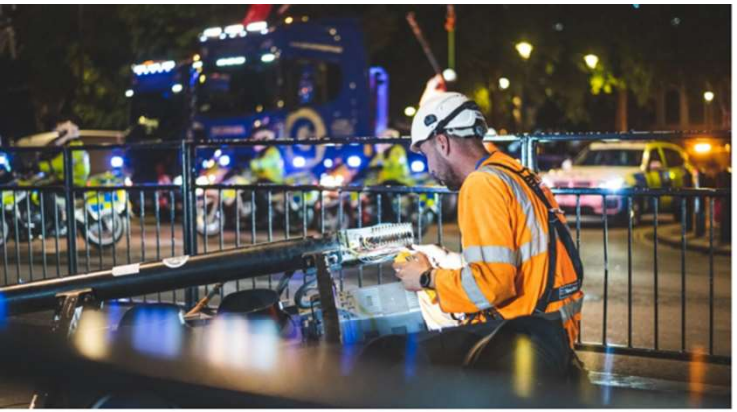

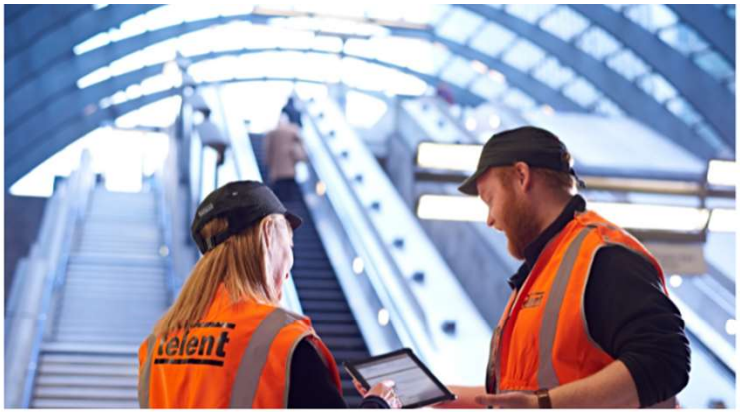

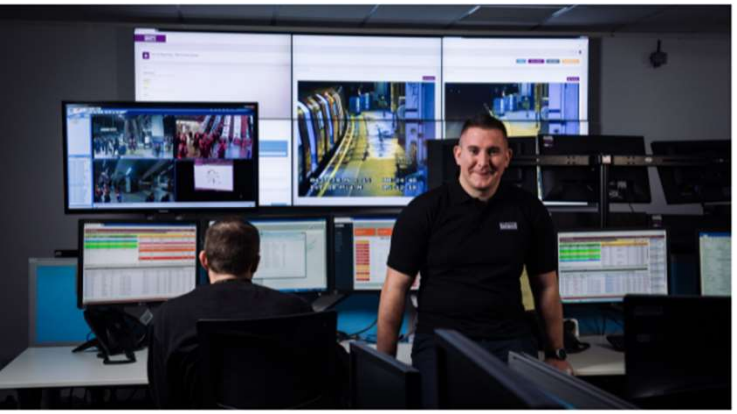

Green Solutions:

Arbitex AI CCTV analytics

Telent Green Solutions Working Group

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Green Solutions: ARBITEX: CCTV use on the Transport for London Network

CCTV is essential for monitoring and protecting the flow of passengers and vehicles across Transport for London's network.

CCTV systems operate continuously, offering live monitoring and recordings to ensure the safety and efficient flow of people and traffic. The global use of CCTV for surveillance and safety is expected to double by 2030.

Telent and TFL Currently use CCTV to ensure:

- Public Safety: Ensures the safety of passengers and staff.
- Crime Prevention: Deters criminal activities and antisocial behavior.
- Incident Investigation: Provides essential footage for investigations.
- Traffic Management: Monitors and manages traffic flow.
- Operational Efficiency: Enhances service reliability and issue resolution.

To ensure continuous and reliable surveillance, it's crucial that CCTV images remain clear and consistent, which is why we use Arbitex.

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Green Solutions: Our Vision

Telent have committed to achieving net-zero GHG emissions by 2050 through the Science Based Targets initiative (SBTi)

This includes emissions created indirectly by our entire value chain, from raw material extraction to customer use of our products and services - providing sustainable whole-life solutions to our customers

In 2023, we set a near-term target to reduce all emissions by an average of **50%**, no later than 2030

telent NET ZERO

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

THE NET ZERO STANDARD
APPROVED NET-ZERO TARGETS

SILVER 2022 ecovadis Sustainability Rating

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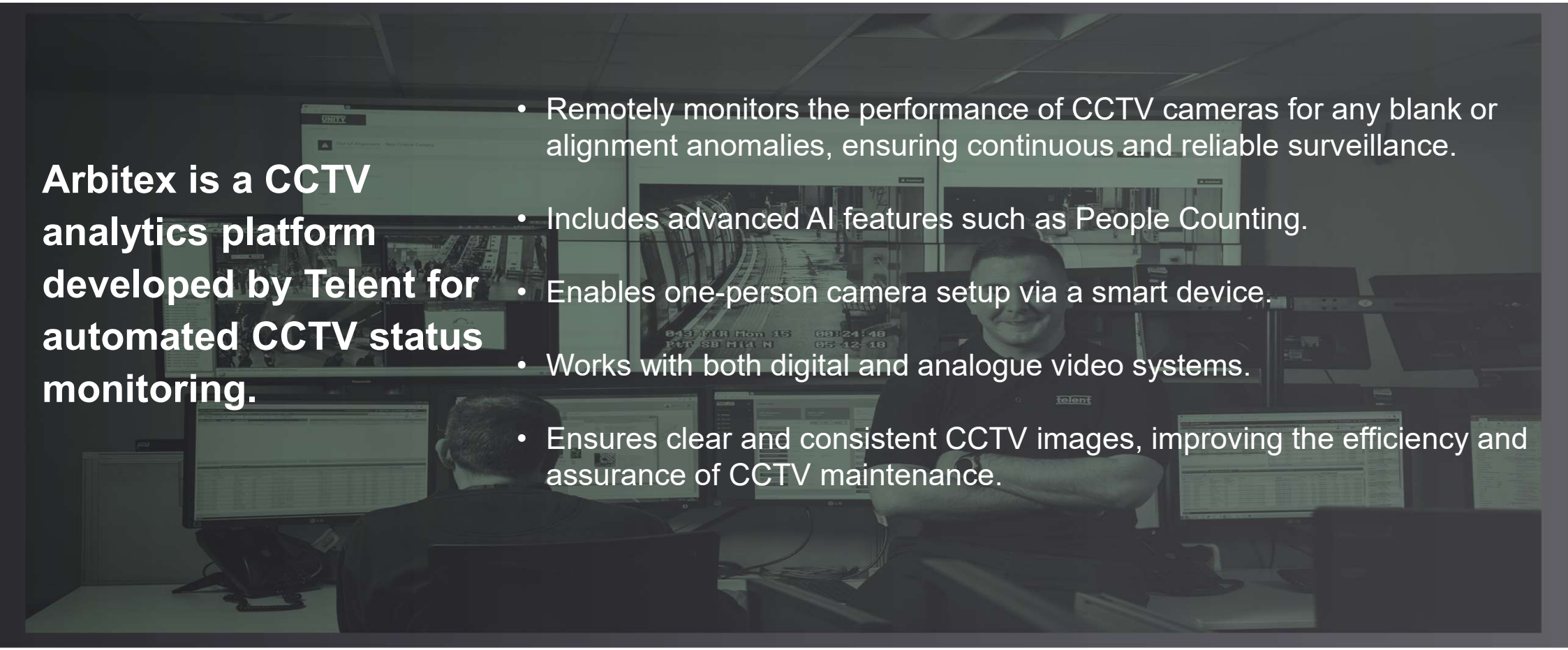
Green Solutions: ARBITEX – What is it?



Arbitex is a CCTV analytics platform developed by Telent for automated CCTV status monitoring.

- Remotely monitors the performance of CCTV cameras for any blank or alignment anomalies, ensuring continuous and reliable surveillance.
- Includes advanced AI features such as People Counting.
- Enables one-person camera setup via a smart device.
- Works with both digital and analogue video systems.
- Ensures clear and consistent CCTV images, improving the efficiency and assurance of CCTV maintenance.

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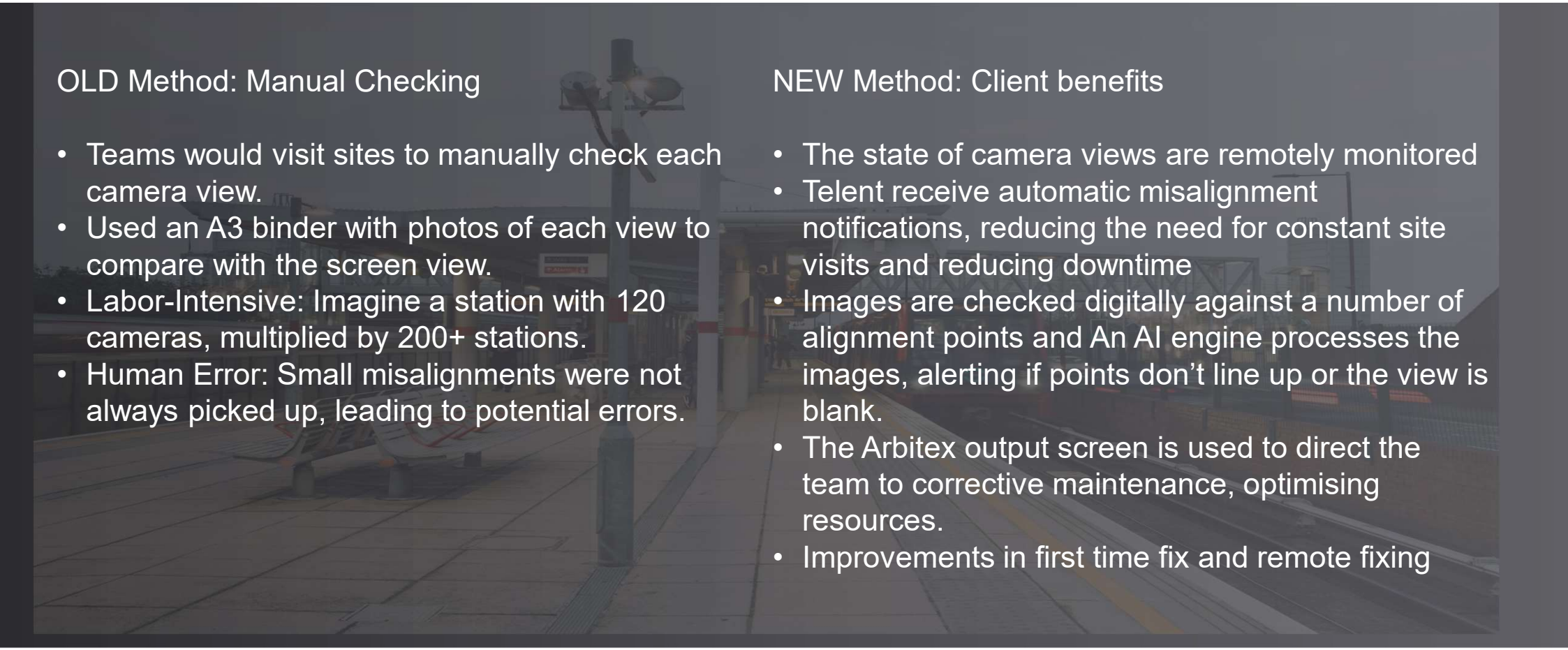
Green Solutions: ARBITEX - Enhancing Efficiency and Client Benefits



OLD Method: Manual Checking

- Teams would visit sites to manually check each camera view.
- Used an A3 binder with photos of each view to compare with the screen view.
- Labor-Intensive: Imagine a station with 120 cameras, multiplied by 200+ stations.
- Human Error: Small misalignments were not always picked up, leading to potential errors.

NEW Method: Client benefits

- The state of camera views are remotely monitored
- Telent receive automatic misalignment notifications, reducing the need for constant site visits and reducing downtime
- Images are checked digitally against a number of alignment points and An AI engine processes the images, alerting if points don’t line up or the view is blank.
- The Arbitex output screen is used to direct the team to corrective maintenance, optimising resources.
- Improvements in first time fix and remote fixing

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Green Solutions: ARBITEX Environmental benefits

Using a remote solution like Arbitex can have dramatic environmental benefits

Reduced Maintenance Visits: Arbitex allows for remote monitoring and automatic misalignment notifications, significantly reducing the need for on-site maintenance visits.

Lower Emissions: Fewer maintenance trips mean a substantial reduction in vehicle emission and fuel contributing to a lower carbon footprint and reduced costs

Resource Optimisation: Remote monitoring and AI-driven diagnostics lead to better resource allocation, reducing waste and improving overall operational efficiency.

By minimising the environmental impact of maintenance activities, Arbitex supports Telent's commitment to sustainability

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Green Solutions: ARBITEX Potential Savings and use expansion

Potential **Green Saving: 40,429kg CO2e**

Status:

In consideration for applications across Telent transport portfolio.

Currently in use across TFL and NR for 25,000 cameras

Sustainability:

Reduction in use of fuel and vehicles to improve cost and CO2 emissions reductions

Can be used for any hardware camera format improving re-use of existing assets

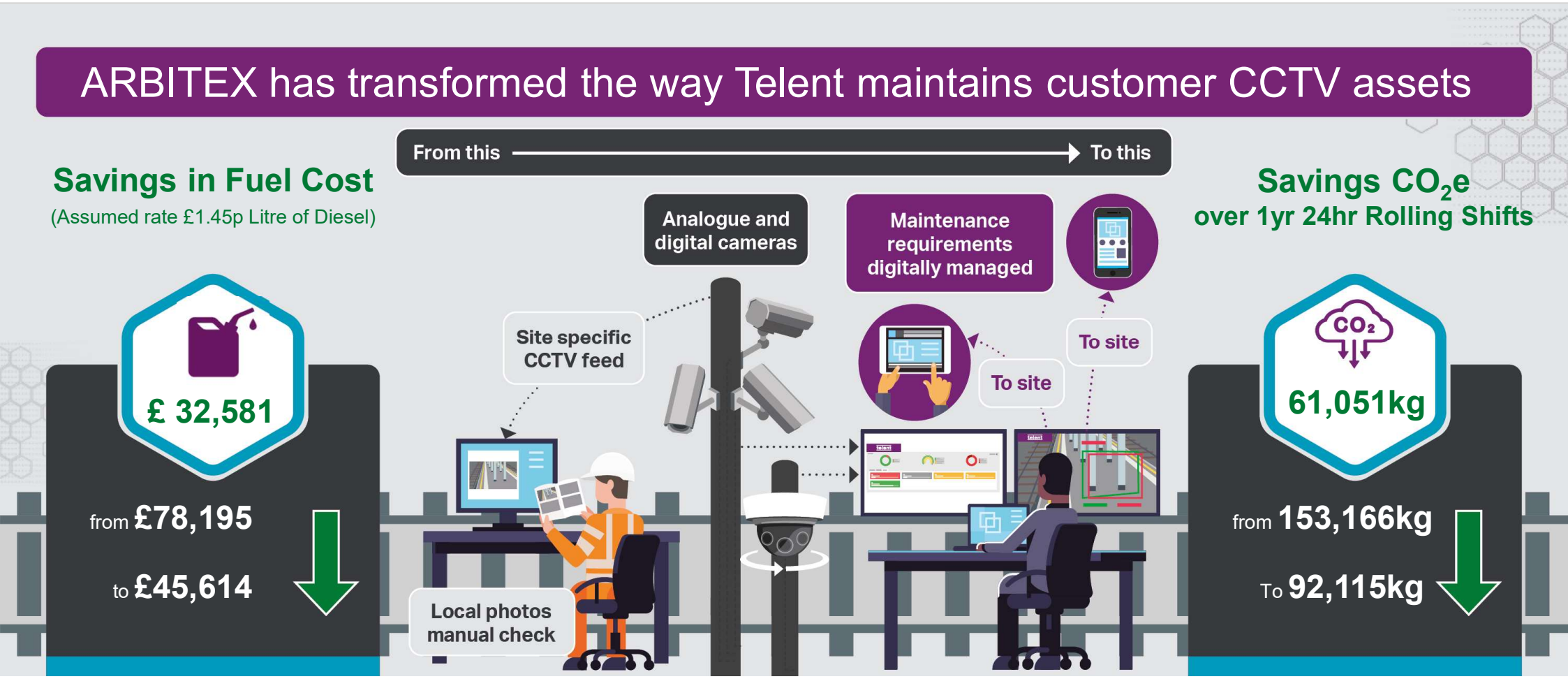
Future Plans

People counting, fare evasion and wheelchair detection.

Detection of vegetation growth, rubbish bins for security and fire extinguisher tampering

Green Solutions: Arbitex AI Optical Analysis

ARBITEX has transformed the way Telent maintains customer CCTV assets



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Green Solutions: Data & Technical Specification

PRIMARY EQUIPMENT

The maintenance team currently runs a fleet of mid-sized diesel vehicles

The calcs are based on a Class II Van (1.305 – 1.74 tonnes)*

Data is from journey analysis over the year 22/23

During 2024 the TFL fleet has transitioned to Electric Vehicles this is not considered in this calculation but will improve the Carbon savings.

Calculations are *according to UK Government GHG Conversion Factors for Company Reporting 2023

There are two types of shift, Planned maintenance and Reactive Maintenance and Arnitex has had an effect on both

CO2 and Fuel cost conversion and factors

- Assuming a cost of diesel per litre of £1.45 @ 40mpg
- Class II van and carbon conversion factor of 0.27834kg CO2e per mile for a class II van (UK Government GHG Conversion Factor for Company Reporting 2023 Condensed Set Version 2.0)
- Tube travel carbon conversion factor of 0.027802kg CO2e per KM (x1.6 for miles) (UK Government GHG Conversion Factor for Company Reporting 2023 Condensed Set Version 2.0)

ASSUMPTIONS

- Telent clears one fault every 4hrs (a balanced approach to managed maintenance and improved efficiency)
- How Arbitex has affected the teams

- **Planned maintenance Team**
    - Was 32 Engineers to cover 272 London Underground Stations (15,00 CCTV Cameras)
    - 3 engineers per visit (1 on the ladder, 1 footing and 1 in control room)
    - New Site team reduced to 19 engineers, 10 on days and 9 on nights. 1 Engineer per visit
    - Average mileage per shift 40-60 miles for nighttime working (Assume 50 miles)

- **Reactive Maintenance team**
    - Remains at 20 Engineers to cover 24hrs (one day shift one night shift) 10/10 split
    - Assume 50-55 call-outs per 24hr shift
    - Each Engineer can resolve 3 incidents in their 12 hrs
    - Arbitex has enabled a 25-30% (assume 27%) reduction of site visits by remote fix
    - Shift visit average mileage per visit shift 40-60 miles (Assume 50 miles)
    - 50/50 split between tube travel and van

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Green Solutions: Data & Technical Specification

- **Planned Maintenance teams**
- OLD FORMAT
    - Night Shift: Diesel Van 50 miles 16 Engineers, 2 sole with own Van: (50 x 16) x 365 = 292,000miles
        - Carbon was 292,000 * 0.27834 = **81,275kg CO2e**
    - Day Shift: Tube travel 50 miles 16 Engineers: (50 x 16) x 365 = 292,000miles
        - Carbon was 292,000 * 0.0444832 = **12,989kg CO2e**
        - Assuming a cost of diesel per litre of £1.45 @ 40mpg: 292,000/40 =7,300gals = 33,186L = **£48,120**
- NEW FORMAT
    - Night Shift: Diesel Van 50 miles 9 Engineers, 1 per visit: (50 x 9) x 365 = 164,250miles
        - Carbon 164,250 * 0.27834 = **45,717kg CO2e**
    - Day Shift: Tube travel 50 miles 10 Engineers: (50 x 10) x 365 = 182,500miles
        - Carbon was 164,250 * 0.0444832 = **8,118kg CO2e**
        - Assuming a cost of diesel per litre of £1.45 @ 40mpg: 164,250/40 =4,104gals = 17,976L = **£26,065**
- TOTAL SAVINGS Planned Maintenance:
    - Carbon **40,429kg CO2e**
    - Fuel Cost **£22,055**

- **Reactive maintenance teams**
- OLD FORMAT
    - Night Shift: Diesel Van 50 miles 10 Engineers with own Van: (50 x 10) x 365 = 182,500miles
        - Carbon was 182,000 * 0.27834 = **50,797kg CO2e**
    - Day Shift: Tube travel 50 miles 10 Engineers: (50 x 10) x 365 = 182,500miles
        - Carbon was 182,000 * 0.0444832 = **8,096kg CO2e**
        - Assuming a cost of diesel per litre of £1.45 @ 40mpg: 182,500/40 =4,562gals = 20,741L = **£30,075**
- NEW FORMAT – Assume a **27%** reduction in site visits:
    - Night Shift total carbon = **33,018kg CO2e**
    - Day shift total carbon = **5,262kg CO2e**
    - Fuel cost total = **£19,549**
- TOTAL SAVINGS Reactive Maintenance:
    - Carbon **20,613 CO2e**
    - Fuel Cost **£10,526**

- **ARBITEX total reductions**
    - Carbon Emissions: **61,042kg CO2e**
    - Fuel Savings: **£32,581**

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