

add annex number

IT and Telecoms Strategy

Index

1.	AN INTRODUCTION TO THIS ANNEX	2
2.	OPERATIONAL IT & TELECOMS	3
2.1.	ASSETS AND SYSTEMS	3
2.1.1.	PURDUE MODEL	3
2.1.2.	OFGEM ASSET CATEGORISATION	4
2.2.	OPERATIONAL TECHNOLOGY DRIVERS AND INVESTMENT	5
2.2.1.	MAINTAINING THE VISIBILITY AND CONTROL OF OUR NETWORK	5
2.2.2.	RESILIENCE THROUGH INFRASTRUCTURE MODERNISATION	6
2.2.3.	CONSOLIDATION AND STANDARDISING TO REDUCE RISK	6
2.2.4.	INCREASING RESILIENCE OF OUR TELECOMS NETWORK	8
2.3.	BENEFITS OF THE INVESTMENT	9
2.4.	DELIVERING OUR PLAN	10
3.	NON-OPERATIONAL IT & TELECOMS	12
3.1.	ASSETS AND SYSTEMS	12
3.1.1.	ENTERPRISE ARCHITECTURE	12
3.2.	NON-OP IT & TELECOMS DRIVERS AND INVESTMENT	13
3.2.1.	DELIVERING TOOLS AND INSIGHTS FOR OUR CUSTOMERS AND STAKEHOLDERS	14
3.2.2.	FACILITATING NETWORK GROWTH THROUGH DATA AND DIGITAL SOLUTIONS	15
3.2.3.	DEVELOPING SMART NETWORK AND ASSET MANAGEMENT CAPABILITIES	16
3.2.4.	BECOMING A DATA DRIVEN ORGANISATION	17
3.2.5.	FOUNDATIONAL TECHNOLOGY PLATFORMS	18
3.3.	BENEFITS OF THE INVESTMENT	19
3.4.	DELIVERING OUR PLAN	20
3.5.	HOW WE MEASURE SUCCESS	22
4.	APPENDIX A: REFERENCES – OT AND IT	25

1. An Introduction to this Annex

This annex is framed around the guidance provided by Ofgem as detailed in sections 5.47 – 5.49 and sections 6.20 - 6.41 of their RIIO-T3_Business_Plan_Guidance issued in September 2024.

This annex details the strategies for both SPT's Operational Technology (OT) and Non-Operational IT (IT) investments as part of SPEN's RIIO-T3 plan and relates to the assets and systems that allows the transmission network to be operated i.e. the monitoring and communication of the systems required to control the network, plus the digital platforms required to drive process efficiency, transform how we use data within our operation and facilitate new ways of working.

Operational Technology

The overall goal of our investment in OT is to reduce risk and increase resilience of our transmission network. We outline our OT investment drivers under four resilience-related themes:

- Visibility and Controllability
- Network Infrastructure Modernisation
- Consolidation and Standardisation
- Telecoms Network Resilience

To deliver our overall goal within these themes, we'll continue our strategic direction that includes managing our network, using information collated via monitoring; integrated network architecture; and the standardisation of our systems, protocols, and functionality across our network; and is supported by continual modernisation, replacement, and repair. The scope and financials of this annex are reflective of the information held in the Ofgem Business Plan 8.9 Operational Technology Data Table.

Non-Operational IT Technology

The overall goal of our investment in IT is to enable the transmission business to scale its operation while providing the digital and data products and services expected by our customers and stakeholders. We outline our Non-Operational IT investment drivers under four digitalisation pillars:

- Delivering tools and insights for Customers and Stakeholders
- Facilitating network growth through data and digital solutions
- Developing Smart network and asset management capabilities
- Becoming a Data Driven Organisation

We established our Business Transformation directorate to lead a digital transformation of our organisation and will deliver a suite of 14 interconnected initiatives (described in Engineering Justification Papers (EJPs)) under these four pillars. This directorate works closely with our newly formed Network Data and Intelligence function to collectively oversee our transition to a data driven; technology enabled operation.

The scope and financials of this annex are reflective of the information held in the Ofgem Business Plan 9.1 Non-Operational Capex Data Table. The Digitalisation and Data related activities are reflected in the Ofgem Business Plan 11.3 Data and Digitalisation Memo Table.

This document should be read in conjunction with the below:

- T3 Business Plan
- T3 Digitalisation Strategy
- T2 December Action Plan Update

Engineering Justification Papers (EJPs) associated with the OT and IT activities are referenced throughout this document and listed in Appendix A.

2. Operational IT & Telecoms

A combined investment of [REDACTED] is required in RIIO-T3 to operate, maintain, extend, increase resilience, and modernise our operational technology infrastructure. Our plan will deliver a step change in investment consistent with the absolute need to develop and deliver reduced risk and a foundation for resilience, efficiency, and sustainability.

2.1. Assets and Systems

SPT's transmission network is located in southern central Scotland providing supply to the SP Distribution Network, generation, storage and demand customers, and connection to other transmission networks to the north and the south. Our transmission network operates at key voltages of 400kV, 275kV, 132kV and 33kV and provides connections to many renewable generation sources. To facilitate the intelligent operation of the transmission network requires a significant infrastructure hierarchy of monitoring, control, telecoms, and processing technology. The SPT operation is based on an infrastructure model called the Purdue Model.

2.1.1. Purdue Model

The Purdue Model is a reference model for describing the architecture, segmentation, and data flows of communication networks in industrial environments developed by researchers at Purdue University in 1990. It provides a hierarchical structure for the integration of automation systems, from the field level to the enterprise level, and is based on logical and physical layers. We use it across SPEN, due to its applicability to operational technology energy systems, and it is referred to in several Cybersecurity Regulations which can apply to us (see section on Legislation, Regulation, Policy, and Guidance Documents)

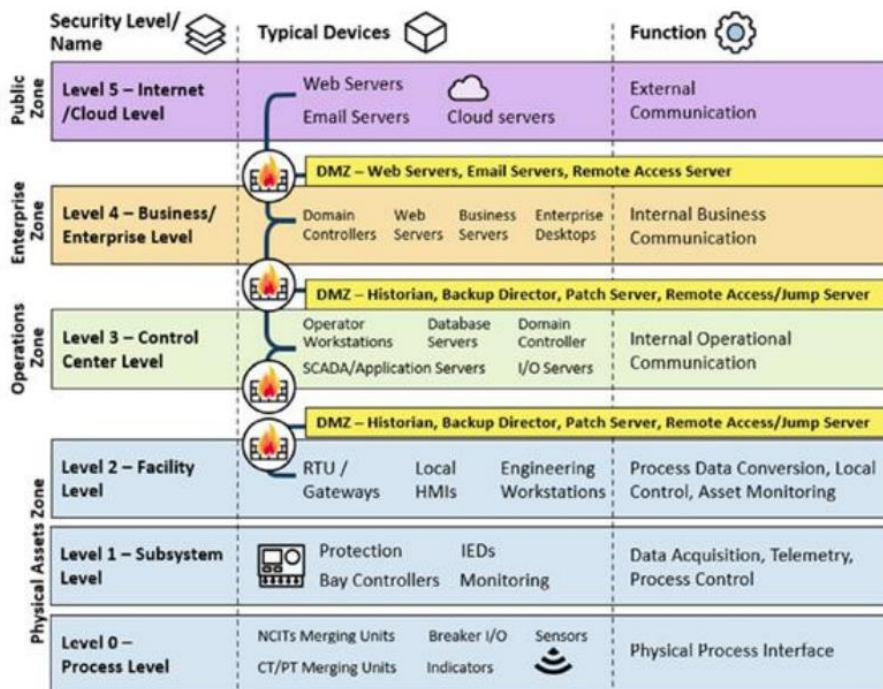


Figure 1 – Operational Infrastructure: Purdue Model

The Purdue Model can be represented by 4, 5 or 6 layers where each one fulfils a function defined below:

- Level 0 - Physical process: includes the devices in charge of the whole physical process such as sensors and actuators.
- Level 1 - Intelligent Devices: is composed of devices in charge of monitoring and sending commands to level 0 devices, e.g., RTUs, IEDs, etc.

- Level 2 - Facility Control systems: is composed of devices that control the substation, like the local SCADA/HMI and RTUs
- Level 3 - Control Centre: in the central systems OT area, includes the control centre SCADA/DMS/OMS/EMS), which is connected to the field and represents the most critical part of the central systems of OT. Also in this layer is the DMZ that serves as an interconnection between the OT and IT part of the business, which is sometimes referred to as level 3.5.
- Level 4 - Enterprise Zone: is composed of enterprise infrastructure with systems such as ERP, databases, mail servers and corporate IT services in general. This level constitutes the first IT layer of the model, separated from the OT layer by the intermediate DMZ between level 3 and 4.
- Level 5 - Internet DMZ: This level constitutes the intermediate DMZ between level 4 corresponding to the enterprise IT layer and the exit to the Internet. It hosts the services that have direct exposure to the Internet, protecting access to the internal layers.

2.1.2. Ofgem Asset Categorisation

The operational technology is a combination of hardware and software systems designed to protect, control, and monitor our electrical network. It allows us to see what's happening across the network and manage it appropriately. Embedding monitoring capability and the latest SCADA innovations, enables greater system visibility at any time and allows us to intelligently react to real time changes. The operational infrastructure forms the main data connections between our control centres and the monitoring, automation, and control equipment at substations.

The assets and systems required for such an operational infrastructure fall into three main asset categories:

- System Applications
- Operational Technical Infrastructure
- Telecommunications Network

In the table below we explore these categories and examples of the services they provide

Asset Category	Sub-Category	Examples
System Applications Software or Operating System which provide the operation and functionality to the technical infrastructure	Applications	<ul style="list-style-type: none"> • Supervisory Control and Data Acquisition (SCADA) system that provides a consolidated means of controlling and monitoring the Transmission network. • Patching software, which manages and installs the latest patches to provide maximum thresholds of resilience
Operational Technical Infrastructure These are the core assets, the building blocks, of our network	Servers Switches Virtual Machines Firewalls	Assets capable of processing applications, including monitoring, data transfer and management. These provide the ability to connect to the servers. They typically sit between the server and the cable connection. Virtual machines provide the same functions as servers, but not physically. Often 'hosted' by a supplier. Configurable security devices that monitor and manage what passes into and out of an asset, network, or part of a network
Telecommunications Network The Telecommunications Network enables communication between control room, data centres	Routers Fibre	Working alongside the switches, routers manage the sending of data from the servers to another location via the cabling. SPT has approximately 4000 km of fibre, either overhead via Optical Ground Wire (OPGW) or underground. Optical fibre is no longer modern technology, but the technology continues to evolve to

and our network assets on the field. There are many facets to telecommunications, all providing a cohesive mechanism for the network to communicate successfully		new standards such as the ability to 'split' the data flowing along a fibre to either segregate or increase the fibre's capacity. In our programme of investment, we have included the replacement of end-of-life fibres
	Transport Equipment	Not assets as such, but a protocol that manages the movement of data around the network. This protocol needs to keep up to date to ensure resilience and efficiency e.g. MPLS-TP
	Power Supply	The telecoms equipment has an additional power supply and use batteries to ensure continues and reliable power even if the main source of power is interrupted. This ensures the resilience of this critical service.
	Synchronisation	For communication to take place across a network, the network, and the data its passing must be synchronised. The assets in question are essentially highly accurate clocks. Technology has enhanced recently, improving the resilience of the synchronisation and therefore the networks resilience. To utilise these advances, we are upgrading our network with ePRC clocks.
	Air Conditioning	The telecoms equipment generates heat and some of these assets require air conditioning to ensure they work in optimum conditions
	Operational Telephony	This is used to enable voice communication between the Control Rooms and the field resources at sub-stations. These phones operate on sophisticated software platforms.

Table 1: OT Asset Categories

2.2. Operational Technology Drivers and Investment

The challenge in RIIO-T3 is how to continue to deliver customer priorities against a radically changing energy landscape. In RIIO-T3 we have a critical role to enable these evolving customers' needs, deliver a Just Transition to Net Zero, and ensure the continued safe, reliable, sustainable, and efficient operation of the transmission network and wider system. Reducing risk and increasing resilience of our network is central to our strategy. Whilst we align to regulatory and other SPT strategies (see section on Legislation, Regulation, Policy, and Guidance Documents), we look to continue to build its security.

Customer-led changes will result in higher network utilisation, more dynamic and volatile power flows, more complex transmission network planning and operation, and increasing whole of system interactivity. Although investment during RIIO-T2 period made significant steps, we must still improve our network to accommodate these trends and the increase and diversity energy use. This means we must invest significantly to increase network capacity, real-time operational capability, and internal processes. The increased requirement for operational technology Cyber Resilience has seen significant controls over the replacement of hardware and upgrading of applications.

2.2.1. Maintaining the Visibility and Control of our Network

Our strategy invests in the maintenance and upgrading of our operational networks. Ensuring our end-of-life assets and software is replaced and upgraded, keeping the numbers of faults down to a minimum. Applying the latest software patches protects our networks against cyber-attack, building our resilience further.

We will invest ██████ into the maintenance of the VISOR/WAMS and Circuit Rated Management Systems, ensuring optimum resilience of the applications that provide the visibility and controllability of our electrical network.

The VISOR-WAMS systems are the platform for a wide range of Network Visualisation and System Stability activities that will be maintained during RIIO-T3, to support the growth in onshore and offshore renewable energy infrastructure and the increasing adoption of distributed energy resources, requiring transmission networks to integrate these into the grid and maintain overall grid stability. Without being maintained and updated, these systems would not be fit for purpose as a foundation to support these changes.

Circuit Rating Management Systems provides the ability dynamically calculate the rating of a circuit based on a combination of:

- Overhead line and underground cable thermal limits
- Overhead line path headings for each section, utilised alongside wind direction.
- Overhead line and underground cable measurements e.g. conductor sag and temperature points along underground cable routes.
- Weather measurements and/or long-term weather forecasts e.g. ambient temperature, wind speed, wind direction

A further ██████ will be invested replacing battery chargers and battery cells. These provide localised back-up power if the power to our assets fails. Automatically switching over the power supply keeps critical services operable. During RIIO-T3 we'll replace 150 battery chargers and 277 battery cells. This will improve resilience and help maintain and 24/7 operational telecoms network.

2.2.2. Resilience through Infrastructure Modernisation

With an investment of ██████ our integrated architecture will continue to refresh and replacement of end-of-life core assets and upgrades to system applications. Driven by our asset management strategy that includes asset life cycle management and risk mitigations, in RIIO-T2 we simplified our operating model to help with overall service availability, the deployment of upgrades and new solutions, particularly those associated with onboarding Cyber security controls and applications, effective asset management, and fault resolution. Two initiatives, Infrastructure Network Refresh and Server Refresh, focuses on the end-of-life hardware replacement and service costs associated with supporting the network. It also incorporates the cost of our third-party support contract that is renewed every three years.

2.2.3. Consolidation and Standardising to Reduce Risk

Removing complexity in the operation of our network is key to reducing the risk of issues that impact the service to the customer. Targeting the simplification of the operational control of our electrical grid continues to be central. We will replace an old protocol that communicates to our remote terminal units (RTUs) with an industry standard protocol, allowing for greater functional flexibility, future proofing, and access to experienced resources.

Additionally, the standardisation of our SCADA system PowerOn emerged as a priority now that it's the unique control system across all voltage levels following our RIIO-T2 initiatives. Any divergence of the underlying configuration complicates operational efficiency as well as the ability to keep the system upgraded with the latest software patches, or to introduce innovation to the system.

One such innovation will be the delivery of the PowerOn Mobile module. Already proving successful in the Distribution network, PowerOn mobile improves the efficiency of communication between controllers and field units.

Our SCADA system is built to ensure resilience however the evolving nature of the cyber security threats requires a continuous monitoring of our risk controls and for this we liaise with GE, the provider of PowerOn, and its other users. We continue to undertake analysis as to how to best reduce the risk further.

With an investment of [REDACTED] we can deliver improved serviceability and customer value which are the principles defining our strategy to consolidate and standardise our SCADA control systems and its underlying functionality. This allows for data integration, advanced applications and at the same time optimising support and providing scalability as growth continues.

Protocol Migration

The migration from the legacy, proprietary Mk2a protocol to the IEC 60870-101 protocol is essential to align with industry standards and reduce dependency on a single supplier. While newer sites have already transitioned to the desired protocol, existing substations require upgrades to ensure compatibility. The proprietary and obsolete Mk2a protocol presents challenges when it comes to recruiting skilled staff and procuring SCADA equipment, moving to a more widely used protocol will reduce these risks, providing increased access to equipment, support, and people skillset. The migration process will require thorough testing, validation, and a comprehensive assessment of the current infrastructure.

Core System & Application Updates

The Core System comprises 313 on-premise servers, the majority in a secure private network. At the heart of this is the real time Control System that manages the transmission networks. The transition to a single control system will complete during RIIO-T2. The single control system hardware will support both the Transmission and the Distribution network. Thus, for transmission side, a proportion of these costs have therefore been included in this submission. Core system and application update activities can be grouped into 3 areas.

- Core Systems Hardware Refresh.
- Core Systems Maintenance & Support Contracts.
- Core Systems Application Updates.

Transmission PowerOn Functionality

This initiative contains two elements:

- Standardisation
- PowerOn Mobile

SPEN maintains the data and configuration of our PowerOn platform in accordance with the supplier's configuration guidelines. Without progressive management and standardisation of configuration, processes will diverge over time, and eventually create a backlog of activities that require addressing before any new functionality can be adopted. Through our continued partnerships, such as industry leading GE and consultancy providers, we have identified that if the 'divergence' continues, eventually implementing new functionality becomes so complex, that the costs of implementation in time and resources prohibits its deployment.

The PowerOn mobile solution is one such module now available to the Transmission network and will be adopted. Aligning with our Digitalisation Strategy, this module allows our field personnel to access information previously only available at control centres, enhancing their productivity and efficiency in carrying out their tasks. As well as the adoption of PowerOn mobile, the application will be continually maintained with software updates and hardware refreshes, essential to providing access to enhancements and security patches to the current PowerOn Mobile solution.

PowerOn Resilience Discovery

We continually explore opportunities to improve the resilience of our network, including the operational network that supports the management of the network. Since removing the eTerra SCADA system from the network and introducing a single PowerOn SCADA system, GE, the provider of PowerOn, and some of its other users, are recommending and implementing firebreaks in the network to further reduce the risk of major faults or Cyber-attacks. Within our RIIO-T3 investment we will undertake comprehensive analysis,

focusing on how best to reduce the risk of the entire system being inoperable with the outcome of the analysis informing our strategic commitment of providing a secure and reliable electrical supply to our customers.

2.2.4. Increasing resilience of our Telecoms Network

The Telecoms network, essential in providing both protection signalling, monitoring, and visibility of our network, will see a programme to improve its resilience. During RIIO-T2 we started enhancing the resilience of our telecommunication services in the 275kV network. In RIIO-T3 we will continue with the remaining 275kV sites, while expanding the programme to the 132kV network, introducing the same dual network design. Additionally, we are removing third party Ethernet Access Directs services and replace that with SPEN owned fibre optic cables. This will give us greater flexibility for network design and removes external dependencies, improving the service and resilience of the telecoms network. A maintenance programme will ensure that the assets are kept up to date both in terms of hardware but also the latest software enhancements, whilst a refresh of the Network Operations Centre (NOC) will make create improvements in operational efficiency.

275kV Network Resilience

It is a requirement to enhance the existing provision of critical telecommunications services to SPT 275kV and 400kV substations to mitigate the risks associated with a failure of the transmission telecommunications network impacting critical ‘power corridors’ and the subsequent flow of power. Whilst most of the network has been updated under RIIO-T2, the remaining three sites will be updated under RIIO-T3. These are: Chipperlaigen 275kV, Glenrothes 275kV, Clyde South 275kV.

132kV Network Resilience

The 132kV Network is essential for distributing power to the DNO Grid Supply Points and has grown in importance due to the large numbers of renewable generators connected both directly to the 132kV system and to the DNO network. Network Resilience at all 132 kV substations that will provide physical and logical separation of protection services in line with the RIIO-T2 submission at 275kV and 400kV voltage levels. This will provide a robust “hitless” protection service that will ensure that protection services are available.

Removal of Ethernet Access Direct

The removal of Ethernet Access Direct provided by BT from the transmission estate at all voltage levels. This amounts to twenty routes that will be replaced with a dedicated and private optical fibre network and removes the dependency on a third-party supplier, improving our operational ability and the efficiency of maintenance. Ethernet Access Direct provides point-to-point data connectivity between substations. The current system in place is owned, maintained, and repaired by a third-party therefore SPEN have a dependency on a third party for the performance and security of critical services such as protection communications /signalling and SCADA communications.

The removal of Ethernet Access Direct is proposed as a Price Control Deliverable (PCD). Ofgem has invited PCD submissions to allow for enhanced reporting and regulatory review for eligible allowances greater than ██████ ensuring that consumers only pay for the outputs they receive. Our approach to PCDs in RIIO-3 is to propose all eligible baseline investments over the ██████ materiality threshold as a PCD.

Operational Data Network

The Operational Data Network is the telecoms network for ethernet and IP services for Transmission substations to facilitate SCADA and RTU communications, Operational Telephony, other electrical system monitoring and telecoms management traffic. These assets are coming to the end of their operational life. Experience has shown a ramp up of fault activity and lack of spares as the equipment approaches its life expectancy. The current model will be supported to 2027.

Fibre Replacements & Repair

Due to the critical service that the fibre infrastructure carries such as protection communications /signalling and SCADA communications, continual replacement and repair is essential to prevent failure of these assets and the subsequently interruption of critical services. We will replace 16.5km of end-of-life fibre across 3 routes. The installation of a fibre network has improved the overall reliability and resilience of the telecommunications network; however, they initially had a manufacturer recommended lifespan of 15 years and with the Operational Technology fibre network extending to around 4000km, these 3 routes that will be replaced represent the most vulnerable to faults. The ability to manage increased volumes of data (for both protection and monitoring) is essential for provision of real time system management and generation load management to ensure the security of the transmission network.

Active Equipment Replacement

The SPT telecommunication network is dependent on industry standard active telecoms equipment that supports the transmission of voice and data traffic. In many instances, this equipment has a short asset life compared to power systems assets and typically is made obsolete by respective manufacturers only a few years after being released. This is due to the reliance on software/electronic hardware within the assets themselves. There is a typical lifetime of 10 years from when the asset is installed.

To enhance resilience, we will update the following.

- 150 Battery chargers
- 277 Battery cells
- MPLS-IP and MPLS-TP software updates.
- Control telephony replacement.
- Management platform refreshes

Network Enhancements

Several initiatives have been identified to be included in RIIO-T3 to increase availability and stability of the Strategic Telecoms Network:

- Dense Wavelength Division Multiplexing (DWDM) solution required to provide additional connectivity where fibre count is low.
- Synchronisation rollout to provide additional clocking to the network.
- Aligning with our Digitalisation Strategy, the Network Operations Centre refreshment which includes bringing the ticketing system in-house to reduce fault handling time, bringing the Change Management system in-house to improve change governance and a telephony upgrade.
- Development of a Redundant Network Operations Centre to improve resilience, load balancing and to support disaster recovery.
- Relocation of vulnerable assets; for example, where assets are relocated to a more secure facility.
- Replacement of Air conditioning systems in 13 substations to ensure the operating window of the telecommunication assets are maintained.

2.3. Benefits of the Investment

The transmission network is at a point of transformational change and growth to deliver governments' commitment to Net Zero. These wholesale changes mean the operational technology that supports the network must evolve with it. This need for expansion to serve the growing electrical network must be delivered with risk reduction, service quality improvement, resilience, and cyber security driven principles. As reported in previous section, the improvement of resilience of our network is largely established by the replacement of assets coming to the end of their life. Whilst we take onboard manufacturers lifespan

recommendations when we assess when assets should be replaced, we also consider our own experience, looking for opportunities for the sustainability of the assets as long as they are still in support and do not present a risk to our service.

Risk Reduction

Risk reduction is core to all initiatives within this investment. Its central to customer service, sustainable resilience, and our continued Cyber Security steps. The simplest and most effective way to assure the operation of our electrical network is to replace obsolete technology and end of life assets. Examples in this investment are the migration from Mk2a protocol to IEC 60870-101 to align with industry standards and reduce dependency on a single supplier; replacement of 150 battery chargers; replacement of 16.5km of fibre across 3 routes and a schedule of hardware replacement, ensuring applications such as our SCADA platform remain on supported assets.

Improving Operational Efficiency

The operational technology is critical to being able to monitor and control the network. Our initiatives will benefit the quality of our service, creating a solid foundation for the end-to-end operation of the network from the expansion of mobile technology in the field to the latest SCADA system advances and improvements in the network control rooms. We will see future proofing of our SCADA system through the standardisation programme that provides the foundation for future innovation and network resilience, and we'll maximise our current assets with such technology of dense wavelength division multiplexing, that increases the capability of existing fibre routes.

Foundational investment in our OT capabilities is also a key part of our transition to a data-driven, technology enabled organisation. It enables us to utilise the power of IT to optimise our network operation whilst maintaining acceptable risk positions that ensure continued provision of our essential service.

Telecommunication Network Resilience

Service Quality cannot be improved without improving the resilience of our telecoms network. Introducing a high resilience network across our 132kV substations that will provide physical and logical separation of protection and the development of a redundant Network Operations Centre to improve resilience, load balancing and to support disaster recovery are just two such initiatives. Our back-up application and the hardware it sits on will also be maintained with the latest available releases and support models.

Cyber Security

Cyber Security is a factor across all areas of SPEN and a separate programme specific outlining the Cyber Security initiatives under RIIO-T3 is recorded with Ofgem. However, we operate in a heavily regulated industry and our Operational Technology is classed as national critical infrastructure and therefore maintaining the highest standard of Cyber Security is required. The operational technology plan considers cyber security as an integral element of the overall strategy and the design of individual investments.

2.4. Delivering our Plan

Our RIIO-T3 plans provide for the significant development and growth of our operational technology infrastructure and associated services. While our plans incorporate a necessary step change in activity in line with what is required to deliver for our customers and stakeholders, it must be achievable and deliverable. We are obliged to make do with our investment promises and overstretching our objectives not only adds risks to the deliverability but also to the Operational Technology service itself. We have been anticipating and preparing for the changes in RIIO-T3. We are therefore well placed to build on RIIO-T2 and deliver the significant increase in activity that underpins our plan.

Development of Delivery and Service Contractors

We are introducing a revised model Telecommunication Framework which provides delivery, operation, and maintenance services. The multiple contract model, the awards for which will follow an extensive

development and tender exercise, is designed to drive efficient delivery of increased volumes, and deliver enhanced levels of operational service and will increase competition compared to the previous contract model.

Some of our initiatives, such as the standardisation of configuration and the move toward more industry aligned protocols, opens access to less specialised and more accessible skill sets whether sourced through our main framework agreements or otherwise.

Enhancing our Asset Management Capabilities

The increased complexity of our operational technology and rapid expansion of our transmission network requires enhancing our asset management capabilities to optimise performance and achieve operational excellence through continuous improvement. During T3 we are taking further steps to mature our asset management systems for OT, bringing in house subject matter experts in the relevant fields to challenge existing processes, improve our asset information systems and boost our ability to consistency identify, quantify, and manage the risk associated with our operational technology.

Skills Development and Recruitment

Our approach is the same for both our internal and contractor workforce. This approach is around having the right level and volume of specialist resources in the centre, upskilling our field workforces so that they can carry out routine and replicable tasks, and utilising technology to support complex tasks remotely with specialist resource. Our training and recruitment programmes are heavily focused on the specialist requirements of Operational Technology.

Additionally, we are part of SPENs Data and Technology Graduate Programme, a 2-year programme that brings together different disciplines to develop and support our Smart Grid. It creates a substantive base within specialise departments with placements rotating every 6 months.

Legislation, Regulation, Policy, and Guidance Documents

In addition to the Purdue reference model detailed previously, this section lists the key legislation, policies and guidance documents used to provide structure, framework, and principles that our strategy and content of this annex, must adhere to.

Name of Document	Document Description:	Relevance to Operational Technology Strategy
NIS Regulations 2018	National and Information Systems Regulations to establish a common level of security for network and information systems, with the primary concerns for cybersecurity measures	Provides the requirements for our systems to have sufficient security to prevent any actions that compromise either the data they store or any related services we provide
Cyber Assessment Framework	Is a high-level framework developed by National Cyber Security Centre used by operators of essential services under the NIS Regulations including Critical National Infrastructure sectors which includes SPT	Provides an approach for assessing the extent to which cyber risks to essential functions are managed. Therefore, any investment into our OT is required to comply
The UK Climate Change Act 2008	Provides a long-term framework to improve carbon management and establishes a legally binding target for the UK to bring all greenhouse gas emissions (GHG) to net zero by 2050.	Our OT strategy is required to align with SPENs Climate Resilience Strategy which itself is aligned to this and other related climate change acts
SPEN Digitalisation Strategy	This strategy outlines the direction that our organisation uses technology to deliver the key aims of the RIIIO T3 investment plan	As the scope of the Digitalisation Strategy includes operational technology, it provides guidance and principles as to the direction of use of technical assets we use
Iberdrola SPEN Smart Grid Telecoms Roadmap	Similar to the Digitalisation Strategy but focuses on the technology used for Operational Technology telecommunications, ensuring the technology is consistent across the global estate of Iberdrola	For a Telecoms network, this roadmap ensures that as part of this investment submission, the most efficient, resilient technology is adopted

Table 2: OT Legislation, Regulation, Policy, and Guidance Documents

3. Non-Operational IT & Telecoms

A combined investment of [REDACTED] is required in RIIO-T3 to operate, maintain, extend, increase security, and modernise our non-operational IT and Telecoms infrastructure. Our plan will deliver a step change in investment consistent with the need to digitalise our network, optimise our processes and generate efficiencies, and deliver industry leading compliance with Ofgem’s Data Best Practice Guidance.

During RIIO-T2, we have established a foundation of technology solutions that provide a basis for a digital transformation. Our RIIO-T3 investment will enable us to realise this digital transformation and will undertake the scale of digital and data driven investments necessary to support the delivery of our wider RIIO-T3 business plan and commitments.

3.1. Assets and Systems

Our non-operational IT and telecoms estate comprises several core systems:

- Our **Enterprise Resource Planning (ERP)** platform, based on the Iberdrola global deployment of the SAP platform, allows us to manage financial accounts, contract, procure and pay for services and materials and manage stock. It also provides our works and asset management solution, enabling us to deliver work and manage our assets.
- Our **Geographical Information System (GIS)** which provides the mapping platform to capture key information about our linear assets and their environment.
- Our **Building Information Modelling (BIM)** platform which provides a digital representation of changes to the network. Currently this is being used across 6 pilot projects to capture key information about our plant assets.
- Our **Customer Relationship Management (CRM)** platform which manages all customer interactions.
- Our supporting data platforms which enable us to comply with Ofgem’s Data Best Practice guidance, and our modelling platforms that enable us to comply with NARM requirements and understand the impact of changes to our network.

These core systems have been selected following an extensive evaluation of the market and are all leaders in their respective capabilities. In RIIO-T3, each of these will be upgraded, enhanced, integrated, and optimised as part the non-operational IT and telecoms investment summarised in this annex to drive value for our customers and stakeholders. Alongside this we have identified further opportunities to digitally transform our activities and maximise the value of data through the introduction of new capabilities.

Our systems are hosted on underlying technology platforms which we will also evolve during RIIO-T3.

Investment Area	Cost
Devices (laptops, servers, mobile devices)	[REDACTED]
Networking Infrastructure	[REDACTED]

Table 3: Technology Infrastructure

3.1.1. Enterprise Architecture

Our enterprise architecture (EA) summarises our IT&T solutions and their key connections enabling us to understand the relationships between technologies, applications, business capabilities and logical datasets. We use EA to model our existing and future digital and data landscapes to steer our delivery activity, ensuring that we remain on track as we progress our digitalisation and data strategies. In the diagram of our existing enterprise architecture shown below, some integrations are automated (shown in the solid connections below) whilst others involve manual processes (shown in the dashed connections). This architecture provides a strong platform to build upon for the delivery of our RIIO-T3 digitalisation strategy.

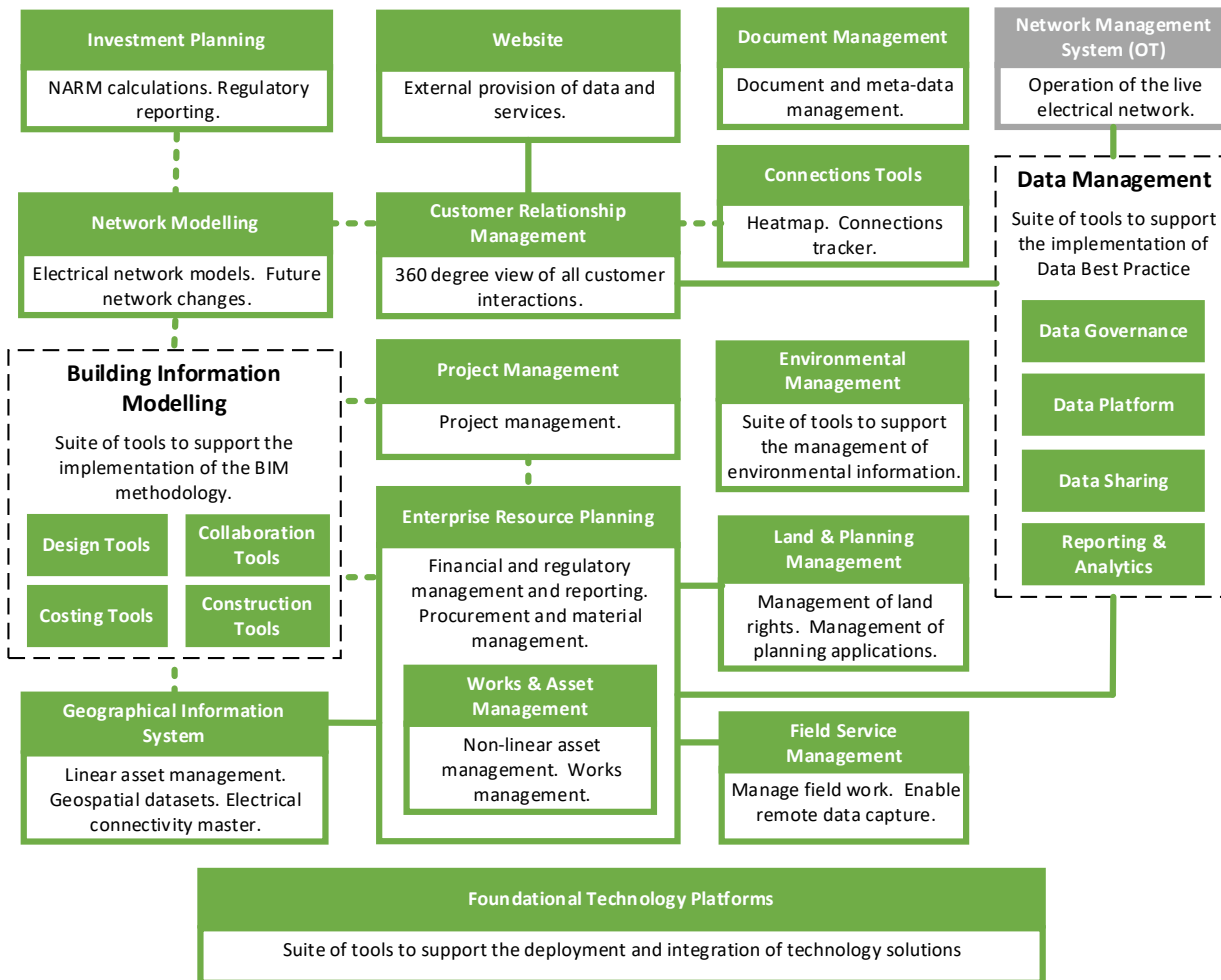


Figure 2: SPT current Enterprise Architecture

3.2. Non-Op IT & Telecoms Drivers and Investment

In RIIO-T3, we will build on the foundational work completed in RIIO-T2. We will develop and deploy the digital solutions that will enable our business to deliver the pace and scale of change which the RIIO-T3 period will require. We will develop and deploy solutions that give our customers and stakeholders quick and easy access to the data, information, services, and digital tools which support their needs, and help them to realise their Net Zero ambitions. We will deploy new solutions, bring in new skillsets and develop new working practices to support that transformation and create a culture where data is treated as an asset.

We will leverage data to drive business decision making in planning, investment, and daily operations – enhancing efficiency and productivity. We will enhance our data governance and data sharing practices, improving the visibility of our data assets. This will involve rolling out policies and procedures to enhance the quality, accessibility, and interoperability of our data. We will securely provide datasets to our customers and stakeholders in a manner that meets their needs and supports the development of an industry-wide Data Sharing Infrastructure (DSI). This approach ensures the benefits of accessibility and interoperability are delivered across the energy system. All of this will be done against a backdrop of industry leading compliance against the 11 principles of Ofgem’s Data Best Practice guidance.

Our data and digital strategy is an integral part of the transformation of our business, ensuring that we are set up to deliver our RIIO-T3 mission statement. Our plan is aligned to four pillars, each comprising a suite of initiatives which work together to create the digital platforms, facilitate the transformation of our data, and support the creation of new ways of working to deliver excellence. Each pillar is detailed in the sections below.

3.2.1. Delivering Tools and Insights for our Customers and Stakeholders

The initiatives in this pillar will enable us to scale our activities in response to the significant increase in the scale of the needs of our customers and stakeholders and includes a suite of integrated platforms designed to deliver enhanced customer experience. Our customers have told us that their priorities are to be able to access more information online and have greater visibility of our network to allow them to self-serve quickly and efficiently. In response to this, our RIIO-T3 plan includes several customer led solutions through which we will deliver an improved customer experience, which include considering accessibility needs to ensure no one is disadvantaged.

Customer Led Connections Solutions

During RIIO-T3, we will leverage the power of artificial intelligence and machine learning to streamline and automate back-end data collection processes to reduce the time it takes to produce a connection quote. This will include developing self-service tools that allow connections customers to create indicative designs and costings. We will also use AI to enhance stakeholder engagement, making interactions more efficient and personalised. We will develop AI solutions in strict accordance with relevant standards and guidelines to ensure compliance and maintain the highest quality and ethical standards.

During RIIO-T2, we developed a transmission network heatmap following customer and stakeholder feedback that we need to make our data more available and accessible through system visualisations. This contextualises the volumes of generation capacity and their associated project status in the same view as the SPT network. A second phase of development is currently underway which will be delivered before the end of the RIIO-T2 period and will enhance the heatmap to provide supplementary information including substation thermal rating, enriching the data layers with voltage information and include regional filters. During RIIO-T3 we will systematise and automate the background data collection processes, and further enhance the content and interoperability of this data, creating a whole system view which is aligned with the needs of our customers and stakeholders, and is automatically up to date to ensure we are enabling informed decision making. In summary we will deliver:

- Near real-time heatmap through automating back-end data processing.
- Customer facing “self-service” design tool providing indicative connection cost.
- Automated creation of connection offer packs using artificial intelligence.

CRM Enhancements

During RIIO-T2, we deployed a minimal viable product (MVP) of our new Customer Relationship Management (CRM) system. This provides a single view of customer interactions across all customer journeys managed within the CRM, giving our staff holistic insight to enable quicker resolutions to customer queries and a higher number of first-time resolutions. The deployment of CRM also made additional communication channels available for customers to use such as live chat as an alternative option to traditional telephony interactions so they can communicate with SPEN through their channel of choice.

During RIIO-T3, we will enhance and integrate our CRM solution to streamline processes and improve our customers’ experiences. Customers will receive a joined-up service where all the information relating to their interactions with us, across a greater number of processes, is available at the point of interaction. Going further, understanding when and where maintenance and network outages are planned is a crucial requirement from our customers, and as part of our plan we will develop a customer facing platform to make this information available as soon it is known, enabling customers to plan accordingly. In summary we will deliver:

- Customer facing tool showing planned network maintenance and outages.
- CRM continuous improvement programme over 5-year T3 period including the deployment of the latest new product roadmap features.

Engineering Justification Papers (EJPs)	Cost
RIIOT3-D&D-EJP01: Customer Led Connections Solutions	
RIIOT3-D&D-EJP02: CRM Enhancements	

Table 4: Supporting EJPs

3.2.2. Facilitating Network Growth through Data and Digital Solutions

In RIIO-T3, our customers and stakeholders will need us to deliver connections to, and investment in, our transmission network at a rate faster than we have historically. Our current processes and systems are not capable of scaling to this volume and pace of network delivery. Within this pillar we are proposing a suite of initiatives that will give us the capability to manage this volume and speed of network growth.

Contract Planning & Procurement Solutions

Our network growth programme in RIIO-T3 will be delivered in partnership with third party suppliers who provide a range of services and equipment. We have recently announced the awarding of £5.4bn worth of contract opportunities as part of our planned investment. We will implement a contract management tool and a supplier performance & risk management platform that will enable us to better manage and control risk in this complex ecosystem and enhance our interactions with contractors and suppliers, incorporating feedback we have received from them. In summary we will deliver:

- A Contract Lifecycle Management (CLM) platform.
- A central Supplier & Supply Chain Performance & Risk Management platform.
- Automation of manual procurement processes e.g. invoice processing.

Project & Portfolio Management Solutions

Our project and portfolio management initiative will build a holistic view of projects across the portfolio of network growth investments, enabling management oversight and portfolio-wide decision making. It will tightly integrate with our wider suite of initiatives across all the four digitalisation pillars ensuring that the relevant information is available to support informed project decision making, and that the impacts from decisions are consistently reflected across the delivery programme, speeding up the end-to-end delivery process. In summary we will deliver:

- An enterprise level transmission project & portfolio management tool that allows data (programme & cost) to be seen and managed in one place through integrations to [REDACTED]
- Long term document management solution to consolidate the multiple document management tools currently in use.

BIM Transformation Programme

Our Building Information Modelling (BIM) initiative builds on the level 2 foundations established during RIIO-T2 and will increase our maturity against the BIM methodology. This will impact our organisational model, our processes, our ways of working and our technology solutions as well as our external interactions with third party suppliers, customers, and stakeholders. It will facilitate collaborative working across a complex range of projects, enabling the coordination of resources to deliver the scale of investment our RIIO-T3 business plan proposes. In summary we will deliver:

- Full implementation of BIM methodology and associated digital platforms as business as usual across our strategic projects' portfolio to maturity level 5.
- Improvements to networks design process using Augmented Reality (AR) and Virtual Reality (VR).
- Site Scanning through use of 3D laser scanners using LiDAR to create BIM models of existing sites.

Land & Planning Solutions

During RIIO-T2, we delivered a new Estates, Consents and Management System [REDACTED] to manage and report on land rights and consents. This improved our ways of working, with automation increasing efficiency and ability to prioritise jobs and manage teams and workflows with measured effectiveness.

During RIIO-T3, managing land & planning processes and the interactions with our customers, stakeholders and communities will be a crucial enabler to delivering the network infrastructure needed. We will improve our internal land & planning related processes through integrations and automation and enhanced online offerings will allow landowners to view the progress of projects. In summary we will deliver:

- Deployment of mobile tools to capture and update data real time into [REDACTED]

- Implementation of a landowner portal to improve interactions between landowners and SPEN including payment processes.
- Integrate [REDACTED] system with land-ownership polygons, enabling staff on site to identify ownerships of land, improving stakeholder engagement activities.

Engineering Justification Papers (EJPs)	Cost
RIIOT3-D&D-EJP03: Contract Planning & Procurement Solutions	[REDACTED]
RIIOT3-D&D-EJP04: Project & Portfolio Management Solutions	[REDACTED]
RIIOT3-D&D-EJP05: BIM Transformation Programme	[REDACTED]
RIIOT3-D&D-EJP09: Land & Planning Solutions	[REDACTED]

Table 5: Supporting EJPs

3.2.3. Developing Smart Network and Asset Management Capabilities

Visibility and management of our network and our assets is a core function of any network's operation. The central role that our network plays in a decarbonised energy system, coupled with the increasing risks to energy security arising from a diverse set of factors such as cyber-attacks and climate change, mean that we need to transform our approach to network operations and asset management. Our RIIO-T3 programme sets out how we will deploy new technology to capture more data about our network, and how we will collect, interrogate, and make this available to our customers and stakeholders, ensuring that we are able to make informed decisions about the operation and management of our network and our assets.

Asset Management Solutions

Our asset management systems are central to operational excellence, allowing us to design changes to the network, plan and safely deliver work, schedule resources, inspect and maintain assets, model power flows, understand asset risk and consequence of failure, manage vegetation, and manage land rights amongst many other functions. Our plan will enhance several of our core asset management solutions, facilitated by a transition to the new generation of [REDACTED] to improve users' experience and enable improved integration, capture of more data, optimised use of resources, more detailed analytics.

We will enhance our Network Asset Risk Metric (NARM) calculations, including the additional asset types and the updated Common Network Asset Indices Methodology (CNAIM) as outlined in Ofgem's RIIO-3 Sector Specific Methodology, including linkage to our field solution to facilitate the collection of data. In summary we will deliver:

- Enhanced network modelling capabilities, tools, and processing power to model potential impact of new infrastructure projects across the UK.
- Enhanced features as part of our 5-year GIS strategy, facilitated by [REDACTED]
- Transition to the new generation of [REDACTED] as our core asset management system.
- Creation and implementation of an AI-enabled assistant for project and asset information.

Digital Field Technology

During RIIO-T2, we commenced deployment of our new [REDACTED] mobility and scheduling solution with the implementation of initial use cases of moving from a paper-based risk assessment form to digital plus the optimisation of the substation inspections process.

During RIIO-T3, we will deliver a programme of improved field services by leveraging predictive analytics, real-time data monitoring, and automated reporting to streamline processes related to field activities for planned and reactive work to improve operational efficiency, customer service, safety, and environmental aspects. We will optimise our inspections and maintenance process by leveraging the latest technologies and make more information available to our field operatives in real time using QR codes and RFID scanning technology to replace manual tagging and data entry methods, reducing the likelihood of human error and expediting asset identification. In summary we will deliver:

- Centralised Inspections & Maintenance Platform [REDACTED]

- QR codes and RFID scanning technology to give field staff real-time access to critical asset information e.g. manufacturer ratings to improve decision making and efficiency.
- Artificial intelligence, machine learning and IoT devices to optimise inspections & maintenance.

Environmental Compliance Solutions

We are committed to implementing environmental solutions that align with our sustainability goals. These solutions will help us track, report on, and reduce our environmental impact, and support our long-term sustainability targets within SPEN and the wider UK. This includes the development & implementation of central ESG reporting platform with analytics capability to understand and reduce the environmental impact of SPEN and our network of contractors and supply chain partners.

We will develop tools to capture and report on carbon data, automating calculations for Scope 1, 2 and 3 emissions, develop methodologies and tools for delivering biodiversity and natural capital assessments enabling this information to be built into project design and maintenance plans to ensure compliance with regulatory obligations. We will also fully digitise our waste management process, working with our contractors to enable automated tracking of waste, improved recycling and monitor progress towards Net Zero goals. In summary we will deliver:

- Centralised ESG reporting platform.
- Digitised biodiversity data, waste and materials management processes and related data.
- Centralised carbon reporting system, gather accurate Scope 1,2 &3 emissions data and create tools to manage whole life carbon in new projects using BIM.

Engineering Justification Papers (EJPs)	Cost
RIIOT3-D&D-EJP06: Asset Management Solutions	██████████
RIIOT3-D&D-EJP07: Digital Field Technology	██████████
RIIOT3-D&D-EJP08: Environmental Compliance Solutions	██████████

Table 6: Supporting EJPs

3.2.4. Becoming a Data Driven Organisation

A combined total of ██████ is required to invest in our RIIO-T3 Data initiatives to facilitate our ambition to become a data driven organisation - an organisation that relies on trusted, high-quality data to drive business outcomes, decisions, and value. Our plans build on our RIIO-T2 foundational developments to deliver in the areas of data governance, data sharing, and reporting and analytics.

Data Governance

With the recent exponential increase in the volume of data generated across our organisation, and the growing demand for access to this data, we need to implement robust data governance across our entire enterprise. We do this by establishing a framework for data governance and deploying a purpose-built data governance platform. Through recent global tendering activities, we have selected Informatica IDMC - a cloud-based data management tool that has the core functionalities of data cataloguing and data quality. In summary we will deliver:

- A comprehensive inventory of all data assets categorised based on business rules.
- A scan of our data assets to measure them against pre-defined and custom quality rules.
- Ability to classify and tag data assets based on their sensitivity and importance (including cyber).

Data Sharing & Security

Ofgem have recognised the critical role that data sharing plays in enabling Net Zero and, under the RIIO-2 framework, have introduced the requirement for all network companies to comply with their Data Best Practice guidance and the principle that data should be treated as “presumed open”. To meet our data sharing obligations, we need to invest in our Open Data Portal. Our existing Open Data Portal is a cloud-based solution for data sharing hosted by Opendatasoft. The solution includes secure data storage and hosting, data cataloguing and metadata management, in a format compliant with Dublin Core metadata

standard, and provides the ability for our customers and stakeholders to consume our data via an API or via alternative flexible download formats. In summary we will deliver:

- Enhanced accessibility features for our portal users, aligning with WCAG 2.2 AA standards.
- Advanced visualisation capabilities to graphically represent datasets and allow users to explore our data visually, aligned with their needs.
- Enhanced systematic and robust vetting process and access control.

Data Sharing Infrastructure

The recent Digital Spine study explored the feasibility of a Data Sharing Infrastructure for the energy system. The Government response to the energy system ‘digital spine’ feasibility study, published in August 2024, concluded that the Data Sharing Infrastructure should be developed through collaboration between the NESO and network operators and the energy sector. Our plan for RIIO-T3 aligns with Ofgem’s ambitious programme of activities to establish the Data Sharing Infrastructure and the associated Trust framework, and to incrementally develop the already identified use cases. In summary we will deliver:

- The cloud infrastructure to host the DSI with the DSI data preparation node (DPN) fully deployed, ready for data integration.
- The development and integrations of data for all the required use-cases.
- Develop a support model to ensure robust DSI operations.

Data Reporting and Analytics

One of the main challenges we face as an organisation is the ability to interrogate multiple datasets. Our data has evolved over the history of our organisation and is currently mastered within over 150 systems. By developing a single version of the truth of all our data within our Azure environment, we will deliver improved automation of data flows across our organisation. Aligned with our data governance platform, we will be able to realise accessible, interoperable data which is available and can be shared both internally and externally without the need for manual and time-consuming preparation and movement of data. We will prioritise use cases to support asset management and connections, including queue management. In summary we will deliver:

- Extend the current use of the Data Platform to integrate data from core systems, ready for analytics and future data products.
- Deliver the following use-cases: Customer and Stakeholder Engagement; NARM Extension; Modernising Regulatory Reporting; Single Asset View; Climate Resilience Reporting; and advance towards predictive maintenance.

EJP	Cost
RIIOT3-D&D-EJPI1: Data Governance	
RIIOT3-D&D-EJPI2: Data Sharing and Security	
RIIOT3-D&D-EJPI3: Data Sharing Infrastructure	
RIIOT3-D&D-EJPI4: Data Platform, Reporting, and Analytics	

Table 7: Supporting EJPs

3.2.5. Foundational Technology Platforms

To accommodate the growth of our IT estate and the volumes of data managed, we will need to invest in the supporting foundational technology platforms that underpin our applications. The current infrastructure for transmission operations largely utilises on-premise technologies. During RIIO-T2 we started to transition to cloud hosted platforms by investing in both AWS and Azure public cloud, although the rollout so far has been relatively limited. Due to regulatory and security constraints it is expected that some applications will remain hosted on-premise, however it is anticipated that many of transmission’s applications will be moved to the cloud during RIIO-T3. This will bring benefits such as enhanced scalability, increased automation, agility in how we manage our underlying technologies and reduced IT service delivery costs. Associated with this we will implement a FinOps platform to monitor and control IT spending, leveraging AI forecasting

techniques for better demand planning and cost savings and resulting in lower total cost of ownership. In summary we will deliver:

- Migration programme from on-site servers to cloud to realise benefits of scalability, increased automation, and reduced IT service delivery costs.
- A multi-cloud management capability with AI for IT operations (AI FinOps) to enhance scalability and service quality whilst reducing operational risks.

Engineering Justification Papers (EJPs)	Cost
RIIOT3-D&D-EJPI0: Foundational Platforms & Solutions	

Table 8: Supporting EJPs

3.3. Benefits of the Investment

Our approach during RIIO-T2 was to maintain our application and infrastructure landscape and to digitise processes, transactions, and decisions. As we look to the future, our RIIO-T3 data and digitalisation strategies will fully embrace and deliver a digital transformation to meet our ambitions, satisfy the needs of our customers and stakeholders and ensure efficient delivery of our commitments, and enable us to transform to new and sustainable ways of working. Our investment will enable us to avoid the need to recruit more than [REDACTED] and deliver a wide range of non-financial benefits.

Improves Customer & Stakeholder Experience – with a focus on Connections.

Delivering for our customers and stakeholders is central to our plans. Integrating systems and provisioning new technologies will improve data availability and visibility for our customers and stakeholders and will empower them to self-serve to meet their needs, improve the speed and access to information, and will support them in realising their Net Zero ambitions.

Our plans in this area focus predominantly on supporting our connections customers and stakeholders, as this is what our engagement has told us is needed, enabling quicker responses to customers, and improving satisfaction. Also, enhancing our CRM system delivers a more personalised and efficient service, fostering better engagement, and the introduction of a self-service tool will empower customers to have instant access to information about planned maintenance and outages. Overall, these investments will create a more efficient, transparent, and customer and stakeholder centric experience.

Facilitates Network Growth – thus enabling decarbonisation.

Our investment plan focuses on driving efficiency and automation through advanced data analytics, digital tools, and AI. By streamlining processes and reducing manual intervention, we aim to minimise data issues and enhance decision-making. Our digital field solutions will optimise resource allocation, providing real-time data to our field staff for improved efficiency. The BIM transformation will enable collaborative work around a digital twin of project designs, ensuring effective coordination among internal and external stakeholders. Investing in foundational platforms and core technologies will allow us to respond swiftly and efficiently to anticipated growth during RIIO-T3. Our project and portfolio management solution will offer full program visibility and support informed decision-making. Additionally, our Contract Planning & Procurement solution will provide a dynamic supplier approach, positioning SPT as the 'customer of choice' and enabling adaptation to global market changes.

Driving Data Driven Decisions – and improving data security.

Implementing our data governance framework, policies and system across our core systems will enable us to enhance data visibility, quality, and security. By ensuring that data is accurate, consistent, and reliable, our business, our teams and our stakeholders can benefit from quicker access to the information they need, can trust in the data which they are relying on, and can make more accurate and informed business decisions.

By cataloguing our data, we can accurately manage our personal, cyber and security sensitive information, and thus manage access to and storage of our more sensitive data sets, thereby reducing the risk of data breaches and ensuring adherence to regulatory requirements, protecting, and improving network resilience.

Efficient data management and data governance streamlines operations, reduces manual efforts, and eliminates data silos, ensuring that data is readily available and trustworthy for all users.

Spotlighting on one of our Data Platform use cases; by extending the Network Asset Risk Metric (NARM) to include a broader range of assets – over 30,000 assets, across four asset categories – such as disconnectors, earth switches, and instrument transformers, provides a more comprehensive understanding of the network’s overall health. This allows for better prioritisation of maintenance and investment, ensuring effective management of critical assets and improved reliability and safety by identifying potential risks and failure points across the network, leading to fewer unexpected outages and safety incidents. This wouldn’t be possible without the implementation of our Data Platform, or the implementation and development of our Data Ops framework, as well as the skilled resources to bring complex data driven projects to reality in line with business, industry, and stakeholder requirements.

Efficiency and Cost Benefit Analysis (CBA)



3.4. Delivering our Plan

Delivering our plan will be a substantial programme of work and will rely on introducing new skills into our business, embracing change management, and ensuring a robust delivery model. In 2023, we implemented

a new operating model, transforming the team and the way we work, and setting us up for the scale of the challenge ahead. This model has allowed us to successfully deliver our RIIO-ED2 digitalisation programme which is of similar size, scope, and complexity of our proposed RIIO-T3 plan.

Resourcing & Delivery Model

Our digital delivery programme has been segmented into Value Streams, where each Value Stream is responsible for the design, development and delivery of projects aligned to a specific theme. We supplement our Value Streams with strategic partners to increase capacity, capability, and technical expertise to ensure we have the right mix of skills and support to deliver on our digital plan commitments. Our Value Streams have clear accountability for end-to-end products and systems lifecycle, providing application support for systems within their remit.

Our delivery model is underpinned by two central support functions, providing change management and solution architecture expertise to make sure the programme delivers quality, outcomes, and value. One of the key principles of our delivery model is to ensure the right delivery method for each initiative with the right mix of internal and external resources and skill sets. This hybrid resourcing model utilises a combination of external partners and SPEN staff, allowing us to develop our people and build more skills and capability internally, driving cost and efficiency.

Our resource requirement has been built 'bottom up' – we have taken each project and forecast the specific skill types and capacity for each project to inform the T3 resourcing profile. We have identified an additional resource requirement split across our 5 core disciplines of Solution Delivery, Application Support & Maintenance, Architecture and Strategy, Business Change and Project Management Office (PMO). There will be a further compliment of external skills contracted on a temporary basis for specific projects. We have established partner frameworks for some of these skills and any remaining skills will be procured via a competitive tender process.

Our resourcing strategy is well considered and has strength in terms of our internal skills being complemented by strategically procured 3rd party partner skills. 100% of our external service partner and delivery partner frameworks go through the standard company procurement process to ensure cost efficiency across all our rates and contracts.

We are part of SPENs Data and Technology Graduate Programme, a 2-year programme that brings together different disciplines to develop and support our data and digital activities.

Legislation, Regulation, Policy, and Guidance Documents

This section lists the key legislation, policies and guidance documents used to provide structure, framework, and principles that our strategy and content of this annex must adhere to.

Name of Document	Document Description	Relevance to Non-Op IT & Telecoms Strategy
NIS Regulations 2018	National and Information Systems Regulations to establish a common level of security for network and information systems, with the primary concerns for cybersecurity measures.	Provides the requirements for our systems to have sufficient security to prevent any actions that compromises either the data they store or any related services we provide.
Ofgem's Data Best Practice Guidance	Principles based approach designed to ensure that licenced parties treat data as an asset, and which provides guidance on the quality, accuracy, and accessibility of data.	Our Data and Digitalisation initiatives have been designed to ensure compliance with the principles of Ofgem's Data Best Practice, and to enhance maturity levels of compliance.
Ofgem DSAP Guidance	Ofgem DSAP guidance outlines regulatory requirements for transparency, stakeholder engagement, and coordination with respect to an organisation's current and future products and services relating to data and digitalisation.	Our RIIO-T3 digitalisation strategy has been developed fully in accordance with the 7 DSAP principles. Progress toward delivering on our T3 strategy will be published in 6 monthly digitalisation action plan updates.
Department of Science Innovation and Technology	Principle based approach to ensure AI systems are developed responsibly with alignment to appropriate risk assessment frameworks.	Where AI and Machine Learning are adopted, it is critical they are developed to best practices to avoid unexpected outcomes.
Iberdrola Policy on the Responsible Development and Use	Iberdrola Group policy adopting a principle-based approach AI systems are developed responsibly.	Where AI and Machine Learning are adopted, it is critical they are developed to best practices to avoid unexpected outcomes.

of Artificial Intelligence Tools		
----------------------------------	--	--

Table 10: IT Legislation, Regulation, Policy, and Guidance Documents

Our Roadmap

Our five-year programme has been developed into a roadmap for delivery of our initiatives throughout R10-T3, aligned to our four pillars. We have carried out an extensive change impact assessment to understand who would be impacted by change and when and updated our roadmap accordingly to ensure change is not concentrated to one area at any given time.

We will use an agile delivery approach, creating benefits for our customers and stakeholders early and incrementally, and will engage on an ongoing basis with our customers and stakeholders to enable us to iterate our plan in response to their evolving needs.

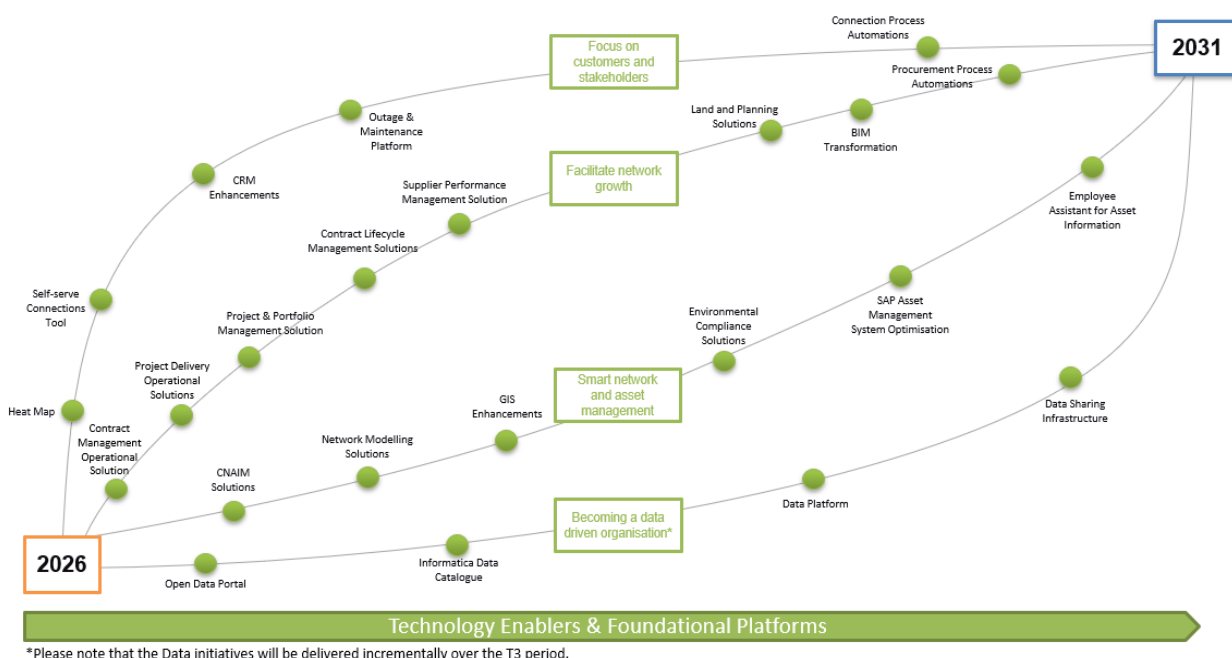


Figure 3: IT Delivery Roadmap

3.5. How we Measure Success

We will publish our progress with the delivery of our digitalisation initiatives through our bi-annual digitalisation strategy action plan updates as per Ofgem guidance. An important indicator of success will be the realisation of the benefits associated with the digital delivery programme. We have developed a robust four stage benefits realisation management process (Identify, Define & Plan, Track & Realise, Evaluate) to track, monitor and ultimately ensure delivery of expected benefits, aligned to 5 guiding principles that underpin this model:

1. Benefits must be measurable / evidence-based to demonstrate investment provides value in return.
2. Benefits need to be owned by appropriate business sponsors and process owners, not by the program/project manager. The adopting function/team should be owning the benefit realisation.
3. Intermediate benefits are needed to realise end benefits (and are just as important)
4. Benefits and disbenefits are dynamic; they need to be regularly reviewed and updated.
5. Ensure structure and keep the number of benefits monitored and reported to a sensible, manageable number.

Throughout the RIIO-T3 price control, we will continuously engage with our customers, stakeholders, and suppliers to ensure that we are driving the value that they need from these investments.

Going further, to measure and demonstrate our commitment to Data Best Practice, we engaged an independent external expert to support us in developing an assessment framework to measure our level of maturity against the 11 principles of the guidance. The assessment framework is comprised of 35 questions with defined maturity levels that reflect the degree of alignment with each of the principles and builds on the high-level assessment that was carried out as part of our original data strategy published in 2021.

We have applied this framework to develop a baseline measure of compliance by interviewing subject matter experts and data owners across our transmission organisation. The results of this assessment demonstrate that our transmission business has strong data management practices deployed in maintaining access controls to our data, has a robust data triage process in place to facilitate our approach to “presumed open”, and each business line is aware of their own data assets and associated customers and stakeholders. We then utilised our DBP framework to project our maturity levels of compliance at the end of the RIIO-T3 period. This involved analysing each of our 14 data and digitalisation EJPs against the 11 principles to assess their alignment and contributions to enhancing our maturity level.

Figure 4 below sets out our evaluation, and a visual representation of where we are vs. where we plan to be at the end of the RIIO-T3 period, based on the IT & telecoms investments set out in this document. We have set the framework in such a way that Level 1 would equate to the minimum level of compliance with Data Best Practice, with incremental levels defined below.

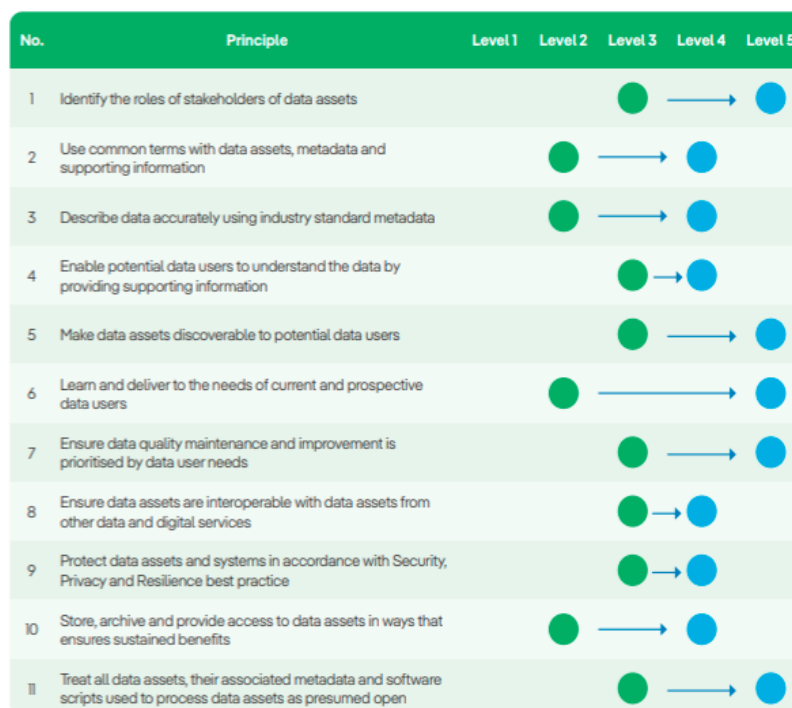


Figure 4: DBP Maturity Levels

Level 1 – Foundation: minimum compliance in place.

Level 2 – Developing: enhancement plans, policies and processes created, but not yet fully established or embedded across the organisation in the widest sense.

Level 3 – Established: plans, policies, and processes – including systems - established, and roll out has commenced but not yet fully embedded across the organisation in the widest sense.

Level 4 – Embedded: plans, policies, and processes – including systems – embedded as BAU and being actively managed and audited to ensure compliance across the organisation in the widest sense.

Level 5 – Advanced: plans, policies, and processes – including systems – optimised, including use of automation and standardisation across business operations to manage data, with ongoing and BAU auditing to ensure compliance across the organisation in the widest sense.

We have also summarised in Table 11 what T3 enables against the 11 principles of Data Best Practice – at a very high level. This demonstrates that we are ensuring that all the 11 principles are visible, and are being actively managed, whilst ensuring that the needs of our customers and stakeholders are prioritised.

No.	Principle	What T3 enables
1	Identify the roles of stakeholders of Data Assets	A centralised catalogue of our Data Assets categorised by business rules, including Data Owners and Data Stewards.
2	Use common terms within data Assets, Metadata and supporting information	A centralised Business Glossary with defined common terms.
3	Describe data accurately using industry standard metadata	A centralised catalogue of Data Assets with metadata captured, and managed, in line with the Dublin Core metadata standard.
4	Enable potential Data Users to understand the Data Assets by providing supporting information	Ongoing development of, and provision of supporting information, including enhanced Data visualisations, to align with our Stakeholder needs.
5	Make Data Assets discoverable to potential Data Users	A centralised catalogue of our Data Assets, and a centralised “market place” for data, with inbuilt and visible quality framework.
6	Learn and deliver to the needs of current and prospective Data Users	An ongoing and extended program of stakeholder engagement across internal and external mediums, with plans to address accessibility, visibility, and transparency.
7	Ensure data quality maintenance and improvement is prioritised by Data User needs	Standardised enterprise-wide Data Quality solution through Informatica, built in conjunction with SMEs and visible to all relevant data users authorised for access.
8	Ensure Data Assets are interoperable with Data Assets from other data and digital services	Investment in our Data Platform, enabling integrations of datasets from multiple sources and with common data models applied and accessible to internal and external data users.
9	Protect Data Assets and systems in accordance with Security, Privacy and Resilience Best Practice.	Ability to classify and tag Data Assets based on their sensitivity and importance (including Cyber) within our Informatica tool, and in line with new policies.
10	Store, archive, and provide access to Data Assets in ways that ensures sustained benefits	Standardised enterprise-wide approach through deployment of Data Governance policies and processes and system.
11	Treat all Data Assets, their associated Metadata and Software Scripts used to process Data Assets as Presumed Open	Enhanced capabilities of Open Data Portal that align with our Stakeholder needs.

Table 11: Data Best Practice Compliance

We will repeat the population of our DBP assessment framework on an annual basis throughout the RIIO-T3 Price Control period. We will use the results as our measures of performance, demonstrating improvements in maturity levels, and identifying areas for improvement.

We welcome ongoing engagement with Ofgem, with the wider industry and with other external support partners, to challenge our thinking with regards to compliance with Data Best Practice and to ensure that we are being ambitious in what we set out to achieve. We also regularly test our plans with our Independent Net Zero Advisory Council (INZAC), who have challenged our thinking and have supported the areas of focus including data security and stakeholder and user needs.

4. Appendix A: References – OT and IT

Business plan data tables	Title
8.9	8.9_Operational_Technology
9.1	9.1_Non_Op_Capex
11.3	11.3 Data & Digitalisation memo table

Relevant Engineering Justification Papers referenced:

Operational Technology		Non-Operational IT	
EJP Ref. No.	Title	EJP Ref. No.	Title
T3SGOAEMS01	Visor/WAMS	RIIOT3-D&D-EJP01	Customer Led Connections Solutions
T3SGOAEMS02	Circuit Rating Management System	RIIOT3-D&D-EJP02	CRM Enhancements
T3SGOINF01/02	Infrastructure Network Refresh/Server Management	RIIOT3-D&D-EJP03	Contract Planning & Procurement Solutions
T3SGORTS01	Protocol Migration	RIIOT3-D&D-EJP04	Project & Portfolio Management Solutions
T3SGORTS02	Core System & Application Updates	RIIOT3-D&D-EJP05	BIM Transformation Programme
T3SGORTS03/04	Transmission PowerOn Functionality	RIIOT3-D&D-EJP06	Asset Management Systems
TSSGORTS06	PowerOn Resilience Discovery	RIIOT3-D&D-EJP07	Digital Field Technology
T3SGOTEL01U	275kV Network Resilience	RIIOT3-D&D-EJP08	Environmental Compliance Solutions
T3SGOTEL02U	132kV Telecoms Network Resilience	RIIOT3-D&D-EJP09	Land and Planning Solutions
T3SGOTEL03U	Removal of BT EAD	RIIOT3-D&D-EJP10	Foundational Platforms and Solutions
T3SGOTEL04U	Operational Data Network	RIIOT3-D&D-EJP11	Data Governance
T3SGOTEL05U	Fibre Replacements & Repair	RIIOT3-D&D-EJP12	Data Sharing & Security
T3SGOTEL06U	Active Equipment Replacement	RIIOT3-D&D-EJP13	Data Sharing Infrastructure
T3SGOTEL07U	Network Enhancements	RIIOT3-D&D-EJP14	Data Platform, Reporting & Analytics
T3SGOTEL08U	OPEX		

Table 12: Associated Engineering Justification Papers