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SP ENERGY NETWORKS

Digitalisation Strategy and Action Plan Progress update

June 2021

Contents

Foreword

Digitalisation and unlocking the value of our data presents a significant opportunity to drive modernisation and decarbonisation of our energy system. The electricity networks are at the heart of this transition. We believe that digitalisation and data can improve the services we provide to our customers and stakeholders, whilst enabling a just transition to Net Zero so no one is left behind, ensuring the benefits are shared fairly by all.

Putting our customers and stakeholders at the heart of our plans

We provide services in Scotland, England and Wales and therefore have a set of customers and stakeholders with diverse and changing needs. Since our previous DSAP publication in December 2020, we have invested significant additional time engaging with our stakeholders and customers through focussed sessions on digitalisation at our customer engagement group and many other external groups. This feedback has informed our DSAP and has also been used to guide our digitalisation approach for RIIO-ED2 in our draft business plan to be published later this year.

Digitalisation will allow us to significantly improve our existing services whilst offering additional, new services for our customers and stakeholders, including our vulnerable customers. For example, we are expecting a significant increase in connections to our network between now and 2030 and will be offering a new, more transparent digital connections journey with self-service options. Furthermore, new digital technologies and data will help us to make our own operations more efficient, which in turn will save our customers money on their bills. For example, we believe that applying the latest data analytics and visualisation techniques will help our staff deliver the complex projects required to upgrade our network more efficiently.

Progress since our previous DSAP publication

We have continued to expand our dedicated Digital team and recruited new talent with our priority being digital skills including data analytics, application development and the adoption of agile methodologies. This team have been heavily involved with the development of our plans for RIIO-ED2 and are working closely with Centre of Excellence, Business Change and UK IT.

We have also developed partnerships with specialist external suppliers who bring us innovative thinking on digitalisation, best practice and lessons learnt from across industry sectors and geographies. This ensures that we are setting out an ambitious vision for the future which balances investment, benefits and risk.

We also continue to play a leading role by chairing the ENA's Data and Digitalisation Steering Group and have taken a leading role in the development of the UK national energy system map project, one of the key recommendations following the Energy Data Taskforce Report in 2019. We have also been pleased to see the formation of the new Energy Digitalisation Taskforce in May 2021 and have engaged early with the Taskforce team to ensure that we are actively involved from the start.

In Summary

We are excited about the role that digitalisation and data is already playing in transforming our business, ready to facilitate the UK's Net Zero ambition. We have mobilised an ambitious programme of work, but we recognise that we do not have all the answers and that the nature of technology, the energy transition and the COVID-19 recovery means that we need to be flexible in our approach to respond to changes as they happen.

We know that we cannot do this on our own and will need to build an ecosystem and industry partnerships to be successful. We also recognise the importance of putting our customers and stakeholders at the centre of everything we do, and as such we would welcome feedback on our 2021 DSAP. Our feedback form can be found on our website.

Colin Taylor
Director, Processes & Technology

"Digitalisation will allow us to significantly improve our existing services whilst offering additional, new services for our customers and stakeholders, including our vulnerable customers."

Stakeholders and Engagement

We have a diverse range of stakeholders and customers with different needs and requirements.

To understand these different needs, we have performed a comprehensive customer and stakeholder segmentation activity, working closely with our customer engagement group.

This process allows us to learn more about what our stakeholders and customers expect from us so we can tailor our services to their unique needs and challenges.

Personas - What We Have Done

In order to create a representation of our key stakeholders, understand who they are, their needs, and the potential benefits we will bring through our RIIO-ED2 programme, we have chosen to develop Personas which we have reviewed with our Customer Engagement Group (CEG).

A suite of personas have been developed that cover a broad range of customer and stakeholder types that we engage with. These personas cover all aspects of internal and external stakeholders: customers, suppliers, partners and collaborators and we have also considered the future by including new stakeholder types (for example, prosumers and flexibility market participants).

We have performed comprehensive stakeholder mapping and affinity grouping to understand the boundaries of our digital strategy, which included developing segments across both domestic and commercial customers to better understand the priorities of each. These groups then fed into a wider customer and stakeholder mapping exercise to develop a view of the both the current stakeholders impacted by the digitalisation strategy and new stakeholders who will be impacted in the future.

Our stakeholder mapping

Customers

- Customer Engagement Group (CEG)

Domestic

- Cost is king
- Careful & caring
- Go with the flow
- Seen to be green
- Actively green
- Unplugged
- Control seekers

Commercial

- Deal seekers
- Open for business
- Hoping to harness
- Silent partner
- Energy experts

Energy Service Providers

- Flexibility Services
- Distributed Energy Providers
- Demand Aggregators
- Storage Providers
- Heat Networks

Whole System

- ENA
- ESO
- IDNOs
- DNOs
- GDNs
- Transmission
- HV generators
- LV generators
- Suppliers
- Waste
- Water
- Telecoms

Regulators / Government

- Ofgem
- BEIS
- DECC
- CBI

Corporate/Network Operations

- Head of Data
- Support
- Sustainability Team
- Reporting / Asset Management
- Customer Facing
- Customer Service Teams / Land Officer
- Field
- Field Teams

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Public Sector

- Local Authorities
  - Councils
  - Planning
  - Housing
- Regional Authorities
- Housing Associations
- Public Health

Developers

- Sustainability/Renewables developers
- Housing and built environment
- Smart appliances
- Energy Efficiency

Transport

- Public Transport
- Rideshare Operators
- EV Chargepoint Operators
- EV Manufacturers

Partnerships

- Third Parties
- Suppliers
- Data Providers
- Digital Twin
- Data Marketplace

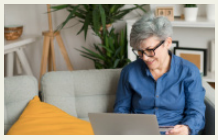
Advisory / Industry SMEs

- Special Advisors
- Academic Partners
- Think Tanks
- Consultancies

From this customer and stakeholder map, we have developed 20 personas to understand the impact of digitalisation on our customers, stakeholders and employees. For each persona, benefits and impacts of digitalisation have been identified, as well as the level of digital engagement expected for each persona group:

Customers

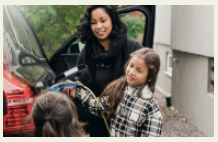
Vulnerable Customer



Digitally Connected Customer

LCT Customer

Domestic Customer



Commercial Customer

Spotlight: Vulnerable Customer

What is the benefit for me?
Enhanced services through SPEN's Coalition of Partnerships model – a coalition of 70 supporting organisations to support vulnerable customers.

How will I feel the impact of digitalisation?

- Only need to 'register once' for all utilities
- My vulnerability/PSR status and information shared with other utilities through open data
- Data and analytics will enable central coordination of support and customer services, allowing for automated triage and prioritisation

Digital Engagement

Low — High

Spotlight: Domestic Customer

What is the benefit for me?
Providing the contact channel of choice and a platform to provide better service and response times.

How will I feel the impact of digitalisation?

- Provide contact channel of choice
- Enquires and complaints dealt with first time
- Connection enquires completed within 5 days
- Fault information easily accessible

Digital Engagement

Low — High

Energy and Market

Government / Local Authority

Sustainability / Renewables Developers

Third Parties / Suppliers

Industry / Open Data Forums

Spotlight: Government / Local Authority

What is the benefit for me?
Protection of natural environment and publicly available environmental data.

How will I feel the impact of digitalisation?

- Protection of areas of outstanding natural beauty
- Conservation of biodiversity, wildlife habitat, and natural flood and landslide protection
- Access to publicly available environmental and ecological data
- Reduced carbon emissions and waste generated

Digital Engagement

Low — High

Academic Research & Thought Partners

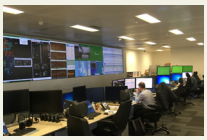
Whole System

Energy Networks Association

Flexibility Service / EV CP/ Demand Aggregator

Transmission / SPT Generator

National Grid ESO



Spotlight: Flexibility Service / EV CP. / Demand aggregator

What is the benefit for me?
Access to datasets to support development of new energy technology services and solutions

How will I feel the impact of digitalisation?

- Ability to access the application quickly without the need for internal resources having to approve users
- Ability to access enhanced datasets easily through the use of search functionalities
- Ability to combine, visualise, share and export datasets and visualisation dashboard

Digital Engagement

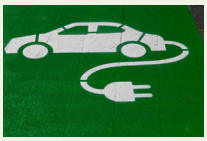
Low — High

Other utilities

SPEN Internal

Head of Data

Sustainability Team



Reporting / Asset Management

Land Officer

Customer Service Team

Construction / Design Engineer

Field Teams

Spotlight: Land Officer

What is the benefit for me?

More complete land owner and land rights information through the use of integrated systems (such as CRM through external data connections to land owner registries and databases).

How will I feel the impact of digitalisation?

- Additional information will enable me to have better consultations with land owners to secure land rights. This will result in improve stakeholder satisfaction scores and remove some of the information silos which currently exist.

Digital Engagement

Low — High

Spotlight: Field Teams

What is the benefit for me?

Making site work safer and more productive for me.

How will I feel the impact of digitalisation?

- Guided risk and safety assessment to ensure that line outages have occurred
- Intelligent supply chain that proactively manages the delivery of materials and consumables for my team
- Augmented reality/virtual reality walkthrough of complex construction tasks/integration
- Automated job status reporting and timewriting

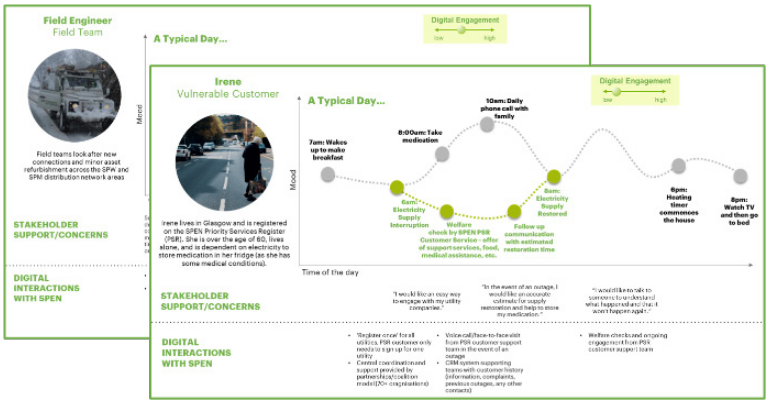
Digital Engagement

Low — High

Personas - What We Will Do

Moving forward we will use our personas as an engaging communication tool. Through simulating interactions with our digital platforms and energy data we will illustrate how our approaches will deliver benefits to our customers and stakeholders in a way that brings the solutions to life. We will use our personas to encourage engagement and to capture feedback on our DSAP plans.

In the next six months, our personas will be developed further to elicit better understanding of the needs and expectations of each user group. A persona framework will be set up such that the existing personas can continue to be improved and refined, the benefits and impacts of digitalisation can be framed for each persona group and new personas incorporated as required. In the longer term, the personas will continue to be refreshed in line with the DSAP and feedback will be requested via our Customer Engagement Group (CEG) to different customer groups and stakeholders. The feedback received will be used to drive the implementation of further updates and improvements to the personas.



Our Evolving Digitalisation Strategy

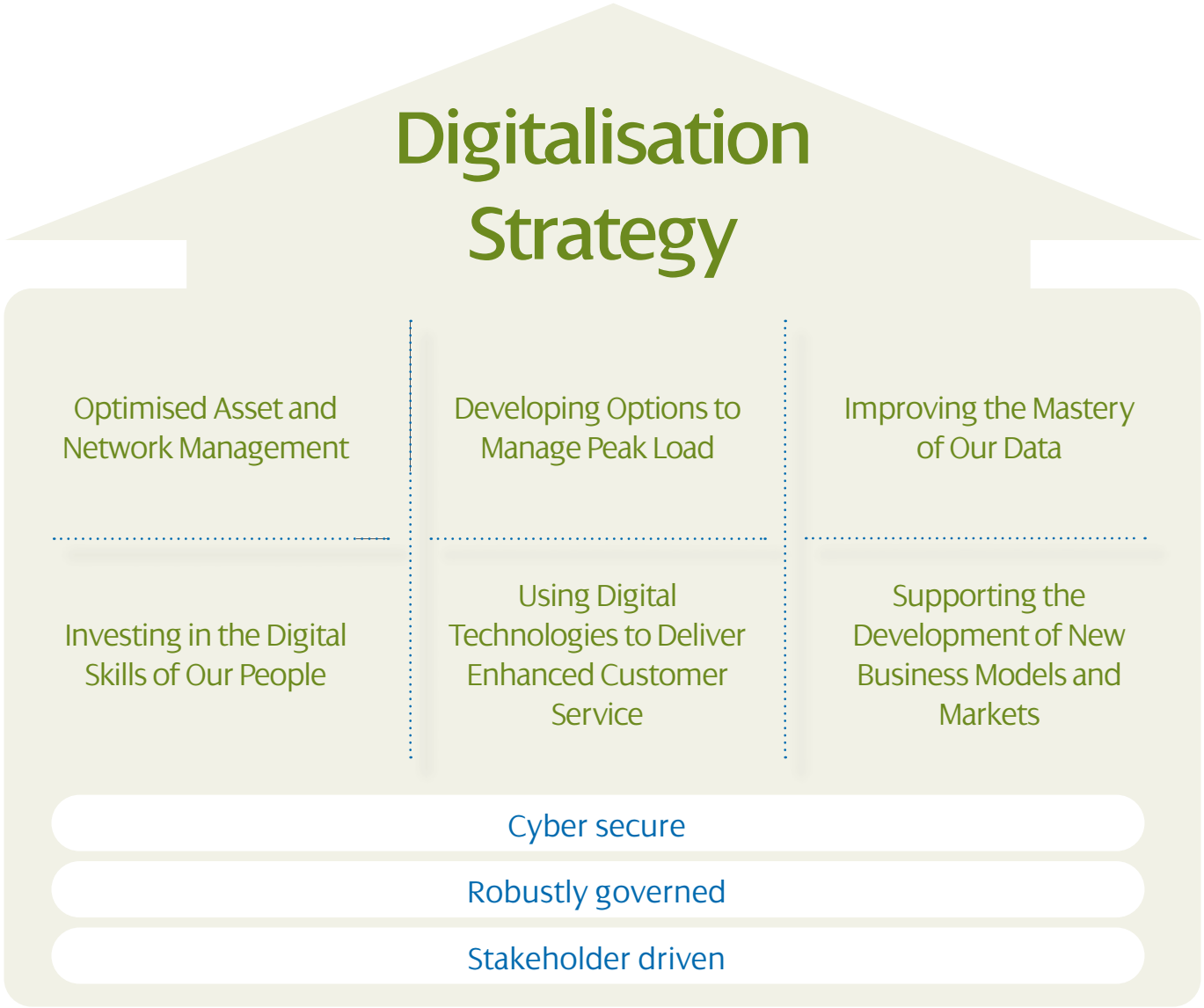
We recognise that meeting the UK's Net Zero target will require whole system thinking and cross industry collaboration.

We have identified the key programmes of work centred around the Energy Data Taskforce Report published in 2019 and how our digitalisation and data strategies fit into the overall landscape. We are actively engaged on several of these industry initiatives and currently chair the ENA's Data and Digitalisation Steering Group.

A core part of our digitalisation strategy for ED2 will be to identify further opportunities for cross sector collaboration.

In 2019 and 2020, we published our digitalisation strategy. We have since continued to consolidate our core digital platforms and deliver a programme of continuous improvement and innovative solutions that will prepare us for the digital challenges of the RIIO-T2 and RIIO-ED2 regulatory cycles.

The following diagram provides an overview of our Digitalisation Strategy which has been developed through extensive engagement with our customers and stakeholders:



Further detail on each of our strategic pillars is outlined below, along with the key areas of focus in each pillar and the key personas impacted for each pillar:

Optimised Asset and Network management

Why we are doing it:

Digital technology can significantly increase the productivity of our field operations and support better decision making when planning the work needed on our network, reducing costs for customers and lowering our carbon footprint.

Key focus areas:

- Asset Lifecycle
- Autonomous Operation
- Digital Twins
- Field Based Solutions
- Instrumentation

How we will do it:

- Development of digital twins to enable better decision making.
- Deployment of autonomous technologies for inspection and operation in restricted sites.
- Deployment of advanced field technology such as wearables (i.e. smart technology that can be worn similar to Google Glass).
- Use of connected construction technology to digitise our delivery of capital projects.
- Automation, fault location technology and predictive analytics to increase network resilience and accelerate our response to outages.

Impacted Personas:

- ✓ Domestic Customer
- ✓ Field Teams
- ✓ Third Parties / Suppliers
- ✓ Reporting / Asset Management
- ✓ Commercial
- ✓ Customer
- ✓ Head of Data
- ✓ Sustainability Team
- ✓ Construction / Design Engineer
- ✓ Customer Service Team
- ✓ Industry / Open Data Forums

Developing Options to Manage Peak Load

Why we are doing it:

The rise of distributed energy resources, and the electrification of transport and heat will result in a significant expansion of load on our low voltage (LV) network. We need to manage this load increase using a combination of traditional engineering and new digital solutions to reduce costs for customers and enable the low carbon transition.

Key focus areas:

- Active LV Network
- DSO
- Influencing Behaviour
- Whole System

How we will do it:

- Deployment of advanced digital monitoring and control equipment on our low voltage network including 14,000 monitors spanning across 50% of our local substations.
- Development of 10 constraint management zones in SPD (SP Distribution) and 12 in SPM (SP Manweb) enabled by data and digital solutions.
- New technology to enable new choices for our customers 'behind the meter' to support the low carbon transition.
- Digitalise our inspection regime using aerial LiDAR and drone footage image processing technology.

Impacted Personas:

- ✓ Domestic Customer
- ✓ Construction / Design Engineer
- ✓ LCT
- ✓ Customer
- ✓ Flexibility Service / EV CP / Demand Aggregator

Improving the Mastery of Our Data

Why we are doing it:

Our data is an organisational asset, capable of improving our decision making, operations and service to customers. Sharing our data with external parties will lead to better whole system solutions and new, innovative ways of working.

Key focus areas:

- AI / ML
- Data Strategy
- Integrated Reporting & Analytics
- Open Energy Data

How we will do it:

- We will introduce enhanced data governance across each of our business areas.
- Deploy fully integrated reporting and analytics using a new big data platform.
- Utilise enhanced data capture to maximise the value of our digital twins.
- Implement recommendations from the Data Best Practice Guidance, enabling open data sharing with our stakeholders and customers.

Impacted Personas:

- ✓ Vulnerable Customer
- ✓ Land Officer
- ✓ Digitally Disconnected
- ✓ Customer
- ✓ Field Teams
- ✓ Construction / Design Engineer
- ✓ Domestic Customer
- ✓ LCT
- ✓ Customer
- ✓ Other Utilities
- ✓ Commercial Customer
- ✓ Customer Service Team

Investing in the Digital Skills of Our People

Why we are doing it:

Investing in our people will accelerate adoption of digital technology and enable our people to identify new and innovative ways of performing their tasks. We will create highly skilled, digitally inclusive jobs in our local communities. We will recognise the value that these skills bring to our organisation, and provide exciting opportunities for our people to play their part in a modern digitalised energy system.

Key focus areas:

- Asset Lifecycle
- Autonomous Operation
- Digital Twins
- Field Based Solutions
- Instrumentation

How we will do it:

- Delivery of a cultural change programme so that our people recognise the importance of data and digital and the value it can unlock for our customers and our organisation.
- Support our people in this transition by equipping them with the right digital skills.
- Expand our graduate programme and recruitment policies to focus on digital talent.
- Use digital technology such as gamification of training and knowledge-based AI assistants to enhance our learning and development programmes.

Impacted Personas:

- ✓ Reporting / Asset Management
- ✓ Construction / Design Engineer
- ✓ Customer Service Team
- ✓ Field Teams
- ✓ Land Officer
- ✓ Sustainability Team
- ✓ Head of Data

Using Digital Technologies to Deliver Enhanced Customer Service

Why we are doing it:

Our Connections Strategy describes the changes we anticipate during RIIO-ED2 including a five fold increase in the number of connection requests. Digital technology can significantly improve customer service by providing more choice for our customers and by accelerating the delivery of our services. It also helps us to serve our most vulnerable customers, ensuring they are not left behind by the energy transition.

Key focus areas:

- Self-Service Solutions with Intelligent Support Agents
- Single View of the Customer
- Digital Channels

How we will do it:

- We will build a single view of our customers and our interactions with them across different services.
- Open new digital channels and develop self-service options for key customer journeys to give our customers more choice.
- Implement a customer data portal, customer data line and build on our strong governance of our vulnerable customer data (PSR).
- Develop a suite of digital tools capable of supporting the anticipated significant increase in the volume of connection enquiries.

Impacted Personas:

- ✓ Domestic Customer
- ✓ Field Teams
- ✓ LCT
- ✓ Customer
- ✓ Industry / Open Data Forums
- ✓ Commercial Customer
- ✓ Customer Service Team
- ✓ Vulnerable Customer

Supporting the Development of New Business Models & Markets

Why we are doing it:

Reaching Net Zero will require alternatives to traditional working practices such as network reinforcement. By adopting an open, collaborative approach across the ecosystem we will harness innovation to lower costs for customers, accelerate the low carbon transition and take steps on our journey towards becoming a DSO.

Key focus areas:

- Development of Energy Technology Sector
- Driving Focus on Environmental Initiatives
- Flexibility Markets

How we will do it:

- Development of flexibility markets and solutions
- Active participation in cross industry initiatives to identify and develop whole system solutions.
- Building partnerships with other participants in the ecosystem such as academia, third party organisations and innovators.
- Sharing operational and market data with our customers, stakeholders and market participants through an online data portal.

Impacted Personas:

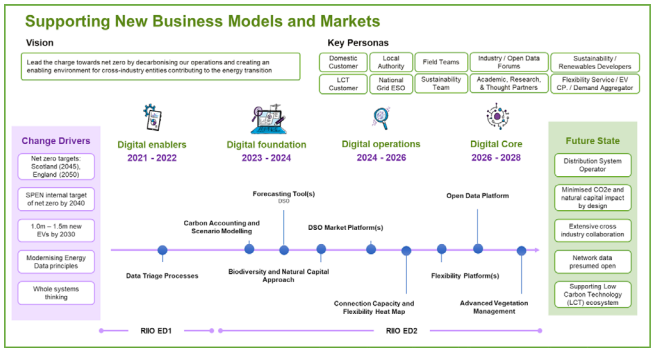
- ✓ Reporting / Asset Management
- ✓ Construction / Design Engineer
- ✓ Customer Service Team
- ✓ Field Teams
- ✓ Land Officer
- ✓ Sustainability Team
- ✓ Head of Data

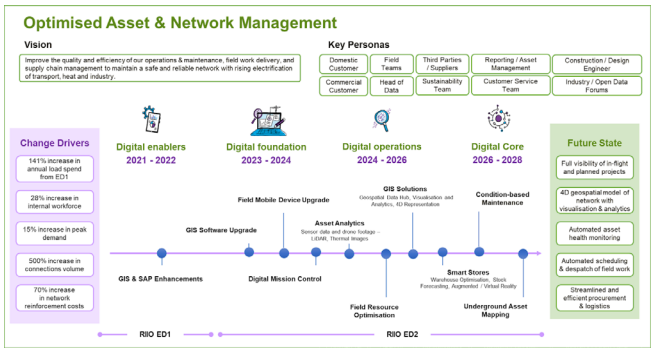
Building on our track record

Our approach builds on our successes and proven track record from our RIIO-ED1 digitalisation programme, including the implementation of our Network Asset Management System (NAMS) which now provides the backbone for our asset management and field operations.

We recognise that delivering a significant digital transformation will impact our workforce, business and supply chain and have developed plans to support the transition. We have established our business "Centre of Excellence" and "IT Digital Hub" which will work alongside our IT and Business Change teams to implement our Digitalisation Strategy.

Our digital strategy balances ambition with deliverability to ensure we have the right capabilities in place when we need them to support delivery of the ED2 plan and our broader digital business transformation. As part of the ED2 planning, around 300 development opportunities and ideas have been identified, which have been developed into a series of initiatives under each strategic pillar. These initiatives consider both enhancements to current SPEN platforms and offerings as well as new technology and opportunities which will open up as the energy landscape evolves. For each of these initiatives, key performance metrics and measure of success factors have been identified as a means to measure each initiative. These initiatives are being planned for delivery across the ED2 period.





External Stakeholders

Both Digitalisation Stakeholder engagement and Customer Service engagement has been carried out via workshops, smaller sessions and through our online survey in order to develop a unified understanding of the views of our stakeholders. These inputs will enable us to make informed decisions to develop ED2 proposals and then to test these proposals.

The 'feedback and triangulation' loop consists of three elements:

All answers to engagement questions and other feedback gathered via stakeholder events, market research or bilateral meetings were stored and categorised in a curated database.

Synthesis reports were developed to keep workstream leads informed of all feedback relating to topics that influence their proposals. This will include any feedback gathered across all events.

Information was recorded on how workstream leads used stakeholder feedback in conjunction to other forms of evidence to establish a golden thread between ED2 proposals and stakeholder engagement.

Internal Stakeholders

18 workshops were held with attendees from across the operational business areas from SPD and SPM, Customer Services, Smart Grid Operations and Real Time systems, Network Planning and Regulation, Process and Technology, UK IT and other ED2 workstreams.

The workshops covered all aspects of our business, with circa 300 ideas captured which were consolidated into major themes, which were split into ED2 initiatives.

The sessions were supported by use of digital techniques:

- Sessions facilitated via the Teams collaboration tool
- Recorded the Teams sessions
- Utilised AI to analyse the recordings
- Created word clouds to demonstrate ideas captured and highlight those themes which were prolific throughout
- Provided confidence that sessions had been correctly captured
- The outputs from both the internal and external sessions were reviewed to gauge and drive the level of ambition for ED2

Delivery Approach

Two key methodologies will be used as part of our delivery model; Agile and Waterfall.

We recognise the opportunity of moving to agile ways of working and over time, we believe that this will become our default delivery method. SPEN has adopted Scrum agile delivery methodology and the Agile Manifesto embodies the following core values:

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation
- Customer collaboration over contract negotiation
- Responding to change over following a plan

We shall also apply the following Scrum framework principles:

Focus
Everyone focuses on the work of the Sprint and the goals of the Scrum Team

Openness
The Scrum Team and its stakeholders agree to be open about all the work and the challenges with performing work

Courage
Scrum Team members have courage to do the right thing and work on tough problems

Commitment
People personally commit to achieving the goals of the Scrum Team

Respect
Scrum Team members respect each other to be capable, independent people

Scrum is a lightweight, iterative, and incremental framework for managing complex work. The Scrum team will carry out fortnightly sprints with a set of defined use cases. The deliverables will be pulled from the product backlog by the collective team with agreement based on business benefits. The output of the sprints maybe implemented into production dependent on business value.

We also recognise the need for a blend of delivery methods whilst we transform our approach to digital ways of working. Where integration between legacy platforms is required, a waterfall approach will be used to ready systems for integration with new platforms.

Our Evolving Data Strategy

Between 2010 to 2020, the amount of data in the world increased from 1.2 trillion gigabytes to 59 trillion gigabytes, almost a 5,000% growth.

To put that in perspective, if this trend continues, humans will create the same amount of data in the next 3 years as we have in the past 30. Some types of data are growing faster than others, with Big Data (38.6%) growing the fastest, followed by Cognitive (23.3%) and Content Analytics (17.3%).

There has also been a massive increase in metadata, which presents opportunities to manage our data more effectively. The volume of metadata being created will very soon surpass that of all other data types.

Our vision is to put data at the heart of our business, creating a solid and insightful base for our decision-making, operations, and performance improvement as we deliver our RIIO-ED2 ambitions. RIIO-ED2 will see a dramatic increase in the volume, velocity and variety of data required to operate a modern digitalised energy system. Good quality, reliable data will enable us to respond to the challenges of Net Zero, facilitate the connection of high volumes of low carbon technologies, and integrate solutions across the wider energy system.

Digitalisation of the energy system and improving access to this growing, rich data landscape will unlock stakeholder benefits which have the potential to accelerate the transition to Net Zero. Our goal is to maximise the value of data for stakeholders. Our Data Strategy provides the framework to allow us to maximise the value of data throughout our organisation and the wider energy system.

Our Data Mission Statement

Our mission is to unlock the full value of data. This will ensure the continued safe, reliable, and efficient operation of the transmission and distribution networks and wider energy system for all customers.

Which provides SPEN with opportunities to:

- Play our part in developing a modern digitalised energy system capable of delivering the UK's Net Zero targets
- Deliver value for money for customers through our RIIO-ED2 programme and beyond
- Deliver enhanced customer service whilst supporting our customers' energy transition
- Put environmental considerations at the heart of our decisions for a sustainable future

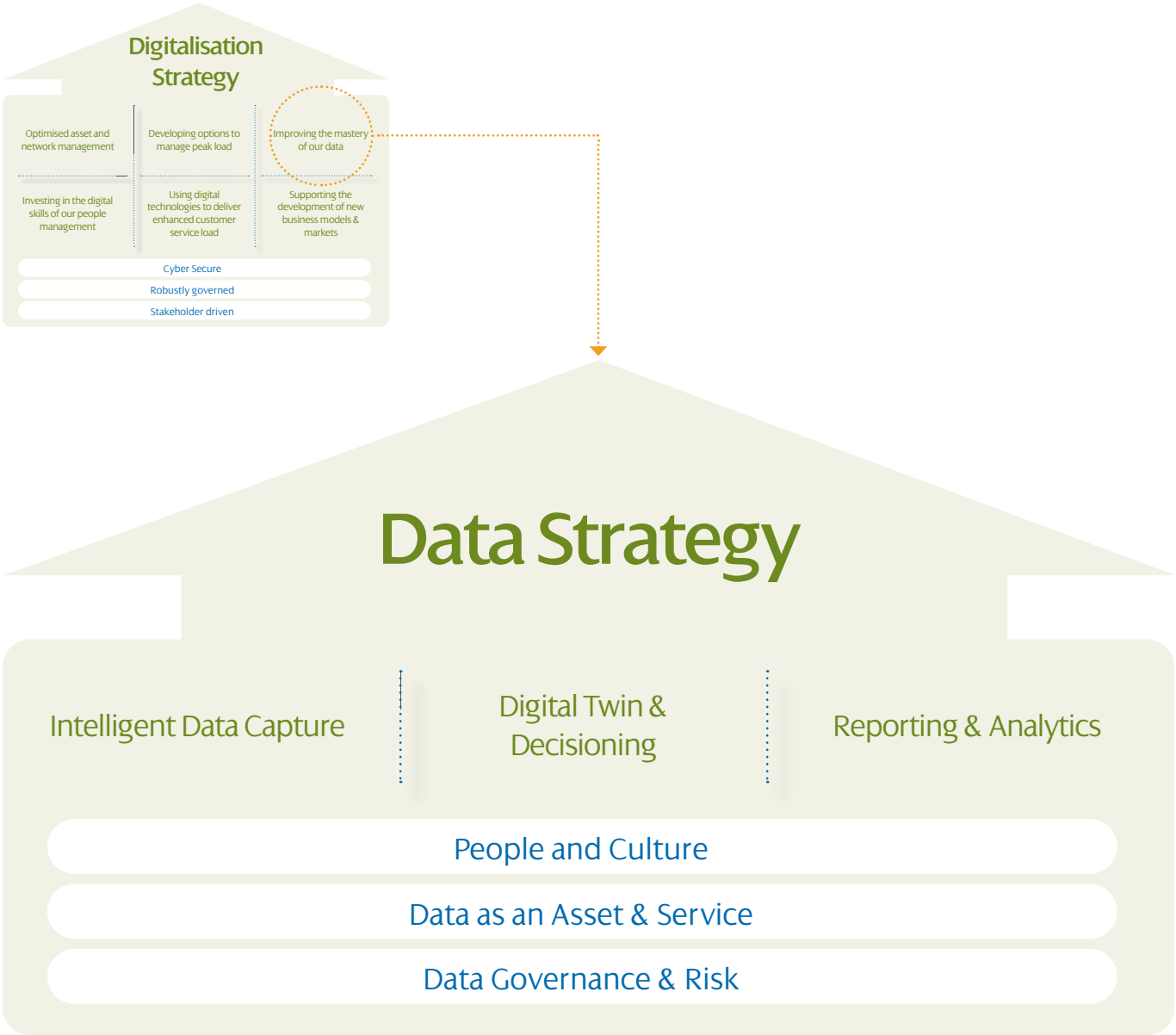
Guided by our Data Principles:

- Guide our governance and ownership framework for data in SPEN including the identification of a senior leader with responsibility for the development and delivery of the data strategy.
- Keep our data safe and secure within the different regulatory and legislative frameworks in which we operate. This includes maintaining the security of our network and responding proactively to future threats.
- Consider the needs of stakeholders, both internal and external, in the development of our data products and ensure we deliver these in an efficient and effective way.
- Implement the principle of "presumed open" across appropriate data sets, recognising the responsibility of SPEN as the data custodian. Before making data available, we will ensure that the costs of the data provision is proportionate to the benefits to customers.
- Ensure a "whole system" approach is inherent in everything we do.
- Put data at the heart of our activities, ensuring we have an evidence base for our decisions.
- Establish a framework for continual improvement.

Our data strategy

Our Digitalisation Strategy provides the solutions that will deliver our Data Strategy. Our Data Strategy establishes the framework to ensure that we carefully collect, manage, share and extract maximum value from data. Together, these two strategies underpin the breadth of our RIIO-2 programme, providing the mechanisms to deliver our ambitions in alignment with the recommendations from the Energy Data Task Force's report on "A Strategy for a Modern Digitalised Energy System".

We recognise the criticality of investing in data to deliver a better future quicker for more people through a digitalised energy system. SPEN has a mature approach to the management of data which we will evolve alongside of our Digitalisation Strategy. Feeding into the Digitalisation Strategy, our Data Strategy has been developed, setting out six critical data capabilities which will underpin our broader RIIO-2 digitalisation plans.



The vision for our Data Strategy is to maximise the value of data for our stakeholders. To this end, we have six critical data capabilities that we will need to invest in to support the delivery of our Digital and Data projects for sustainable value long term. These data capabilities will enable us to manage and to use our data more effectively. We will quality assure our data and make it more accessible for more people (internally and externally), so that we can deliver more value for our stakeholders. There is a particular focus on making our data open within our strategy because we recognise the important role that data will play in enabling a flexible energy market. This will be an important building block in simulating the product and service innovations that customers need to accelerate their transition to Net Zero. Our strategy also places a strong emphasis on our people. More specifically, we consider how we can best support them on this journey through data to deliver a better future quicker.

Our digital transformation approach

Our digital transformation approach will balance building foundations, learning by doing and delivering incremental value. This approach will be delivered across four stages:

Digital enablers

We are preparing for ED2 by delivering digital enablers. Our focus is on simplified data capture, development of our reporting & analytics capability and LV readiness ahead of the deployment of IoT sensors.

Digital foundation

We propose to finish our digital foundation for core business areas including asset management, network operations and customer services. We aim to start our digital cultural change and skills programme.

Digital operations

We aim to fully digitise our high volume processes using new technology and as our work volume ramps up and our customer interactions increase, with the deployment of low carbon technology.

Digital core

By 2028 we propose to have scaled and embedded digital across our business, so it is at the core of what we do. We will have equipped our workforce with new digital skills and hired new digital talent into our business.

RIIO-T2 RIIO-T2

RIIO-ED1 RIIO-ED2

Our strategy for data has taken each one of the EDTF's Data Best Practice Guidelines to heart and we recognise that strong data management principles will underpin our digital journey. The following diagram outlines each of the six critical data capabilities which make up our data strategy, along with the key features of each capability and the applicable best practices which shall be utilised within each capability.

Ofgem Data Best Practice Principles

1. Identify the roles of stakeholders of Data Assets
2. Use common terms within Data Assets, Metadata and supporting information
3. Describe data accurately using industry standard Metadata
4. Enable potential Data Users to understand Data Assets by providing supporting information
5. Make Data Assets discoverable for potential Data Users
6. Learn and deliver to the needs of current and prospective Data Users
7. Ensure data quality maintenance and improvement is prioritised by Data User needs
8. Ensure Data Assets are interoperable with Data Assets from other data and digital services
9. Protect Data Assets and systems in accordance with Security, Privacy and Resilience best practice
10. Store, archive and provide access to Data Assets in ways that ensure sustained benefits
11. Treat all Data Assets, their associated Metadata and software scripts used to process Data Assets as Presumed Open

Intelligent Data Capture

Applicable Data Best Practices: 1 2 3 4 5 6 7 8 9 10 11

What we are doing:

Automating data capture will improve data quality by improving accuracy, frequency, and completeness. Using technology to support enhanced data capture will enable our employees to focus on more complex activities, and result in higher quality data captured at lower cost.

How we will do it:

- We will deploy technologies such as sensors, IoT devices, drones, GPS-enabled devices, LiDAR scanners, wearable technology, smart tags, smart meters, social media analytics and voice recognition.
- We will use edge computing (processing data closer to source, reducing information lag) to process high volumes of data generated by these technologies, enable validation at the point of capture and facilitate real-time analysis.
- We will provide innovative mechanisms to support manual data capture such as context-sensitive data entry and photo capture, voice commands, autofill and scanning, our people will find it easy to record detailed data on their work – increasing our efficiency and productivity for the benefit of our customers.
- Data from all our business activities will be fed into our core systems of record, ensuring that we have high quality, timely, consistent, relevant, complete, and accurate data.

Digital Twin & Decisioning

Applicable Data Best Practices: 1 2 3 4 5 6 7 8 9 10 11

What we are doing:

Digital twins are an important emerging technology for asset intensive businesses, improving decision making and 'what if' scenario planning to drive better whole system outcomes for our customers and stakeholders.

How we will do it:

- We have already started work on our 'Smart Data Integration Fabric' project to build a trusted, multi-purpose and reusable digital master model of our network and develop new approaches for fault location and constraint identification.
- We have also developed our 'NAVI' and built the foundations for our 'Engineering Net Zero' platforms based on our integrated network model which we will develop further, complemented by additional real time datasets.
- We will continue to develop these platforms and identify new pilot use cases to iterate our digital twin capability, working with partners where necessary.

Reporting & Analytics

Applicable Data Best Practices: 1 2 3 4 5 6 7 8 9 10

What we are doing:

To achieve our data vision, we will create an integrated reporting and analytics solution. This will enable us to generate insights across a range of data domains covering all aspects of our operations.

How we will do it:

- We will transform our regulatory reporting capability to introduce automation and standardisation, saving a significant amount of time and effort each year.
- We will implement self-service operational reporting and rationalise our suite of reports to drive faster and more meaningful access to data.
- We will improve our customer reporting capability to enable us to provide better levels of customer service, including for vulnerable customers and the digitally disengaged.

People and Culture

Applicable Data Best Practices: 1 2 3 4 5 6 7 8 9 10 11

What we are doing:

Our people are critical to the successful delivery of our data strategy and we recognise that we need to support our people in developing new data skills. Supporting this is a cultural change programme to explain why data is critical for our future business and how data will impact existing roles and responsibilities.

How we will do it:

- We will drive the introduction of a digital workplace, providing the digital systems and tools our people need to meet our commitments to our customers and stakeholders.
- We will implement a digital skills programme to ensure our people are equipped with the skills they need and are supported through opportunities for learning and development.
- We will continually assess our digital readiness, evaluating our digital capabilities and ways of working to identify and prioritise opportunities for improvement in the digital skills of our workforce, workplace and organisation.

Data as an Asset & Service

Applicable Data Best Practices: 1 2 3 4 5 6 7 8 9 10 11

What we are doing:

We recognise the value of data as an asset in the delivery of our RIIO-ED2 programme, providing the mechanisms for us to forecast outcomes, establish targets, monitor progress and respond to evolving challenges. This approach will also enable us to ensure our plans are deliverable.

How we will do it:

- Our business chairs the ENA's Data and Digitalisation Steering Group and we will continue to demonstrate leadership in our approach to implementing the 'presumed open' approach to data.
- We will embrace the Data Best Practice Guidance to enhance sharing of data, supporting our customers and stakeholders on their path to Net Zero.
- We will continually assess our use of data throughout our organisation and processes to ensure we are maximising the value derived from it.

Data Governance & Risk

Applicable Data Best Practices: 1 2 3 4 5 6 7 8 9 10 11

What we are doing:

We have many data domains across our business. Some, like data about our assets, are well established and have effective governance processes. Others are evolving, such as data about the operation of the low voltage network and environmental metrics, and these also need sufficient risk controls in place.

How we will do it:

- We will implement policies to establish discipline around the management of data during its lifecycle and across our operations.
- We will ensure we have the appropriate mechanisms to manage data and information security, privacy, quality, retention and availability, particularly in the context of exposing access to energy data.
- We will develop enhanced approaches for continuous improvement of data, including monitoring, measuring and data quality interventions.
- Our governance approach will include oversight of our implementation of the Data Best Practice guidance. In particular, we will establish our data triage process to ensure that risks associated with data sharing are carefully considered and mitigated. We will ensure that our customers and stakeholders are fully engaged in our open data implementation.

Workforce Plan

Future skills and capabilities

To deliver our digitalisation strategy we require a digital ready workforce with the right number of people, with the right skills and at the right cost. We anticipate an increasing demand for technical expertise and data and digital skills outlined in the table to the right.

There will be a need for specialists with these technical skills and individuals who are multiskilled for example; Power Systems Engineers who are also comfortable developing software or working on complex data modelling.

To compliment these technical capabilities, we need to continue to evolve in a more agile and innovative way of working to take advantage of digital opportunities. This will include greater use of agile teams to enable business and IT collaboration on digital solutions.

Key Digital Skills:

- Systems and Applications Architecture
- Data Science and Analytics
- Software Development
- Telecommunications Network Design
- Internet of Things (IoT)
- Cyber Security
- Geographic information Systems (GIS)
- Artificial Intelligence (AI)

A strategic workforce planning exercise has been carried out as part of our RIIO-ED2 business plan submission, which complements the approach within our RIIO-T2 business plan.

This exercise has identified the following key initiatives that are required to embed digital skills throughout SP Energy Networks:

1. Digital Support

As the organisation moves towards a more digital world it will be essential that support levels are sufficient to support staff, and have increased breadth where appropriate, across both software and hardware support.

Digital training and upskilling will be needed to support staff to make sure they can support business users. It is essential that this is also considered in all new projects to make sure support staff are trained in advance of go live.

2. Digital Skills Recruitment

We need to employ and upskill a wide variety of digital skillsets within the organisation. The following selection of skills have been identified as essential:

- Data Analysis
- Data Science
- Digital Analysis

3. Improving Training Delivery

Training on new digital desktop solutions needs to match the standard of our operational training to ensure all staff have the skills to carry out their roles effectively.

We will improve how we deliver our training using a broad mix of techniques:

- Mentoring
- New System Training / System Updates
- New Digital Platform Training
- Combined System Approach
- Computer Literacy

4. Workforce Digital Awareness

As well as training and upskilling staff on how to use new and existing technologies it is essential to raise awareness of why the change is being introduced and make sure the context is understood in terms of processes and systems

Particular attention will be given to raising awareness on the importance of accurate data capture and how important it is in the context of the end-to-end process, demonstrating for example where poor data captured in the field can result in our asset data records being incorrectly displayed and reported.

5. Upskilling Existing Workforce

We need to ensure our IT digital skills match that of our engineering skills therefore upskilling in a wide variety of areas is required.

Areas of training identified include:

- Agile skills
- Cyber resilience
- Regulatory and compliance training
- Citizen data analyst creation and training
- External stakeholder training
- Existing systems training
- Augmented and Virtual Reality Training
- Reporting Tool Skills and Training

What are we already doing?

We have already commenced this journey to build and sustain an inclusive digital ready workforce.

- We continue to attract and recruit experienced engineers and technical/IT specialists.
- We have started to recruit trainees to develop and grow our own talent with Cyber security graduate apprentices and Data science graduates and plan to build on these trainee programmes.
- We have employee-led networks that represent the voices of people with diverse backgrounds and aspirations from gender to ethnicity, caring responsibilities to LGBTQ+. Our employee networks are now an integral part of our business running awareness events whilst supporting initiatives to improve Diversity & Inclusion data gathering, reporting and policy insights.

Digital Hub

IT has a significant role to play in the realisation of our digitalisation strategy and we have now created a Digital Hub within IT to focus on digitalisation with specialist skills across a number of digital disciplines. Alongside other investments in our IT capabilities including in the areas of CyberSecurity and Architecture we are ensuring that we invest in the most critical skills to meet the needs of the Utility of the Future.

The Digital Hub and IT organisation will constantly evolve to meet the anticipated demand for digital services to allow us to deliver 'Enterprise Wide' capabilities whilst leveraging Global Iberdrola capabilities. These services are designed to be performed, operate and comply with all necessary business separation obligations.

There has been significant progress this year in structuring and developing the Digital Hub, driven by the development of our Digital Hub Strategy:

Driving sustainable value through digital innovation and technology.

The Digital Hub has been structured into four strategic pillars: Web & Mobile, Industry 4.0, Data & Analytics and Agile Delivery.

Web & Mobile

A dedicated team focusing on the delivery of Web and Mobile application solutions to meet the needs of our colleagues, customers and stakeholders.

Industry 4.0

Within the Industry 4.0 team we are developing the skills to deliver the latest technologies relevant to our business. This includes capabilities in Internet of Things, Intelligent Automation, Mixed Reality, Mobile and Wearable technologies to name but a few. The Industry 4.0 team also drives our IT Innovation agenda ensuring that we are always at the forefront of considering new Digital technologies and their potential benefits. They will focus on building an extensive ecosystem of partners to help us assess, develop and deploy new digital innovations across our organisation.

Data & Analytics

In an increasingly connected and digitalised environment the importance of Data has never been greater. We have developed our Data & Analytics team to ensure we are well positioned to take advantage of this. Our data team has built 8 core data services covering areas such as Reporting & Analytics, Data Strategy, Advanced Analytics, Machine Learning etc.

Agile Delivery

A critical part of our Digital Strategy is the adoption of agile ways of working and we have developed a team of agile delivery professionals within the Digital Hub to bring new agile delivery methods into our organisation.

We have also developed a robust people strategy to ensure we have the values, knowledge, skills and behaviours to deliver outstanding results, nurture our digital talent and continually develop our digital capabilities.

Energy Data Page

The Energy Data Hub has been created to house all data that SP Energy Networks currently shares openly in the public domain. This service allows users to view, combine, visualise, share and export different datasets. The purpose of having an open data platform is to share data to open up opportunities for future development including innovation, optimisation and decarbonisation. This may be of interest to a number of parties: customers who may want to locate EV charging points, flexibility providers who may be interested in local capacity and potential for development, and anyone interested in SPEN's long term development statement and data-oriented strategies.

The Energy Data Hub has been designed to be intuitive for the user to explore. Users can navigate through the site browsing through different categories and/or using search criteria to identify the datasets that they are looking for. The current categories of data and associated data sets available include:

- **Asset Data**
  - Embedded Capacity Register
- **Mapping Data**
  - SPEN Heatmaps
  - Utility Map Viewer
  - Flexibility Requirements
  - Investment Plan Data
- **Stakeholder Data**
  - Distribution Performance Reports
  - Transmission Performance Reports
- **Strategic Documentation**
  - Long Term Development Statement
  - Distribution Future Energy Scenarios (D-FES)

New functionality and enhancements are planned for the Energy Data Hub, which will be delivered iteratively over a number of releases. These improvements will enable a user to:

- Preview template data enabling a user to filter and refine the data they wish to obtain.
- Add additional columns to template datasets
- Create an entirely new dataset
- Download datasets in the appropriate format
- View dashboard visualisations of datasets
- Log in to a user account
  - Bespoke Dashboard view
  - Save any created bespoke datasets

Alongside the Energy Data Hub enhancements, we are planning to develop a Stakeholder Platform to gain stakeholder validation and assurance for delivered initiatives.

The platform will allow us to demonstrate the products and services which we are working on and to obtain feedback from customers, allowing us to analyse the feedback, look for trends and generate reports on the feedback. This will provide us with the opportunity to respond to customer feedback and put in place mechanisms to act on feedback received.

Our Energy Data Hub can be accessed via the following link:

https://www.spenergynetworks.co.uk/pages/energy_data_hub.aspx

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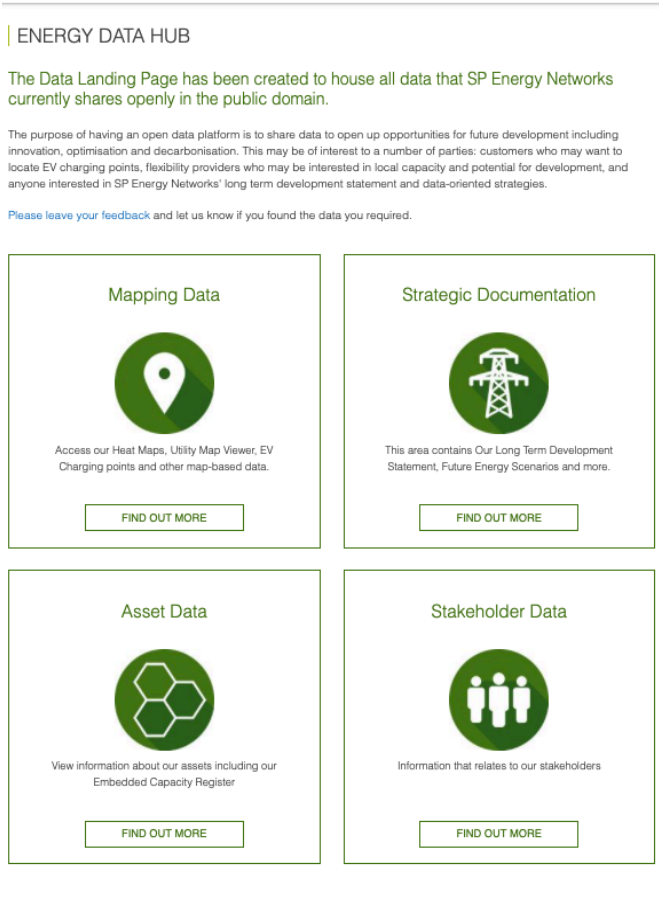
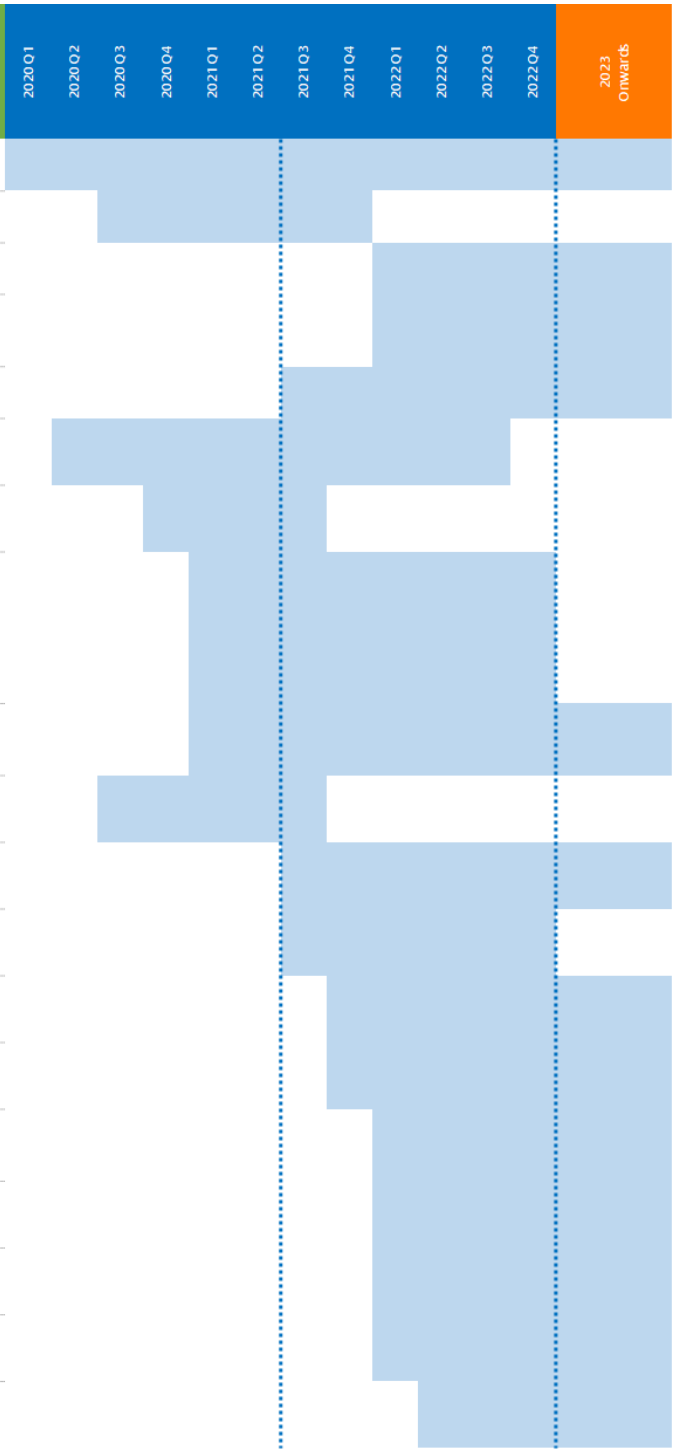
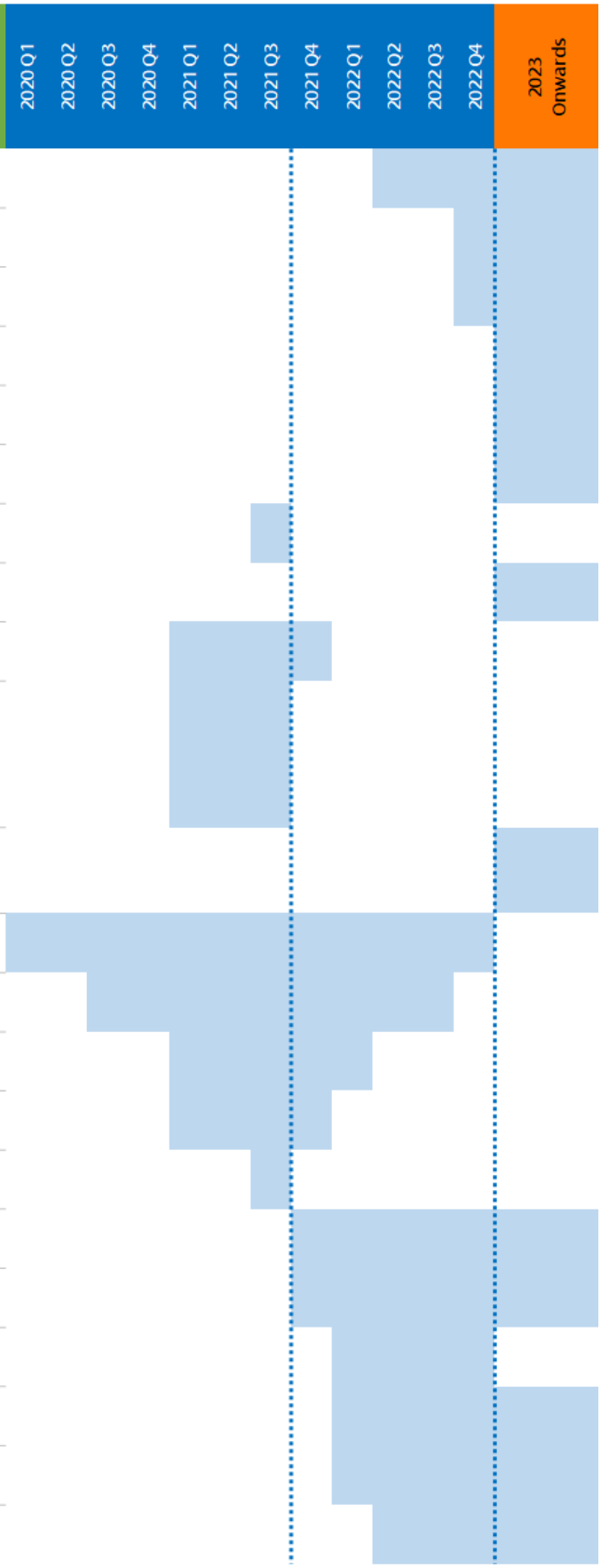


Delivery Plans

Pillars	Initiatives
Improving Mastery of our Data	Integrated Network Model (INM)
Improving Mastery of our Data	Disruptive Technology
Improving Mastery of our Data	Big Data Platform
Improving Mastery of our Data	Open Data Sharing Platform (Data Portal)
Investing in the Skills of our People	Sharepoint Replacement
Monitoring and Controlling the Network	ALoMCP
Optimised Asset and Network Management	Asset DMR
Optimised Asset and Network Management	Asset Condition Based Decision Support – Proof of Concept
Optimised Asset and Network Management	System Monitoring & Dynamic Rating
Optimised Asset and Network Management	Barcoding
Optimised Asset and Network Management	BIM
Optimised Asset and Network Management	GIS Upgrade
Optimised Asset and Network Management	Low Code Apps
Optimised Asset and Network Management	Mobility and Field Services
Optimised Asset and Network Management	IT Communications Network Upgrades
Optimised Asset and Network Management	Application Product Upgrades
Optimised asset and network management	Infrastructure Upgrades
Optimised asset and network management	SAP Enhancements
Optimised asset and network management	IoT Platform + CMDB



Pillars	Initiatives
Optimised asset and network management	IoT Platform + CMDB
Optimised asset and network management	Operational Digital Twin Pilot
Optimised asset and network management	Logistics Improvements
Optimised Asset and Network Management	Digital Substations
Optimised asset and network management	LV Model Readiness
Optimised Asset and Network Management	Active Network Management (ANM)
Optimised Asset and Network Management	Fusion
Optimised Asset and Network Management	Phoenix
Supporting the Development of New Business Models and Markets	Open Data Sharing Platform (Data Portal)
Supporting the Development of New Business Models and Markets	CBA Pilot
Supporting the Development of New Business Models and Markets	Environmental & Sustainability
Using Digital Technologies to Deliver Enhanced Customer Service	LV Engine
Using Digital Technologies to Deliver Enhanced Customer Service	Faster Switching
Using Digital Technologies to Deliver Enhanced Customer Service	Charge/Connect More
Using Digital Technologies to Deliver Enhanced Customer Service	iDentify
Using Digital Technologies to Deliver Enhanced Customer Service	Digital Representation of DSAP
Using Digital Technologies to Deliver Enhanced Customer Service	Customer Services Enhancements
Using Digital Technologies to Deliver Enhanced Customer Service	Consolidated CRM
Using Digital Technologies to Deliver Enhanced Customer Service	Evolve
Using Digital Technologies to Deliver Enhanced Customer Service	Digital Representation of ED2 Programme Submission
Using Digital Technologies to Deliver Enhanced Customer Service	WFM SaaS
Using Digital Technologies to Deliver Enhanced Customer Service	Customer Connections



What have we delivered so far in 2021?

Delivered in the last 6 months

Improving Mastery of our Data

Condition Based Risk Monitoring (CBRM)

- Upgrade project to SPEN asset management Condition Based Risk Monitoring system to ensure it is compliant with ED2 regulatory reporting requirements.

NAVI (Network Analyse and View)

- NAVI is a new platform which automatically creates a connected network model from our GIS data (previously known as Network Constraint Early Warning System (NCEWS) in our previous Digitalisation Strategy). This creates an "analytics" ready model which can be used as the basis for most types of network analysis. NAVI is operated on Agile principles with new enhancements delivered every 2-3 weeks and major releases of NAVI once per quarter. Since the December 2020 DSAP Addendum, further enhancements delivered include stabilisation of NAVI operation for LV connections, cable/OHL backfill and support for Charge/SDIF.

Optimised Asset and Network Management

Land GIS Phase 2

- Full integration of land information with the ESRI GIS platform, enabling land rights boundaries to be digitised against the assets and integrated with the grantor payments process in SAP. Reporting tools were also developed to provide summary information on the contract relationship between circuits, assets and the agreements that cover them.

Power Systems Analysis Software

- Purchase of additional licences and new modules to facilitate analysis of new network challenges.

Predictive Analytics for Energy (PRAE) – Release 2

- Project to provide demand and generation forecasts by pulling historical data, using predictive modelling techniques and weather predictions to display half hourly forecasts on the PRAE platform. Started as Proof of Concept, now operational with four key changes delivered this year:
    1. Medium term forecasting - looking at Distribution Future Energy Scenarios (DFES) for ED2 and beyond, taking normalised (average weather), analysing the effect on transformer ratings, and calculating at what point would we have to replace them.
    2. Dynamic rating - analysing transformer data in near real time, calculation based on ambient temperature, weather, preloading and calculating dynamic rating.
    3. Contingency analysis - model 11kV/32kV network, models taking outages on Transformers. This allows analysis of the impact for the customer and minimises Customer Services risk.
    4. Admin function - autonomy for SPEN to update the model/data themselves without reliance on 3rd party contractors.

Visual Planning Board (VPB) Enhancements - Implementation

- Project to enhance user experience in Visual Planning Board system for management of work periods, reporting, notifications, work centres, date changes and view on map.

Using Digital Technologies to Deliver Enhanced Customer Service

ATHOS-SAP

- Changes to improve information captured centrally in SPEN New Connections system Athos, Changes were to prevent duplication and improve customer journey from New Connection design through to management by delivery teams (with improved case tracking). Included improved integration between ATHOS and SPEN core SAP financial platform.

Faster Switching

- The programme objective is to improve consumers' experience of changing supplier by implementing a new switching process that is reliable, fast and cost-effective. This will build consumer confidence, lead to greater engagement in the market, facilitate competition and deliver better outcomes for consumers. The programme is a mandatory regulatory change to meet Faster Switching requirements by interfacing with CSS to allow Ofgem's from SPEN MPRS Application, an adaptor service is mandated to translate the appropriate messages to agreed Industry format to be processed by CSS. There have been a number of incremental deliveries to date with changes to ADQM, MSP and supporting industry flows. The estimate completion date of the programme is August 2022.

Robotic Process Automation (RPA)

- Proof of concept to test incorporation of RPA into identified CS system/business processes. The objective of the project was to provide understanding of improvements and enduring savings through use of RPA and the types of process best suited to this. The first use cases were implemented early 2021.

Smart Data Fabric Integration Fabric (SDIF)

- The Smart Data Integration Fabric (SDIF) facilitates the collection, analysis and sharing of data and acts as an enterprise service bus, an integrated data model and workflow engine. The first use case was delivered in November 2020, last year, tracking data returned from LV sensors to predict and locate faults. A second use case has since been delivered in which smart meter data is manipulated for outage/customer management.

What do we have planned in the remainder of 2021?

To be delivered in the next 6 months

Improving Mastery of our Data

Initiative	Description	Status	Measure of success
Disruptive Technology	Project for an improved, GDPR compliant process using corporate systems to capture and display data on SPEN network for EV chargers, battery storage, solar panels, wind turbines, micro hydro and combined heat and power. Delivery will include design, combined load check, new systems and processes and the modernisation of website application forms.	In progress	• All demand and generation connected to the electrical network will be displayed on ESRI / UMV. • All demand and generation connected to the electrical network will be available for reporting including specifics such as what EVs connected, types of generation etc. • Systems and process in place to capture all future data.

Optimised Asset and Network Management

Initiative	Description	Status	Measure of success
Asset DMR	This project will deliver changes to the Data Management Return (DMR) process to utilise SAP workflows.	In progress	• Data management forms from our Field Work Management System (FWMS) / Contractor portal / directly in SAP, tracked and reportable. • Number of validations added will prevent jobs being closed down too early. • Additional metadata collection.

Barcoding	After implementation of Network Asset Management System (NAMS) in January 2018, the business identified some key changes to the Barcoding UI to ensure that the application is more intuitive to the user. These changes are already in operation via web browser, however this project will enable this functionality to be moved into an application from which a user can access via their phone.	In progress	• More accurate stock levels in stores. • Increased size of user group with reporting. • Records of all bar coding (logisitics) transactions held in SAP.
Fusion	Trial of local demand side flexibility market. Trials the trading of decentralised flexibility through the creation of a competitive market, structured around the Universal Smart Energy Framework (USEF).	In test	• Implementation of flexibility solutions to UK market using USEF and resultant lessons learned.

Supporting the Development of New Business Models and Markets

Initiative	Description	Status	Measure of success
CBA Pilot	Proof of concept to test usability and productivity levels of mobile application which will allow Condition Based Assessments (CBA) and statutory inspections to be carried out as combined process on site and give users the ability to electronically update asset data associated with works.	In progress	• Reduction in the time to do a CBA inspection. • Reduction in cost for a CBA inspection.
Open Data Sharing Platform	Creation of a data landing page, the Energy Data Hub, which is now live and was created to house all data that SP Energy Networks currently shares openly in the public domain. The Energy Data Hub is a central point of access for all open data including GIS and heat maps data and will allow users to view, combine, visualise, share and export different datasets. As we progress through 2021-2022, we intend to: • Publish new datasets • Create data catalogue descriptors for published datasets (following Common Information Model (CIM) definitions) • Develop APIs to enable programmatic extraction of data • Develop a further enhanced landing page to bring the datasets together	In planning stage	• Users able to navigate and search datasets easily, and be able to compare like-for-like data from other DNOs utilising the CIM definitions. • Feedback form will allow iterative improvements and act as a request mechanism where required. • The sum of data requests should reduce dramatically due to taking a pre-emptive approach and publishing (and effectively labelling) all datasets that have been triaged as 'open'. • Successfully utilising APIs to automate extraction process and reduce the frequency of manual data refreshes.

Using Digital Technologies to Deliver Enhanced Customer Service

Initiative	Description	Status	Measure of success
Digital Representation of DSAP	Create an interactive web experience, providing 6 monthly updates of our DSAP to our customers and stakeholders in an easy accessible format. In addition this platform will be used to capture feedback from our customers and stakeholders to shape our future projects.	In progress	• Provide a Digital version of our DSAP. • Capture customer stakeholder feedback digitally.

Starting / In Progress in the Next 6 Months

Improving Mastery of our Data

Initiative	Description	Status	Measure of success
Integrated Network Model (INM)	Dumfries and Galloway has among the UK's highest proportion of connected renewable generation relative to its demand for energy. That can present difficulties when it comes to exporting renewable energy back to the electricity grid and connecting new projects. As a result, we are implementing a revolutionary, wide-scale integrated network management zone across the area. The project will help manage transmission network constraints by using an active network management (ANM) system to monitor and manage exports from distributed generation on SPEN's network. Further details can be found on our website: https://www.spenergynetworks.co.uk/pages/dumfries_and_galloway_integrated_network_management.aspx	In progress	• Improve the service we provide to our customers by reducing constraints on connections. • More Renewable Generation will be connected to the Electricity Network, bringing benefits of £40m to customers. • Facilitate the connection of more zero carbon generation. That will contribute to a reduction in CO2 emissions of 522k tonnes by 2031 - the same amount of carbon created by the consumption of 58m gallons of petrol - and advance the transition to a low carbon economy. • Ensure the Electricity Distribution Network is ready to respond with pace to new customer requirements as we move to a low carbon economy. • Utilise our existing network assets more efficiently, reducing costs for customers.

Monitoring and Controlling the Network

Initiative	Description	Status	Measure of success
Monitoring and Controlling the Network	Alongside other Distribution Network Operators (DNOs) and Independent Distribution Network Operators (IDNOs), we are joining forces with National Grid ESO on their 'Loss of Mains (LoM) Change Programme' - an initiative to help owners of generation assets make the necessary changes to ensure compliance with new settings introduced under the Distribution Code. Further details can be found on our website: https://www.spenergynetworks.co.uk/pages/loss_of_mains_change_programme.aspx	In progress	• MW of generation capacity compliant with revised Distribution Code. • Number of generation sites compliant with revised Distribution Code. • Increase in Customer Protection Systems data known and reportable, e.g. in Wk24. • Roadmap for SPEN & Customer Protection Systems data storage in Corporate Systems.

Optimised Asset and Network Management

Initiative	Description	Status	Measure of success
Building Information Modelling (BIM)	The purpose of the BIM initiative is the implementation of a transformative enabling process for the design and delivery of large projects. This new process will facilitate benefits to the customer through cost and time efficiencies of project delivery with additional benefits in management of health, safety, quality, environment, and sustainability through the project lifecycle.	In progress	• Full BIM level 2 compliance for SP Transmission (SPT)/ SP Manweb (SPM) large projects.
GIS Upgrade	The current business processes and use of systems will not cater for the expected volumes of New Connection requests. This project will create integration layers to our core GIS solution, enabling all geospatial data to be linked to from ESRI. This will allow us to visualise and perform geospatial analyses on all geospatial data. There will also be a key focus on fixed price budget quotes and a new estimation tool.	To start	• Provide a stable platform for increased volume of users. • Provide increased functionality to meet with the demand of the new digitalisation processes.

Investigating in the skills of our people

Initiative	Description	Status	Measure of success
Sharepoint Replacement	Kick off project to migrate SPEN SharePoint 2010 estate onto supportable Document Management System platforms. Current SharePoint version in use will no longer be supported by Microsoft after April 2021 and will become technically obsolete. This will be a phased project stretching into ED2, with an analysis phase, a pilot and then a staged migration.	In progress	• Successful migration of data from SharePoint 2010 site to SharePoint Online with end customers enjoying similar functionality on the new platform.

Using Digital Technologies to Deliver Enhanced Customer Service

Initiative	Description	Status	Measure of success
Charge/ Connect More	Charge will merge transport and electricity network planning to create an overarching map of where EV charge points will be required and where they can be best accommodated by the electricity grid. This project will involve the development of ConnectMore online tool to enable users to accelerate their Electric Vehicle (EV) charge point deployment plans by identification of optimum locations for charging infrastructure based on forecasted demand for public charging and available network capacity. As we move forward ConnectMore will enable customers to generate their own EV connection cost estimates. Further details can be found on our website: https://www.spenergynetworks.co.uk/pages/charge.aspx	In progress	• Acceleration in EV charge point connections. • Provide Customers with the ability to identify suitable locations to connect to the grid. • Reduction in reinforcement based connections. • Provide customers with ability self-serve and receive an estimate of costs for their connections.
Customer Services Enhancements – Phase 2	There is an ongoing programme of work to enhance our Self Service Portal. This next phase of work specifically relates to the New Connection process, and facilitates direct online updates of customer information, presentation of outage data, presentation of an interactive map, new online application forms, presentation of additional information relating to applications previously submitted and the introduction of land and planning data.	To start	• % increase in forms received via the web site. • Improved customer golden records resulting from online updates. • Improved Customer Satisfaction by making New Connections data more accessible.
Faster Switching	The programme objective is to improve consumers' experience of changing supplier by implementing a new switching process that is reliable, fast and cost-effective. This will build consumer confidence, lead to greater engagement in the market, facilitate competition and deliver better outcomes for consumers. The programme is a mandatory regulatory change to meet Faster Switching requirements by interfacing with CSS to allow Ofgem's from SPEN MPRS Application, an adaptor service is mandated to translate the appropriate messages to agreed Industry format to be processed by CSS. There have been a number of incremental deliveries to date with changes to ADQM, MSP and supporting industry flows. The estimate completion date of the programme is August 2022.	In progress	• % reduction in duration of switching process.

iDentify	SPEN has been working with the ENA to create an app to be used across all DNOs to facilitate the following; Key functions: 1) Identify cable head type using all photographic recognition technology using the camera. 2) Replaces paper forms for installers (currently downloaded from ENA website) 3) Online survey Additional functions for SPEN App: 1) Ability to measure joint bays, cable length. 2) Provide tips to help problem solving 3) Web hosted version to facilitate the scenario of a customer calling regarding a cabinet door open in street furniture. The web app can send customer a text, the customer opens a URL which uses AI to determine if it is ours.	POC delivered, Project in progress	• Identification of cable head using AI. • Replacing paper forms • Improvements on cable head data sets. • Reduce site visits, therefore reducing cost to serve.
LV Engine	We are changing the way we generate, distribute and use electricity. SP Energy Networks recognises the need to facilitate the uptake of Low Carbon Technologies (LCTs) such as, electric vehicles, heat pumps and photovoltaics. LV Engine is a flagship innovation project funded via Ofgem's Network Innovation Competition (NIC). The project will carry out a globally innovative network trial of Smart Transformers to facilitate the connection of LCTs whilst representing value for money for our customers. This innovation is in line with the UK Government's CO2 reduction targets which are driving the increase in electrification of both heat and transport. Further details can be found on our website: https://www.spenergynetworks.co.uk/pages/lv_engine.aspx	In progress	• Provision of performance and control algorithms data to universities for further academic research and development. • The successful rollout of LV Engine in Great Britain is expected to represent a saving of £62m by 2030 and £528m by 2050. • The project will stimulate a competitive marketplace for power electronics and Smart Transformers, contributing to improving productivity within the economy.

Starting in 2022 onwards

Improving Mastery of our Data

Big Data Platform

- Our Data Strategy establishes the framework to ensure that we carefully collect, manage, share and extract maximum value from data. 2022 will see us develop and implement elements of this strategy.

Open Data

- Ongoing development and implementation of our open data strategy in response to the needs of our customers and stakeholders.

Optimised Asset and Network Management

Active Network Management (ANM)

- This project will deliver LV network control and active network management, paired with smarter assets. This will enable predictive maintenance.

Application Product Upgrades

- This programme of work incorporates the costs and activities to upgrade to the latest versions of products and applications which underpin the core applications portfolio within Energy Networks (Non-Operational).

Asset Condition Based Decision Support – POC

- This project will enable the capturing and recording of additional asset condition information through the deployment of sensor technologies onto the network, and propagation of mobile apps to automate manual data capture.

Digital Substations

- Development of a digital twin for the substation to enable on-line analytics in near real-time. This will enable the ability to scenario model and apply machine learning algorithms to optimise asset operation and maintenance.

Infrastructure Upgrades

- This programme of work incorporates the costs and activities to upgrade to the latest versions of Infrastructure products (eg Database and Operating System versions) which underpin the core applications portfolio within SP Energy Networks (Non-Operational).

IoT Platform & Configuration Management DB

- The IoT platform including Configuration Management DB for OT devices needs to be in place before the LV sensors will be deployed. Such a platform will need 'over the air' capabilities.

IT Communications Network Upgrades

- Communications network upgrade to cater for step increase in data from digital substations, smart data sensors, virtual/augmented reality and 3D BIM models. The OT network covers the communications to the substations - this is the upgrades to the office sites to accommodate the increased volumes. Consideration will be required to the role of 5G during the RIIO-2 timeframe.

Logistics Improvements

- This project will eradicate manual processes, through review and implementation of automation, moving from paper based processes and modernising the stock selection / accounting process.

Low Code Apps

- The aim of this project is to improve on the UX and digital workflow, by introducing a 'low code / no code' platform and implementations for several processes will take place.

LV Model Readiness

- We will share operational and market data with customers, stakeholders and market participants through an online data portal. This will include visibility of our short & long-term forecasts via user-friendly digital platforms. Monitoring will be applied to the network to facilitate capacity forecasting. Data is to be captured, stored and analysed and then presented.

Operational Digital Twin Pilot

- The aim of this pilot is to build a digital representation of parts of our network, and test operational scenarios.

Phoenix

- Innovation project collaborating with NG ESO, ABB, Strathclyde University and Denmark Technical University to deliver a hybrid synchronous compensator for fast declining grid services.

SAP Enhancements

- Design deliverability dashboard, purchasing CRs, improvements in connection processes and variation processes. Targeted benefits are enhanced reporting outputs, process efficiencies, better end user experience and therefore engagement, paving the way for future ED2 initiatives.

System Monitoring & Dynamic Rating

- This project will enable the capture of additional near real-time operational information on SPENS's transmission assets, enabling the ability to monitor the system operation in near real-time and utilise this information to make operational decisions about the network. It will also enable the use of dynamic ratings to ensure operational and capital investment decisions are optimised and leverage the full flexibility of the network.

Using Digital Technologies to Deliver Enhanced Customer Service

Environmental & Sustainability

- Deployment of a waste solution to capture information about waste generated and its eventual disposal. Additionally a deployment of IT solutions to capture information about emissions (eg. carbon, SCOPE3).

Using Digital Technologies to Deliver Enhanced Customer Service

Consolidated CRM

- The CRM and Customer Service Enhancement initiative encompasses a range of projects that will enhance the experience of SPEN customers via a wider range of new channels offerings access to SPEN services. The CRM system will also continue to allow our digitally disengaged customers to contact us by traditional means and offer the same level service and contact to them.

Customer Connections

- The electrification of heat and transport will result in a significant increase in the volume of New Connection requests. Enhancements are required to cater for this increase which includes better design tools, greater self-service options and improvements to our core systems.

Digital Representation of ED2 Programme Submission

- Create online web page to show a digital representation of our the ED2 programme of work.

Evolve

- This project will enable an install monitoring capability in the LV network to meet the following use cases; Faster fault resolution, Fault prediction, Informing investments and supporting DSP activities.

Work Force Management SaaS

- Tied to consolidated CRM initiative. The workstream Mobility means that we have a new WFM 'platform' that corresponds with the CRM system.

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