Cadent

Your Gas Network

Appendix 9

IT & Telecoms Strategy

Cadent
Your Gas Network

Contents

Executive Summary

This appendix sets out our Information Technology and Telecoms (IT&T) strategy. The appendix:

- provides the context of our IT&T strategy and explains how we have developed our plans
- describes our planned IT&T investments
- explains how IT&T will enable the proposals in our plan
- summarises key IT&T risks and the way we will mitigate those risks
- explains how we will ensure we have a resilient 24/7 telecoms network; and
- discusses why we consider our plans are efficient and deliverable.

Our work during RIIO-2

For RIIO-2, our focus has been on ensuring continuity of service following the split from National Grid, without compromising resilience for our customers. Whilst injecting some innovation, the majority of IT investments were necessarily tactical in order to maintain the integrity of the incumbent systems and legacy infrastructure. Data and digitalisation in the shape that we are familiar with today, with OFGEM Data Best Practice[1] (DBP) guidelines and a move towards data sharing, was a nascent concept across the gas distribution sector prior to RIIO-2. Since then, the opportunities for data to empower and enhance decision making has grown exponentially with the emergence of technology platforms and products to support this transformation.

Our vision, ambition and plans for RIIO-3

Our IT&T vision is to transform into a leading technology utility, known for collaboration and driving a step-change in our ways of working, to achieve a sustainable future and support the pathway to net zero.

Our ambition is to be an IT function that is connected to the common purpose of Cadent, focused on delivering value and business outcomes, driven by our employees for our customers. This represents an evolution and maturing of thinking since our RIIO-2 Business Plan was submitted.

In addition to further developing our business-as-usual capabilities, we plan to deliver eight key IT&T investments during RIIO-3. These are listed in section 2 below.

How we have developed out plans for the RIIO-3 period

We conducted a thorough evaluation of all investment options

Our IT and Telecoms appendix aligns with our Appendix 14[2], catering to the needs of our customers, colleagues, and stakeholders. In preparation for building our RIIO-3 Business Plan and updating our Digitalisation Strategy we have engaged our external, current, and potential data users by issuing a digital survey, which findings can be found in Appendix 14[3].

We have engaged with our key business stakeholders in a series of discovery, prioritisation and alignment sessions to ensure we are aware of where IT&T investments are required to support our wider business plan and the ambitions of Cadent. This resulted in a set of investment ideas which we refined and challenged to a point where we had a defined set of initiatives that aligned with the priorities of our business stakeholders. We took these forward to perform extensive analysis of the solution options based on our existing capabilities, deliverability and costs. Each investment has been developed alongside and approved by business stakeholders and IT leadership as well as benchmarking by Gartner.

We have worked closely with our Operations 4.0 team (Appendix 8[4]) to ensure we supporting evolving change agenda for the next 10 years.

We have respected and aligned our investments with the feedback received from customers, as well as working with our Independent Stakeholder Group (ISG) as part of our Digitalisation Strategy refresh, which we cover in the following section.

[1] OFGEM Data Best Practice
[2] Digitalisation Strategy, section 3
[3] Digitalisation Strategy, section 3, page 17
[4] Innovation Strategy, Section 8.2, page 30

What our customers told us is important to them

Leakage and Shrinkage

Customers are supportive of our mains gas replacement plans, its methane reduction targets, and its approach to more proactive leak detection through new technology. As part of our Appendix 14[5], we will continue to invest in leak detection technology, data collection, analysis and insights. We will adopt cutting edge Generative Artificial Intelligence capabilities of our strategic platforms to ensure we minimise leakage through pro-active leak detection and focus on fixing the most impactful leaks.

Streetworks

Our collaborative Streetworks incentive in the London network has driven positive results for customers and stakeholders. During RIIO-3 we will roll this out wider and our investment in new Field Service Management (FSM) solutions (INV02) will provide the capabilities needed to operate consistently and collaboratively across our networks and third party suppliers. This is supported by our customers as 44% are dissatisfied with delays to traffic caused by roadworks, and 75% support utility companies combining their Streetworks.

Large scale loss of supply

Having access to customer personal data (phone numbers for example) in order to inform customers of an incident is supported by 67% of customers surveyed. Customers expect us to minimise the risks of a large-scale loss of supply, though they understand that networks and people are not perfect and such events can happen.

To complement the investment being made in our network infrastructure we are also investing in asset investment portfolio management and optimisation tools to evolve and automate our asset investment decision-making (Appendix 14[6]). This builds upon the strategic investment planning framework developed during RIIO-2, ensuring consistent and systematic asset management decisions using a range of datasets.

Furthermore, we continue to invest in asset data and data products as part of our digitisation journey. By enhancing the quality of our data, we ensure that our asset investment decisions are based on robust datasets.

Net zero

Net zero is widely regarded as a significant and trending issue, 90% of customers are aware of net zero and 73% say they understand it. However, many customers remain unsure about the specifics of what achieving net zero would entail. Customers expect us to make progress towards net zero.

Smart networks, asset sensors, and telemetry help us proactively manage our assets, reduce network operating costs, and increase resilience, all of which contribute to our net zero goals. Our investments in networks (Investment 3 P8) [security-sensitive data ensure the continued roll out of our telemetry solution and pave the way for smart networks and sensors in the future. Our investments in leak detection technology, data collection, analysis and insights (Appendix 6[7]) support the net zero aims.

Our investments in a clean core (INV28) will, by improving data quality and consistency across systems, and simplifying our systems and our data, result in the consumption of less compute, storage, and power than we use today as well as make it easier for us to meet environmental regulatory requirements.

Modernising FSM (INV02) allows the creation of an "Uber-style workforce delivery model" through automated job assignments based on engineers' locations. This improves response times and efficiency, reduces travel, and lowers carbon emissions, supporting our environmental goals.

Modernising the Meter Asset Repository and Gas Quality Information System (INV15) can significantly reduce emissions and waste through more accurate measurements and optimised operations. Enhanced remote monitoring and control capabilities help identify and mitigate operational inefficiencies.

Biomethane

Introducing biomethane into our network is largely seen positively by customers, who often compare it favourably to other renewable energy sources such as solar, wind, and nuclear. 73% support the expansion of our biomethane sites. To support this transition, we are investing in technologies and systems like the modernisation of our Meter Asset Repository and Gas Quality Information System (INV15). Our efforts also include smart networks, asset sensors, and telemetry, which help us proactively manage assets, reduce network operating costs, increase resilience, and achieve our environmental goals. Our investments in networks (Investment 3 P8)

[5] Digitalisation Strategy, Open Data Investment Roadmap, page 50
[6] Digitalisation Strategy, Open Data Investment Roadmap, page 50; also see page 84 of the main business plan document.
[7] Environmental Action Plan, pages 3, 13-15.

[security-sensitive data] ensure the continued roll out of our telemetry solution and pave the way for smart networks and sensors in the future.

Customer Contact

Customers strongly prefer speaking to a real person rather than interacting with a Bot or AI, and they are cautious about sharing personal information with us without prior experience. With the modernisation of the Customer Contact Centre infrastructure from the RIIO-2 investment, our Customer Engagement Transformation (INV01) initiative aims to provide a modern experience that provides the same quality of service across digital and in personal communication channels, enhancing customer satisfaction by giving our teams access to essential data and information. This investment will ensure a seamless service experience across all channels, continuing to the doorstep with both in-person and online service options.

Related documents

This document should be read alongside Appendix 4: Cyber resilience, Appendix 14: Digitalisation strategy and Appendix 15: Digitalisation Action plan.

It is important to note that our IT&T Strategy contains investments that act as enablers to continuing work on Cyber Resilience that needs to be delivered in RIIO-3. This includes several key initiatives aimed at enhancing Cadent's Cyber Resilience and Operational Technology (OT) systems. These investments are crucial for compliance with the Cyber Assessment Framework[8] (CAF) and Network and Information Systems Regulations.

[Software/Hardware-sensitive data]

There is also a focus on investing in testing tools, simulation environments, and quality assurance processes to identify and resolve any issues before full deployment.

These initiatives are part of the broader Cyber Resilience OT programme that began in RIIO-2 and continue into RIIO-3 to ensure Cadent's compliance and enhance its cyber security posture.

[8] NCSC's Cyber Assessment Framework

1. The context of our IT&T strategy

1.1. Our IT&T vision

Our IT&T vision is to transform Cadent into a leading technology utility, known for collaboration and driving a step-change in our ways of working, to achieve a sustainable future. Our ambition is to be an IT function that is connected to the common purpose of Cadent, focused on delivering value and business outcomes, driven by our employees and for our customers.

1.2. We are continuing to mature our IT operating model

Our IT operating model has developed and matured over RIIO-2.

The separation from National Grid resulted in significant demand, alongside a depleted IT capability, leading to an increased use of consultants and contractors to augment development and deployment capabilities. This was necessary to support the wider organisation as we sought to embrace innovative and disruptive technologies to leverage greater benefit for our customers and consumers.

In RIIO-2 we focused on building an operating model that consisted of internal and external capabilities, with the former acting as the core decision-making 'hub' and the latter being responsible for the delivery of new investment and supporting the IT landscape. We now operate under a hybrid model that encompasses networks, cloud and infrastructure, and application management. Through this hybrid model, we aim to:

- align service and delivery management processes to best practices and optimise them to ensure a seamless customer and colleague experience
- establish a single service management tool, ensuring supplier integration where appropriate, avoiding manual intervention
- ensure security, service and delivery accountability and assurance resides with Cadent
- optimise and simplify services and solutions to ensure the delivery of a cost-effective and efficient service aligned with customer and business outcomes
- adopt and promote continuous service improvement in delivering IT
- align with the scaled agile framework (SAFe) 6 Framework.

In RIIO-2, Cadent focused on building a hybrid IT operating model consisting of internal decision-makers and external delivery capabilities. This model supports networks, cloud, infrastructure, and application management. Key goals include aligning service management processes to best practices, optimizing services, ensuring security and accountability, and promoting continuous improvement. The model aligns with the SAFe 6[9] Framework.

We have established the core capabilities and competencies that underpin IT Services. Aligned to the SAFe 6 Framework, we implemented a new agile operating model with a fundamental drive towards closer alignment and ways of working across Cadent for technology enabled change. This has allowed us to become a product-centric IT function focused on delivering iteratively prioritised value into the business functions. We have prioritised:

- A core architecture designed to simplify the IT portfolio landscape and accelerate business transformation which reduces architectural and operational complexity, streamlines vendor management, and leverages native capabilities and integrations with prebuilt business logic
- Organising teams around Value Streams who focus on delivering end-customer value by visualising value streams (trigger event to value realisation), optimising workflows, and continuously seeking overall system performance improvement
- Upskilling all employees for increased levels of self-service
- Establishing a creative and collaborative environment
- Creating high levels of technology automation and security; and

[9] SAFe 6 - The SAFe 6 is a global, industry standard delivery framework that has improved our ability to be customer-centric and maximises the value we are able to provide. The framework is self-assuring, open, transparent, and expects full involvement and participation from our stakeholders.

- Rationalising of our technology landscape.

We have introduced two new capabilities that are fundamental to driving and enabling the new ways of working across agile delivery, namely:

- Our agile practice – This focuses on establishing and developing further our core framework delivery roles. The practice also leads on the business change elements of our transformation.
- Digital engineering – enables us to release value frequently, rapidly, securely, and to quality. It also holds accountability for the practice of software engineering.

To establish delivery autonomy and regular release cadence, we will invest in Development Operations and mature our Development, Security, Operations capabilities. This will:

- Enhance security by [security-sensitive]
- Reduce costs and speed development, integrating security early
- Promote collaboration between development, operations, and security teams
- Improve reliability and resilience through infrastructure as code[10] and continuous testing
- Support digital transformation with [security-sensitive]

We have significantly enhanced our SAP capabilities. Initially, most of our SAP needs were outsourced to strategic partners, which limited our control over strategic direction, timelines, and costs. Now, we have established an SAP Centre of Excellence (COE) staffed by permanent Cadent employees and supported by an offshore team to reduce costs. This flexible model allows us to scale as needed. Our goal is to achieve SAP COE Accreditation, building on the value already delivered.

We are relentlessly focused on performance improvement and delivering value. Through our Agile delivery framework:

- We have implemented a Portfolio Value Management Office[11] team which is an evolution of our Agile Project Management Office.
- At the end of each quarter, we conduct a session where we demonstrate new functionality, products or services; gather metrics for empirical evaluation of the value achieved; and hold 'problem-solving workshops' to ensure we go looking for potential weaknesses, find areas to improve and add improvement items to our portfolio of work.
- We have extended this culture of Improvement to our teams, who reflect on work delivered every two weeks and continuously seek ways to improve the flow of work and build in quality.

[10] What is Infrastructure as Code (IaC)
[11] Value Management Office (VMO) - Scaled Agile Framework

2. Our planned IT&T investments

Our target architecture for RIIO-3 highlights how the RIIO-3 investments enhance our IT capabilities, ultimately serving the organisation's business objectives. This is a view across all our key systems and incorporates investments delivered through IT & Telecoms, Cyber Resilience and Data & Digitalisation.

Figure 1: [security-sensitive]

Our ambition in the IT, Data & Digitalisation, and Cyber Resilience space demonstrate an evolution and maturing of our thinking since we submitted our RIIO-2 business plan. Having established solid foundations in the current price control, we now have the ability, resources, and appetite to deliver what is best value for money for our customers and gas consumers. We plan to invest in eight significant IT projects which are summarised below.

Most of the RIIO-3 funding will be invested in enduring solutions for the operational side of our business, with whole system thinking and digitalisation at its heart.

Tables 1-9 below summarise information on our planned IT investments (INV), in turn walking through detail for:

- INV28: ERP clean core (Table 1)
- INV29: Enterprise risk management (Table 2)
- INV17: Identity and Privileged Access Management (Table 3)
- INV15: Replace Meter Asset Repository / Gas Quality information system (Table 4)
- INV31: Modernising our Energy Control Centre (Table 5)
- INV3 P8: Network infrastructure [security-sensitive] *(Table 6)*
- INV02: Modernising FSM (Table 7)
- INV01: Customer Engagement Transformation (Table 8)
- IT RIIO-3 Maintenance baseline (Table 9)

Cleaning our data and establishing standardised processes and solutions: ERP Clean Core (INV28)						
Through our Enterprise Resource Planning (ERP) Clean Core investment, we will be removing the complexity and enhancements from our strategic enterprise systems. We will also simplify and standardise the data model we have in these systems as well as clean the data as we go.						
Background	When Cadent was established in 2017, we adopted legacy processes, data and technology from National Grid. This resulted in us inheriting data silos and inconsistencies between SAP applications as well as upstream and downstream applications which significantly complicated data analysis and reporting. At the core of this architecture was the legacy SAP ERP 6.0 product. In 2020, Cadent migrated from SAP ERP 6.0 to SAP S/4HANA[12]. This ensured long term support and provided new capabilities. But we performed a "brownfield" migration as our business was not ready for transformation. This meant we retained the complexities, enhancements and legacy data from the old system therefore retaining many of its inefficiencies and problems. During RIIO-2, we are preparing for the implementation to be delivered in RIIO-3. We are utilising HCL HanaSmart[13] capabilities to analyse our system enhancements and propose remediation actions to reestablish a standard code base and lift any remaining enhancements out of the core using modern methods. SAP Signavio[14] will be used for process mining, mapping, optimisation and standardisation.					
Investment case	Our core SAP systems are running outdated process, applications and data models due to our inherited legacy many of which are approaching end of life (EOL), cause instability, lack of confidence in data and off system work arounds. Due to our inherited legacy, our core SAP systems are running outdated process, applications and data models, many of which are approaching end of life (EOL). This causes instability, lack of confidence in data and off system work-arounds. We cannot take advantage of new capabilities and cannot support much of the work we need to do that relies on reliable, clean, well-structured data.					
Our plan for RIIO-3	To clean up our data as well as establish the use of standardised processes and solutions on the S/4HANA Platform, we will remove all enhancements from the product core. This will enable us to easily keep S/4HANA up to date and take advantage of continuous innovation and adoption of industry best practices and new capabilities being made available. Our target state is to achieve a clean core by moving back to SAP standard processes and data structures, removing any custom code or refactoring customisations in the cloud, where still required. We will also have standardised, enterprise-wide versions of data and a common data model for all consumers of data inside and outside of Cadent. By doing this, we will benefit from end-to-end system security, continuity and stability, Total Cost of Ownership efficiency with optimised infrastructure and license utilisation.					
Planned expenditure during RIIO-3	[cost data]	26/27 [cost data]	27/28 [cost data]	28/29 [cost data]	29/30 [cost data]	30/31 [cost data]
Benchmarking	Gartner benchmarks this work between [cost-sensitive data] and [cost-sensitive data] but based on the approach we are taking utilising our partners accelerators, we are comfortable with the investment estimate.					
OFGEM outcomes alignment	**Infrastructure Fit for a Low-cost transition to net zero** A Clean Core approach offers a scalable data infrastructure supporting Cadent's low-carbon transition while ensuring resilience and cost management. It integrates emission data for comprehensive analysis, identifies inefficiencies, and supports renewable integration. This enhances decision-making and strategic planning, enabling scenario analysis and risk management for achieving net zero. **Secure & Resilient Supplies** A Clean Core approach provides a scalable, resilient data infrastructure essential for gas supply security. It ensures accurate monitoring, integrates operations, supports predictive maintenance, and enhances emergency response. This scalable system aids in real-time decision-making, integrates cybersecurity measures, and adapts quickly to regulatory and environmental changes. **High Quality of Service**					

[12] SAP S/4HANA
[13] HCL HanaSmart
[14] SAP Signavio

	Ensuring data accuracy and integration, Cadent aims to deliver efficient gas services, enhance customer satisfaction, and comply with regulatory standards such as Ofgem under RIIO-2. A Clean Core approach facilitates accurate monitoring, efficient incident management, tailored customer services, and proactive communication. It supports continuous monitoring, service benchmarking, and the development of innovative technologies. **System efficiency & long-term value for money** A Clean Core approach optimises data management, enhancing operational efficiency, reducing costs, and ensuring sustainable asset investment. It provides accurate data for better monitoring, supports predictive maintenance, and enables efficient resource allocation. Furthermore, it enhances strategic planning and long-term investment decisions.

Table 1: Cleaning our data and establishing standardised processes and solutions

Modernising our risk management platform: Enterprise risk management (INV29)						
Our investment in Enterprise Risk Management (ERM) improves the identification, assessment, mitigation, and monitoring of risks by leveraging advanced digital technologies. Real-time data and analytics enable quick identification of potential risks and their impacts. Continuous monitoring and reporting will ensure up-to-date information on the risk landscape, facilitating rapid responses to new risks.						
Background	[Security-sensitive]					
Investment case	[Security-sensitive]					
Our plan for RIIO-3	[Security-sensitive]					
Planned expenditure during RIIO-3	[cost data]	26/27 [cost data]	27/28 [cost data]	28/29 [cost data]	29/30 [cost data]	30/31 [cost data]
Benchmarking	Gartner benchmarks this between [cost-sensitive data] and [cost-sensitive data] which we're near the top end of but based on the complexities inherent in our scope, we believe this is a fair budget for the work to be delivered.					
OFGEM outcomes alignment	**Infrastructure Fit for a Low-cost transition to net zero** Enhances our ability to manage risks associated with the transition. The ERM solution will help Cadent to plan and mitigate various types of business risks, including those related to environmental sustainability and regulatory compliance. **Secure & Resilient Supplies** Effective management of cyber and business risk supports in identifying, assessing, mitigating, and monitoring risks across the supply chain. **Quality of Service**					

	An ERM System supports the quality of service by systematically identifying, assessing, mitigating, and monitoring risks that can affect service delivery. This proactive approach ensures that potential issues are addressed before they impact the quality of service. **System efficiency & long-term value for money** An ERM System supports the system efficiency and long-term value for money by optimising processes, reducing costs and enhancing decision-making.

Table 2: Modernising our risk management platform

Enhancing our access management capability: Identity and Privileged Access Management (INV17)						
As a result of our investment in Identity and Privileged Access Management we will deliver intelligent network monitoring. Using technology and identity (data) analytics, we can better manage our assets.						
Background	Identity Access Management (IAM) involves managing the digital identities of employees, contractors, partners, and other entities that require access to digital resources. It also involves managing machine identities. This ensures that non-human identities, like applications and machine identities, are managed effectively. Privileged Access Management[15] (PAM) is a subset of IAM that focuses on monitoring, detecting, and preventing unauthorised privileged access to critical resources. [Security-sensitive]. During RIIO-2 we are investing to [security-sensitive]					
Investment case	We need to address the complexity and operational overhead involved in managing digital identities effectively through their lifecycle. [security-sensitive data]					
Our plan	We will build on our achievements in RIIO-2 by [security-sensitive]					
Planned expenditure during RIIO-3	[cost data]	26/27 [cost data]	27/28 [cost data]	28/29 [cost data]	29/30 [cost data]	30/31 [cost data]
Benchmarking	Gartner Benchmark is between [cost-sensitive data] and [cost-sensitive data] for this scope. We're comfortable with where our investment sits.					
OFGEM outcomes alignment	**Infrastructure Fit for a Low-cost transition to net zero** Through automation and efficiencies of our processes we will reduce the environmental impact of running our network. Key to this is being able to manage the identity and access allowed for our employees and partners but also for [security-sensitive data] **Secure & Resilient Supplies** This investment supports strengthening resilience to [security-sensitive data], ensuring [security-sensitive data] are built into the IT landscape for enterprise-wide consumption. **Quality of Service** These enhancements collectively contribute to a more secure, efficient, and compliant service delivery, ultimately improving the quality of service we provide to our customers and stakeholders					

Table 3: Enhancing our access management capability

[15] Privileged Access Management

Supporting the wholesale market: Replace Meter Asset Repository / Gas Quality Information System (INV15)						
Our new Meter Asset Repository and Gas Quality Information System uses sensors and advanced analytics to monitor gas quality and flow in real-time. This upgrade boosts network intelligence, enabling predictive maintenance, faster issue resolution, and more efficient operations.						
Background	Our Marquis system supports our compliance with the Gas (Calculation of Thermal Energy) (Amendment) Regulations 1997[16], the Uniform Network Code (UNC) Offtake Arrangements Document (OAD) and the Gas Safety (Management) Regulations 1996[17]. It is critical for ensuring accurate and fair billing for our customers. It provides validated daily average Calorific Value[18] and metering data to support various wholesale market and business processes. Marquis was implemented in 2015. It is built on SAP Portal infrastructure which has a bespoke calculation engine (High Pressure Metering Information System (HPMIS) which was purchased from a third-party supplier. However, the system is proving to be slow, requires extensive manual intervention, and we have seen an increase in the number of service and performance related incidents. The existing platform reaches vendor end-of-life in 2027. During RIIO-2, we are completing platform upgrades on Marquis to ensure the security of the system. We will also complete the analysis of the current state of the system, evaluate future business needs and processes.					
Investment case	Marquis uses an outdated bespoke HPMIS and run on a platform that is EOL in 2027. The solution is not fit for purpose for today's use cases or those in the future.					
Our plan	This investment is to rearchitect Marquis in order to address the functional, data and performance issues. The investment will enable us to: • Provide centralised data management, automation capabilities, and real-time monitoring, enabling proactive maintenance and optimised resource allocation • Provide for increased accuracy, and precision of meter readings, resulting in improved billing accuracy and consistent gas quality, enhancing customer confidence • Provide reliable and improved actionable insights, trend analysis, and predictive analytics, empowering Cadent to make informed decisions and optimise operations • Mitigate technical risks, as the existing platform reaches end-of-life					
Planned expenditure during RIIO-3	[cost data]	26/27 [cost data]	27/28 [cost data]	28/29 [cost data]	29/30 [cost data]	30/31 [cost data]
OFGEM outcomes alignment	**Infrastructure Fit for a Low-cost transition to Net Zero** The Modernised Marquis seamlessly integrates renewable energy, aiding the transition to greener alternatives. It features advanced monitoring and real-time analytics to track emissions and ensure environmental compliance, offering a cost-effective way to achieve net zero. **Secure & Resilient Supplies** Real-time monitoring of gas quality and flow detects anomalies early, securing a reliable supply. **Quality of Service** Improved gas quality measurement ensures consistent service through the Future Billing Methodology. Real-time data adjustments enhance operational reliability and customer satisfaction. **System efficiency & long-term value for money** Enhanced monitoring and control lead to more efficient operations, minimising losses and improving performance. Cadent can reduce operational and maintenance costs by preventing failures and optimizing schedules. Investing in modern technologies ensures long-term savings and operational benefits, providing value over the system's lifespan. The rearchitected Marquis enables scalability and flexibility, adapting to future needs and reducing costly upgrades.					

Table 4: Supporting the wholesale market

[16] Gas (Calculation of Thermal Energy) (Amendment) Regulations 1997
[17] Uniform Network Code (UNC) Offtake Arrangements Document (OAD) and the Gas Safety (Management) Regulations 1996
[18] Calorific Value

Streamlining Energy Control Centre systems and processes: Modernising our Energy Control Centre (INV31)	
The applications we implement for Modernising Energy Control Centre (ECC) will enable seamless real-time data analytics, enhancing our network monitoring and management.	
Background	The ECC suite of applications is complex and bespoke to the gas industry. The suite of applications can be summarised as: • Gas Demand, Forecasting and Capacity Management systems - Cosmos, Distribution Network Control System Business Applications (DNCS BA), Forecaster and Forecaster Result Application Suite (FRAS). Cosmos is critical for the management of capacity and submission of offtake profile notices. The DNCS BA manages the physical aspects of Distribution Network Control Centre hourly and daily operation. The Forecaster and FRAS provide a Wind, Solar & Power demand forecast application suite. • Non-SCADA Network Control systems – Demand Energy System (DES), Lotus Notes & Integrated Energy System (IES). DES ensures that we exchange obliged industry data flows in prescribed timescales. Lotus notes provide seamless integration of various operational and document management capabilities. The IES is a critical system used for managing interruptions and emergencies related to gas supply and serves as a tool for managing gas-related incidents. Key challenges with the current technology landscape include: • Outdated technologies: These are legacy applications based on outdated technologies, leading to suboptimal performance, increased failures and slower response times. • Increased service and performance incidents: We have seen an increase in the number of service and performance-related incidents across these applications. • Data transfer and integration issues: Challenges in integrating data from different systems contribute to inefficiencies and operational complexity. During RIIO-2, we will complete the necessary platform upgrades on these applications to ensure security of the systems. We will adapt the existing applications to integrate with our new meteorological system. We will also complete the analysis of the current state of the applications, to identify gaps and functional duplicities, evaluate future business needs and processes.
Investment case	The existing ECC applications are complex and tailored specifically for the gas industry, having developed over many years. This has caused overlapping functions and data silos in various apps, leading to inefficiencies and more operational complexity. Streamlining these applications will enhance efficiency, eliminate redundancy, improve system compatibility, foster innovation, and reduce risks in managing Critical National Infrastructure.
Our plan	This investment case will address instances of overlapping functionality and instances where data is siloed in multiple applications. The target state is a simplified, rationalised and modernised application landscape that will deliver the following benefits: • Improved operational efficiency - Streamlining business workflows, reducing manual effort, and eliminating functional duplicities across applications. • Enhanced data management - Providing a unified view of critical operational data and facilitating informed decision-making. • Improved security - Centralising security controls and access management within a unified application environment, which will enhance security posture and ensure compliance with regulatory requirements and industry standards. • Reduced costs - Lowering maintenance costs such as software licences, infrastructure and support costs through the consolidation of applications and standardisation of technology. • Enhanced agility - Enabling Cadent to adapt to changing business needs and proactively identify, assess, and mitigate risks associated with operational disruptions. To achieve this target state, we will: • Consolidate ECC applications - Reduce the number of systems and eliminate redundant functionalities in the ECC landscape. • Standardise processes - Implement industry-leading Commercial Off the Shelf Solutions (COTS) and standardise processes where possible. • Modernise the application landscape - Implement modern architecture for the applications.

	• Improve data integration - Enhance the flow of data between systems and provide a unified view of operational data. • Enhance security - Strengthen the security posture and ensure compliance with regulatory requirements.

Planned expenditure during RIIO-3	[cost data]	26/27 [cost data]	27/28 [cost data]	28/29 [cost data]	29/30 [cost data]	30/31 [cost data]

Benchmarking	Gartner benchmarked this between [cost-sensitive data] and [cost-sensitive data] which we're at the top end of in our estimates which are based on significant complexity in our exiting estate and data which we are starting a detailed analysis on during RIIO-2.
OFGEM outcomes alignment	**Infrastructure Fit for a Low-cost transition to net zero** New systems are more cost-effective and require less maintenance than legacy systems. Replacing legacy applications allows for efficient scalability and reduces high expansion costs. This minimises infrastructure and environmental impacts. **Secure & Resilient Supplies** Cadent can utilise advanced security features to [security sensitive] **Quality of Service** Improved network monitoring and control enhance quality and reliability. Features like automated control and real-time alerts enable proactive issue management, ensuring minimal impact on customers. Enhanced control also allows better planning of operations with minimal downtime, safeguarding customer supply. **System efficiency & long-term value for money** Enhancing system reliability improves service quality and operational efficiency, resulting in cost savings for customers. A modern estate lowers costs and ensures readiness for future technologies, maintaining long-term viability.

Table 5: Streamlining Energy Control Centre systems and processes

Upgrading and future-proofing our Communications Network: INV3 P8: Network Infrastructure *(New investment ECAF and therefore this is linked to Cyber CRID2)*	
Background	The nature of a gas distribution network means that Cadent performs process control operations at thousands of geographically dispersed locations. We achieve this through our OT systems (principally our SCADA systems). In common with many utilities, our OT and IT systems currently operate in silos - IT focuses on data processing and business applications, while OT handles control systems, sensors and assets. However, SCADA systems are increasingly being integrated with IT networks to enable real-time data analysis, predictive maintenance, and remote monitoring. In the face of these changes, the communication network infrastructure for our OT environment is no longer fit for purpose. It cannot cater for future scalability and cannot meet the future bandwidth demands associated with an increase in remote asset visibility and control and the need to respond quickly to events. The legacy OT systems are also not compatible with the modern IT protocols and standards. During RIIO-2, we commenced the design and upgrade of the Wide Area Network replacement and standardisation. We progressed our thinking on what we need to do to upgrade and replace the communications network, including [security-sensitive]
Investment case	Upgrading and replacing the existing IT communication networks is essential to support OT SCADA systems and facilitate IT/OT convergence. This investment will enhance operational efficiency, improve security, and provide a solid foundation for future growth.
Our plan	We plan to upgrade and replace the communications network. This will address the existing challenges with latency and bandwidth constraints and address [security-sensitive]. The key components of this upgrade include: • High-Performance Network Infrastructure - Deploying advanced ethernet networks with low-latency capabilities and increased bandwidth to support real-time SCADA communication. • [Security-sensitive]

	• Interoperability Solutions: Adopting middleware and gateways that enable seamless communication between legacy OT systems and modern IT networks. • Scalability and Redundancy - Designing the network to be scalable and redundant, ensuring it can grow with the organisation and maintain uptime in case of failures. The benefits to be realised from replacing and standardising the network are as follows: • Enhanced network capabilities will allow for real-time data collection and analysis, improving decision-making and operational efficiency. • By integrating IT with OT, we can implement predictive maintenance strategies, reducing downtime and extending equipment life. • [Security-sensitive] • [Security-sensitive] • Improved network reliability and real-time monitoring will reduce downtime, leading to significant cost savings. • While the initial cost of upgrading may be high, the long-term benefits of reduced maintenance costs and improved efficiency will justify the investment. • Improved operational efficiency and reliability will lead to better service delivery, enhancing customer satisfaction. The initial investment will cover [security-sensitive]. However, these costs will be offset by the savings from reduced downtime and operational efficiencies.
Planned expenditure during RIIO-3	[cost data] 26/27 [cost data] 27/28 [cost data] 28/29 [cost data] 29/30 [cost data] 30/31 [cost data]
Cross-reference	Appendix 4, and [security-sensitive data]
Benchmarking	Gartner benchmarked this investment between [cost data], which means our investment is below range. We are comfortable with this at this point.
OFGEM outcomes alignment	**Infrastructure Fit for a Low-cost transition to net zero** Improving energy and resource usage, reducing unplanned downtime, and enabling rapid innovation. **Secure & Resilient Supplies** The upgrade will address challenges related to latency, bandwidth, and security vulnerabilities as well as offering support for the integration of IoT sensors and actuators, allowing for more autonomous operation and improved resource usage. **Quality of Service** The benefits of this investment include improved decision-making and operational efficiency, reduced downtime, extended equipment life, and enhanced customer satisfaction. **System efficiency & long-term value for money** The initial cost of upgrading may be high, but the long-term benefits of reduced maintenance costs, improved efficiency, and enhanced customer satisfaction justify the investment. The upgraded network will improve decision-making and operational efficiency, reduce downtime, extend equipment life.

Table 6: Upgrading and future-proofing our Communications Network

Supporting field service operations: Modernising FSM (INV02)	
By modernising FSM[19], we will execute our data strategy and integrate our data sources, thus allowing the ability to plan operations more than three weeks ahead. We also provide the capabilities to support Cadent's business transformation strategy.	
Background	We have been developing plans that will transform the way we operate as a business. We want to leverage the latest technology, including generative Artificial Intelligence, to modernise our capabilities, align these capabilities with evolving business needs, and deliver our services with a much more flexible resourcing model. Our existing FSM solution has limitations that hinder optimal service delivery and efficiency. These limitations include difficulties in capturing and accessing accurate and timely data, inefficiencies in work planning, allocation and scheduling, and reliance on manual processes.

[19] Field Service Management

	In recent years, the FSM market has developed significantly, and we can now provide a better service to our customers and transform the experience for our field service engineers, schedulers and despatchers. In addition, at the heart of our field service operations are two IT solutions - Click Field Service Edge[20] (FSE) and Click Mobile. At the end of 2023, the vendor for these solutions announced they would reach end-of-life in December 2026, necessitating a replacement to avoid service disruption to our business and customers. During RIIO-2, we will select and implement, ready for roll out, a solution for our FSM capabilities that will allow us to migrate away from Click FSE and Click Mobile.
Investment case	Click FSE and Click Mobile, will reach end-of-life in December 2026 which necessitates a replacement to avoid service disruption. Current system limitations in work allocation, scheduling, and data capture hinder operational efficiency, customer satisfaction and is unable to support our Operations 4.0 transformation strategy.
Our plan	The target state for this investment is to modernise our FSM capabilities by replacing the current outdated system with a new, advanced solution. This new system will leverage the latest technology, including generative AI, and will address the critical challenges posed by the end-of-life of the current system. Click FSE will be replaced by a COTS that provides the business capabilities needed and the best user experience for Field Service Engineers and Back Office users. SAP Business Technology Platform[21] (BTP) provides cloud services with business context that will be used for Integration, Data & Analytics and for any required Application Development. We will embrace Low Code technologies, Automation and Generative AI wherever possible and appropriate. Due to time constraints, our initial 2026 implementation will provide essential capabilities. Basic features rollout will start in April 2026 and finish by March 2027. A permanent Product Team will continue adding features with offshore support. From 2027, we will introduce advanced planning for works and digital communication tools for customers. We aim to implement an "Uber-style Workforce" system which will allow field staff to choose work based on various factors, supported by AI and machine learning. Integrations will include data from customer centres, Customer Relationship Management (CRM), digital tools, environmental data, demographics, weather, and traffic patterns, enhancing planning capabilities.

Planned expenditure during RIIO-3	[cost data]	26/27	27/28	28/29	29/30	30/31
		[cost data]	[cost data]	[cost data]	[cost data]	[cost data]

Benchmarking	Gartner benchmark this activity between [cost-sensitive data] and [cost-sensitive data]. Based on the market responses we have had and the work we have done with our partners, we feel the investment is sized correctly for a 5000+ user roll out and on-going required features.
OFGEM outcomes alignment	**Infrastructure Fit for a Low-cost transition to net zero** Introduction of an "Uber-style workforce" model with automated job assignment based on engineers' location. This optimises task allocation, reduces travel time, and lowers carbon emissions, enhancing emergency response and efficiency. **Secure & Resilient Supplies** Avoiding service disruption and enhancing efficiency, the new FSM system will address current limitations like data accuracy, work allocation inefficiencies, and manual processes, ensuring quicker incident responses. **Quality of Service** New capabilities include recording customer vulnerability alerts for field operatives, enabling tailored interactions for non-domestic properties. **System efficiency & long-term value for money** The new FSM system will include automated job assignment, location-based routing, and data integration to boost efficiency. These features will optimize scheduling, reduce travel time, and improve customer response times. This shift to an "Uber-style" model allows for a reduction in permanent staff.

Table 7: Supporting field service operations

[20] Click Field Service Edge
[21] SAP Business Technology Platform

Managing our engagement with customers: Customer engagement transformation (INV01)						
Customer engagement transformation will give our team access to the essential data and information required to address customer questions and inquiries, while also aiming to secure better consent for energy transition.						
Background	To manage our customer engagement, we use SAP CRM. This solution will be end-of-life in December 2027. We therefore need to upgrade the solution to support the continued operation of the National Gas Emergency Service[22]. The upgrade will also support our ambition to deliver a better service to our customers and stakeholders. By focusing on critical improvements to our end-to-end customer journey we are carefully aligning our business processes with the real customer experience with the goal of optimizing the customer experience at every touchpoint. During RIIO-2 we will define the target state architecture for the solutions needed to meet these requirements and have procured services and systems we require. By end of RIIO-2 we will have completed the procurement event for the future state technology for CRM.					
Investment case	SAP CRM will reach EOL in 2027 and does not support our Operations 4.0 strategy to modernise our customer experience through an omnichannel engagement model and enhanced operational efficiency.					
Our plan	Our investment will address the necessity to replace an end-of-life solution and allow us to enhance the overall customer experience, by focusing on critical improvements to our end-to-end customer journey. In RIIO-3, we will deliver an omni-channelled experience that allows the customer to choose how they deal with Cadent. SAP BTP provides cloud services with business context that will be used for Integration, Data & Analytics and for any required Application Development. We will embrace Low Code technologies, Automation and Generative AI wherever possible and appropriate.					
Planned expenditure during RIIO-3	[cost data]	26/27 [cost data]	27/28 [cost data]	28/29 [cost data]	29/30 [cost data]	30/31 [cost data]
Benchmarking	Gartner Benchmark is [cost-sensitive data] and [cost-sensitive data] so we're below the range with our estimates. We do not have classic CRM use cases so are keeping an open mind to the right solution which is unlikely to deliver full blown CRM capabilities.					
OFGEM outcomes alignment	**Infrastructure Fit for a Low-cost transition to net zero** Our future customer center will feature remote work capabilities and a flexible workforce model. Effective planning tools will optimise resource allocation and service delivery, enhancing customer satisfaction and reducing emissions, reflecting our commitment to environmental responsibility. **Quality of Service** Addressing digital exclusion and ensuring accessibility for all is crucial. Strategies to reach vulnerable customers will safeguard Cadent's reputation amid regulatory scrutiny and evolving energy data. **System efficiency & long-term value for money** Our delivery process, intertwined with customer touchpoints, holds the potential to significantly influence satisfaction scores and continue to improve the efficiency of our planning process.					

Table 8: Managing our engagement with customers

IT RIIO-3 Maintenance Baseline: Baseline capabilities and services delivered by IT	
Adopting a product-centric agile delivery model in IT emphasizes delivering value and organising IT delivery around specific customer journeys and associated value streams allowing us to achieve faster time to market, improved customer satisfaction, and increased efficiency.	
Background	Cadent's vision is to transform into a leading, agile technology utility, known for collaboration and driving a step change in our ways of working to achieve a sustainable future. This means shifting from siloed teams to collaborative, autonomous teams capable of managing the entire lifecycle of technology. Cadent will possess sufficient technical expertise to operationalise change without impacting service standards, supported by strategic partners.

[22] National Gas Emergency Service

Investment case	This investment reflects the level of funding required to maintain our existing IT estate and drive incremental improvement in the processes that we operate using those solutions. It also underpins our Hybrid Operating Model which is made up of internal and external capability that is focussed on Support and Maintenance. The key drivers of this investments are: • Compliance with Regulatory standards • Hardware Failure Risk • Support for Technology lapsing • Security Risk • Contract Renewals • Device Refresh The investment is made up of: • Internal Resource • Licensing • Service and Support Contracts • Service Management • Commercial and Contract Management • Licence Management • Infrastructure, Cloud and Application Support • Financial Assurance Failure to invest in our technology can lead to a reduction in safety and security, reliability, financial impacts, disruption to customers or other effects, depending on the technology that is affected. **Information Systems Framework and Efficiency:** We will need to re-tender the contracts for applications development, applications maintenance, service management integration, cyber security operations and printing during RIIO-2 and RIIO-3. There are no assets in this contract re-tendering activity, so the baseline asset plan for that investment is nil. However, we are required to go to market for contracts over the EU threshold, so our proposed plan includes some costs for moving to new suppliers. Overall, we believe our proposed plan to be challenging but appropriate: we are reducing costs where we can see opportunities to do so and investing more to improve customer service.
Our plan	The IT Operating Model has developed and matured over RIIO2 into a hybrid model that encompasses networks, cloud and infrastructure, and application management from support, maintenance, and delivery perspectives. This hybrid model is accountable and responsible for managing a secure, efficient, and reliable IT service, focusing on maximising productivity, managing risk, and optimising cost by leveraging the full potential of our technology partners to ensure a positive customer and colleague experience. The outcome has seen us become a product-centric organisation focused on delivering iteratively prioritised value into the business functions. We have organised ourselves around the following value streams: • Gas Engineering Operations and OT • Field Engineering and Customer Engagement • Corporate Services • Data & Analytics Products and Platforms • Digital Enterprise Platforms • Cyber Physical Security Each stream has dedicated Subject Matter Experts, led by Product Managers who act as the bridge into the various business domains. Within each stream there are several Product and Platform teams, typically 3 to 4, sized anywhere between 5 and 10 people per team depending on their demand pipeline / roadmap. Across all delivery teams, we have factored in a flat recharge rate of 40% of their time for funded initiatives, with the remaining capacity allocated across feature enhancements & development, support & maintenance, and learning & training activities. In addition to these value streams, we have also introduced two new capability practices that are fundamental to driving and enabling the new ways of working across agile delivery, namely: • Agile Practice • Digital Engineering.

	The Agile Practice focuses on establishing and developing further our core framework delivery roles and leads on the business change elements of our transformation, i.e. onboarding, coaching & training. Through GD3 our Product Teams will partner with our external partners to deliver the investments we have planned as well as projects that we will deliver through the Product Teams as part of our Business As Usual (BAU) capability.					
Planned expenditure during RIIO-3	[cost data]	26/27 [cost data]	27/28 [cost data]	28/29 [cost data]	29/30 [cost data]	30/31 [cost data]

Table 9: IT RIIO-3 Maintenance Baseline

3. Key IT&T risks and their mitigation

The below table summarises key IT&T risks and how we will mitigate those risks.

Risk	Planned Mitigation
Failure to Manage Technology Demand	Product Managers and Enterprise Architects partner with Business Owners to determine priorities, maintain a roadmap, assess opportunities and direct delivery within budgetary and resource constraints. Innovation and augmentation capabilities on demand from key IT partners. We have a core “Digital Spine” architecture designed to simplify the IT portfolio landscape and accelerate business transformation which reduces architectural and operational complexity, streamline vendor management, and leverage native capabilities and integrations with prebuilt business logic.
Resourcing Risk - IT function	Over the past few years, we have significantly expanded our IT department's size, capabilities, and services. We have appointed permanent Talent Acquisition Business Partners to collaborate closely with IT on our target operating model and transformation roadmap. This ensures we are appropriately staffed, have the right permanent roles, and attract outstanding talent to Cadent. We have created and continue to foster an exciting work environment and a journey that people want to be part of. Our ethos of relentless iterative improvement gives everyone the opportunity and a voice to contribute to enhancing the way we work, the services we offer, and the initiatives they can be involved in. We have established relationships with training partners and allocate time for our team members to develop their skills and experience.
IT / OT convergence introduces IT vulnerabilities into the OT domain	[Security-sensitive]. Our plan implements these strategies through which we aim to create a robust and secure environment with the associated operating model that effectively manages the risks associated with IT and OT convergence.
Access Management	We are implementing several initiatives and strategies, with a key focus on Privileged Access Management (PAM). [Security-sensitive]. We are also addressing risks in Identity and Access Management systems [security-sensitive]. The implementation of SuccessFactors HR provisioning to Active Directory, has significantly enhanced our identity and access management processes; providing a single, automated process for onboarding and offboarding of human end-user accounts, aligned to our HR master system of record, reducing manual administration. and improving the quality and maintenance of account information, including those of Third-Party workers (contingent and vendors). [Security-sensitive]. We are building on this platform to improve starters, movers and leavers processes, with greater automation and orchestration of provisioning and deprovisioning access to systems including role-based access to ensure users have the lowest level of access and permissions needed to perform their work.
Critical IT System Failure	To mitigate the risk of critical IT system failure we have implemented several key measures: • **Disaster Recovery (DR) Plan -** We have a comprehensive DR plan in place, which is documented in our Enterprise Service Management System. This plan defines the timing and frequency for when systems are taken down for testing, ensuring that critical systems are not taken down simultaneously. DR testing is performed annually, and any changes to the DR plan follow a standard change management process ensuing lessons learned are captured and appropriately actioned. • **Operating System Updates –** We are nearing the end of our programme of work to upgrade any out-of-date operating systems in our estate and have robust processes in place to ensure our systems are kept patched and updated

	with security patches and fixes, which also form part of any contract we have with software as a service (SaaS) providers. • **Vulnerability Remediation Plan -** We have a remediation plan in place to address vulnerabilities with high priorities (Severity 4 and 5). • **IT Vulnerability Forum -** We have established an IT Vulnerability Forum to bring together key stakeholders to capture a view of all vulnerabilities, discuss the risk to the business, and prioritize mitigation efforts. The forum assesses our existing plans, builds on them, and creates new plans and routes to mitigation. • Additionally, we have a Business Continuity Plan that outlines the framework to establish and maintain business continuity plans. This plan provides a clear view of what business processes need to be recovered within the recovery time objectives, the immediate steps to be taken following a disruption, and the mitigation strategies used to minimise the consequences of a disruptive incident.

Table 10: Key risks and planned mitigations

4. How we will ensure we have a resilient 24/7 telecoms network

Our essential critical services are designed for high availability and resilience, supported by a comprehensive test schedule to ensure service continuity. Our Support and Maintenance operating model functions 24x7x365, comprising both internal and third-party capabilities, including Event Management and Incident Response.

Additionally, our core systems provided by third parties are bound by contractual obligations to deliver resilient services, including continuous 24x7x365 Event Management and Support to an agreed SLA for availability, usability and incident response.

Our core critical foundational services that include Networks, Telephony, AWS, SAP and Microsoft are underpinned by a contractual 99.99% availability SLA that is achieved by having a secure Inter-Data Centre (resilient hardware, power and network connectivity within the Data Centre) as well as having a failover secondary Data Centre in a different geographical location, to provide resilience and business continuity and mitigate the impact should an area of the country experience a disaster i.e. blackout. This is governed and assured by Cadent's Internal Service Operations Team.

Cadent has identified a number of key initiatives to modernise, enhance or replace telecoms and IT infrastructure now considered sub-optimal given the significant advancements in technology since the incumbent infrastructure was installed. The principal driver is to ensure compliance and consistency with our target architecture that is 'secure by design' and enables Cadent to significantly bolster resilience across the network. Utilising the Regulator's eCAF programme as the catalyst for change, the IT and Telecoms investments contained herein provide the necessary cohesion with the investments detailed in Cadent's CRID documentation in Appendix 4[23].

The investments in this appendix can be categorised as modernising/enhancing/replacing, or the purchase of new systems and technologies, as elaborated upon below:

Modernising/Enhancing/Replacing:

- **Our investment 3 P8 Network Infrastructure** (see table 6 in section 2), involves the upgrade and replacement of all of the telecoms infrastructure across our CNI sites to mitigate the existing challenges with latency and bandwidth constraints and address network security vulnerabilities. Upgrading and replacing the existing IT communication networks is essential to support OT SCADA systems and facilitate IT/OT convergence. This investment will enhance operational efficiency, improve security, and provide a solid foundation for future growth. The predominant driver is the corresponding OT SCADA technology replacement planned as part of the eCAF funded programme which calls for the adoption of modern, digital technology that provides data on the whole SCADA network.

  Additionally, Cadent has been targeted to increase biomethane injections to support our ambition to enable up to 15TWh by 2032 and increase sensorisation to digitalise our assets. [Security-sensitive].

- **Continuing our investment to enhance Identity and Privileged Access Management (INV17)** (see table 3 in section 2), is of vital importance to evolve our ability to manage the digital identities of employees, contractors, partners, and other entities that require access to digital resources. It also involves managing machine identities. This ensures that non-human identities, like applications and machine identities, are managed effectively. Privileged Access Management is a subset of IAM that focuses on monitoring, detecting, and preventing unauthorized privileged access to critical resources. [Security-sensitive].

[23] Cyber Resilience, pages 4-10, and the supporting annexes 4a-d (CRIDs 1-4).

- **The current CRM and FSM platforms are soon to be end-of-life, so our RIIO-3 investments in Customer Engagement Transformation (INV01)** (see table 8 in section 2), and Modernising Field Sales Management (INV02) (see table 7 in section 2), take a holistic approach to replacement, that responds both to the modern ways that customers interact with us and also provides field engineers with unparalleled efficiencies in workflow management, reporting and digitalised interfaces. Increased resilience is driven by the decision to move to fully supported SaaS solutions for both platforms, and a move away from manual processes and traditional telephony

- **Our investment to Modernise our Energy Control Centre Applications (INV31)** (see table 5 in section 2), is designed to eliminate the challenges created by having numerous applications, each of them complex and tailored specifically for the gas industry, having developed over many years. This has caused overlapping functions and data silos in various apps, leading to inefficiencies and more operational complexity. Streamlining these applications will enhance efficiency, eliminate redundancy, improve system compatibility, foster innovation, and reduce risks in managing Critical National Infrastructure.

- **ERP Clean Core (INV28)** (see table 1 in section 2), Cadent's master ERP system is based on SAP. This investment is focused on the removal of complexities, enhancements and legacy data that resulted from the "brownfield" migration from SAP ERP 6.0 to SAP S/4HANA that took place in 2020, at a time when Cadent was not transformation ready. As well as the smart new capabilities available in S/4HANA, Cadent retains the inefficiencies and problems of the old system, which poses interoperability challenges and instability, and low confidence in the underlying data which does not support the target SAP architecture. We propose to invest in reestablishing a standard code base and cleansing the data repositories within the system, reconfiguring and decommissioning where necessary to achieve a clean core and a robust foundation for innovation. Clean data is central to our ability to assess risks and make better decisions, which feeds into general network resilience.

- **Our investment to Replace Meter Asset Repository /Gas Quality Information System (INV15)** see table 4 in section 2), is about removing legacy infrastructure from the estate. Marquis was implemented in 2015 and is built on SAP Portal infrastructure which has a bespoke calculation engine. The problems stem from the high latency and significant use of manual intervention, which is no longer suitable for current or future use cases, with each significant failure liable for penalties. Additionally, the existing platform reaches end-of-life in 2027. Cadent is expending money on tactical fixes to bridge the gap to RIIO-3.

  Our proposed new Meter Asset Repository and Gas Quality Information System uses sensors and advanced analytics to monitor gas quality and flow in real-time. This upgrade boosts network intelligence, enabling predictive maintenance, faster issue resolution, and more efficient operations, which enhances and future-proofs our network, thus increases resilience.

Purchase of New Systems

- **The Enterprise Risk Management (INV29)** (see table 2 in section 2), investment will represent a uniform system that standardises the way that risk is calculated, for example cyber, engineering, finance and operations, and will provide decision makers with the full impact assessment and calculation of a particular risk from different strategic lenses. This will inform better decision making when developing mitigation strategies to improve network resilience.

5. Our plans are efficient and deliverable

5.1. How we have costed our plan

How we have costed our plan

We have estimated the cost of investments by drawing on six sources of information:

- Workshops and collaboration – We held workshops to identify the IT&T solutions which are essential to the delivery of our plans. These sessions involved business experts, architects, product managers, and platform managers.
- Rough order-of-magnitude (ROM) costs estimation – We defined a list of projects and developed an outline narrative and scope. Initial ROM costs were provided by our trusted strategic supplier base as well as internal corporate knowledge of previous spend, duration, complexity, etc.
- Cost estimation – We used a cost estimation tool to summarise investment choices, specify preferred products or solutions, highlight key factors supporting each initiative, and address integration requirements with other systems.
- Market analysis - For our most significant and most complex investments, where we intend to deliver new capabilities or modernise our existing architecture, we ran Request For Information processes through our centralised procurement function to understand more on what the market offers, architectural choices and costs.
- Benchmarking and Assurance – Gartner has assessed our investments and BAU costs. Gartner's reports included feedback and made recommendations on our proposed approach, which we have actioned to reduce spend between the July draft submission and the final business plan submission.
- Ongoing spend - Cross referencing Gartner's work, we modelled the ongoing spend for our investments and BAU running costs.

5.2. How we have assured the deliverability of our plan

In line with our overall assurance approach, we have tested the deliverability of our RIIO-3 IT&T strategy, having first considered the progress we are making with our RIIO-2 business plan and the impact that RIIO-2 activities have on RIIO-3. We have also considered the impact of change activity across Cadent ensuring we have organisational as well as IT capacity to deliver the proposed investments.

We have developed a roadmap for all our RIIO-3 activities and have projected resource requirements, modelling the split between internal versus external resource allocation along with cost profiles for each key project, including existing, augmented, and planned recruitments.

Alongside project programmes, we have mapped the complexity and criticality of our investments which has allowed us to begin working on our most important investments now, which also coincides with the natural EOL of those projects meaning that our early year deliverables will be mobilised for year 1 of the price control and on schedule to be delivered as planned.

The above has allowed for us to understand key milestones within our investment programme, which has fed directly into the phasing of our plan, this will mean we have a robust delivery programme considering, resource, complexity, cost, criticality, supply chain constraints and how the investments tie into our overall strategic ambitions.

6. Glossary

Term	Definition
BAU	Business As Usual
BTP	Business Technology Platform
CAF	Cyber Assessment Framework
COE	Centre Of Excellence
COTS	Commercial Off The Shelf Solution
CRM	Customer Relationship Management
DR	Disaster Recovery
EOL	End Of Life
ERM	Enterprise Risk Management
ERP	Enterprise Resource Planning
FSE	Field Service Edge
FSM	Field Service Management
HPMIS	High Pressure Metering Information System
IAM	Identity Access Management
MFA	Multi Factor Authentication
OT	Operational Technology
PAM	Privileged Access Management
RIIO	Revenue = Incentives + Innovation + Outputs
ROM	Rough Order Of Magnitude
SaaS	Software as a Service
SAFe	Scaled Agile Framework
SCADA	Supervisory Control And Data Acquisition