

Data Governance

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2 Introduction

This paper provides the architectural justification to support SGN's proposal to spend £0.5 million over five years during RIIO-GD2. This investment is linked to continuous improvement in data governance and management capabilities across the SGN enterprise: data sources, applications and technologies; and thus mitigating the risk of using & proliferating poor quality data.

In response to anticipated RIIO-GD2 framework, SGN has been developing our Digitalisation strategy over many years; this has two key outcomes for data; there will be more of it generated through digital technologies and processes and there's a greater requirement to ensure its appropriately governed and managed to retain its "fit for purposefulness" and compliance.

2.1 General Background

SGN is heavily reliant on being able to capture, manage and use its own corporate data (performance, financial, employee, customer, asset and work). Throughout GD1 SGN has seen a steady increase in demand for digital solutions that either protect, govern, capture, report on or analyse the data we hold. It is expected that this trend will continue throughout GD2. As the volume of data we are managing increases, the business outcomes we need to achieve become more challenging.

These changes are happening within a legislative and regulatory environment that is increasingly demanding greater rigour and transparency with regards to how we manage, store and share key data sets. Based on this increasing complexity, SGN have a continual improvement approach when it comes to data governance and quality, the next stage in this journey is to implement foundational data management tooling.

Based on the above it is clear that the ability to understand and control our data is more critical than ever and SGN have identified that best practise for data management requires the use of master data management tooling in order to ensure ownership of data, ensure consistent definition and accuracy of data and to understand data lineage (where it comes from, where it is used and where it goes).

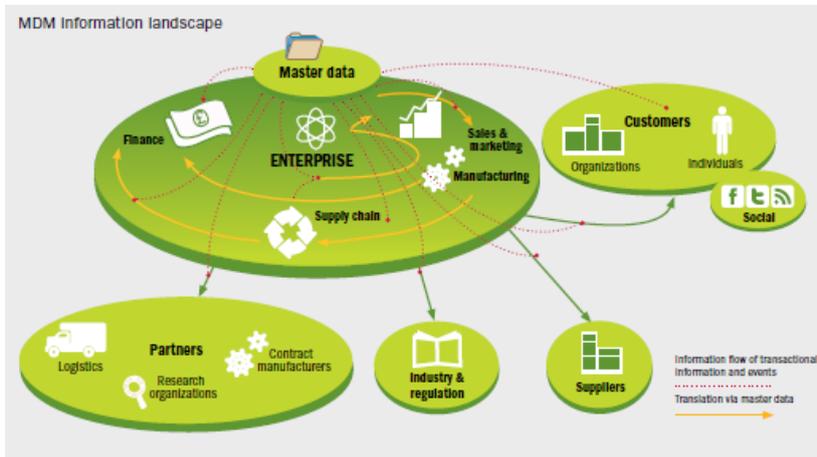
This will provide us with a minimal viable solution to master data, but the solution will be contingent on manual interventions to manage these complex processes.

Whilst the most appropriate solution has not yet been selected, to ensure value for money during the GD2 period, the selection of master data management tooling will be carried out using the most appropriate methodology to ensure the most cost-effective solution delivery.

SGN follows a PRINCE2-based quality gate approach to projects, ensuring rigour around governance, financial tracking and benefits realisation. At each stage gate, as well as project artefacts being reviewed and checked, the business case will be revisited to ensure it still stands up. Appropriate solutions will be built in line with SGN's IT Strategy whilst ensuring architectural principles and security standards are adhered to unless a clear exemption is provided. SGN's IT Strategy outlines a

cloud first, buy not build approach ensuring that the total cost of ownership of all solutions is the most appropriate for the size and scale of change.

The first set of master data changes will be made in 2022. These changes will be bedded in with continual improvements identified for a further implementation in 2024.



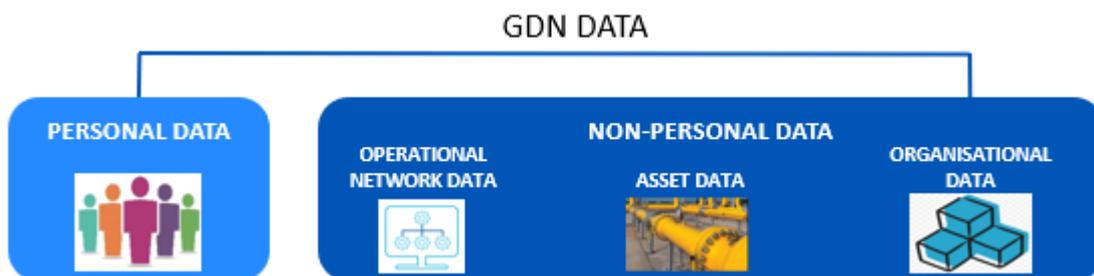
Capgemini: The information landscape

2.2 Site Specific Background

Unlike our network assets, our asset and infrastructure data is not site specific.

3 Equipment Summary

This paper relates to the governance of our data “assets” which are typical for a distribution network fall into the following categories:



- **Personal Data:** data about individuals – customers, stakeholders and employees, etc.
- **Operational Network data:** data about our daily operations, network resilience, work scheduling, emissions, etc.
- **Network Asset data:** physical assets, condition, risk, location, material etc.
- **Organisational data:** corporate assets (buildings, fleet etc), financial, performance, internal organisation etc.

SGN need to apply continuous improvement to its existing data governance and management practices used to ensure our data is compliant and fit for its intended use.

Master data management (MDM) is a combination of technologies and information governance practices intended to confirm the integrity and accuracy of data and provide organizations with the “single version of the truth” needed to answer important business questions.

4 Problem Statement

Why are we doing this work and what happens if we do nothing?

Everything deemed important by our stakeholders (keeping the gas flowing safely, sustaining our future, keeping energy affordable, improving our service and supporting our communities) is reliant on the ability to capture, manage and make use of our data assets.

As our data landscape becomes more complex through increasing adoption of internet of things solutions, analytics, artificial intelligence & machine learning, it becomes more pressing to continuously invest in underlying data management solutions in order to enable the continuation of sound data driven decisions when it comes to managing finance, people, work and assets.

As well as the above, emerging requirements for reporting in RIIO-GD2 and the need to ensure we continue to understand where our data is (should stakeholders request information), indicates that it is essential that we continue to fully understand our data in an environment where technology solutions and digital data capture are on the rise.

Our Digitalisation strategy has two key outcomes for data – there will be more of it generated through digital technologies and processes and there’s a greater requirement to ensure its appropriately governed and managed to retain its “fit for purposefulness” and compliance.

A Master Data Management tool will ensure the data SGN need to use in order to fulfil these obligations remains accurate and current. An appropriate master data management tool will support and enhance SGN's ability to meet the needs of our customer and stakeholders throughout GD2 and beyond.

If we do not apply the appropriate investment in our data governance capability, SGN will find it very difficult to assure compliance with our data mandates. Manual solutions can be applied but are very inefficient in terms of resource requirements, and do not deliver sustainable, effectual solutions.

What is the outcome that we want to achieve?

Realistic investment throughout RIIO-GD2 would enable SGN to mature its capabilities in data governance and management thus reducing the risk of non-compliance and unusable data.

Appropriate investment would:

- Enable SGN to provide a level of assurance as to the level of compliance and quality of its data to Ofgem, customers and stakeholders.
- Enable SGN to deliver credible data services, such as Open Data Sharing, Asset Digitalisation programmes, data driven-innovation initiatives (analytics, AI & ML) and customer centric insights and services expected through GD2.
- Enable SGN to appropriately manage and exploit our increasingly diverse and complex data landscape which will be key to ensuring alignment with GD2 regulatory strategy.

How will we understand if the spend has been successful?

All investments made in relation to the continued development of our data governance and management capabilities, will go through a rigorous business case justification process with parameters for ROI and values of ROI defined from the start. These projects will be managed under SGN’s standard investment review and project lifecycle processes that ensure only the highest value projects are prioritized, the returns are monitored & reported, and the benefits are realised.

4.1 Narrative Real-Life Example of Problem

The importance of data is being called out across the energy sector, not least in Catapult Energy Systems’ report Energy Data Review 2018, which assessed ways in which data may be used in the future energy system, to support new functionality and business models. The report identified issues and challenges that will need to be addressed. Data’s potential to support a more efficient, green and customer focussed energy system needs to be delivered. The key findings were:

- Data availability and accessibility: balancing data privacy with availability
- Energy data value chain: ensuring the increasing diversity of data will deliver value
- Governance, standards and policy: ensuring appropriate usability and interoperability of data
- Cyber security and privacy: safeguard privacy whilst providing sufficient granularity to make it usable
- Tools, techniques and methodologies: making data exchange manageable

It is well publicised that RIIO-GD2 brings specific focus areas for the energy industry around decarbonisation, digitalisation and changing customer needs and expectations; the solutions to delivering these desired outcomes all focus around data driven innovation. In particular, with a wholesale move towards digitalising our energy network, utilising analytics, artificial intelligence and machine learning, the proliferation of data volumes, variety and velocity is and will continue to grow.

SGN need to invest continuously in data governance and management to ensure that this asset remains of value, is of use and benefit and is compliant to assuage any concerns over privacy and protection.

The continuous challenge for our industry will be in ensuring our ever-increasing volume and variety of data is fit for purpose and “joined up”; that it is able to provide the answers asked of it in a cohesive and credible way.

For instance, Ofgem have provided a clear priority to industry around meeting customer needs; our interaction with our customers takes place – directly and indirectly - throughout our business activities. From carrying out Emergency services, through Repex work, New Connections and our staff social engagement initiatives etc., we want and need to be able to evidence progress against targets, ensure the information is safe and be able to point to the positive outcomes and innovative improvements implemented.

In this example, the customer related data captured because of these activities is held in different business systems and will need to be robustly coordinated through mastering and governed to provide a single, accurate and cohesive view of our customers’ and our interactions with them. Undertaking manual processes to achieve this with the amount of data involved is not effective or efficient.

This is true for our other key data domains that will inform our insights and decisions, provide material for data-driven innovation all of which underpin our customer focussed, safe, resilient, efficient and net-zero carbon network service.

4.2 Spend Boundaries

This investment paper covers the implementation of new solutions and the enhancement of existing solutions, as required, in order to keep pace with customer and stakeholder expectations throughout GD2.

Spend is on investing in new technologies – software and hardware and the details of this software and hardware have yet to be fully detailed.

5 Probability of Failure

Not applicable – this doesn't relate to asset health

5.1 Probability of Failure Data Assurance

Not applicable for data Assets. It should however be noted that data governance and data management in line with legislation, in particular GDPR, if not adhered to, could result in fines of up to 4% of total annual turnover.

6 Consequence of Failure

Loss of Supply to Customers

Not applicable

Safety Impact of Failure

Not applicable

Environmental Impact

Not applicable.

7 Options Considered

7.1 Option 1 – Data Governance: minimal viable investment – Recommended

SGN plans to invest £0.5 million opex on continuous improvement implementations spread over the 5 years of the GD2 commitments. The investment will be made during 2022 and 2024 respectively to phase expenditure.

Our future energy system will require more detailed, accurate and timely data to deliver the "big data" driven innovation which incorporates complex analytics, Artificial Intelligence and Machine Learning.

New sources along with more dynamic and greater volumes of data will need to be accommodated to deliver a viable data platform from which to determine and deliver the insights and innovations promised.

Underpinning the delivery of Open Data, Digitisation and industry-wide collaborative innovation in pursuit of Ofgem and consumer expectations of our energy system will be the continued exploitation of data-smart technologies such as machine learning and artificial intelligence all of which will rely on credible, well curated and managed data. New tools and quality processes will

need to be developed to qualify data, as well as the aggregation and anonymisation of data to overcome data privacy compliance issues.

In order to ensure value for money during the GD2 period every proposed project will be assessed, and the most appropriate methodology selected to ensure the most cost-effective solution delivery. SGN follows a PRINCE2-based quality gate approach to projects, ensuring rigour around governance, financial tracking and benefits realisation. At each stage gate as well as project artefacts being reviewed and checked, the business case will be revisited to ensure it still stands up. Solutions will be built in line with SGN IT Strategy whilst ensuring architectural principles and security standards are adhered to (unless a clear exemption is provided). SGN IT Strategy outlines a Cloud First, buy not build approach ensuring that the total cost of ownership of all solutions is the most appropriate for the size and scale of change.

7.2 Option 2 – Data Governance – Enhanced investment

This option focuses on delivering increased and enhanced data governance capabilities and the associated technology through an aggressive governance programme engaging data professionals to deliver; the total investment required is estimated at £1.5m. This option has been disregarded as we know from customer feedback that this is a medium priority and would result in higher costs which our stakeholders do not want.

The SGN options analysis process is designed to ensure that potential solutions are compared with each other at the point of investment and where required SGN will conduct market testing via regulated procurement events which ensure the most cost-effective solutions available in the market are utilised.

This demonstrates appropriate decision making and rigorous cost and solution assessment is undertaken over and above our internal procedures. In order to recommend the best value solution for SGN, this process considers critical factors, such as functional and technical fit, total cost of ownership, risk management and return on investment. All potential investments are subject to robust architectural, business and financial reviews before a decision can be made.

Once an investment has been made strict programme and project governance procedures are bought to bear to ensure clear financial management throughout the project life cycle. Within the processes described, SGN will validate any existing assumptions regarding the most appropriate way forward and consider any changes that have happened between now and the point of investment within GD2.

7.3 Option 3 - Do Nothing

This option is not recommended.

If there isn't appropriate investment in the data that will be required to power the innovative solutions for decarbonisation, customer centric services and greater efficiencies across the sector, SGN could fail to meet the expectations of our customers, Ofgem and Government.

SGN have assumed that if they do not invest in Data Governance solutions they would have an inability to manage Personal Identifiable Information, which would inevitably lead to a significant breach of GDPR legislation (up to £40m fine). We assumed that this breach would occur in year 4 of GD2.

7.4 Options Technical Summary Table

Table 1: Options Technical Summary – Opex spend

Option	First Year of Spend	Final Year of Spend	Volume of Interventions	Equipment / Investment Design Life	Total Cost
Baseline - Do nothing	2025	2025	0	0	0.00
Data Governance & Quality - IT Master Data Management	2022	2021	5	5	0.50
IT Implementation of full Master Data Management	2022	2021	5	8	1.50

Option 1 – Data governance software – Minimal viable investment – Recommended

Data capabilities and the associated digitalisation and technology investment at a relatively modest level and in line broadly with historical spend in analytics use cases within our business.

Option 2 – Data governance software – Enhanced investment

Investment would be accelerated across RIIO-GD2 to deliver maturity quicker.

7.5 Options Cost Summary Table

All options have been reviewed based on the need to keep pace with our customer and stakeholder expectations. The Baseline and option 2 have been discounted due to not being a priority for our customers and therefore costs in the table below focus on option 1.

Table 2: Cost Summary Table

Option	Template	Cost Breakdown	Total Cost (£m)
Data Governance & Quality – IT Master Data Management	IT Opex	Resources	0.3
		Software	0.2
		Hardware	0
		Contingency	0
		Total	0.5

Option	Template	Cost Breakdown	Total Cost (£m)
IT Implementation on full Master Data Management	IT Opex	Resources	0.6
		Software	0.2
		Hardware	0
		Contingency	0
		Total	1.50

*Please note, in order to minimise the cost and timeframes associated with maintaining or introducing IT assets related to open data and data sharing services, our architectural principles and IT strategy advocate a cloud first, buy not build approach. This ensures that the total cost of ownership for any solution is best value for money when comparing options that are available at the point of investment. Our programme and project governance structure will ensure that appropriate business case development and options analysis will be done at the relevant time in GD2 to ensure best value for money when it comes to delivering against the external requirements around open data and data sharing

** It is also of note that it is not possible to clearly define exactly how this investment would be utilised in GD2 based on the availability of solutions at the point of requirement. Use cases, external drivers and technology solutions are moving so fast that what may be available now is likely to be fundamentally different to what is available at the point of investment in GD2 particularly towards the latter stages of this period i.e. 2026.

8 Business Case Outline and Discussion

8.1 Key Business Case Drivers Description

Everything deemed important by our stakeholders (keeping the gas flowing safely, sustaining our future, keeping energy affordable, improving our service and supporting our communities) is reliant on the ability to capture, manage and make use of our data assets. As our data landscape becomes more complex it is necessary to invest in an underlying data management solution, to enable the continuation of sound data driven decisions when it comes to managing finance, people, work and assets. As well as the above, emerging requirements for reporting in GD2 and the need to ensure we continue to understand where our data is (should stakeholders request information), indicates that it is essential that we continue to fully understand our data in an environment where technology solutions and digital data capture are on the rise. A Master Data Management tool will ensure the data SGN need to use to fulfil these obligations remains accurate and current. An appropriate master data management tool will support and enhance SGN's ability to meet the needs of our customer and stakeholders throughout GD2 and beyond.

Table 3: Summary of Key Value Drivers

Option No.	Desc. of Option	Key Value Driver
1	Data Governance – minimal viable investment	Continuous capability improvement on managing and governing increasing variety and volumes of data.

		compliance -regulation and legislation, particularly regulatory regime, open data sharing & digitisation
2	Data Governance – enhanced investment	• Key value driver as above, but at an accelerated rate of investment
3	Do Nothing	• Direct cost avoidance in investment in data governance capability

Table 4: Summary of CBA Results

NPVs based on Payback Periods (absolute, £m)								
Option No.	Desc. of Option	Preferred Option (Y/N)	Total Forecast Expenditure (£m)	Total NPV	2030	2035	2040	2050
Baseline	Do Nothing / Do minimum	N	0.00	-57.73	-57.73	-57.73	-57.73	-57.73
1	Data Governance & Quality - IT Master Data Management Absolute NPV	Y	-0.50	-2.43	-0.64	-0.95	-1.24	-1.74
2	IT Implementation of full Master Data Management Absolute NPV	N	-1.50	-7.14	-1.86	-2.77	-3.63	-5.09
1	Data Governance & Quality - IT Master Data Management NPV Relative to Baseline	Y	-0.50	-2.43	57.09	56.77	56.48	55.99
2	IT Implementation of full Master Data Management NPV Relative to Baseline	N	-1.50	-7.14	55.87	54.95	54.10	52.63

8.2 Business Case Summary

This engineering justification considers the option of investing the areas required to deliver SGN's RIIO-GD2 plans. Not investing in these areas adds significant risks and costs to SGN's obligations as a Gas Network Operator.

Table 5: Business Case Matrix – as this investment is solely Opex, this table is not applicable. Spend broken down in the Options Technical Summary for Opex investment.

9 Preferred Option Scope and Project Plan

9.1 Preferred option

This paper recommends Option 1 which is to invest in data governance and management capabilities at a relatively modest level and in line broadly with historical spend in analytics use cases within our business.

9.2 Asset Health Spend Profile

The following table outlines the proposed investment data governance & management solutions throughout the GD2 period.

Table 6: Asset Health Spend Profile

Asset Health Spend Profile (£m)						
	2021/22	2022/23	2023/24	2024/25	2025/26	Post GD2
Data Gov & Quality - MDM	0.25	0.00	0.25	0.00	0.00	Spend profile will continue

9.3 Investment Risk Discussion

As part of annual operating planning process, SGN management will study and prioritise the use cases for the proposed yearly investments every year to align these planned investments to optimise the investments but maximising the returns for the benefit of SGN customers. All expenditures and benefits listed in the proposed plans will be identified, monitored, controlled and reported on a periodic basis in line with legal, regulatory and financial reporting obligations that apply to SGN.

The minimal investment approach - which according to Gartner's independent review of GD2 investment planning for IT, was in the lower quadrant (but not bottom) of Gartner's comparable measure points - may therefore result in more manual processes being used to manage the data estate, impacting on efficiencies and effectiveness. The design approach will consider the usability of the proposed solutions and attempt to minimise any inefficiencies in manual interventions.

Changing technology trends including operating systems and applications impact the cost and timelines for delivery of the option. Technology roadmaps will provide ongoing assessment of technology changes.

Implementing an MDM solution is complex and can introduce risk of failure if approached overly ambitiously; the approach will be to focus on a discrete business/data area initially to establish these capabilities.

This paper covering Data Governance does not include Capex investment and therefore the Capitalisation Rate Sensitivity for the preferred option, does not apply.