Digitalisation Strategy

A digital vision for safe and resilient networks.

WALES&WEST UTILITIES

Contents

1.0	OUR GUIDING PRINCIPLES	3
2.0	BACKGROUND	3
3.0	OUR TRACK RECORD	4
4.0	DIGITAL STRATEGY	6
5.0	VALUE OF DATA	9
6.0	OUR FUTURE PLANS	13

1.0 OUR GUIDING PRINCIPLES

Digital technologies are an essential enabler for the move to a low-emission energy system and to meeting the UK Net Zero targets. We are committed to modernising energy data and making this available for the benefit of all, both inside and outside of Wales & West Utilities.

Our data digitalisation strategy is based on a number of key principles.:

- We support the Energy Data Taskforce's recommendations, as outlined in 'A strategy for a modern digitalised energy system'. In particular we support the two key principles – Principle 1: Digitalisation of the Energy System and Principle 2: Presumed Open.
- We value the importance of consulting with stakeholders to understand what data really supports the UK energy network and the transition to the future energy network.
- We publish data where it has passed the tests of being relevant and/or useful for consumers and stakeholders.
- We make data easily available, always at no cost.
- We always maintain compliance with legislation covering the use of data, in particular; the General Data Protection Regulation (GDPR).

2.0 BACKGROUND

Our primary responsibility as a Gas Distribution Network is to provide a safe and reliable service to our customers. A digital utility reflects the dependency on technology to deliver these duties.

Wales & West Utilities Ltd (WWU) has an ambitious technology strategy that provides the services and protections required to achieve our outputs and deliver value for money.

The pace of technology continues to change rapidly and this presents both opportunities and challenges to over 2000 colleagues across our business. We have invested in foundation platforms to be able to deliver a multi-channel

experience for colleagues and partners to optimise usage of our core business functions and an integration strategy that allows us to remain flexible enough to adapt to our stakeholder requirements, to continue to exploit opportunities offered by emerging technology.

WWU is classified as a provider of critical national infrastructure and has a responsibility to UK householders. We must take every step to ensure our systems are safe and to protect our services and data, from interruption or attack. We must achieve high standards of physical and cyber resilience and meet our obligations to new regulations, such as GDPR and Network and Information Systems Regulations (NIS).

We will work to achieve these objectives through innovative use of technology and a security by design principle. This document sets out our digital vision, why it is so important and how it will help achieve our objectives. We will work with our stakeholders to establish the best experience for our customers and to ensure we provide a safe and resilient network.

3.0 OUR TRACK RECORD

Since WWU's formation in June 2005, Information Technology has been a key enabler to WWU's strategic business vision. This has accelerated during GD1 and we fully expect that our business will leverage more technology services than ever, into and during GD2. WWU were the first Gas Distribution Network to gain independence from, what was, National Grid, successfully exiting the 'Front Office Managed Service Agreement' programme.

So far in GD1, we have implemented over 90 significant IT projects, including; the award winning and Industry first online Connections quotations portal. This was a major step forwards for customer experience when requesting a connection to the gas network. Other key initiatives delivered to date include; a digitised work management solution for our mains replacement programme, more efficient data capture in the field, automated street works noticing to assist our interactions with councils and integration with our SCADA control system for fault management. In addition, we've focussed on a number of key foundational technology investments including; a digital integration platform and master data management solution. The adoption of a cloud first strategy

and the deployment of Microsoft Azure and Office 365 services has enabled our colleagues to collaborate and share data across our region and industry.

Most recently our investment in integrated digital initiatives for enabling efficient business processes has won us leading place in industry safety exercises such as; Firm Load Shedding three years in a row, improved our safety record on Driver Risk Assessments and is saving us money on Tracking equipment and plant as our operations teams go about their important work.

We therefore have a strong track record of delivering collaborative Information Technology services

We have also been carefully planning for the longer term. We recently reviewed our future business capability needs and made key decisions with regards to the direction of our IT investments. Increasing customer and workforce expectations of engaging in a digital world, the need to enable our business to operate more efficiently with agility and to become part of an integrated energy system, led to the decision to invest during GD1 in a new modern suite of technology solutions, as a digital foundation that will meet our enduring business capability.

We are therefore investing in a technology platform and business transformation to solidify our foundations and improve the way we operate our business processes and manage the data that is critical to our operation.

Focusing on delivering valued services for our customers, we must become a digital utility. It is not possible to bolt on digitalisation as an afterthought; it is a cultural change to enable efficient interaction and collaboration. Facilitating innovation and generating new opportunities founded on accessible and exchangeable data. We will transform our business processes onto a modern technology platform in order to compete in the digital world.

We have a forward-looking strategy and plan to make further technology investments over the lifetime of RIIO-GD2, to continually enable our business to; deliver better service, meet sustainability targets and drive innovation and efficiency.

4.0 DIGITAL STRATEGY

The digital utility is a connected environment in which integrated technology enables efficient exchange of information between all areas of; our business, our customers and the outside world. Becoming a digital utility requires a modernisation of technology and a review of the organisational processes. It is as much an approach to re-thinking the business and challenging existing business processes as it is about the technology.

The modern workforce is a generation of technology consumers born into an already digital world, their expectation is to be able to operate at work in the same way they; manage their personal lives, managing finances with online banking, communicating with colleagues using social media, locating qualified trades-people for maintenance jobs, ordering goods for fast delivery and organising tasks and events seamlessly.

Our customers also expect a simple and efficient experience when engaged with us and the modern utility must be able to provide a multi-channel experience to interact with customers in the most appropriate manner, whether it be online, by telephone, email or post.

Lastly, the marketplace in which we operate is changing around us with renewables, distributed generation and smart meters all generating data and integration requirements for real time management of a connected network. A digital approach to integrating all of these technologies into an efficient customer experience is the challenge of ‘The Digital Utility’.

4.1. PLATFORM APPROACH

The technology platforms that WWU has invested in, lay the foundations for delivering this connected world and enabling effective exchange of information across our organisation, partners and most importantly our customers. Our transformation programme will harness their capability to bring together; people, information and processes in the best possible experience for our workforce and customers.

- Core business processes are standardised to leverage the best practise of industry leading solutions.
- Spatial data provides powerful insight into where we can operate most effectively.
- Cloud services let us build scalable and reliable solutions on demand without large capital investments.
- Digital solutions let us develop unique services to match the demands of our business.

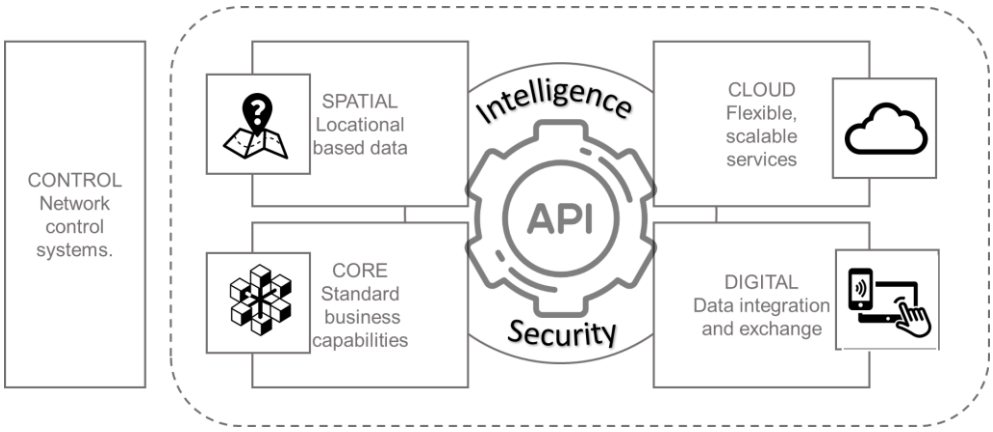

Figure 1: Technological platform

4.2. CONNECTED WORLD

Our workforce is at the heart of our day to day operations business, but they can only operate on information provided by our systems. Our control systems, pressure management systems, work scheduling and customer interactions all generate volumes of data that our systems must collect, analyse and generate actionable insight on, in real time. Integration of these data sources is key to our future success and we are leading with an Application Programming Interface (API) driven architecture.

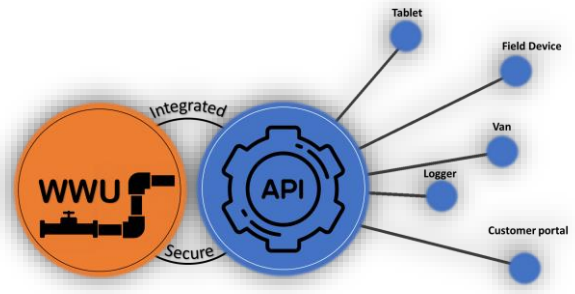

Figure 2: API architecture

The utility of the future will be connected digitally to more and more sources of data. From environmental sensors, vehicles, smart meters and body cameras the list is growing every day. We have built adaptive and flexible platforms with the capability to integrate the information from these new technologies into operations to enable digital outcomes.

Innovative solutions for national emergencies, equipment tracking, safety briefings and firm load shedding have all been developed on our digital foundation platform producing industry leading results. Initiatives for sharing data with partners, online multi-channel interaction with our customers and more tailored experience for our field-based workforce, are all part of our digital future.

4.3. CLOUD ADOPTION

Cloud services will become the de-facto location to host reliable solutions. Both scalable and reliable, WWU will become a cloud first business. In previous business plan cycles we have invested heavily in virtualisation of on-premise infrastructure. Whilst this has provided cost effective resilience, the move to cloud offers a considerable improvement whilst also adding agility.

Our previous virtualisation strategy stands us in good stead for a migration to cloud, but we will not simply take over our legacy applications as they are today. We are transforming our applications and infrastructure to develop the next generation of our systems, in the cloud and digital ready. When complete, in 2021, we will retire our existing data centres, migrating only the remaining applications that are necessary.

The agility and flexibility of Cloud also enables us to collaborate and share data more easily than ever before. Our standardised technology platforms and data structures will allow us to publish data in a format that is easy to understand, consume and act upon. From operational capacity to emergency workloads.

5.0 VALUE OF DATA

5.1. DATA SHARING

We must balance our responsibility as an operator of critical national infrastructure with the principle of openness and sharing. Not all data is created equal and the validity for publishing openly must be considered on a case by case basis. Privacy, Consumer Impact, security and commercial constraints must all be considered when triaging the opportunity. Data provenance must also be considered. The energy sector has a legacy of assets handed from government and national structures, down to distributed commercial organisations, through a period of technology evolution. For example; whilst modern mapping systems utilise high accuracy Global Positioning Systems (GPS), for recording asset locations, this simply wasn't available when many of the legacy assets were buried in the ground. Whilst we take every precaution when we manage and operate our network, this kind

of data shared outside the organisation may not be treated with such consideration.

There are clearly benefits to sharing this data both within our sector and beyond and this is something we already do; indeed, we seek opportunities to do this where this will benefit the wider sector:

- We share asset data readily. Interested parties can log onto an internet based system and within minutes have access to our mapping data.
- We issue complete sets of our asset data to key stakeholders such as Independent Gas Transporters (IGTs) and green gas producers.
- We provide an on-line system for connection quotes – so that anyone who requires a gas connection can receive a quote through a simple internet-based process.
- We have shared our future of energy modelling tools such as the unique Pathfinder model with interested parties at no cost. This includes Local Authorities, other utilities including GDNs and ENOs, universities and other organisations that can play a role in delivering an energy network that supports net zero.
- We are undertaking leading work in data sharing agreements, with the aim of aligning the gas, water and electricity sectors into a virtual working common PSR while working towards a single PRS for all utilities.
- We publish our RRPs and our Long Term Development Statements in the public domain. We have also published our TD13 calculator on our website.

5.2. DATA SECURITY

To operate in an open and sharing marketplace, we must secure our business against the variety of evolving threats we will face. With the advent of new technologies, cloud services and mobile working, the traditional security boundary of an organisation is

less clear than ever before. As distributed generation introduces new entry points into our network from sites, we don't control or own, the physical boundary is also changing.

Traditional corporate IT security models rely on the fact that IT own; the applications, network, and all the devices, and so protect the boundary with perimeter firewalls to control what comes in and out. This is only appropriate for legacy systems within a data centre and the threat we face today has changed.

Our digital services of the future will run on both public and private networks, on trusted and untrusted devices, generating data from wholly owned and private sites. We will ensure security of the future is embedded by design, on a zero-trust basis and build inherent security into our thinking at design stage.

A holistic approach to risk, incorporating; physical, cyber, organisational and operational, is the best approach to protection for true business resilience.

Regulation such as NIS and GDPR are important drivers of behaviour within organisations but need resourcing to operate effectively. We will look to establish in-house resource for retained knowledge and rapid response.

People & Mobility – Flexibility in location and working hours will see a more transient workforce connecting from devices we don't own and locations we don't trust and will overall be harder to protect. Security by design in the technology we deploy and inherent protection within applications will be paramount.

5.3. FUTURE OPPORTUNITIES

As technology advances, data is produced in greater volumes and faster than ever before. The Digital Utility will need to collect, store and govern large data sets in short timescales to take advantage of the insight this can present. Our standardisation of technology platforms and data structures will assist in achieving this and if we can leverage the value, then opportunities may arise.

- **Distributed generation**
  As we connect additional sources of bio-gas to our network, we are expanding the footprint of telemetry and control systems. These sites and

the control systems that manage them, are not owned or operated by WWU. Whilst they are currently small generators, their potential impact is low, but as this market grows their importance in maintaining supply could increase and the data they produce will grow.

- **Smart network**

The digital utility enables a smarter network, with an increasing volume of sensor data and lower cost connectivity, the opportunity to exploit the value of data is increasing. Artificial intelligence and process automation will both lead to more accurate forecast and control systems. Reacting rapidly to demand characteristics of an open marketplace and distributed generation. Ensuring the; availability, integrity and authenticity of this data is critical to the networks success.

- **Decarbonisation**

The opportunity to gain visibility of forecast demand and capacity across the energy sector, through shared data services could provide better insight into selecting the most efficient generation option, at any given point in time.

- **Smart meter data**

We take huge volumes of annual demand data from the Xoserve database, to support our network analysis modelling and ensure we can keep gas flowing on the worst winter day. Smart meters collect constant usage data consumer, demand data and offer opportunities to improve our network management and investment planning, once coverage is sufficient.

6.0 OUR FUTURE PLANS

6.1. UNDERSTANDING STAKEHOLDER NEEDS AND DELIVERING THROUGH COLLABORATION

We have consulted extensively with stakeholders to understand the data and information that makes a difference for them. This has resulted in us sharing openly and at no cost, many big data sets and modelling tools. Several examples are; our Pathfinder model - to help move the industry to net zero, our asset data - to those working in the vicinity or those who wish to connect and our priority service register - to ensure those in need get support. We will continue to focus on understanding what is most value to our stakeholders.

We value collaboration and have joined the Networks Association Data Working Group (DWG), to ensure we deliver significant benefits from collaboration across sectors. To satisfy our need as an industry to understand stakeholder requirements, the Energy DWG has arranged to hold the first of a series of stakeholder events, in mid-March 2020. The specific agenda and format is under development in consultation with stakeholders and details will be issued imminently, including how stakeholders can participate.

The event will be inclusive and highly participative. The purpose will be to showcase digitalisation strategies and initiatives undertaken and in progress, with a view to garnering energy system data and digital user early engagement and feedback.

There will be opportunities to hear from other industry stakeholders including; Ofgem, BEIS, InnovateUK, Energy Systems Catapult and other Energy Network stakeholders. It is intended that this will be the first of such events to ensure continued engagement.

Link to the event:
http://www.energynetworks.org/info/modernising-energy-data.html

6.2. OUR PLAN TO ACHIEVE OUR STRATEGIC AIMS

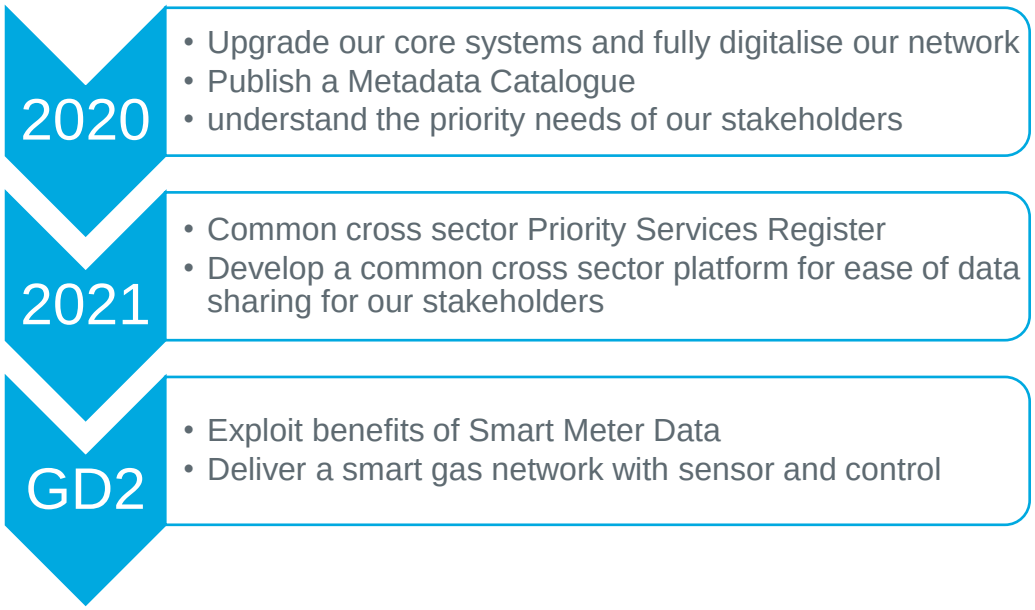

Figure 3: Plan to achieve strategic aims.

Key to delivering a successful digitalisation strategy is understanding stakeholder's priorities and measuring the successes of open data. We commit to working with; the sector, Ofgem, BEIS and InnovateUK, to constantly improve and evolve our digitalisation strategy for the benefit of consumers.