



Midlands Highway Alliance Plus

Digital and Environment

Thursday 7th May 2026



Smart Scheduling



Sam Simons
Highways Service Manager
West Northamptonshire Council



Leon Jolly
Senior Delivery Manager
Kier Group



Cassie Leong
Head of Data Science
asBuilt IQ

The Client – WNC

- **Deteriorating Road Condition**
- **Budget isn't the whole problem**
- **Effective and efficient delivery is key**

"How can we make smarter use of the resources we already have?"

The Contractor – Kier
Why did we choose maintenance planning?

Reactive maintenance planning is a manual process

Planners need to consider data from multiple sources

Inefficient job sequencing drives hidden cost

Under-utilization of gangs (loss of productivity)

Dynamic changing conditions for emergency response

We wanted to test AI and understand its future potential in Highways Maintenance

***The Contractor – Kier
What were our objectives?***



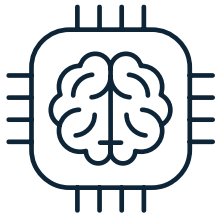
Improve efficiency



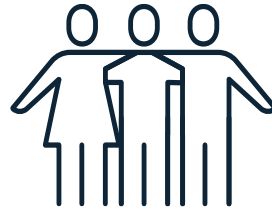
Works Manager integration



Increase Productivity



Understand the capabilities of AI



Improve public perception



Reduce our impact on the environment



West
Northamptonshire
Council

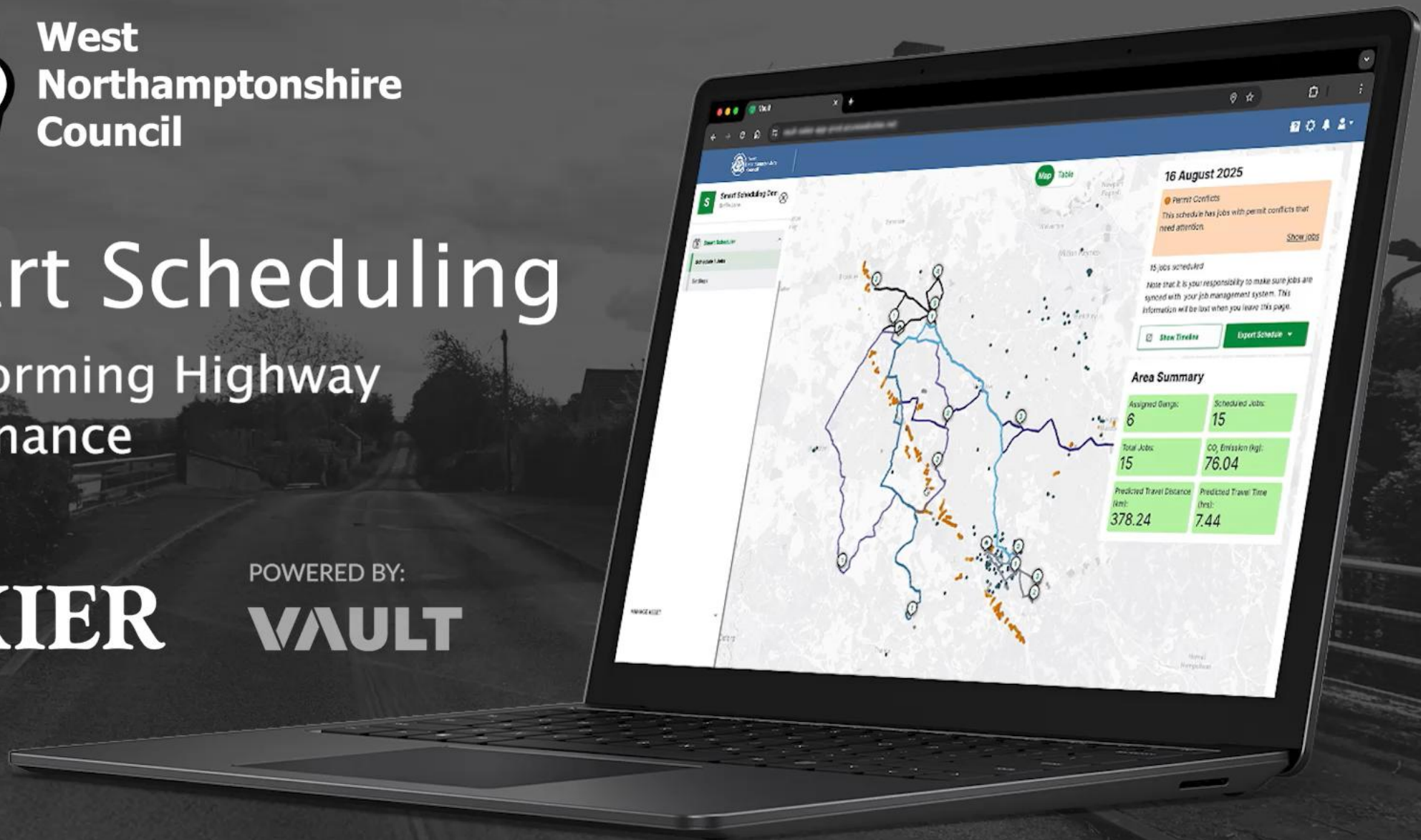
Smart Scheduling

Transforming Highway Maintenance



POWERED BY:

VAULT



The Contractor – Kier Results of Phase 1

% of Excess
Travel Time

12.93%

Avg Distance
/Day
Reduced by

**157.23
km**

Avg Travel
Time Saved
Per Area

**10.88
hrs**

Fuel Cost
Savings

£ 1,465

CO2
Emission
Reduced by

2,844 kg

Labour Cost
Saved

£43,750

In Office
Scheduling
Productivity

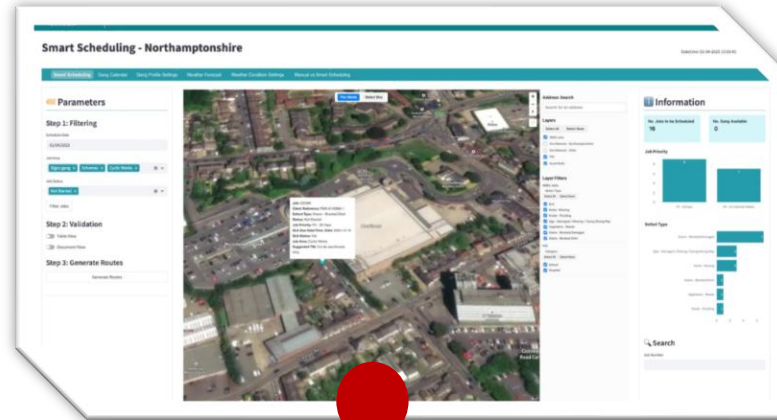
90%

Metric	Manual / Current	Smart Scheduling	Difference
Overall Travel Time for > 4 Jobs	2,180 hrs	1930 hrs	250 hrs
Overall Travel Distance	111,991 km	97,840 km	14,151 km
Avg Travel Distance per Job	11.03 km	9.64 km	1.39 km
Overall Fuel Consumption	8,400 L	7,338 L	1062 L
Overall CO2 Emission in Kg	22,508 Kg	19,664 Kg	2,844 Kg
Scheduling Processing Time	20 mins (avg)	2 mins (avg)	10x Faster

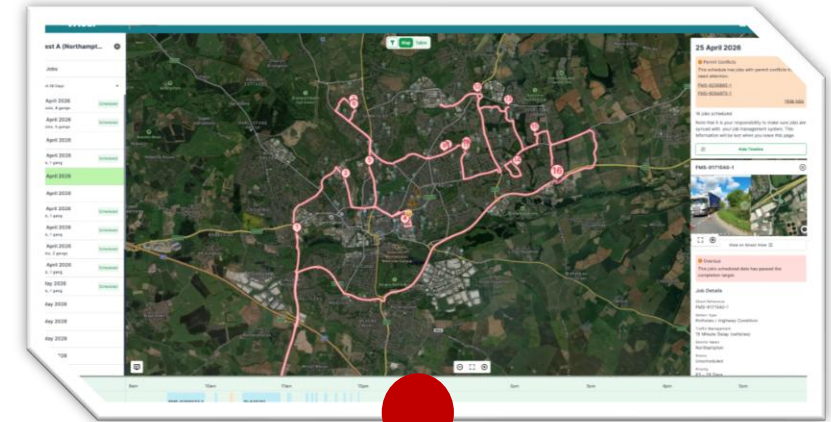
AsBuilt – The journey

Mid 2025 – Phase I

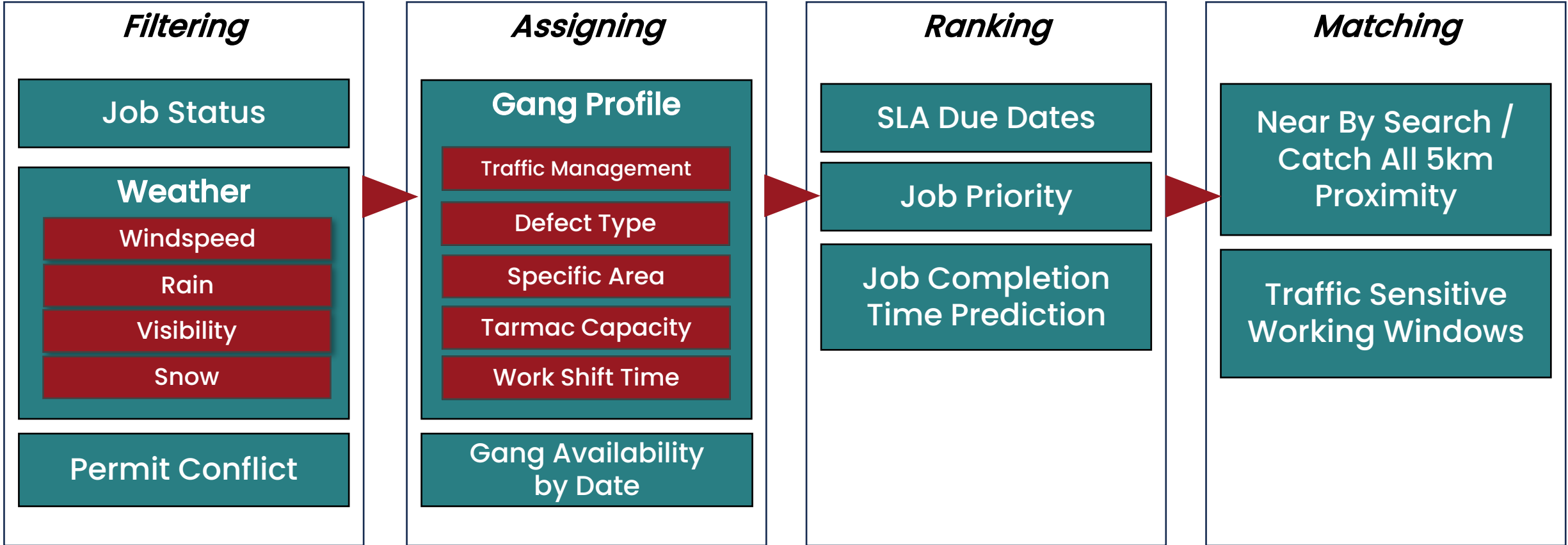
End of 2024



Late 2025 – Phase II



Today's Smart Scheduling



Phase 1: Back Testing (3 months Data)

Scheduling Processing Time

Travel Time Saved

Fuel Cost Savings

CO2 Emission

Phase 2: Testing Environment (Additional Capability)

Asset Management System
Integration (WMS)

UI Enhancement for Job
Validation

Tarmac Capacity per Gang

Traffic Sensitive Job Working
Windows

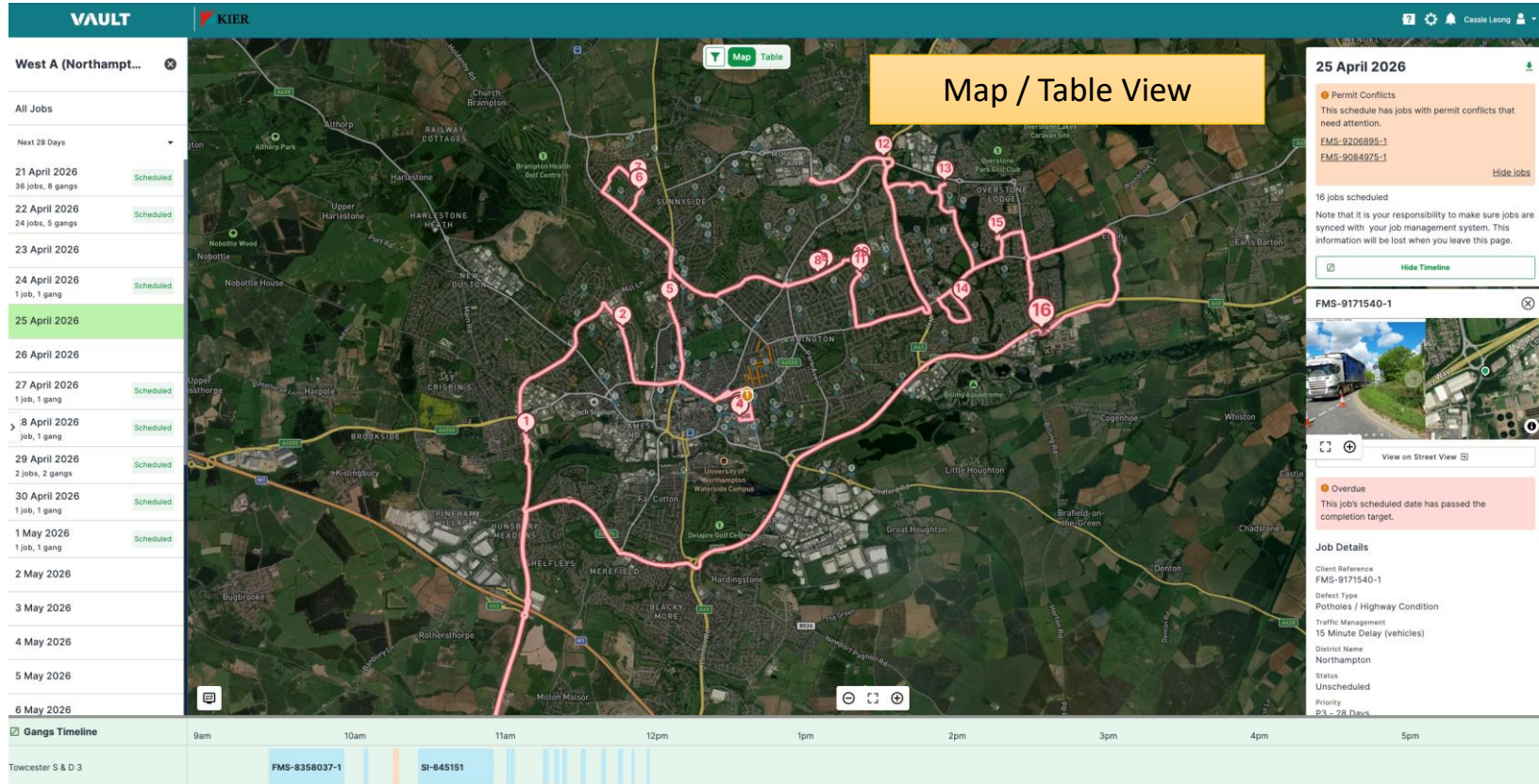
Shared Gang Restriction

Phase 3: Live Testing

Kick off in Mid-May
2026

Smart Scheduling UI Uplift

Spatial Map with various information layers {Jobs, Permit, Point of Interest}



Map / Table View

25 April 2026

Permit Conflicts
This schedule has jobs with permit conflicts that need attention.
FMS-9206895-1
FMS-9084925-1
[Hide Jobs](#)

16 jobs scheduled
Note that it is your responsibility to make sure jobs are synced with your job management system. This information will be lost when you leave this page.
[Hide Timeline](#)

FMS-9171540-1

Overdue
This job's scheduled date has passed the completion target.

Job Details
Client Reference: FMS-9171540-1
Defect Type: Potholes / Highway Condition
Traffic Management: 15 Minute Delay (vehicles)
District Name: Northampton
Status: Unscheduled
Priority: P3 - 28 Days

Timeline / Gang Sheet

9am 10am 11am 12pm 1pm 2pm 3pm 4pm 5pm

Towcester S & D 3

FMS-8358037-1

SI-645151

Permit Conflict Info

Gang Sheet Download / Integrate

Photos

Google Street View

Alert System

Permit, Job Information

Future Roadmap

Dynamic scheduling
with live telemetric data
(real time adaptive
operations with
emergency work)

Optimising between
cost and carbon
(From single objective to
multi-objective
optimisation)

Predictive and AI driven
planning with
connected
intelligence layer across
system

Future of AI in Infrastructure

Opportunities

vs

Challenges

Efficiency & Cost Reduction	Cost vs ROI & Business Case Uncertainty
Improved Safety & Risk Mitigation	Data Quality, Coverage & Integration
Scalability & Coverage	Integration with Legacy & Operational Systems
Data-Driven Decision Making & Transparency	Model Robustness, Drift & Generalisation
Innovation & Competitive Advantage	Skills & Cultural Change
Economic & Productivity Impact	Ethical, Social & Community Trust Issues
Policy, Governance & Responsible AI Leadership	Regulation, Liability & Governance

Why Smart Scheduling?

- Inefficient works team due to dynamic conditions
- Ineffective planning leads to increased carbon emissions
- AI is new to the sector - is it the future?

The client – WNC

- What can other sectors bring to the table?
- Can we utilise new technologies quickly
- Should risk of failure stop us trying?

"If we had to manage our asset for the first time tomorrow would we do it the same way?"

Any questions?