Transport projects showcase

9th June 2021

Welcome

Robert Franks – Managing Director, West Midlands 5G

Introduction

Chris Holmes, West Midlands 5G

WM5G Transport

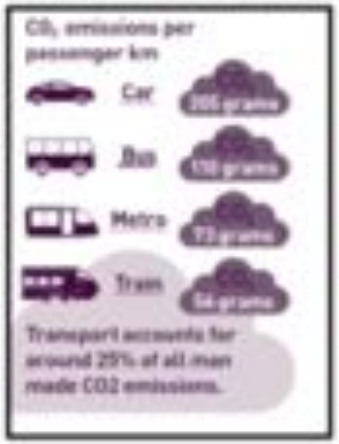
New Projects Launch And Projects Share

9th June '21

Chris Holmes
Chris Deakin
David Connor
Martin Thirlaway

Transport Environment – A Revolution In Progress

Congestion and Emissions



Technology Changes:

- Autonomy, Electrification, Digital

Recovery from COVID:

- Transport accessibility/safety

Deliver Carbon Neutral:

- Incentives and Policy

➢ Combustion engines ban >2030
➢ Hybrid vehicle ban >2035
➢ Rail electrification

Significant Policy Initiatives:
Across Infra structure and Services

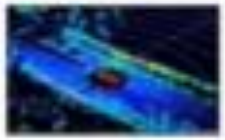
Bringing Together Customers, Funding & Connectivity
Delivering Nimble & Efficient Innovation

Transport
Delivery Projects Portfolio

14 Projects with 30 SME's & 6 Universities, 2xTelecoms MNO's, delivering near to market capability for funding <£10m

Roads Infrastructure


Road traffic & environment monitor


Roads I-structure monitor


Kerbside parking location


Congestion / incident mitigate

Rail Infrastructure

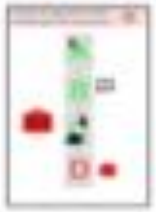

Rail track assess & alert


Pantograph & line assess & alert


VLR remote monitor

Traveller Experience


Partially sighted


Security


Customer Sat & alerts


Station Crowding/guidance


Station Info & support


Bus Service crowding


Events & Travel choice

= 2nd competition projects

MK:5G – Connecting Communities

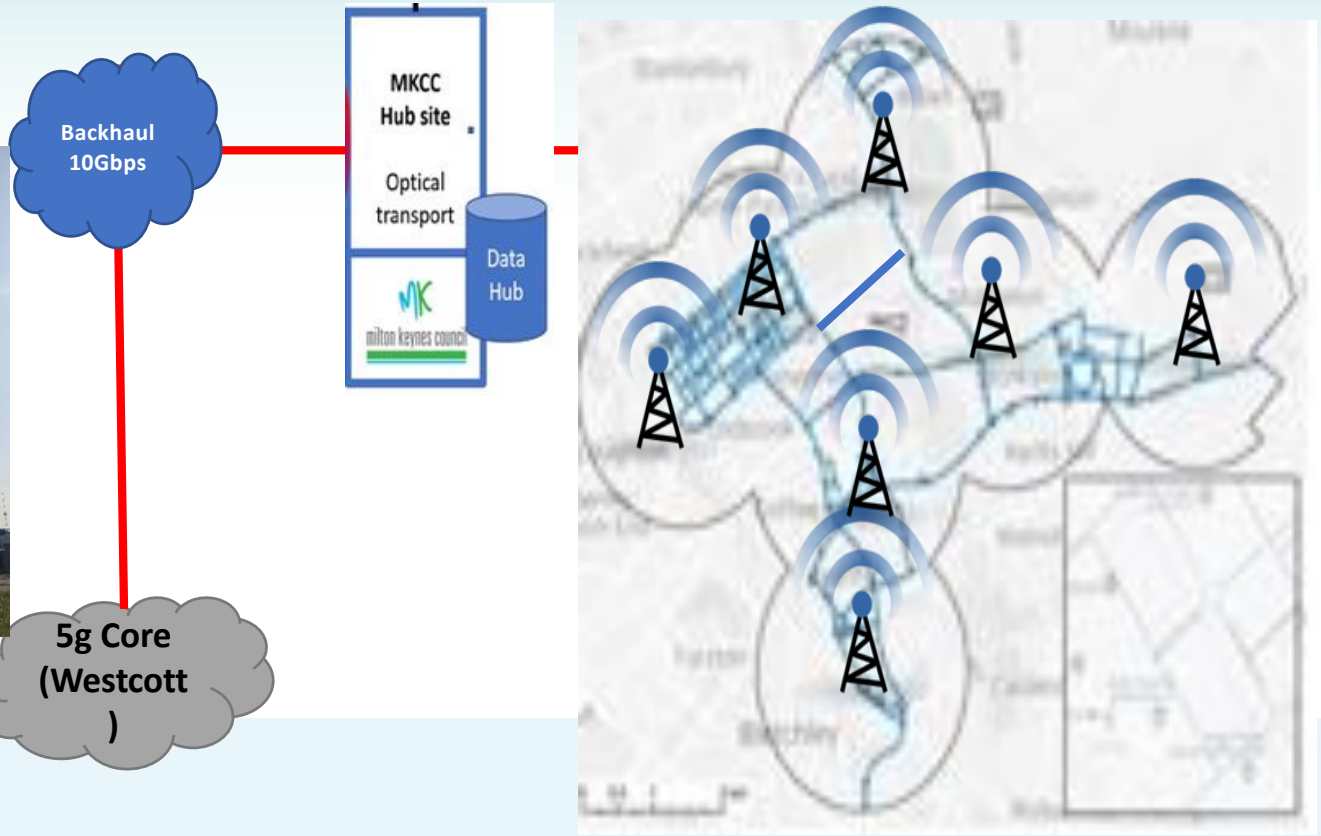
Brian Matthews, Milton Keynes Council

MK:5G – Connecting Communities – Introduction

Brian Matthews
Head of Transport innovation
Milton Keynes Council

MK:5G - Create

MK 5G Testbed Infrastructure



5G Standalone Radio Network and Data Exchange

5G Core / MK Coverage

SAT Apps, BT, Tech Mahindra, Metaswitch,
Connected Places Catapult

Use Cases / Accelerator Programme

Next Steps - MK 5G: Create

Council Leader Pete Marland

This is another important step in Milton Keynes' journey as a modern, sustainable and forward-looking city for the future. Smart city projects like ours can do a lot to inspire and empower other major venues around the world to create better, greener experiences for visitors and staff, and boost their efficiency. Yet again Milton Keynes will be leading the way."

Next Steps - MK 5G: MK5G: Create

Opportunity?

We can offer access to our network for further testing and/or validation of services

- Part of DCMS Trials & Testbed programme
- Access to city scale standalone 5G network covering most of Urban MK (operated/owned by MKC)
- Expert advice and guidance from established team
- Focus on CAV/Smart Mobility – with test site at Stadium MK and CMK
- Workstreams to develop sustainability and city scale deployments
- Want to explore benefits to manufacturing, logistics, hospitality

Contact Brian.Matthews@Milton-Keynes.gov.uk

•

A vision for the future of transport in the region

John Paddington, Innovation Integration Lead, TfWM

Introduction to Transport for West Midlands

- TfWM is the **Transport arm** of the West Midlands Combined Authority (WMCA)
- TfWM **works in conjunction** with Local Authorities
- Adopted statutory Local Transport Plan
- Work with bodies such as West Midlands Rail Executive and Transport Operators

Boosting transport investment and capacity in the West Midlands

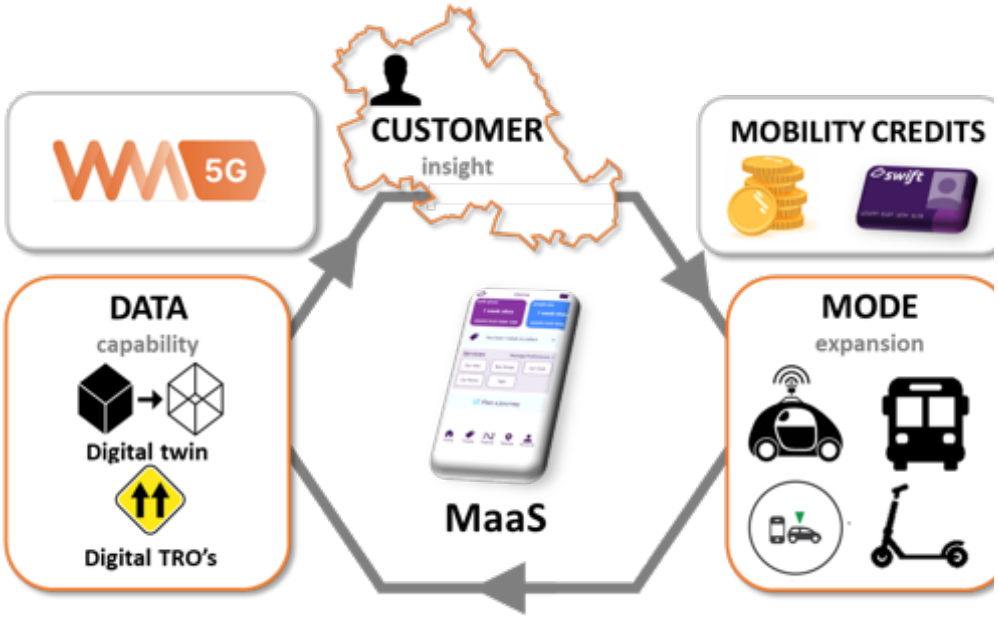
- New and updated railway stations
- West Midlands Metro extensions
- A34 and A45 Sprint-Bus Rapid Transit
- Cross City Region Bus Priority & Routes
- West Midlands Cycle Hire scheme

Future integrated transport system

- **Swift Go** – Bus fare capping live in 2021 and Swift on Rail in 2022
- **Future Transport Zone** – the Uk's first area exploring future mobility
- **CAV Testbed**– real world (on road) CAV testing capability
- **5G Testbed** – rollout of 5G sensors and showcases
- **ULEV**– rollout of charging network and ULEV adoption

Future Transport Zone

- **Expanded Modal Choice – inc.** eScooters, Car-club, Peer to peer car sharing, Demand Responsive Bus
- **Customer Segmentation** – with a new online community forum
- **Digitised road network –** paving the way for connected transport
- **MaaS –** year 1 of a 3 year journey to deliver a regional aggregated app for all things transport (plan/book/pay/fulfil).
- **Mobility Hubs** – exploring the smaller, community based transport interchange
- **Mobility Credits** – a national first around incentivised sustainable travel



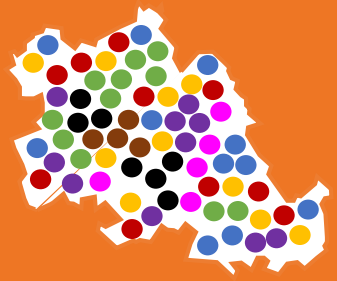
Example partners include:

enterprise
voi.
WARWICK
THE UNIVERSITY OF WARWICK
5G
Coventry City Council
YORDEX

"We empower and enable people to make sustainable travel decisions"

Personas

1



2

Lack of understanding in terms of **WHY** people travel and access mobility in the ways they do. Critical for targeting changes and interventions. **Step 1 was to understand the population in more detail through SEGMENTATION**

Segmentation allows for division of the population in groups of similar economic status, attitudes to different mobility options, attitudes to change and technology etc. This activity has led to the identification of 8 population groups. To get closer to understanding behaviours of individuals in each group **Step 2 involves the creation of PERSONA'S**

Validated persona's allow for the targeted communications, incentives and changes to resonate with the intended recipient more clearly. They can be tailored to appeal to individual motivations, ultimately enabling a better success rate/ awareness for any given stimulus.

Online Community

In November 2020 the FTZ programme launched the **Market Research Online Community**.

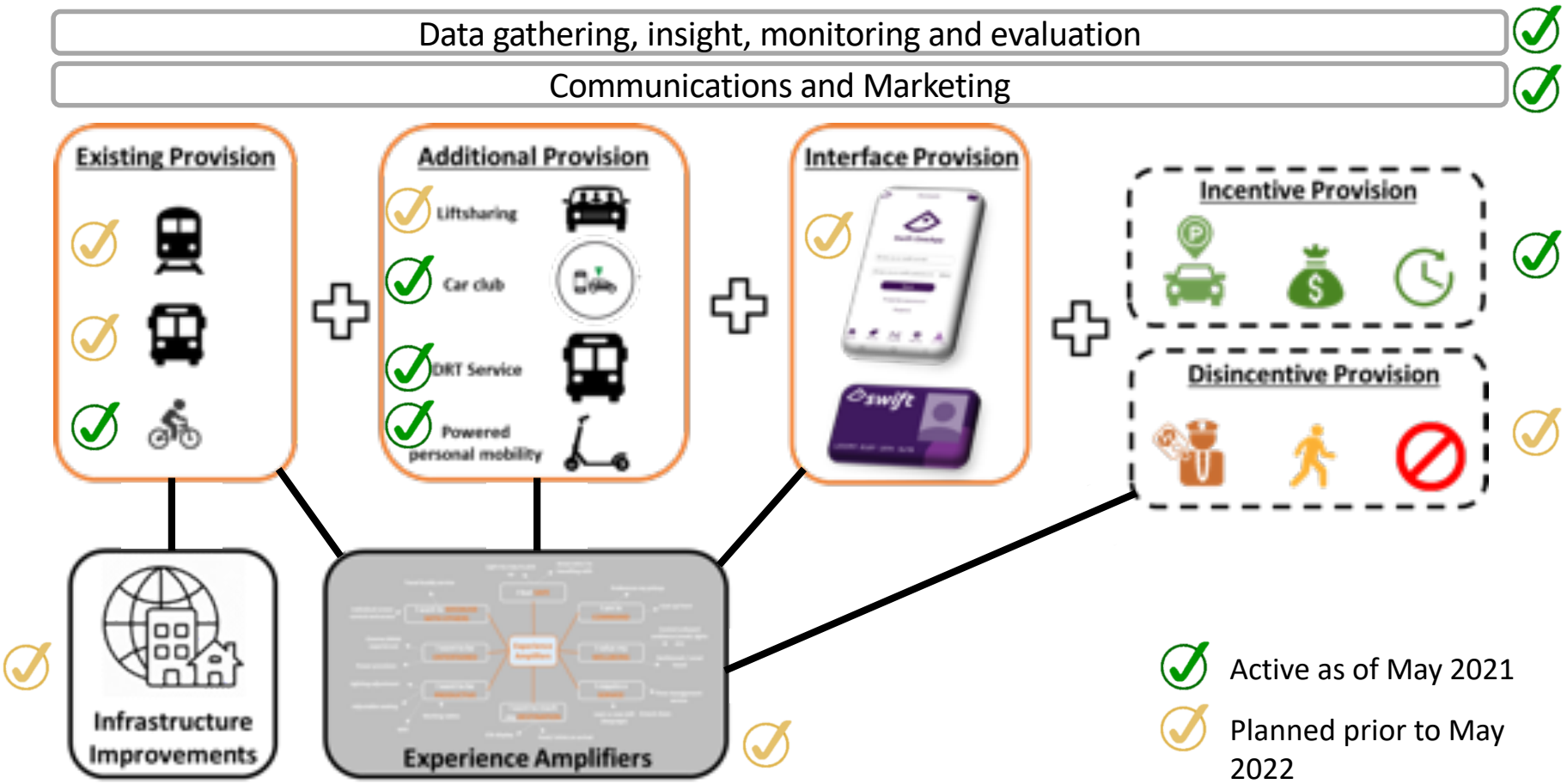
The **M.Roc** seeks to:

- Engage more deeply with different user groups through:
  - Online forum discussions,
  - Live chats,
  - Focus groups,
  - Run long-term diary studies

- Allowing individuals to:
  - Create their own content around mobility e.g. blogs, comments, community groups

- Allowing TfWM and LA's to:
  - Validate segmentation and persona's
  - Validate new product ideas, services, incentives etc.
  - Assess potential audiences
  - Support business case development

Transport for West Midlands

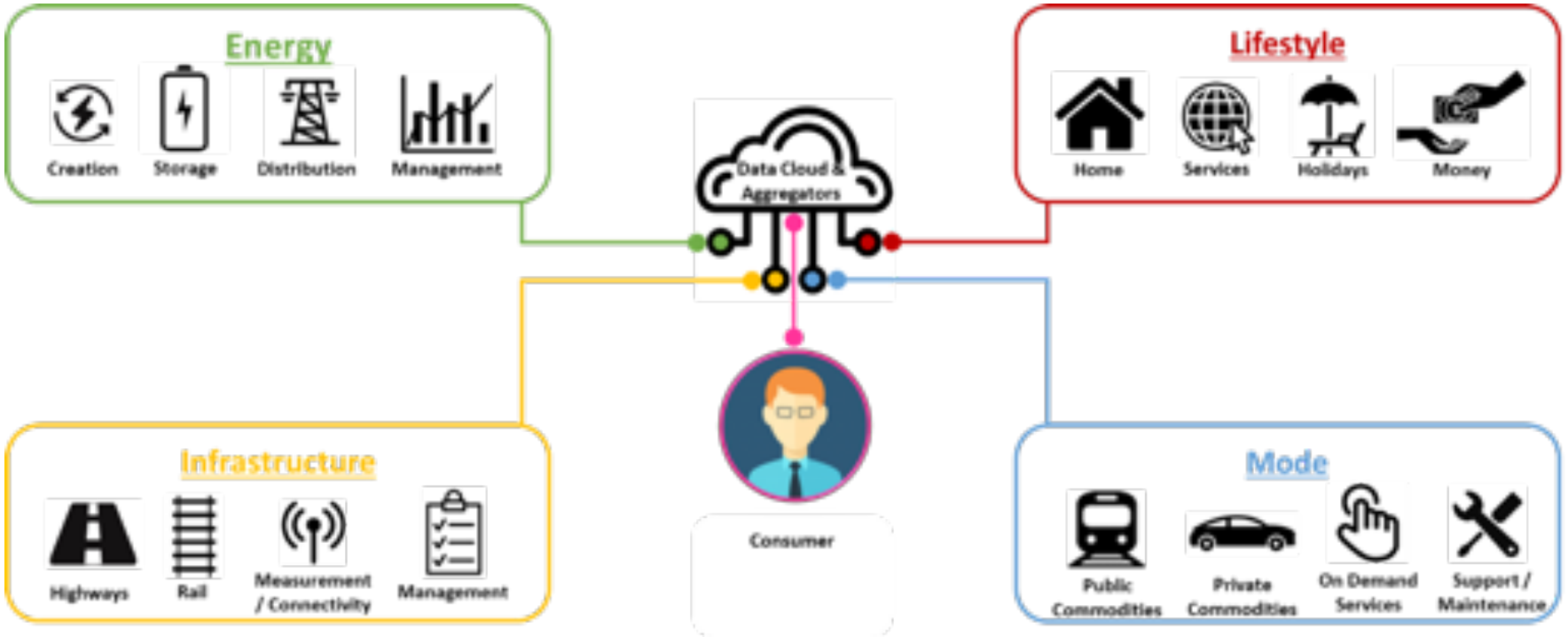


Experience Amplification

Transport for West Midlands

Transport Ecosystem Opportunity

A philosophy of integration and customer focus…



With the customer at is heart, end to end customer experience is the key saleable commodity driving modal selection. It also offers a bridge to connect elements of lifestyle together, not limited to transport.

Midlands Future Mobility

- **Live CAV Test/Operational Facility –** Fully Instrumented along real urban, interurban and rural scenes for operation of ITS and CAVs.
- **Cutting Edge Technologies –** including 4G/5G communications, ITS-G5, C-V2X, suite of advance sensors and GNSS correction.
- **Digital Twin –** A range of digital assets for testing and simulation modelling.
- **Datahub –** Wide range of static and dynamic data for historic and real time analytics.

"One of the largest Driverless Testbeds in the UK"

MIDLANDS FUTURE MOBILITY

Environmental IoT Sensors | AI CCTV | Location (GNSS) correction | Digital Twin | 5G communications | Datahub

Example partners include:

WMG THE UNIVERSITY OF WARWICK | AVL | Coventry University | vodafone business | highways england | COSTAIN | MIRA | ameyconsulting | Wireless Infrastructure Group | Immense

Thank you!

John.Paddington@tfwm.org.uk


5G
Transport Project Showcase


5G
HPOMS

Holistic Pantograph Monitoring System (HPOMS)

Transmission Dynamics Industrial IoT Solution Provider	Project and technical lead.
angel Trains Rolling stock owners	Technical documentation.
West Midlands Railway / London Northwestern Railway Train Operators	Leading the 6-month live product trial.
aql Comms Network Provider	Ensuring sufficient 5G coverage is provided for live trials.
Newcastle University New Rail Research Group	Determining the level of enhancement 5G enables.

Jenny Hudson – Busines Development Director
Transmission Dynamics

Problem Identified

- Pantographs are the apparatus mounted on the roof of an electric train to collect power through contact with an overhead line.
- Proper contact between pantographs and overhead power lines = safe, cost effective and reliable service
- Several issues can cause damage:
  - OHL faults (kinks, damage) causing Excessive impacts,
  - Deteriorating wire stagger
  - Carbon wear, chips, damage

- Causing severe service disruption, significant financial loses and risk to life
- The longer issues undetected/unresolved, the more catastrophic the damage

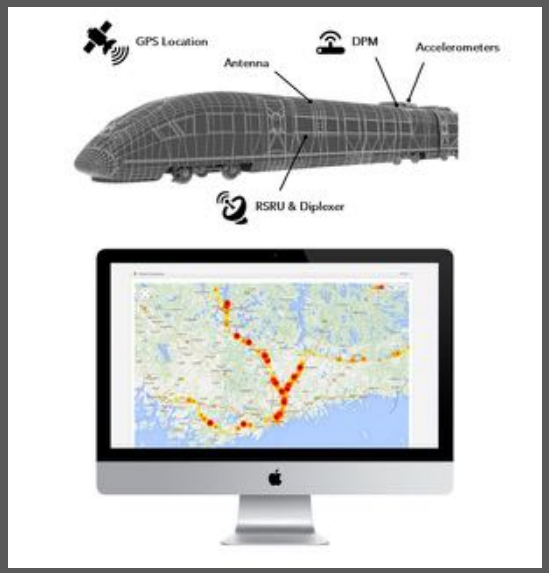
- Pantograph Damage Assessment System (PANDAS) wirelessly monitors impacts in real-time but it would benefit from camera to identify impacts/stagger/wear
- The rail sector consistently confirms the need for a single installation to provide all condition monitoring requirements.

The Solution

Holistic Pantograph Monitoring System (HPOMS)

A compact and affordable camera system that:

- Enhances our existing industry leading wireless Pantograph Damage Assessment System
- By providing visual footage of impacts detected
- Streams high-definition footage for rapid image processing and decision making
- Measures pantograph height, wire stagger and carbon wear/carbon damage



Benefits

Providing the rail sector with:

- Visual evidence of incidents
- Enhance incident reporting from additional measurements
- Enabling proactive maintenance - rather than reactive
- Increased safety
- Increased reliability of service
- Reduced delays caused by unidentified issues
- Reduced preventative and uniformed maintenance regimes
- Resulting reductions in time and costs of maintenance


5G
POLYTRACK

PolyTrack

Consortium Partners: ESR Technology Ltd, PolyChord Ltd & University of Southampton

Supported by: SellickRail Ltd, Icomera plc & BT_EE

Presented by: Rebeka Sellick MEng CEng FIMechE FIET

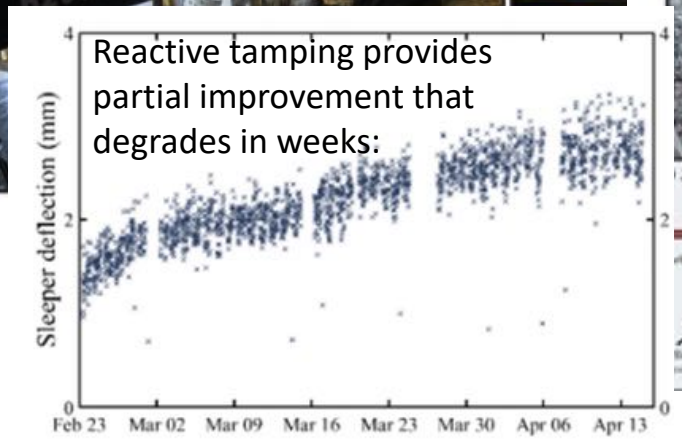
Commercial Project Lead

The Opportunity - PolyTrack will enable:

Better-targeted condition-based asset maintenance for longer-lasting benefit, pinpointing local remediation sites

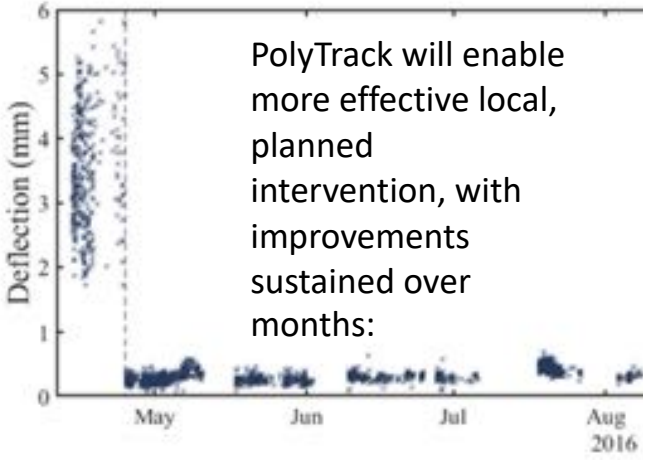
CURRENT SITUATION:

Mechanised interventions are rarely long-lasting for **Isolated trackbed defects**



OUR VISION FOR THE FUTURE:

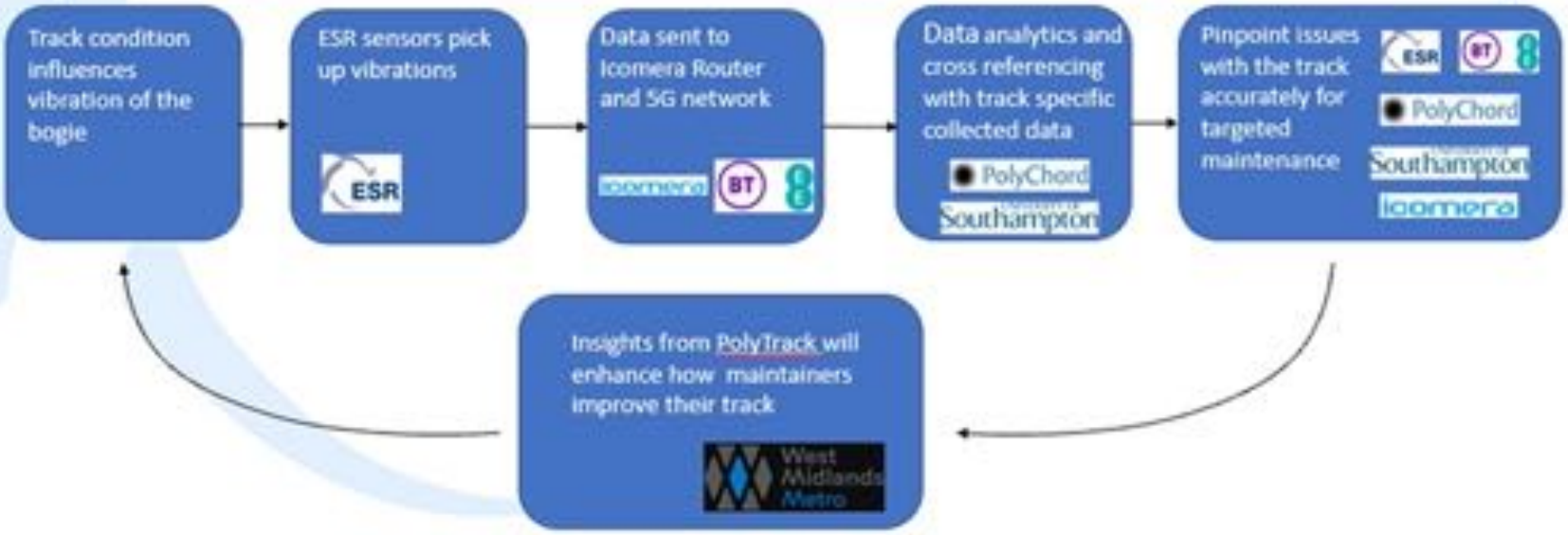
PolyTrack will identify where to apply non-mechanised preventive maintenance, avoiding the need for urgent intervention, and enabling more effective remediation, more cost-effectively:



The solution – how PolyTrack will research & deliver impact –

developing a Product & Service for Railway Infrastructure

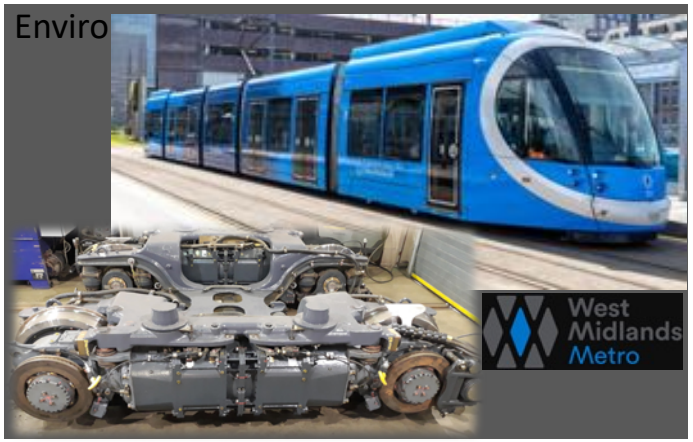
Product = novel bogie-mounted sensor array supported by AI data analytics to measure and monitor track condition.
Service = provision of live condition-monitoring by combining 5G datafeeds with Machine Learning to detect track performance issues in real time.



PolyTrack – Who, When, Where

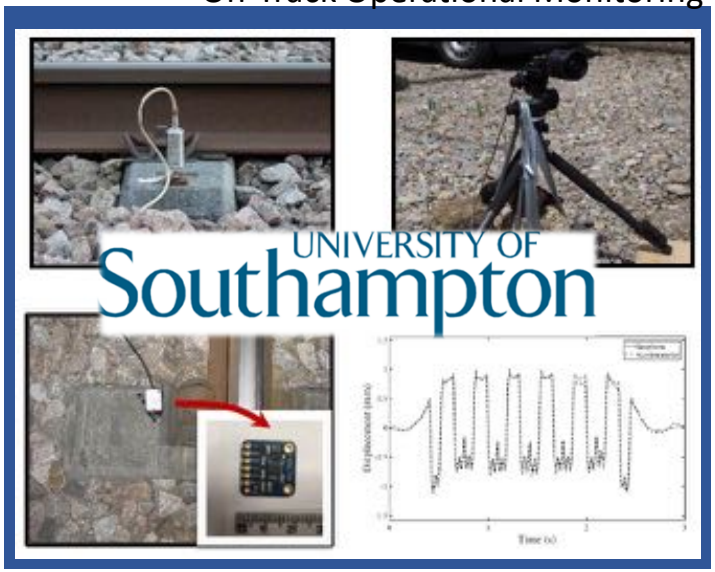
On-Vehicle In-Service Operating

Enviro



5G Technology

On-Track Operational Monitoring



Bespoke Sensor Package

Data Science

Railway Expertise

SellickRail

Runs from: March 2021 to February 2022; with 3-month 5G trial on West Midlands Metro
To date: preliminary data collection and exploration; **Next:** prototype development


5G
TRAVEL XR

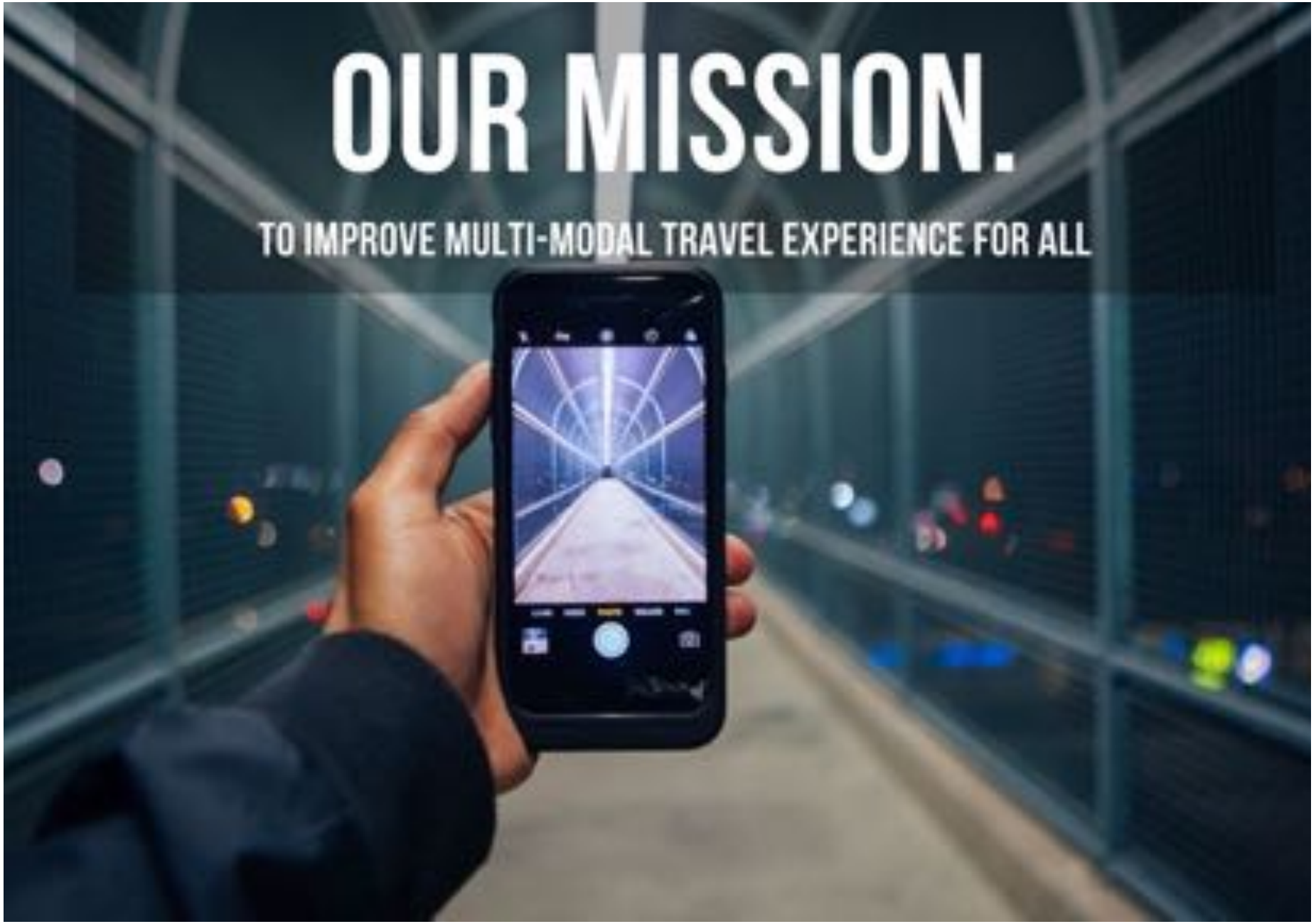
TravelXR

Briteyellow Limited

University of Birmingham

Bell Integration

Fredi Nonyelu


OUR MISSION.
TO IMPROVE MULTI-MODAL TRAVEL EXPERIENCE FOR ALL


The problem:
Operators lack of access to real-time information inside buildings like stations and hospitals which negatively impacts both efficiency and the customer experience.
Users also find it difficult to navigate such places which reduces customer satisfaction and revenues for operators.

Elements of the Problem...

Who and what's Inside?

Including where they are, what they are doing, and their current health status. Operators are struggling to monitor passengers or patients remotely to provide them with timely help. This lowers customer experience and satisfaction

Usage and Benchmarks info?

Operators cannot compare performance of different sites effectively. This limits their capacity to increase efficiency and share best practice across locations. They waste time on field visits to observe and obtain insights.

Digitized Maps?

People spend 90% of their time inside places but often don't have detailed maps for guidance inside. This is a pain at critical moments such as when we choose the wrong exit and miss a connection or are separated from loved ones, lowering customer experience.

Interchange Anxiety

Customers are faced with too many choices of exits and entrances which is confusing. It causes anxiety which discourages public transport use, reducing operator revenues.

Lack of Mobility Access

50% of UK train stations are not accessible because of lack of access to information about the status of facilities. Customers are unable to plan routes effectively to mitigate accessibility problems and this is against the Government's Inclusive Transport strategy.

COVID-19 Concerns

Operators don't have the tools to manage social distancing efficiently. This is a problem because customers without effective Crowd & Social Distance Management customers will not have the confidence to choose public transport and will impact on compliance.

Travel-XR
System

Ultra-precision wearable, sensor, and smart app for connected passenger guidance at stations.

briteyellow

DYNAMIC ROUTING & PRECISION GUIDANCE

Remote tour and local guidance.

Proof of Concept App

TRAFNIDIAETH CYMRU
TRANSPORT FOR WALES

TRAVEL-XR CONSORTIUM

THE PARTNERS

briteyellow

Enabling Smart Stations

- Indoor position and navigation platform & apps
- Smart wearables
- Ultra-precision sensors

Bell Integration

System integrator partner

- IT services
- 500 permanent staff
- Operate critical technology cost effectively

UNIVERSITY OF BIRMINGHAM

Railway Science and Engineering

- Europe's largest rail academic-based group
- World-class research
- Lead partner (UKRRIN)

Innovate UK Collaboration Agreement adapted to WMSG contract requirement

SUB-CONTRACTORS

Transport for West Midlands

Bus Stations installation

West Midlands Railway

Train stations installations

O2

Data supply and SIM cards

WM5G

TRIAL LOCATIONS

1. Smethwick Galton Bridge
2. Wolverhampton Station
3. Jewellery Quarter
4. 5PRING Testbed

Scale
70 x HD video cameras
420 x UWB sensors
35 x smart wearables
100 x end users

Letters of Support


STATUS AND PROGRESS.
March 2021
Project Kickoff
June 2021
Testbed demo
September 2021
Station demo
January 2022
Customer trials
March 2022


5G
BUS OCCUPANCY

Bus Occupancy

Hack Partners
FirstGroup

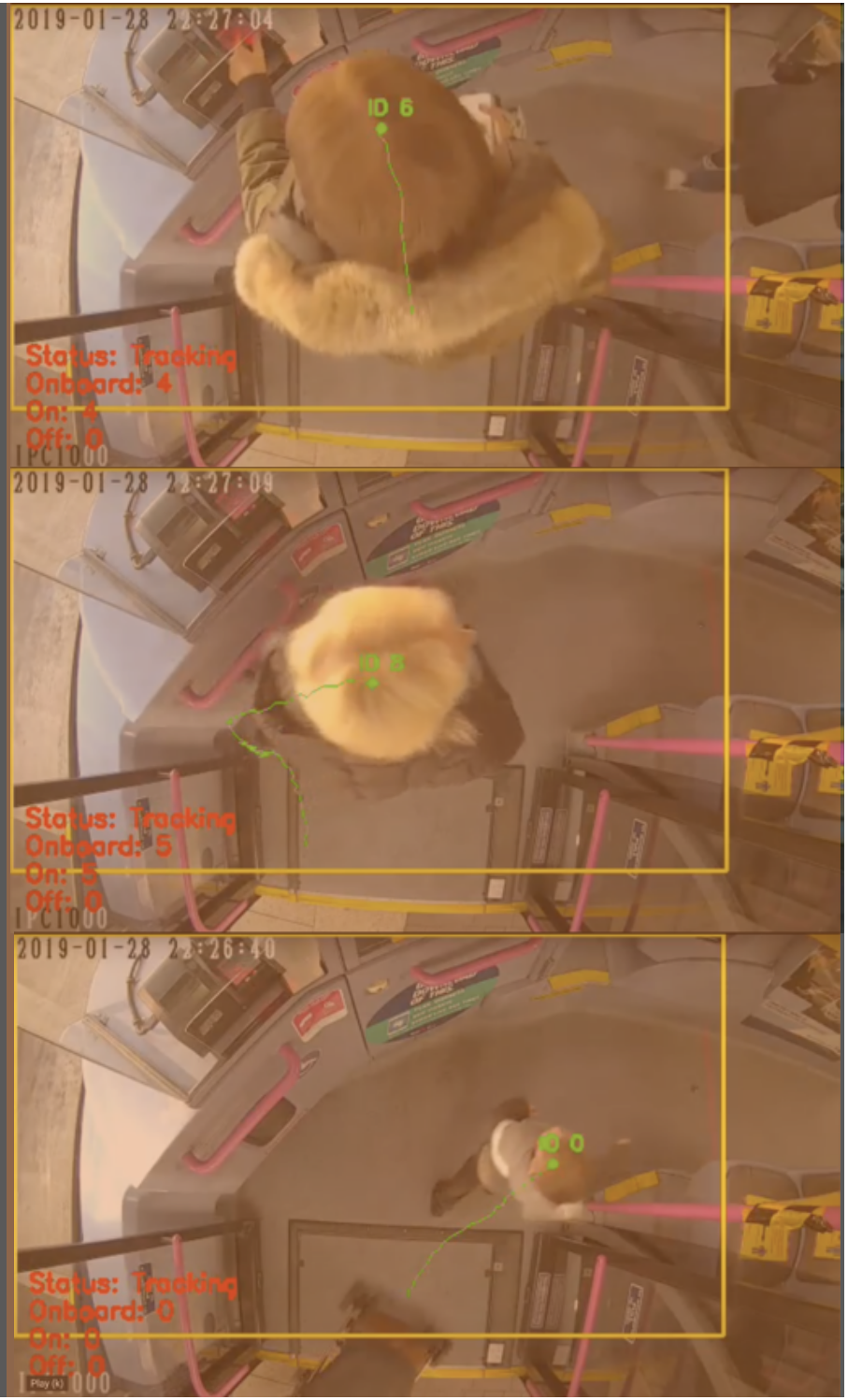
Haydon Bartlett-Tasker

PROBLEM

- Passengers need accurate real-time data of bus occupancy
- Bus and other transport operators don’t have real time visibility of passenger numbers
- Standard solutions (wifi and sensors) have a low accuracy
- Manual passenger counting is expensive and inefficient
- Fleet allocation is not always data-driven

SOLUTION

- 5G-driven camera system
- Real time passenger counting using computer vision
- Integration with bus operator systems for decision making
- Passenger mobile app integration



TRIAL LOCATION

FirstGroup buses operating in West Midlands

TIMESCALES

1st Apr 2021 - 1st Feb 2022:

- April-today: equipment designed and components ordered
- July-September: deployment and computer vision training
- September-January: integration

SCALING

- Other regions
- Trains, trams and other transport


5G
STATION ROVER (5GER)

5G Enabled Smart Train Station Rover (5GER)

TrainFX

The University of Surrey

The University of Strathclyde

David Bradley

Engineering Director, TrainFX

5G Enabled Smart Train Station Ro

How the project will address the issue

- *A highly mobile, 5G enabled Interactive Station Rover improving information servicing and operational efficiency.*
- *A Complete 5G Connected and integrated solution, with 3rd Party Data Integration and support.*
- *Uses extremely low latency, highly reliable, and high-bandwidth 5G mobile networking with cloud-powered AI capabilities such as natural language engine, real-time videos and images configurable audio and large text, for the visually impaired.*

Our Goals of the project

- ***To provide an intelligent, highly secure robotic solution for station operators to improve their operational efficiency in railway stations.***
- ***To seamlessly integrate a 5G-enabled smart railway station rover with TrainFX mature Passenger Information System (PIS) technology services. The services to include guidance to travellers for options of services available, tailored to individuals' needs.***

Benefits we hope to see

- *The '5GER' project aims to develop the first UK 5G-enabled smart train station rover through the state of the art 5G technology and mobile robotics for the applications in large and complex railway stations like Birmingham New Street or other similar stations.*
- *Enhancing passengers confidence and to protect their health through onsite real-time detection of social distancing, mask wearing and crowding.*
- *Assisting passengers journeys through railway stations and other transport hubs.*


5G
CURBS

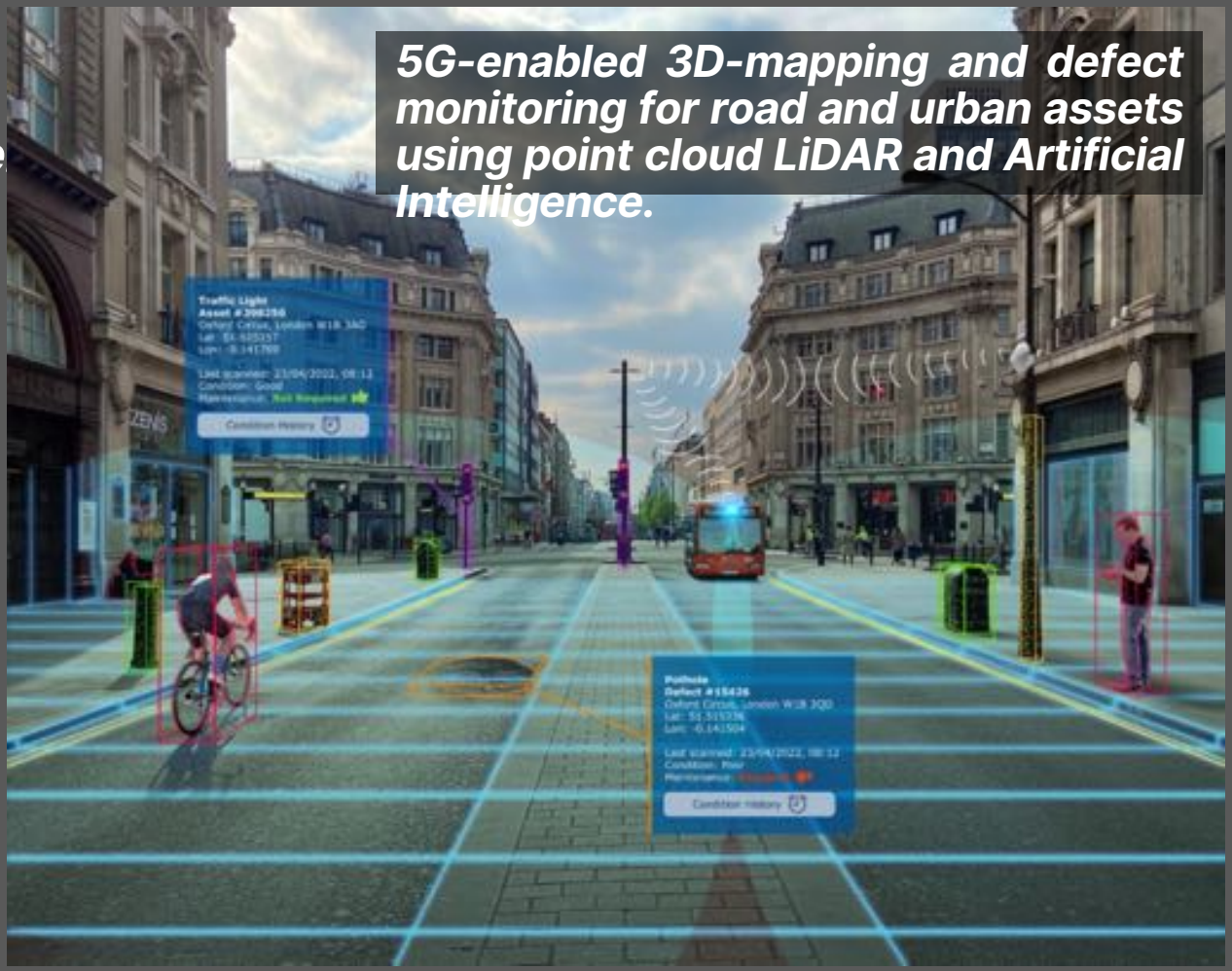
CURBS

Vortex IoT, BT, National Express

Rajeev Vadgama (Vortex IoT)

CURBS

Continuous Urban Scanne



Road Asset Def

Identify → Categorise → Report

Road Markings

Pothol

Kerb Upstand

Lamp Columns

Traffic Signs

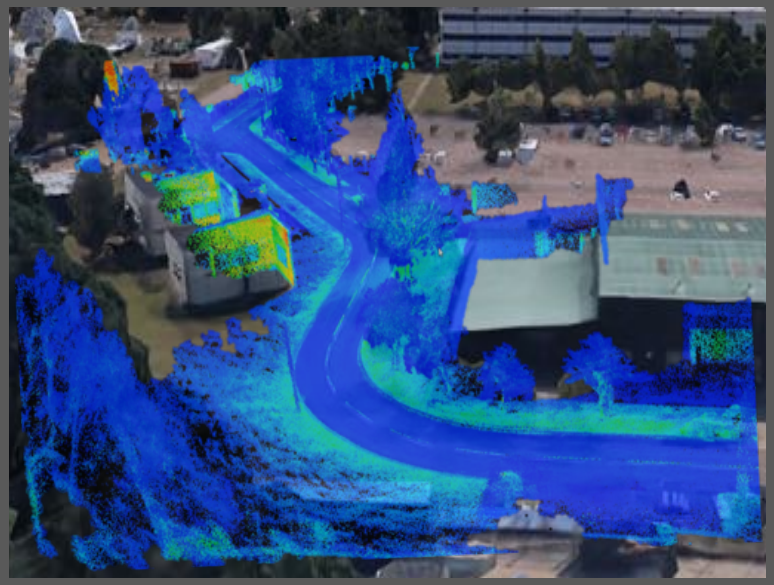
CURBS

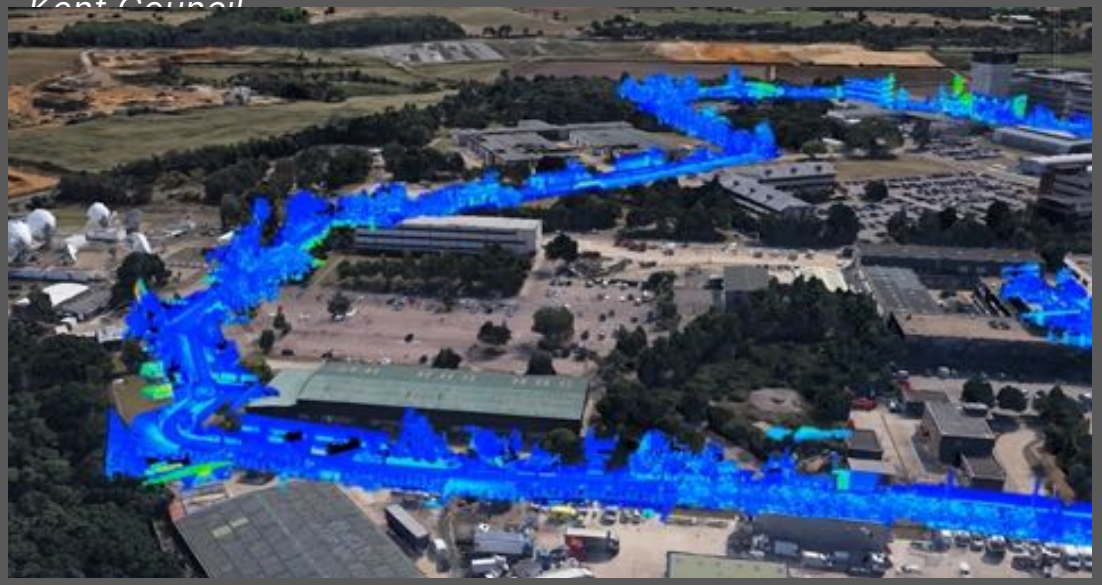
Continuous Urban Scanner

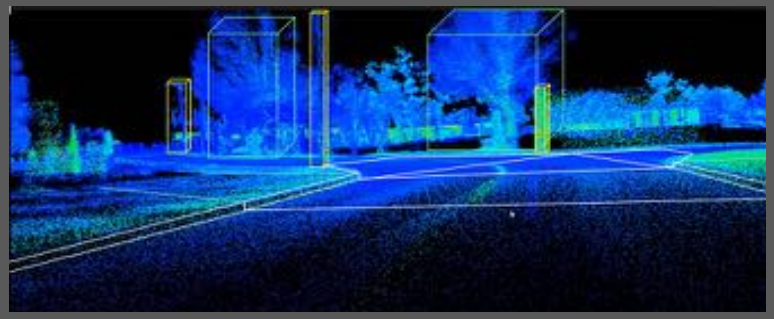
May-Jun 21: Pre-pilot Data Collection at Adastral Park

Sep-Dec 21: Pilot with 8 Buses in Future Mobility Test Bed Birmingham

Jan-Mar 22: Trials & demos for Westminster City Council & Kent Council







Road Asset Def...

Identify → Categorise → Report

Road Markings

Pothol es

Kerb Upstand

Lamp Columns

Traffic Signs

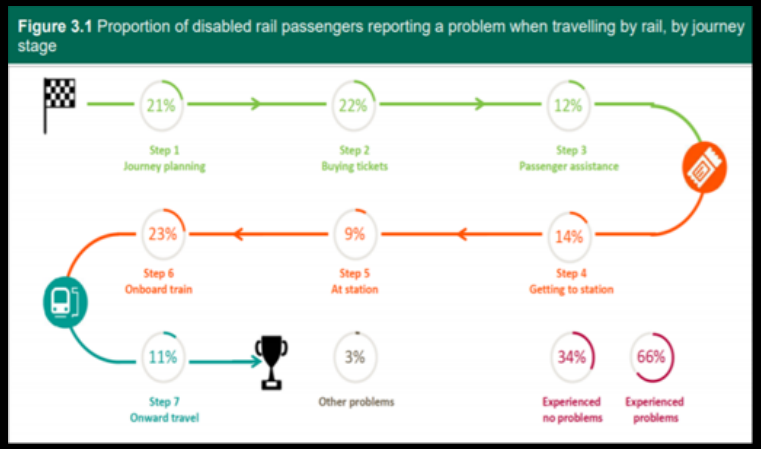

5G
PROACTIVE PASSENGER
MANAGEMENT

Proactive Passanger Management

Wordnerds, Cegmedia & Isomera

Steve Erdal, CSO, Wordnerds

Public transport company staff don’t know what’s happening on their services

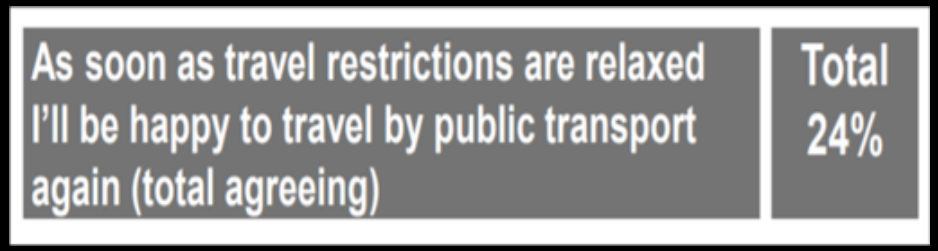


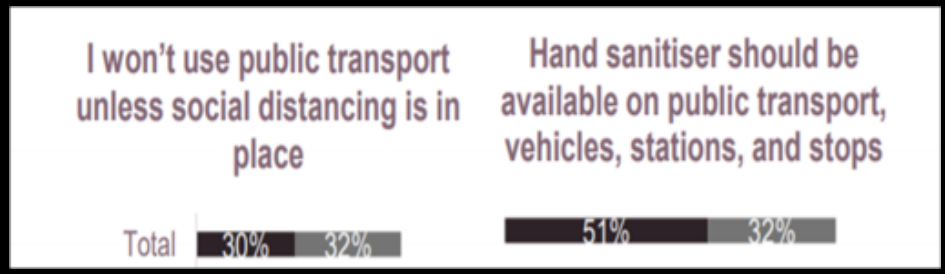

News › Transport

More than half of women in London are ‘victims of sexual harassment on Tube, trains and buses’

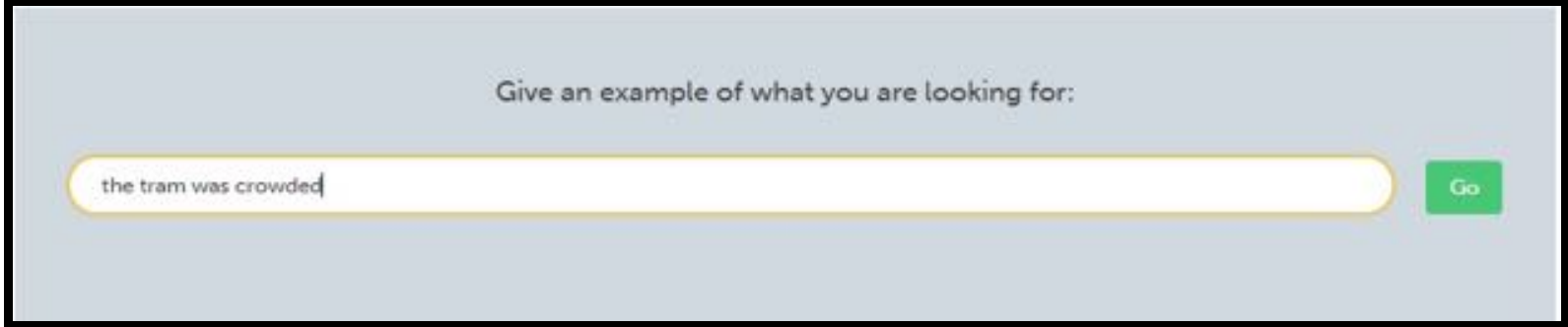
ROSS LYDALL | Monday 20 January 2020 12:01 | 0 comments

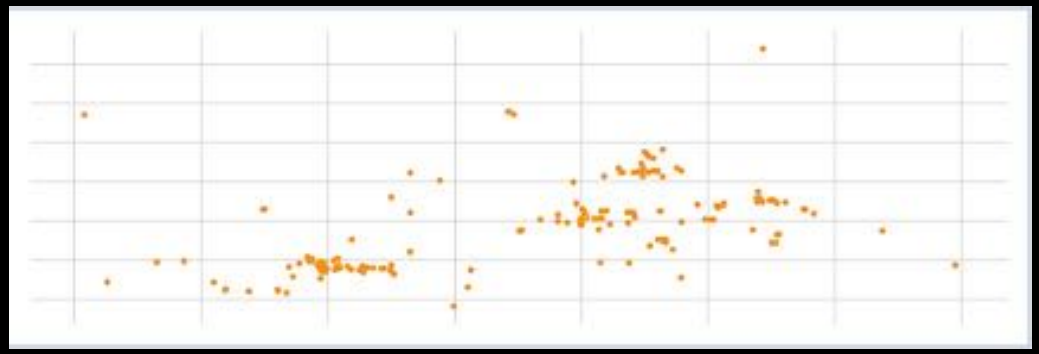
COVID will change everything (and we don’t know how)

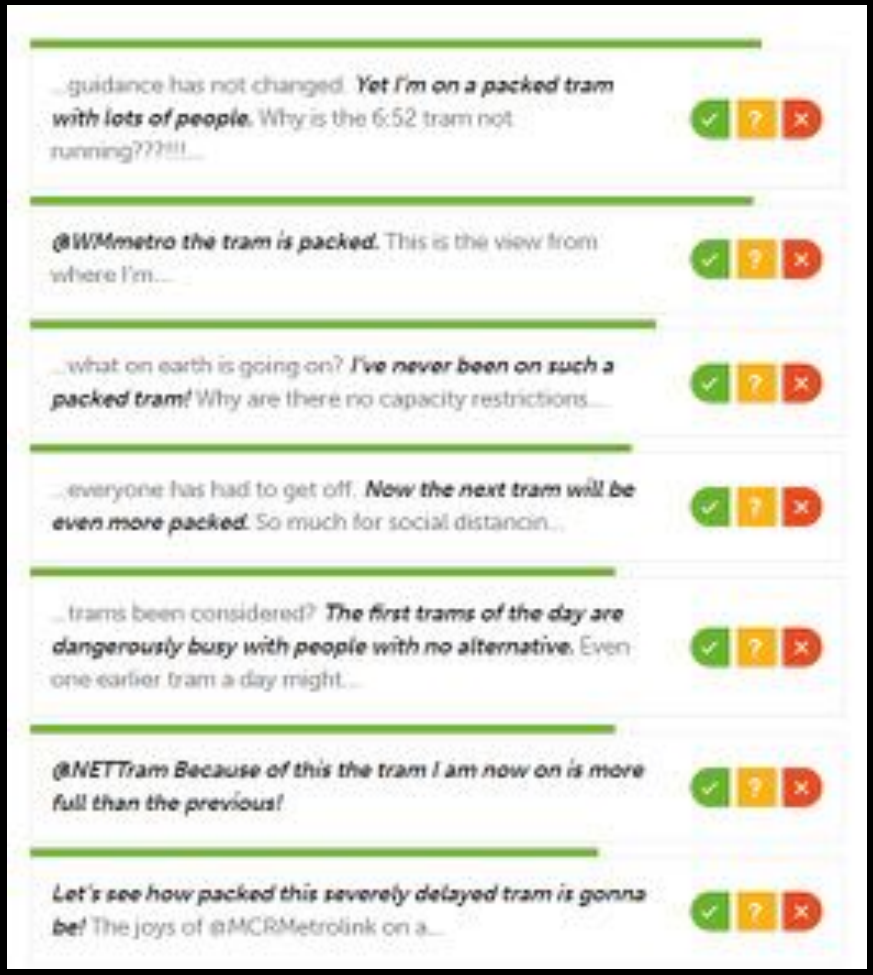




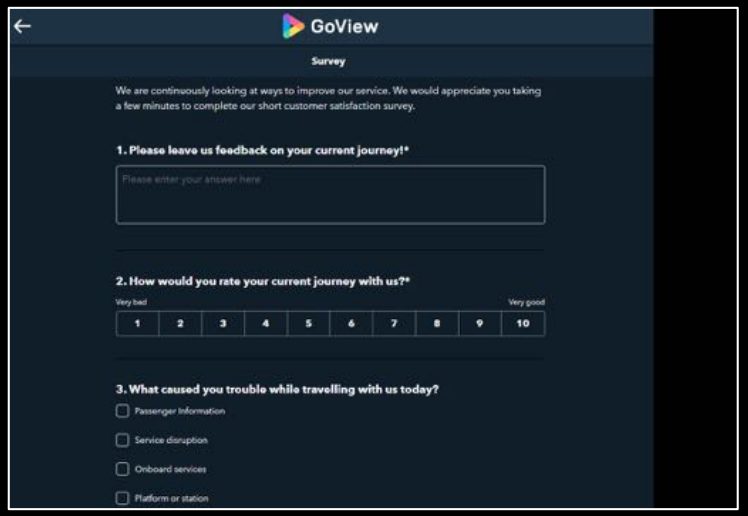
What could a public transport operator achieve with traveller experience, if they knew how every passenger was feeling?

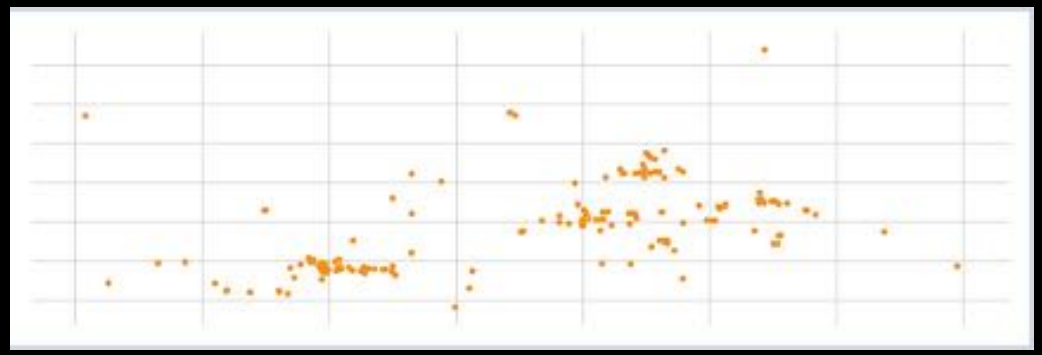


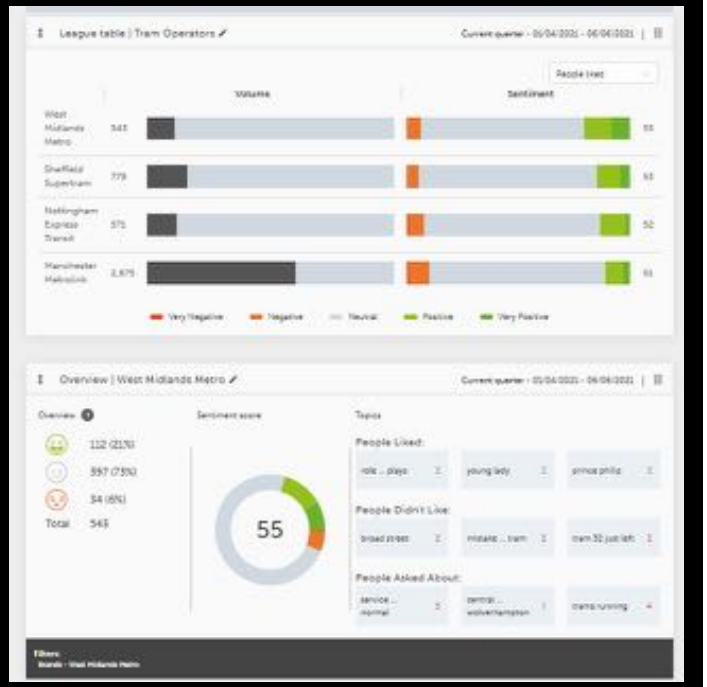




Proactive Passanger Managerment







Proactive Passanger Managerment


5G
URBAN TOURISM 5.0

Urban Tourism 5.0

Our Sponsors

Transport for West Midlands

BT EE

Coventry City Council

Lead Partners

You. Smart. Thing.

LANDMRK

Imagemakers

Subcontractors

mobius NETWORKS .co.uk

me you and us

cellhire mobile solutions

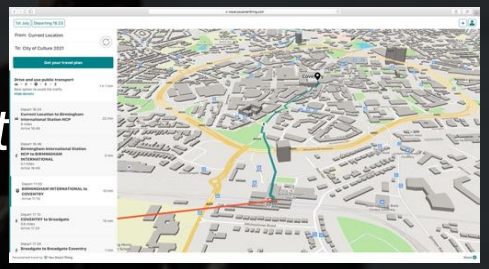
RSSB A Better, Safer Railway

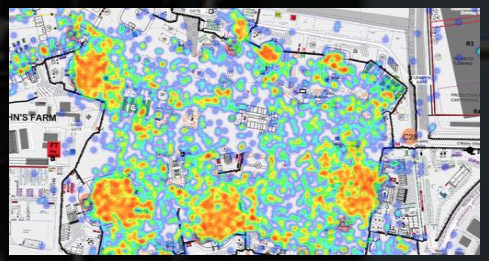
Chris Thompson, CEO, You. Smart. Thing.

Better travel management by putting our culture ‘on the map’

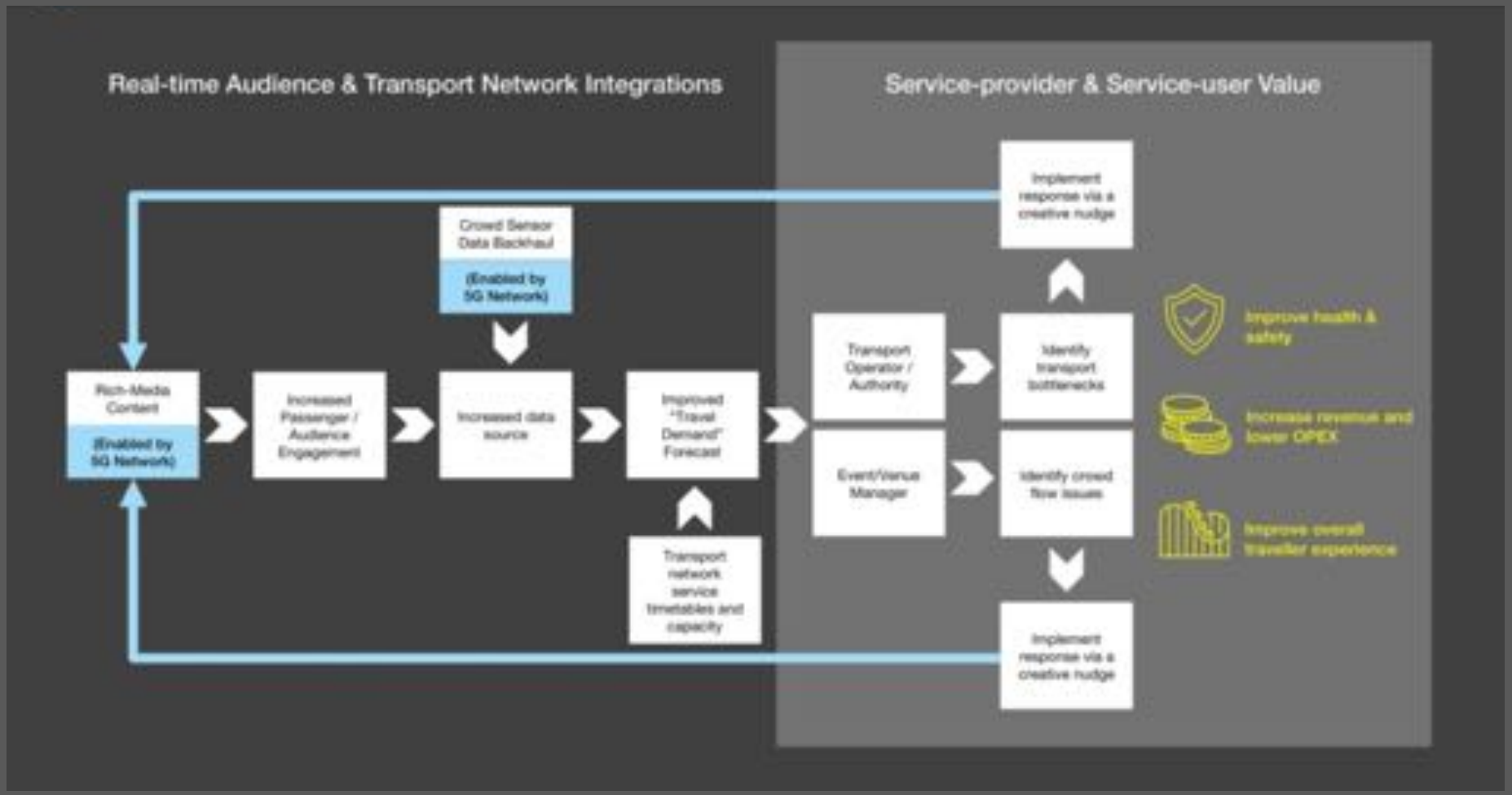
The UT5.0 consortium aims to accelerate recovery from COVID-19, inspiring audiences with robust, engaging, safety critical real-time guidance based on their proximity to venues, events and points of interest other.

“A next generation Michelin Guide or Lonely Planet



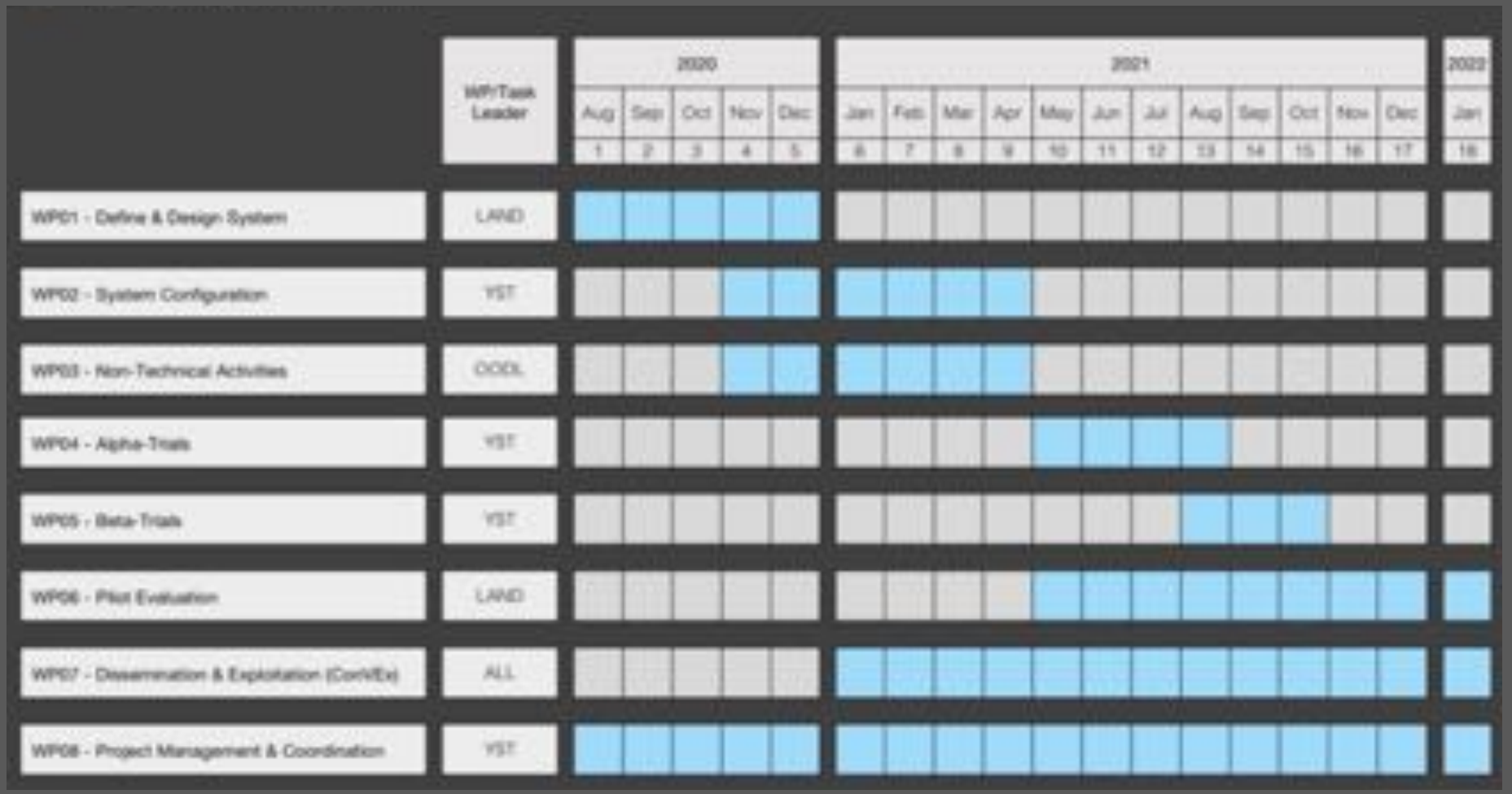


Solution Overview – UT5.0

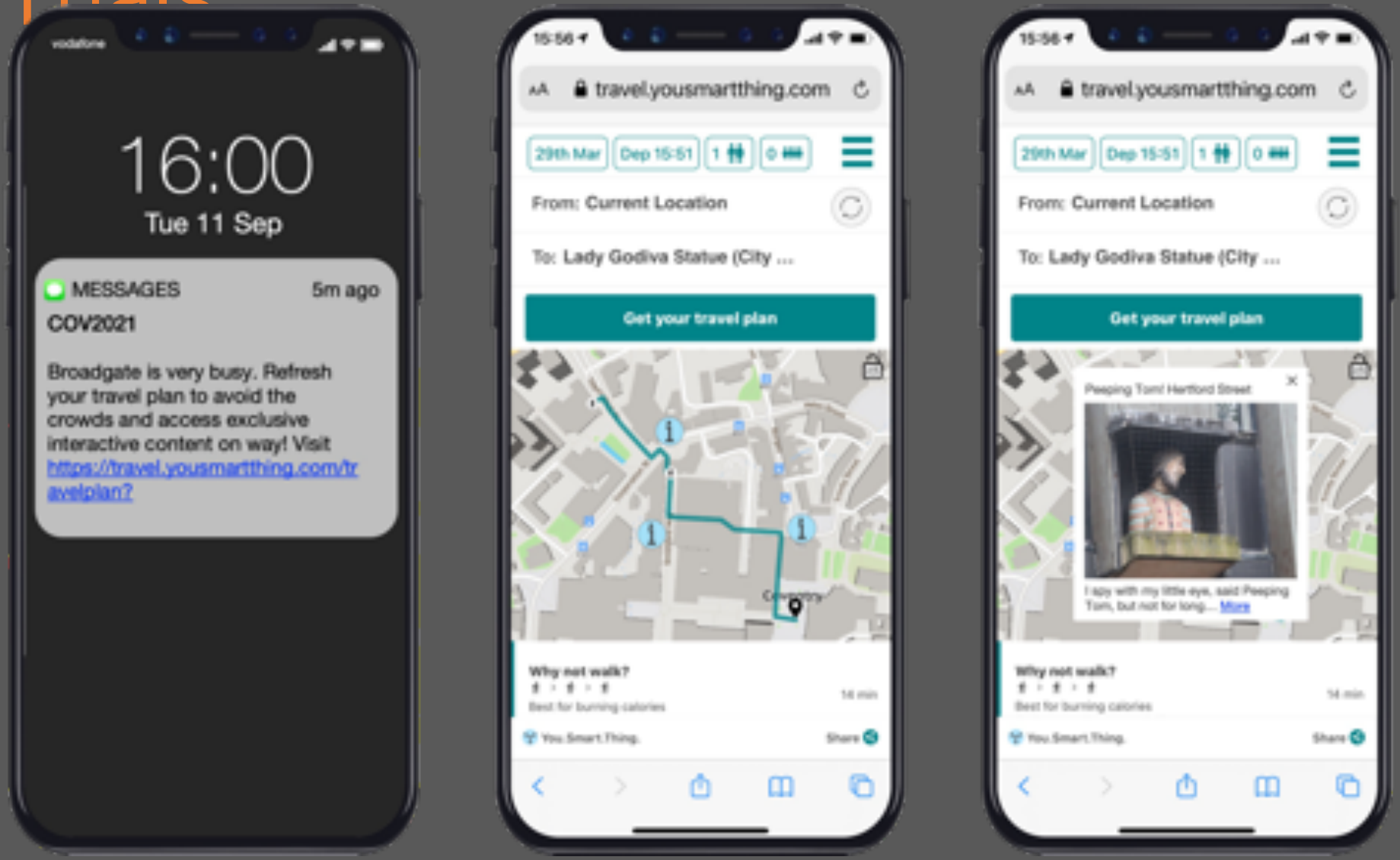


Trial Location – UK City of Culture

Project Timescale



Status & Progress to Date – Alpha Trials



Status & Progress to Date – Alpha Trials

Status & Progress to Date – Alpha Trials


5G
TRANSPORT ACCESSIBILITY

Transport Accessibility

GoMedia, Icomera

Sven Koster

Head of Innovation and New Business at GoMedia

Visually Impaired

Over 2 million visually impaired users struggle to make journeys independently. We aim to positively impact these journeys:

- Increase the percentage of unaided journeys.
- Reduce loss of economic activity by failed journeys
- Increase efficiencies by releasing operator staff to focus on other areas.
- Measured by: throughput, accuracy of content.
- User feedback from closed user groups supported by RNIB

Trial so far

- ✓ Started in August 2020, finished in July 2021. Trial conducted from January until June
- ✓ Over 30 visually impaired users so far
- ✓ Remote and live testing at the moment

In collaboration with:

NaviLens

vodafone

RNIB

WM 5G

icomera

West Midlands Metro

Trial so far

icomera

West Midlands Metro


5G
5G-ENABLED DYNAMIC
NETWORK CAPACITY MANAGER

5G-enabled Dynamic Network Capacity Manager

blacc Ltd, one.network, Immense, University of Warwick

Claire Woodward

Background

- >80% of passenger journeys are by road and traffic volumes are still rising.
- New mobility will increase our dependence on roads, especially in cities.
- We're not building new roads so we need to optimise the ones we have.
- There are more than 2.5 million roadworks on UK roads every year.

Network Demand

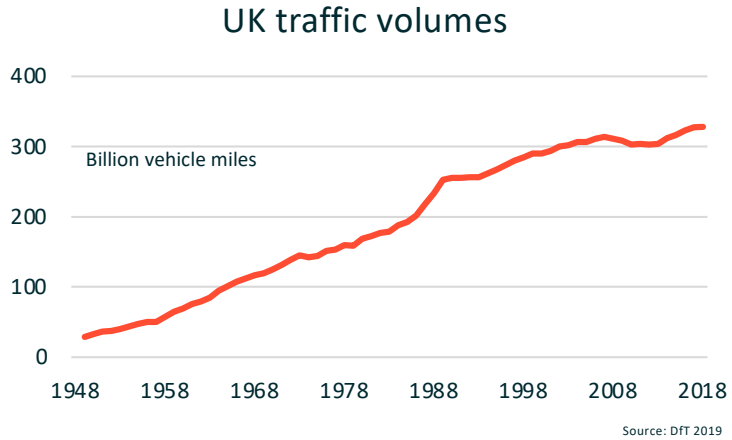
The number of vehicles on the network is increasing

Network Capacity

Maximum capacity cannot increase to meet demand

Network Performance

Maintaining network performance is critical



Source: DfT 2019

The issue

Significant challenges to **network dynamics and travel patterns.**

Limited tools to shape strategic response.

Limitations in our ability to monitor the network inform & refine tactical response.

Limited data sources to inform the response and efficacy of the response during transition to 'new normal' **(COVID 19).**

Addressing the problem

- Innovative solution to **exploit 5G traffic sensing data for dynamic traffic management**. We will augment this new data source with more traditional data sources to construct a **robust data repository** that will be the basis for our computational solutions.

- A suite of modelling-based queries and scenarios for **decision makers to model range of traffic management strategies**. These will primarily be based around 'what-if' scenarios for planned or unplanned incidents.

- An **intuitive user interface** provides real-time insights and predictive modelling to the user, empowering action.

- An approach where 5G roll-out can provide **increasingly performant and customer-focused** tool

The project's vision

To produce a scalable, productised solution that will enable road authorities across the UK and internationally to plan and respond to changes in network capacity.

The benefits we hope to see

- **Increased capacity**
  - Larger and more timely data for more powerful machine learning
  - A more comprehensive view of the network

- **Lower latency and faster communication**
  - Real-time inference using fast data streams
  - Effective use of cloud/servers for scalability and efficiency of machine learning and agent-based simulations

- **Dynamic management and intervention on the network**
  - Efficient modelling enables up-to-date predictions, modelling congestion and planning for road closures

Progress so far

User requirements specification (Complete)

- End user requirements have been defined through engagement with West Midlands RTCC and solution wireframes developed.
- Further engagement with Local Authorities across the region and with highways England.
- The headline requirement is to understand the simulated impact of supply-side interventions on the transport network, and therefore to provide an estimation of dynamic network capacity.
- The simulation will include a digital representation of the study area, with levels of demand that are representative of distinct, prevailing conditions and will accept changes to the supply of transport network, such as those caused by roadworks or incidents.

Data (Complete)

- Procured 5G traffic data, including measurements from sites within the West Midlands study area.

Machine Learning Model (Complete)

- Enhancements ongoing

User Interface (In progress)

- Providing real-time visualisation and reporting of route performance.

API design and development (In progress)

- Development of core platform architecture to support use cases identified through user engagement activities
- Definition of API between the Immense agent-based simulation platform and one.network platform to enable exchange of roadworks, incident and simulation data

Technology build (In progress)

- Development work on traffic simulator and discussions on planned/unplanned event methodologies
- Development of a real-time ingestion module
- Specific deployment for West Midlands study area (model generation and application)


WM 5G
TRAM SAFETY

Tram Safety

Digital Rail, Icomera

Howard Parkinson, Director

Challenge

Produce the next generation of smart, mobile CCTV.

Vision

A realtime mobile video analytics and staff alert for WM Metro.
System to improve safety and security on trams using CCTV, vision analytics with AI and alerts to staff utilising 5G to deliver video footage in realtime.
Analytics done in the cloud ensuring state of the art algorithms and machine learning deployed.

Why 5G?

Fast upload and download speeds are critical to the trial, to take a large amount of CCTV off the tram for analysis in the cloud, then return realtime alerts to tram staff onboard or in the CCTV control room.

Further Opportunities

There are further opportunities to utilize the platform to process passive CCTV images using 5G as an enabler to solve further problems.

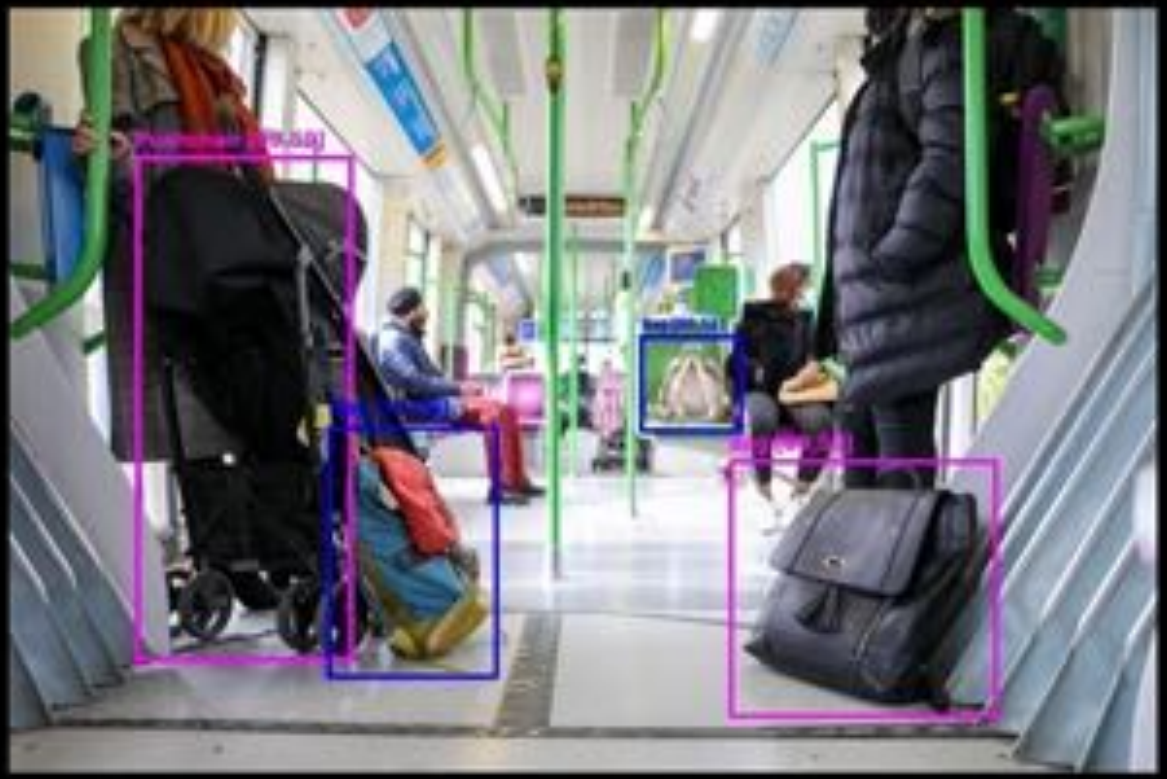
Tram Safety

Use Case – Improving Accessibility

Identification of pushchairs, wheelchairs, bicycles and heavy luggage

Use Case – Security

Identification of suspicious packages and alerts



Tram Safety


5G
PROJECT PREDIKT

Project Predikt

Stephen Jones

June 2021

appyway

appyway

The problem

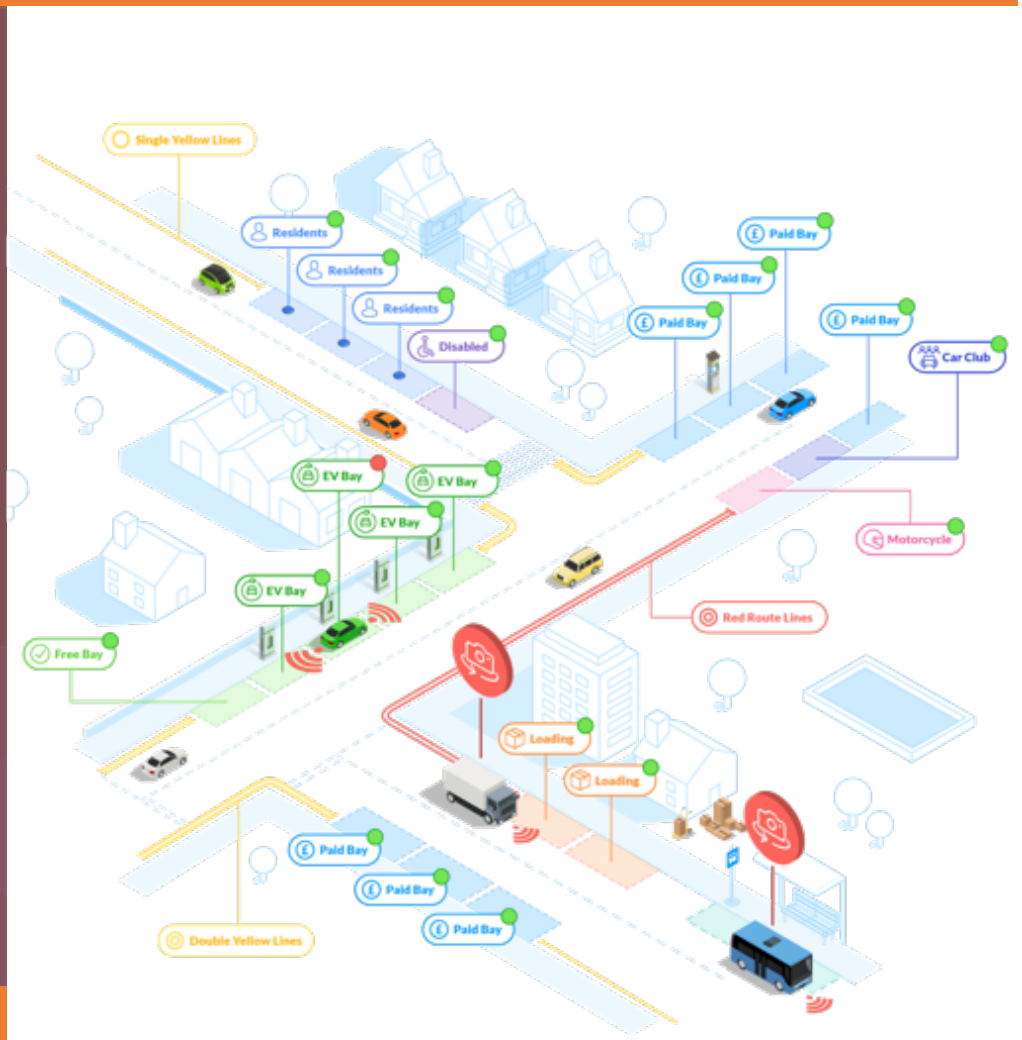
Visibility of parking in town and city centres

The average time spent looking for parking in Birmingham city centre is 8 minutes.

AppyWay has proven that accurate and up to date parking availability delivered via an app saves people time looking for parking, reduces congestion and driven miles and increases time spent on the high street.

And with WM5G we've proven the ability of 5G to facilitate the capture of availability data via live analysis of video, captured from a moving vehicle.

But what about drivers, fleets, and logistics that want to plan future journeys?



WM5G getmapping otonomo WHITE WILLOW TRANSPORT INTELLIGENCE

appyway

appyway

AppyWay Solution

Project Predikt

Predictive and real-time availability from 5G connected data sources:

- 5G connected dash cam(s)
- Telemetry
- Traffic intelligence
- Drivers

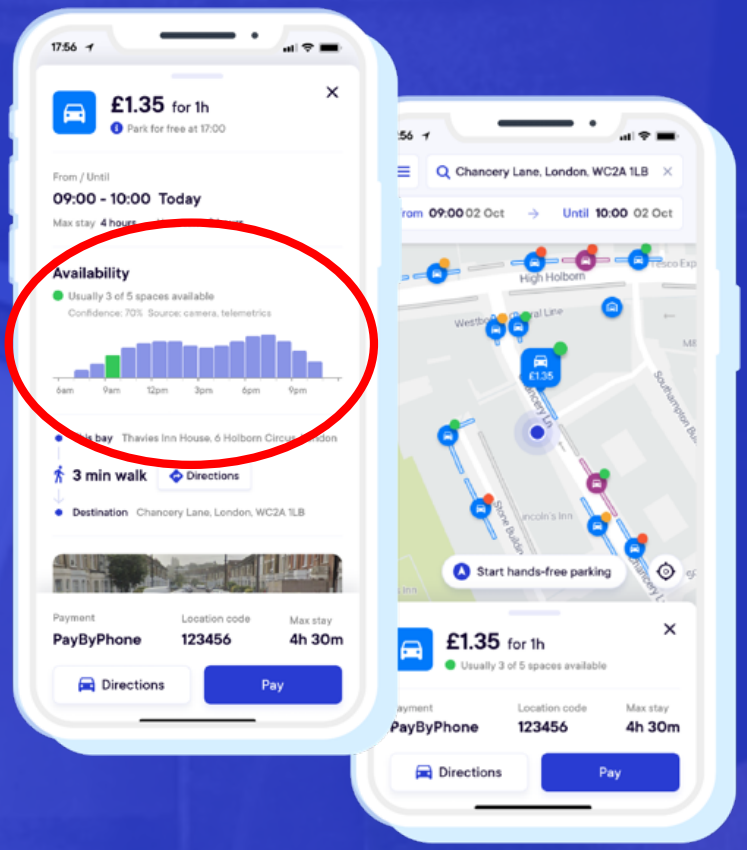
Trickle-down technology makes the solution more accessible:

- 5G enabled phones

Coupling multiple sources enables higher levels of accuracy and scale

API-first means the data is available for fleet planners (pvt and LA), Highways departments and app developers alike.

More data sources == More data points == More coverage



WM 5G getmapping otonomo WHITE WILLOW TRANSPORT INTELLIGENCE

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appyway

AppyWay Platform

A dynamically updated authoritative data set created from homogenised IoT, payments, restriction and regulation maps, enabling kerbside compliance for drivers, fleets and Connected & Autonomous vehicles (CAVs)

- A digitised kerb connect potential competitors and turns them into customers
- Removing the 'analogue' kerb as an unconnected barrier
- Puts cities at the foundation of mobility
- Standardised format for digitised kerbside information
- Management software built to be connected and to deliver automation
- Proven 83% more efficient than traditional Govtech regulation systems
- Authoritative source for rules and restrictions, locations and payment operators

5G getmapping otonomo WHITE WILLOW TRANSPORT INTELLIGENCE


5G

Q&A session

Chaired by Chris Holmes

Thanks and update on next steps

Chris Holmes


5G
Thank you