

AI for Good: how to engage the public to build safe and trustworthy AI-based services.

Ed Houghton, DG Cities



DG Cities

We are a consultancy that helps our clients **harness the power of technology and data** to transform our towns and cities.

Guided by a **practical approach that puts cities and its people first**, we aim to improve the “liveability” of our urban areas and to help tackle some of the biggest challenges facing us today, including sustainability, congestion and the climate emergency.

Our mission is to **transform cities** through understanding the impact of innovative, smart city technology. We want to make our urban spaces work **better for all residents**, and ensure that technology is inclusive and accessible to all.



What We Do

Our clients span the private, public and charity sectors including insurance, housing developers, local authorities, housing associations and transport authorities.

Consultancy /
external commissions



Research & Innovation
Projects



IoT and sustainable project
delivery



What is good AI?

4 goals for the design, development and deployment of projects using AI by the *Alan Turing Institute*:

Ethically permissible:

how does it impact wellbeing of stakeholders?

Worthy of public trust:

how does it guarantee safety, accuracy, reliability, security, and robustness?

Fair and non-discriminatory:

how does it operate without bias and operate fairly?

Justifiable:

how transparent is it, and are its decisions and behaviours interpretable?

USE CASE 1 – SELF-DRIVING AI



D-RISK is a £3m Innovate-UK funded project focusing on the development of AI for automated vehicles.

It is a collaboration between four partners.



D-RISK

Project DRISK is creating the **world's largest library** of driving "**edge cases**" - situations that are unusual or unexpected but could be dangerous.

These will be used to create a "driving test" for AI

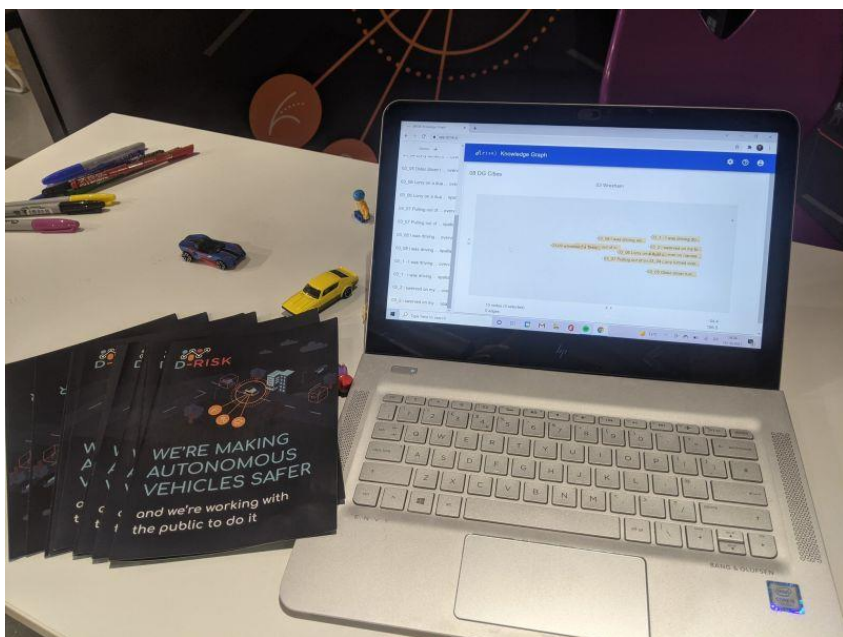
DG Cities is helping to extend the edge case library and ensure that real-life experiences are programmed - and appropriate responses generated - within AV software.





Engaging the public to build the D-RISK edge-case library

- We have developed the D-RISK roadshow to collect edge cases at public engagement events in Edinburgh, Coventry, Wrexham, Cambridge, York and London.
- We are attending museums, exhibition spaces, shopping centres and market places, and corporate offers to collect edge-cases.



Public edge-cases

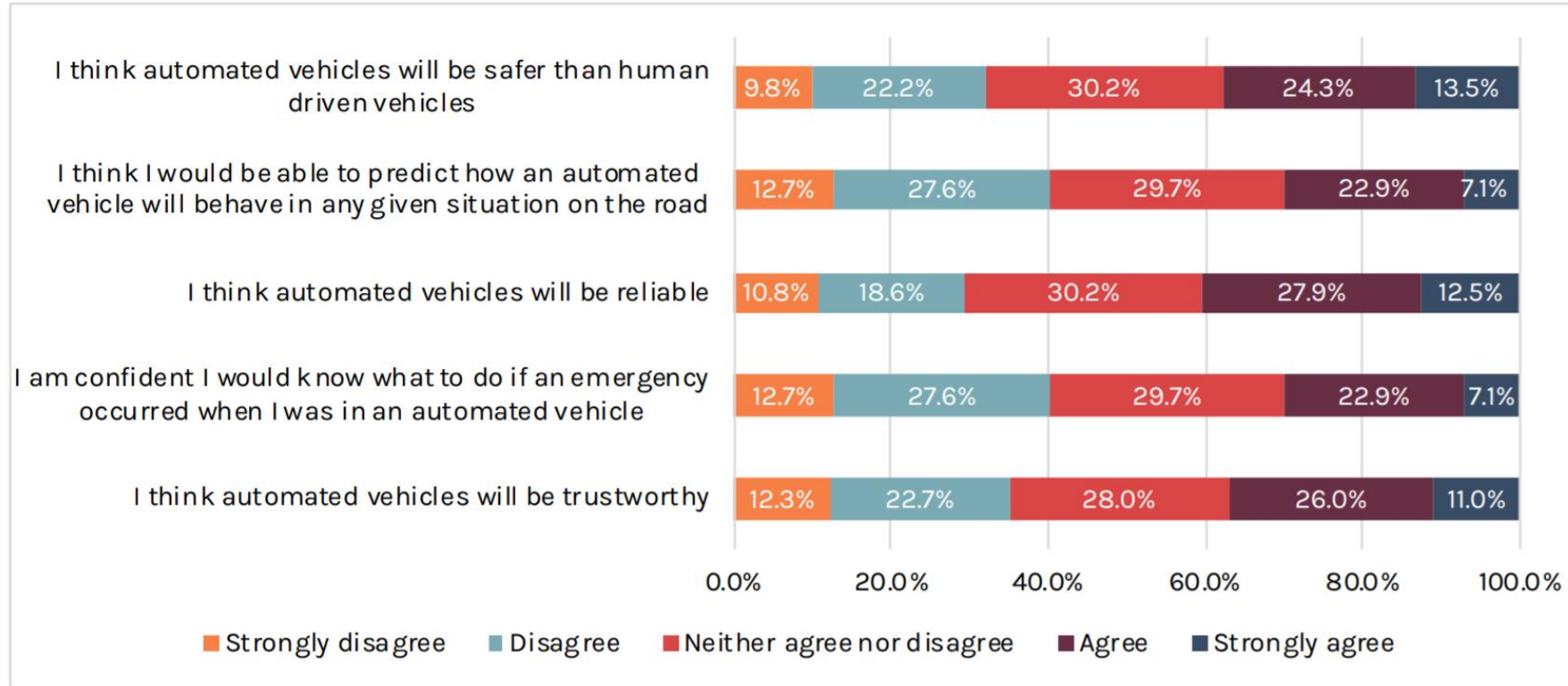
My car broke down in a river ford and my husband had to get out and push. We would have been stuck if this was a self-driving car.

I am a paramedic and responded to a call in the ambulance. I was overtaking a driver with his headphones who didn't hear the siren and steered into the ambulance, causing an accident.

I was at home in Canada on a hiking trip with family. We were driving through the forest and a family of bears were crossing the road. We had to stop to let them all cross.

Public perceptions of AVs

Figure 1: Public perceptions of AVs



Base: 1038 (weighted)

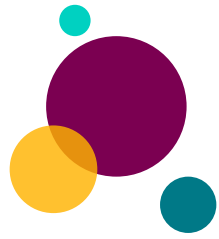
Community insights report

D-RISK has worked closely with the public and set out to explore the following research questions:

- What is the general perception of AVs amongst the UK population? e.g., perceptions of safety, reliability, trustworthiness, predictability, and confidence of an AV in an emergency situation.
- What does the UK population believe is an 'appropriate' response for an AV to take within an edge-case scenario?



USE CASE 2 – FLY-TIPPING



Why fly-tipping

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Fly tipping is the deliberate dumping of rubbish in a place where it shouldn't be left.

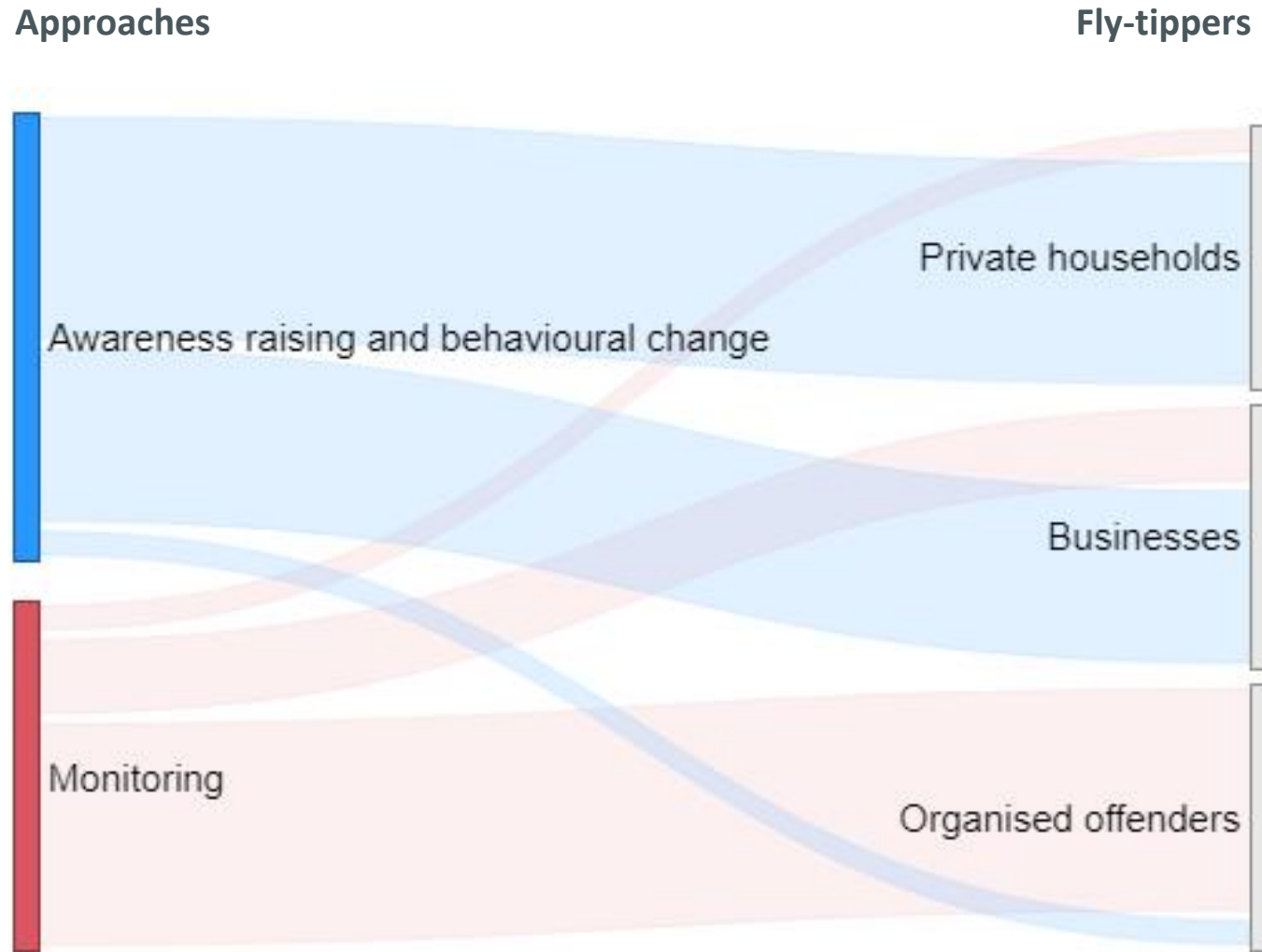
- Royal Borough of Greenwich spends more than £1 million per year collecting and disposing of fly-tipped waste.
- There are 14 drivers who collectively deal with 800-900 jobs per month. Some of these drivers dedicate 7 hours a day to collecting fly-tipped waste.
- Fly-tipping can pollute the surrounding environment, damage residents' health, threaten wildlife habitat and reduce property value.

We aim to reduce the number of fly-tip collections in specific hotspots, and increase the number of scheduled collections.



AI based IoT + behavior change

cdg:cities



Record the number of fly tips per month at different locations

Collect data

Measure outcome of each intervention

Scale the most successful interventions

Monitoring fly tipping sites



Objective: To discourage fly tipping and to fine any offenders



IoT cameras are easy to install and move, don't require wired connections. They transmit footage through SIM cards that are software analysed to identify relevant sections using an AI/machine learning process.

Initiatives

Combining technology with communication

Monitor fly tipping at hot spots

Install a CCTV camera with IoT sensors at three hotspots



Display warning messaging

Combination of reactive messaging and posters



Moving to new location if successful



We will test different techniques to inform and encourage behaviour change

Engaging the public in AI design



Our approach:

Draw on published evidence and insights.
Develop project ideas with the community.
Road-test ideas and run experiments to nudge behaviour.

Benefits:

- 👍 Clear, accessible information shared on a large scale
- 👍 Connecting to citizens emotionally by tapping into issues they care about (e.g. climate change, public health)

Outcomes:

Reduction of fly tipping instances and an increase in bulk collection requests

Initiatives

Start off with:

- Posters
- Information boards
- Leaflets

'Quick wins' that can be deployed cheaply and quickly on a large scale

Later, introduce:

- Campaigns
- Re-education programmes
- AI based monitoring software

These will take longer to develop but will be highly engaging and impactful

Scale the most successful initiatives

Principles for building safe AI



Respect the dignity of individuals.

Connect with each other sincerely, openly, and inclusively.

Care for the wellbeing of all.

Protect the priorities of social values, justice and public interest.

Tips for building safe AI



Enable public discussion: create space for the public to learn and become informed.

Co-create: go beyond consultation and engage a diverse community in building the solution.

Build in safety and ethical sense-checks: always ensure you audit processes and understand how it operates.

AI can augment, but shouldn't fully automate whole processes: build in to roles, tasks, processes. Don't over-replace.

AI will probably help efficiency but wont fix root problems: locating root causes and tackling them is a human endeavor.

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Thank you

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