Scottish & Southern Electricity Networks

TRANSMISSION

IT and Telecoms Strategy

December 2024

Contents

Executive Summary

With our ambition to deliver a network for net zero, it is crucial to recognise the use of digital technology as a powerful core capability. It empowers our business and employees, enhancing efficiency in our ways of working, speeding up decision-making, and utilising accurate and timely data. SSEN Transmission's growth trajectory underscores the importance of these factors.

Our business colleagues interact with digital solutions every day and it is the Digital team's responsibility to provide and support these modern capabilities, from the brilliant basics of IT services, to cutting edge data platforms and tools.

In RIIO-T3, we will build upon our core systems and facilitate digital transformation, enabling network growth and world class asset management. We will identify and execute opportunities to enhance, exploit and optimise process and experiences through automation, reporting and analytics, driving efficiency and effectiveness across our business.

Underpinning this is our drive to embed a data-driven culture within our business harnessing the power of data to deliver a safe, resilient and efficient electricity transmission network. We remain committed to investing in our established core services while actively leveraging new emerging technologies to optimise and transform our processes, delivering both efficiencies and valuable insights.

We have set out a compelling and value for money IT & Telecoms strategy and investment plan to realise that strategy. Our investment decision papers and Engineering Justification Papers (EJPs), set out the detailed need.

Our Telecoms strategy outlines a comprehensive plan to enhance the telecoms infrastructure supporting the high-voltage electricity transmission network across northern Scotland. This upgrade is crucial for meeting the region's future renewable energy demands and supporting the UK's net zero target by 2050. The strategy aligns with the RIIO-T3 Business Plan, emphasising network reliability and facilitating the energy transition.

1. Introduction

Our RIIO-T3 IT and Telecoms strategy sets out how operational IT and telecoms risk reduction will be achieved and how the company will maintain a 24/7 operational telecoms network. It also sets our proposals for investment data and digital technologies to improve our business efficiency, enable common industry goals such as data sharing infrastructure and the enabling IT investments.

This strategy and the investment proposals directly contribute to our overarching strategic T3 goals:

- **Resilient Supply:** Zero interruptions in electricity supply to homes and businesses due to our network
- **Clean Power:** Our network will have the capability to meet 20% of the GB demand for clean power
- **Our Legacy:** Drive investment in the energy transition that delivers transformative lasting benefits for local communities, our economy and nature

It is closely linked to our enduring Digital and Data Strategy, as well as our Cyber Strategy, as outlined in our NIS-R Cyber Resilience Investment Document as detailed in Table 1. Investments in IT, Data, Digital, and Cyber increasingly overlap, sharing common drivers and enablers across projects. When an investment supports shared drivers or business plan commitments, we group them under common themes. This consolidation focuses on key strategic areas: Telecoms, Data and Digital, or Cyber.

Table 1. Supporting Strategies and Documentation

	Purpose	Supporting Documents
NIS-R Cyber Resilience Investment Document (CRID)	Sets our how we will meet out NIS/CAF obligations and the discrete investments we are making to maintain cyber resilience	Cyber CRIDs

1.1 Scope

This strategy document outlines:

- The principles behind the determination of SSEN Transmission Operational Telecoms Infrastructure Upgrades to meet the growth objectives of the company and remove the need for using the costly and less reliable external third-party service provider networks provided elements.
- An evaluation of the requirements of this strategy.
- The methodology to implement this strategy, and the key steps taken throughout.
- An outline of our Digital strategy for RIIO-T3, which will replace our current Digital strategy and be the basis of future Digitalisation Action Plans.
- How our Digital strategy supports Open Data, Data Best Practice Guidance and the Data Sharing Infrastructure.
- How we will maintain our Digital strategy and Digitalisation Action Plan.
- Signposting to other documents which provide important context for the IT and Telecoms Investments

2. Telecoms Strategy

This section sets out the key drivers for our investments in our telecommunications strategy, provides an overview of the current network performance, the drivers for change on the network and the rationale for the investments we are proposing in RIIO-T3.

2.1 Our Current Performance

Our current Operational Telecoms network is a combination of services provided by a third-party telecommunications company and our own wholly owned infrastructure, installed during the RIIO-T2 period. The management of this infrastructure and its associated systems is asset-specific: some are managed by us, while others fall under the responsibility of the third-party telco, as part of a support contract that will remain in place until around 2029.

During RIIO-T2 we delivered telecoms network enhancements and upgrades which included the installation or adoption of 338km of new fibre optic telecoms bearer, 89 new data network stacks and 91 additional multiplexors.

The implementation of this new infrastructure has significantly reduced routine faults, avoiding issues associated with legacy technologies like microwave radio systems. However, there has been an increase in faults due to accidental errors or misconfigurations. To mitigate this risk, we need further investment. The steps we will take and the individual EJPs are detailed in the sections below.

2.2 Key Drivers

The secure operation of a power system relies on the prompt and reliable exchange of information between electrical installations and decision platforms. Facilities are generally spread over a wide area and may include various economic and technical feasibility contexts leading to a network implemented through multiple technologies.

The key drivers for our Telecoms strategy, are centred around reliability, resilience, regulatory compliance, operational efficiency, and stakeholder value:

- **Managing Network Risk** – We will minimise transmission network risk by optimising asset lifecycle activities without compromising safety or performance. We do this by fully integrating risk-based decision-making processes into all asset life cycle management activities, considering factors like safety, environmental impact, cost, and performance. We will prioritise resources on high-risk assets to reduce risks associated with asset failure and safety.
- **Regulatory and Statutory Compliance** – We will operate within the bounds of our Transmission Licence and other regulatory requirements set by bodies such as Ofgem and the Health & Safety Executive (HSE). We have established clear governance and assurance processes to achieve this and allocate resources to address compliance gaps.
- **Sustainable and Responsible Operations** – We will operate in a sustainable and responsible way through environmental stewardship, extensive stakeholder engagement, and delivering value not just for our shareholders but also for society.
- **Total Cost of Ownership and Value Optimisation** – We strive to achieve best value for all our stakeholders while ensuring the security and performance of our transmission network. This is achieved by integrating load and non-load driven decision-making, optimising asset life cycle activities, understanding whole asset lifecycle cost and stakeholder value, and investing in activities to improve operational efficiencies.
- **Innovation and Technology Adoption** – We are committed to promoting innovation and the use of emerging technologies such as advanced data analytics and predictive maintenance. These technologies help improve asset efficiency, reduce downtime, and enhance overall performance.

Figure 1. Strategy step change

2.3 Our Communications Network

Our existing communications network comprises of a mixture of operational communications mediums. To every SHE-Transmission 400kv substation, three diverse fibre optic mediums are in operation.

Every 275kv substation currently has two fibre optic communications mediums as a minimum standard. Where 132kv substations are concerned there is one fibre optic communications medium deployed. However, most 132kv substation sites utilise microwave radio mediums, and in some cases power line carrier or other legacy technologies as a second route.

There is a requirement to provide a second fibre optic bearer and associated hardware stack to complete our dual diverse fibre network to increase reliability, security and to reduce current operating costs and reliance on third-parties and legacy technologies.

The aim is to utilise our Overhead Line (OHL) structures for installing fibre optic cables whenever possible. However, in some instances, we will rely on existing dark fibre, as well as BT Ethernet Access Direct (EAD) and Optical Spectrum Access (OSA) products. These solutions are approved and capable of transferring protection, control, and Supervisory Control And Data Acquisition (SCADA) traffic.

2.4 Drivers for Change

The overall telecommunication network must constitute a well-coordinated, maintainable, stable, and standards-based infrastructure delivering a predictable and secure communication service for the operational mission critical applications of the power system.

The significant changes to the transmission network, coupled with increasing levels of data capture and transfer, and the wider deployment of IP based equipment, have placed higher demands on our communications network. This necessitates a medium that is high-speed, high-bandwidth, secure and reliable to ensure the integrity of protection, control, monitoring, and the enhanced security of the transmission system.

These factors are driving the need to replace legacy communications technologies with secure and reliable dual fibre optic connections to each substation. We have identified the need to increase the quantity of data received from our assets and enhance how this data is utilised within internal systems to more accurately recognise asset operation and condition. This data can then be used for failure prediction and improved real-time monitoring for the transmission control room and the National Energy System Operator (NESO).

These assets carry out several critical functions in the transmission network:

Figure 2. Critical functions

Protection and Control Circuits - Provided over the hybrid Synchronous Digital Hierarchy (SDH) network

SCADA Circuits - provided over the hybrid SDH network and the Operational Telecommunication Network (OTN), with a view to full OTN provision for IP enabled Remote Terminal Units (RTU) by the end of the RIIO-T2 price control

System Restoration Voice – Provided over 3rd party BT Public Switched Telephone Network (PSTN) and the hybrid SDH network, with a view to fully utilise the OTN for Voice over Internet Protocol (VOIP) by the end of the T2 price control. Personal Mobile Radio (PMR) acting as the backup voice option

CROT - Cyber Resilience OT related services such as device intrusion detection and site security will be provided over the OTN during the T2 period and beyond

Integrated Condition Monitoring Case Study

During RIIO-T2, we established a dedicated Condition Monitoring Team within the Operation and Asset Management Group, which has supported the delivery of various monitoring technologies. To support this, IT hardware and software systems have been designed and introduced within the SSEN environment, enabling data from any installed monitoring unit to be collected via hardwired or web-based communication solutions and centralised for ongoing analysis.

In RIIO-T3, we will continue to develop our condition monitoring capabilities, increasing our knowledge and understanding of asset operational performance and overall health, while also improving the quality and quantity of information gathered. We will develop and deploy:

- **60 portable condition monitoring devices** to provide increased flexibility in targeting data collection.
- **334 fixed/hardwired condition monitoring devices** to further enhance our understanding of aging assets.
- **40 additional LV energy monitoring devices** to directly measure power consumption at substations.
- **Modernising existing real-time condition monitoring systems** at 10% of our substations and connecting them to the OT/IT infrastructure installed and commissioned as part of the RIIO-T2 ICPM.

The rollout of these technologies requires investment in telecommunications infrastructure to support these modern asset management techniques and their increased data capture.

2.5 Proposed RIIO-T3 Outcomes

Our Telecoms delivery programme is designed to achieve the following key outcomes.

- **Continue to Enhance Network Reliability:** The telecommunication infrastructure is the backbone of critical energy transmission services, making its reliability essential. Even minor disruptions can cause damage to assets, prolonged outages, severe disruptions to consumer supply, and increased repair costs. Therefore, continuous efforts to improve network reliability are crucial.
- **Continue to Enhance Network Security:** The increasing levels of data capture and transfer for existing and new monitoring systems, along with the integration of IP-based network equipment, are putting significant strain on the network's capacity and reliability. Efforts are needed to provide the network with increased bandwidth and enhanced communication to ensure the secure transfer of information and the delivery of supply.
- **Replace End-of-Life (EOL) Network Equipment in Substations:** With network reliability being vital to the operation of critical systems, it is crucial to replace equipment reaching EOL to prevent any negative impact on the functionality of critical services. This includes replacing the existing Private Mobile Radio (PMR) network, which provides operational staff with voice communication capabilities and is nearing its EOL status. The manufacturer has announced that production of replacement parts and hardware will cease, leading to challenges in maintaining or replacing these components.
- **Establish a new Network Operation Centre (NOC) Under the Direct Control of SSEN-Transmission:** The Transmission telecoms network is currently operated and managed by an external third-party from their NOC in Havant. Several risks have been identified with this operational arrangement, primarily associated with the location and lack of dedicated support within the third-party NOC.

2.6 Our RIIO-T3 Investment Proposals

We have a proven track record of responding to and managing technology risks through effective design and delivery. We will continue this approach throughout the RIIO-T3 period. We plan to undertake three major projects and have submitted Engineering Justification Papers for approval.

Table 2. RIIO-T3 investment proposals

Scheme Name	Ofgem / Internal Reference	Description	Output Date	Value £
Telecoms Network Infrastructure Upgrade	LT000582 T3BP-EJP-027	Installation/Completion of a Meshed, dual diverse operational SDH and IP telecommunications network. Approved by Ofgem and started in RIIO-T2.	2031	£21.2m
Personnel Communications	PT001105 T3BP-EJP-042	Replacement of legacy PMR network with DMR core hardware. Installation of Low Earth Orbit (LEO) connectivity at each substation. Private Long-Term Evolution (LTE) should spectrum constraints be lifted.	2031	£21.3m
Telecoms NOC	PT001108 T3BP-EJP-040	Construction of a network operations facility to monitor operational telecoms functions	2031	£3.38m

3. IT, Data and Digital Strategy

Digital investment within RIIO-T3 is essential for developing platforms and capabilities that enable our business to achieve its strategy while operating more effectively and in new, digitally enabled ways. By liberating data and exploiting information in day-to-day decision-making, we can drive efficiencies that directly benefit the end consumer.

We have evolved our Digital strategy throughout the RIIO-T2 period and are now resetting it for the next regulatory period. Our revised strategy (Figure 1) builds on the foundations we have already established and will guide the business on a digital transformation journey towards RIIO-T4 and beyond.

End-to-end transformation for efficiency, focusing on high-value activities, and enhancing the employee digital experience will drive employee satisfaction and help us embed a culture of collaboration, data best practices, and analytical problem-solving. Technology investment through our Digital programme, alongside the provision of high-quality, robust, and reliable IT business services, is key to our success on the Pathway to 2030.

With our ambition to deliver a network for net zero, it is important to recognise digital technology as a powerful core capability. It empowers our business and employees, enabling efficient ways of working, faster decision-making, and the utilisation of accurate and timely data. Our growth trajectory underscores the importance of these factors. Our employees interact with digital solutions every day, and it is the Digital team's responsibility to provide and support these modern capabilities, from the basics of IT services to cutting-edge data platforms and tools.

In RIIO-T3, we will build upon our core systems and facilitate digital transformation, enabling network growth and world-class asset management. We will identify and execute opportunities to enhance, exploit, and optimise processes and experiences through automation, reporting, and analytics, driving efficiency and effectiveness across our business. Underpinning this is our commitment to embedding a data-driven culture, harnessing the power of data to deliver a safe, resilient, and efficient electricity transmission network.

We remain committed to investing in our established core services while actively leveraging emerging technologies to optimise and transform our processes, delivering both efficiencies and valuable insights. Investments in IT, Data, Digital, and Cyber increasingly overlap, sharing common drivers and enablers across projects. When an investment supports shared drivers or business plan commitments, we group them under common themes.

Figure 3. Our RIIO-T3 digital strategy summary

3.1. Our Current Performance

In 2020, following the separation from SSEN Distribution, we established our own IT & OT function within SSEN Transmission, and appointed our first Chief Information Officer (CIO), an executive-level position within the business. Recognising the importance of digital and digitisation in our business and the wider energy industry, we named our function the Digital Team.

Our digital initiatives throughout the RIIO-T2 period have been guided by our RIIO-T2 investment plan and have evolved along with our Digital strategy. During the current regulatory period, we are establishing our technology fundations and undertaking targeted transformations to digitally enable key capabilities, driving efficient and effective data exchange and integration. Our achievements during this period include the following:

Customers, Stakeholders, and Commercial

- **End-to-End Transformation:** By the end of RIIO-T2, we will have transformed and driven efficiencies throughout the entire customer relationship journey and our engagement with third-parties.
- **Automated Stakeholder Engagement:** We have automated the capture and storage of stakeholder details through our web platform, allowing us to engage with stakeholders based on their individual preferences.
- **AI-Enabled Sentiment Analysis:** We have developed a secure, AI-enabled sentiment analysis tool to assess stakeholder feedback, understand sentiment towards us, and identify stakeholders' areas of interest to respond accordingly.
- **Enhanced Web Presence:** We have redesigned our Transmission web presence, making data and information more accessible to everyone we engage with, and introduced more self-serve capabilities to accelerate engagements.
- **Tailored Digital Presence for ASTI Projects:** We have developed a more sophisticated, tailored digital presence for our ASTI projects, bringing greater clarity to our proposed OHL routes, articulating our project stages, and outlining opportunities for stakeholder engagement.

Projects and Capital Delivery

- **BSI BIM Level 2 Accreditation:** By the end of RIIO-T2, we will have achieved BSI BIM Level 2 accreditation, leading to improved deliverable quality, enhanced supply chain collaboration, and increased efficiency.
- **Common Data Environment (CDE):** We have implemented a new CDE, AutoDesk Construction Cloud, which improves collaboration, enhances design management, and onboards asset data. This results in better handovers and a continuous data thread from design to operation.
- **Integrated Project Management (IPM) Platform:** We have deployed the first phase of our IPM platform based on Oracle Unifier. This platform provides a single source of truth for end-to-end project management in Capital Projects, integrating health and safety, planning, design and construction, risk, and financial data into one system.
- **Digitalised Consents and Environmental Processes:** By the end of RIIO-T2, we will have digitalised our consents and environmental processes by creating a central platform to consolidate and enhance the capture, storage, access, and analytical reporting capabilities for data.

Network Planning

- **Cloud-Based Network Modelling:** Leveraging the scalability and compute power of our cloud platform, we have re-platformed our Network Modelling tools and consolidated them onto a single PowerFactory platform to run more complex system analysis tasks.
- **Master System Model:** We have developed a "Master System Model" that allows our planning engineers to manage the system model more effectively with trusted data, saving time when loading the model into modelling tools.
- **Smart Monitoring Devices:** We have deployed new smart monitoring devices onto network assets and are utilising this information through a time series data historian. This provides richer real-time information on system performance and power quality to our planners. We will continue to develop insights into system and asset performance as we progress through RIIO-T2.
- **Enhanced Power System Simulation:** We have re-platformed our power system simulation capabilities onto our cloud platform, increasing the reliability, scalability, and performance of the platform.

Asset and Operations

- **Enterprise Asset Management System:** We have leveraged our Enterprise Asset Management system (Maximo) as the primary asset information register for our business, integrating it with our GIS platform for linear asset management and other core systems. This establishes the foundation for investing in Digital Asset Management in RIIO-T3.
- **Digitised Work Management:** We have deployed digitised work management processes, including mobile working, based on Maximo and our mobile solution (Fingertip). This covers all primary work types and enables our field engineers to access the right information in the field to perform their activities.
- **Smart Monitoring Data:** Data from our smart monitoring Internet of Things (IoT) devices is available through our corporate data historian across the organisation.
- Control Centre Alarms: We have assessed and rationalised the control centre alarm notifications received through SCADA, enabling our control engineers to see prioritised alarms and improve decision-making.
- **Phasor Measurement Data:** We have improved the sharing and accessibility of phasor measurement data both internally and with the NESO.

Enabling Digital Functions

- **Technology Foundations:** We have established the essential technology foundations to support the business and the digital programme, including enhancing our data capabilities to move forward as a data-driven organisation.
- **Data Stewardship and Governance:** We have appointed over 100 data stewards and data owners within the business, embedding additional data management and governance roles and responsibilities. We have also established data cataloguing tools to support data management capabilities.
- **Improved Data Quality:** We have driven increased data quality by providing business users with visibility into areas needing improvement through the deployment of Data Quality tooling.
- **Integrated Data Platform:** We have established the Microsoft Fabric platform as our Integrated Data Platform, enabling numerous reporting and analytics asset-centric use cases.
- **Azure Integration Services:** We have deployed Microsoft's Azure Integration Services, allowing data and systems to be integrated quickly and securely to support day-to-day activities and facilitate collaboration across the entire business unit.
- **Open Data Portal:** We have deployed an Open Data Portal, providing internal and external stakeholders access to datasets, signposted with supporting information. This delivers data best practices and ensures Ofgem compliance for industry data sharing.

3.2. Drivers for Change

We view digitalisation of the industry and our business as critical to meeting UK and Scottish Government targets to achieve net zero by 2050. The demands on our business and the business strategy that we have set out are such that only through digital and data transformation can we realise our ambitions.

RIIO-T2 has seen substantial investment in not only establishing our Digital function, something that didn't exist at the start of RIIO-T2, but also in the cornerstone and foundational systems and platforms that provide base capabilities – but we need to go further to support our future growth.

Table 3. Summary of Industry and Business Investment Drivers

Driver	Description
Delivering Net Zero	Digitalisation is the fastest way to net zero. It is vital that we embrace Digital Capabilities and utilise our data as an asset in order to create efficiencies and improve the deliverability of the capital programme. We need to consider the end-to-end value chain, the increasingly global supply chains that we need to establish and the supporting functions that enable projects to be successfully planned, designed and built.
Digitalised Energy System	The regulatory landscape has evolved since RIIO-T2 with Digitalising our Energy System an essential enabler of GB net zero ambitions. Not only will we embrace increased digital capabilities internally, but we need to meet wider expectations and demands for our products and services. Increased interoperability and sharing of data are firmly set on the horizon, and we will embrace this need fully. In support of this it is essential that our data is accessible and of high quality.
Supporting Our Growing Business	Our business is growing at a staggering rate to meet the demands of the industry and net zero. However, we cannot just scale linearly given the talent constraints and the need to show value for money to consumers. It is therefore vital that we exploit the opportunity that Digital brings to enable efficient growth. Our front office and back-office processes and systems need to transform to support a growing number of people. The processes of yesterday, are not fit for the future and we cannot continue to drive critical processes using excel. We have made a great start in RIIO-T2, however there is more to do to break down siloes and barriers between teams, enabling collaboration and cross-functional working through digital investment.
Efficiency	We recognise the need to ensure we represent good value for our consumers and believe Digitalising our business presents opportunities to do so through greater efficiency. As a recently established IT function many opportunities still exist that addressing would enable our business to be more efficient. We must be efficient if we want to grow in a way that represents good value to consumers, and Digital, as well as being a key enabler for the wider efficiency targets of the business, will support the efficient growth of the organisation.

3.3. Meeting the Needs of the Industry

As a stakeholder led business, we hold the Data Best Practice Guidance and Principles at the core of our investment programme in order that adherence and compliance is achieved. Alongside this, we engage with our peers across industry to drive alignment with the adoption and implementation of the guidance and principles and share best practice through these forums.

At SSEN Transmission we view digitalisation of the industry as critical to achieve UK and Scottish Government targets to achieve net zero by 2050. Significant efforts have been made to meet the existing licensee competency of complying with the published Data Best Practice Guidance throughout the course of RIIO-T2. This compliance can be demonstrated through several initiatives underway within the business, namely: implementation of data tools and technologies such as our Open Data Portal and Data Catalogue Tool, data management activities, data process creation and implementation, building on the development of our data culture in line with our current and projected view through RIIO-T2 and into RIIO-T3, making improvements to and providing an education around cyber security, and ensuring that we are aligning with other network operators across our industry.

Our focus for the remainder of RIIO-T2 and throughout RIIO-T3 remains consistent – we must ensure that our colleagues, customers and stakeholders have access to the right information, of the right quality, for the right purpose, at the right time. In support of that, Ofgem states 'We are committed to further digitalisation of the energy sector and to unlocking the value of both consumer data and energy system data' (Source: RIIO-3 Business Plan Guidance – Draft v1). Although much has been done thus far, we believe this is a journey which can only be successful via the implementation of Data Best Practice, as we accelerate the journey to net zero. As requested in the Business Plan Guidance, we have conducted an audit of the current position against Data Best Practice and the forecast position at the end of RIIO-T2 and RIIO-T3 respectively. Many initiatives to enhance compliance are already underway, with some nearing completion. Others will continue to span the scope of these price controls and beyond, coupled with our business as usual (BAU) Data Management and Governance activities. We have determined the capability level, represented on a scale of 1-5, that we expect to be at the end of RIIO-T2 and our desired position at the end of the RIIO-T3. Table 4 sets out the expected capability levels for each Data Best Practice principle.

Table 4. Capability maturity assessment at the end of RIIO-T2 and RIIO-T3

Principle	1	2	3	4	5	6	7	8	9	10	11
Maturity Assessment – end of RIIO-T2 (out of 5)	3	2	3	3	3	3	3	2	3	3	4
Anticipated Maturity Assessment – end of RIIO RIIO-T3 (out of 5)	5	4	4	4	4	4	4	4	5	4	5

To support our capability maturity assessment, additional information is available on request that sets out the evidence and examples that support the determined level and the improvements that we will make aligned to each of the principles through our BAU data team or the Data Driven investment programme.

Our data strategy focuses on how we will manage and use our data and share it with our stakeholders, to become a data driven organisation. In doing so, we will deliver transformational benefits to our operations. Our data strategy is put into action through three mechanisms:

1. The BAU data management and governance team that we have established through RIIO-T2
2. Our Data Driven investment theme contains multiple projects that enhance existing or deliver new capabilities and drive our maturity against the Data Best Practice Principles and Guidance, and
3. Our Digital Transformation investments also feature data enrichment and improvement activities.

Table 5 demonstrates the alignment between our proposed investments under the Data Driven theme against the principles of the Ofgem Data Best Practice Guidance.

Table 5. Alignment of our data driven investments to the data best practice principles

Programme	Project	Ofgem's Data Best Practice Principles										
		1	2	3	4	5	6	7	8	9	10	11
Data Culture	Data and AI Literacy	X			X		X	X				X
Data Scope & Format	Fit for Purpose Data in Digital Formats		X	X		X		X	X	X	X	X
	Procure External Datasets				X	X	X		X		X	
Data Management & Governance	Data Governance	X	X	X	X	X	X	X	X	X	X	X
	Master Data Management	X	X	X	X	X		X	X	X		X
Data Products & Technology	Document Management Capability	X	X	X		X	X		X	X	X	X
	Management Information System					X	X				X	
	Reporting Capabilities	X					X					
	Data Sharing in the Energy Ecosystem	X	X	X	X	X	X	X	X	X	X	X

Open Data and Industry Interaction Through Data Sharing

We launched our Open Data Portal, hosted by OpenDataSoft, in November 2023. The portal provides a central location for Data Users to view and search datasets and publications that have been classified as 'Open' via our Open Data Triage Risk Assessment process. Based on guidance from the National Protective Security Authority (NPSA) and the Department for Energy Security and Net Zero (DESNZ) in early 2024, we implemented a mandatory login for users who wish to view or download our raw data. This ensures that we can monitor who is accessing and utilising the data available on the portal. Users who wish not to create an account are free to view the Data Catalogue and associated metadata but are unable to access datasets directly.

The datasets initially published on the Open Data Portal were prioritised based on user requests, however we recognise the available datasets should evolve to meet the needs of our Stakeholders. In H2 2024, we engaged with an external partner to run a series of engagement events with our stakeholders to determine what datasets would provide the most value. Alongside this, several user personas have been developed.

Future Systems & Network Regulation and Data Sharing Infrastructure

We are already participating in the pilot and Minimum Viable Product (MVP) for the Data Sharing Infrastructure (DSI) through the NESO Virtual Energy System initiative. Although there are unknowns related to the DSI and details that will be confirmed as we move forward, we are committed to being an active member and participant in the ecosystem that is being established. Depending on the exact use case data that will be shared, our digital transformation and data investments will enable us to fully participate.

The investments needed to support our participation are grouped into two broad categories. Firstly, to technically enable our future participation and commitment to being part of the DSI ecosystem. Secondly, investments that enable our ability to share the potentially wide-ranging datasets that industry participants seek to access.

In the first category, we will continue our investment in our Integrated Data Platform, and we have defined a specific investment related to the technical integration and enablement of the data flows of the industry defined datasets into the DSI. Specifically, this assumes the ongoing use of the NESO Virtual Energy System based platform as the DSI for MVP and beyond.

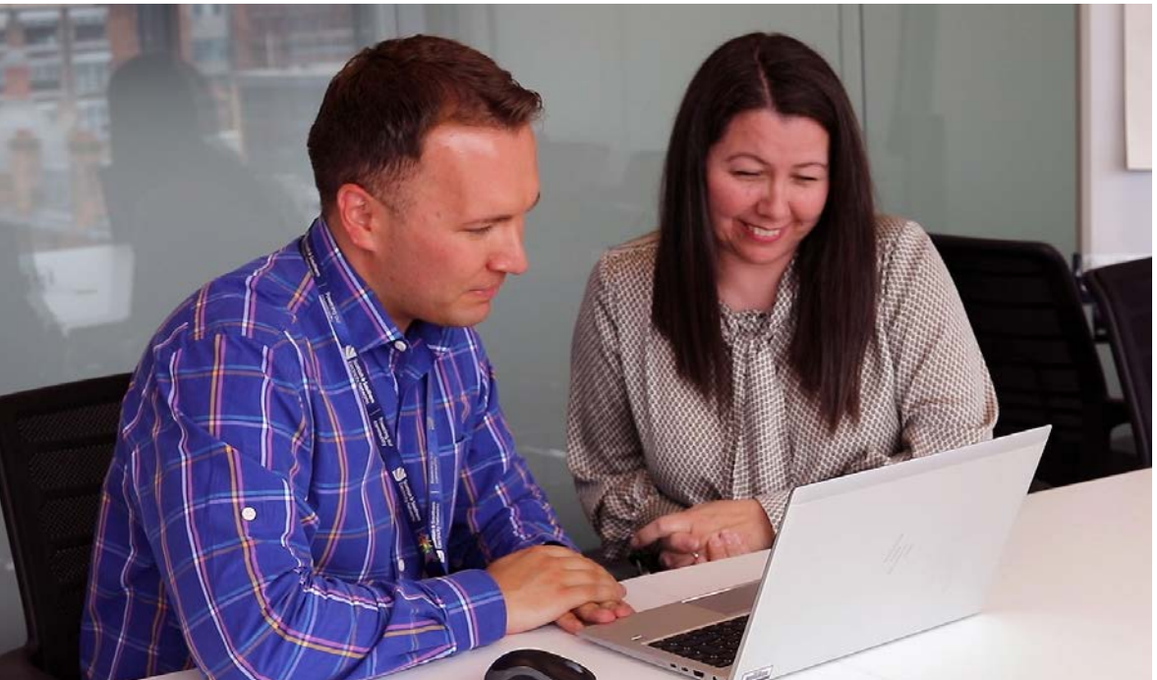
In the second category, the Fit for Purpose Data in Digital Format initiative within our Data Driven theme will support our ability to share trusted and high-quality data through the DSI, alongside meeting other business needs. We also set out digital investments that will enable the sharing of additional datasets, depending on the precise use cases that will feature on the DSI. Some examples of these investments include:

1. **Integrated outage planning**
2. **Expansion of our shareable asset data**
3. **Exploration of future regulatory reporting methods**

3.4 Proposed RIIO-T3 Outcomes

Our vision is clear, through investment in digitisation, digitalisation and the execution of our data strategy, we will deliver transformational change to our business which in turn will deliver a range of outcomes that support the business strategy and the 2030 ambitions. These outcomes are set out more completely in the Individual Investment Justification Papers, but are summarised below:

1. **Digital Capabilities for Growth:** In RIIO-T3 we will establish a robust digital infrastructure to support our future business. This is essential for ensuring efficient growth and supporting the SSEN-T business in delivering the transition to net zero.
2. **Customer and Stakeholder Engagement:** Transforming engagement strategies to create a seamless and coherent approach is vital. This means integrating various touchpoints in our stakeholder and connection customer journeys and ensuring consistent communication and service delivery, regardless of the customer.
3. **Accelerating Project Delivery:** Enhancing efficiencies in delivering large capital projects, such as those under RIIO-T3, ASTI, LOTI, and Offshore schemes, is crucial. This involves streamlining and digitalising processes, adopting innovative project management techniques, and leveraging digital tools to reduce timelines and costs.
4. **Asset Management and Operations:** Improving asset management and operational processes is necessary to manage and maintain a >24GW power system securely and resiliently. This includes predictive maintenance, real-time monitoring, and advanced analytics to ensure optimal performance and reliability.



5. **Investment in Support Services:** Investing in essential support services like finance, legal, and procurement is critical. These services enable the core business functions and ensure sustainable growth. Without incremental investment, these areas might struggle to keep up with the demands of rapid expansion

Our intent is to leverage digital and data enabled transformation through three investment themes, that focus on the growth of the network, ensuring that we can operate and manage the network of the future and specific investments that deliver the outcomes set out in our data strategy. These three themes are set out in the next section.

3.5 Our Enterprise Architecture Proposals

SSE operates a federated operating model for IT Services, with each business unit within SSE having its own IT or Digital function, working in tandem with the SSE Group IT function. Some services are wholly owned and delivered from Group IT, some are shared, and some are delivered by the business unit functions. The service catalogue for Group IT is standardised, and clear boundaries drawn for business units to deliver their own business unit specific applications and digital products alongside operational technology (OT) services.

The diagram below identifies the services in the catalogue that are provided by SSE Group IT vs the SSEN Transmission business unit.

We have built our Digital function, scope of service and Digital strategy around the services that we are accountable for. Through partnership and collaboration with our colleagues in SSE Group IT we deliver a unified service to our business customers.

We have created our Enterprise Architecture (EA) Vision to align with our overall vision and business objectives of SSEN Transmission. This serves as a strategic blueprint for the overall structure of our digital solutions across the business domains and provides guidance on how and where our systems and technology investments fit together to provide a cohesive and adaptable technology estate.

Target Enterprise Architecture Landscape

As we look towards the future, our technology platforms must evolve to support increased scale of use and the need for operating efficiencies that are required to enable Network growth and our net zero targets.

In alignment with the five focus areas of our Technology Strategy—Core Systems, Data & AI, Integration, Hosting, and Security—we have developed a target architecture that supports our vision for the technology and business services essential for RIIO-T3 and beyond.

The EA landscape view below shows the key applications, and how they will change from the RIIO-T2 position, divided across the main business domains in Transmission that they will serve.

3.6. Our RIIO-T3 Investment Proposals

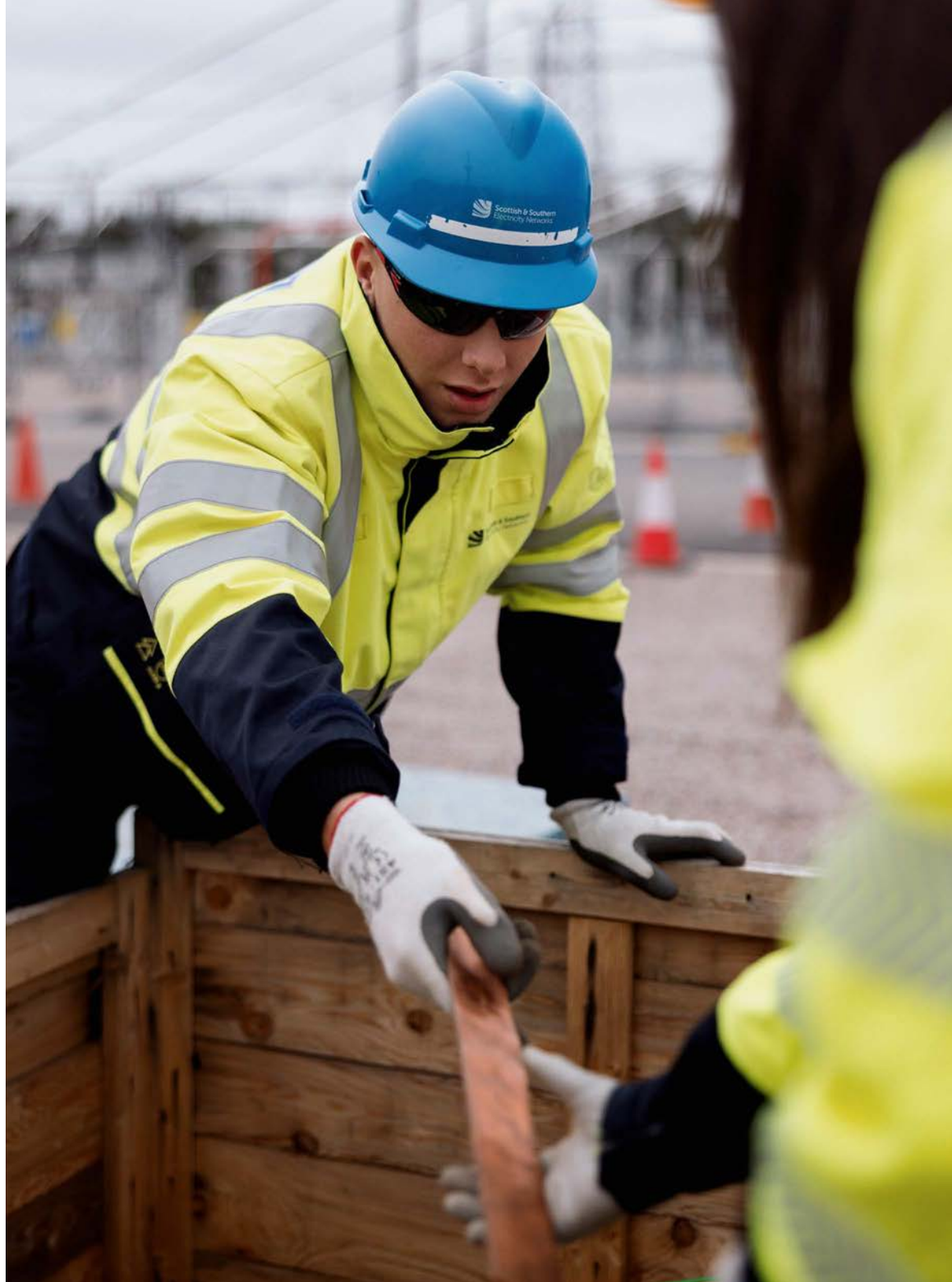
The two primary reasons for digital and data investments are:

- Digitally transforming across our business to deliver the business strategy, enable growth and to meet the demands of building and operating a net zero energy system
- Meeting the needs of the industry, and ensuring that we comply with the expectations of Ofgem as represented through the Data Best Practice Guidance and Principles

To execute our strategy, we will be maturing our Digital capabilities and delivering five strategic investment themes, four of which relate to capital expenditure on IT & Digital. These themes are:

1. Enabling Network Growth
2. World Class Asset Management
3. Data Driven
4. Brilliant Basics
5. Enhance, Exploit and Optimise

The Investment Themes are summarised in Table 6, with more detail in the four associated Project Definition and Investment Justification Papers.



4. Delivering Our Plan

We will adopt the industry recognised and SSE Group standard operating model of Run, Grow and Transform to establish the different change delivery portfolios needed to execute our strategy.

As we transition to the next period, we will be making some key changes to our operating model to support the execution of our strategy, which support the overall deliverability and step-up in delivery demand that we have set out.

Projects will be delivered across the digital team: We will establish capabilities that deliver projects and programmes across the function, extending out from the current digital programme across Operations and Data teams. Alongside the existing Digital Transformation team, we will establish delivery capabilities in:

- IT Operations - technology refresh, small change and continuous improvement
- Data - to deliver the Data Driven Programme and to exploit and continuously improve data and analytics products.

Establishing central services and centre of excellence: We need to ensure that there is equal access to the services that are needed across the Digital team in order to execute. Therefore, we will be establishing shared service functions for:

- PMO, Business Change and communications
- Architecture and strategy development
- Finance, regulation and reporting management and governance, compliance and assurance.

Business relationship management and strategy: We will establish a function of Business Relationship Managers that will be the face of Digital into our business colleagues, driving a closer working relationship and intimacy with the business to better understand their challenges and opportunities.

Enterprise architecture and product expertise: Will evolve into an Enterprise Architecture function, with a sharper focus on technology trends and products, business engagement on solving their problems, and developing roadmaps and guardrails for solution delivery. This function will work hand-in-glove with technical product experts and solution architects to ensure that the solutions maximise the capabilities and value of our core platforms.

We have developed this plan alongside our strategic partners, Baringa Partners, and worked with other delivery partners such as Accenture, Gartner, IBM and Microsoft to provide additional insight and benchmarking.

We will be using the SSE standard delivery methods for Waterfall Lite and/or Agile based approaches for delivering the programmes and projects that we have set out in our strategy and investment plans.

Our projects are well defined, feasible and practical given the time horizon that we are operating to, and our costs are built bottom up based on resource profiles. Each of the investment themes have a Project Definition and Justification Paper which sets out the programme definitions against the SMART criteria in the Ofgem RIIO-T3 Business Plan Guidance.

5. Maintaining Our Digital Strategy and Digitalisation Action Plan

We will continue to publish regular Digital Strategy and Digitalisation Action Plan (DAP) updates as set out in our licence conditions. As we move through the remainder of RIIO-T2, the focus and time horizon of the updates will inevitably shift towards the early years of RIIO-T3 – the precision on the outturn position for RIIO-T2 will become clearer.

Our refreshed RIIO-T3 Digital and Data Strategies will take precedence over the prior strategies that have been published, and the activities that we undertake consist of closing out the RIIO-T2 investments and the ramp-up activities for RIIO-T3, with the objective of ensuring we can accelerate into the next period of digital programmes.

Our DAP will continue to align with the guidance from Ofgem, and as expectations change then our DAP will evolve to meet those needs, including responding to feedback from Ofgem. We will seek to make the following enhancements to the approach that is used to maintain our Digital strategy and DAP.

1. **Improved traceability** – from the Digital strategy we are establishing now and the corresponding investments to the progress against the agreed outcomes
2. **Enhanced agility** – where a previously proposed investment or outcome can be achieved in an alternative way, or enhanced value to the consumer, then we will identify and publish that
3. **Clearer external stakeholder input** – our objective is to move beyond passive stakeholder feedback and using our internal business stakeholders being the voice of the customer/stakeholder and actively engage stakeholders to seek feedback and input into the digital products and services that they would like to have access to and the measures of our success
4. **Product and services interoperability** - Ensuring that we demonstrate the interoperability of our products and services and how we are making it easier to integrate and exchange datasets internally and externally

6. Conclusion

With our ambition to deliver a network for net zero, it is crucial to recognise digital technology as a powerful core capability. It empowers our business and employees, enhancing efficiency in our workflows, speeding up decision-making, and ensuring the use of accurate and timely data. Our growth trajectory underscores the importance of these factors.

Our business colleagues interact with digital solutions daily, and it is the Digital team's responsibility to provide and support these modern capabilities, from essential IT services to cutting-edge data platforms and tools.

In RIIO-T3, we will build upon our core systems and drive digital transformation, enabling network growth and world-class asset management. We will identify and execute opportunities to enhance, exploit, and optimise processes and experiences through automation, reporting, and analytics, driving efficiency and effectiveness across our business. Central to this is our commitment to embedding a data-driven culture, harnessing the power of data to deliver a safe, resilient, and efficient electricity transmission network.

We remain committed to investing in our established core services while actively leveraging emerging technologies to optimise and transform our processes, delivering both efficiencies and valuable insights.

We have developed a compelling and cost-effective Digital strategy and investment plan to realise this vision. Our project definition and Investment Justification Papers detail the need for investment, project definitions, outcomes, and investment requirements.

Through the execution of our strategy and investments, we will achieve our strategic goal for RIIO-T3: **"Harness digital capabilities to power business growth and speed"**.

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