

Future Flight Challenge – making green distributed aviation a reality

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UK Research & Innovation

UK
RI

Innovate
UK

Innovate UK

- We are the UK's innovation agency
- We support business-led innovation in all sectors, technologies and UK regions
- A key delivery body of the Government's Innovation Strategy

Our Mission

To help UK businesses grow through the development and commercialisation of new products, processes, and services, supported by an outstanding innovation ecosystem that is agile, inclusive, and easy to navigate.



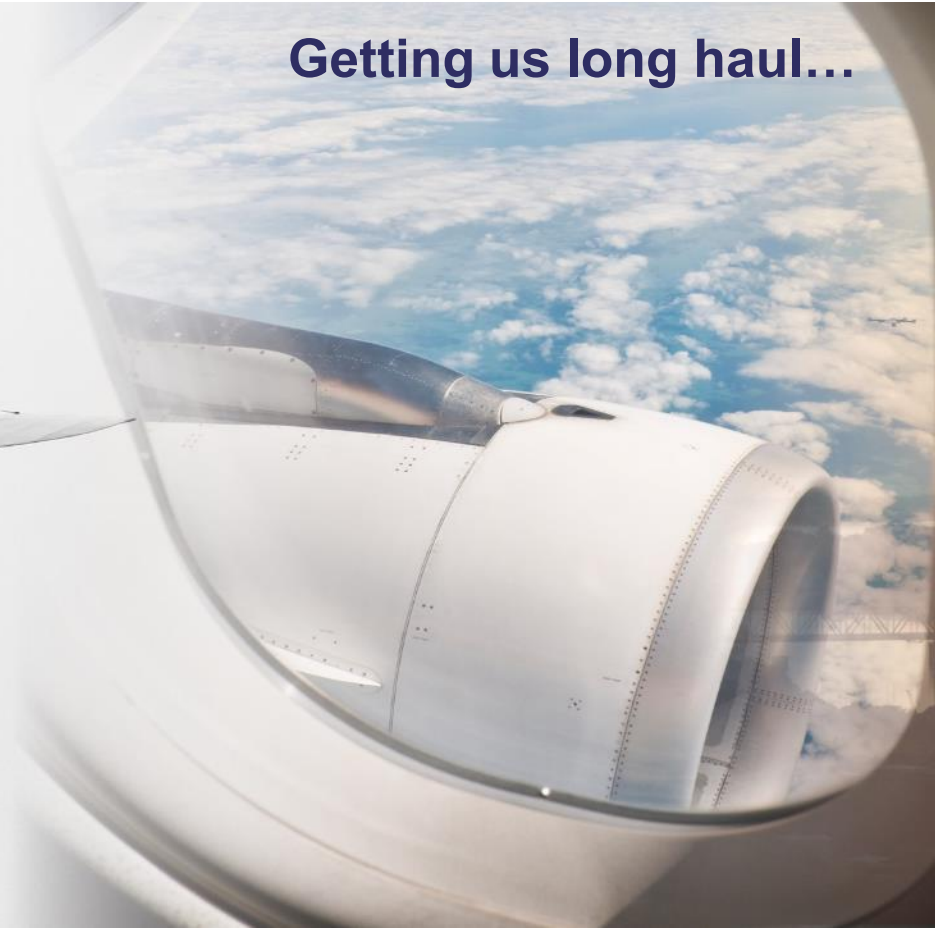
The Future Flight Challenge

Our ambition is to drive a 3rd revolution in flexible and green aviation...

Getting us airborne...



Getting us long haul...



Flexing how we fly...

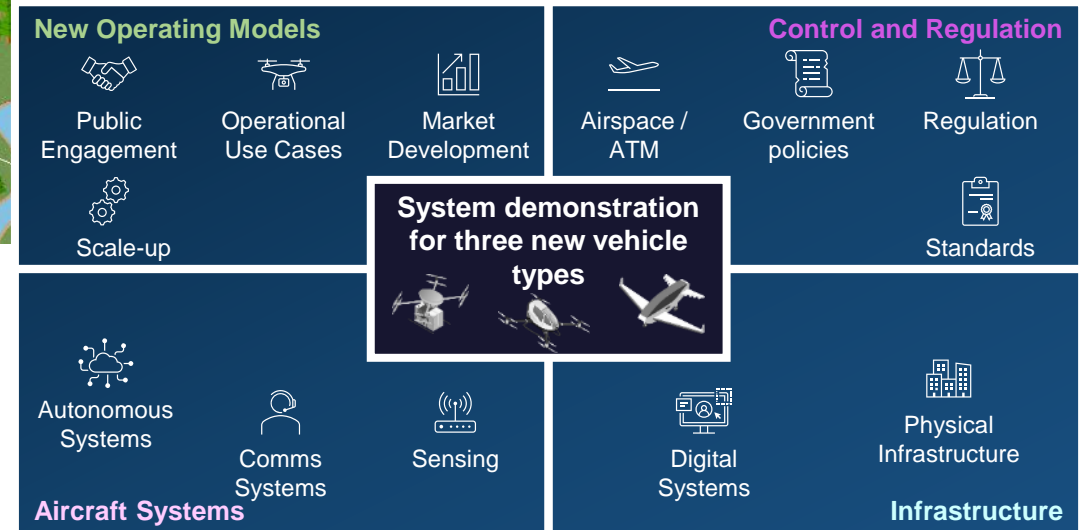


Our broad-based approach is to...

create challenging, real-world use cases



which require us to convene the wider industry and beyond



with a people-based focus on social benefits and desirability



Example use cases supporting the 2030 Vision

UC10 | Rapid Airport Transfer

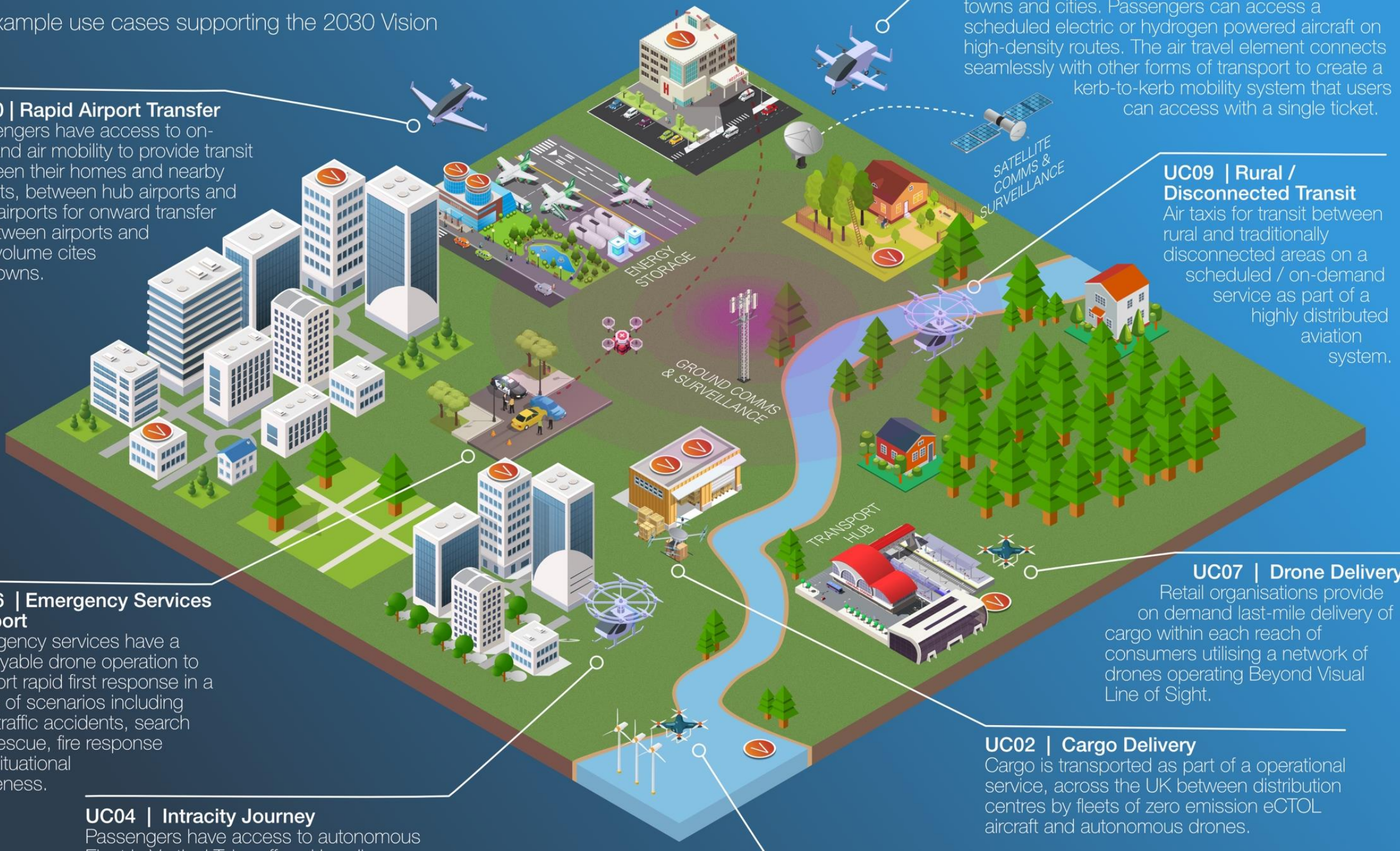
Passengers have access to on-demand air mobility to provide transit between their homes and nearby airports, between hub airports and local airports for onward transfer or between airports and high volume cities and towns.

UC06 | Emergency Services Support

Emergency services have a deployable drone operation to support rapid first response in a range of scenarios including road traffic accidents, search and rescue, fire response and situational awareness.

UC04 | Intracity Journey

Passengers have access to autonomous



towns and cities. Passengers can access a scheduled electric or hydrogen powered aircraft on high-density routes. The air travel element connects seamlessly with other forms of transport to create a kerb-to-kerb mobility system that users can access with a single ticket.

UC09 | Rural / Disconnected Transit

Air taxis for transit between rural and traditionally disconnected areas on a scheduled / on-demand service as part of a highly distributed aviation system.

UC07 | Drone Delivery

Retail organisations provide on demand last-mile delivery of cargo within each reach of consumers utilising a network of drones operating Beyond Visual Line of Sight.

UC02 | Cargo Delivery

Cargo is transported as part of a operational service, across the UK between distribution centres by fleets of zero emission eCTOL aircraft and autonomous drones.

An ambitious programme that will showcase a viable system that captures public imagination

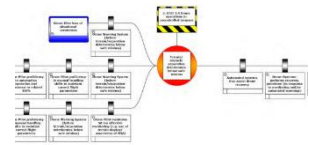
Airspace Integration Working Group



Community Integration Working Group



Safety



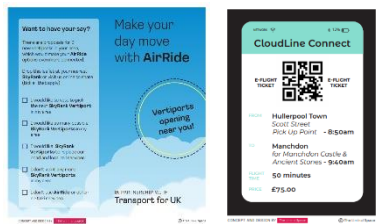
Skills & EDI



Financing & Scale-up



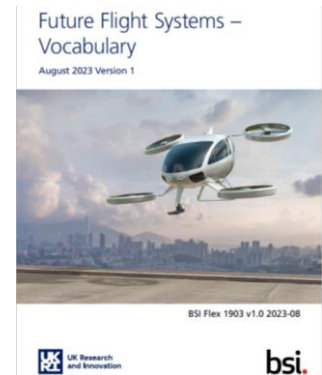
Public Benefits and Engagement



Regulatory Frameworks



Standards Creation



Market Enablers

- Legal Frameworks
- Insurance
- Security
- Local Planning

Government Policies



Drones



Drones & Medical Use-Cases

- Demonstration of carriage of Covid-19 test kits / medicines, blood samples etc
- Drone despatch / in-flight monitoring / receipt of goods
- Landing site development and automated ground handling
- Integration of multiple drones into a delivery “service”
- Delivery of healthcare solution in rural / remote areas



Urban-Air Port | "Air-One"



urban-Air Port^{ltd}



small.[®]
six miles across london limited



Advanced Mobility Ecosystem Consortium (AMEC)



Sustainable Aviation Test Environment (SATE)

- Demonstrate the flight of the largest civil fixed-wing electric VTOL UAV in Europe (8m wingspan, 500kg MTOW)
- Service distribution and network for e-VTOL cargo and passenger operations
- Study on network design to improve connectivity between remote towns and cities in Scotland.
- Community engagement with the Highlands and Islands region.



Achieving the economics is not a given

AAM Use Case					
Description	Distance	Profile (initial)	Counterfactual comparison	Socioeconomic cost delta	Scaled?
Urban Private Hire	10km	1 pilot, 1 passenger	Taxi (1 passenger)	+99%	No
Rural Private	28km	1 pilot, 1 passenger	Personal car (1 driver)	+151%	No
Rural Rideshare	60km	1 pilot, 3 passengers	3x individual car journeys	-33%	Yes
Sub-regional Shuttle	85km	1 pilot, 5 passengers	5x individual train journeys	-39%	Yes
Air Ambulance	80km		Helicopter	-38%	Yes
Cargo	75km	350kg	Van	+112%	No

Advanced Air Mobility
 UK Economic Impact Study
 July 2023



UK AAM Market Opportunities

UK REGIONAL AIR MOBILITY INDEX - BIG NUMBERS - TOP ROUTES



81.8%
OF TRAVELLERS BY CAR PRODUCING SIGNIFICANT CARBON EMISSIONS

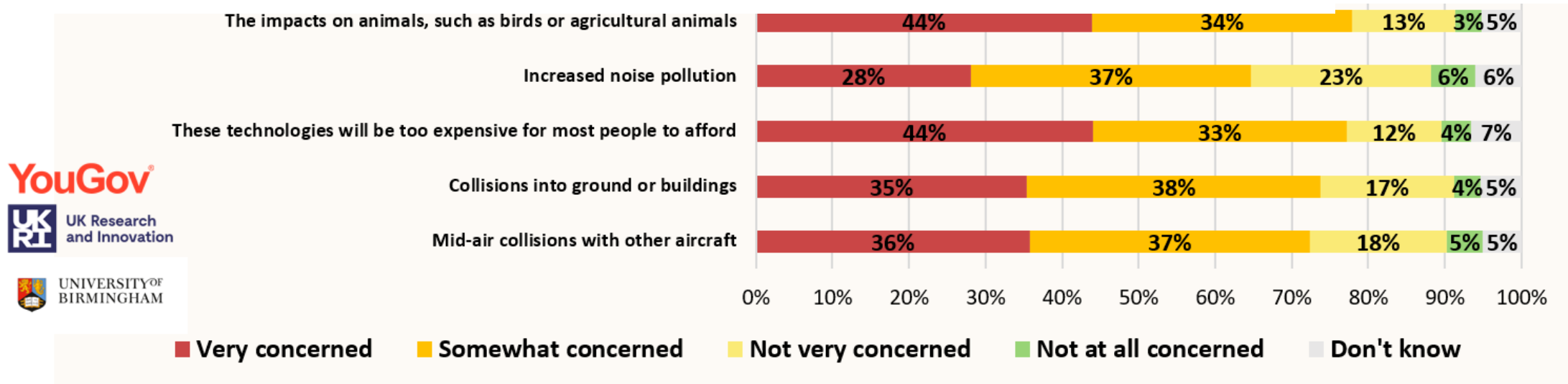


25.6% ARE BUSINESS TRAVELLERS

74.4% OF LEISURE/VFR TRAVELLERS

Do we understand what the public think?

Q8. For each of the potential drawbacks listed below, please tell us how concerned or unconcerned you are about it in relation to the development of future flight technologies.

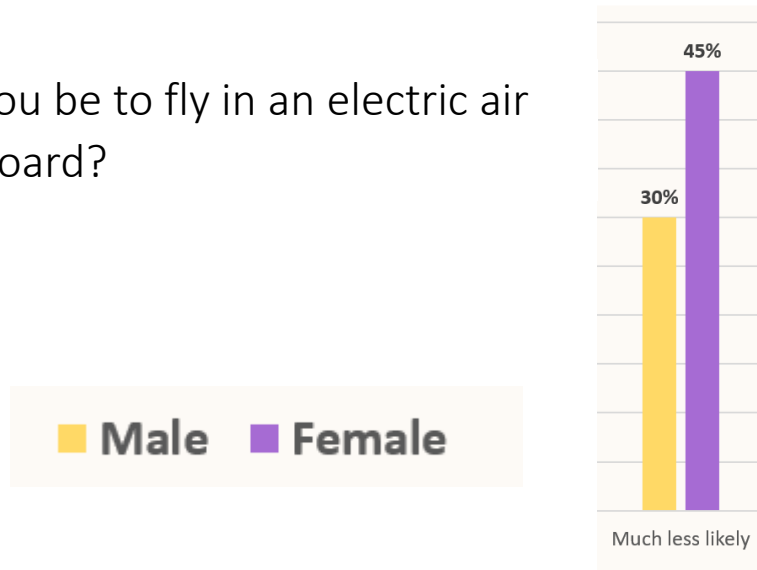


YouGov

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Q22a. How much more or less likely would you be to fly in an electric air vehicle as a passenger if it had NO pilot on board?



N.B. These are incomplete extracts from research yet to be fully analysed and published

Key Messages and Next Steps

- National Programme / Local Focus
- Government / industry partnership is key
- Competitors collaborating
- Bringing the public into the system design
- Foster international partnerships & engagement
- Build the industry and inspire the next generation





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