

Atypical EJP

**Unified Asset Investment Portfolio
Management
(INV-50)**

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Summary Table

Title Section	AEJP 5 for Digitalisation Investment: Open Data Theme – Unified Asset Investment Portfolio Management
Name of Scheme	Unified Asset Investment Portfolio Management (INV-50)
Investment Driver	Development of unified Digital Interfaces to support the work of our asset management team, helping them to respond to the need for maturing analytical and insight capabilities. The investment will visualise and describe our Gas Networks alongside climate data, building and socio-demographic information, asset condition, investment and maintenance plans and workload. It will become the primary set of digital management tools for investment planning, climate resilience, and future energy scenarios.
BPDT/Scheme Reference Number	M8.19
Outputs	Unified portfolio planning and process for managing portfolios of investments, prioritising them, optimising resources and costs, and conducting scenario analysis Digital tools and processes to enhance asset management and planning, visibility into asset performance, risks, resilience and maintenance.
Cost	[cost-sensitive data]
Delivery Year	FY26/27 – FY30/31
Applicable Reporting Tables	N/A
Historic Funding interactions	No historic funding
Interactive Projects	INV-25 Evolution of Target Data Architecture, BPDT: Table M8.19 INV-28 Clean Core - Data Structure Alignment in the Digital Core, BPDT: C4.06

We expect the Spend apportionment table below to be merged with the summary table above but have included separately for accessibility purposes.

Spend Apportionment (£m)	(£m – 2023/24 prices)
RIIO-2	[cost-sensitive data]
RIIO-3	[cost-sensitive data]
RIIO-4	[cost-sensitive data]

1. Introduction

In response to our need to support Local Authorities in developing Local Area Energy Plans (LAEPs) and to better understand the impact of future energy pathways on Cadent networks, we have initiated a pilot project for whole system scenario analysis, known as Future Energy Explorer. This initiative aims to present consolidated information about our network through development paths for the networks in the future. The interface will also include data about properties and customers within Local Authority boundaries, along with assumptions regarding the cost and time required to transition to a net zero energy state.

The pilot solution has been demonstrated to internal and external Data Users to understand if this type of digital solution through dedicated User Interface enables data driven development of the LEAP strategies and future network plans and, if further investment in this type of a digital solution is required.

The received feedback from External and Internal Data Users was very positive and allowed us to develop a pipeline of future demand and discover the need for multiple digital interfaces that could be used to address different data needs in our organisation and further support our Stakeholders.

The pilot of our Whole System Scenario analysis solution introduced a consistent approach to transform raw data into the required input for regional planning. The Minimum Viable Product (MVP) of this solution needs to incorporate the use of Data Assets from our core platforms, including the data preparation algorithms to be replicated on the core data architecture enabling future scaling and expanding the solution with new functionality.

Due to the growing need to understand the impact of severe climate scenarios on our network and enable the development of a proactive strategy for increasing network resilience, we need to equip Climate Resilience Specialists with a similar digital solution that would allow them to assess and stress-test different climate scenarios to quantify and address the discovered risks.

The aggregated information about our network and estimations of the cost and time to transition to net zero made available through the pilot has led to a further use case being identified. This data driven approach to modelling scenarios of investment can be applied across our asset base. Developing a digital solution dedicated to running our Asset Investment Portfolio Management would provide better investment decisions and help optimise the ongoing investment in maintaining a safe gas network.

2. Background

Based on the Data Users' feedback we have developed a high-level scope for the investment, reflecting the needs of three main digital personas:

- **Network Asset Investment Specialist:** develop a unified Asset Investment Portfolio Management User Interface that allows for the simulation of scenarios for investment planning at different planning horizons, (see [Appendix 10¹](#)), incorporating the metrics and KPIs required for regulatory reporting.
- **Future Energy Specialist:** develop a Minimum Viable Product (MVP) and consecutive iterations of the Future Energy Explorer ensuing: alignment with our target data architecture, reusable Data Assets development to enrich the current set of Data Assets being made available to our Data Users to inform long-term investment strategies (see [Appendix 10²](#)); enhanced support for Local Authorities and Regional Planners in the development of their net zero plans.
- **Climate Resilience Specialist:** develop a digital interface that allows visualisation of the network and simulates the impact of different risk factors (climate scenarios) on the resilience of our network, enabling the planning of interventions and reliance adaptation pathways (see [Appendix 2³](#)).

¹ Network Asset Strategy, 4.1.1

² Network Asset Strategy, 4.1.2

³ Climate Resilience Strategy, 6.2.2

3. Optioneering

The analysis of options aimed to understand how to address partially overlapping data user needs, fulfil the required functionality, and determine whether our organisation's digital capabilities can support in-house development to realise the investment. The following options were considered:

Option 1: Buy an Asset Management Portfolio solution from the market.

This option had a significantly higher cost in comparison to the alternative option, and there was a risk that off-the-shelf product might not be customisable enough to incorporate the growing and evolving needs of the Data Users.

Asset Portfolio Management products are available in the market typically as independent platforms, which impacts on the cost of the solution. Given Cadent RIIO-2 investment in data warehousing and analytics platform capabilities, and the composable definition of the target data architecture principle, the option of purchasing another platform with partially duplicated capabilities was not in line with our architectural principles. It is also important to highlight the Data User needs are evolving in line with growing digitalisation capabilities in the organisation, therefore we need to consider the design of the Digital Products and Services that are easy to enhance, based on future User requirements.

Option 2 (Preferred): Develop 3 separate digital User Interfaces underpinned by common Data Assets.

We consider it is not going to be easy to meet all the User requirements through one digital solution. While the data required for climate resilience, asset management and whole system planning are partially the same, each Digital Persona has different objectives and scenarios to consider - trying to answer all the needs would result in a product that will be computationally heavy and difficult to scale.

This challenge could be mitigated by applying the architectural principle of decomposable elements, and by retaining the core calculations and development of required data inputs as additional Digital Assets. The focus would be on the integration of these Assets through separate User interfaces enabling customisation of the output in line with the requirements of each Digital Persona separately.

This approach allows:

- The solutions to be focused on presenting and aggregating only relevant data for a given business problem; and
- Individual evolution of each of the solutions at an independent timeline optimising the adoption of the solution by the Data User.

The technical components needed to address this investment will be delivered through the Data and Digitalisation capabilities established in the RIIO-2 period in combination with scenario modelling capability planned within our Interoperability investment theme: INV-25 Evolution of Target Data Architecture. To ensure overall data integrity, significant effort will need to be concentrated on data cleansing and the development of the appropriate Data Assets.

We envisage parallel development of the interfaces so we can release the value to Data Users early, in line with their collected feedback

4. Cost

The cost of the investment is driven by:

- Gross Staff Cost to support the delivery of the investment
- Product Ownerships and Architecture oversight of the solution
- Asset Investment data Subject Matter expertise
- Third Party Contactor Cost to increase the capacity of the team in the area of solution architecture, data engineering and UX development
- License and maintenance support cost for the solution throughout the RIIO-3 period.

Cost driver	Cost (£m – 2023/24 prices)
Gross Staff Cost	[cost-sensitive data]
Contractor Cost	[cost-sensitive data]
Licence Cost	[cost-sensitive data]
Maintenance and support cost	[cost-sensitive data]

Table 1: Investment cost

The diagram below illustrates the conceptual design that has been used to derive the cost estimates for the investment.

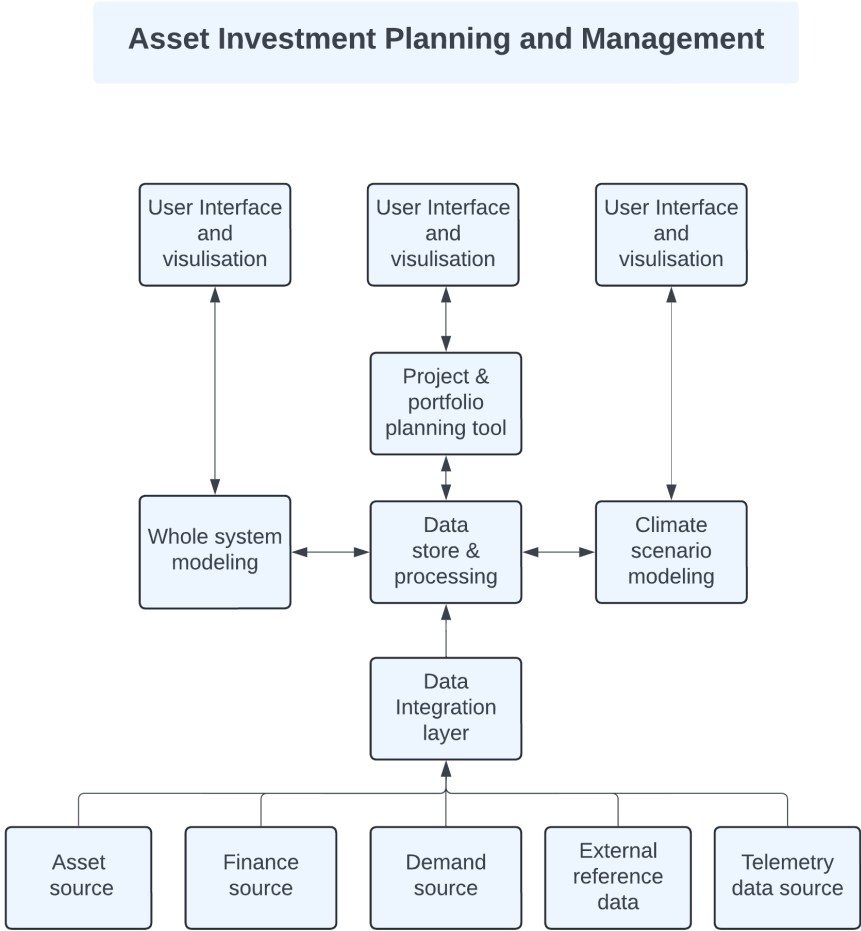


Figure 1: Conceptual design

5. Scope Overview

There are three ambitions to be realised through this investment:

- Digital solution with a dedicated User Interface (UI) and geospatial visualisation summary of an energy transition scenario with the ability for a Future Energy Specialist to flex assumptions and constraints to impact and assess different energy transition plans.
- Digital solution with dedicated UI and geospatial visualisation of chosen climate scenario impact on Cadent gas network with the ability for a Climate Resilience Specialist to modify the climate assumptions to stress-test the impact of extreme weather events on the resilience of Cadent Network.
- Digital solution with dedicated UI and geospatial visualisation of chosen Asset Investment scenario to understand the cost and impact of interventions and investments on Cadent Network and customers across different time horizons.

The investment of all digital interfaces shares the same high-level design, and the proposed success metrics for all is the time to complete the analysis by a Data User. Currently, the analysis of such complex scenarios is time-consuming and highly manual, therefore the ambition is to decrease the time-to-insight down to hours, instead of days.

The illustration below highlights the RIIO-3 Target Data Architecture landscape capabilities used in this initiative.

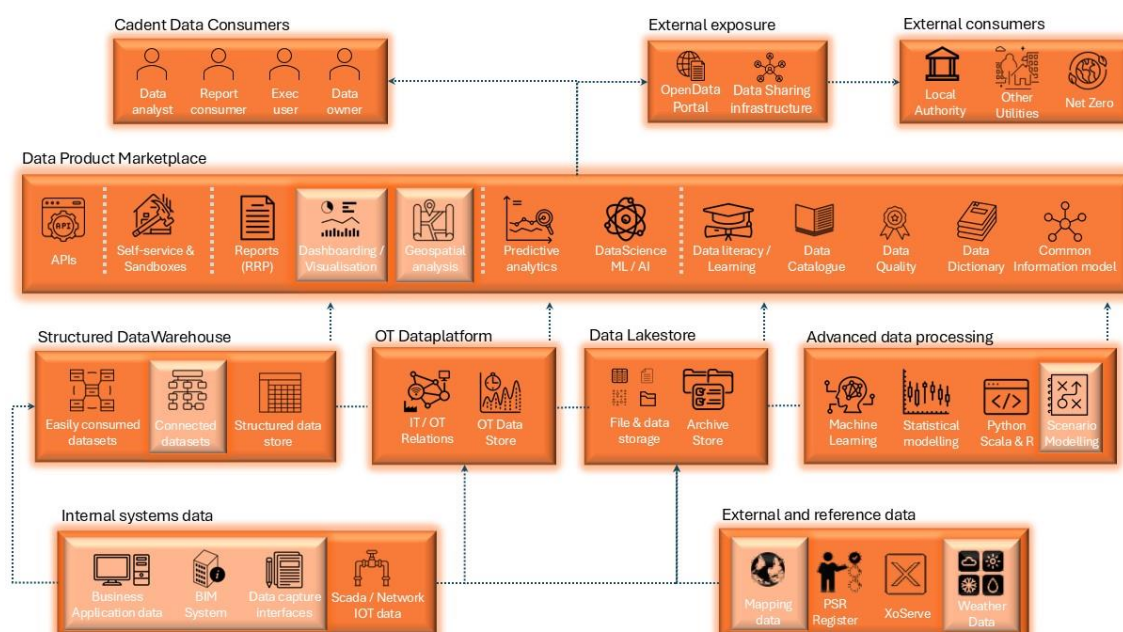


Figure 2: Data Architecture capabilities

6. Deliverability

The investment is a direct response to the ambition set out in our business plan, specifically those related to our Asset Management Strategy, Climate resilience, and the transition to net zero and increased Whole System planning. Subject Matter Experts (SMEs) from these areas will be part of our multidisciplinary delivery team in line with our Agile operating model to ensure prioritisation of the User needs and evolution of these digital interfaces in line with User requirements.

All three digital solutions require high-quality, interoperable asset data as a foundation, and it is anticipated that based on MVPs, the solutions will be iterated to increase complexity, automation and overall functionality. As these solutions are going to be new for our Data Users, the solutions need to be developed in iterations and incorporate User feedback to ensure applicability to business requirements and pace of adoption across our

organisation. The investment is therefore anticipated to be run throughout all 5 years of RIIO-3, to allow maturing through iterations.

Digitalisation RIIO-3 Roadmap	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31
Unified Asset Investment Portfolio Management (INV-50) in £m	[cost-sensitive data]	[cost-sensitive data]	[cost-sensitive data]	[cost-sensitive data]	[cost-sensitive data]

Table 2: Initiative timeline

The illustration below indicates how this investment contributes to the RIIO-3 Target Data Architecture landscape at Cadent.

7. Conclusion

This investment supports maturing our compliance with DBP Principle 5 and Principle 8 by delivering to the needs of internal Data Users: Asset Investment Specialists, Climate resilience specialists and net zero specialists.

The investment also requires very close collaboration between our SMEs, data platforms, and engineering teams, thereby introducing a wider group of our internal staff to digital solution development and digital product design, growing and maturing Data Culture and Digital Literacy within the organisation. The ambition is for Data Users to feel independent and competent in utilising the solution within their day-to-day activities and incorporate them within their ways of working.

The solution will deliver an improved Asset Management capability to Cadent and allow better Asset investment decisions to be made faster ensuring that the network is kept safe, and assets managed within their economic life cycle.

8. Glossary

Acronym	Definition
LAEP	Local area energy plans
MVP	Minimum viable product
SME	Subject matter expert
UI	User interface