaled Agile Framework (SAFe) to enhance iterative capabilities, drive business efficiencies, and ensure organisational coherence. • Successful running of digital culture initiatives such as hackathons, innovation days, and digital showcases. • Providing enhanced continuous learning opportunities and upskilling through programs like Code First Girls, [redacted] and the Data Academy

Appendix D: Glossary of terms

A

Accelerated Strategic Transmission Investment (ASTI) programme
The Accelerated Strategic Transmission Investment (ASTI) framework will initially apply to around £20bn of onshore transmission network investment across 26 projects. ASTI projects have a streamlined regulatory assessment process to accelerate the delivery of strategic onshore projects.

Agile
A way of working or methodology that uses an iterative approach of development and testing, where requirements and solutions evolve through collaboration across teams.

Analytics
The process of analysing data to make conclusions about information, and drive decisions using advanced technologies including Machine Learning and Artificial Intelligence.

Application
In information technology, an application is a programme or software that helps users undertake a specific task.

Artificial Intelligence (AI)
Advanced analysis and logic-based techniques, including machine learning, which can be used to interpret data and support human decision-making or take actions directly.

Augmented Reality (AR)
Technology that overlays digital information onto the real-world environment in real-time. AR enhances the physical world by adding virtual elements to it, such as images, video and sounds, creating an interactive experience.

C

Common Data Environment (CDE)
The common data environment is a central repository where construction project information is housed.

Cyber security
Reducing the risk of a cyber-attack on individuals or organisations by protecting the devices and the services accessed from access, theft or damage and assuring its confidentiality, integrity, and availability by implementing appropriate controls.

D

Data asset
Any entity that is comprised of data. A data asset may be a system or application output file, database, document, or web page. A data asset also includes a service that may be provided to access data from an application. Similarly, a web site that returns data in response to specific queries (e.g., www.weather.com) would be a data asset.

Data best practice guidance
A guidance document issued by Ofgem to ensure Electricity Transmission and energy companies abide by core standards for data and digitalisation management and utilisation.

Data culture
A data culture is an organisation culture of data driven decision making.

Data governance
The process of setting, controlling, administering, and monitoring adherence with policy with respect to data and its usage.

Data management
A control framework defined by data governance, to provide assurance that the right people have the right access at the right time to quality data to run and grow the business effectively in an environment where data is actively treated as an asset.

Data Mesh
A term used to describe our Data Operating Model, the purpose is to push as much of the data interaction and value-added activities towards the business subject matter experts who understand the data best and can add the most value. It is a non-technical construct based around value generation, data creation and data ownership.

Data quality
The degree to which data is fit for consumption and meets the needs of data users. Data quality is made up of a few dimensions, including completeness, accuracy, timeliness, validity, consistency, and uniqueness.

Datasets
A collection of related sets of information that is composed of separate elements but can be manipulated as a unit by a computer.

Digital maturity
The degree to which an organisation can employ digital capabilities to generate value.

Digital product
A variety of business applications used with analytics that connect insights to actions that offers utility to users.

Digital Twin
Realistic digital representations of physical assets.

Digitisation
The process of converting analogue information into a digital format.

Digitalisation
The use of digital technologies to change an organisation's operating model and provide new revenue or equivalent value-creating opportunities; it is the process of moving to a digital business/organisation.

Distribution Network Operator (DNO)
A company responsible for operating, maintaining, and developing the electricity distribution network within a specific geographical area.

E

Energy Data Taskforce (EDTF)
The Energy Data Taskforce (EDTF) was commissioned by the UK Government, Ofgem and Innovate UK to deliver a set of actionable recommendations that challenge the status quo and help deliver the digitalised energy system needed to reach net zero.

Enterprise Delivery Model
An alternative model in which partners form an enterprise and work collaboratively towards aligned objectives – offers benefits such as better outcomes, greater productivity, more innovation, and a greater predictability of value creation.

Environmental Action Plan (EAP)
A comprehensive strategy plan designed to address and mitigate an organisation's impact on the environment. It outlines specific actions, targets, and timelines to help improve environmental performance and sustainability.

ESO
The Electricity System Operator is responsible for operating the transmission network in England, Scotland, and Wales, moving electricity around the country to ensure that the right amount of electricity is where it's needed, when it's needed and keeping supply and demand in perfect balance.

F

Future Network Blueprint

A strategic plan outlining the development and transformation of an electricity grid to meet future demands and challenges.

I

Independent user group
A group of experts from across the energy industry and beyond, whose role is to scrutinise our business plans and stakeholder engagement approaches on behalf of the interests of end consumers, the environment, public interest groups and our other customers and stakeholders.

Information Technology (IT)
Information processing, including software, hardware, communications technologies, and related services.

Interoperability
The ability of a product or system to operate in conjunction with other products and systems.

M

Machine Learning (ML)
An important branch of artificial intelligence, whereby computer software that can learn from data and improve the way decisions are being made.

N

Net zero
Net zero refers to the balance between the amount of greenhouse gas produced and the amount removed from the atmosphere. The UK Government amended the Climate Change Act to commit the UK to achieving net zero by 2050.

NESO
The National Energy System Operator (NESO), previously known as the Electricity System Operator (ESO), was acquired from National Grid and transferred to public ownership. It helps connect new generation projects to the electricity grid and works alongside Great British Energy to deploy renewable energy.

P

Products and services
Anything that a party can offer to a market for attention, acquisition, use or consumption that could satisfy a need or want.

R

Responsible Business Charter (RBC)
A document that outlines an organisation's commitments and principles to ensure they positively impact society, the environment, and the economy.

RIIO-T2
Price control for the high voltage electricity transmission networks and high-pressure gas transmission networks which transmit energy across Britain from where it is generated. The price control runs for five years from 2021-2026. Also referred to as RIIO-T2.

RIIO-T3
Price control for the high voltage electricity transmission networks and high-pressure gas transmission networks which transmit energy across Britain from where it is generated. The price control runs for five years from 2026-2031. Also referred to as RIIO-T3.

S

Scaled Agile Framework (SAFe)
SAFe is a set of organisational and workflow patterns for implementing agile practices at an enterprise scale. The framework is a body of knowledge that includes definitions on roles and responsibilities, guidance on how to plan and manage the work, and approaches to ensuring that key values are upheld.

Supergrid
A name given to the development of a new electricity grid transmission system, utilising next-generation engineering and driving the energy transition

V

Virtual Reality (VR)
An immersive technology that creates a simulated environment, allowing users to experience and interact with a 3D world, generated by computers. VR entirely replaces the real-world environment with a virtual one.

W

Whole system approach
The Energy Whole System comprises the interactions between electricity, gas (methane, hydrogen, biogas) and liquid fuels (oil and biofuel). Then, how those energy sources best contribute to delivering Net Zero greenhouse gas emission energy for technology, communications, transport, heat and water. The best mix of energy should provide economic, reliable and resilient

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