national gas transmission

Operations Enablement

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RIIO-GT3 NGT_IJP01

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Operations Enablement IT investments

1   Summary table

Name of scheme	Operations Enablement
Scheme reference	TBD
Primary investment driver	Deliver compliance with IT asset health policy
Project initiation year	2026
Project close out year	2031
Total installed cost estimate (£)	███████████████████████) = £57.313m
Historic funding interactions	None
Project spend to date	£0
Current project stage gate	Not started
Reporting table ref	6.11, 11.2
Outputs	IT deliverables as detailed in the investment particulars

Spend apportionment	**T1**	**T2**	**GT3**
	£0	£0	£57.313m

2   Executive summary

This Investment Justification Paper (IJP) sets out our planned investments to sustain and enhance our operational field force capabilities and overall asset management, both core functions of our organisation.

The investments covered here are driven by a mix of delivering compliance, business outcomes and innovation. Compliance is largely to keep our systems secure and reliable in line with our IT Asset Health Policy. Business outcomes focus on the need to grow capacity to deliver the business plan, especially the Asset Management Plan (AMP), by further digitalisation of processes. Innovation is also driven by digitalisation and business outcomes, applying technologies in a new way to increase our operational process efficiency and effectiveness.

This IJP should be read in conjunction with the IT & Telecoms Strategy document[1] which describes the context, approach and overall portfolio for IT and Telecoms in RIIO-GT3. All investments in this paper are within our baseline plan.

The investments in this paper address the following key issues which trigger action:

- Ensure compliance with policy (e.g. IT asset health), regulation and legislation.
  - Compliance – our IT infrastructure provides and sustains the hardware upon which our business systems run. As with other IT assets, these systems and services contracts eventually reach end-of-life and investment is required. This is the primary driver of the investments in this paper.
  - Security – threats are constantly evolving and our systems need to be kept up to date with security requirements.
- Business requirements which enable the delivery of business outcomes.
  - Enhanced capabilities – opportunities are provided by new technology releases to improve the way in which the IT infrastructure is delivered and operated.

Investments in this paper primarily support two Ofgem key outcomes: Secure and Resilient Supplies (11 investments, Totex of ██████ and System Efficiency and Long-Term Value (2 investments, ███████████ There are two investments not in baseline and put forward under the Uncertainty Mechanism (UM). The reasons for excluding from baseline are explained in detail in the investment section.

The investments are listed below, aligned to the primary outcome and the trigger for action. Triggers are described in detail in the IT & Telecoms Strategy[1] section 3.3.3.

Ref	Investment Line	Trigger	Totex £m	Primary Outcome	Cost sub-category
IT 021	Refresh Field Force Devices	Deliver Compliance	██	Secure and resilient	IT & Telecoms
IT 022	Refresh Field Force Field Service Platform and Applications	Deliver Compliance	██	Secure and resilient	Digital process
IT 025	Remote Inspection Technologies	Deliver Innovation	██	Efficiency and value	Network monitoring
IT 026	Enterprise Asset Management tech health	Deliver Compliance	██	Secure and resilient	IT & Telecoms
IT 027	Enterprise Asset Management new capabilities	Deliver Outcomes	██	Secure and resilient	Digital infrastructure
IT 029	Supply Chain Optimisation	Deliver Outcomes	██	Secure and resilient	Digital infrastructure
IT 030	AIP Tech Health	Deliver Compliance	██	Secure and resilient	IT & Telecoms
IT 031	AIP New Capabilities	Deliver Outcomes	██	Secure and resilient	Digital process
IT 032	GIS Refresh and Tech Health	Deliver Compliance	██	Secure and resilient	IT & Telecoms
IT 033	Asset Protection and Surveillance Reporting Updates	Deliver Compliance	██	Secure and resilient	Network monitoring
IT 034	Safety and Risk System Capabilities	Deliver Outcomes	██	Secure and resilient	Digitising field works
	Total for baseline		██		
IT 023	Providing our Field Force with XR Capabilities – UM	Deliver Innovation	██	Efficiency and value	Digitising field works
IT 024	Augment Field Force Safety – UM	Deliver Innovation	██	Secure and resilient	Digitising field works
	Grand total		██		

Scope and volumes for each investment have undergone internal and external assurance. Costs have been developed 'bottom-up' using detailed resource plans and have been assured through benchmarking against industry comparators by Gartner, Inc.[2].

Options analysis has been carried out for each investment. This has considered various factors including cost, functionality, risk, alignment with IT architecture / strategy, business change impact, and the resulting ability to support the business and regulatory outcomes. Comparative analysis of these factors has prioritised achieving outcomes in the most cost-effective way.

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[1] NGT_A11_IT_and_Telecoms Strategy
[2] NGT_C01_Gartner Review of IT Costs and Benchmarking of comparable costs

3 Introduction

3.1 Scope of this paper

This IJP covers two areas of IT supporting core functions of work management and asset management:

Capability area	Focus
Work management	Planning, executing and recording the asset maintenance and operational support work done by our field force.
Future of asset management	Core asset records and processes to plan, invest and manage the lifecycle of assets.

The background and drivers for these two areas are described below. Investments for each will variously range over the whole of the 5-year period, as detailed in the cost profile and project plan for each investment.

Work management

Our investments in this capability area respond to two key challenges:

- Keeping the systems 'evergreen' by applying regular upgrades to ensure security and reliability of systems reaching end-of-life in RIIO-GT3.
- Extending capabilities to respond to business requirements, or to technology opportunities for improved efficiency and effectiveness. These are focused on making our field force better at what they do by giving them better tools or by automating processes to reduce the time spent on low value-add and laborious activities.

The RIIO-GT3 business plan requires our operational staff to support a much-enlarged asset investment delivery programme compared to RIIO-T2. Our capability to efficiently manage maintenance and support outages will be critical to the delivery of the AMP.

Future of asset management

The discipline of asset management is now established in the industry and through ISO 55001, a standard for asset intensive industries such as ours. As the discipline matures and digitalisation opportunities arise with new technologies, companies need to stay abreast of best practice. Our journey in this area continues and has been aided by our separation from National Grid, enabling us to focus on asset data structures and management processes specific to gas assets.

Our investments in this area cover the same two challenges as for work management, above. Our core capabilities are enabled by our Enterprise Asset Management (EAM) system, Geographic Information System (GIS) and Asset Investment Planning (AIP) systems. These contain our master asset records which support our processes and inform the rest of the industry, increasingly so with whole energy system management. They play a fundamental role in keeping the NTS safe, reliable and flexible.

3.2 What this document contains

Each investment described in this document has been developed through an iterative process of engagement with users, solution scoping and options analysis, and benefits confirmation. We have followed our SVC standard (Scope, Volume and Cost) data confidence standard – Non-AMP (IT)) in this process, descoping any investments that fell short of this standard. For more detail on how the scope, volume and cost of investments were developed, see the IT & Telecoms Strategy, section 3.4.

Each investment has the following sections which provide context, analysis, proposed way forward and spend profile:

- **Background and scope summary** – This section summarises the context of the system, the investments proposed to address issues and the business and regulatory outcomes that will be enabled. The trigger for action is made clear and the IT deliverables described. A problem / opportunity statement is provided, detailing the problems with the current systems and the implications of not investing.
- **Optioneering** – This section contains a description of the options considered to address the problems described above. It should be noted that definition of specific products is not part of the investment scope and options for technology / supplier selection will be carried out as part of the project lifecycle. IT products evolve quickly and this enables the best solution to be selected nearer the time. Option analysis has compared various factors including cost, functionality, risk, alignment with IT architecture / strategy, business change impact, and the resulting ability to support the business and regulatory outcomes. Comparative analysis of these factors has enabled us to prioritise achievement of outcomes in the most cost-effective way.

- **Preferred option** – The preferred option is identified, with a summary of the reasoning behind its selection and benefits.
- **Cost and deliverability** – The investment spend profile tables show the Capex and Opex (if applicable) profile for each investment over the five-year RIIO-GT3 period. Note that Opex can be either early work that is not capitalisable or a net increase in run the business (RTB) cost e.g. from new software licences. Increased RTB Opex is captured here, rather than in the RTB business plan so that it is clear what is changing.

Costs have been developed from bottom-up analysis and informed by historic costs, supplier discussions, quotations and tenders and reach the standard set out in our policy: SVC Data Confidence Standard v1 Non-AMP (IT). These tables also give a comparison benchmark range provided by Gartner, Inc. who have carried out a detailed examination of the scope and proposed cost and used global comparators to give an upper and lower range. See the IT & Telecoms Strategy, section 3.4.3 for more detail on the iterative process of alignment with benchmarks. The Gartner IT benchmarking consultant's report is provided separately.

A high level project plan is provided that shows activity timing by year.

This section references the IT & Telecoms Strategy document for details of cost drivers and for deliverability as these aspects are common to all investments.

4   Capability 1: Work management

Our consumers have highlighted the importance of our network remaining safe and resilient to allow for the continued safe provision of gas throughout the National Transmission System (NTS) and across the country. Through RIIO-GT3 we will be increasing the size of our operations workforce to ensure we can continue to maintain our existing assets and support new assets as we transition to Net Zero. The growth in the RIIO-GT3 operational capex plan is significant and requires IT enablers of capacity increase. In capital work, design and construction capabilities will be enhanced by using Building Information Modelling (BIM), digital twins and collaborative tools to manage data seamlessly throughout the asset lifecycle. In field operations, smarter maintenance policy enabled by better asset performance data will enable more availability in Operations and on the NTS for construction to be carried out. Our growing team of field engineers require smarter digital work management (DWM) technology to enable them to manage and maintain our assets with greater efficiency and to ensure safe operations and business continuity in a rapidly changing industry.

There are five investments in this area, as follows:

Platform	Capability	Investment	£m
DWM / Field Force Application	Work Management	IT 021 - Refresh Field Force Devices	■
		IT 022 - Refresh Field Force Field Service Platform and Applications	■
		IT 025 – Remote Inspection Technologies	■
		IT 023 – Providing our Field Force with Extended Reality (XR) Capabilities – UM	■
		IT 024 – Augment Field Force Safety – UM	■

4.1   IT 021 – Refresh Field Force Devices

4.1.1   Background and scope summary

Problem / Trigger	Strategy	Business Outcome	Primary Regulatory Outcome	Cost sub-category
Asset health – end-of-life hardware	Refresh	Operate safely, reliably, and flexibly – refresh devices	Secure and resilient supplies	IT & Telecoms

To maintain our IT asset health, we need to periodically replace the devices used by our field force, in line with our asset health policy. This investment ensures these devices remain safe to use on operational sites and secure when accessing the National Gas systems. The investment mitigates the likelihood of faults due to ageing technology by keeping the devices in support and maintaining the performance. This continues the policy applied through RIIO-T2. The volume of devices is 1330 and is based on our current field force plus growth defined in our workforce strategy (1000) and an allowance for asset-health refresh of one third of the population within the period (330).

The scope of this investment is those devices designed for use in the field. These are typically ruggedised and intrinsically safe devices which are separate from the normal office laptops and tablets whose asset health replacement is covered in the Enterprise Essentials Infrastructure IJP (investment IT 007).

The technology refresh will also provide the platform to enable new capabilities to our field force to deliver modernisation of our asset maintenance (see IT 022 and 023 below). During RIIO-GT3, we will provide our field force with new devices that allow for improved connectivity and access to new capabilities, such as Extended Reality (XR), that will support the capture of accurate, near real-time data from the field and increase safety for our field force and assets.

This investment strengthens compliance with the following Data Best Practice principles:

- 9. Protect Data Assets and systems in accordance with Security, Privacy and Resilience (SPaR) best practice.
- 10. Store, archive and provide access to Data Assets in ways that ensure sustained benefits.

Problem / opportunity statement

IT assets have a defined lifespan, after which their performance, security and reliability starts to suffer and support costs rise. Without this investment, our field force would lose the ability to access asset information, receive work and log results, or carry out administrative tasks without returning to (often distant) offices.

4.1.2   Optioneering

The options for this investment were selected to contrast the outcome of not investing with alternative ways of achieving the target outputs. These alternatives are limited to supplying the devices through a leasing option or continuing with purchasing devices directly. The option of changing the asset refresh frequency was not considered as it is against our IT asset health policy (which itself is in line with industry norms).

The table below sets out the options considered for this capability.

Ref.	Option Description	Pros	Cons
DNI	Do not invest	• No investment required	• Decreased hardware performance. • Increased hardware downtime. • Higher cost of maintaining and supporting ageing devices. • Increased effort required to implement and run new software applications. • Compatibility issues. • Security vulnerabilities. • Inability to exploit new technologies such as Extended Reality due to using out of support devices. • Reduced employee satisfaction.
A	Device refresh every three years and purchase new devices to support expanding workforce. **Recommended**	• Improved performance. • Ability to exploit new technologies. • Ensures devices remain supported. • Enhanced cyber security. • Employee satisfaction. • Predictable costs. • Ensure that future safety requirements are met for intrinsically safe devices.	• Device refreshes contribute to electronic waste, which may raise environmental concerns if not managed responsibly. • Purchasing new devices regularly requires a significant upfront investment.
B	Device leasing – DaaS	• Ability to exploit new technologies. • Cost distribution. • Scalability. • Maintenance and support. • Access to the latest technology. • Streamlined Device Management. • Reduce the environmental impact.	• Over the duration of a lease, the total cost may be higher than purchasing devices. • Dependency on service providers for device availability and service quality. • Limited ownership and control over the hardware.

4.1.3   Preferred option

We recommend Option A (Device refresh every three years and purchase new devices) as this will ensure we can continue to provide the field force with secure and supported devices that enable them to continue managing the network assets. It will allow us to procure devices that will be owned by National Gas, increasing the control and security we have over the devices and

data within them, and we can utilise the newest technologies, such as access to new XR capabilities to aid the field force in completing their work.

Consumer / stakeholder benefits

The benefit gained by external parties is:

- Improved safety and reliability – by ensuring we regularly update the devices our field force use, we not only keep the devices safe and secure but we can utilise technologies that will allow them to maintain the NTS more effectively.

4.1.4   Cost and deliverability

The cost drivers for this investment are in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.3. Costs are for the full scope of deliverables as described above. Deliverability of this investment is in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.5.

The spend profile and delivery plan are shown below.

IT 021 – Refresh Field Force Devices							Gartner Benchmark Range		Gartner Rating
Investment (£m)	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Totals	Low	High	
CAPEX	■	■	■	■	■	■	■	■	

These costs are based on field workforce forecasts (1330) and ▨ per device. This unit cost fell within the Gartner benchmark range.

The project plan for this investment is detailed below. It includes an initial rollout of devices to new resources at the start of RIIO-GT3, in line with the expanded workforce plan required to deliver the Asset Management Plan (AMP). This is followed by a refresh of existing devices midway through RIIO-GT3, and a subsequent refresh of devices issued earlier in the period.

	FY 26/27	FY 27/28	FY 28/29	FY 29/30	FY30/31
IT 021 – Refresh Field Force Devices	▶	▶	▶	▶	▶

4.2   IT 022 – Refresh Field Force Service Platform and Applications

4.2.1   Background and scope summary

Problem / Trigger	Strategy	Business Outcome	Primary Regulatory Outcome	Cost sub-category
Asset health – complex, limiting and expensive software. End of contract.	Refresh and enhance	Operate safely, reliably, and flexibly – refresh software	Secure and resilient supplies	Digital process

In RIIO-GT3, we will invest in a replacement field force service platform. This platform is used by the field force to receive Work Orders, register defects, capture data on our assets and complete Work Orders, allowing them to deliver their work plans. The current field service platform, Digital Workforce Manager (DWM), is heavily customised and we need to replace it to improve support costs and overall health of the IT asset. The contract renewal date of November 2026 provides an opportunity to evaluate and procure the best solution for our needs.

Volumes for licenses are based on 1000 field workers and renewal of the central platform.

Refreshing the platform will also enable improved maintenance processes that enhance the safety of our assets and employees, increase the capacity of our workforce to deliver the AMP, and enable cost-effective maintenance. Improvements will include:

- Enhancing our data capture and script capabilities for improved data accuracy and efficient financial reporting.
- Building a platform tailored to existing and prospective new gas assets resulting from the transition to Net Zero.
- Providing access to all information required, including drawings, historical asset data and asset condition data at the point of work through a single-pane-of-glass user experience.
- Allowing technicians to view 3D models of our assets.
- Creating a channel for our technicians to request support or on-the-job assistance through the application at the point of work.

- Viewing outputs from our new Asset Performance Management and Remote Inspection capabilities to inform maintenance.
- Further improvement in compliance with the following Data Best Practice principles:
  - o 4. Enable potential Data Users to understand Data Assets by providing supporting information.
  - o 5. Make Data Assets discoverable for potential Data Users.
  - o 6. Learn and deliver to the needs of current and prospective Data Users.
  - o 9. Protect Data Assets and systems in accordance with Security, Privacy and Resilience (SPaR) best practice.

Problem / opportunity statement

The current DWM platform has limitations in the data that can be accessed, data capture capabilities and the user interface features. These provide barriers to further digitalisation of the operational tasks and to efficiencies for our field force. It is also expensive to maintain and support. The contract renewal in 2026 provides an opportunity to address these issues.

4.2.2   Optioneering

The options for this investment were selected to contrast the outcome of not investing with alternative ways of achieving the target outputs. These alternatives were to continue to develop the existing platform (B) or to invest in a new platform (A) to address the issues.

The table below sets out the options considered for this capability.

Ref.	Option Description	Pros	Cons
DNI	Do not invest	• No investment required	• Increased maintenance and support costs. • Poor data quality and restrictions in improving asset management capabilities. • Increased cost and effort to upgrade applications. • Poor user experience (UX) and employee satisfaction. • Restrictions in improving data capture capabilities. • Inability to exploit new technologies to accelerate training, on the job support and access to information.
A	Invest in replacement field force platform and applications **Recommended**	• Systems and IT capabilities remain safe and secure. • Improved safety of employees through on the job support and access to information. • Improved productivity due to increase in first time fixes through access to required information and expertise on job. • Increased asset management decision making capability & safety of assets through improved work management and ability to capture more timely and accurate asset data. • Increased employee satisfaction.	• Investment required. • Business change impact due to moving to a new solution.
B	Continue to invest in developing DWM	• Ability to resolve UX issues. • Can access a proportion of new technologies and capabilities. • Improvement to some asset management capabilities. • Reduced business change impact.	• Increased cost to deliver changes. • Increased support costs. • Increased cost to exploit new technologies. • Not an optimal UX.

4.2.3   Preferred option

We recommend Option A (Invest in new field force platform and applications) – by improving the technology that our field force use to maintain our assets, we will be able to enhance our asset management capability through better data quality and improved incident response, ensuring a safe and reliable NTS.

Consumer / stakeholder benefits

The benefits gained by external parties is improved safety and security of supply through more efficient and effective asset maintenance and data capture.

Official – Sensitive commercial

4.2.4   Cost and deliverability

The cost drivers for this investment are in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.3. Costs are for the full scope of deliverables as described above. Deliverability of this investment is in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.5.

The spend profile and delivery plan are shown below.

IT 022 – Refresh Field Force Service Platform and Applications							Gartner Benchmark Range		Gartner Rating
Investment (£m)	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Totals	Low	High	
CAPEX	▮	▮	▮	▮	▮	▮	▮	▮	
OPEX	▮	▮	▮	▮	▮	▮			

These costs are based on field workforce forecasts and an average unit cost of approximately ▮ per year per technician. This unit cost fell within the Gartner benchmark range.

The project plan for this investment is set out below and shows replacement of the DWM platform in the first two years following by annual maintenance cycles.

	FY 26/27	FY 27/28	FY 28/29	FY 29/30	FY30/31
IT 022 – Refresh Field Force Service Platform and Applications	➤	➤	➤	➤	➤

4.3   IT 025 – Remote Inspection Technologies

4.3.1   Background and scope summary

Problem / Trigger	Strategy	Business Outcome	Primary Regulatory Outcome	Cost sub-category
Technology opportunities to increase capacity through remote monitoring	Innovate	Operate safely, reliably, and flexibly	System efficiency and long-term value for money	Network monitoring

Through new technology developments being used in energy and utilities[3], it is now possible for us to view, inspect and access assets without a member of our field force visiting the location. This allows for more continuous monitoring of the assets for earlier fault detection and reduces the need for workers to access potentially dangerous environments, creating a safer NTS for our consumers and colleagues. It also increases efficiency, avoiding often lengthy travel times.

In RIIO-GT3, we will utilise cameras, drones, sensors and AI technology to detect changes in assets, identify potential defects and determine when maintenance or human inspection is required. This reduces the need for our field force to carry out the same volume of routine inspections in remote locations so that they can focus on more safety-critical maintenance work and increase the capacity available to deliver the AMP. Through selection of appropriate sites, this technology will also deliver safety benefits to our employees by reducing the number of visits they need to make to hazardous environments to perform inspections. This will also reduce Opex by reducing the travel, preparation time and time taken to perform inspections.

We have identified drones and fixed cameras as the camera technology that can be used, and each site and inspection type will be assessed to determine which technology is more appropriate. Drones will be used where there are requirements to perform inspections at height (such as used by Sund & Baelt[4]), within tight or confined spaces and where there is the requirement for closer inspection of assets, whereas camera technology is more applicable for site level inspections or to detect potential heat changes and or leakages around assets.

This investment will deploy remote inspection technologies to prioritise sites based on cost benefit of installation. The scale of this investment has been reduced following tighter prioritisation based on criticality of sites. The volumes planned are ▮ sites (above ground installations) each with ▮ cameras, and ▮ drones either based at sites or in vans.

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[3] https://www.unitedutilities.com/corporate/newsroom/latest-news/automated-asset-inspection-unlocks-miles-of-data-and-speeds-up-pipeline-repair/#:~:text=VAPAR%20uses%20a%20'Collaborative%20Intelligence,Network%20Monitoring%20(DNM)%20platform.

[4] https://www.ibm.com/case-studies/sund-and-baelt

This innovation will further progress the digitalisation of operational processes and strengthen compliance with the following Data Best Practice principles:

- 9. Protect Data Assets and systems in accordance with Security, Privacy and Resilience (SPaR) best practice.
- 10. Store, archive and provide access to Data Assets in ways that ensure sustained benefits.

Problem / opportunity statement

Visiting sites regularly to inspect assets is expensive, taking time out from maintenance and defect resolution for a highly qualified workforce. Technology is now available to use structured and unstructured data (e.g. video feeds) and apply advanced analytics to carry out the inspections remotely and provide alerts for follow-up actions. This provides an opportunity for cost savings, enhanced workforce safety (through less travel and fewer visits to hazardous areas) and enhanced inspection levels through constant monitoring.

4.3.2 Optioneering

The options for this investment were selected to contrast the outcome of not investing with alternative levels of target outputs. These alternatives A and B reflect different scales of implementation and site coverage.

The table below sets out the options considered for this capability.

Ref.	Option Description	Pros	Cons
DNI	Do not invest	• No investment required	• Existing cost of manual inspection. • Capacity required for existing volume of visual inspections, impacting time to resolve defects and perform maintenance. • Existing volume of inspections performed in hazardous areas. • Dependency on contractors to provide access for certain inspections (e.g. scaffolding), with high costs. • Sustained difficulty identifying and viewing locations to respond to third party sightings and risks.
A	Invest in new blended remote inspection capabilities on selected sites to reduce dependency on technicians to access remote and hazardous locations to perform inspections. **Recommended**	• Increase in time available to technicians to resolve defects, perform maintenance activities and deliver the AMP. • Reduction in requirement for technicians to access hazardous areas. • Increased productivity and cost savings by reducing dependency on contractors for providing access for certain inspections (e.g. scaffolding). • Increased responsiveness to third party sightings through ability to identify high-risk locations with drones.	• Investment required. • Increased volume of devices to support remote data capture.
B	Invest in new blended remote inspection capabilities on all sites to reduce dependency on technicians to access remote and hazardous locations to perform inspections.	• Greater increase in time available to technicians to resolve defects, perform maintenance activities and deliver AMP. • Reduction in requirement for technicians to access hazardous areas. • Increased productivity and cost savings by reducing dependency on contractors for providing access for certain inspections (e.g. scaffolding). • Increased responsiveness to third party sightings through ability to identify high-risk locations with drones. • Constant visual monitoring of larger portion of NTS.	• Higher investment required. • Increased volume of devices to support remote data capture. • Reduced benefit on installing on sites where technicians are based. • Increased installation effort.

4.3.3 Preferred option

We recommend Option A (Invest in new capabilities on selected sites to reduce dependency on technicians to access remote and hazardous locations to perform inspections) to provide our field force and asset management teams with improved data and visibility of our assets, for sites prioritised by logistical complexity or safety implications, to drive field force productivity, cost efficiency and increase safety.

Consumer / stakeholder benefits

The benefit of this investment is:

- Improved safety and reliability – the ability to remotely inspect our assets will not only enhance the safety of the working conditions for our workforce, it will also improve NTS safety and reliability by removing the dependency on human intervention for identifying potential faults or defects, instead replacing this with constant monitoring.

4.3.4 Cost and deliverability

The cost drivers for this investment are in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.3. Costs are for the full scope of deliverables as described above. Deliverability of this investment is in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.5.

The spend profile and delivery plan are shown below.

IT 025 – Remote Inspection Technologies							Gartner Benchmark Range		Gartner Rating
Investment (£m)	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Totals	Low	High	
CAPEX	■	■	■	■	■	■	■	■	▪▪▪

These costs are based on installations at a prioritised set of ■ above ground sites.

The project plan for this investment is set out below and shows the development and installation project in the middle of the period.

	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31
IT 025 – Remote Inspection Technologies		▶	▶		

4.4 IT 023 – Providing our field force with XR capabilities – UM

4.4.1 Background and scope summary

Problem / Trigger	Strategy	Business Outcome	Primary Regulatory Outcome	Cost sub-category
Time to train. Operations capacity.	Innovate	Deliver sustainable value for our customers and stakeholders	System efficiency and long-term value for money	Digitising field works

This investment is being put forward under the Uncertainty Mechanism. Whilst the technologies proposed are becoming mainstream, it is felt that they are too early in their lifecycle to commit at present and we will review progress within RIIO-GT3.

Extended Reality (XR) encompasses a range of technologies, including Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR), which alter the way users interact with and experience the physical world by blending the digital and physical environments. XR technologies use a combination of sensors, displays, and software to create immersive and interactive experiences that can simulate, enhance, or transform real-world situations.

This technology is coming of age and consultants PwC have reported[5] that "In the UK, the industries that lead the adoption of XR are engineering and manufacturing (24.13%), retail and consumer (10.90%) and professional services (10.65%)".

We will create virtual assets in simulated environments that replicate real-world conditions or enhance real-life scenarios with digital information. This will allow technicians to interact with and learn to maintain assets in a safe, non-live setting before

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[5] The business benefits of XR are real and all around us - PwC UK, https://www.pwc.co.uk/issues/technology/immersive-technologies/how-uk-organisations-use-vr-ar/business-benefits-of-xr-are-all-around-us.html

performing maintenance on the physical assets. This technology is one of the areas benefiting from digital twins (which are a key part of our investments in the Data Foundations, AI & Smart Networks IJP, (ref. NGT_IJP005) and is a growing part of digitalisation in network asset industries.

With the introduction of new assets, blended gas and a changing future energy system, our growing workforce will be required to complete different training on new systems and assets more quickly. Our Operations business will be establishing new training centres throughout RIIO-GT3, and we will implement XR capabilities to ensure we can deliver accelerated training safely and provide modern on the job assistance to our field force. Faster training will enable us to have the required capacity to deliver the AMP.

Additionally, this will support our operational staff in responding to the changing energy market and new assets being introduced to the NTS and an increased volume of connection points as we drive towards Net Zero. We will train them in new competencies, streamline the issuance of permits for skilled work, provide access to real-time asset information, and offer enhanced on-the-job support.

These capabilities will better attract and retain new talent by decreasing the amount of time it takes to get our field force from onboarding to achieving competencies required to deliver work on our assets. It will aid in addressing the challenges presented by an ageing workforce by enabling better transfer of knowledge to new field force operatives.

Extended Reality removes the requirement for all training to be completed on physical assets and instead uses like-for-like digital assets. As well as accelerating training timelines, this will enable digital overlays onto assets whilst work is being completed. Benefits will include reduction in time and cost required to develop new capabilities in our workforce, increase in our workers' safety, development of new skills, and support improved data capture and sharing, more accurate defect tagging and increased first-time fixes.

We have started work utilising this technology through our internal innovation team and working with the recently acquired engineering consultancy Premtech. Premtech completed a successful proof of concept, custom built for National Gas, demonstrating how a virtual environment could be used to train engineers, and they also built digital 3D models of our FutureGrid site to demonstrate how they can support management and understanding of our assets.

Our innovation team have already given a demonstration to the business on how VR technology could improve how we deliver training as an organisation. They are expanding this to complete an innovation project in RIIO-T2 to prove how the technology can reduce time taken to deliver training to workforce and accelerate obtaining competencies.

We will build on this to develop a new capability by investing early in RIIO-GT3 to develop an initial use case and deliver the expected employee experience, then gradually expand the use of XR to additional cases throughout the period.

These enhancements will further improve compliance with the following Data Best Practice principles:

- 4. Enable potential Data Users to understand Data Assets by providing supporting information.
- 5. Make Data Assets discoverable for potential Data Users.
- 6. Learn and deliver to the needs of current and prospective Data Users.

Problem / opportunity statement

Training new operational field workers takes time - up to two years to reach full competency. The current process involves work shadowing and learning by experience through watching a qualified technician. This is slow, inefficient and does not necessarily provide the opportunity to see all aspects of the work. New asset types, techniques or procedures cannot be practiced until they are rolled out. Further, working on live gas assets during training and infrequent activities inherently present an element of safety risk for personnel, the public and the environment.

Using digital XR training enables all types of assets and situations to be created in a virtual space, complementing work shadowing and on-the-job training and enabling risk-free learning and accelerating the route to qualification. This will be key to increasing our capacity to deliver the AMP.

4.4.2   Optioneering

The options for this investment were selected to contrast the outcome of not investing with an alternative to achieve the target outputs. Only one alternative is assessed, based on identified use cases. Other scope options have not been explored as this is under the UM and will be confirmed at a later date.

The table below sets out the options considered for this capability.

Ref.	Option Description	Pros	Cons
DNI	Do not invest	• No investment required	• Inability to exploit new technologies that increase the capabilities and improve the safety of our field force and the NTS. • Inability to grow our workforce as required by the business plan and AMP.
A	Implement solutions and procure devices to deliver XR use cases for training and on the job support to technicians. **Recommended**	• Accelerate the delivery of training and increased competencies of our workforce. • Improve the safety of our workforce by accessing real time on the job assistance and 3D models. • Improve the reliability of the data of our assets by allowing technicians to interact and update digital asset data overlaid on physical assets.	• Investment required. • XR technology is still a growing and rapidly developing market where early adoption may not be beneficial.

4.4.3   Preferred option

We recommend Option A (Implement solutions and procure devices to deliver XR use cases for training and on the job support to technicians) so that we can deliver accelerated training to our growing workforce to ensure they have the required competencies and certifications to begin work faster, and to deliver on the job support to technicians maintaining a changing NTS.

Consumer / stakeholder benefits

The benefits gained by external parties are:

- Improved safety and reliability – adopting XR technology will allow the field force to maintain assets more efficiently and follow safe process through on-the-job support and increase our workforce competencies to enable a more skilled workforce to better maintain our assets.
- Reduced environmental damage – by reducing the time it will take our workforce to upskill in managing new assets we can ensure readiness for the drive to Net Zero and ensure timely delivery and management of new assets.

4.4.4   Cost and deliverability

The cost drivers for this investment are in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.3. Costs are for the full scope of deliverables as described above. Deliverability of this investment is in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.5.

The spend profile and delivery plan are shown below.

IT 023 – Providing our Field Force with XR Capabilities							Gartner Benchmark Range		Gartner Rating
Investment (£m)	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Totals	Low	High	
CAPEX	▬	▬	▬	▬	▬	▬	▬	▬	▮▮▮

This investment is near the High Gartner Benchmark price due to the need to create custom training scenarios and competency awards that meet the requirements of our engineering policies and safe management of our assets. For this reason, we will not be able to take a standard, off the shelf product and will need to invest in configuring a solution that works for National Gas.

The project plan for this investment is set out below and shows front loaded development of use cases for training.

	FY 26/27	FY 27/28	FY 28/29	FY 29/30	FY30/31
IT 023 – Providing our Field Force with XR Capabilities	➤	➤	➤	➤	

4.5   IT 024 – Augment Field Force Safety – UM

4.5.1   Background and scope summary

Problem / Trigger	Strategy	Business Outcome	Primary Regulatory Outcome	Cost sub-category
Technology opportunities for increased safety and productivity	Innovate	Operate safely, reliably, and flexibly	Secure and resilient supplies	Digitising field works

This investment is being put forward under the Uncertainty Mechanism. Whilst the technologies proposed are becoming mainstream, it is felt that they are too early in their lifecycle to commit at present and we will review progress within RIIO-GT3.

Modern technology allows us to provide our field force with more than the traditional devices to capture or receive data, and is already being used to boost productivity and worker safety in manufacturing[6]. Wearable technology, including smart watches, sensors and communication devices, enables data communications without the need to carry a large device. This enables workers to maintain assets more effectively, improving the safety of the network and reducing the time taken to carry out work, driving consumer cost benefits.

Wearable technology provides the opportunity to improve both the safety and productivity of our field force. By providing connectivity and sensors that monitor safety-critical parameters, such as environmental conditions or biometric data, wearable technology empowers technicians to make informed decisions, communicate with colleagues and allows for improved monitoring of lone workers - reducing potential workplace accidents and improving occupational and process safety. With this technology, a field worker can swiftly respond to emergencies, access vital resources, and send and receive data, all while maintaining focus on their job, thus enhancing their safety in the field and increasing productivity.

This investment will build on the Innovation project on wearables that is currently planned for 2026/27 and uses a planning volume of 1000 field users with a mix of intrinsically safe and otherwise devices, reflecting the mixed circumstances of the field work.

These enhancements will further the digitalisation of operational processes and strengthen compliance with the following Data Best Practice principle:

- 10. Store, archive and provide access to Data Assets in ways that ensure sustained benefits.

Problem / opportunity statement

New technology is now established in the market that provides opportunities for enhancing the safety and productivity of our field workers. In the same way that tablets replaced unwieldy laptops, wearable technology provides better ways of digitalising operational work without impeding the physical activity. Cost effective, small bio-sensors, such as in smart watches, provide opportunities to better safeguard the lone worker in the field.

4.5.2   Optioneering

The options for this investment were selected to contrast the outcome of not investing with alternative ways of achieving the target outputs. Only one alternative is assessed, based on identified technologies and use cases. Other scope options have not been explored as this is under the UM and will be confirmed at a later date.

The table below sets out the options considered for this capability.

Ref.	Option Description	Pros	Cons
DNI	Do not invest	• No investment required	• Inability to exploit new technologies that increase the capabilities and improve the safety of our field force and the NTS. • No "hands free" data capture capability implemented, requiring users to stop work to capture data and utilise handheld devices which decreases productivity and data quality.

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[6] https://www.apple.com/uk/business/enterprise/success-stories/manufacturing/volvo/

			• Inability to access new data points to improve management of workforce stress and fatigue, and reduce sick leave
A	Implement a multi device strategy for our field force	• Ability to exploit new technologies that will allow for increased safety of our colleagues and the NTS through biometric data and understanding dangerous environments through environmental condition data. • Utilise new available data to better manage workforce health, fatigue and stress levels. • Improved data quality and productivity of the workforce through implementation of "hands free" data capture. • Removal of manual paperwork and data entry. • Ability to respond to emergencies more quickly through faster alerts via wearable devices.	• Investment required. • Increased volume of devices to manage.

4.5.3   Preferred option

We recommend Option A (Implement a multi-device strategy for our field force) so that we can start to use the capabilities provided by a wider range of technology and devices to allow us to better monitor the safety of our workforce and improve productivity.

Consumer / stakeholder benefits

The benefits gained by external parties is:

- Improved safety and reliability – the adoption of wearable technology will allow our field force to be better connected and protected, therefore having a greater ability to ensure the safety of the NTS.

4.5.4   Cost and deliverability

The cost drivers for this investment are in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.3. Costs are for the full scope of deliverables as described above. Deliverability of this investment is in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.5.

The spend profile is shown below.

IT 024 – Augment Field Force Safety							Gartner Benchmark Range		Gartner Rating
Investment (£m)	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Totals	Low	High	
CAPEX	▮	▮	▮	▮	▮	▮	▮	▮	▮

The project plan for this investment is set out below and shows a mid-period project to develop and deploy new technologies.

	FY 26/27	FY 27/28	FY 28/29	FY 29/30	FY30/31
IT 024 – Augment Field Force Safety			➤		

5   Capability 2: Future of Asset Management

We will continue to invest as a business in our operational asset base throughout RIIO-GT3, delivering a larger and more complicated Asset Management Plan (AMP) and progressing towards Net Zero. Asset management related systems are critical to the effective management of this work and this section of the paper covers the continued investment in these systems. The scope covers our Network and Asset Planning, Resource and Work Planning, and Work Management processes (as described in further detail below).

The following capabilities are collected in this section under the overall title of Future of Asset Management, as they are all part of an integrated eco-system of asset management processes and information.

Enterprise Asset Management

Enterprise Asset Management (EAM) encapsulates how we manage our physical assets, including the pipelines, above-ground installations and compressor stations, throughout their lifecycle. This process spans the lifecycle of the asset through the four stages: Create, Operate, Maintain and Renew or Dispose.

In RIIO-T2 we invested and successfully delivered Maximo as our new Enterprise Asset Management solution. In RIIO-GT3 we will continue to support Maximo, to maintain the platform health and deliver iterative changes to continue building the capability within Maximo based on requirements to support the network, deliver the AMP and continue to drive business and consumer value. This includes investigating the benefits of aligning the current asset taxonomy to the ISO 14224 asset hierarchy and delivering a spares and inventory management capability to mitigate the risk associated with not currently having a systemised critical spares management solution.

This investment continues our support for our core asset data repository and work management capability. It also provides the platform for a growing breadth of defect and condition data to support more cost-effective asset maintenance approaches, such as reliability centred maintenance.

Asset Investment Planning

Our Asset Investment Planning (AIP) platform, Copperleaf, is fundamental to creating the RIIO-GT3 asset plan and the long-term AMP. It allows us to create an optimised portfolio plan using risk forecasts and asset health ratings for the network and contributes towards regulatory reporting, capex governance and overall project reporting.

In RIIO-T2, we implemented a predictive analytics capability in Copperleaf to improve how we determine future asset failures.

In RIIO-GT3, we will continue to develop our capabilities, utilising outputs from our Asset Performance Management system to provide more accurate asset health scores and predictive models and allow for more timely and effective cost allocation.

Geospatial services

Our GIS platform holds the location data for our assets across the country. This includes compressors, valves, underground pipelines and other asset systems and components that make up the network. In RIIO-GT3 we will replace the current offline GIS application used in the field to improve our ability to visualise additional data about our assets, their location and environment, to improve asset planning.

Our Asset Protection and Surveillance reporting capabilities rely heavily on GIS platforms and ensure that we are monitoring third party activity taking place in the vicinity our assets and ensure that they remain safe. They are also used to respond to enquiries from customers regarding our assets in a timely and efficient manner, whilst keeping our operational teams informed of nearby activities.

Safety and risk platforms

Due to the potentially hazardous work our field force undertakes, including responding to emergency situations and dealing with highly pressurised systems, it is imperative that we have the systems in place to keep them safe and to ensure the safety of our assets. To do this we need to ensure our field force have the required competencies, understand any permits required or issued, and understand and are able to visualise the risks present across the NTS. Recording competencies and aligning work to these is a critical safety process. We will also maintain the cyber compliance of our field force and asset management systems by making security enhancements where required by external frameworks, including the Network Information Systems Regulations and Cyber Assessment Framework (CAF).

There are eight investments in this area, as follows:

Platform	Capability	Investment	£m
Enterprise Asset Management	Work and Asset Management	IT 026 – Enterprise Asset Management tech health	██
		IT 027 – Enterprise Asset Management new capabilities	██
		IT 029 – Supply Chain Optimisation	██
Asset Investment Planning	Network and Asset Planning	IT 030 - AIP Tech Health	██
		IT 031 - AIP New Capabilities	██

Geospatial	Network and Asset Planning	IT 032 - GIS Refresh and Tech Health	■■■
		IT 033 - Asset Protection and Surveillance Reporting Updates	■■■
Safety and Risk	Resource and Work Planning	IT 034 - Safety and Risk System Refresh	■■■

5.1   IT 026 – Enterprise Asset Management tech health

5.1.1   Background and scope summary

Problem / Trigger	Strategy	Business Outcome	Primary Regulatory Outcome	Cost sub-category
Asset health – updates	Refresh	Operate safely, reliably, and flexibly – refresh system	Secure and resilient supplies	IT & Telecoms

We will continue to invest in our EAM platform to keep it supported in line with vendor releases. It is a Software-as-a-Service (SaaS) platform and so we are required to complete necessary regression and user testing on a quarterly basis when upgrades are released by the vendor to the software and environments (dev, test, pre-prod and prod). This investment is to maintain the stability and security of our core asset management platform, without which we will have increased year on year security risks and lack of support from the vendor due to using outdated version.

Through this investment we will carry out preparation work to move to an asset taxonomy based on the ISO 14224 standard[7] and will take the first steps in implementation. The standard dictates how best to collect and use reliability centred data within natural gas industries to maintain infrastructure and sets out a common framework for digitalisation of asset data which supports implementation of other digital tools, including digital twin and predictive analytics. Transitioning to a new asset taxonomy allows organisations to better track operational activities and maintenance at an asset level, utilising data-driven practices that allow investments and maintenance activities to be allocated towards specific assets based on their current or predicted future condition.

Historically, the NTS shared the same asset management solution as National Grid, and this meant that a hierarchy for electricity transmission was priority, and the Gas Transmission business was required to conform to a hierarchy which is not suitable for an organisation responsible for maintaining primarily gas assets and requiring secondary asset classes to have further granularity available for robust costing. Electricity transmission assets are linear in nature (as they do not include generation plants), primarily above ground and transmit electricity, so the decision was made to keep the hierarchy shallow but broad with only four levels in the hierarchy. In comparison, Gas assets are primarily underground, have numerous Above Ground Installation (AGI) sites, valves, offtakes and compressor stations using a mix of mechanical and electrical components. This additional complexity coupled with an aging national transmission system means it is critical that we start to understand asset performance at a specific asset level and make strategic investment based on asset specific data.

Changing an asset hierarchy in a core EAM solution is a complex process and we have chosen to invest in starting this process early in RIIO-GT3 to demonstrate the benefits of changing the hierarchy and understanding the cost of the change. We will carry out analysis and design work for the new hierarchy and implement the most beneficial changes first. We will then take stock and assess the best way forward. This cost is included in EAM Tech Health in the first two years of RIIO-GT3, as it is a data change, Maximo will continue to need regular tech health upgrades in parallel to investigating the asset hierarchy change, in order to remain secure and reliable.

The diagram below illustrates how moving from the current hierarchy to an example hierarchy using the gas industry specific ISO 14224 standard and taxonomy will provide greater granularity of understanding in our assets. Enterprise asset management processes are at the core of our business and improved asset data will drive better decisions throughout the asset lifecycle, optimising the asset lifecycle cost through finding the best balance of asset capital investment and maintenance to deliver the required NTS service.

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[7] ISO 14224:2016: Petroleum, petrochemical and natural gas industries — Collection and exchange of reliability and maintenance data for equipment
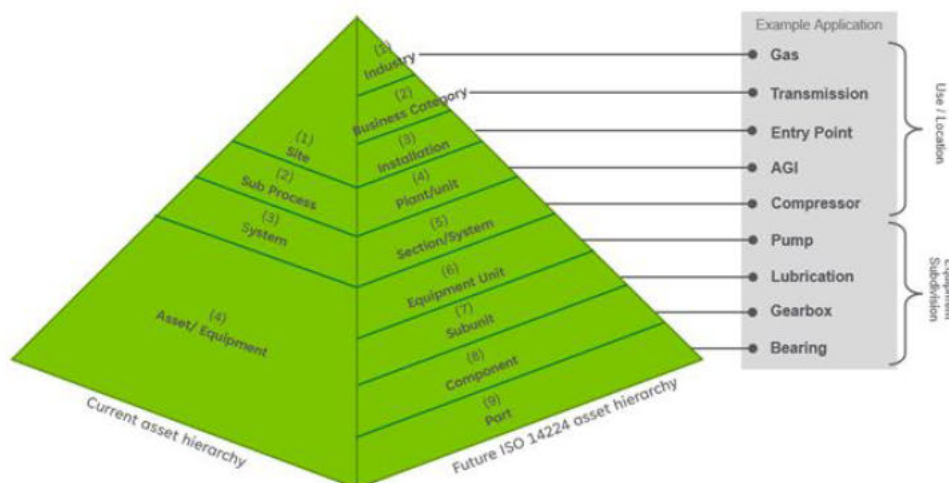
Figure 5.1. Example gas asset hierarchy changes with the transition to ISO 14224

This investment, moving to the new asset hierarchy, strengthens compliance with the following Data Best Practice principles:

- 2. Use common terms within Data Assets, Metadata and supporting information.
- 3. Describe data accurately using industry standard Metadata.
- 4. Enable potential Data Users to understand Data Assets by providing supporting information.
- 5. Make Data Assets discoverable for potential Data Users.
- 9. Protect Data Assets and systems in accordance with Security, Privacy and Resilience (SPaR) best practice.

Problem / opportunity statement

Without investment, the EAM platform would become unsupported, insecure and unreliable, as no updates would be applied and the version would drift further from the latest released by the vendor. This would mean that newly discovered vulnerabilities would not be patched and there would be minimal support due to the back-level version. Further, we would continue with an inappropriate asset hierarchy that is not right sized to enable digitalisation of capabilities and technology in the business.

5.1.2   Optioneering

The options for this investment were selected to contrast the outcome of not investing with alternative ways of achieving the target outputs. Alternatives are defined with varying levels of change – continue with the current system and improve the asset hierarchy data model (A), move to the new model through a complete system refresh (B), or simply keep the current system running through regular updates from the software vendor but without any change to the data model (C).

The table below sets out the options considered for this capability.

Ref.	Option Description	Pros	Cons
DNI	Do not invest	• No investment required as we will continue with the current Maximo version and current asset hierarchy.	• The system will not have the latest updates, and increased likelihood of bugs that impact our asset management teams ability to do their job. • Will not maintain security of the system and so increased likelihood of a security incident. • Failure to regression test could result in business-critical systems failing and affecting business continuity. • Continued use of existing asset hierarchy and challenges it causes when implementing technology in other areas.
A	Maintain system in line with vendor upgrades and start to move the asset hierarchy. **Recommended**	• System remains stable and secure. • System will remain in support, as upgraded in line with vendor releases. • Benefits of preparing to move asset hierarchy: o Safety – improved understanding at asset level rather than system level, leading to asset specific maintenance and	• Requires investment - asset hierarchy constitutes approximately 2/3 of the cost of EAM tech health. • Being prepared to move to ISO 14224 hierarchy will be a complex activity, however having implemented Maximo in RIIO-T2 enables and simplifies the move.

			understanding when individual assets and components should be maintained. ○ Efficiency - Increases resource availability, as we understand individual asset maintenance requirements, we can prioritise delivering more critical work within the AMP. ○ Standardisation – our data will become standardised and improve in quality to enable reliability based decision making. ○ Aligns Maximo to the asset hierarchy already in use in Copperleaf. ○ Readiness for interoperability and subsequent requirements. ○ Primary asset management systems using a single asset language to show and track benefits of investment and associated cost.	
B	Full EAM Refresh in addition to regular tech health upgrades.	• Takes advantage of potential other rising vendors in RIIO-GT3.	• Maximo has recently been delivered and is an industry leading platform to further develop our asset management capabilities. • Highest investment cost and business change impact
C	Maintain system but don't start to move hierarchy.	• Reduced cost compared with option A as will not be making the data changes required to change the asset hierarchy. • System remains stable and secure.	• Will not realise the benefits of the new asset hierarchy and will have to work around the downstream impact to other capabilities we are investing in, including performance management and digital twin. • Data will continue needing to be mapped between Copperleaf, Maximo and other systems. As we continue to integrate and implement APM this will get increasingly complex. • Will be a restriction for interoperability as data will be in a different format and standard to equivalent industries.

5.1.3   Preferred option

The recommendation is Option A (Maintain system in line with vendor upgrades and start to move the asset hierarchy) to continue to invest in supporting our asset management platform to ensure informed and comprehensive management of our assets. This will include maintaining tech health through regular testing by business users after each vendor upgrade and starting to move to the ISO 14224 asset hierarchy, which will simplify our overall integration between Copperleaf and Maximo, as well as other asset systems. As we start utilising APM, having a consistent and granular hierarchy will enable understanding asset performance against specific sub-units and components within each asset.

Option C is discounted as it does not address the key issue of the asset hierarchy and option B introduces high costs to move away from a solution only recently introduced and with a strong track record to date. Option DNI is discounted as it does not sustain the security and reliability of our core platform for asset management.

Consumer / stakeholder benefits

The following benefits will be gained by external parties:

- Improved safety and reliability – continuing to support asset management systems and moving to the new asset hierarchy will ensure business-critical systems are supported and operational.
- Lower costs – improving our understanding of the operational and capital costs during the lifecycle of the assets will identify opportunity to reduce their whole-life-cost, resulting in consumer cost savings.

5.1.4   Cost and deliverability

The cost drivers for this investment are in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.3. Costs are for the full scope of deliverables as described above. Deliverability of this investment is in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.5.

The spend profile and delivery plan are shown below.

IT 026 – Enterprise Asset Management tech health							Gartner Benchmark Range		Gartner Rating
Investment (£m)	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Totals	Low	High	
CAPEX	■	■	■	■	■	■	■	■	▮▮▮

The project plan for this investment is set out below and shows a process of continuous updates across the period, together with investment in the analysis, design and first phase of implementation of the new asset hierarchy in the first two years.

	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31
IT 026 – Enterprise Asset Management tech health	➤	➤	▮	▮	▮

5.2   IT 027 - Enterprise Asset Management new capabilities

5.2.1   Background and scope summary

Problem / Trigger	Strategy	Business Outcome	Primary Regulatory Outcome	Cost sub-category
Improve reporting, decision support and grow AMP delivery capacity	Enhance	Operate safely, reliably, and flexibly – enhance capabilities	Secure and resilient supplies	Digital infrastructure

In January 2023 we included a request for further funding to enhance Maximo through the RIIO-T2 Uncertainty Mechanism. Ofgem recognised the benefits of improving our usage of Maximo and the further capability it can provide, however decided not to allocate funding due to potential dependencies and risks associated with delivery of Maximo through the Digital Asset Management (DAM) Programme. The DAM programme successfully went live in May 2024 and we have matured in our use of the platform since go-live.

In RIIO-GT3, we will continue to invest in our EAM platform to increase our asset management maturity and usage in operations, improving the holistic view of assets it provides and continuing to connect business processes and data through optimised technology. This will be through additional functionality and new or improved integrations which will also support delivery of the AMP by improving how our systems interact and making data available to drive decision making. This investment will include:

- Resolving the remaining challenges identified through the original UM submission, including:
    - Continued manual activities within Operations resulting in loss of time and inefficiencies.
    - Unconnected defect management and flow of data between defects, policy and drawings.
    - Improve holistic asset tracking, ensuring technicians have easy access to relevant data.
- Integration of EAM with construction planning platforms to significantly improve our planning capabilities, create more effective resource plans and ensure our field force have increased capacity for AMP delivery support and ongoing maintenance. This will provide an end-to-end view of the cost of delivery for our assets, from investment planning through Asset Investment Planning (AIP), delivery in Construction, go live and ensuring the asset data captured in EAM.
- Integration with financial systems and implementation of new Maximo functionality that will allow us to improve accuracy and increase automation of cost allocation against our assets, enabling analysis and optimisation of asset lifecycle cost. The above integration with Construction provides detail on the cost of delivery, this integration will enhance our understanding of ongoing maintenance costs and the level of investment required for each asset.
- Improvement in the accuracy of our total asset valuation and enhance our regulatory reporting capabilities by improved data capture and validation. This will include making configuration changes required to systems associated with total asset valuation to improve outputs and overall capability. Currently total asset valuation is completed in SAP, we will improve this either in the existing system or through moving the capability to an alternative EAM solution.

This investment further strengthens compliance with the following Data Best Practice principles:

- 2. Use common terms within Data Assets, Metadata and supporting information.
- 5. Make Data Assets discoverable for potential Data Users.
- 8. Ensure Data Assets are interoperable with Data Assets from other data and digital services.

Problem / opportunity statement

The processes across the asset lifecycle, from design through construction to operation and decommissioning, are not supported by fully integrated systems and so require a lot of manual effort at each 'hand-off' between teams. This reduces data timeliness, accuracy and increases costs. Process times across these boundaries are significant, leading to higher risks from data on our assets not being up to date or subject to human errors. Whilst many of our processes are digitalised, this investment advances digitalisation between processes.

Without this investment, manual efforts will continue and we will not be able to increase capacity to deliver the volume of the AMP in RIIO-GT3 across asset construction and operations.

5.2.2   Optioneering

The options for this investment were selected to contrast the outcome of not investing with alternative ways of achieving the target outputs. These alternatives were either to continue to develop the existing platform (A) or to invest in a new platform (B) to address the issues.

The table below sets out the options considered for this capability.

Ref.	Option Description	Pros	Cons
DNI	Do not invest.	• No investment required.	• Maximo has recently been delivered in the RIIO-T2 period, and not continuing to invest in RIIO-GT3 will not allow us to build upon this investment and utilise the new capabilities Maximo provides to improve our processes and systems.
A	Invest in new capabilities and integrations for EAM platform and satellite applications. **Recommended**	• Efficient delivery of additional asset management capabilities and features that will deliver high value and resolve specific business issues. • Leverage the value of the new asset management solution. • Further integration of asset management solutions enhances the value of our data and how it is applied to our processes.	• Will require continued investment into asset management solution.
B	Invest in all new EAM module capabilities.	• Opportunity to explore everything Maximo has to offer and the benefits.	• Will require substantial investment. • Potential to invest in modules which have lower or minimal value to National Gas.

5.2.3   Preferred option

The recommendation is Option A (Invest in new capabilities and integrations for EAM platform and supporting applications) as this will enable delivery of further enhancements to the EAM systems and improve business processes for our asset teams and field force.

Consumer / stakeholder benefits

The following benefits will be gained by external parties:

- Improved safety and reliability – this investment will improve business processes including how and when we capture data during the end-to-end asset lifecycle and identify opportunities to reduce whole-life-cost when running and maintaining assets.

5.2.4   Cost and deliverability

The cost drivers for this investment are in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.3. Costs are for the full scope of deliverables as described above. Deliverability of this investment is in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.5.

The spend profile and delivery plan are shown below.

IT 027 – Enterprise Asset Management new capabilities						Gartner Benchmark Range		Gartner Rating
Investment (£m)	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Totals	Low	High	
CAPEX	■	■	■	■	■	■	■	■	▪▮▯

The project plan for this investment is set out below and shows a process of continuous enhancements across the period.

	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31
IT 027 – Enterprise Asset Management new capabilities	➡	➡	➡	➡	➡

5.3   IT 029 – Supply Chain Optimisation

5.3.1   Background and scope summary

Problem / Trigger	Strategy	Business Outcome	Primary Regulatory Outcome	Cost sub-category
Technology opportunities. Data best practice compliance.	Enhance	Deliver sustainable value for our customers and stakeholders	High quality of service from regulated firms	Digital infrastructure

The current inventory management process is managed via an asset stock register which is maintained manually across different locations through paper-based solutions and spreadsheets. This raises the likelihood of human error and overstocking or understocking of assets. Understocking of critical spares can impact critical operations and continuity of service if a spare is not available at short notice.

This investment was submitted through the RIIO-T2 Uncertainty Mechanism in January 2023. Ofgem recognised the benefits of a systemised spares and inventory management solution however decided to not allocate funding due to potential dependencies, and risks associated with delivery of Maximo through the Digital Asset Management (DAM) Programme. The DAM programme has now successfully delivered on time and by RIIO-GT3 will be well established and a stable platform for further enhancements.

In RIIO-GT3 we will deliver a Spares Management system that will provide a systemised way of managing spares and inventory, and ensure we have full visibility of an asset's location throughout its lifecycle, starting with inventory. As we face the challenge of delivering a larger AMP, efficient inventory management will help us optimise operational capabilities. Network risk can be reduced through better inventory management and refurbishment tracking to ensure optimum spares availability, e.g. for valve replacement and refurbishment.

Following delivery of the spares and inventory management system in the first two years, we will move on to optimise our end-to-end supply chain process, enhancing our overall planning capabilities, to allow for automated procurement triggers (where appropriate) to deliver our maintenance plans and ensure timely provisioning of spares.

This investment further strengthens compliance with the following Data Best Practice principles:

- 5. Make Data Assets discoverable for potential Data Users.
- 8. Ensure Data Assets are interoperable with Data Assets from other data and digital services.

Problem / opportunity statement

The current process is largely manual, with little visibility of spares nationally and reliance on the knowledge of local staff and their awareness and responsiveness to other's needs. This results in longer lead times and higher costs than necessary, which in turn affects NTS capacity and reliability.

5.3.2   Optioneering

The options for this investment were selected to contrast the outcome of not investing with alternative ways of achieving the target outputs. These alternatives reflect different scales of change and capabilities – either to invest in a limited solution using the existing platform to automate existing processes (B) or to invest in developing the existing platform with wider capabilities through enhancements and integration (A) to address the issues more comprehensively.

The table below sets out the options considered for this capability.

Ref.	Option Description	Pros	Cons
DNI	Do not invest	• N/A	• Continued use of current process which are manual and do not provide network wide understanding of spares available.
A	Invest in enhanced Spares Management and supply chain capabilities and integrations. **Recommended**	• Will improve on our current stock and inventory processes. • Optimised procurement and work planning capabilities to drive operational efficiencies. • Provides flexibility and cost reduction when completing jobs on the network (through understanding stock levels and ensuring the right spare is available). • Continue to identify opportunities for improving supply chain and removing dependencies on suppliers and lead times. • Improved processes through integration with supporting supply chain systems.	• Will require substantial data collection to map current stock across the network and operational sites and systemise into new solution.
B	Invest in initial solution but make no further enhancements	• Will improve upon existing stock management processes. • Provides flexibility and cost reduction when completing jobs on the network (through understanding stock levels and ensuring the right spare is available).	• The existing stock management process is basic, this option will miss the opportunity to improve it further after moving to a systemised process.

5.3.3   Preferred option

The recommendation is Option A (Invest in enhanced Spares Management and supply chain capabilities and integrations), to implement a Spares and Inventory Management capability early within RIIO-GT3 and continue enhancing this throughout the period by looking at the end-to-end supply chain for opportunities to improve efficiency and remove risk associated with a complicated supply chain. This will replace the current manual and offline process with a spares management solution that enables tracking and efficient utilisation of spares.

Consumer / stakeholder benefits

The following benefits will be gained by external parties:

- Improved safety and reliability – Delivering a spares and inventory management solution will improve the way we manage the network, by ensuring the correct quantity of spares are kept available for certain jobs and mitigating the risk of increasingly longer lead teams on procuring specific spares.
- Reduced costs – by using spares procured under policy rather than as emergency purchases.

5.3.4   Cost and deliverability

The cost drivers for this investment are in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.3. Costs are for the full scope of deliverables as described above. Deliverability of this investment is in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.5.

The spend profile and delivery plan are shown below.

The costs are derived from both project experience delivering similar complexity projects, and vendor engagement to understand the implementation cost. We have run a commercial event to understand solutions available, delivery partners and associated implementation costs for the base spares solution.

IT 029 – Supply Chain Optimisation							Gartner Benchmark Range		Gartner Rating
Investment (£m)	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Totals	Low	High	
CAPEX	■	■	■	■	■	■	■	■	▮▮▮

The project plan for this investment is set out below and shows the implementation of the new spares system in the first two years, followed by a process of annual enhancements to optimise the process.

	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31
IT 029 – Supply Chain Optimisation	➡	➡	▮	▮	▮

5.4   IT 030 – AIP Tech Health

5.4.1   Background and scope summary

Problem / Trigger	Strategy	Business Outcome	Primary Regulatory Outcome	Cost sub-category
Asset health – updates	Regular update	Operate safely, reliably, and flexibly – update	Secure and resilient supplies	IT & Telecoms

Our Asset Investment Planning capability uses Copperleaf as a SaaS service and enables the analysis and development of our AMP strategic capital investments. To keep the system stable and secure, we are required to perform the necessary regression testing and user testing on our IT estate when the vendors release yearly updates to the Copperleaf platform to ensure business continuity and maintain integrations.

This investment sustains our compliance with the following Data Best Practice principles:

- 9. Protect Data Assets and systems in accordance with Security, Privacy and Resilience (SPaR) best practice.

Problem / opportunity statement

Regular investment is required to keep systems secure and reliable by applying security updates and new releases. Without these, system performance and security would degrade, and it would become unsupported. Integration with other systems would also degrade and eventually stop working.

5.4.2   Optioneering

The options for this investment were selected to contrast the outcome of not investing with alternative ways of achieving the target outputs. There is only one alternative option as this is a choice between sustaining the current system through applying the regular software updates (A) or not (DNI).

The table below sets out the options considered for this capability.

Ref.	Option Description	Pros	Cons
DNI	Do not invest in maintaining and testing Copperleaf platform	• No investment required.	• No business continuity. • Security risk as software will become outdated. • Inability to plan investments on assets.
A	Invest in Asset Health for Copperleaf. **Recommended**	• Delivers business continuity. • Ensures security of our IT estate. • Allows for continued investment planning in our assets.	• Investment required.

5.4.3   Preferred option

Our recommended investment approach is Option A, to ensure continuation of the secure and reliable services provided by the system.

Consumer / stakeholder benefits

The benefits gained by external parties are continued provision of this business-critical capability which supports the development of the most cost-effective asset investment plan.

5.4.4   Cost and deliverability

The cost drivers for this investment are in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.3. Costs are for the full scope of deliverables as described above. Deliverability of this investment is in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.5.

The spend profile and delivery plan are shown below.

IT 030 - AIP Tech Health							Gartner Benchmark Range		Gartner Rating
Investment (£m)	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Totals	Low	High	
CAPEX	██	██	███	██	██	██	██	██	▮▮▮

The project plan for this investment is set out below and shows a process of continuous updates across the period.

	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31
IT 030 – AIP Tech Health	➡	➡	➡	➡	➡

5.5 IT 031 – AIP New Capabilities

5.5.1 Background and scope summary

Problem / Trigger	Strategy	Business Outcome	Primary Regulatory Outcome	Cost sub-category
Improve reporting, decision support and grow AMP delivery capacity	Enhance	Operate safely, reliably, and flexibly – refresh	Secure and resilient supplies	Digital process

Efficient investment planning is fundamental to ensure that the construction of our assets is properly planned, then the assets are maintained throughout their lifecycle to meet safety and reliability standards, and eventually replaced or decommissioned at the end of their life for optimum safety, to provide the best value to consumers and to allow us to plan for a new energy market and potential blended gas assets.

This investment will enhance Copperleaf to make it a more robust planning and reporting system in RIIO-GT3. It will enable tracking of delivery in more detail and accurately than today and eliminate the requirement for offline and unintegrated tools. We will improve the use of data within Copperleaf, introduce new investment planning capabilities, and improved integrations with surrounding systems such as defect remediation to enable us to deliver our RIIO-GT3 objectives and enable efficient planning and delivering the asset strategy. We will also utilise the data as input into Network Asset Risk Methodology (NARM) risk assessment methodology to improve the timeliness of interventions on assets.

This investment sustains our compliance with the following Data Best Practice principles:

- 5. Make Data Assets discoverable for potential Data Users.
- 8. Ensure Data Assets are interoperable with Data Assets from other data and digital services.

Problem / opportunity statement

Our use of Copperleaf to support our asset investment planning processes has progressed through RIIO-T2. We implemented the Copperleaf predictive analytics module which we are now using to provide a long-term view, by determining the optimal economic intervention dates for assets based on age, condition, degradation, and risk profile. Subsequently we have started to use this to improve our models and investment plans. There is opportunity to further improve the way in which we use the system and models to analyse and develop the asset investment plan, especially as we work towards Net Zero and are required to perform increasing maintenance on an aging network.

Enhancements both within the system and through integration with other systems have been identified which will improve the quality of the AMP and increase the effectiveness of the asset planning team. Bringing into the AIP system improved asset data granularity and asset condition history will enable better asset risk assessments and optimised intervention plans to inform the most cost-effective asset management plan.

5.5.2 Optioneering

The options for this investment were selected to contrast the outcome of not investing with alternative ways of achieving the target outputs. There is only one alternative option as this is based on the business requirements to support the asset investment planning capabilities required in RIIO-GT3. Other options were not considered as this scope is critical to the delivery of the AMP.

The table below sets out the options considered for this capability.

Ref.	Option Description	Pros	Cons
DNI	Do not invest in new capabilities for Copperleaf	• No investment required and will continue to use existing system and capability	• Failure to further optimise investments to deliver interventions in most cost-effective and safe manner. • Inability to further enhance our resource planning across construction and operational resource.
A	Invest in new capabilities for Copperleaf **Recommended**	• Delivers improved visibility and planning capabilities from investment to delivery. • Allows for improved resource planning and sharing across NGT. • Enhanced investment planning and optimisation in line with our NARMs methodology. • Integration of defect remediation to understand the cost of resolving defects and creation of investment plans for longer term issues.	• Investment required.

5.5.3   Preferred option

We recommend Option A to continue to develop our AIP capabilities, improve our investment planning and business plan delivery and ensure safe investment in our network.

Consumer / stakeholder benefits

The benefits gained by external parties are:

- Improved safety and reliability - by improving how we plan the timing of our investments, in line with asset health policies, and improving the timeliness of those investments and work delivery associated, we can improve the safety of the NTS and ensure continuity of service.

5.5.4   Cost and deliverability

The cost drivers for this investment are in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.3. Costs are for the full scope of deliverables as described above. Deliverability of this investment is in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.5.

The spend profile and delivery plan are shown below.

The costs for AIP New Capabilities are based on previous experience delivering new modules in the investment planning solution. In the RIIO-T2 period we delivered the Predictive Analytics module which has been used to create our asset investment plan for RIIO-GT3. The further enhancements in RIIO-GT3 are based on similar projects delivering new functionality and/or modules.

IT 031 - AIP New Capabilities							Gartner Benchmark Range		Gartner Rating
Investment (£m)	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Totals	Low	High	
CAPEX	■	■	■	■	■	■	■	■	▆▇▇

The project plan for this investment is set out below and shows a process of continuous improvement across the period.

	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31
IT 031 - AIP New Capabilities	➤	➤	➤	➤	➤

5.6   IT 032 - GIS Refresh and Tech Health

5.6.1   Background and scope summary

Problem / Trigger	Strategy	Business Outcome	Primary Regulatory Outcome	Cost sub-category
Asset health – updates	Regular updates and continuous improvement enhancements	Operate safely, reliably, and flexibly – refresh / update	Secure and resilient supplies	IT & Telecoms

This investment includes regular maintenance for both the online and offline GIS systems, to keep them secure and reliable, together with enhancements to each as part of a continuous improvement programme responding to GIS user requirements. Part of this will be the expansion of spatial digitalisation through the introduction of new datasets, supporting greater insights into the relationships between our assets and their immediate surroundings.

The offline GIS has usability and functionality issues and we will replace this system early in the period. We will also integrate the core GIS with the Pipeline Risk Assessment (PRA) system to enable better risk decision making when scanning the network for changes.

This investment sustains our compliance with the following Data Best Practice principles:

- 5. Make Data Assets discoverable for potential Data Users.
- 8. Ensure Data Assets are interoperable with Data Assets from other data and digital services.
- 9. Protect Data Assets and systems in accordance with Security, Privacy and Resilience (SPaR) best practice.

Problem / opportunity statement

The current Offline GIS, used principally by the field force, has usability problems that cause inefficiencies and lead to data quality issues, in addition, there is functionality currently available in alternative solutions not provided through the current system. This platform needs considerable change and a refresh is considered the best way of addressing the issues and maximising on newer functionality available

Refresh opportunities:

- Rationalise redundant layers in GIS to improve load speed and stability of mobile app.
- Improved granularity of base map
- Improved quality of drawings and annotation
- Improved regularity of map updates
- Improved usability (accessibility options, especially for varied range of colour visions)
- Remove reliance on third party apps to fill the gap in the current solution
- Improved customer service

Investment is required annually to maintain the security and reliability of the systems, applying annual updates from the vendor and taking advantage of new capabilities released at the same time, and addressing evolving user requirements.

Pipeline risk assessment is a critical safety process and involves manual data handling as there is no integration between GIS and the Pipeline Risk Assessment system.

5.6.2   Optioneering

The options for this investment were selected to contrast the outcome of not investing with alternative levels of target outputs. The alternatives reflect two different scales of change and outputs – either replacing the system and addressing the issues (A) or sustaining the current system through regular system updates (B) with little or no improvement in capability.

The table below sets out the options considered for this capability.

Ref.	Option Description	Pros	Cons
DNI	Do not invest in refreshing GIS and maintaining technology health.	• No investment required	• Inability to exploit increased datasets to better understand our assets environment. • No opportunity to improve GIS data quality. • Inability to improve user experience for GIS offline capability.

A	Complete offline GIS refresh and maintain system tech health **Recommended**	• Enhanced data quality and geospatial visualisation of network data. • Increased value of data in the GIS platform through further integration. • Improved User Experience for offline capability. • Ingestion of new datasets to layer onto GIS platform for improved decision making.	• Highest investment required and includes cost to refresh offline GIS.
B	Keep current system and maintain technology health with no Offline GIS replacement	• Some improvements to data quality and geospatial data visualisation • Increased value of data shown in GIS platform through further integrations. • Ingestion of new datasets to layer onto GIS platform for improved decision making.	• Investment required; however, this will be roughly half the cost of option A. • Limited ability to improve user experience for offline capability.

5.6.3   Preferred option

We recommend Option A (Complete Offline GIS refresh and maintain system tech health) to refresh the Offline GIS capability, and then maintain both Offline mapping and core GIS solution in line with vendor upgrades and further integrate with satellite data. This will remove the current pain points the field force faces when using Offline Mapping and provide them with a new solution at a similar cost with additional functionality. It will also bring offline mapping into support alongside core mapping and simplify managing the system health throughout RIIO-GT3.

Consumer / stakeholder benefits

The benefits gained by external parties are:

- Improved safety and reliability - by improving the GIS data we utilise and incorporating that data into our planning, we can enhance our decision making and ensure that we are maintaining our assets at the right time and with increased efficiency.
- Improved risk profile – increasing the quality of our asset data and combining with other datasets will improve insights into NTS risk and help to manage that risk more efficiently.

5.6.4   Cost and deliverability

The cost drivers for this investment are in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.3. Costs are for the full scope of deliverables as described above. Deliverability of this investment is in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.5.

The spend profile and delivery plan are shown below.

IT 032 - GIS Refresh and Tech Health							Gartner Benchmark Range		Gartner Rating
Investment (£m)	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Totals	Low	High	
CAPEX	■	■	■	■	■	■	■	■	▮▮▮

The project plan for this investment is set out below and shows continuous updates across the period plus Offline GIS refresh, enhancements and integration with RPA, with spend and effort smoothed across the period.

	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31
IT 032 - GIS Refresh and Tech Health	➤	➤	➤	➤	➤

5.7   IT 033 - Asset Protection and Surveillance Reporting Updates

5.7.1   Background and scope summary

Problem / Trigger	Strategy	Business Outcome	Primary Regulatory Outcome	Cost sub-category
High cost and environmental impact. Opportunity to lower NTS risk.	Extend functionality	Operate safely, reliably, and flexibly – refresh	Secure and resilient supplies	Network monitoring

Official – Sensitive commercial

This investment is complementary to IT 025 Remote Inspection Technologies (above) which focuses on remote sensing of sites. It is required to support the Operations Surveillance Strategy, where we plan to move to a technology risk-based approach for pipeline surveillance, with the goal to reduce risk, minimise our carbon emissions and enhance technology.

In RIIO-T2 we continued to develop the systems used to monitor and ensure integrity of our assets. We capture data via helicopter sightings, and third party enquiries to allow us to understand the environment around our assets and potential risks to their integrity.

In RIIO-GT3 we will reduce the dependency on helicopter sightings through use of sensors and imagery technologies. In the short-term this will lead to an increase in costs as we parallel-run helicopter sightings with new technology, but once we are confident that the new technology maintains safety we will fully change our strategy, resulting in improving our environmental performance by reducing emissions, reducing reliance on third party risk monitoring, and supporting our operations business plan. To further add value, we will deliver system integrations to enable more timely interventions when surveillance technologies detect a risk.

Through more timely access to pipeline surveillance information, we will also improve the third-party enquiry workflow to decrease the amount of time taken to identify, categorise and respond to potentially safety critical enquiries about work in the vicinity of our assets. This will improve safety of our assets and third parties, and improve efficiency when prioritising tasks within the AMP.

This investment drives digitalisation of a semi-manual process and sustains our compliance with the following Data Best Practice principles:

- 5. Make Data Assets discoverable for potential Data Users.
- 8. Ensure Data Assets are interoperable with Data Assets from other data and digital services.

Problem / opportunity statement

The NTS consists of approximately 7600km of high-pressure pipelines. To protect the integrity of our network and meet guidelines, we currently fly over the whole network every 2 weeks, looking for 3rd party infringement, environmental and other activity near our assets. Examples of these could be unregistered 3rd party building works, landslides and flooding, or activity by local landowners who are not aware of the pipeline proximity.

The current helicopter surveillance relies on human observation and assessment, and there is the continued risk to the network due to each flyover being up to fourteen days apart with the potential of infringement during the interval. In addition, the constant use of helicopters to capture surveillance data has a consequential environmental impact of 6000kg of CO_2 per week, along with the high cost of operating a helicopter and crew. These flights can only provide a snapshot of an asset location at that interval and events in between flights might not be caught or only caught after damage is done. Further, structured and semi-structured data from these flights takes time to evaluate (manually) and to trigger consequential actions. As Operations recommends alternative surveillance solutions in the Surveillance Strategy, there is associated investment needed within IT to support these solutions and ensure the systems are integrated to perform analysis using the data.

There is no direct integration between the surveillance processes and systems and those for third party enquiries or downstream work management, limiting our ability to manage NTS risks.

5.7.2   Optioneering

The options for this investment were selected to contrast the outcome of not investing with the first steps in an alternative way of achieving the target outputs. There is only one alternative option as this is a choice between staying with the current approach (DNI) and investing in new technology to address the issues (A). Particular solution options will be part of the project delivery.

The table below sets out the options considered for this capability.

Ref.	Option Description	Pros	Cons
DNI	Do not invest in updates to Asset Protection systems.	• N/A	• IT not available to support the Operations surveillance vision for the future, leading to a gap between what Operations is rolling out and use of the data to make informed decisions for surveillance and in other areas.

				· Third party enquiry management remains an isolated process. · Remain reactive to potential infringements or hazards around the NTS.
A	Invest in our Asset Protection systems to allow for provision of more regular data. **Recommended**	· Improved data quality. · Enhanced visibility of our pipelines. · Reduced time to resolve 3rd party enquiries and potential hazards. · Reduced costs of surveillance. · Reduced emissions / environmental impact. · Proactive interventions on our assets rather than reactive based on sightings or enquiries.	· Higher investment required due to parallel running existing solution with new technology, these costs are summarised in the Surveillance Strategy

5.7.3   Preferred option

We recommended Option A (Invest in our Asset Protection systems to allow for provision of more regular data) which will improve the safety our network and ensure we continue to have proactive engagement with third parties regarding potential work near our assets.

Consumer / stakeholder benefits

The benefits gained by external parties are:

- Improved safety and reliability - further investing in asset protection will maintain the safety of our assets, staff and the public through increasing visibility of our pipelines and when addressing third party enquiries.

5.7.4   Cost and deliverability

The cost drivers for this investment are in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.3. Costs are for the full scope of deliverables as described above. Deliverability of this investment is in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.5.

The spend profile and delivery plan are shown below.

The proposed cost is based on previous project experience in the RIIO-T2 period delivering third party enquiry systems and analysis into the current methods and technology used for surveillance reporting.

IT 033 - Asset Protection and Surveillance Reporting Updates							Gartner Benchmark Range		Gartner Rating
Investment (£m)	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Totals	Low	High	
CAPEX	■	■	■	■	■	■	■	■	▮▮▮

The project plan for this investment is set out below and shows a project across the period to acquire, ingest and process new data, and enable the downstream processes through integration with other systems. This project has been smoothed over the period to optimise team cost-effectiveness.

	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31
IT 033 - Asset Protection and Surveillance Reporting Updates	➤	➤	➤	➤	➤

5.8   IT 034 Safety and Risk System Refresh

5.8.1   Background and scope summary

Problem / Trigger	Strategy	Business Outcome	Primary Regulatory Outcome	Cost sub-category
Asset health – refresh and enhance	Refresh	Operate safely, reliably, and flexibly – refresh	Secure and resilient supplies	Digitising field works

In RIIO-T2 we enhanced and consolidated our competency systems, moving away from primarily paper-based processes to

deliver a new digitalised electronic risk assessment capability and have implemented a platform to allow our work force to issue electronic permits for higher risk activities. These processes are essential to the safety of our field workers, our assets and the public. They ensure that work on operational assets is only done by personnel qualified for that asset type in that circumstance (location, use, etc.).

In RIIO-GT3 we will refresh these systems in line with our IT Asset Health Policy and continue to digitalise the process through integration (with workforce management) to enable improved safety processes and policies. This investment will provide better visibility of the competencies of our work force, improving resource planning, training planning, and increasing their safety. These benefits will be crucial to facilitate the planned increase in resources for the RIIO-GT3 business plan. We will also enhance the visibility of permits required and issued across the NTS and the risk levels of work across the NTS through improved dashboards and reporting functionality.

This investment sustains our compliance with the following Data Best Practice principles:

- 5. Make Data Assets discoverable for potential Data Users.
- 8. Ensure Data Assets are interoperable with Data Assets from other data and digital services.
- 9. Protect Data Assets and systems in accordance with Security, Privacy and Resilience (SPaR) best practice.

Problem / opportunity statement

The Safety and Risk system needs refreshing to comply with our IT Asset Health Policy and stay secure and reliable.

The current system has partially digitalised the process in RIIO-T2 but is still fragmented. Integration with upstream and downstream processes and alignment of skills and resource management is needed to release the capacity required by the business plan. Further, the resource expansion required by the business plan cannot be achieved without this improved process providing greater capacity to resource and training planning.

5.8.2   Optioneering

The options for this investment were selected to contrast the outcome of not investing with alternative levels of target outputs. The alternatives reflect two different scales of change and outputs – either replacing the system and addressing the issues (A) or sustaining the current system through regular system updates (B) with little or no improvement in capability.

The table below sets out the options considered for this capability.

Ref.	Option Description	Pros	Cons
DNI	Do not invest in refreshing safety and risk systems.	• No investment required.	• Decreasing safety and security of our IT systems. • Difficulty to support new safety and risk policies and procedures. • Inability to improve visualisations of competencies, permits and risk levels.
A	Refresh Safety and Risk systems to improve visibility across work force and NTS. **Recommended**	• Maintains the health of our IT assets with policy. • Delivers functionality to improve how we can visualise and report on competencies, permits and risk. • Delivers improved understanding of competencies in a growing workforce with new skill requirements. • Improves safety of our workforce and assets.	• Investment required.

5.8.3   Preferred option

We recommended Option A (Refresh Safety and Risk systems) to provide improved understanding of our work force competencies and skillsets and the risks across the NTS to increase the safety of the work force, improve resource planning capabilities and ensure the continuity of a changing NTS. For Cyber Compliance, this will ensure we can deliver security enhancements to Field Force and Asset systems where required and continued compliance with external frameworks and guidelines.

Consumer / stakeholder benefits

The benefits gained by external parties are:

- Improved safety and reliability - this investment will deliver safety and reliability benefits to the consumer by guaranteeing our workforces safety, enhancing our understanding of risk across the NTS and in turn increasing the safety of our assets.

5.8.4   Cost and deliverability

The cost drivers for this investment are in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.3. Costs are for the full scope of deliverables as described above. Deliverability of this investment is in common with other IT investments and are described in the IT & Telecoms Strategy document, section 3.4.5.

The spend profile and delivery plan are shown below.

IT 034 - Safety and Risk System Refresh							Gartner Benchmark Range		Gartner Rating
Investment (£m)	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	Totals	Low	High	
CAPEX	■	■	■	■	■	■	■	■	▄▆█

The project plan for this investment is set out below and shows an initial refresh project followed by a process of continuous updates / improvements across the period.

	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31
IT 034 - Safety and Risk System Refresh	➡	➡	➡	➡	➡

6   Outcomes, priorities, commitments and price control deliverables

6.1   Ofgem outcomes

Select all priorities that are supported by this programme/scheme.

✓Secure and resilient supplies

☐High quality of service from regulated firms

✓System efficiency and long-term value for money

☐Infrastructure fit for a low-cost transition to net zero

6.1.1   How will the programme/scheme support the regulatory priority/priorities?

Secure and resilient supplies. Investments to refresh the technology or support technology health through regular updates enable us to sustain these business-critical systems and ensure they operate securely and reliably.

System efficiency and long-term value for money. Investments other than technology health and refresh respond to business requirements to enable greater capacity to deliver the business plan and for efficiencies and further digitalisation of processes. These investments also strengthen our compliance with Data Best Practice.

6.2   Our business priorities

Select all priorities that are supported by this programme/scheme.

✓ Drive positive environmental and community impact

☐ Shape the energy markets of the future

✓ Operate safely, reliably and flexibly

☐ Invest in our people, grow our capability, and value everyone's contribution

☐ Deliver sustainable value for customers and stakeholders

6.2.1   How will the programme/scheme support our business priority/priorities?

Operate safely, reliably and flexibly. Investments to refresh the technology or support technology health through regular updates enable us to sustain these business-critical systems and ensure they operate securely and reliably. Other investments respond to requirements in continuing improvement in our core functions of asset management and asset operations, all aimed at delivering a safe, secure and reliable NTS. These investments also strengthen our compliance with Data Best Practice.

Drive positive environmental and community impact. Our investment IT 033 - Asset Protection and Surveillance Reporting Updates contributes to environmental performance through moving us away from use of helicopter surveys to remote sensing and analysis using other data sources, saving the fossil fuel used in the aircraft.

6.3   Price control deliverables

Not applicable.

6.4   Commitments

The investments here driven by IT asset health and Data Best Practice directly support commitment number 12: Transforming our activities through IT and data.

Other commitments related to this IJP are principally related to Asset Management (#1: Meeting our critical obligations every hour of every day, #2: Keeping our critical systems secure & #4: Delivering a resilient network fit for the future), Operations (#2: Keeping our critical systems secure), and HR (#9: Investing in our people and our capability for the future).

Ref	Investment Line	Commitment
IT 021	Refresh Field Force Devices	2, 12
IT 022	Refresh Field Force Field Service Platform and Applications	2, 12
IT 023	Providing our Field Force with XR Capabilities	2, 9, 12
IT 024	Augment Field Force Safety	1, 2, 9, 12
IT 025	Remote Inspection Technologies	2, 9, 12
IT 026	Enterprise Asset Management tech health	4, 12
IT 027	Enterprise Asset Management new capabilities	1, 4, 12
IT 029	Supply Chain Optimisation	2, 12
IT 030	AIP Tech Health	1, 2, 4, 12
IT 031	AIP New Capabilities	1, 4, 12
IT 032	GIS Refresh and Tech Health	1, 2, 4, 12
IT 033	Asset Protection and Surveillance Reporting Updates	1, 4, 12
IT 034	Safety and Risk System Capabilities	2, 4, 12

7   Conclusion

Our planned investments to sustain and extend our operational field force capabilities and overall asset management, enabling the core functions of our organisation.

The investments covered here are driven by a mix of delivering compliance, business outcomes and innovation. Compliance is largely to keep our systems secure and reliable in line with our IT Asset Health Policy. Business outcomes focus on the need to grow capacity to deliver the business plan, especially the Asset Management Plan (AMP), by further digitalisation of processes. Innovation is also driven by digitalisation and business outcomes, applying technologies in a new way to increase efficiency or effectiveness.

Investments in this paper primarily support two Ofgem key outcomes: Secure and Resilient Supplies (11 investments, Totex of ████████ and System Efficiency and Long-Term Value (2 investments, Totex of ████████, giving a total investment value of £57.313m. There are two investments not in baseline and put forward under the Uncertainty Mechanism (UM) with a combined value of ██████ leaving the Baseline Totex as ████████████