

Annex 23: Digitalisation Strategy

Supporting our plan for a sustainable, more
prosperous and more connected North West

December 2021

1 About Electricity North West

Electricity North West is one of 14 electricity distribution network operators (DNOs) in Great Britain. We are responsible for maintaining and upgrading 56,000km of network and nearly thousands of substations across the region. We supply the electricity to the diverse communities in the North West of England which extends from Macclesfield all the way up to Carlisle. We are regulated by the Office of Gas and Electricity Markets (Ofgem) who provide DNOs with the license to operate and decide what's fair for us to charge our customers for each price control period.

Our current price control began in 2015 and runs to 2023. It's referred to as RIIO-ED1. In full, that stands for Revenue = Incentives + Innovation + Outputs, Electricity Distribution 1. Under this framework, the price we can charge our customers is determined until the start of the next price control, RIIO-ED2, which will run from 2023 until 2028. Work is already underway to determine RIIO-ED2, and this Digitalisation Strategy forms part of the stakeholder engagement that underpins the determination.

With the transition of the region to Net Zero underway, the period of time which the RIIO-ED2 price control covers will see significant change in the way electricity is generated, consumed and stored, driving innovation across the whole energy system both now and into the future. Notably it will increase the reliance by our consumers on the availability of electricity which, given the increasing reliance on digital systems to maximise the availability of the network, in turn increases the requirement on us to ensure availability of our systems, in conjunction with the ever increasing need to protect our systems against both more, and increasingly targeted and sophisticated, cyber-attack.

The move away from electricity being generated by large carbon and nuclear power stations connected to the National Grid has been underway for some time. Increasingly our power is being generated by renewable, but intermittent, sources connected to the distribution network. This is increasing the complexity of our network, with the need to balance generation and load not just at a national level, but at a local level too. This complexity is reflected in our need to make more of our information available to other stakeholders, so they also can help deliver this transition.

This complexity will only increase as the demand on our network increases to support low carbon technology, such as electric vehicles and heat pumps. Electricity North West has already responded to this trend. Firstly, by installing our own telecoms network during RIIO-ED1 and the previous regulatory period, to offer more control over our systems, crucially with less "latency" (the amount of time it takes to send commands over our network) in advance of the PSTN (Public Service Telephony Network) switch off in 2025. Secondly, during RIIO-ED1 we have updated our Network Management System (NMS) to become the core foundation of future control over and an increasingly automated and complicated system. On this foundation, we have now delivered our innovation, Customer Load Active Services System (CLASS - frequency management service to National Grid to help manage intermittency in the network) and are currently working to deliver another innovation, Smart Street (voltage control and electricity bill reduction for domestic customers).

Our Digitalisation Strategy for RIIO-ED2 and beyond is set to build upon this firm foundation. Significantly, we will be continuing our strategy of installing core systems fit for the future and building on these systems. Inevitably short-term stop-gap solutions deliver short-term advances, but at the expense of long-term progress, and potentially at the expense of support and reliability concerns. Our strategy is to utilise third party software platforms, encouraging the software developers of those systems to incorporate features specific to the UK DNO market into their core product, to make these available as industry platforms for all networks.

Table of Contents

| | | |
|-------|--|----|
| 1 | About Electricity North West | 2 |
| 2 | Welcome | 4 |
| 3 | Summary | 5 |
| 4 | Strategy on a Page | 7 |
| 5 | Contribution to our Business Plan Vision..... | 8 |
| 5.1 | Our Stakeholder Priorities..... | 9 |
| 6 | Delivering the Digitalisation Vision | 11 |
| 7 | Cost of Delivery | 12 |
| 7.1 | Analysis of costs | 13 |
| 7.2 | Memo detail..... | 13 |
| 7.3 | Uncertainties..... | 13 |
| 8 | Business Plan Benefits Mapping | 13 |
| 9 | Our Change Journey So Far, Plans and Customer Benefits..... | 15 |
| 9.1 | Customer and stakeholder engagement | 16 |
| 10 | Our Sourcing Approach | 16 |
| 11 | Our Delivery Approach..... | 17 |
| 11.1 | Where we are today | 17 |
| 11.2 | Principles of how we will move forward..... | 18 |
| 11.3 | Transformation (Continuing to operate in RIIO-ED1, preparing for RIIO-ED2) | 18 |
| 11.4 | Progress in RIIO-ED1 | 19 |
| 11.5 | Looking towards RIIO-ED2 – our Plans..... | 20 |
| 11.6 | Transformation implementation | 20 |
| 11.7 | Culture and Leadership..... | 20 |
| 11.8 | Alignment..... | 20 |
| 11.9 | Product Taxonomy | 20 |
| 11.10 | People and Talent | 20 |
| 11.11 | Finance | 21 |
| 11.12 | Risk | 21 |
| 11.13 | Architecture | 21 |
| 12 | Guardrails..... | 21 |
| 12.1 | Strategic Principles..... | 21 |
| 12.2 | Metrics | 22 |
| 13 | Strategic Risks and Issues..... | 22 |
| 14 | Our Target Architecture | 23 |
| 14.1 | Target Digital Architecture (Conceptual) | 24 |
| | Appendix A: Strategy Consultation | 25 |

2 Welcome

Technology, information and data are taking on a greater significance at Electricity North West than ever before because of the need to:

- Further transform our businesses to drive efficiency and power innovation;
- Open-up our data to improve transparency and fuel innovation across the energy system;
- Support the road to Net Zero.

The growing importance of technology will also require us to bolster the cyber resilience of our network to reflect the bigger role of electricity in all our lives and an increasingly hostile “cyber” world.

Our Digitalisation Strategy is essential for our Business Plan by contributing to the delivery of the business plan benefits to create a more sustainable, fairer, more prosperous and more connected future for our region.

Additionally, it supports our work to implement the five recommendations of the Energy Data Taskforce and Ofgem’s’ Data Best Practice, including openly sharing our data and the benefits to society that brings in areas such as whole energy system innovation and creating new market opportunities. Information Technology is one of the assets, along with our people, to help us achieve that goal.

Our transition to Net Zero requires new systems and processes to operate energy networks in a more sustainable future. These new systems and process are called Distribution System Operations (DSO) and are vital to our low carbon ambitions.

Investing in digitalisation, as described in our digitalisation vision, gives Electricity North West the ability to meet customer and stakeholder demands on the network and supports the journey to Net Zero, while further improving cyber protection and opening-up our data and increasing transparency.

We have an ambitious plan that puts our customers and stakeholders at the heart of everything we do. We have set out our approach to customer and stakeholder engagement in Appendix A.

Tony Smollett

Head of IT

3 Summary

Using information and technology to support customers is a critical enabler for Electricity North West's future aspirations and the business plan. It drives the transition to a more sustainable future by providing more flexible, efficient, responsive and customer centric services that directly contributes to business plan vision of leading the North West to Net Zero across all three of the business plan themes:

- **Net Zero** – We will drive the transition towards local Net Zero targets, following a path to make our own operations Net Zero by 2038. We are investing £58m to contribute to this business plan theme.
- **Network** – We will remain one of the world's most reliable networks, reducing the number of power cuts and the time people are without power by 20%. We are investing £41m to contribute to this business plan theme.
- **Customer** – We will deliver at least a 9/10 level of Customer Service and provide additional support to electricity users in vulnerable circumstances and fuel poverty. We are investing £37m to contribute to this business plan theme.

A lot of what we are doing is improving uptime of our systems to support customers and to help maintain and support a more sustainable future. This is because our customers' reliance on our electricity network is growing with the move to Net Zero and the adoption of low carbon technology. We also need to support Distribution System Operation (DSO) which is a transformational change and these new services will also need to be on all the time.

We have built foundations in RIIO-ED1 and are leveraging and building on them in RIIO-ED2 to drive out cost and increase customer satisfaction, improving the service we offer in terms of resilience and reliability as well as value for money. However, with an increased dependence on the electricity network, and therefore on the digital systems now being relied upon to deliver our services, and with an increasingly hostile cyber world, cyber security is becoming far more important, whether at infrastructure level or at systems level with embedded security, or whether through people's behaviours, intruder management or attack recovery planning.

We are the only DNO with a single licence, so our fixed costs can only be amortised across one licence area. Whilst this does allow us to be more innovative and fleet of foot, we don't want our customers to pay more than they have to simply because we only operate in one licence area.

Technology has a major part to play in helping to reduce our fixed costs. We have a cloud-first strategy which will move us to volume-based charging and leverage the economies of scale of global service providers as well as getting improved reliability, resilience and time-to-market. These changes are in keeping with our long term thinking at Electricity North West, although transitioning to a cloud-based environment leads to some increased costs in the short term, with dual running of environments for example.

Our size also allows us to be more flexible and innovative. For example, we are the only DNO to implement an innovative and modern Network Management System that allows the control at the Low Voltage (LV) level across the network which we believe is essential for Net Zero and DSO implementation.

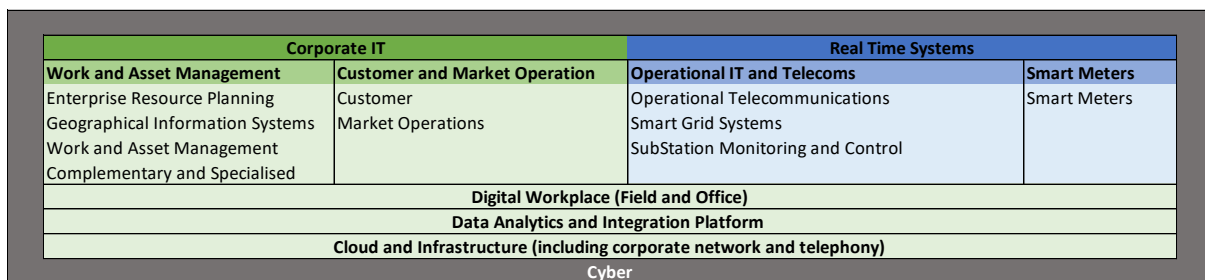
It is important that we look at customer value both in the long and short term, looking beyond the pure upfront costs, while recognising meeting the requirement to change and improve that is driven by customer, risk and environmental demands, necessitates more expenditure on digital systems.

In response to the well understood business context impacting our sector, during RIIO-ED2 we will invest in 14 areas aligned to our business plan benefits and the seven stakeholder priorities to deliver our Digitalisation Strategy, and the resulting business outcomes, as efficiently as possible. This involves leveraging our RIIO-ED1 investments as well as building new foundations, not just for RIIO-ED2, but for the long term.

The strategy sets out what we will change to deliver the outcomes and bring this new reality to life helping us all to continue to power the North West and deliver on the Net Zero ambitions across the region.

The details of the 14 areas of investment to deliver the strategy and create our target architecture are covered in more detail in separate specific proposals.

The following diagram shows how we have grouped the investments.



Our Digitalisation Strategy includes the following:

- Our strategy on a page.
- The digital vision.
- The main data and digitalisation outputs and deliverables.
- How we will deliver the digital vision, including sourcing, and costs.
- The progress achieved, building long term platforms, in RIIO-ED1, together with an assessment of what is still to be improved.
- How we will ensure we can govern against our strategy with our strategic principles and metrics.
- The risks to this strategy and how we will manage them.
- Our target architecture.

It is complemented by the following documents:

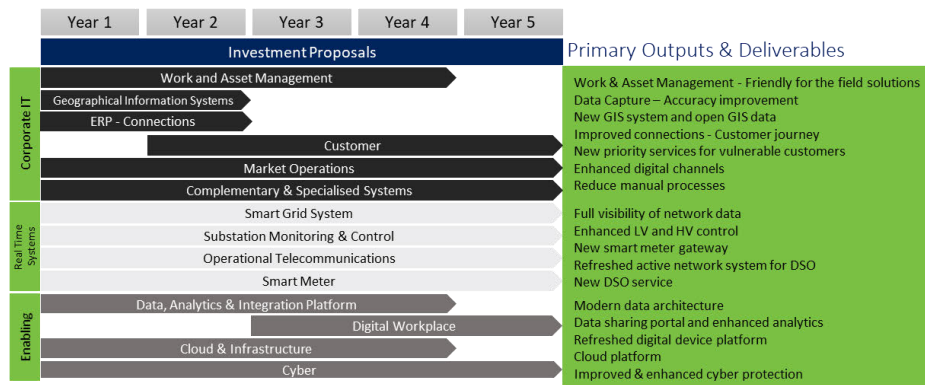
- Annex 25 - A Digitalisation Strategy Action Plan (DSAP) that we will publish every six-months to show both progress and our detailed plans for the next six-month period. It sets out how we intend to transform and automate business processes and create additional value for customers and stakeholders.
- Annex 21 – A Data Strategy which shows in how we will implement the Energy Data Taskforce (EDTF) recommendation and Ofgem’s Data Best Practice.
- Annex 10 - Cyber Resilience Plan which outlines at a high-level our Operational Technology (OT) and Corporate IT Cyber Investment Plans.

4 Strategy on a Page

Digitalisation Strategy Leading the North West to Net Zero

| Drivers | Smart Grid | Priority Customers | Cyber Threats | Cost Efficiency | Open Data | Ecosystems | Environmental Sustainability |
|----------------------------------|--|--------------------|--|-----------------|--|------------|------------------------------|
| Heat pumps and EVs | Ofgem Digitalisation Principles | Customers | EDTF Recommendation | DSO | Data Best Practice | Innovation | |
| Business Plan Themes | Net Zero We will drive the transition towards local Net Zero targets, following a path to making our own operations Net Zero by 2038 | | Network We will remain one of the world's most reliable networks, reducing the number of power cuts and the average time people are without power by 20% | | Customer We will deliver at least a 9/10 level of customer service and provide additional support to electricity users in vulnerable circumstances and fuel poverty. | | |
| Our Digitalisation Themes | Enablement <ul style="list-style-type: none"> Cloud First API First Open Data | | Innovation <ul style="list-style-type: none"> Digital Delivery Multi-Sourcing Unlocking Data Value | | Insight <ul style="list-style-type: none"> Integration Platform Data Platform Analytics | | |

RIIO-ED2 Roadmap 2023 - 2028



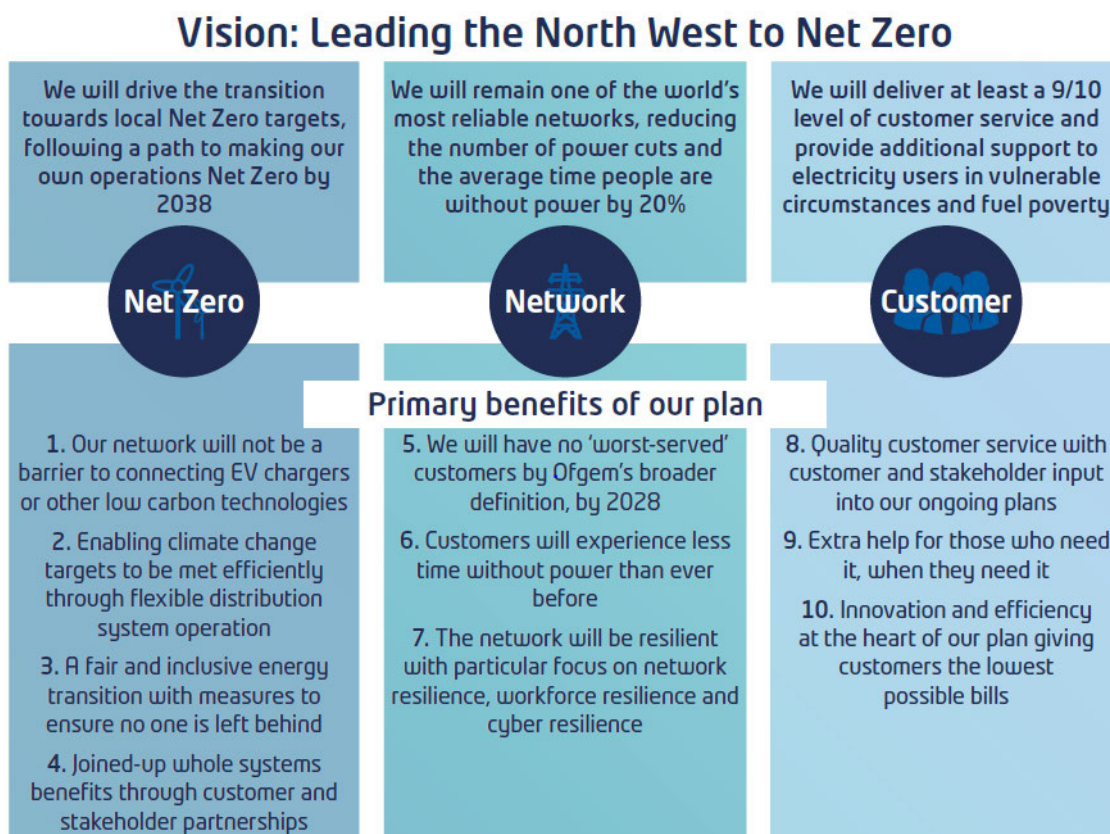
| Metrics | |
|---|---|
| <ul style="list-style-type: none"> % cloud services IT spend for run, grow, transform projects Cyber security compliance Number of Agile projects | <ul style="list-style-type: none"> Digital execution scorecard Number of "open data" sets Number of external APIs DNO GDN - Cost benchmarking Data best practice maturity progress |

| Key Risks | |
|---|--|
| <ul style="list-style-type: none"> Business change impact - overburden the company, or parts of the company, with IT-driven change. Deliverability - Capacity to deliver our plans Resourcing - Resourcing and workforce resilience for key skills | |

| Benefits | | |
|---|---|---|
| 1. Our network will not be a barrier to connecting EV chargers or other low carbon technologies | 5. We will have no 'worst-served' customers by Ofgem's broader definition, by 2028 | 8. Quality customer service with customer and stakeholder input into our ongoing plans |
| 2. Enabling climate change targets to be met efficiently through flexible distribution system operation | 6. Customers will experience less time without power than ever before | 9. Extra help for those who need it, when they need it |
| 3. A fair and inclusive energy transition with measures to ensure no one is left behind | 7. The network will be resilient with particular focus on network resilience, workforce resilience and cyber resilience | 10. Innovation and efficiency at the heart of our plan giving customers the lowest possible bills |
| 4. Joined-up whole systems benefits through customer and stakeholder partnerships | | |

5 Contribution to our Business Plan Vision

Our Digitalisation Strategy 2021 is aligned to the objectives and action plans of the business plan as well as external influences such as Data Best Practice (DBP) and Digitalisation Strategy and Action Plan (DSAP) guidance and the Energy Data Task Force (EDTF) as well as the requirements of external customers and stakeholders (see Appendix A for our approach to this).



We plan to continue to deliver network reliability and security, excellent service and efficient operations by building on our core services and exploiting new and maturing digital technologies. These are changing the way companies interact and work with their customers and stakeholders while recognising that some customer segments have digital accessibility challenges.

For our customers and stakeholders, this will mean increased availability of data and transparency through improved digital services informed by enhanced engagement, which in turn will support market innovation, energy supply chain efficiency and economic growth.

Our customers have a large part to play in shaping and delivering our digitalisation strategy. We will work together to provide improved digital services, taking particular care to avoid excluding customers without digital accessibility or with other particular needs, and open access to network and market information.

We have developed a continuous improvement process that will refine and confirm our digitalisation journey. Through the engagement undertaken with customers and stakeholders while preparing our RIIO-ED2 submission we have focused on the opportunities and projects that provide the best stakeholder outcomes. We are in a process of exploration and consideration not least as the technology evolves. We are asking ourselves questions as to how best to address the challenges being posed. We aim to be open and transparent in this process and we want and need stakeholders to help

us decide what we do recognising, that we need to remain agile in this fast-changing dynamic digital world.

The initiatives outlined in this strategy are what we could do in RIIO-ED2. We will continue to refine this as we undertake more detailed planning, cost benefit analysis and consultation as part of finalising an investment plan for RIIO-ED2 that is affordable, deliverable and optimally aligned to our stakeholders' priorities and the 10 business plan benefits (as detailed above).

5.1 Our Stakeholder Priorities

- Meeting customers' needs
- Supporting electricity users in vulnerable circumstances
- Delivering a reliable network
- Building a resilient network
- Keeping our communities safe
- Leading the North West to Net Zero
- Our direct environmental impact

Digitalisation Vision

Digitalisation is the process of leveraging technology that uses digitised data and information in order to transform and automate business processes and create additional value for customers and stakeholders.

The three main new capability themes that underpin our digitalisation are:

- **Enablement** – Providing access to data and appropriate technology in the right place at the right time to enable our people to work more safely and efficiently, to improve public safety, and better serve our customers and stakeholders.

We will deliver systems that support business change that transforms processes and permits continuous improvement. By improving processes, we improve efficiency, reduce data errors and provide working environments that are in keeping with the expectations of current and future employees, making Electricity North West a more fulfilling place to work. We will do this to improve customer experience to support the EDTF recommendations, DSO market innovation, Net Zero, energy supply chain efficiency and economic growth.

- **Innovation** – Enabling the company and the supply chain to adapt quickly to changes in the operating environment and to innovate by continuing to invest in flexible technology platforms, data quality and data sharing.

We will allow and support other stakeholders innovating by sharing appropriate data and delivering the EDTF recommendations. We will do this with a view to speeding up the realisation of those benefits to our customer and stakeholders, but to do so in a manner which allows future technological change.

- **Insight** – Information and analytics accessed in an affordable, secure and reliable manner, to enable us, as well as third parties, to identify opportunities to innovate and continually improve the whole energy system.

This includes collecting more data where appropriate, avoiding personal data at all times where

possible, and integrating both the data we already hold and that provided by third parties (such as smart meter data, public data and data from suppliers), as well as enhancing our ability to analyse that data through the application of data science, operational modelling and electrical network modelling.

We will further improve how our digital services create value for the company, its customers and its stakeholders, either directly or through third parties. To deliver this strategy successfully we need to upskill our staff and ensure we can govern our strategy.

6 Delivering the Digitalisation Vision

This section provides a high-level overview of the scope of our proposed RII0-ED2 digital portfolio and outlines the changes we required.

Our portfolio has been developed by our subject matter experts in conjunction with the business sponsors. This has resulted in the development of 14 investment proposals.

The following table shows the main outputs and deliverables of each investment proposal and the primary business plan benefit(s).

- **Net Zero** – We will drive the transition towards local Net Zero targets, following a path to make our own operations Net Zero by 2038. We are investing £58m to contribute to this business plan theme.
- **Network** – We will remain one of the world’s most reliable networks, reducing the number of power cuts and the time people are without power by 20%. We are investing £41m to contribute to this business plan theme.
- **Customer** – We will deliver at least a 9/10 level of Customer Service and provide additional support to electricity users in vulnerable circumstances and fuel poverty. We are investing £37m to contribute to this business plan theme.

| Investment | Main Outputs and Deliverables | Benefit Support |
|----------------------------------|--|--|
| Customer | <ul style="list-style-type: none"> • Enhanced digital channels. • A single view of customer data. • Improved customer data quality, including PSR data. • Open customer data when appropriate. | <ul style="list-style-type: none"> • Customer |
| Connections (ERP) | <ul style="list-style-type: none"> • New cloud-hosted fully integrated connections system. • Improved customer journey. • Removal of offline process steps and data repositories. • Open connections data when appropriate. | <ul style="list-style-type: none"> • Net Zero • Customer |
| GIS | <ul style="list-style-type: none"> • New GIS System. • Expanded scope of GIS dataset which will include advanced telecommunications data and additional LV datasets, for example • Improved GIS data quality. • Open GIS data when appropriate. | <ul style="list-style-type: none"> • Net Zero |
| Market Operations | <ul style="list-style-type: none"> • Maintenance and ongoing continuous development of these key information systems. • Maintaining quality of data in areas such as address data relating to the electricity supply points of our network, unmetered supplies inventories and supply point data. • Ensuring accurate billing of electricity suppliers (DUoS) charges for the distribution of electricity across our network to end consumers. | <ul style="list-style-type: none"> • Customer |
| Work and Asset Management | <ul style="list-style-type: none"> • A new solution to collect and utilise new data about our vehicles and their movements. • “Friendly for the Field” solutions that facilitate better data quality from the outset whenever data is captured. • Improve visibility of employee location and expected workload. • Addition of telecommunications data to the platform. • A single-view of Work and Asset Management data with increased scope. | <ul style="list-style-type: none"> • Net Zero • Network |

[Redacted text block]

7.1 Analysis of costs

[Redacted text block]

- [Redacted list item]
- [Redacted list item]
- [Redacted list item]
- [Redacted list item]
- [Redacted list item]

7.2 Memo detail

[Redacted text block]

- [Redacted list item]
- [Redacted list item]
- [Redacted list item]

7.3 Uncertainties

[Redacted text block]

8 Business Plan Benefits Mapping

The following table shows the strength of relationship between the investment proposals and the primary business plan benefits and themes.

Leading the North West to Net Zero

| | | Non-Op IT Business systems | | | | | | | Foundational – In-Direct IT | | | | | | Investment (£m's) | | |
|---------------------------------------|---|---|--|--|-------------------|---------------------------------|--|--------------------------------|-----------------------------|------------------------------------|---------------------------------|-------------------------|--------------------------|-------------------|-------------------|-----------|----|
| | | Enterprise Resource Management (ERP) | Customer Relationship Management (CRM) | Geographical Information Systems (GIS) | Market Operations | Work and Asset Management (WAM) | Complementary and Specialist Systems (CSS) | Operational Telecommunications | Smart Grid Systems | Sub-Station Monitoring and Control | Data, Analytics and Integration | Cyber Non-OpIT and OpIT | Cloud and Infrastructure | Digital Workplace | Per Benefit | Per Theme | |
| Net Zero | We will drive the transition towards local Net Zero targets, following a path to making our own operations Net Zero by 2038 | 1. Our network will not be a barrier to connecting EV chargers or other low carbon technologies | 3 | 0 | 3 | 0 | 3 | 0 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 16 | 58 |
| | | 2. Enabling climate change targets to be met efficiently through flexible distribution system operation | 0 | 0 | 3 | 0 | 2 | 0 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 13 | |
| | | 3. A fair and inclusive energy transition with measures to ensure no one is left behind | 3 | 3 | 3 | 0 | 2 | 0 | 3 | 3 | 3 | 3 | 3 | 2 | 0 | 15 | |
| | | 4. Joined-up whole systems benefits through customer and stakeholder partnerships | 1 | 2 | 3 | 1 | 2 | 0 | 3 | 3 | 3 | 3 | 3 | 2 | 0 | 14 | |
| Network | We will remain one of the world's most reliable networks, reducing the number of power cuts and the average time people are without power by 20% | 5. We will have no 'worst-served' customers by Ofgem's broader definition, by 2028 | 0 | 3 | 3 | 0 | 2 | 0 | 3 | 3 | 3 | 3 | 0 | 0 | 0 | 11 | 41 |
| | | 6. Customers will experience less time without power than ever before | 0 | 1 | 2 | 0 | 3 | 0 | 3 | 3 | 3 | 2 | 3 | 3 | 1 | 14 | |
| | | 7. The network will be resilient with particular focus on network resilience, workforce resilience and cyber resilience | 0 | 0 | 2 | 0 | 3 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 16 | |
| Customer | We will deliver at least a 9/10 level of customer service and provide additional support to electricity users in vulnerable circumstances and fuel poverty. | 8. Quality customer service with customer and stakeholder input into our ongoing plans | 3 | 3 | 2 | 0 | 2 | 0 | 1 | 1 | 1 | 2 | 3 | 2 | 2 | 11 | 37 |
| | | 9. Extra help for those who need it, when they need it | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 6 | |
| | | 10. Innovation and efficiency at the heart of our plan giving customers the lowest possible bills | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 20 | |
| Total Strength of Relationship | | 13 | 18 | 24 | 3 | 23 | 2 | 26 | 26 | 26 | 27 | 25 | 19 | 13 | | | |

9 Our Change Journey So Far, Plans and Customer Benefits

It is a truism that change is speeding up. Given the complexity of change in and around the business, there are significant lead times involved with technology change and a requirement to manage the impact of change on the business and to deliver every day for customers. For this reason, we must be constantly thinking ahead, planning and investing in good time. For example, we completed in RIIO-ED1 our investment in telecoms, in preparation for the Public Telephone Switched Network switch off in 2025. We have invested during RIIO-ED1 in our next generation Network Management System, which needed to be renewed ahead of all the additional and innovative requirements such as CLASS and now Smart Street, that this system is already supporting, let alone the future innovations for RIIO-ED2 and beyond. Consequently, our digitalisation strategy is focussed on building for the future, delivering in RIIO-ED2 what will be required both in RIIO-ED2 and crucially through platform re-foundation and refresh, what is needed to support the business in multiple years to come.

We will have completed two major transformational change programmes in RIIO-ED1, Gemini and NMS (Network Management System), both of which provide springboards for further transformation into RIIO-ED2. Alongside these transformational projects, we have continued to refresh and update our current systems.

- **NMS** - The implementation of an enhanced system for network management and control and will be central to our Smart Grid platform throughout RIIO-ED2. NMS acts as the platform for building our transformational DSO capability. This system has gone live to final go live, the culmination of 5 years of product selection, planning, development and testing. We will also be shortly adding Active Network Management to this foundational platform, along with functionality to support our innovative Smart Street rollout. This complements the existing CLASS functionality which is already live on NMS.
- **Work and Asset Management (Project Gemini)** – During RIIO-ED1, we have been supporting the field force through the development of digital timesheets and work scheduling tools. We are now live with part of Clear Horizon's Chime product, which is a third-party product targeted at the specific needs of the distribution networks for work and asset management. We are currently working with the supplier to extend the functionality of the system, first to replace our existing functionality in asset management, and then to support our capital planning and delivery processes, recognising how much these processes will have to grow during the next decade to support the Net Zero investment requirements. Whilst we are specifying and funding these developments, they will become commercialised products, available to all networks. Chime will enable brand new ways of working but has already enabled us to capture more reliably data about assets and to dispatch work and has provided a simple but comprehensive experience for field users. Before the end of RIIO-ED1, it will change the way we work, both internally and alongside partners, including how we allocate work, and will enable us to more accurately cost-predict and deliver capital work. These improvements in efficiencies have been built into our plan and crucially drive our ability to deliver the increased capital investment required in RIIO-ED2 and beyond.

Much of our work in RIIO-ED1 has been about preparation for the future. We have also established the Data and Integration platform team, developed our data strategy and are putting in place new processes to support product delivery in the future. By improving all elements of data in the organisation, we will enable future innovation and make better decisions by the data we have being of better quality. In addition, these improvements will enable us to implement the EDTF recommendations and open up our data for our customers and stakeholders.

Whilst we are arranged into price control periods for regulatory processes, our improvement processes, both transformational and continuous, run across periods. Across the eight years of RIIO-ED1, we will have made major improvements in all areas from our Control Centre and Smart Meters, to Digital Workplace and Cloud and Infrastructure.

9.1 Customer and stakeholder engagement

In December 2020 we published our first Digital Strategy and Digitalisation Strategy Action Plan and subsequently published our draft IT Strategy 2021, DSAP and Data Strategy as part of our draft RIIO-ED2 submission in July 2021.

These were published via our website, social media as well as signposted in our regular stakeholder forums. In developing these documents, we also surveyed our 'Voice of the Customer' panel to feed into the current iteration of the strategy and have received feedback from 76 stakeholders ranging from large corporate stakeholders to individual customers. These stakeholders include hard to reach groups and those who operate in markets outside of the Energy sector.

We will continue to work with our customers and stakeholders up to and during RIIO-ED2, as set out in our Digitalisation Strategy Action Plan. For more information on our engagement undertaken so far please see Appendix A of this document, and our Annex 25 - A Digitalisation Strategy Action Plan.

10 Our Sourcing Approach

As work ensued on the future requirements associated with the 14 Investment Proposals relating to RIIO-ED2 costs, it was apparent that Electricity North West would need a variety of contracts and frameworks to be set up to efficiently and effectively procure the associated hardware, software and services that were being described in those documents in a strategic and agile manner.

To this end the Investment Proposals were reviewed and the requirements were categorised into one of the following sourcing approaches:

- **Cloud Support Services**
Covering such requirements as compute processing needs and storage expansion for a variety of RIIO-ED2 projects.
- **Value Added Reseller Services Framework**
Covering such requirements as SaaS; Commercial off-the-shelf software or hardware and technology requirements and associated services.
- **Professional Services and an Agile Software Development Framework**
Covering technology support, development and integration needs; data science roles and specialised cyber support roles.
- **Tenders**
For imminent projects that could not be serviced by one of the above approaches; including a Sourcing Towers tender; Strategic Data Platform tender and a Cyber tender.
- **Direct Award or an Incumbent Contract**
Where allowed for under Utilities Regulations e.g. below threshold requirements or where requirements are covered by existing contract.
- **Future Awards**
A number of requirements are a significant period away; for a select few we would seek to review the requirements closer to the time.

It was clear that some services would need to be bundled together with existing contracts to ensure that the propositions were attractive to the market and to ensure that Electricity North West took a holistic view of the upcoming requirements in Business as Usual (BAU) as well as RIIO-ED2.

Thus, subject to internal approvals, the structure of the overall sourcing programme anticipates covering a variety of options covering RIIO-ED2 spend as well as BAU support services:

Part A: Sourcing Towers:

Lot 1: Infrastructure Services Contract

- Public Cloud Support and Migration Services
- Data Centre Support Services
- Rate Card (to support services such as application modernisation)

Lot 2: Service Desk

Lot 3: End-User Computing

Lot 4: Applications

We will evaluate market options against insourcing options when we complete our evaluations.

Part B: Frameworks

Framework 1: Value Added Reseller (to support procurement of on-premises hardware, Software (SaaS, COTS) and associated services)

Framework 2: Professional Services and Agile Development Framework (Covering technology Support, Application Development, Cyber, Data Science, Testing, Business Analysis, Architecture)

Part C: ED2 Tenders

Relating to an initial tranche of imminent RIIO-ED2 projects such as:

ITT 1: Strategic Platform (Data, Integration and Analytics)

ITT 2: Cyber Security (Managed Security Provider)

ITT 3: Advanced Modelling Tool

ITT 4: Network Services

11 Our Delivery Approach

11.1 Where we are today

Electricity North West is primarily operating a waterfall Project Delivery Lifecycle (PDL), which standardises and formalises our project delivery for technology-based change.

- The PDL provides Project Managers with structure and guidance for a 4-phase, 4-gate lifecycle covering governance and assurance processes along with a variety of documentation templates.
- Each project has a Project Steering Group (PSG) which meets, at a minimum, monthly. A PSG is responsible for overseeing day-to-day management, control, and delivery of the project to Time,

Cost, Scope and Quality. The PSGs have a standard Terms of Reference and authority delegated from the senior governance forum. The Project Sponsor, as chair of the PSG, is responsible for the overall governance, delivery and benefits realisation of the project.

- Deliveries from this waterfall process are subject to a standard CBA (Cost Benefit Analysis) process.
- Project financing is managed through a two-step business case process, (Initial and Full Business Case), agreed by the PSG, approved by the Programme Steering Group and ratified at Portfolio Governance Board. Once ratified, the business case is submitted for approval sanction from the Capital Business Plan.
- People resources are scheduled to a project, and their costs charged to the project as an appropriate reflection of their time cost.
- The cost of supporting the output of projects in production is funded separately, via an OpEx model. As projects are increasingly being focussed on SaaS (software as a service) or IaaS (infrastructure as a service) bases, we observe a shift from capital-based expenditure (one-off licence fees) to operating cost-based expenditure (annual SaaS fees).

11.2 Principles of how we will move forward

We have identified that we want to move away from a project-centric model and instead focus on creating long-lived product/service and platform teams aligned to value-streams – i.e. a product-centric model.

The principles of this will be:

- Funding value streams based on demand for incremental results rather than funding per project at the scoping stage;
- Supporting full product lifecycles to end-of-life instead of project term;
- Measuring success based on business objectives and regular checkpoints instead of on time/on budget and planning everything up-front;
- Creating stable cross-functional teams that are assigned to a single value stream instead of asking people to time-slice between multiple projects;
- Focus on prioritisation of feature and value delivery instead of requirements delivery;
- Direct mapping to business priorities, enabling transparency of technology-related activity;
- Risks are spread across the product lifecycle in multiple small increments rather than committing to everything up-front, at the start of a project; and
- Procurement will be aligned to these outcomes, with sufficient flexibility in the decision-making process to enable long term cost of ownership, contractual commitments, delivery models, and continuity of supply to be properly compared, whilst maintaining compliance with procurement regulations. Increasingly our ability to implement and business change management will become a fundamental part of our decision-making process.

The approach will also require us to change our ways of working, by supplementing our waterfall PDL with agile approaches to governance and delivery. The principles of this will be:

- Work items that can be traced back directly to delivery of operational and customer value, rather than via flow of authority and “signoff”;
- Primary focus on prioritisation and flow of customer value rather than resource utilisation; and
- Enabling a sense-and-respond attitude rather than heavy predict-and-plan business cases.

11.3 Transformation (Continuing to operate in RIIO-ED1, preparing for RIIO-ED2)

We are supporting our existing operations, and our journey to DSO and Net Zero, by re-focusing technology teams on to a product-centred operating model. By aligning in this way, we will be able to

directly support and energise the organisation with agility, innovation and resilience, and a portfolio of products, services and platforms that are directly aligned with the delivery of customer value.

To achieve this will require significant transformational change that will have a deep impact across the organisation. The success of this change programme is dependent on several factors and in particular:

- Attention and support from all levels of leadership;
- Alongside introducing a new way of thinking about our work (i.e., products) we also need the wider application of newer ways of working (i.e., agile methods); and
- Investment, to enable this level of transformative change.

We will be considering our transformational change activities from the following perspectives:

- Culture and Leadership: establishing community engagement and engagement with our colleagues, and ensuring that executive behaviours are aligned with the needs of our product-centred operating model;
- Implementation: supporting exploration, driving and sustaining transformation activity;
- Alignment: tackling the challenges of our organisation to ensure that we are aligned on the needs of our customers and service users;
- Products: creating a product taxonomy that we can use at the core of how we focus our activity;
- People and Talent: considering our people, their skills, their teams, our structures and ways of working, our supplier relationships, and the balance we need between outsourcing vs building internal capability;
- Finance: addressing how we use funding models to support a product-centred operating model, and the role of procurement in supporting that work when it involves external suppliers; and
- Architecture: thinking about technical and organisational architectures, how they will be impacted by these changes, and the opportunities that a product-centred model will bring.

11.4 Progress in RIIO-ED1

We have recently initiated the first stages of this transformation work, as we gradually deliver our existing product delivery base – noting in particular NMS and Project Gemini. Our 14 investment areas represent the list of product groups in the product taxonomy. Based on this, two areas in IT were selected to begin exploring what project-to-product transformation will look like.

- In our Digital Workplace platform team, we have created a capability model that directly aligns digital workplace activity to business needs. This model describes the products and service capabilities needed to ensure that we empower our colleagues in other areas of the business with a digital workplace platform that supports their delivery of value to customers.
- In our Data and Analytics platform team we have also been reviewing existing project-based workload to consider how we will transition to long-lived teams and what those team structures might initially look like.

Within these two areas we have been considering how they could work with a lightweight product planning and work coordination process (“flight levels”) that would formalise how we bring aspects of governance, business strategy and digitalisation vision to how we manage the flow of work and value delivery through our delivery teams.

We are now exploring how we will resource and fund the long-lived teams that will adopt and deliver this thinking. This has helped us to understand the scale of the transformation work that lies ahead.

11.5 Looking towards RIIO-ED2 – our Plans

We expect most aspects of the transformation to be in an exploring mode for most of FY22 (reflecting the focus on ADMS go-live). After this we expect our transformation activities to transition gradually to a formalising mode. The bulk of this transition will happen during FY23 and into FY24.

As we enter the RIIO-ED2 period we expect that some of our transformation work will have already reached an on-going optimising or continuous improvement mode, with all aspects of the transformation entering this mode during the early part of the RIIO-ED2 period.

11.6 Transformation implementation

By the time we enter the RIIO-ED2 period we will have a strong change management capability which, with support from internal leadership, will be driving transformation and communication across the business.

11.7 Culture and Leadership

We expect to build a community around our transformation work that includes both advocacy from the bottom-up (e.g. delivery teams sharing experiences) as well as engaging with executive leadership to provide them with immersion and support for the changes our transformation work implies. Our major objective here is to create a culture of continuous learning and improvement at all levels in the organisation.

11.8 Alignment

In this critical area we expect to have established multiple value delivery streams, focused on prioritisation of work based on business strategy and customer value, and delivered through a lightweight product planning and work coordination (“flight levels”) process. Through prioritisation of value delivery, we expect to enable “sense and respond” thinking in the organisation which in turn will allow us to be more innovative and responsive to the needs of our customers and service users.

11.9 Product Taxonomy

We expect to create and maintain a product taxonomy that will help to provide visibility and structure to our work while reducing redundancy and providing a common language for our workforce. This structure will explicitly describe our portfolio in terms of groups of products and capabilities. These will be related to customer and service user needs as a coherent backlog of portfolio objectives (~3yr), portfolio epics (~12mth), Business outcomes (~3mth) and Work items (~1mth). Products in this taxonomy will have product owners with long-term ongoing responsibility for the full product lifecycle (incubate, invest, sustain, retire).

11.10 People and Talent

We expect a major component of the transformation will be focused on our people. How we bring them together in long-lived capacity-driven teams and successfully transition to working with agile methods will be at the heart of what we do. We expect to have teams organised around the value streams in our product taxonomy and to be supporting those stream-aligned teams with skills from our enabling specialist teams and platform teams. We will keep the balance between building internal capability and outsourcing under close review as we build our long-lived teams. We recognise that, as a relatively small network, maintaining and supporting internally platforms can result in the risk of a concentration of technical knowledge on a limited number of individuals and that, therefore, where

these skills can be safely and reliably obtained from the specialised providers then this option will need to be considered.

11.11 Finance

We expect to shift from a project-based funding model, to releasing funding to products and value streams on a quarterly basis based on value delivery and prioritised requirements. As our long-lived teams will be responsible for all aspects of their products, this will cover both OpEx and CapEx, in line with Ofgem's Total Expenditure reporting structure. We will hold product owners accountable for delivering value to both business and external stakeholders.

11.12 Risk

Electricity North West recognises effective risk management as being fundamental to achieving its corporate goals. Its approach to risk is overseen by the Board, with regular discussion of key risks and an overarching annual risk review session, as well as approval of the company's risk appetite. In recognition of the importance of data and systems to the organisation, a new category has been added to our risk appetite from November 2021 to provide increased visibility of how these map to the strategic direction of the business.

This oversight by the Board is supported by quarterly risk workshops with the Executive Leadership Team (ELT) to consider new and evolving risks in a timely manner and underpinned by a network of risk coordinators and champions who promote our approach to risk management across the organisation. For technology focussed risks, day to day oversight and support is provided by a dedicated IT Risk and CSI Manager who works in conjunction with Head of Risk, Control and Assurance to ensure that the risks are owned, understood and steps taken to mitigate in accordance with our overarching approach to Risk Management.

11.13 Architecture

We expect architecture will play a critical role in enabling our product teams to deliver with autonomy and minimised dependencies. We will have a focus on increasing automation and on decoupling systems and removing bureaucratic architecture processes. We will empower product teams with standards, policies and principles to provide guardrails to ensure all change is aligned to our Digitalisation Strategy and contributes to the delivery of our target architecture described at the end of this document. This will ensure there is an ongoing focus on reducing complexity, divergence, functional duplication and ensuring support costs are minimised. This will simplify our estate.

12 Guardrails

Guardrails — comprising strategic principles and metrics — guide behaviour and decision making to keep the company on track to deliver our stakeholder priorities. The principles defined in this section ensure that decisions and actions taken during the planning and execution of the strategy are aligned with the overall business plan. The metrics, on the other hand, provide a way of monitoring whether these decisions and actions are having the desired impact.

12.1 Strategic Principles

These are high-level set of principles that guide decision making and ensure information and technology remain aligned with our stakeholder priorities. Our principles are aligned to Ofgem's Digitalisation Strategy Action Plan guidance. Principles guide both strategic and day-to-day decision making.

- We will prioritise providing benefits to the stakeholders who pay for the Products and Services as well as benefits that are in the Public Interest.
- We will ensure Products and Services work towards a defined vision.
- We will take full advantage of opportunities to deliver benefits early and to iterate improvements to Products and Services.
- We will make it easy for stakeholders to understand the Products and Services, the status of their delivery and how to access them.
- We will ensure visibility about the nature and status of actions in the Digitalisation Strategy Action Plan.
- We will ensure there is shared understanding of success and performance is measured.
- We will coordinate with the wider ecosystem of Products and Services.

12.2 Metrics

We will measure the success of this strategy by using the following metrics:

- We will measure the performance of all the DNO's and ensure we remain competitive, measuring IT Costs/Operating costs and IT Costs/Revenue in particular.
- We will measure our Digital Execution Maturity annually and put in place an improvement programme to improve year-on-year.
- We will measure the number of services migrated to the cloud to measure adoption of our cloud-first strategy.
- We will measure the number of "Open Data" and external Application Programming Interfaces (API) to measure how we are supporting industry innovation.
- We will track technology spend for Run, Grow, Transform projects to ensure we are investing appropriately in transformation.
- We will measure our cyber security compliance against industry benchmarks.
- We will track and monitor our progress against the data best practice by reporting progress on the plan detailed in Annex 21 – A Data Strategy.
- We will drive adoption of digital delivery by tracking the number of agile projects.

13 Strategic Risks and Issues

We have set out below, an outline of the major information and technology risks and issues associated with the strategy, with approaches for mitigation:

- Business Change Impact – there is a risk that we may overburden the company, or parts of the company, with technology-driven change which will impact our performance. We will mitigate this by investing in change management capability, to ensure this is tightly managed, as well as business engagement. Increasingly we expect our ability to implement change to become a major part of the procurement and development process, making systems intuitive and easy to train.
- Operating Model – modern digital delivery requires cross-functional teams that span traditional organisational siloes (business and technology). Without this there is a risk that implementation and delivery will cost more, take longer and may not deliver the promised benefits. We will mitigate this by implementing modern agile approaches.
- Deliverability – there is a risk that we won't be able to deliver our plans and we have incorporated our delivery experience into our planning to help manage this risk. We will mitigate this by using delivery partners for commodity services (e.g. cloud migrations). We will start the required procurement processes in RIIO-ED1 to ensure we have the right supplier ecosystem.

- Resourcing – there is a risk that because we are moving into new areas around cloud, cyber and data science, like the rest of the market, we won't be able to recruit and retain staff with these skills. We will mitigate this through workforce planning and training, and through leveraging third party suppliers (e.g. Architecture as a Service).

14 Our Target Architecture

We have applied our experiences from transforming and optimising our digital, data, and technology capabilities during the RIIO-ED1 and earlier regulatory periods and from insights gained from other industries, both private and public sector.

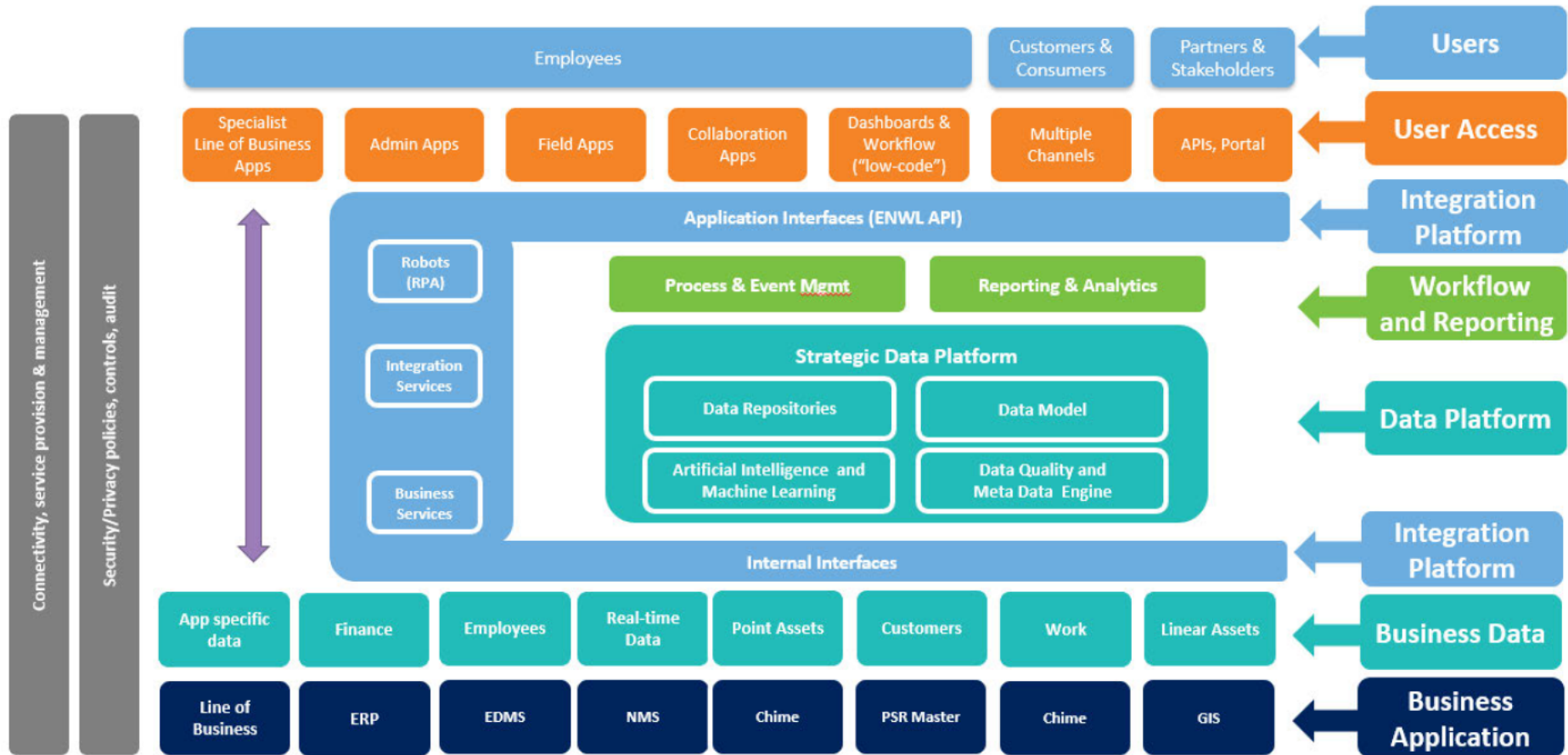
There is significant value in articulating an overall 'direction of travel' to which we aspire, and so to setting out what good looks like. This helps to guide various investments so that the sum of the parts has the greatest value, i.e. investments are complementary in terms of scope and working together ('interoperability').

In summary, we will adopt a 'loosely-coupled' architecture where we can make changes to one aspect without expensive re-engineering of interfaces. There are multiple ways that we can achieve this, including:

- Adopting a common data model for exchanging information;
- Simplifying several fundamental data aspects of information that are 'mastered' and then shared with different systems to perform different tasks;
- Making more information by modern technical standards that are widely adopted by standard software packages and cloud platforms – namely Restful APIs. These are a style of APIs (Application Program Interfaces) that simplify how interactions are performed and use long-established Internet standards;
- Declaring certain assets to be 'enterprise-wide', that can be re-used for several purposes not just one application. An example of this is our strategic data platform, where we will gain far more return-on-investment with the ability to combine different data from different systems to deliver analytics that guide decisions, rather than forcing a particular system to understand a wide breadth of data; and,
- By separating how data is managed by systems with how it is consumed by users. This allows us to make newer 'channels' available more easily than if data was 'owned' by the system for just one channel. This will benefit customers, consumers, and wider stakeholders. This will remove the necessity and reduce the value of unintegrated "shadow IT".

These approaches are very common both in creating modern digital systems or modernising existing systems to be 'inter-operable' and we are confident this approach will lower risk and up-front costs, while increasing the specific choices of vendors.

14.1 Target Digital Architecture (Conceptual)



Appendix A: Strategy Consultation

In December 2020 we published our first Digital Strategy and Digitalisation Strategy Action Plan and subsequently published a series of strategy documents as part of our draft RII0-ED2 submission in June 2021.

These were published via our website, social media as well as signposted in our regular stakeholder forums. In developing these documents, we have also surveyed our 'Voice of the Customer' panel to feed into the current iteration of the strategy and have received feedback from 76 stakeholders ranging from large corporate stakeholders to individual customers, including stakeholders not in the energy industry.

As a result of the feedback we have consolidated our IT Strategy and Digital Strategy into one document; our Digitalisation Strategy. Additionally, we have included a one-page summary that is easy to understand and made it clearer what the deliverables are and what metrics we will use to measure success.

We will continue to be customer and stakeholder led as we develop the next iterations of our Digitalisation Strategy and DSAP.

A sample of the feedback received from corporate customers:

What do you want from us in terms of data?

"The UK banking industry has introduced 'open banking' in response to regulatory changes and customer demand. Industry and customer account data has become more open, stimulating competition, innovation and creating greater value for customers. Likewise, energy system data that has value to the wider system and has been generated by monopoly or consumer subsidy should be available for the benefit of the 'system as a whole', and thereby can be viewed as a national asset. Information about assets in combination with the flow of energy through the network, including power flows, impedance and connectivity data, embedded generation connections and metering, network constraints and fault data can be used by stakeholders and other system operators to improve efficiency and maximise utilisation of the network."

How do you want to consume that data and what digital technologies are most important to you?

"Through APIs utilising associated applications and/or platforms that allow for as near real-time data exchange as possible in a non-cost prohibitive and process efficient manner."

What do you think are the key digital technologies we should be considering?

"Microservices; Digital Twin for the organisation; IoT; RPA"

How do you think those technologies will develop by 2028?

"As part of a trend towards hyper automation, concept of Digital Twin in particular will be at the forefront of endeavors that drive efficiency in operations for large 'legacy' organisation undergoing digital transformation over the next 10 years."

What do you think we need to prepare for and in your experience, what are the blockers/challenges to delivering digital services?

“Digitalisation of an effectively analogue energy system has a large amount of possible technical blockers which could affect the delivery of quality digital services. Careful planning and a strategic approach is imperative to overcome these challenges, including, but not limited to:

- *Legacy data is often fragmented, incomplete and unevenly distributed across organisations. To fully utilise the power of data insights and analytics, the source must be well structured and of high quality. This often takes significant investment; however, its value-added potential is immeasurable.*
- *Cyber security – a more open and distributed energy system enlarges the attack surface for which malicious parties can exploit and endanger the network. Security should be recognised as a hygiene factor, requiring constant monitoring and investment.*
- *Historically, interoperability across proprietary systems has been shown to cause issues. Leading digital companies circumvent this by embracing integration of ‘microservices’ through open industry standards.*
- *Technical debt - the implied cost of additional rework caused by choosing an easy (limited) solution now instead of using a better approach that would take longer. If technical debt is not repaid, it can accumulate ‘interest’, making it harder to implement changes. Unaddressed technical debt increases overall system entropy, and in extreme cases can lead to technical ‘bankruptcy’, where systems fail and have to be built again from scratch.”*

Voice of The Customer feedback

Impact Market Research ran a short survey with the VOTC cohort. It asked seven questions about our digital strategy consultation document via a cut down slide presentation. It is worth understanding that the VOTC cohort are generally domestic customers who have registered to give us feedback regarding our operations, plans and performance.

The questions were:

1. What do you want from ENWL in terms of data?
2. How do you want to consume that data and what digital technologies are most important to you?
3. What do you think are the key digital technologies we should be considering?
4. How do you think those technologies will develop by 2028?
5. What do you think we need to prepare for and in your experience, what are the blockers/challenges to delivering digital services?
6. What are the digital priorities that we should be seeking to address?
7. Are there any other outcomes you think we should be delivering by 2028?

There were 170 respondents to the survey.

General summary:

- People want clear data and information that is relevant to them. Data about faults and outages remains the key requirement though some are now interested in usage, sustainability and cost of service.
- Most customers want to receive data and information via email (31%) and the company website (25%). Less so via text or phone. A significant number (12%) mentioned via an app.

- Most (41%) did not have a view on the key digital tech we should be considering. The rest mentioned smart meters, EVs, apps, smart home tech and low carbon technologies.
- Most (36%) did not have a view on how those technologies will develop through 2018, though a significant number expect development to be rapid.
- Regarding views on digital blockers, 19% thought lack of consumer knowledge and 18% thought cost to the consumer would be blockers. There was also reference to digital accessibility being a blocker and those that didn't want to engage.
- Regarding digital priorities, there was a range of opinions on priorities: good comms re. future tech; security and privacy; accuracy; clarity.
- When asked for other digital outcomes, most mentioned sustainability and renewable energy. Some just want a reliable supply and for it to be affordable.

Our digitalisation programme has been developed with our stakeholder community and we continue engage with external organisations. Our Digitalisation Strategy Action Plan outlines the next six months activities. Upcoming activities include continued support for the development of the National Energy System Map, active participants on the CIM sub-group and members on the Data Triage working group with the Digitalisation and Data Steering Group.