

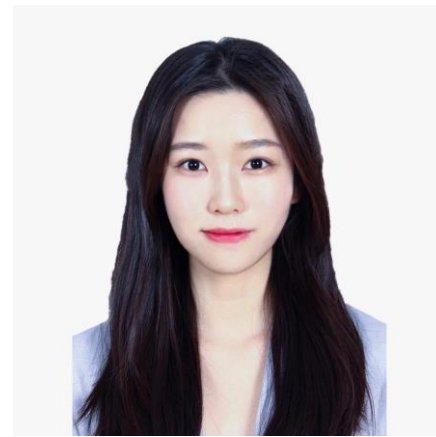
Promoting Bus Travel to Young Car Owners

Warwick Sustainability Challenge 2022

SUSTAINABILITY

Sustainability is satisfying the current needs of the world without compromising the ability of future generations to meet their needs.

Adapted from Black, 1996



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WMG e-Business

WMG International

Management

Programme Management

WMG Education Team

Management

Technology Management

CURRENT SITUATION

1. UN analysis shows that transport is responsible for 25% of CO2 emissions worldwide.
2. West Midlands 2016 review shows 1/3 of emissions in Coventry are from personal car use
3. Government survey shows Coventry is 5th best connected city in UK
4. There is significant congestion in Coventry at peak times
5. West Midlands 2016 review predicts increasing car ownership figures

TARGET CUSTOMERS

Who they are:

Young car owners (<30 years) travelling short distances (<15 mins) at peak times.

Why they were chosen:

- Scientific American shows that young people are statistically more open to change and so more likely to follow a new initiative.
- Increases in bus travel from this age group would increase revenue as they are fee paying (compared to those with free bus travel) so providing financial sustainability and the possibility of future sustainable development

What they want:

- Reliability
- Real time information

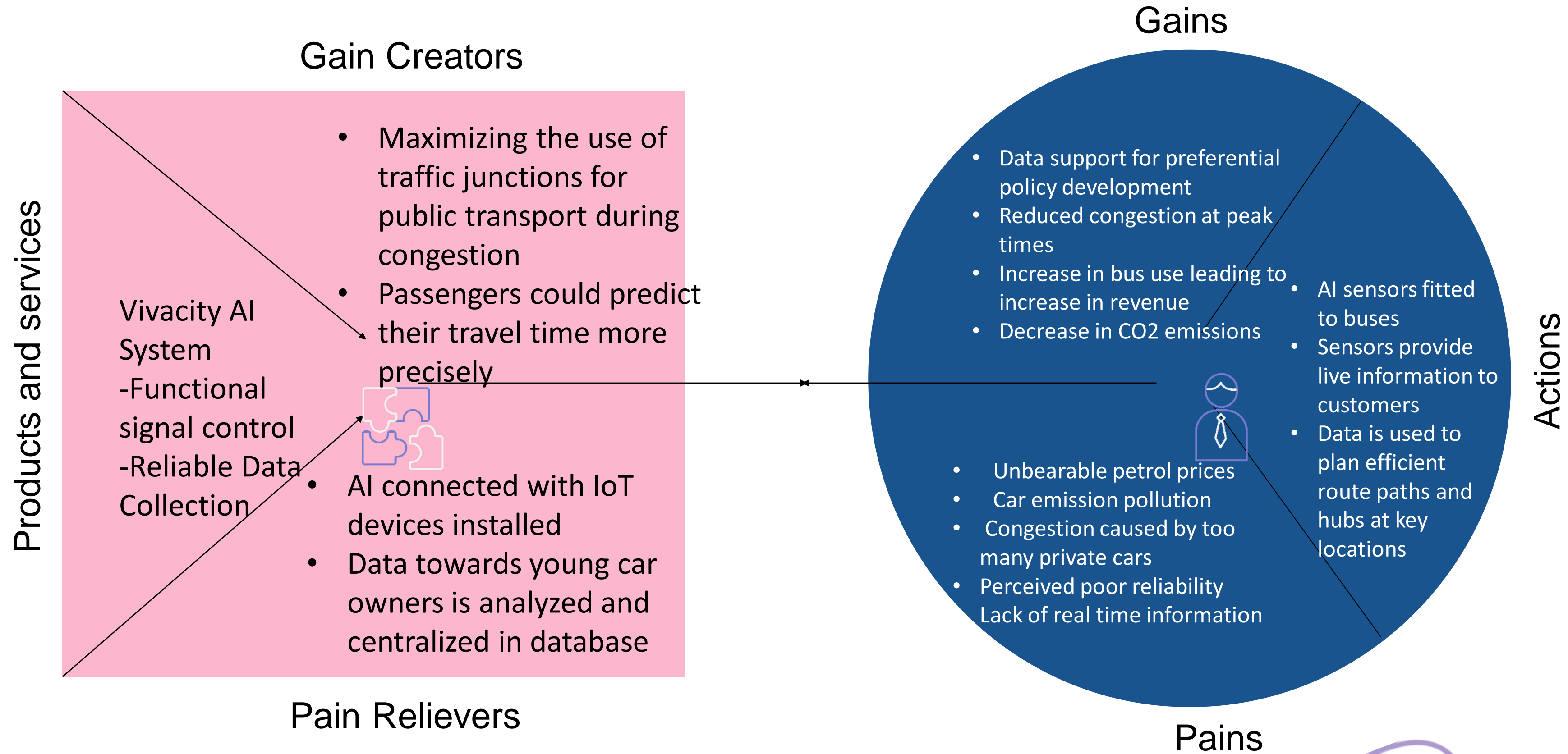
United Nations, 2021. *Sustainable Transport, Sustainable Development*. Available at https://sdgs.un.org/sites/default/files/2021-10/Transportation%20Report%202021_FullReport_Digital.pdf

Metro Alliance, 2016. *2016 West Midlands Travel Trends*. Available at <https://www.metroalliance.co.uk/wp-content/uploads/2017/11/travel-trends-web.pdf>

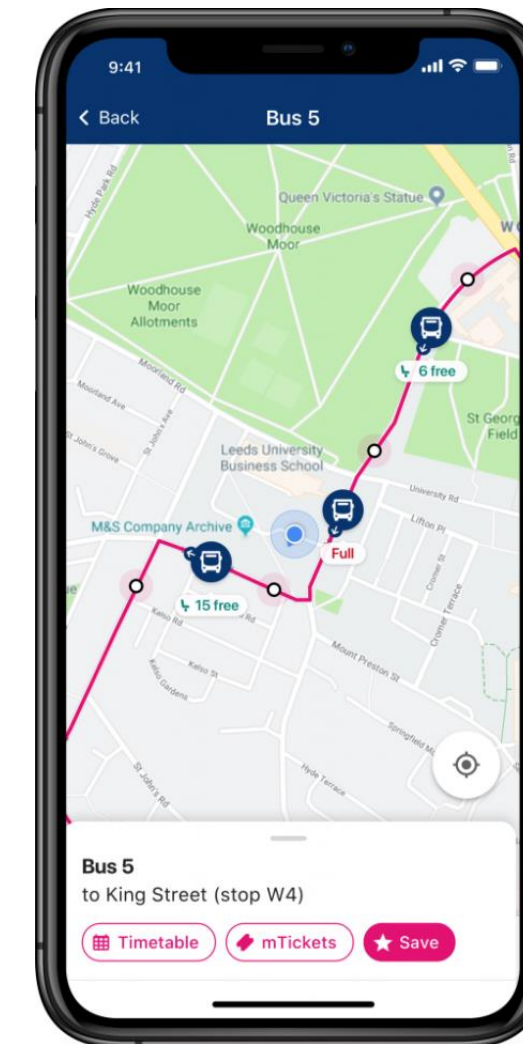
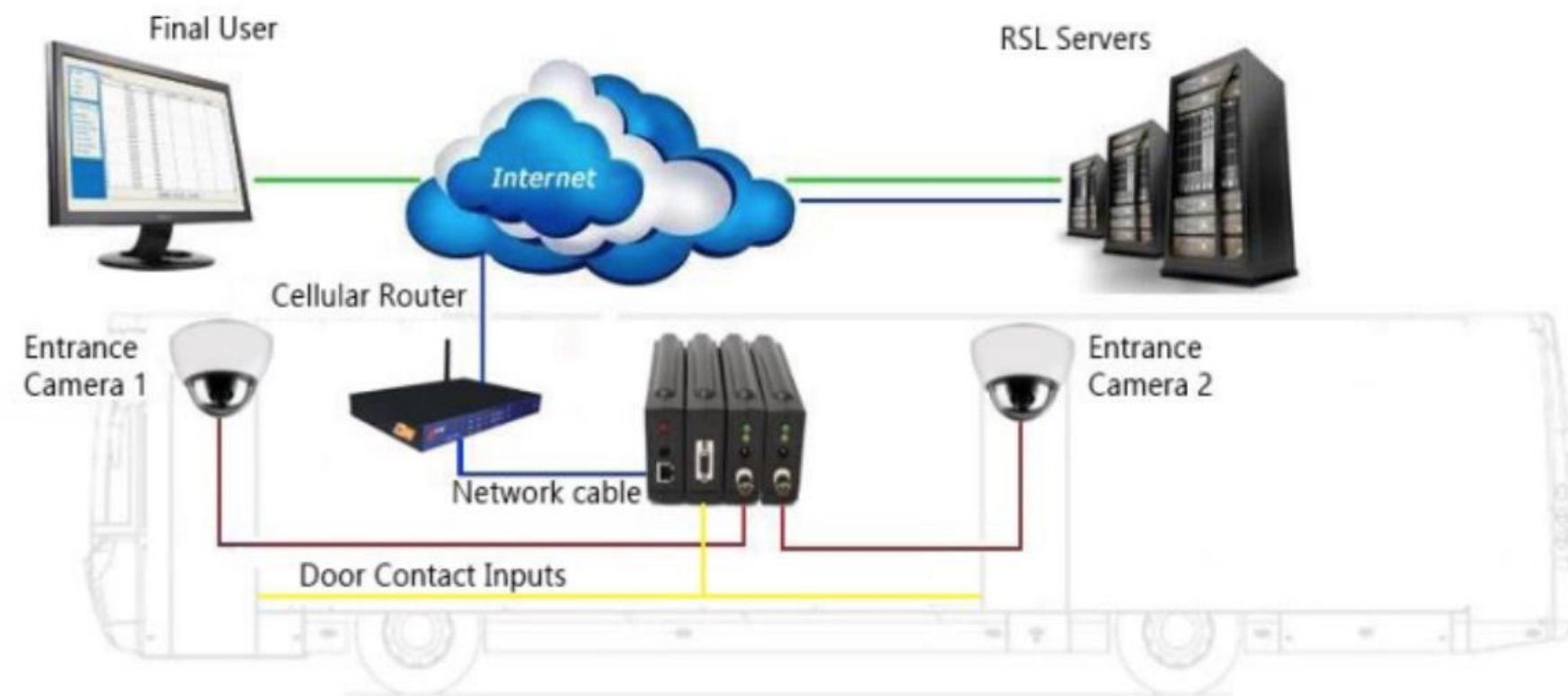
Scientific American, 2008. *Set in Our Ways: Why Change Is So Hard*. Available at <https://www.scientificamerican.com/article/set-in-our-ways/>



Value proposition



How does IoT work?



1	MESTNI LOG	10 min
5	ŠTEPANJSKO NA	10 min
8	BRNČIČEVA	15 min 27 min
22	FUŽINE	11 min
25	ZADOBROVA	7 min

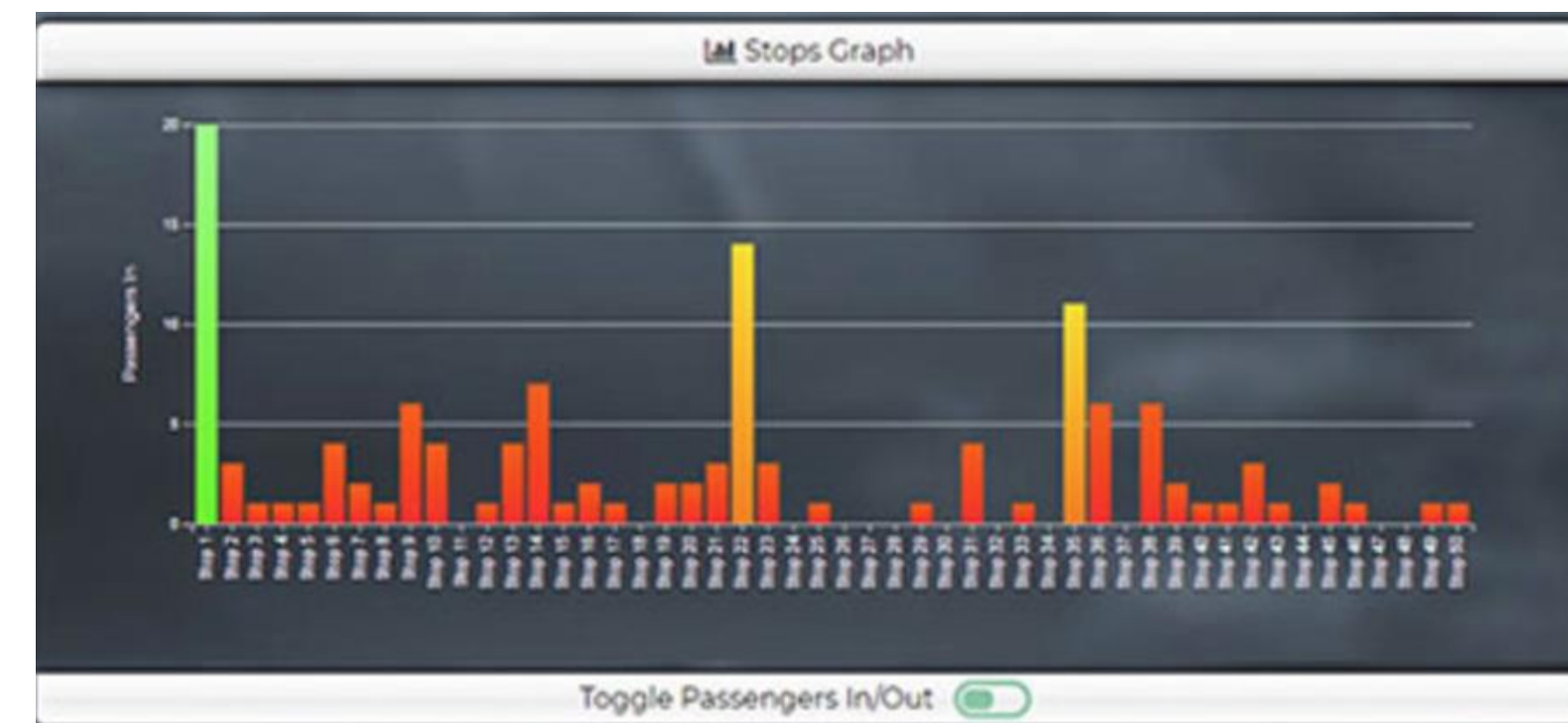
What will IoT bring?

Accurate real-time information

- provide passengers with an access to real-time data
 - location, capacity, time to arrive, etc.

Data-driven decision making

- data collected by IoT devices can provide insights that may help to improve the bus service
 - e.g., a visualisation of the number of passengers at each bus stop



A.I. data analysis: An overview



01

DESCRIPTIVE ANALYSIS:
"What are the problems?"

- Rider data is already tracked via contactless payments and bus pass use
- Data from mobile providers can be analysed to gain insight into population movements (eg. O2 Smart Steps)
- For example, areas of chronic congestion or low ridership

02

DIAGNOSTIC ANALYSIS:
"Why are they happening?"

- Identifies the most crucial and relevant information
- Able to determine and assign causes to the problems

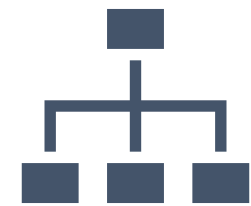
03

PREDICTIVE ANALYSIS:
"What will happen?"

- Algorithms extrapolate patterns from the data to predict future outcomes

04

PRESCRIPTIVE ANALYSIS:
"What should be done?"



Route generation

Factors in multiple programmed objectives
Plans the initial layouts with the given parameters
Generates different route options



Transit route analysis

Evaluates the options
Computes different performance measures
Scores them based on ability to meet the stated goals



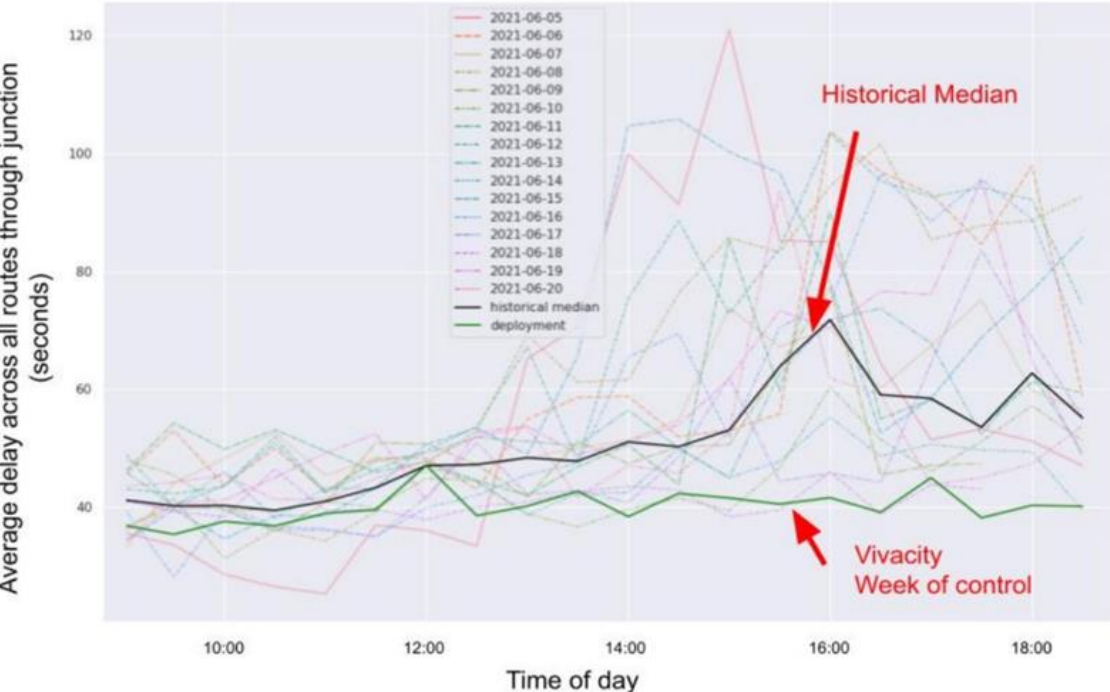
Route improvement

Identifies and checks
Produces a final list of recommended actions that will improve the system

An integrated network

- This could possibly be enhanced with the introduction of
- Platform-level boarding, to reduce wait times at stops
 - bus priority lanes with dedicated right-of-way to reduce transit times and
 - more transport hubs to enhance interconnectivity to form something closer to a BRT system

Dovetails with the upcoming VLR tram project, as well as the West Midlands Cycle Hire scheme. Stations could serve as interchanges, with the BRT feeding and collecting passengers to them. This would make it so any two points in Coventry will never be too far away by public transport.



AI can be used to reduce journey times through junctions by an average of 23%. Sensor trial at busy London Millbank site with 98% accuracy (Mehmet, 2020)

Case of Transport for Greater Manchester (TfGM)

ABOUT OUR MARKETING GOALS

01. Enhance Customer Awareness

Conduct Omni-channel marketing campaigns to inform car owners and existing customers that the main bus routes have been optimised.

02. Improve Usage of Public Transport

Utilise a rewards scheme to stimulate car owners to public transport and improve the usage frequency of existing customers.

Omni-Channel Marketing



01. Online Channels

Email Marketing

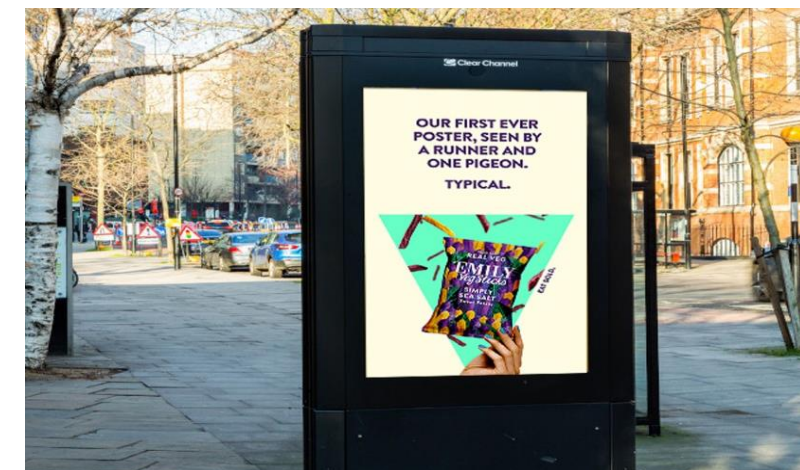
Social Media Marketing



02. Offline Channels

Out-of-home Advertising

Institutional Cooperation



Reward Scheme



01. Take Bus

Register an account on coventry.gov.uk
Add a bank card
buy bus ticket online or swipe card

02. Earn Badges

Each time the passenger activates a bus ticket, a badge will be added to his/her account.



03. Redeem Vouchers

Ten badges can redeem a 10% off voucher for a monthly plan.
* Vouchers are valid for all bus companies in Coventry.



Offline-Channel Marketing

Bus Advertising

High-traffic Location

1



2



Out-of-home
Advertising

3



4



Local University

Community



Online-Channel Marketing

01. Segment Customer

- Group A: users with low frequency of use
- Group B: users with stable frequency of use



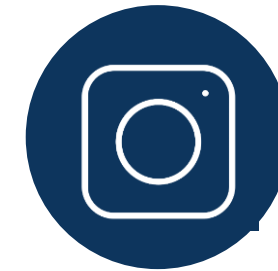
02. Personalised Content

- eye-catching subject lines
- For A: No more congestion!
It's time to come back!
- For B: Look how we save your time
- For Both: Take bus and get rewarded!
- Use behaviour triggers and bring customers to coventry.gov.uk



03. Precise Sending Time

- Conduct A/B tests
8am - 9am; 5pm - 6pm



01. Social Media Accounts

- @coventrycitycouncil: low traffic
- @universityofwarwick+@wmgwarwick: high traffic + high interactivity

02. Interaction

- People who post bus advertising photos and @coventrycitycouncil will offer a opportunity to get badges of the reward scheme.



03. Influencer Posts

- Teach residents how to get rewarded by taking bus. @coventrybuses: photographer



SUMMARY

Aim: Promoting bus travel to young car owners travelling short distances

Recommendations:

- 1. Install IoT sensors on all Coventry buses.**
- 2. Use data from sensors to**
 - a) Perform data driven decision making. For example, optimising routes, analysing busy areas**
 - b) Provide real time information to customers**
 - c) Guide an integrated public transport network maximising links to VLRT, bike hire stations, etc.**
- 3. Conduct Omni-channel marketing campaigns to reach a wider range of target customers.**

