Technology Advisory Group

27 June 2023

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Agenda

- Welcome and Introductions
- Data Cleanse Service Update
- Beyond the CMOS Rehost
- Future of Smart Meter Technology
- AOB, Next Agenda & Close

Data Cleanse Service Programme Update

Matt Labrum

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Why are we doing this?

- Reliable data is **critical to the effective operation of the market**. Key to operational efficiency, evidence-based improvement, and positive customer, social, and environmental outcomes
- Data quality remains a **significant market friction** that is driving significant cost for trading parties and impacting the outcomes for customers and the environment
- Data **ownership is complex**, with a mismatch between those who own data fields (and bear the cost of maintaining) and those who rely on or derive value from the data
- While great strides have been made to improve UPRN and VOA data since the data assessment was completed in May 2022, **maintaining data quality** on existing premises data has not been a priority and this data **is not being fully utilised fully to benefit the market and customers.**
- Proposed **central cleanse and enrichment service**, focused on Customer and Premises data and supported by appropriate managed service provider.

"All market participants need to improve market frictions – in particular on data quality. We are pleased to see MOSL drive progress here and urge all stakeholders to engage constructively in this consultation and to ensure improvements to market data are made quickly and effectively." – Georgina Mills, Director, Business Retail Market at Ofwat

Key findings from Data Quality Assessment

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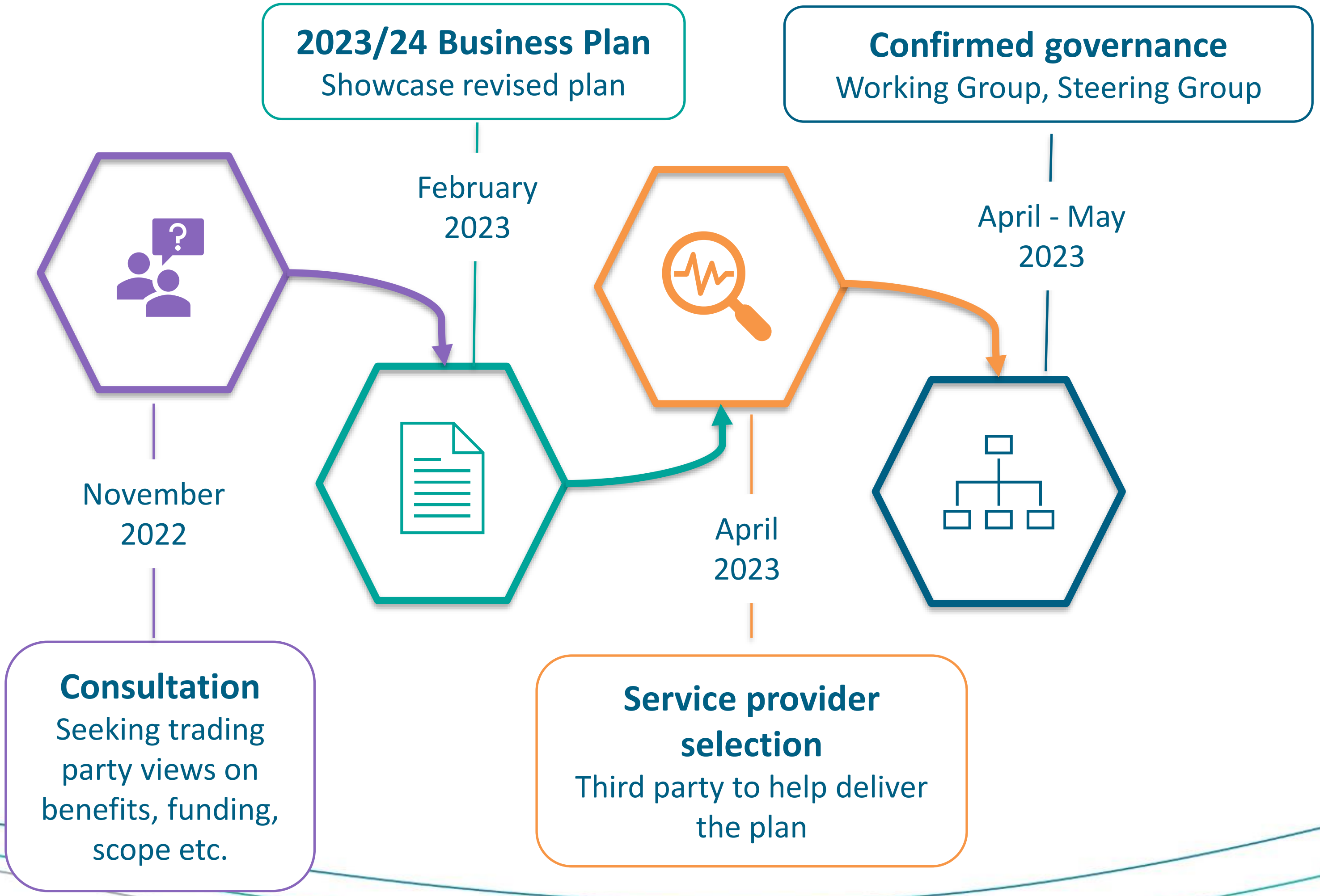
Area	#	Finding
Market Eligibility	1	**50k residential premises** and **35k demolished premises** in the non-household market **2000+ new commercial properties** identified in last quarter (from New Properties DB) that are not in CMOS
Premise Accuracy	2	**870k SPIDs** are **missing a Unique Property Reference 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** are of **billable data quality.** 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.

Refined proposal in 2023/24 Business Plan

- **Focused** and **sequential** approach
- **Phased** to **demonstrate** the **veracity** of the **data assessment** and understand **impact**
- **Reduced cost** in year 1 of circa £550k
- Remains **wholesaler funded**
- Funding model **limited to data cleanse** and to be approved in business plan
- Define scope for year 2 (2024/25) forming basis of the **data assurance** for **Market Performance Framework (MPF).**
- Consider **minimum data standard** for a tradable supply point.

Summary of recent progress



Governance and structure

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Governance structure

MOSL Data Cleanse Service Steering Group

Ensuring delivery to time and costs and resolving conflicts

Data Cleanse Service Working Group

Work with Programme Team to develop service and realise benefits

MOSL Data Cleanse Service Programme Team

Plan, execute and deliver the service. (Includes service provider)

MOSL Board

Executive governance

Digital and Data Committee

Project oversight and guidance

Strategic Panel

Ensure alignment with Strategic Priorities

MOSL Portfolio Board

Manage interdependencies

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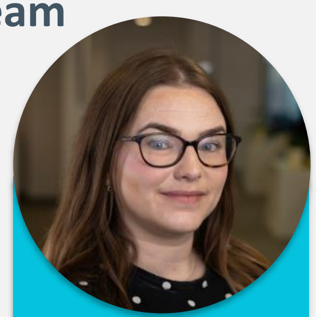
Sponsor

John Davies
Chief Information Officer (CIO)

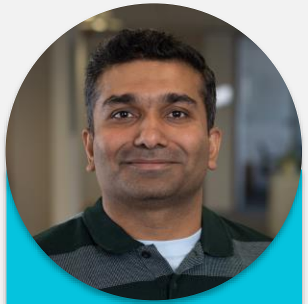
Portfolio Board

Programme Team



Sophie Turner
Communications

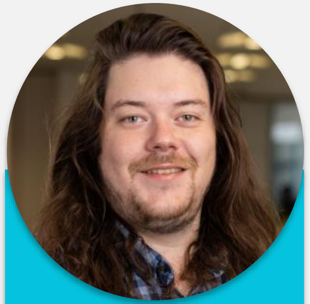
PMO Support
PMO Support



Subhash Marti
Technical Lead

Matt Labrum
Programme Manager

Spencer Mattia
Programme Structure and Governance



Milo Halford
Senior Data Analyst

Hendriico Merila
Data Analyst

Data Cleanse Service Working Group (DCSWG) members

Trading party	Membership type	Nominee	Position
Thames Water	Wholesaler	Yasmine Ali	Data Integrity Manager
Business Stream	Retailer	Trevor Nelson	Regulation and Compliance Manager
Northumbrian Water	Wholesaler	Angela Brown	Wholesale Operations Manager
Portsmouth Water	Wholesaler	Becca Watson	Wholesale Team Leader
South West	Wholesaler	Kevin McCalliskey	Metering, NHH Market, Data and Insight Manager
Castle Water	Retailer	Jamie Davies	Head of Market Operations
Southern Water	Wholesaler	Bryan Traynor	Data and Compliance Lead
United Utilities	Wholesaler	Louise Rutherford	Data Project Lead
Wave	Retailer	Katy Spackmann	Head of Data Integrity
Wessex Water	Wholesaler	Jon Fuller	Compliance and Performance Manager
Water Plus	Retailer	Mark Whittall	Market Performance Improvement Lead

Project deliverables and structure

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2023/24 key deliverable tranches

1 High confidence Non-Eligible Premises

Q1-Q4

Q4

Tranche 1 Use Case – High confidence Non-Eligible Premises

Tranche 2– Minimum Data Standards and Data Quality Scorecard

1. Minimum Data Standards
2. Data Quality Scorecard

Q2: Go live

Tranche 3 Use Cases – Address Cleanse and Enrichment

Tranche 4 Use Cases – Pilot future use cases

Milestones delivered to date

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Non-Eligible Premises Market Cleanse preparation

DCSWG 1
24/05/2023
Content:
Introductions, Terms of Reference, governance, project deliverables & criteria for Non-Eligible premises

DCSWG 2
08/06/2023
Content:
Agree buckets & criteria
Discuss File Format.

DCSWG 3
22/06/2023
Content:
Agree file format. Review provisional data sharing, verification and deregistration process

DCSWG 4
13/07/2023
Content:
Agree data sharing, verification and deregistration process
Commence Pilot Activity

DCSWG 5
26/07/2023
Content:
Non-Eligibility Pilot findings review

DCSWG 6
23/08/2023
Content:
Non-Eligibility Pilot findings review.
Non-Eligibility Cleanse market webinar

DCSWG 7
06/09/2023
Content:
Review findings of webinar, Consider timeframes and performance. launch of Non-Eligibility Cleanse

Working on it

Completed

Stalled

Detailed Non-Eligible Premises Segmentation Model

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Non-Eligible Type: Tier 1a

Demolished	Inactive	Residential	Duplicate

Reason Sub-Status: Tier 1b

Legacy***	Change of Use***	TBS***	Post Market***

Occupancy Status: Tier 2a

Occupied	Vacant

Vacancy Status: Tier 2b

Vacant	Vacant (LTV)

*Vacant post market ** Vacant pre-market (long term vacant) *** Legacy Supply point entered the market with a residential status / Change of Use Commercial premises that changed status post market / Residential Temporary Building Supply registered post market and has not been deregistered / Post Market change other than CU or TBS

Non-Eligibility Criteria - Household

Confidence	CMOS Data	PAF	ABP	VOA	Google	Trading Party Data
High	**Source address categorisation returned as 'Residential' from following criteria** • Presence of the address within a Residential Postcode Zone • Absence of commercial type strings such as "Industrial" or "Business Park" • Presence of residential type strings such as "Apartment" or "Mews" • Ongoing C5 Deregistration • Building Supplies Flag	**Address categorisation returned as 'Residential' from following criteria with 'Exact' or 'Definitive' match:** • Organisation or Department Name field not populated • Presence of the address within a Residential Postcode Zone • No evidence of a Commercial Postcode Type • Absence of commercial type strings such as "Industrial" or "Business Park" • Presence of residential type strings such as "Apartment" or "Mews"	**Address categorisation returned as 'Residential' from following criteria with 'Exact' or 'Definitive' match:** • ABP Classification Codes indicating a Residential Premise • Organisation Name field not populated • Presence of the address within a Residential Postcode Zone • Absence of commercial type strings such as "Industrial" or "Business Park" • Presence of residential type strings such as "Apartment" or "Mews"	• No evidence of Business Rates associated to the address *and/or* • Evidence of Council Tax associated to the address	• No evidence of commerciality through use of the Google API e.g. Operational Status indicators, Last Review Date	• Tariff Indicators (Are there any indicators that could be derived) • Assessed charges (Assessed rate is set to 0)
Medium	**Conflicting address categorisation between reference data sources, with one categorisation returned as 'Commercial' using the above criteria, where address match is either 'Exact' or 'Definitive'**			• No evidence of Business Rates associated to the address *and/or* • Evidence of Council Tax associated to the address	• No evidence of commerciality through use of the Google API e.g. Operational Status indicators, Last Review Date	• Tariff Indicators (Are there any indicators that could be derived) • Assessed charges (Assessed rate is set to 0)
Low	**Conflicting address categorisation between reference data sources, with more than one categorisation returned as 'Commercial' using the above criteria, where address match is either 'Exact' or 'Definitive'** **Evidence of a residential property within the CMOS data where the match to the reference data sources are 'Probable'**			• No evidence of Business Rates associated to the address	• No evidence of an active business at the address e.g. 'Permanently closed' status	• Tariff Indicators (Are there any indicators that could be derived) • Assessed charges (Assessed rate is set to 0)

Non-Eligibility Criteria – Demolished

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Confidence	CMOS Data	PAF & PAF Historic	ABP & ABP Historic	VOA	Google	Trading Party Data
High	• Nil CMOS Activity • Long Term Vacant Flag • Long Term Unread Meter • Ongoing C5 deregistration request • G Read	**Evidence of inactivity at the address returned with the following criteria and an 'Exact' or 'Definitive' address match:** • 'Removed Address' Status in PAF Historic • Premise does not feature in current PAF file • Parent premise does not feature in current PAF file	**Evidence of inactivity at the address returned with the following criteria and an 'Exact' or 'Definitive' address match:** • 'Demolished Address' Status in ABP Historic • 'Vacant Address' Status in ABP • Premise does not feature in current ABP file • Parent premise does not feature in current ABP file	• No evidence of Business Rates associated to the address	• Organisation found but presence of a 'Permanently Closed' status • No active Organisation found at the address and no recent Google reviews found	• Vacant • Nil Billing Activity
Medium	• Nil CMOS Activity	**Conflicting evidence of inactivity between reference data sources, with one source having the address present, with an address match of either 'Exact' or 'Definitive'**		• No evidence of Business Rates associated to the address	• Organisation found but presence of a 'Permanently Closed' status • No active Organisation found at the address and no recent Google reviews found	• Vacant • Nil Billing Activity
Low	• Nil CMOS Activity	**Conflicting evidence of inactivity between reference data sources, with one source having the address present, with an address match of either 'Exact' or 'Definitive'**		• No evidence of Business Rates associated to the address	• No evidence to suggest Organisation closed but no recent Google reviews found	• Vacant • Nil Billing Activity

Key Upcoming Deliverables

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Key Upcoming Milestones

- **DCSWG Provisional Approval of Non-Eligibility Joint Approval and Deregistration Process (ETA end of June):** To include the data share and verification, approval and deregistration processes, these will be further ratified through piloting
- **Data Quality Assessment (ETA end of June):** Data quality assessment of supply point eligibility, premises and address, with a cross comparison of prior year's findings.
- **DCSWG Pilot: (ETA mid July):** 6 – 8 week Pilot to test non-eligibility findings including matching criteria, match confidence and segments, ahead of a market cleanse
- **Market Webinar Presentation (ETA beginning of Sept):** Webinar to present and take feedback on matching criteria, non-eligibility segmentation, joint processes and market cleanse

Beyond the CMOS Rehost

John Briggs

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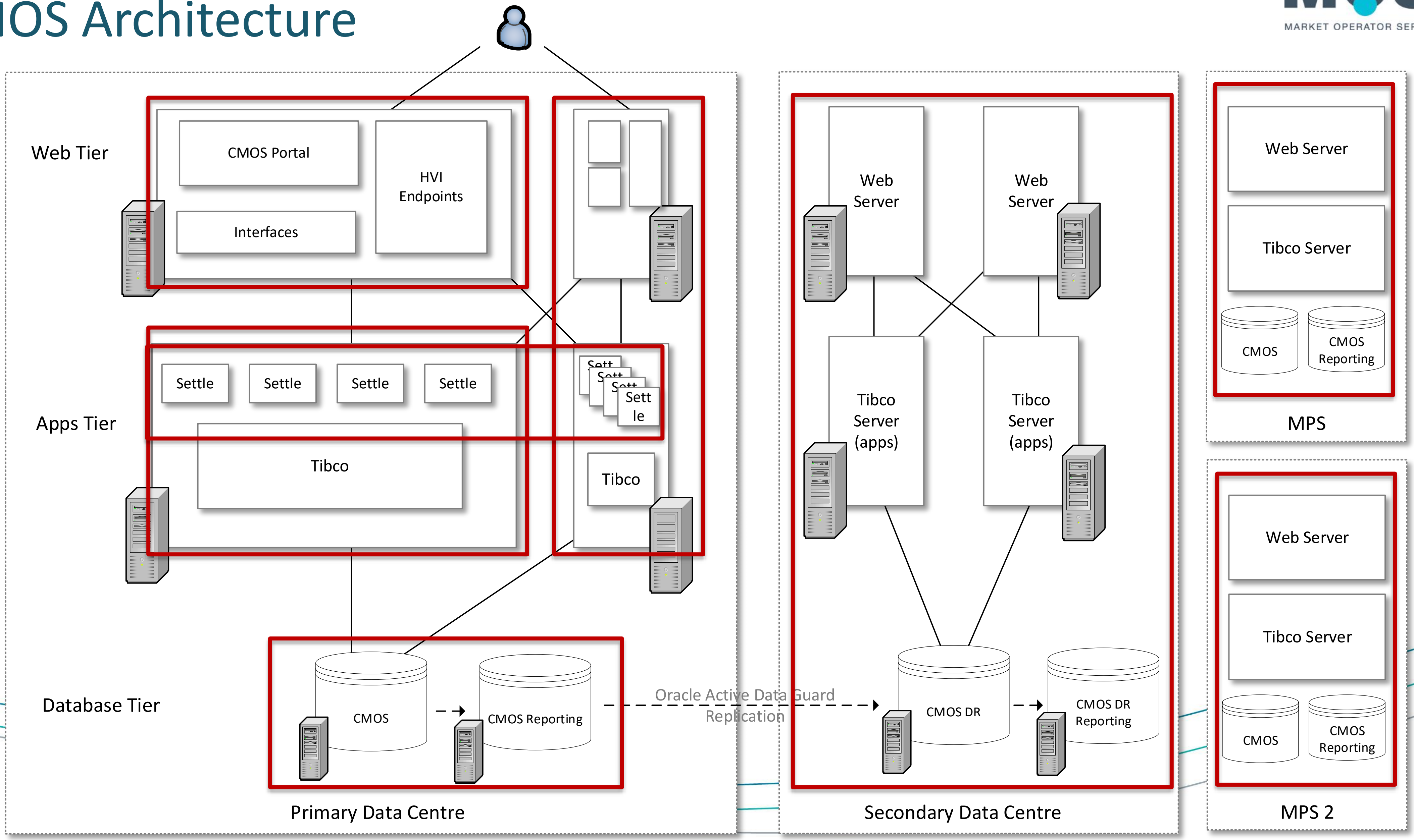
CMOS

- Based on Tibco, Oracle and .NET
- Hosted in two CGI data centres
- MOSL procured the infrastructure capacity as part of the procurement process
- Dedicated hardware
- 8 cores 128 GB RAM Windows Servers
- No incentive to optimise the infrastructure

CMOS Architecture

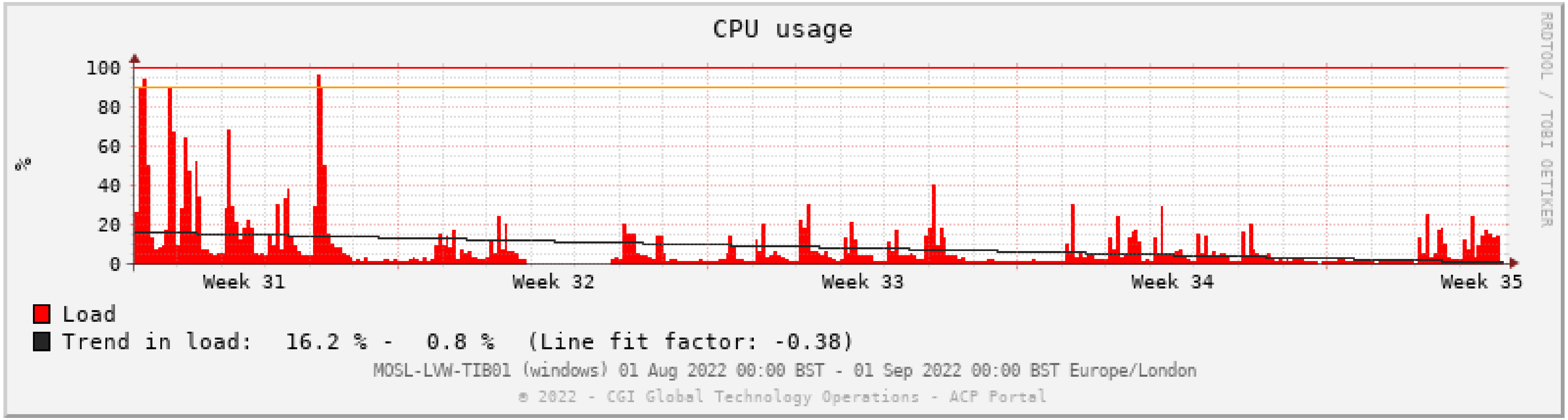


Microsoft Azure

- Leverage the economies of scale
- Capacity on demand
- Reserved instances
- Infrastructure as a Service (IaaS)
- Platform as a Service (PaaS)
- Built in tools to manage and monitor

Infrastructure Rationalisation

CMOS Performance



Settlement process

- Requires large amount of processing power for 20-25 hours a month
- Discrete application that does not rely on other processes
- Suited to leveraging capacity on demand (Native .NET azure application)
- Move to a dedicated machine and scale up and down as needed
- Containerisation
- Significant cost benefits
- Hardware reductions will also reduce licences (Tibco)

MPS and MPS 2

- Assuming both environments are needed
- Options:
    - 24 x 7 availability as now
    - 24 x 5 Monday to Friday
    - 10 x 5 Business hours Monday to Friday
    - In the run up to CMOS releases
    - On Demand
- Reserved Instances

Resiliency

- Highly resilient architecture
- Do we need that level of redundancy?
  - Azure VM guaranteed availability is 99.9% for 1 node
  - Increases to 99.99% for 2 nodes in an availability set
  - Stopped and deallocated nodes
  - Provision new nodes if required
- Licensing implications

Disaster Recovery

- The current DR infrastructure mirrors production
- Same high level of redundancy
- In the past 7 years we have used the DR infrastructure for DR tests only
- Reduce the resiliency
- Stop and deallocate the remaining nodes
- Maintain replication to both the CMOS database and the reporting database
- Maintain replication to just the CMOS database
- Synchronise the reporting database periodically

Modernisation

HVI Process re-engineering

- Incremental approach to re-engineering the CMOS processes
- XML, JSON or both
- Synchronous or asynchronous notifications or both
- 50% of all transactions submitted are retailer meter readings
- The top 5 transactions types account for ~80% of the current volume
- Smart meter readings will increase the pressure upon CMOS
    - Up to a ten fold increase in the number of readings received
- Re-engineering will significantly reduce the hardware and licencing required
- Azure will provide capacity to meet periods of high demand
- The ceiling to 4000 MVI transactions per hour can be increased

Reporting

- Jaspersoft doesn’t fulfill the needs of Trading Parties
- The CMOS data model doesn’t support effective insight
- The rehost will unlock the access to the CMOS databases
- The analytics tools available in Azure and beyond are extensive
- Design a reporting data model that supports trading party reporting requirements
- Evaluate and select a reporting tool that provides the functionality needed

CMOS Portal (LVI)

- Single logon using business accounts
- Single sign-on providing transparent access
  - ‘My MOSL’ and the Bilateral Hub
- Re-engineer the high volume processes first
- Streamline the processes to make them more effective

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The Strategic Metering Programme

Technology Advisory Group (TAG)

Martin Hall, Market Improvement Lead
Adrian Smith, Communications Lead

27 June 2023

Interim metering strategy

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- Evidence points to smart metering in NHH market key to:
  - Timely, accurate customer bills
  - Balancing supply and demand
  - Identifying water waste and leakage
  - Future innovations
- Draft WRMPs (Sept ‘22 – Feb ’23) “disappointing”
- Ofwat ‘final methodology’ reminds companies plans should include NHHs and be “ambitious”
- Defra issued 9% reduction target end January 2023
- Panel approves development of ‘interim’ strategy
- Interim strategy published in mid-April

Interim metering strategy

Expectation: accelerate transition to smart meters in AMP8

Two options:

- **Option 1:**
  Make all non-household (NHH) meters smart in AMP8. Companies with large-scale smart meter rollouts to include all NHH customers.
- **Option 2:**
  Companies not planning large-scale rollout plans to prioritise ensuring all medium (25-50mm) and large (>50mm) meters are smart in AMP8 (and tackle long unread meters too).

Interim metering strategy

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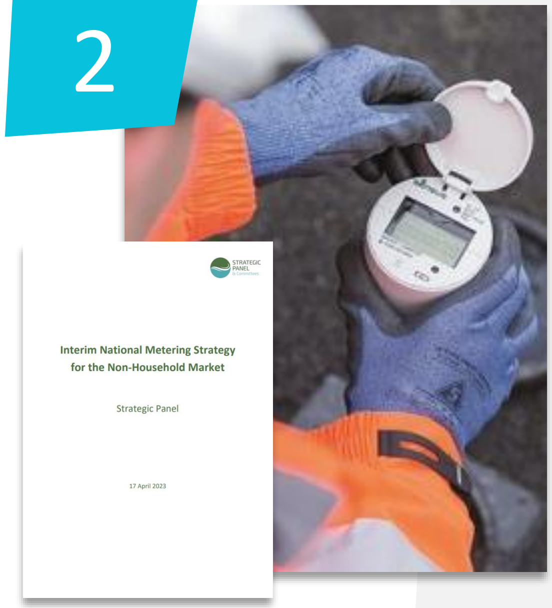
2

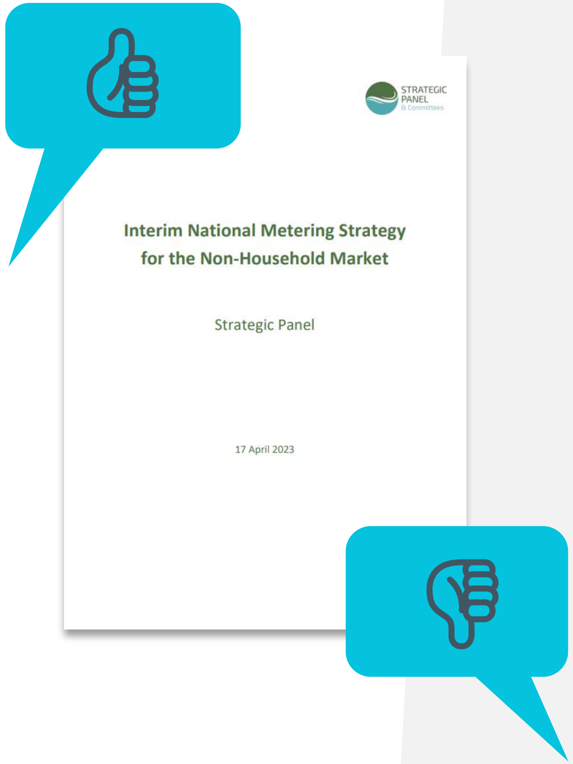


And….

- Here's the evidence you need to make the case…
- Remember Ofwat and Defra expect "ambitious" plans
- Make sure your plans are in your WRMPs!
- We know you have other competing priorities!
- Consistency matters in NHH market: 'fast lane' and 'slow lane'
- Ofwat is open to replacing meters before end of life

Your feedback

How did it land? One-to-ones


STRATEGIC PANEL

Interim National Metering Strategy for the Non-Household Market

Strategic Panel

17 April 2023

- Meetings:
  - NWL, Severn, Southern, South East, UU, Wessex, Yorkshire

- Topics:
  - How was the strategy received?
  - Impact on your final WRMP? Publish date?
  - Views on recommendations?
  - Chosen option?
  - Performance Commitment thoughts
  - Views on likely funding in current climate?
  - How can MOSL help?

One-to-ones

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Findings:

- Very positive response to strategy
- Reinforcement for some; leverage for others
- NHH smart meters considerably higher on the agenda
- Artesia and CCW research valuable
- Consensus on importance of Smart to achieve 9% target – the question is funding
- Notable shift in policy among 'outliers'
- Large AMP8 submissions!

Shared concerns/challenges:

- Competing priorities
- Likelihood of funding
- Welcome 'end of life' approach – but hesitant
- Supply chain challenges
- Risk of underestimating costs
- Data sharing
- Communicating 'smart meters are coming'

Phenomenally helpful

Really welcomed the report and others from MOSL, Artesia, etc

Our CEO is championing the NHH strategy; we're having all the right conversations

The strategy was late – but not too late

There wasn't much [about smart meters] in our draft WRMP – but our final plan will be more ambitious

You've done quite a lot for our business case [for smart meters]

The strategy helps galvanise our current approach; it has achieved what it set out to achieve

MOSL's bottom line

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- Interim strategy has had the impact we had hoped – if not greater
- Strong foundation for detailed strategy
- …fortunate timing with Defra and Ofwat announcements
- Companies under considerable pressure, but recognise smart metering is vital
- **MOSL has reinforced Ofwat message that case must be well made and evidenced –> expectations have been set**

Phenomenally helpful

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Excellent response, **but** will companies' WRMPs be ambitious ***enough***?

Final WRMPs expected in September.....

What next?

Discussion