

Integrated Data Intelligence

Robert Scofield

Regional Director - AtkinsRéalis



Introduction



- **AtkinsRéalis - Technical Lead for Cost Management (Project Controls)**
- **HS2 - Head of Cost Intelligence**
- **MRICS / MCaSA**

Agenda

- **What is Data Intelligence?**
- **'As-Is' Cost Control**
- **Our HS2 Strategy**
- **From Cost to Integrated Data**
- **The “So What?” challenge**
- **Setting the standard**

What is Data Intelligence?

'As-Is' Cost Control

Our HS2 Strategy

From Cost to Integrated Data

The "So What?" challenge

Setting the standard

What is Data Intelligence?

- Extracting meaningful insights from large data sets
- Integrating data from various sources
- Applying advanced analytical tools and techniques
- Presenting the results in a way that decision-makers can easily understand



What is Data Intelligence?

'As-Is' Cost Control

Our HS2 Strategy

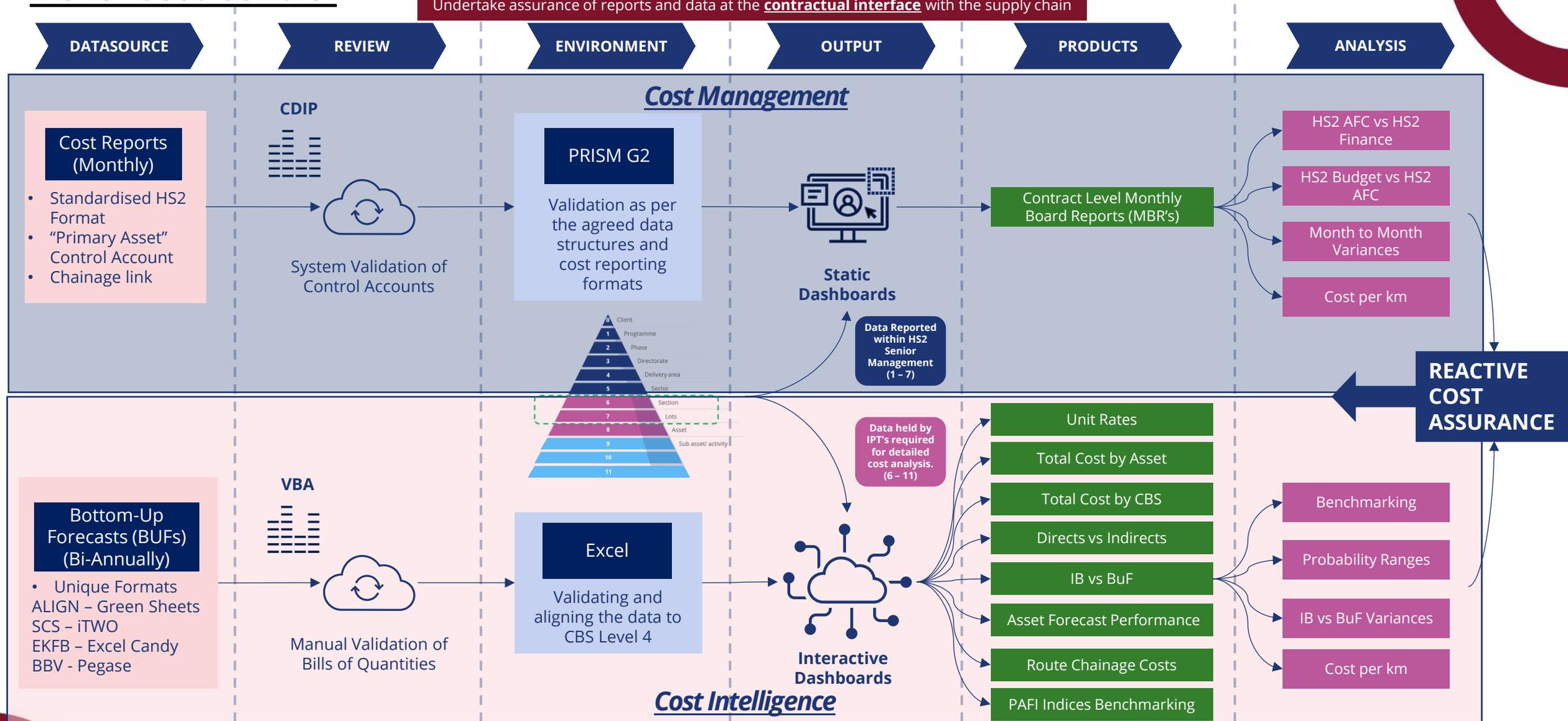
From Cost to Integrated Data

The “So What?” challenge

Setting the standard

'As-Is' Cost Control

Project Controls 'Right Sized Client' Principle
Undertake assurance of reports and data at the **contractual interface** with the supply chain



What is Data Intelligence?

'As-Is' Cost Control

Our HS2 Strategy

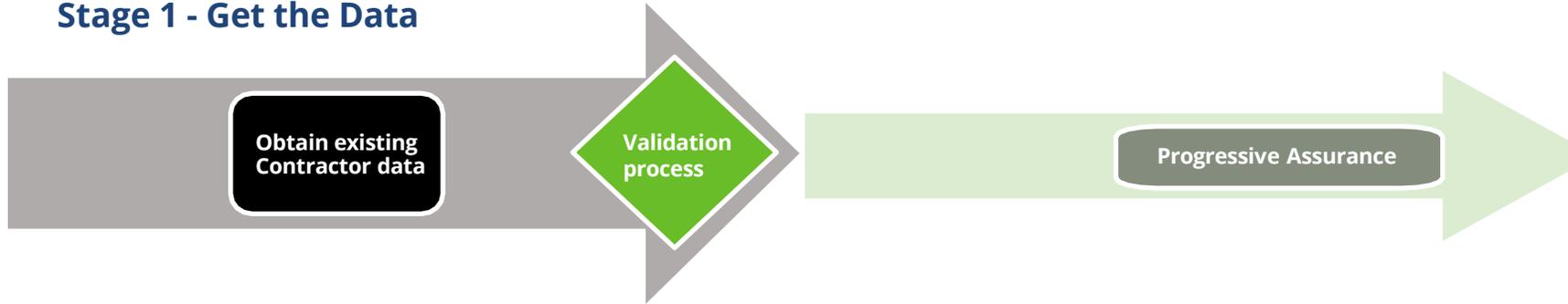
From Cost to Integrated Data

The "So What?" challenge

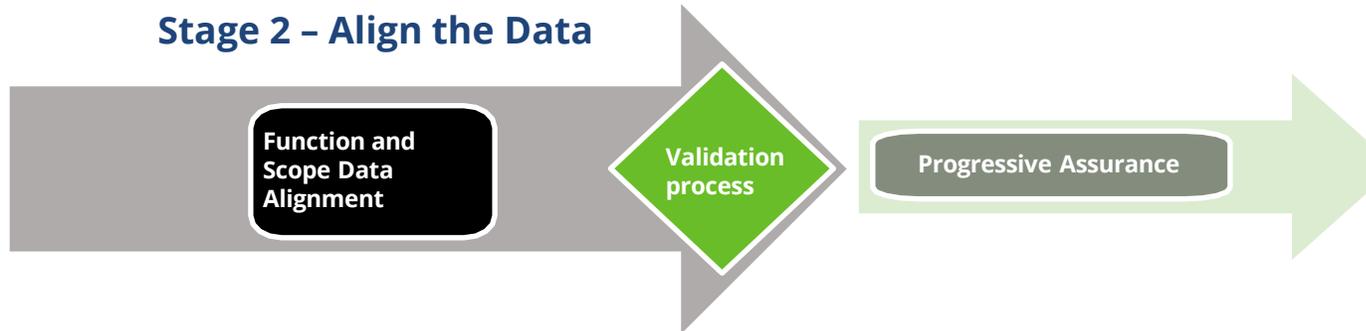
Setting the standard

Our HS2 Strategy

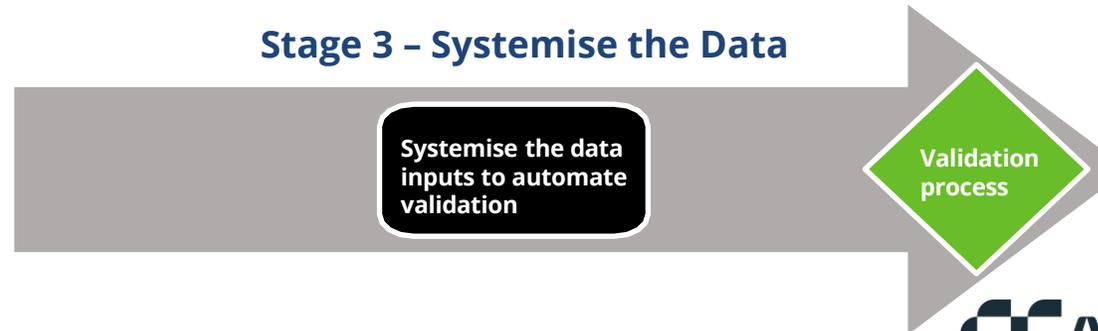
Stage 1 - Get the Data



Stage 2 - Align the Data

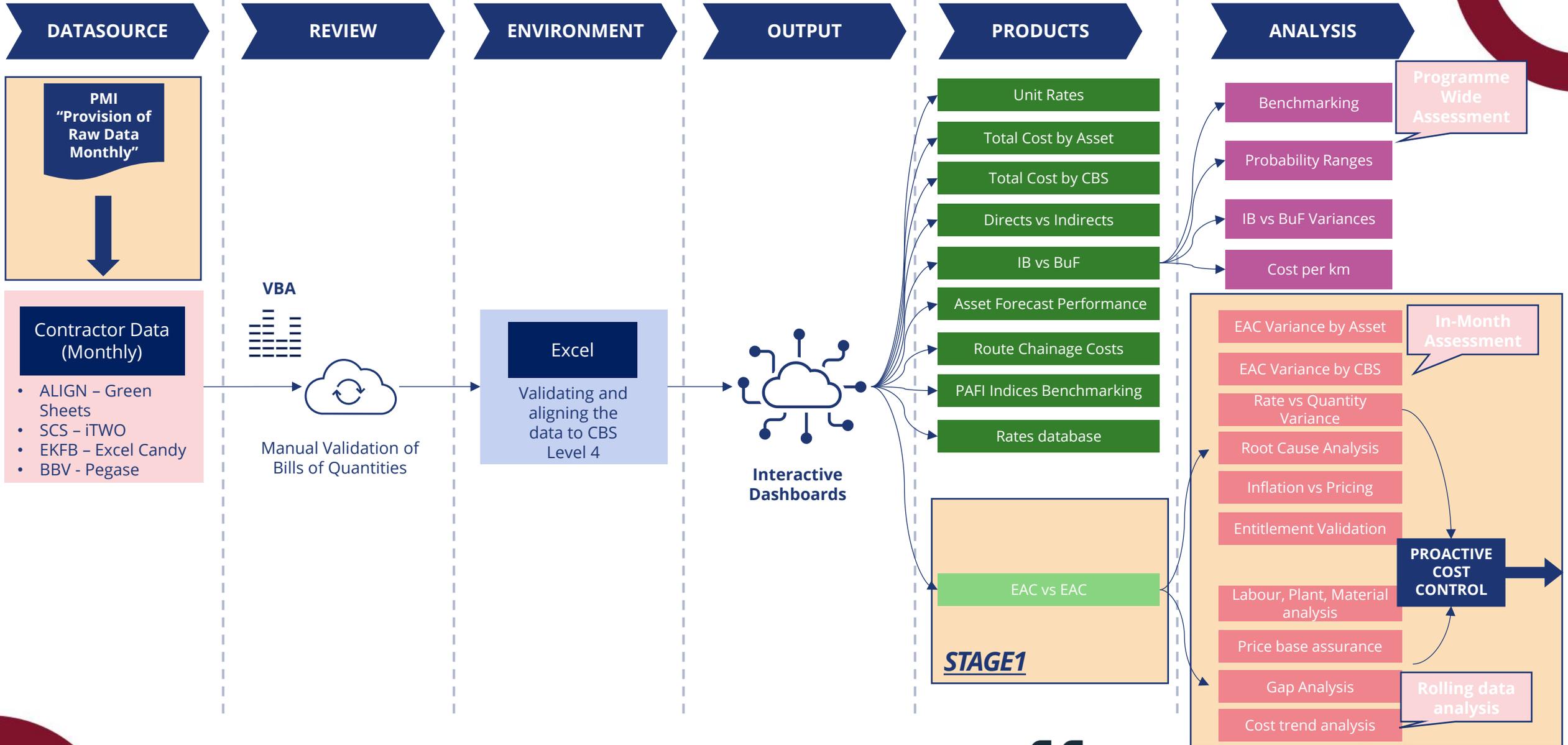


Stage 3 - Systemise the Data



**PROACTIVE
DATA DRIVEN
ASSURANCE**

'To-be' Cost Control - Stage 1 "Get the Data"



'To-be' Cost Control - Stage 2 "Align the data"

DATASOURCE

REVIEW

ENVIRONMENT

OUTPUT

PRODUCTS

ANALYSIS

Contractor Data (Monthly)

- ALIGN - Green Sheets
- SCS - iTWO
- EKFB - Excel Candy
- BBV - Pegase



Manual Validation of Bills of Quantities

Excel

Validating and aligning the data to CBS Level 4



Interactive Dashboards

- Unit Rates
- Total Cost by Asset
- Total Cost by CBS
- Directs vs Indirects
- IB vs BuF
- Asset Forecast Performance
- Route Chainage Costs
- PAFI Indices Benchmarking
- Rates database
- EAC vs EAC

- Benchmarking
- Probability Ranges
- IB vs BuF Variances
- Cost per km

- EAC Variance by Asset
- EAC Variance by CBS
- Rate vs Quantity Variance
- Root Cause Analysis
- Inflation vs Pricing
- Entitlement Validation
- Labour, Plant, Material analysis
- Price base assurance
- Gap Analysis
- Cost trend analysis

Contractor Data (Monthly)

- Applications for Payment (AFPs)

Map Defined Costs to CBS Level 4

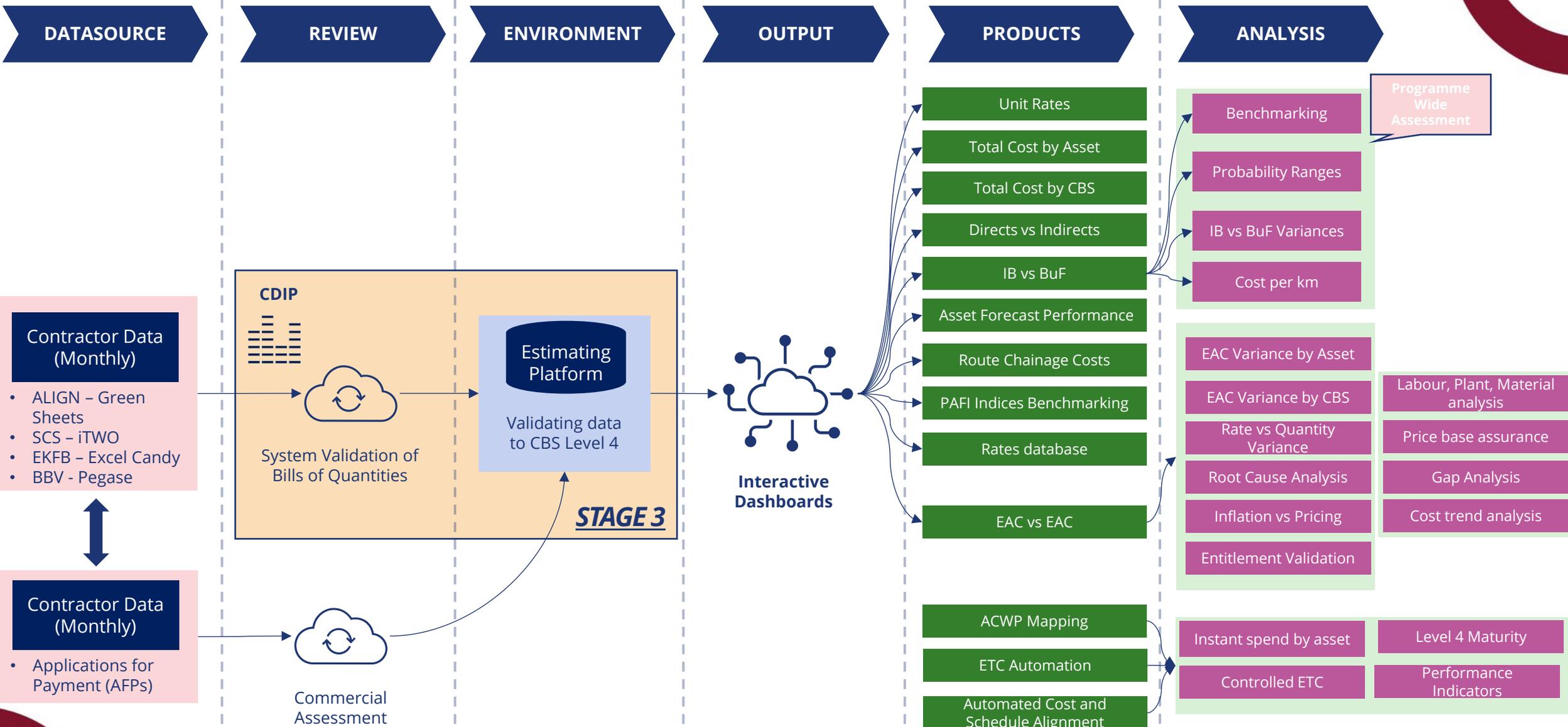
Commercial Assessment

STAGE 2

- ACWP Mapping
- ETC Automation
- Automated Cost and Schedule Alignment
- Instant spend by asset
- Controlled ETC
- Level 4 Maturity
- Performance Indicators

ASSET PERFORMANCE MEASUREMENT

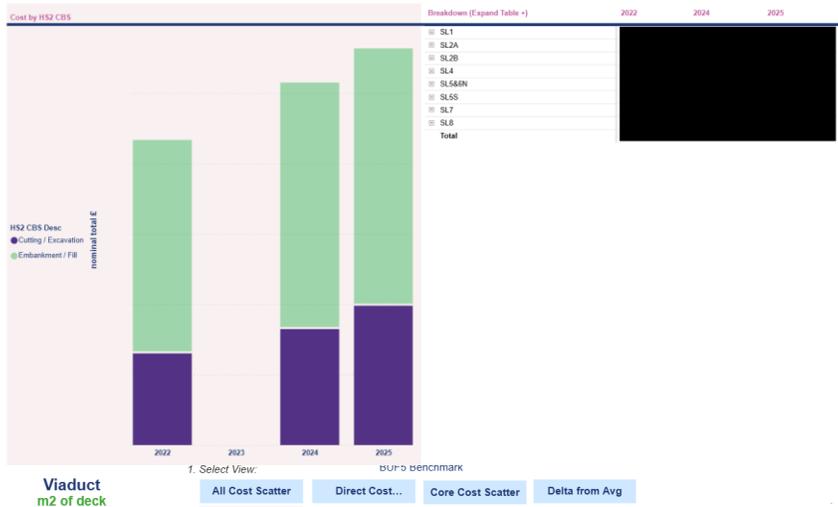
'To-be' Cost Control - Stage 3 "Systemise the data"



Initial Results

- The data is out there – Access determined by contract
- Finding the Alignment point:
WBS Level 8 = CBS Level 4 = Asset Level → Scope is Key!
- The Supply Chain need structure
- Templates may be going out of fashion
- People will ask “So What”?

Establishing our service



EAC Delta by Category

Discipline: Unallocated, Tunnels, Fee, Core, Structure, Mainline, Total

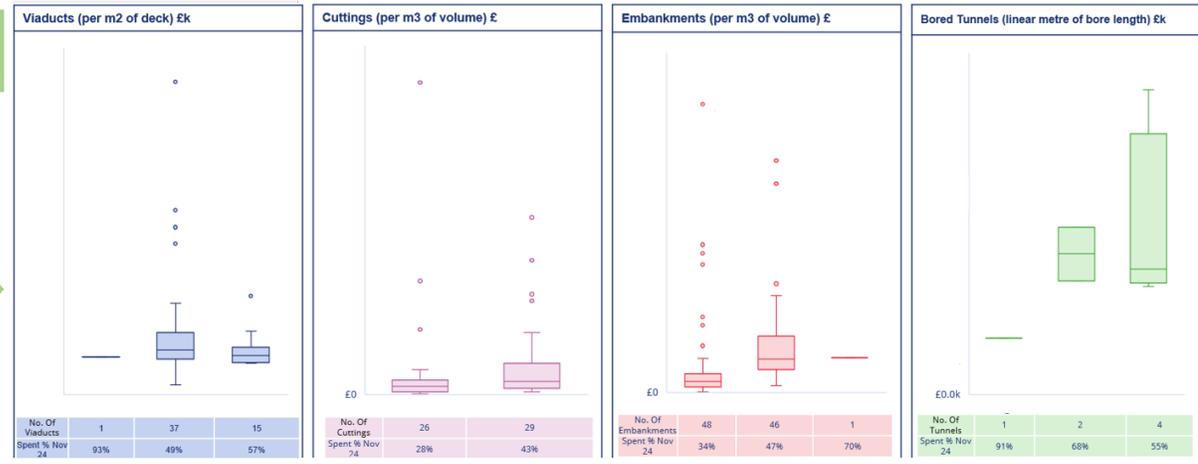
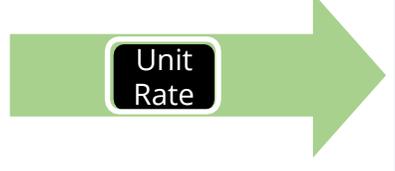
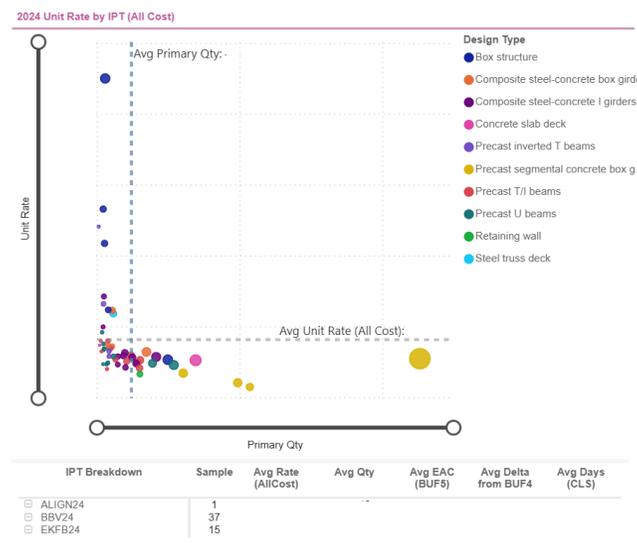
Control Account Name: Agricultural Centre Embankment, Ash Beds Cutting, Ash Beds Embankment, Attleboro Farm Embankment, Attleboro Flyover, Balsall Common Viaduct, BBV ONLY, Beechwood Embankment, Bickenhill Cutting, Bickenhill Embankment, Birmingham and Fazely Canal Viaduct Group (Includes BandF Canal and Marston Box), Birmingham Interchange Station Cutting, Total

Forecast 1, EAC Delta, Forecast 2

Delta

2. Refine Selection:

- Asset Type: Viaduct
- IPT: All
- Location Type: All
- Design Complexity: All
- Design Type: All
- Asset Name: All
- Outliers - Rates (Simple IQR): All
- Outliers - Rates (1.6*IQR): All
- Outliers - Primary Qty: All



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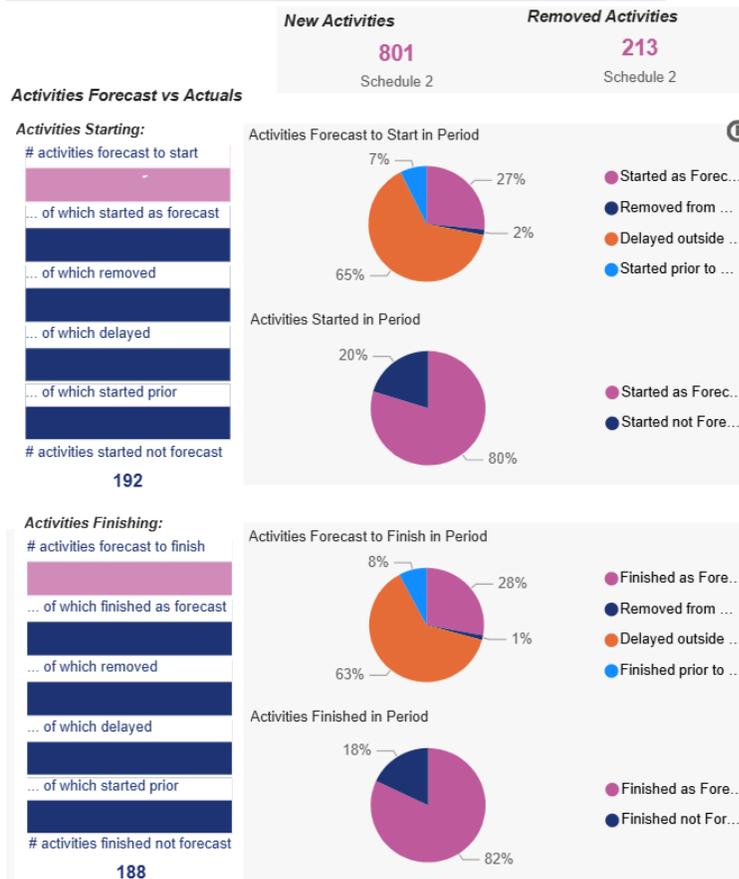
From Cost to Integrated Data

The "So What?" challenge

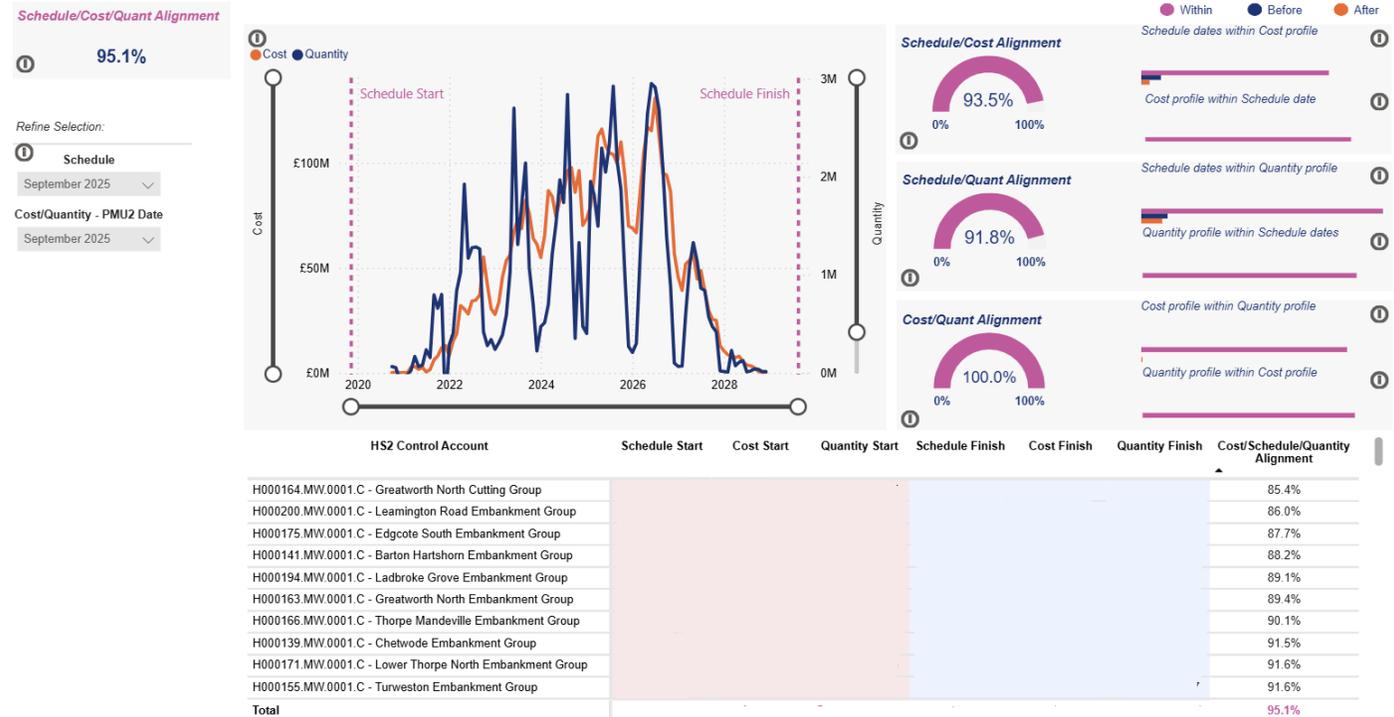
Setting the standard

Integrating Controls

Schedule Variance



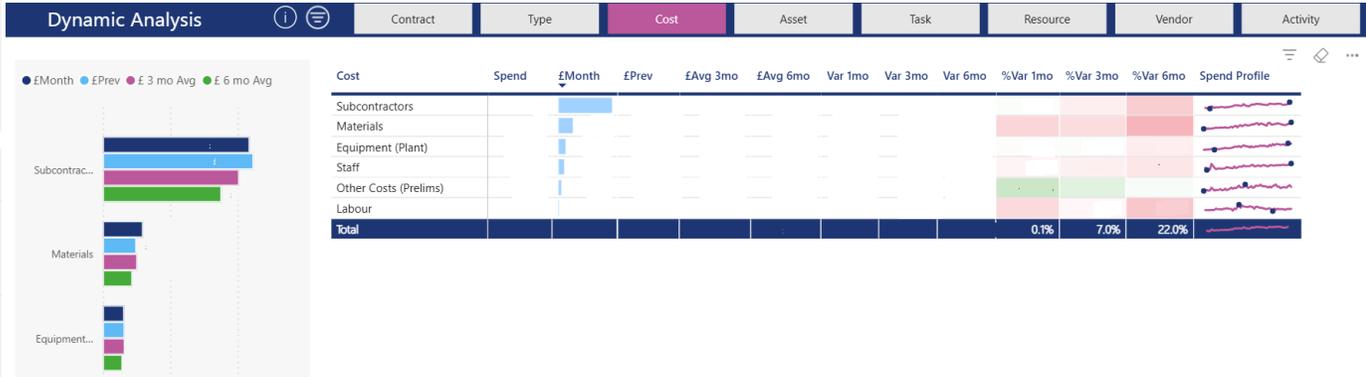
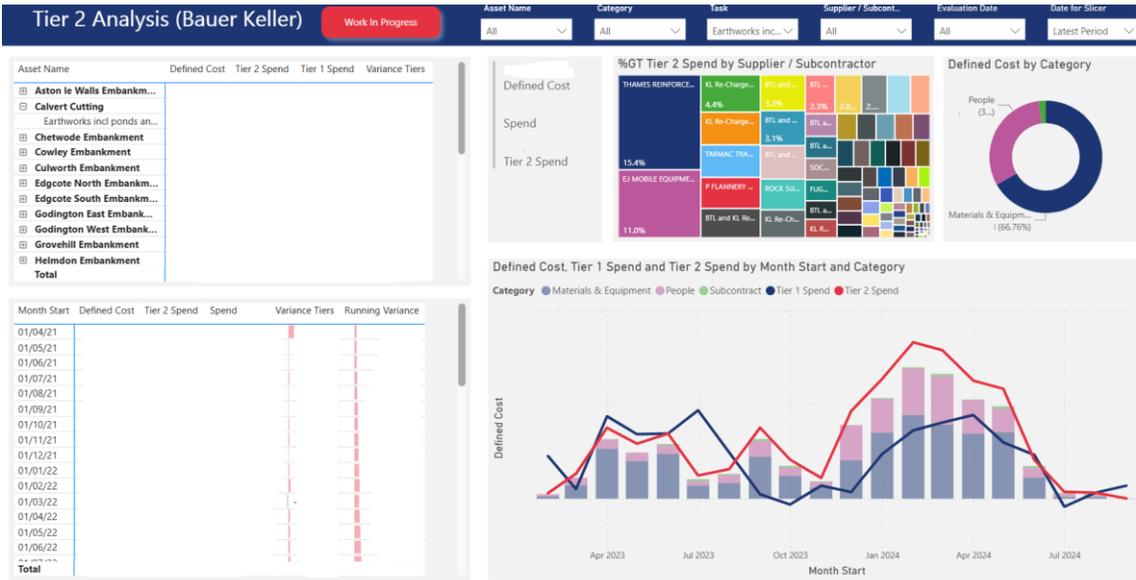
Cost / Schedule / Quantity Alignment



Integrating Commercial

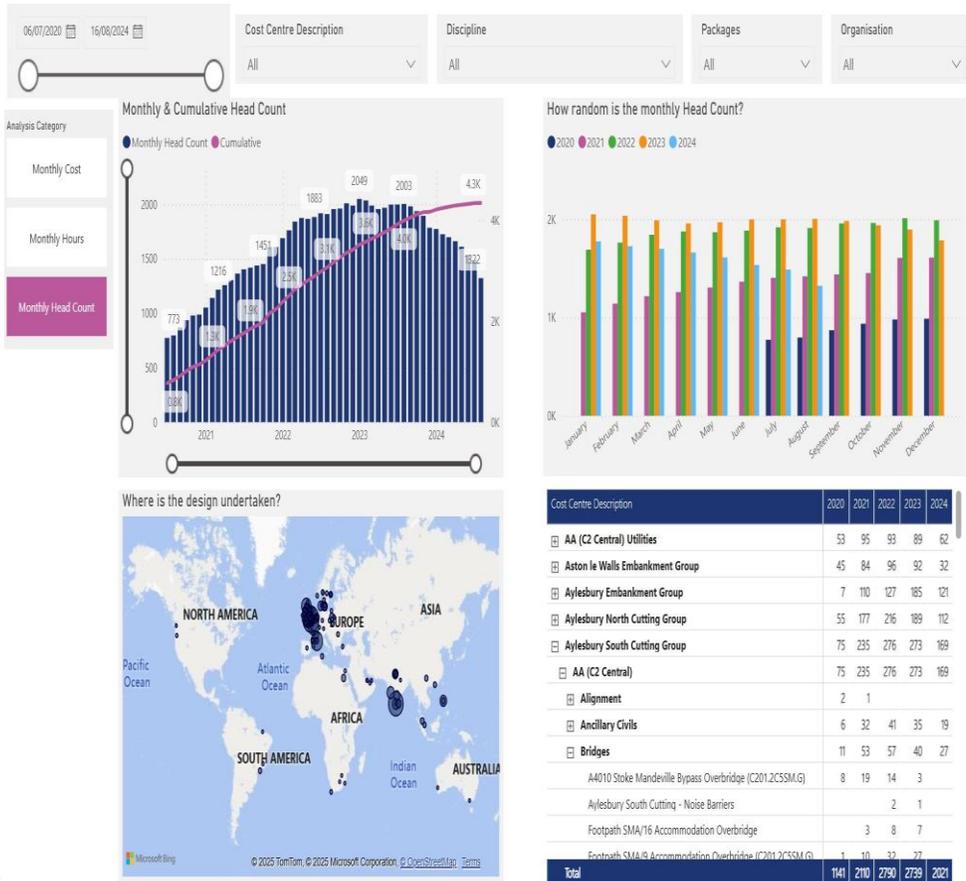
Tier 2 Analysis

Tier 1 Analysis

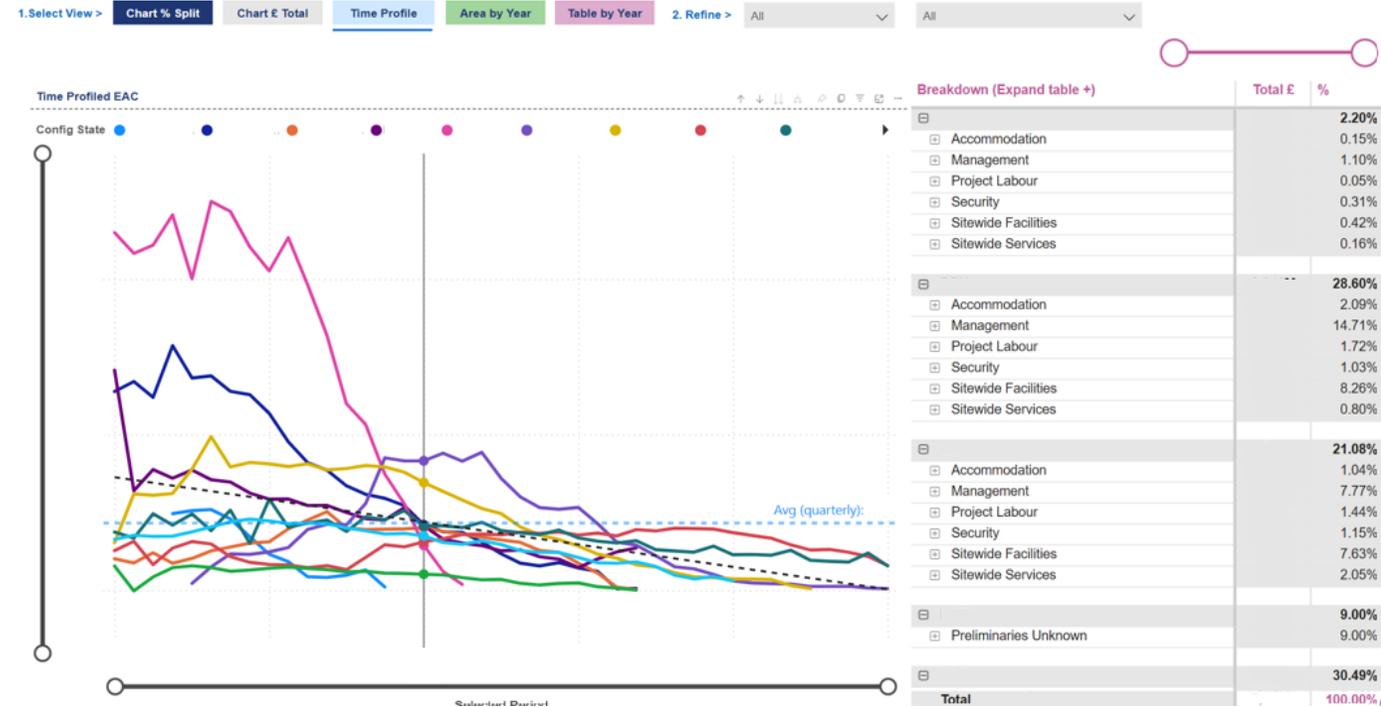


Integrating Value

Design Analysis



Indirects Analysis



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Setting the standard

Real Time Benchmarking

Asset Group Benchmarking

Unit Cost Benchmark



Asset Type

Culvert

88
No. of Assets

77
No. of Asset Used in Unit Cost Calcs

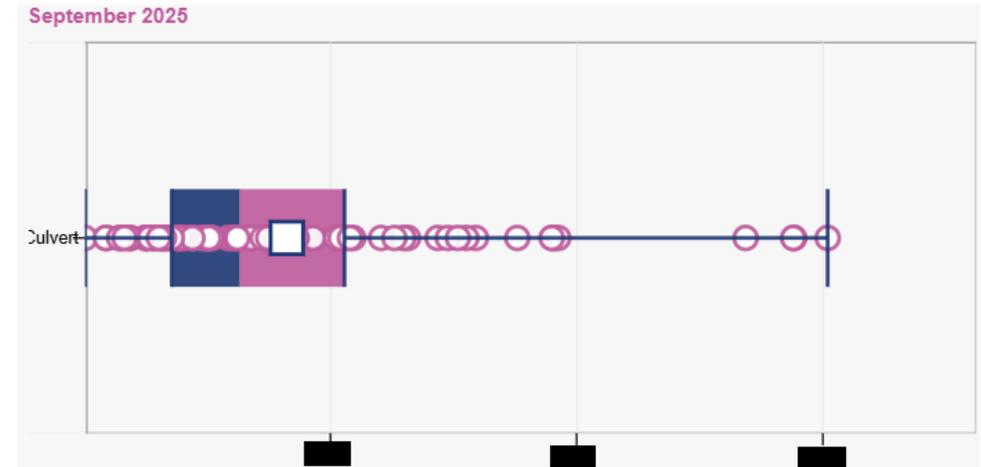
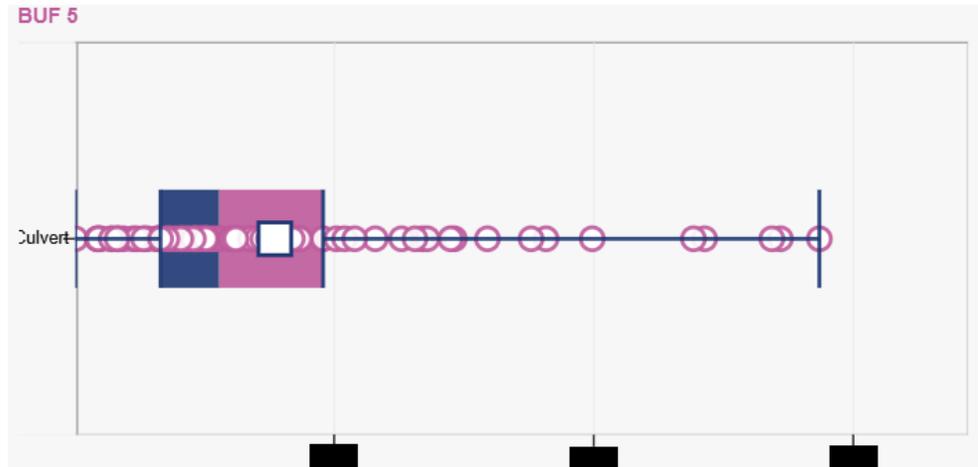
85
No. of Asset with Benchmark EAC Result

99%
Sep25 EAC Coverage

i This tab provides a simple benchmark by calculating unit costs (lower quartile, median and upper quartile) across all assets of the same type. It first calculates individual unit costs (EAC

Unit Cost Benchmark

- BUF5 Lower Unit Cost
- BUF5 Median Unit Cost
- BUF5 Upper Unit Cost
- Sep25 Lower Unit Cost
- Sep25 Median Unit Cost
- Sep25 Upper Unit Cost



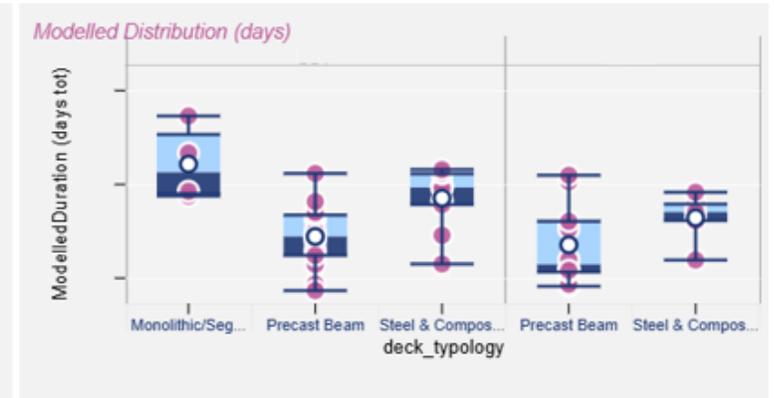
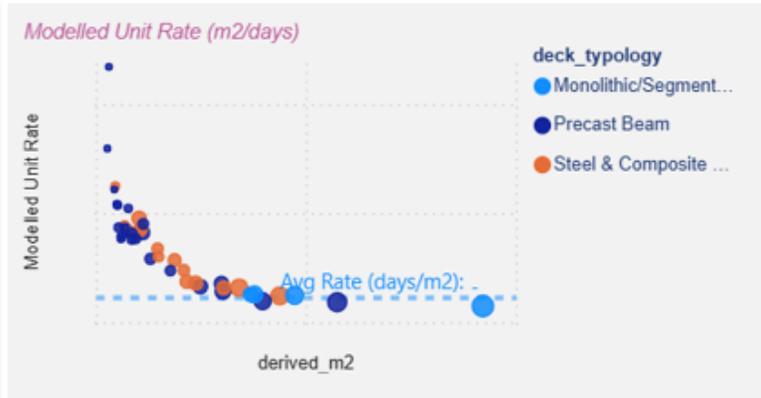
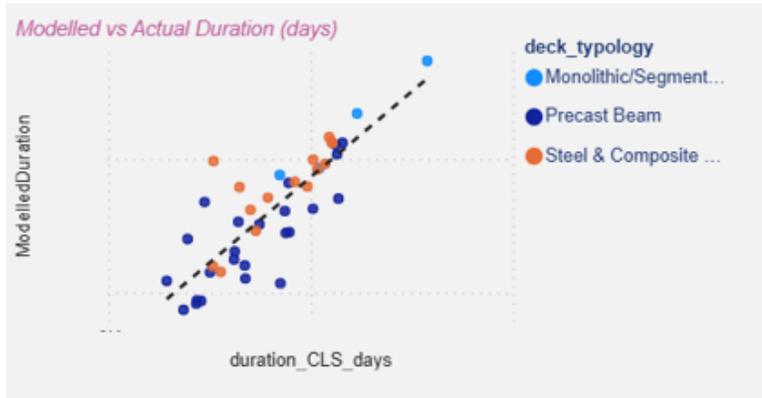
Intelligent Assurance

Progressive Assurance

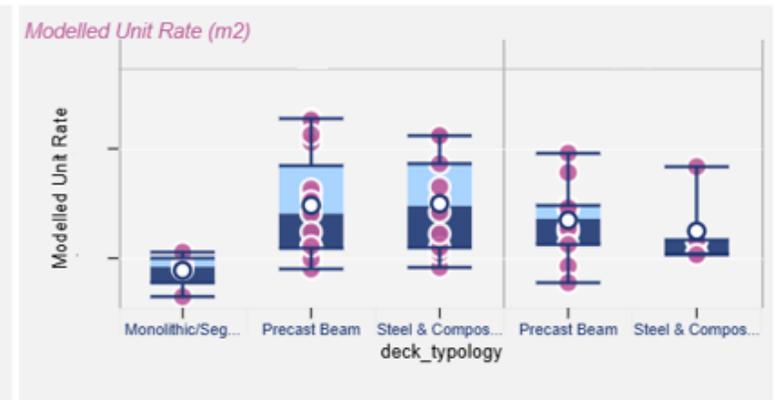
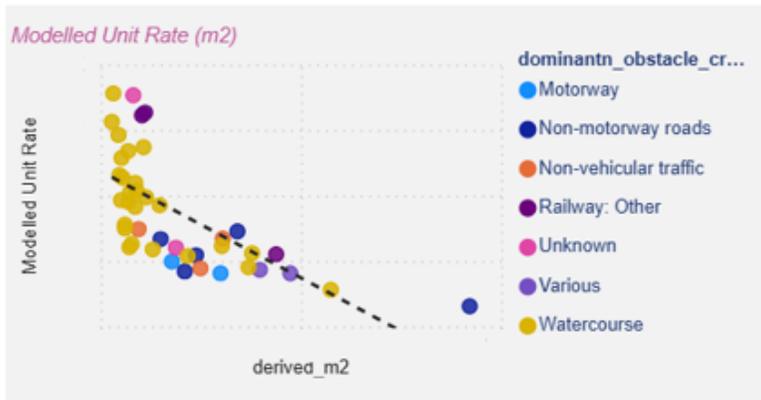
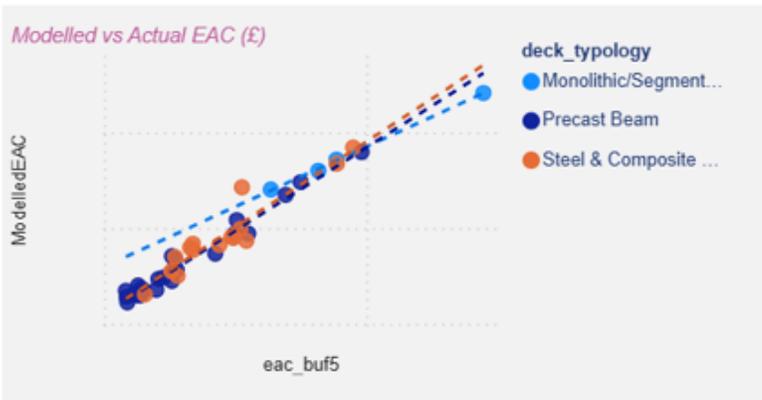


Predictive Analytics

Modelled Cost



Modelled Schedule



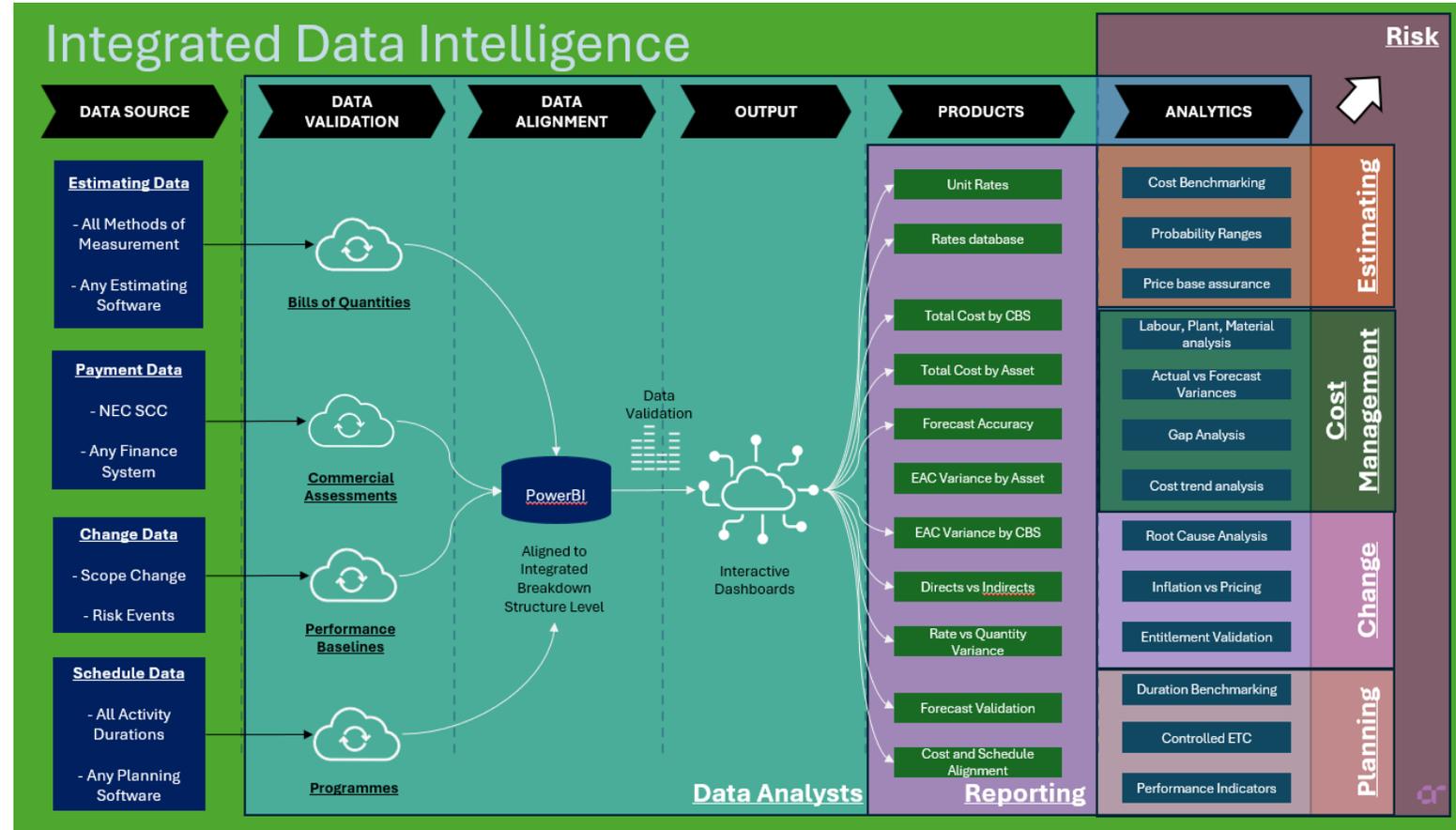
Integrated Data Intelligence

Taking Control.

- Real-time Cost, Schedule, and Performance Benchmarking
- In-Depth variance analytics to support Delivery
- Universal Rates library
- Cost Assurance interlink between Controls and Commercial
- Modelled Should Cost
- Productivity Intelligence → £'s in the ground
- Predicting and benchmarking Risk Events

An industry game changer.

- Contributing to BSI Estimating Standard
- Engage with NEC to mandate data structures
- Value for Money Assurance



Lessons

- ✓ Implement an Integrated Data Structure (IDS) with the Asset as the hub
- ✓ Key enabler to Delivery
- ✓ Be Inquisitive! Data crosses functional boundaries
- ✓ Assurance from the ground to control from the top – Identify → Monitor → Intervene
- ✓ Challenge traditional EVM – Add a Scope Index (QPI)

Progressive Variance Analytics + Benchmarking + Predictive Analysis
→ Assure the Past and Future
= CONTROL

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Setting the standard

Setting the Standard

01

Any Client

Transferable Capability

Data Intelligence harnesses data already available.

The power available to clients, is within it's reach.

02

Scope is key

Common Components

Data Intelligence works across WBS levels.

Finding the common asset links within the client portfolio transforms analytical capability.

03

NEC Options

Control the Outcome

Data Intelligence thrives on contracts capturing defined costs.

Variance analysis and benchmarking at activity and resource levels, proactively assures and controls the forecast.

04

The sky is the limit

Ask the Question

Data Intelligence operates as a hive mind and improves as we ingest additional data.

Our mission is to continuously improve our service offering one dataset at a time.

**Thank
You**