Central Cleanse update to TAG
November 2022

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Agenda

- Reminder of scope
- Data quality assessment headline findings
- Draft benefits case
- Phasing and funding options
- Market consultation
- Next steps.

Project overview

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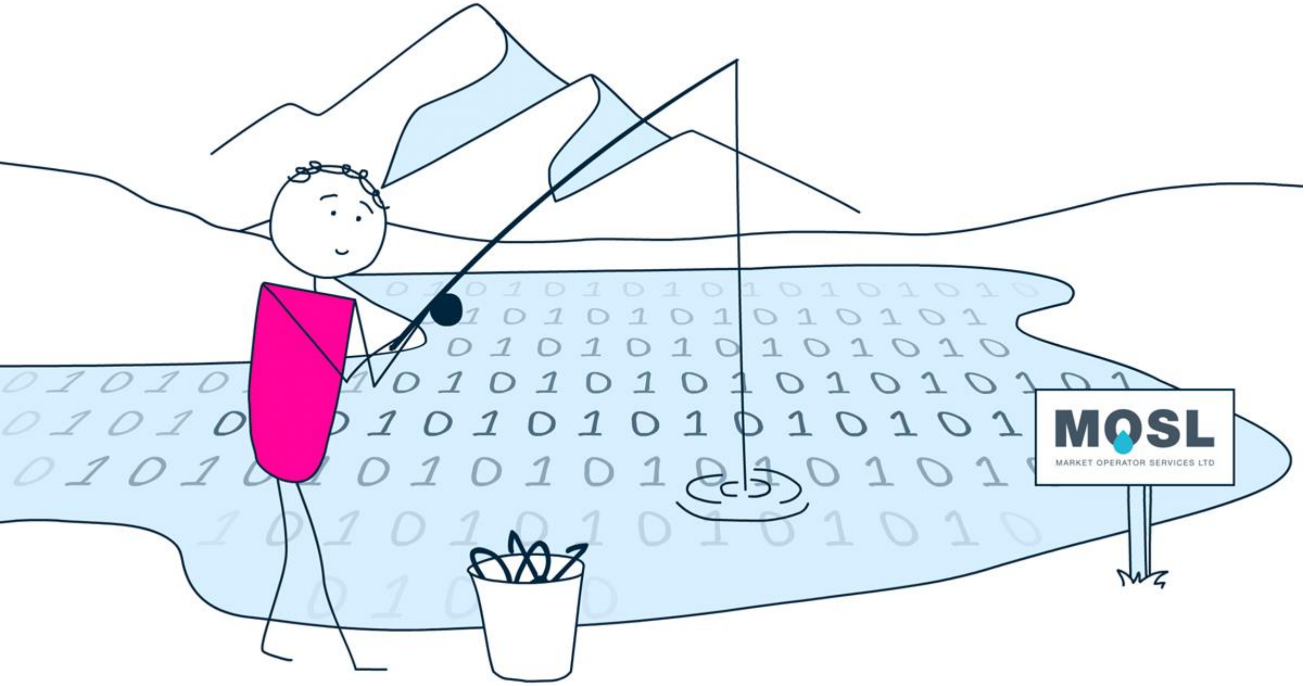
Project Scope | Sagacity



Sagacity worked with MOSL to:

1. Assess the current data quality across all trading parties
2. Validate cleansed data with a small pilot of trading parties
3. Define the solution (process and technology) for a central cleanse service
4. Develop a service proposal (case for change) that will inform a consultation.

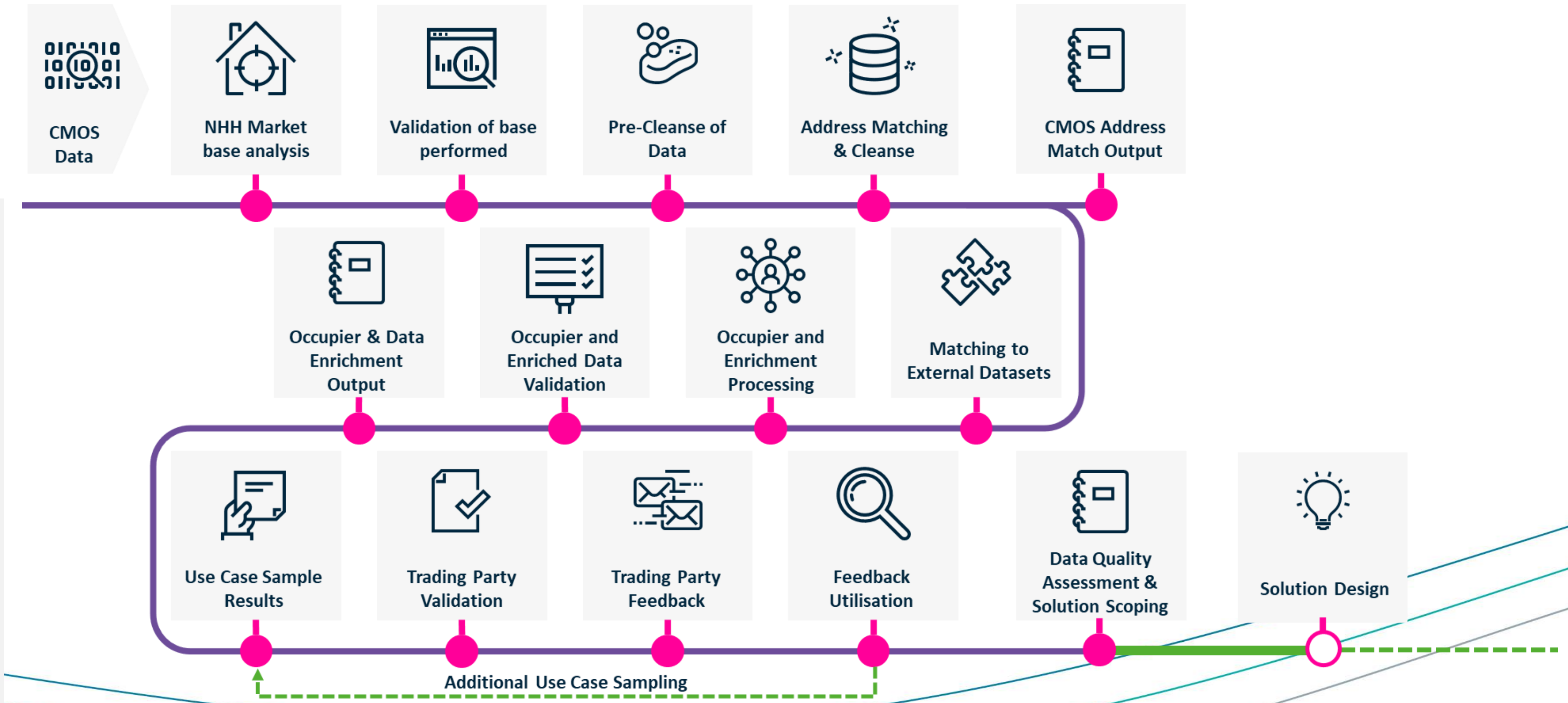
The central solution

The diagram below provides a high level overview of how Sagacity's data cleanse and enrichment software for non-households was utilised during the initial phase of the project.

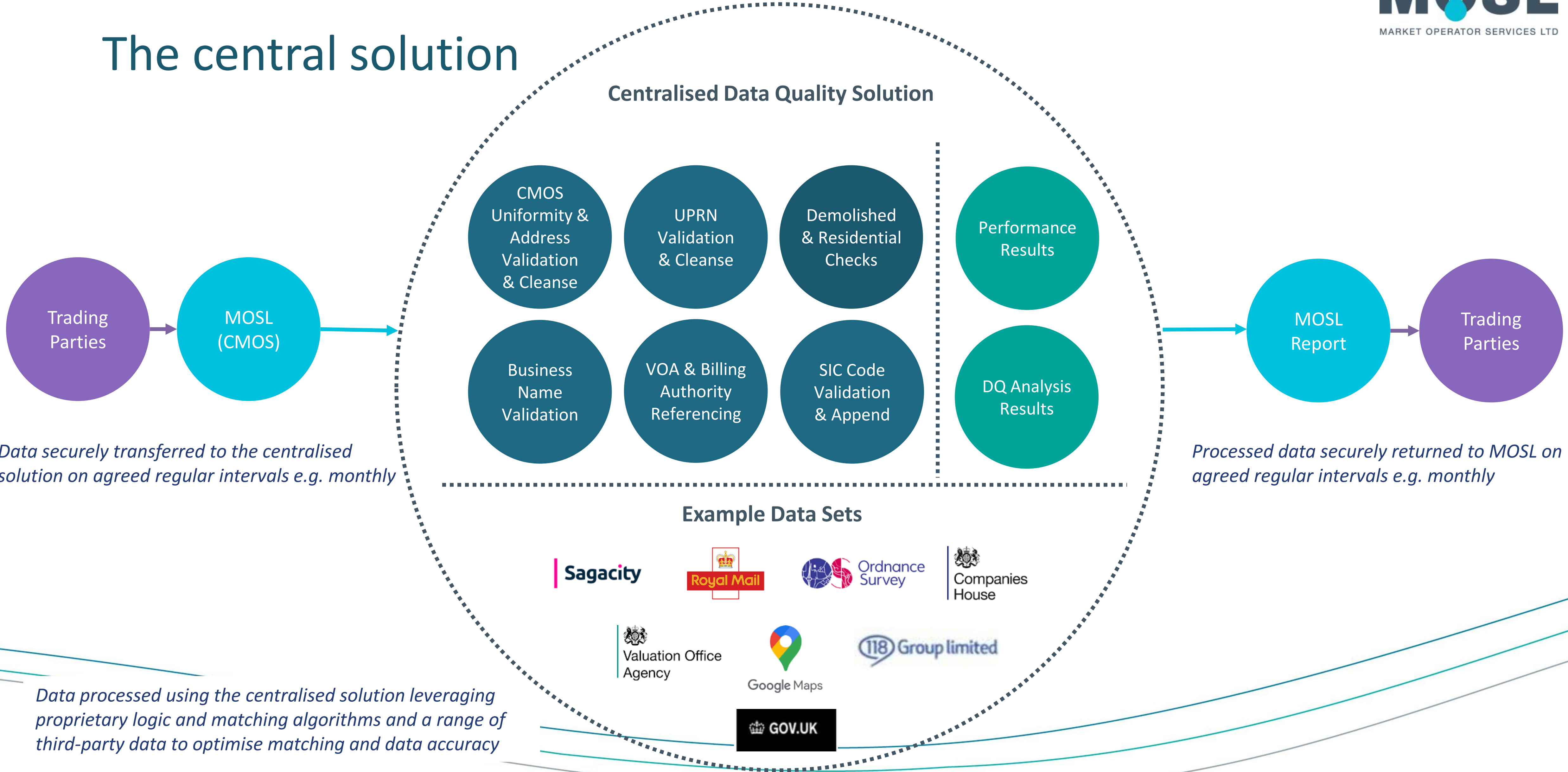
Non-Household Data Quality

Data source and process

- Sagacity use multiple third party data sources to cleanse and enrich their clients data to provide confidence and improvements in data quality
- These data sources have been successfully tested across multiple industries and specifically with water companies
- Sagacity can return the right occupier at the property to take the guess work out of the data and to help MOSL improve operational efficiency
- Sagacity provide specialist support to help MOSL optimise its customer journey and engagement strategies.



The central solution



Data securely transferred to the centralised solution on agreed regular intervals e.g. monthly

Processed data securely returned to MOSL on agreed regular intervals e.g. monthly

Data processed using the centralised solution leveraging proprietary logic and matching algorithms and a range of third-party data to optimise matching and data accuracy

Data Quality Assessment headline findings

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CMOS data analysis

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CMOS Data Validation	Insights	
MOSL MARKET OPERATOR SERVICES LTD **4.5M Records**	**2.81M Supply Data Records** **1.64M Premise Data Records**	The raw CMOS dataset provided by MOSL to Sagacity consisted of two files: • The Supply file, which contained SPIDs and the Retailer and Wholesaler information • The Premises file, which contained address and customer information The datasets were joined to enable analysis on one 'master' dataset
Sagacity	Sagacity performed a cycle of pre-cleansing and analytics to removed invalid data from the master dataset. Deregulated SPIDs, empty addresses and superfluous data was removed before making links between Water and Sewage SPIDs where addresses were the same. This reduced the volume of SPIDs by over 200K from the original 2.81M provided	
Results	A total of 2.6M SPIDs were identified and included in the Data Quality Assessment. Using this dataset the number of premises and addresses within the market were able to be identified and are broken down below:	
2.6M SPIDs	**1.38M Water SPIDs** **1.22M Sewage SPIDs**	• A Premises is a location • A Premises can have 1 or more SPIDs • Each SPID has an Address → We have had to analyse 2.6M addresses attached to each SPID to identify discrepancies, duplicates and unique addresses
1.49M Premises	**1.11M with Water & Sewage SPIDs** **268K with Water SPID Only** **108K with Sewage SPID Only**	The analysis conducted shows that a total of 376K Premises have either a Water SPID or a Sewage SPID attached, and not both → This is undergoing further investigation to understand why both Water and Sewage SPIDs are not attached to the same Premises e.g. Unpaired Supply Points
1.68M Addresses	**913K Premises with a matching W&S Address** **197K Premises with a differing W&S Address** **376k Water or Sewage Only Premise**	Sagacity's analytics has identified 1.68M unique addresses that were required to be processed through Sagacity's Address Matching software. This could in part be a result of the addresses being captured by multiple Trading Parties for SPIDS ***Note**: There are 449 different combinations of wholesalers and retailers within the non-household water market*

Key Findings | Sagacity

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Area	#	Finding
Market Eligibility	1	**50k residential premises** and **35k demolished premises** in the non-household market
Premise Accuracy	2	**870k SPIDs** are **missing a Unique Property Reference Number (UPRN)** (a further **610k** have issues) **1.34M SPIDs** are **missing a Valuation Office Agency Reference Number (VOA)** (a further **705k** have issues)
Address Accuracy	3	Only **58 per cent** of CMOS supply point **addresses confidently match** external data sources**.** 16 per cent (**415k**) do not match to any external data set
Trading Parties	4	**Data quality issues are widespread**. The top nine wholesalers (based on SPID volume) all had significant issues, with best performer achieving 70 per cent and the worst 58 per cent Data Quality score
Occupancy Status	5	**459k vacant SPIDs** in CMOS, but 45 per cent of these (**209k SPIDs**) show signs of active business
Customer Accuracy	6	**34 per cent** of **SPIDs (879k)** have no discernible customer name and **343k (20 per cent)** were deemed incorrect. A further **481k** require further validation.

Further Analysis

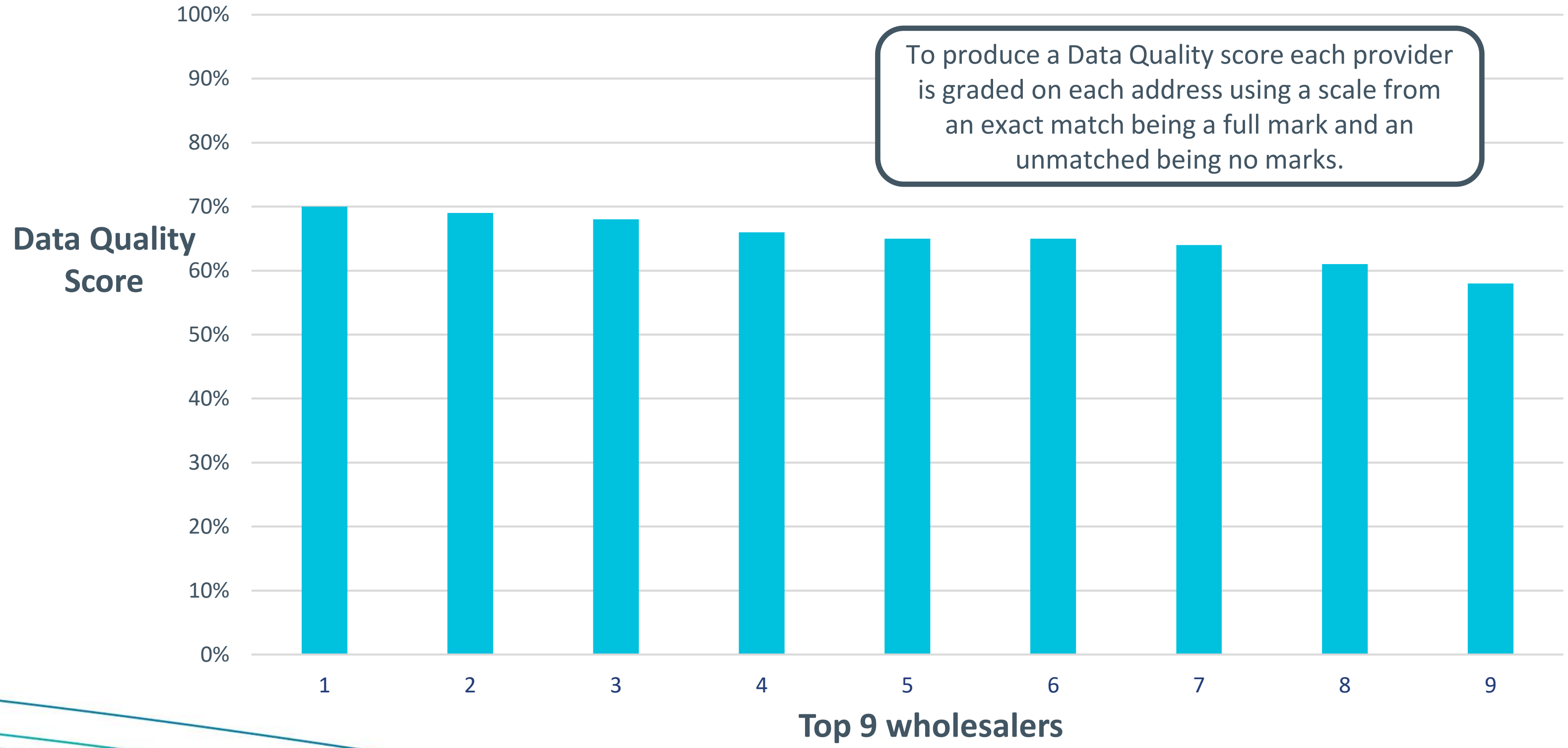
Where supply data cannot be matched to any external database (Unmatched) or is identified as either demolished or residential, there is a higher propensity for known data issues. The supply point may:

- Have a meter GIS location issue
- Be a missing or have an incorrect UPRN / VOA number
- Have a legacy long unread meter*
- Be a long term vacant premises*
- Be an unmetered premises
- Have been vacant since the supply point was registered to the market

**Both legacy long unread metered and long term vacant premises have either not had a meter and / or have been vacant since prior to market opening April 2017*

Wholesaler data quality performance

There is a relatively small disparity in data quality between the top nine wholesalers which make up over 90 per cent of the market.



To produce a Data Quality score each provider is graded on each address using a scale from an exact match being a full mark and an unmatched being no marks.

Market eligibility

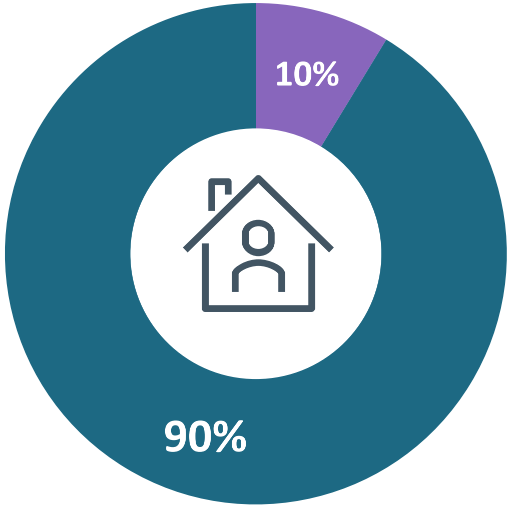
The CMOS data contains a significant number of addresses that may not be eligible for the market.

25k of CMOS addresses are **very** likely to be residential

25k of CMOS addresses are likely to be residential

118k of CMOS addresses are in residential areas, with no evidence of commercial

168k Residential Premises



Potentially 10 per cent of the addresses in the market require validation and remediation

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35k of CMOS addresses are inactive with 22k flagged as occupied in CMOS

Market costs are being incurred for ineligible sites and impacting the customer experience

Market Eligibility: Validation example

This premises no longer exists and should not be in CMOS

CMOS: Armadale Hotel, Arrad Foot, Ulverston, LA12 7SL

March 2009

December 2021

This property is showing as active and occupied in CMOS, but data showed it was vacant from at least 2017 and has now been demolished.

There is a risk of demolished sites not being identified and accruing service charges

Missing new connections

New connections

New build areas were extracted from the MOSL Dataset based on Postcodes and run against the new build sample that ranged from January 2022 to May 2022

A total of **2,389 premises** have been identified as new commercial properties and were split into 3 categories, with only 198 found in CMOS, meaning a significant proportion may not be in the market.

1,931 High confidence gap

260 Medium confidence gap

198 In CMOS

- **High confidence** – No matches have been found in CMOS
- **Medium confidence** – Some potential matches have been found in CMOS
- **In CMOS** – Matches strongly identified in CMOS.

High confidence new connection example:

The Wooden Floor Store, Unit 12 Cyan Close, Nottingham, NG14 5JX

In September 2020 there were no buildings at this location

In May 2022, An industrial estate is well established

Water companies must be able to efficiently identify new connections and the first occupier to prevent customer management issues, unbilled services and collection delays

Premises accuracy

There were missing UPRNs and mis-matches between the addresses and UPRNs in the CMOS data.

2.6m CMOS SPIDs

910k
Water SPIDs with UPRNs

832k
Sewage SPIDS with UPRNs

860k
SPIDs missing a UPRN

Results

1.13m
Validated

610k
Require Validation

525k
New UPRNs Identified

335K
UPRNs missing

1.7m SPIDs

860k SPIDs

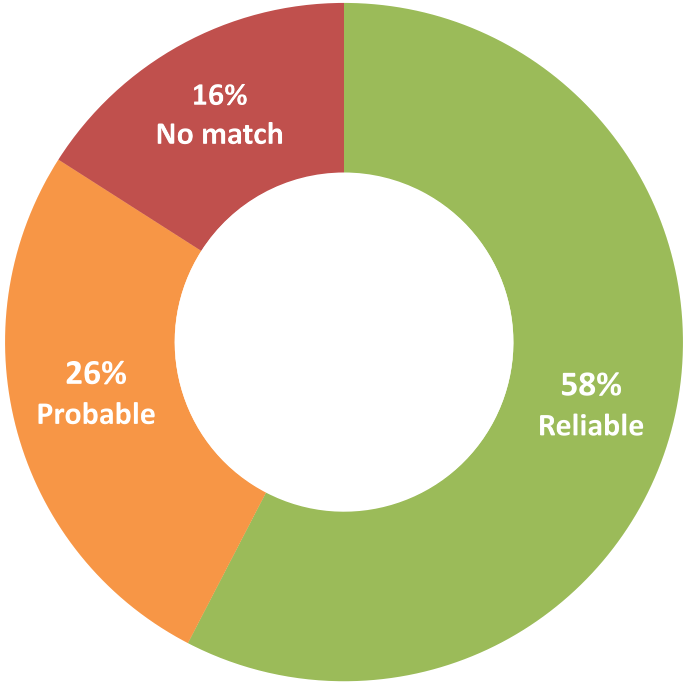
Key findings: Address accuracy

58% of CMOS addresses are accurately matched to a “billable quality”

26% of CMOS SPID addresses are a lower confidence match relying on credible assumptions

16% of CMOS SPID addresses cannot be found in industry standard data sets

Address match overview



The address forms the foundation of the customer relationship

Uplifting address confidence With UPRNs

CMOS Address:

CARTERTON TOWN COUNCIL,
ALVESCOT RD RECREATION GROUNDS,
ALVESCOT ROAD,
CARTERTON,
Oxfordshire,
OX18 3JL

- The UPRN provided in CMOS was used to complete the full address details using key data sources

  CMOS UPRN: 100121316087

- The following address was identified to provide an accurate and recognised address for this premises:

  Carterton Town Council
  Town Hall
  19 Alvescot Road
  Carterton
  OX18 3JL

Carterton Town Council, Town Hall, 19 Alvescot Road, Carterton, OX18 3JL

Completion of UPRNs within the market can help uplift of data quality and provide a secondary layer of confirmation on an address

Occupancy Status

There are significant inaccuracies in the Occupancy Status for the 2.6m SPIDs in CMOS

2.14m CMOS SPIDs are shown as Occupied

459k CMOS SPIDs appear as Vacant

45% of SPIDs appearing as Vacant (209k) are contradicted by other data that shows the premise as Occupied

A deep dive was carried out on a subset of data to understand the reliability of the occupier information contained in ABP/PAF. The analytics proved that there was additional and more up to date occupancy data available in other datasets

- Where no occupier was found in ABP/PAF – **51 per cent** could be found by additional data sources
- Where an occupier was found in ABP/PAF – **28 per cent** had a different occupier identified by additional data sources.

Expertise in using multiple data sets can increase the accuracy and confidence of Occupancy Status

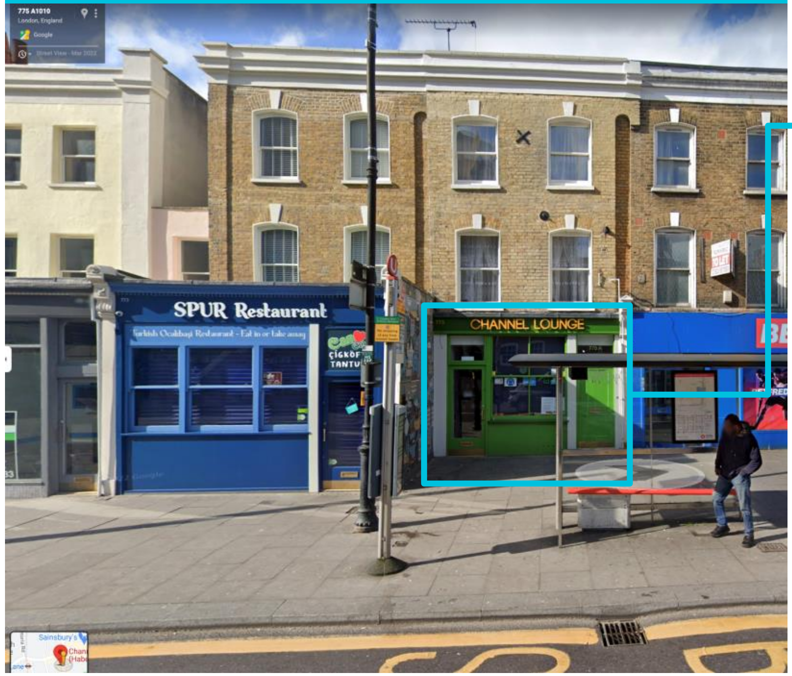
Occupancy status: Identification example

The premises is occupied by a different company to the company showing in CMOS.

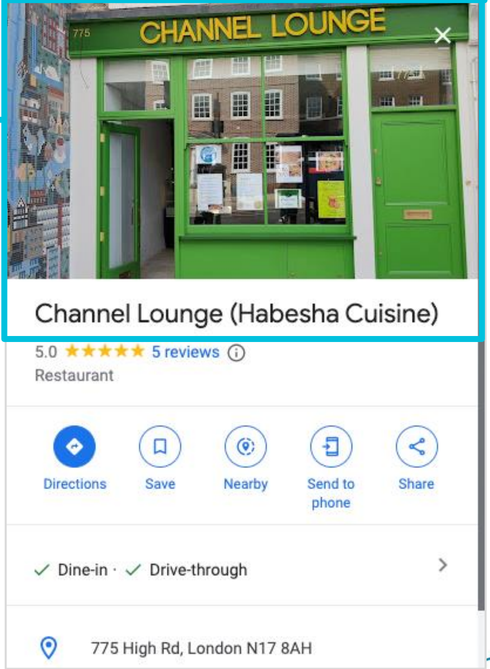
CMOS showed this address with a “Vacant” Occupancy Status but had “Vicky Beauty Saloon” in the customer name.

Data sources confirmed the address is occupied by “Channel Lounge”.

CMOS: Vicky Beauty Saloon London, 775 HIGH ROAD, LONDON, N17 8AH



Occupancy Confirmed: Channel Lounge Ltd



Leveraging additional datasets and applying sophisticated matching logic adds value to existing inaccurate data

Customer accuracy

Customer data for occupied premises is not always accurately recorded or up to date.

Customer Name

1.72m SPIDs with a Customer Name provided

52% of Customer Names provided were matched and validated to PAF/ABP

48% of Customer Names provided either did not match to PAF/ABP (20 per cent) or required further validation to confirm the match (28 per cent)

SIC Codes

2.2m of SPIDs are populated with a SIC code

80% of the 2.2m SPIDs have a 1980 version of the SIC code

The latest version of SIC Codes is from 2007

Proof of Concept analysis demonstrates the benefits of utilising additional data sources to validate Customer Names in CMOS

- 53 per cent of the CMOS Customer Names not validated by PAF/ABP, could be matched and validated with additional data sources
- 30 per cent had an alternate Customer Name available when using additional data sources.

Customer accuracy: Identification example

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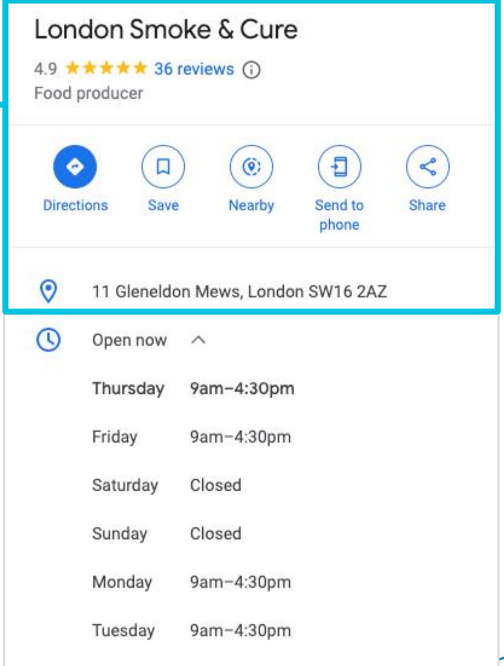
This premises was flagged as occupied but contained no customer name.

CMOS showed this address as "Occupied" but the Customer Name and Customer Banner Name fields were blank i.e. no occupier had been identified.

Data sources confirmed the address is occupied by "London Smoke & Cure".

CMOS Data: 11 GLENELDON MEWS, LONDON, SW16 2AZ

Occupier Identified: LONDON SMOKE & CURE



Leveraging additional datasets and applying sophisticated matching logic to reduce missing data

Benefits

Benefits – Problem statements

Data is fundamental to the success of the non-household market and outcomes for customers and the environment. Data quality issues impact all core market processes and outcomes, including:

- **Cost to serve** for retailers (and wholesalers)
- **Occupancy/Vacancy** - Sites billed that are vacant and debt cannot be recovered, and sites occupied but shown as vacant driving lost retail revenue (or cashflow), eventual bill shock and additional bad debt risk. Consumption treated as leakage
- Limited **water efficiency** impact – Unable to benchmark customer consumption or identify outliers for targeted intervention
- **Billing** issues – Unable to identify and bill sites, leading to lost retailer revenue, higher cost to serve, bill shock and bad debt
- **Gap sites** - Customers are being billed as non-household but should be household and vice versa. Lost revenue for retailers
- **Long Unread Meters** (LUMs and LLUMs) – higher percentage for unmatched addresses and burden premises that should not be in the market.

Significant **resource burden** on retailers to work around poor-quality address data

Benefits – Impact of poor address data

Additional effort/cost due to missing or incorrect address identifiers to:

- Match SPID to 3rd party data sources to get address and customer details
- Confirm eligibility (not legally permitted to bill household customers)
- Identify VOA reference for SPIDs in multi-occupancy buildings and effectively track splits and mergers
- This leads to incorrect customer billing (where wholesaler charges based on business rates).

Managing occupancy, vacancy and eligibility changes:

- Erroneous vacants lead to wholesalers setting charges to other customers higher than need be to recover costs (cross subsidisation)
- Customers are not informing retailers when they move into premises, meaning retailers incur cost to identify
- Poor visibility of new connections, demolitions and changes of use lead to financial losses (e.g. unable to bill household customer and after costs have been incurred).

Unmatched addresses mean:

- Retailers cannot find a customer to bill, driving additional cost to track down customers and find/read meters
- Costs incurred sending out letters that are PO returned, paying 3rd parties to find an occupier and raise bilateral requests
- Retailers cannot keep track of gap sites vs poorly addressed existing supply points
- Exposure to financial losses post-RF having paid wholesaler charges that won't be recouped.

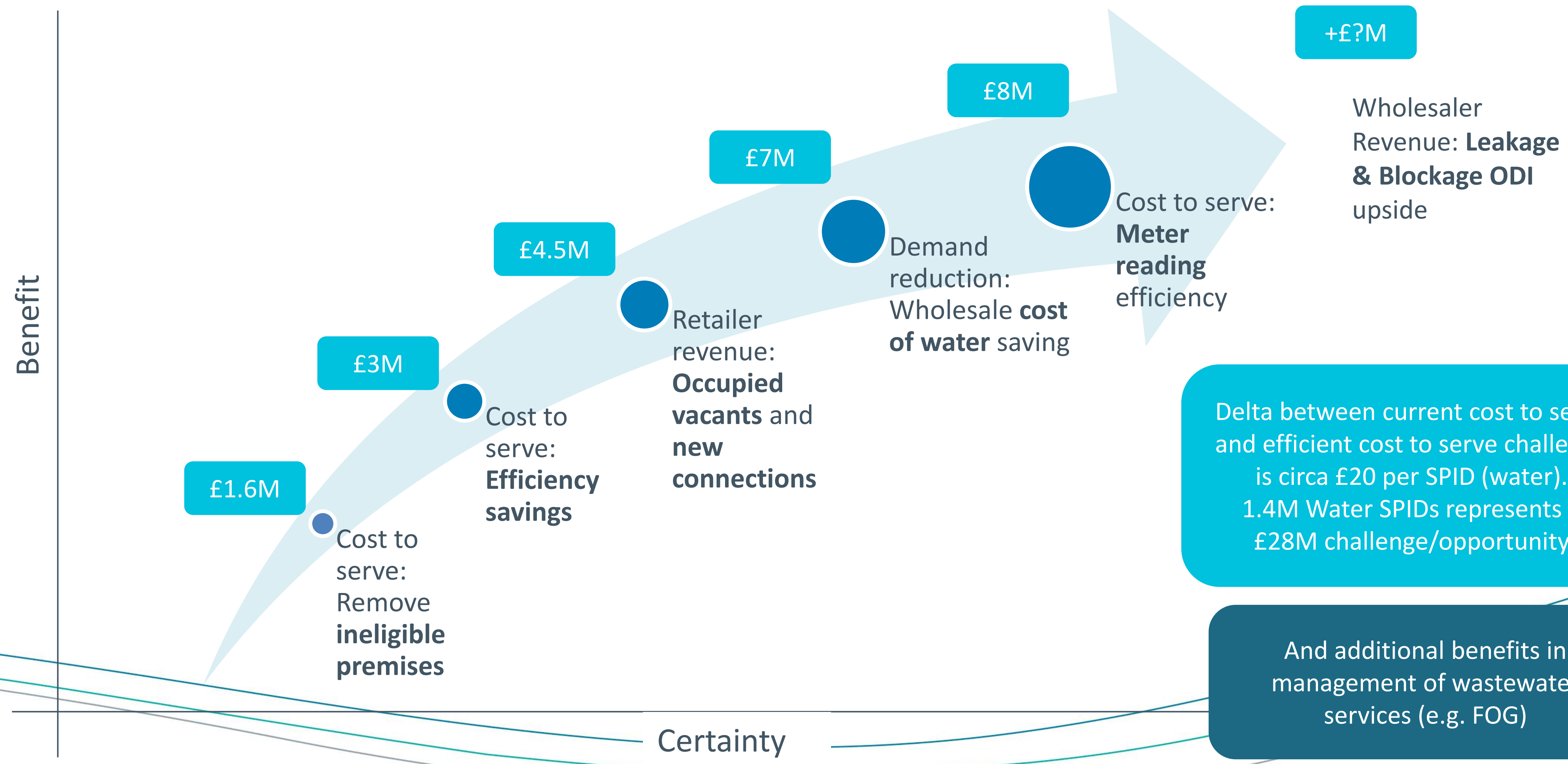
Missing or erroneous customer details (name and segment) means:

- Difficulty identifying SPIDs associated with a given customer at switching
- Difficulty developing meaningful consumption benchmarks and targeted water efficiency interventions with key groups or outliers (e.g. may wish to provide different offers to public and private schools)
- Difficulty identifying sites of special consideration (public health, vulnerability, etc.) and associated cost of providing required info to wholesalers.

Trading party feedback

- In addition to the PoC with Thames, Anglian and Wave, we continue to socialise findings from the Data Quality assessment and seek input on proposed central cleanse solution.
- We have met with Thames, Affinity Water, South East Water, Business Stream, First Business Water, Water2Business, Wessex Water and United Utilities. Themes include:
  - **Non-eligible premises** should be the immediate priority
  - **UPRN** and **VOA** reference data is key to ensuring accuracy and validation of market data and size
  - Identifying **gap sites** should be prioritised over customer detail and segmentation, it is important to ensure that the market is accurately reflected.
  - **Occupancy status** accuracy is a key priority for wholesalers, ensuring fair and accurate revenue allocation across household and non-household
- All trading parties spoken to believe a centralised cleanse is the right approach, but it must be driven with clear rule sets that are flexible and evolve over time.
- Some wholesalers have raised concerns around the level of resource required and ensuring that timescales (and associated incentives/penalties within MOF) reflect resource capacities
- In parallel to a large-scale data cleanse, we must prioritise process improvement (e.g. New Connections or Vacancy Management) to prevent a repeat deterioration of data.

Cumulative benefits summary



Delta between current cost to serve and efficient cost to serve challenge is circa £20 per SPID (water). 1.4M Water SPIDs represents a £28M challenge/opportunity

And additional benefits in management of wastewater services (e.g. FOG)

Benefits – Reduced cost to serve

£4M+ Saving

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Category	Levers/Opportunity	Potential Saving
Remove **SPID/Customer management** costs for properties that shouldn't be in the market	• Over 100,000 SPIDs believed to be **Demolished** (35k), **Household** (50k) or **Vacant** (20k), with further volume in the unmatched premises • These customers likely have higher cost to serve and higher bad debt exposure (wholesale charges already incurred) • Associated reduction in Market Performance Standard (MPS) charges.	• Assuming efficient cost to serve for retailers of £33 per SPID, this equates to £3.3M per annum (£4M if you base on upper quartile costs) • If we **assume** just **50 per cent** of these indicators are **correct** (80 per cent from PoC) this equates to a cost to serve saving of **£1.65M** to **£2M** per annum • Removing the metering costs for 50,000 premises (£9 per annum) equates to **£0.45M.**
Reduced **SPID/Customer management** costs through "right first time" data-driven decisions (registration, premises churn, occupancy, billing, deregistration, call handling and complaints handling, disputes)	• Over 40 per cent of addresses cannot be matched to billable quality • 415k did not match at all to any external datasets • 25 per cent of unmatched SPIDs were either vacant or long unread • 870k SPIDs are missing a UPRN (a further 610k have issues) • 1.34M SPIDs are missing a VOA (a further 705k have issues) • Customer name data issues on 1.268m (49 per cent) supply points • 400k SPIDs are missing an SIC. 1.76M SPIDs have an outdated SIC • 209k vacant premises showing signs of active business occupancy.	Large proportion of the market have higher cost to serve due to these issues. If you take the 40 per cent unmatched and assume a **5 per cent efficiency** improvement across the 1.4M non-household Water SPIDs (assuming £33 - £40 cost to serve) would yield a retailer saving of **£1M** to **£1.2M.**
Reduced **data management** resourcing and **data services** costs	~£6M spent annually on resource to manage customer and address data.	Just **10 per cent** efficiency improvement would yield resource savings of **£0.6M.**
Reduced **meter reading** costs (accurate address data)	• Over £8.5M spent annually on meter reading • 25 per cent of LLUMs relate to unmatched addresses.	Just **5 per cent** efficiency improvement would yield resource savings of **£0.43M.**

High level costs

Service costs – summary and next steps

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Two options have been identified and are summarised below, with a third option provided to offer a combination of solutions across the 2023/2024 financial year. The prices below are for **year one only** and may increase as the full solution is developed to support improvement in the market. **Preferred funding model of increased wholesaler Market Operator (MO) Charges**

Option 1

- Three runs to be performed between April 2023 – March 2024
- Covered Address Accuracy, Premises Accuracy and Market Eligibility

Option 2

- Three runs to be performed between April 2023 – March 2024
- Covering Address Accuracy, Premises Accuracy, Enhanced Market Eligibility, Occupancy Accuracy and Customer Accuracy

Option 3

- 2 runs of Option 1 to be conducted
- 1 run of Option 2 to be conducted
- Covering Address Accuracy, Premises Accuracy, Enhanced Market Eligibility, Occupancy Accuracy and Customer Accuracy

£750k - £1m

We then need to overlay **incremental MOSL resource** to manage the service
(some natural overlap with Market Performance Framework)

Phasing and funding

Learning from the Scottish Market Cleanse

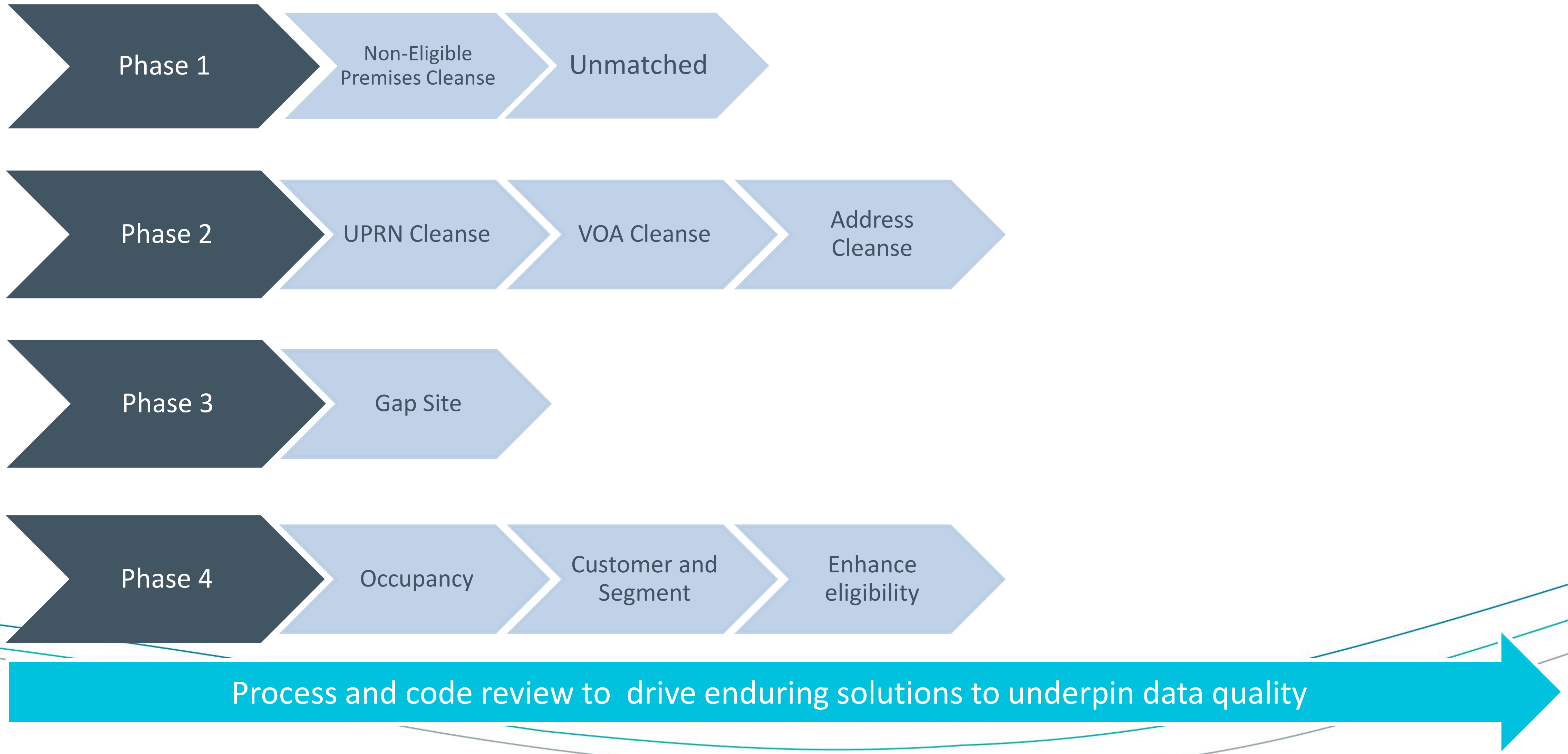
Approach

- **240k** supply points
- **Two data companies** engaged to identify and corroborate data issues. Where findings matched, Scottish Water (SW) updated the central system
- **Internal Competition and Markets Authority (CMA) team** (team of six) set up to review those that could not be matched. SW tasked with correcting confirmed issues
- Any remaining unmatched supply points were passed to **SW to resolve** (team of 16)
- Project ran for **18 months** at a cost to the market **£1.8m** (excluding SW team).

Benefits realised

- **99 per cent** of **market data verified** and rateable value tariff accuracy achieved
- **£15m** in gap site **revenue** achieved
- Confidence in data leading to **clarity** and **understanding** for retailers, a consistent approach to supply point management and **improved customer service** through accurate billing, quicker identification and resolution
- **New connections** processes improved with revenue timing efficiencies realised and reduced back billing.

Proposed phasing



Phase 3 and 4 considerations

Customer and SIC Code

- Demand reduction and targeted water efficiency
- Management of emergency events
- Transfer to SOLR
- Efficiency in tendering and switching
- Reduced cost-to-serve on data rectification post switch.

Occupancy Cleanse

- Reduced retailer cost to serve
- Improved retailer revenue
- Improved leakage performance
- Improved customer outcomes through accurate and timely billing
- Reduced friction and disputes between trading parties.

Gap Site Review

- Retailer revenue opportunities
- Accurate wholesale revenue correction
- Improved leakage performance
- Improved customer outcomes through accurate and timely billing.

Funding model propositions

We know that:

- Data quality issues are widespread with similar data quality scores across the top nine wholesalers
- Majority of data items in focus are owned by wholesalers (exception is Customer Name/Segment, but heavily dependent on accurate address information)
- Both retailers and wholesalers stand to benefit from this cleanse.

Recommendation - Simple, wholesaler led funding model for initial cleanse phase (18+ months), with consideration for more sophisticated "polluter pays" model when we transition to BAU (2025/26).

Options:

- Wholesaler performance charges (Operational Performance Standards - OPS)
- Market Improvement Fund
- Market Performance Charges
- MOSL Business Plan.

Next steps

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Next steps and indicative timeline

- **November and December**: Consult with market
- **January**: Refine proposal based on feedback → Member vote
- **February and March**: Procure services → Initiate code change (?)
- **2023/24**: Mobilise delivery team → Detailed design and Implementation → Phase 1 data cleanse initiated

Proposed central cleanse consultation questions

- **Impact** - Clarify the impact to the trading parties of poor data and market spend on 3rd party services to resolve.
- **Scope and phasing** - Ask trading parties to comment on central cleanse use cases and market priorities for data improvement (specifically Options 1 vs 2 vs 3).
- **Benefits** - Clarify the potential benefits, and disbenefits from a central cleanse service
- **Funding** - Ask trading parties to comment on funding model proposals (vote on specific options?).

Next phase of analysis with Sagacity

Engagement extended to complete further **correlation analysis** to determine the impact of the Data Quality issues identified during the Data Quality assessment on key market issues...

- Long unread meters
- Legacy LUMs
- Vacants with consumption
- Meter GIS issues
- Long term vacants
- ...

This will further **inform the case for change** and the initial priorities / phasing.

Conclusions

- **Strong case for central cleanse** – General consensus on the benefits case and need for a centralised service.
- **Premises and address data are the priority** – Trading parties acknowledge that UPRN and address data is the gateway to accurate enduring CMOS data.
- **Initial phase should be funded by wholesalers** – General consensus to date that the initial phases should be funded by wholesalers and the favoured route would be increased wholesaler MO charges.
- **Consideration of resource requirements, efficiency and timescales is key** – Wholesalers have acknowledged that balancing resource requirements and timescales is a challenge, some stating that this needs to be a multi-year programme.
- **Cost of service per annum circa £1m** – Cost of service and MOSL resourcing, this does not include trading party resource costs.
- **Parallel process and code improvement requirements** – Alongside the centralised service, acknowledgement that numerous processes and code need to be reviewed to maintain data quality and underpin an enduring solution.

Questions

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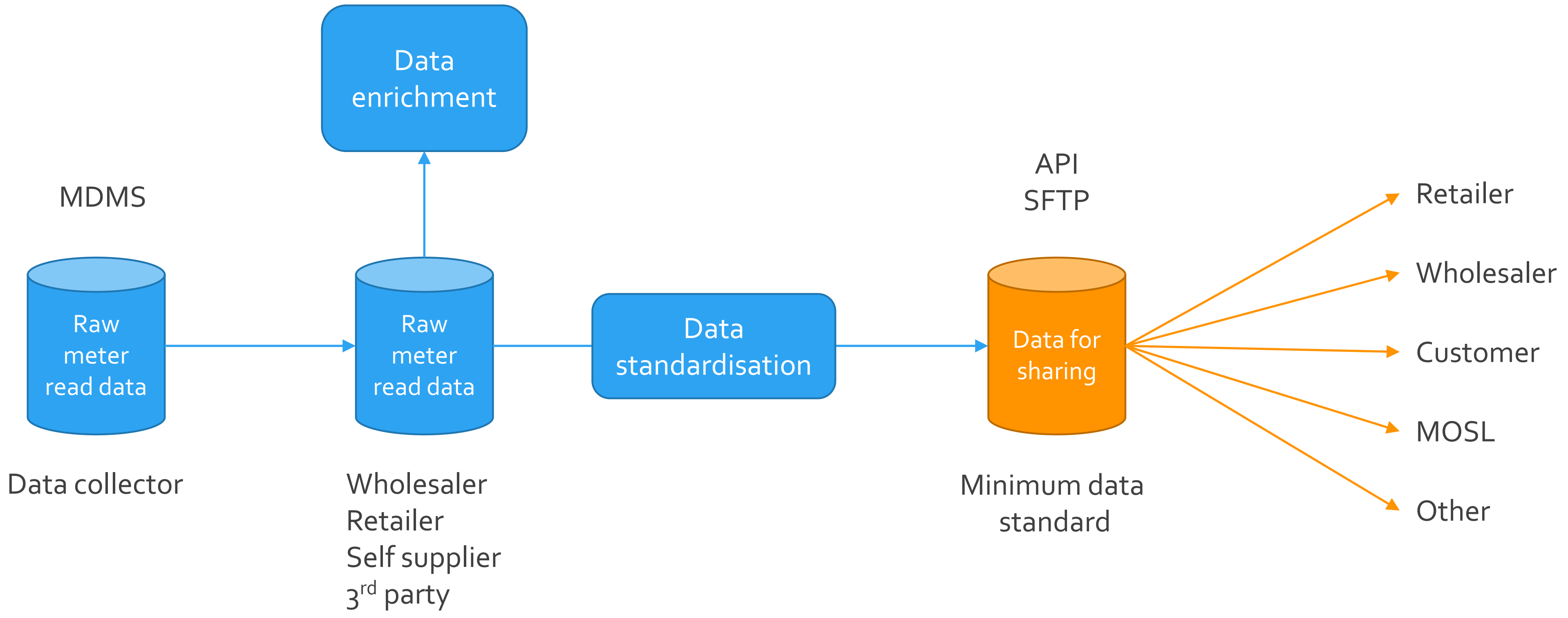
MOSL data sharing standardisation – Draft Standard Update

November 2022

Dene Marshallsay, Giles Fox

Contents

Data Flows


MDMS
Raw meter read data
Data collector
Data enrichment
Raw meter read data
Wholesaler
Retailer
Self supplier
3rd party
Data standardisation
API
SFTP
Data for sharing
Minimum data standard
Retailer
Wholesaler
Customer
MOSL
Other

Process

We have collated the information collected from stakeholders and developed a draft statement of requirements.

We have considered:

Data Requirements:

- Purpose (what it could be used for, e.g. billing, analytics, etc)
- End Users
- What formats the end users are likely to need.

Data Specification

- Minimum mandatory fields
- Definition of each data variable to be stored and shared
- Data structure and format for each data variable

Data Transfer and storage

- Options for data transfer, including functionality requirements and file transfer systems requirements, e.g. SFTP / API.
- Consideration of the pros and cons of a centralised data sharing system, whether this is a requirement, or whether this should be implemented by the individual parties collecting the AMR/AMI data.

Stakeholder Needs

This standard is intended to be used by parties who procure and use granular consumption data, such as wholesalers, retailers, data collection and reading services, etc, to process the data into a common format for sharing amongst other parties.

It has been designed to provide a minimum core set of data definitions for sharing data to be used for delivering the outcomes below. It is anticipated that parties will develop their own analytical techniques to use this data to deliver the outcomes

- Benchmarking NHH consumption
- Development of value added services
- Identify wastage and leakage
- Improve efficiency in switching
- Wholesaler insight for peak demand periods
- Improve wholesaler leakage management
- Provide access to Open Data in a common format

Minimum Mandatory Fields (for data sharing interoperability)

We have defined a minimum core set of data definitions for sharing data

AMI	AMR	Loggers
• Meter ID • SPID (service connection) • Date/time stamp • Meter Register Reading	• Meter ID • SPID (service connection) • Date/time stamp • Meter Register Reading • Continuous flow alert	• Meter ID • SPID (service connection) • Date/time stamp • Volume flow rate

With AMI and AMR data the standard defines data for sharing meter read data, users may develop their own processes for deriving flow rate data from this using the data-time stamp data.

For logger data the standard defines data for sharing flow rate data, this cannot directly be used to derive a meter read at a spot moment in time, this could potentially be developed by combining this data with CMOS meter read data

AMI tables

Data field name:	**MeterID**
Description:	Manufacturer Meter Serial Number
Definition:	A character string comprising the serial number from the manufacturer recorded on the meter. This may not be a unique field. The string may be of varying length and will include integers and/or letters.
Units:	Not applicable
Format:	The field should be an ASCIIString (Length 32).
Example:	`G19M203392`

Data field name:	**SPID**
Description:	Supply Point Identification number

Definition:	A SPID is composed of four parts concatenated into a single unique thirteen character string. The four parts are:
	• SPID Core: This is comprised of two sub-parts:
	  ○ SPID Core Serial Part: a serial number generated upon adding a Supply Point to the Supply point register, the SPID Core is unique to each Eligible Premises. The serial number is a 9 digit integer.
	  ○ Core Check Code: The check code enables error detection for the SPID Core and is always used. The check code is a single character and may be either an integer or the letter "X".
	• Category: This identifies the Service Category, and for the purpose of this Standard will always be "W" for Water. An "S" will represent a Sewerage connection.
	• Version: This identifies the version of the SPID and will always be "1".
	• Check code: The check code enables error detection and is an intrinsic part of the SPID. The check code is a single character and may be an integer or the letter "X".

Units:	Not applicable.
Format:	The field should be UTF-8string (length 13).
Example:	`9876543210W13`

AMI cont.

Data field name:	**DateTime**
Description:	Date and Time
Definition:	Date and time elements in descending order of size (years, months, days, hours, minutes, seconds). Separate each date value with hyphens. Separate 'time' from the 'date' with 'space', use the 24-hour format and a colon to separate hours, minutes, seconds. You should refer to midnight as 00:00:00. You should use Coordinated Universal Time (UTC) with no (zero) offset (equivalent to GMT). Relevant standards: ISO 8601.
Units:	Not applicable
Format:	**`YYYY-MM-DD HH:MM:00`**
Example:	**`2022-07-15 17:32:00`** This describes: 15th July 2022 5:32 pm at zero seconds.

Data field name:	**MeterIndex**
Description:	Meter Register reading value
Definition:	The register advance read from a meter. The read should be a non-negative decimal with a maximum of 12 digits before the decimal point and 4 digits after the decimal point. For a unique combination of SPID and MeterID the MeterIndex should either not change or increase with increasing time.
Units:	m^3 (cubic metres)
Format:	Non-negative decimal (length 12.4)
Example:	**`123456.789`**

AMR tables

The following definitions are the same as in AMI above:

MeterID

SPID

DateTime

MeterIndex

Data field name:	**LeakAlarm**
Description:	The presence of continuous flow passing through the meter (typically this may be a leak).
Definition:	A Boolean value to flag the presence of continuous flow through the meter. This can be used to provide an alert that there is a leak or other form of continuous flow. The value should either be a "1" to indicate continuous flow, or "0" (zero) to indicate the absence of continuous flow being reported.
Units:	Not applicable
Format:	This field should be a. Boolean and contain a value of "1" or "0" (zero) only.
Example:	1

Logger tables

The following definitions are the same as in AMI above:

MeterID

SPID

DateTime

Data field name:	**FlowRate**
Description:	Average volumetric flow rate between two datetime stamps.
Definition:	The average volumetric flow rate (a volume per unit time) passing through the meter between the previous datetime stamp and the current datetime stamp. This should be decimal with a maximum of 12 digits before the decimal point and 4 digits after the decimal point. The value may be negative, which would indicate flow passing in the reverse direction. The units should be stated in the data field name header of the table, after the field name within brackets. For example, "FlowRate (m^3/hr)". Units are defined by the logger setting should be a volume per a unit of time.
Units:	Variable, and should be stated in the field name header.
Format:	Decimal (length 12.4)
Example:	**DateTime** **FlowRate (m^3/hr)** 2022-07-15 17:30:00. 1000.0000 2022-07-15 17:45:00 500.0000 In the above example the average flow between 15th July 2022 5:30 pm and 15th July 2022 5:45 pm was 500 m^3/hr.

Timescales

1. Engage with stakeholders — 16/09/2022
2. Develop end-user requirements — 14/10/2022
3. Produce first draft of standard (originally 14/10/2022) — 07/11/2022
4. Consult and agree final standard — 28/11/2022
5. Produce final outputs and forward plan — 20/12/2022