AAM UK City Index

UK Cities Market Assessment

Darrell Swanson
Co-Founder | Director

+44 7500 921 365
darrell@eamaven.com
www.eamaven.com

Jarek Zych
Co-Founder | Director

+44 7533 869 529 | +48 601 970 816
jarek.zych@eamaven.com
www.eamaven.com

Table of Contents

Introducing Electric Aviation Maven or EA Maven

Team

Darrell Swanson
Director | Co-Founder

- 25 years' experience in airport master planning, design, acquisition due diligence
- Electric aviation thought leader with reference to the evolution of Distributed Aviation as enabled by electric propulsion systems
- Development of country wide demand modelling for electric aircraft operators
- NASA TVF Working Group Leader/Advisor
- Board member of the British Aviation Group
- Advisor to CAMI, ADS AAM, VFS, Flight Crowd and Civata Global on Electric Aviation

Jarek Zych
Director | Co-Founder

- 16+ years of experience in the commercial aviation sector focusing on airline and airport network development services
- Development of advance air mobility demand modelling tool and regional air mobility indexing method
- Development and optimisation of airline networks, schedules, operations, fleet, and revenues
- Strategy development and route analysis resulting in British Airways, Lufthansa and Hainan Airlines establishing services at San Jose, Air France at Taipei including network development, business planning and market assessment projects
- Advising leading airlines and airports by providing traffic, schedule, and real-time aircraft operations data

EA Maven

Advanced Air Mobility will change the 'why' you choose to fly

EA Maven is a management consultancy firm focusing on solving the key challenges in the area of AAM infrastructure through the provision of AAM strategy support, demand modelling, infrastructure design and due diligence services.

AAM Demand Modelling & Scheduling

AAM Air Service Development

AAM Market Assessment

Advanced Air Mobility Infrastructure

AAM Air/Vertiport Acquisition Due Diligence

AAM Carbon Emission Savings Assessment

AAM Revenue Forecasting

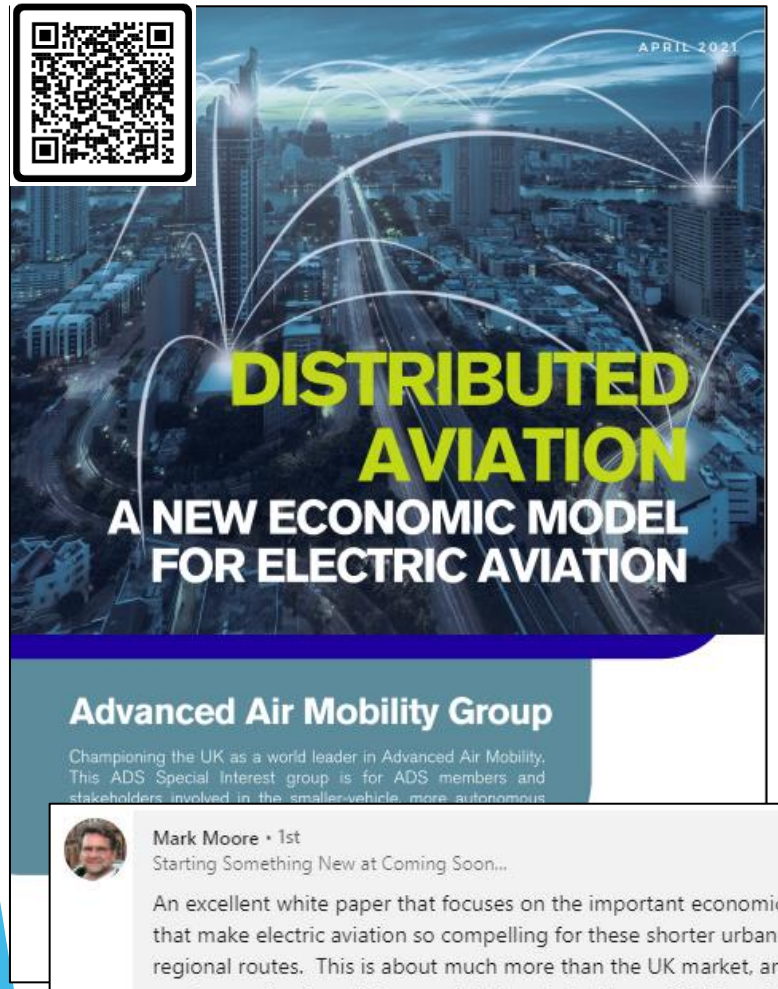
www.eamaven.com

Foreword

- The AAM UK City Index is an extension of EA Maven's approach to demand modelling for traditional and Advanced Air Mobility aircraft operations.
- AAM market assessments allow OEMs, airlines and investors to understand the potential for new routes given the performance of AAM eVTOL aircraft and access to novel sources of data.
- The AAM UK City Index ranks which city have the highest potential of securing new AAM services using AAM eVTOL aircraft.

Distributed Aviation & Regional Air Mobility

Distributed Aviation leads to Regional Air Mobility

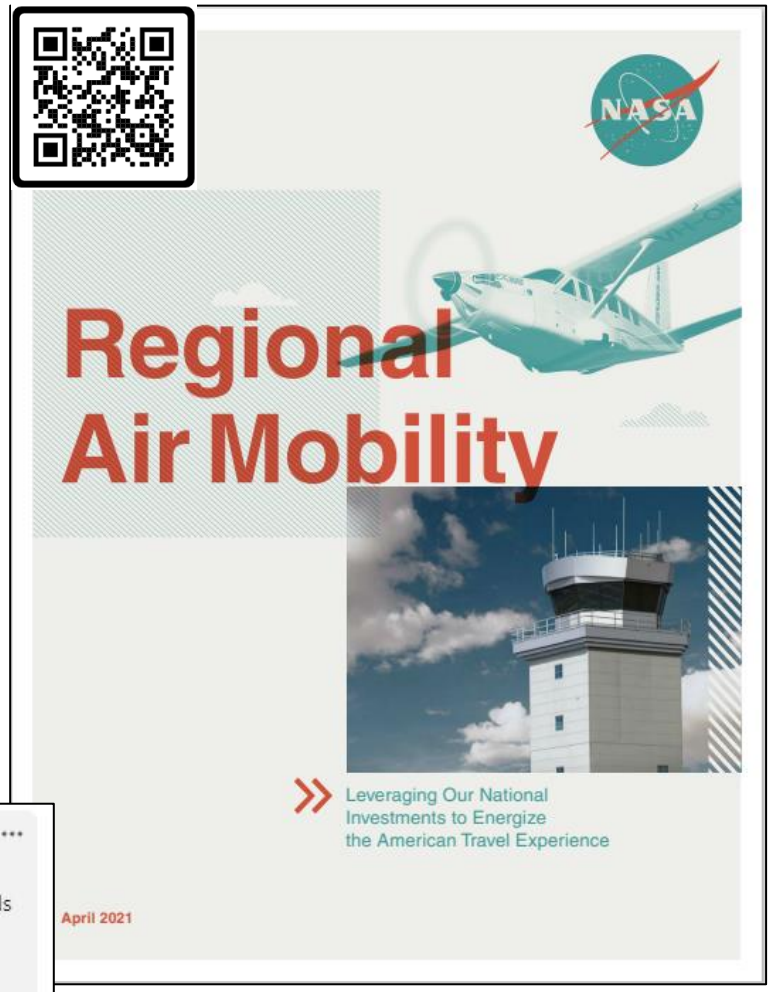


Mark Moore • 1st
Starting Something New at Coming Soon...
1d

An excellent white paper that focuses on the important economic details that make electric aviation so compelling for these shorter urban and regional routes. This is about much more than the UK market, and is a great sounding board for any global market who are thinking about developing compelling electric aircraft networks.

Like · 5 | Reply

https://www.adsgroup.org.uk/blog/distributed-aviation-a-new-economic-model-for-electric-aviation



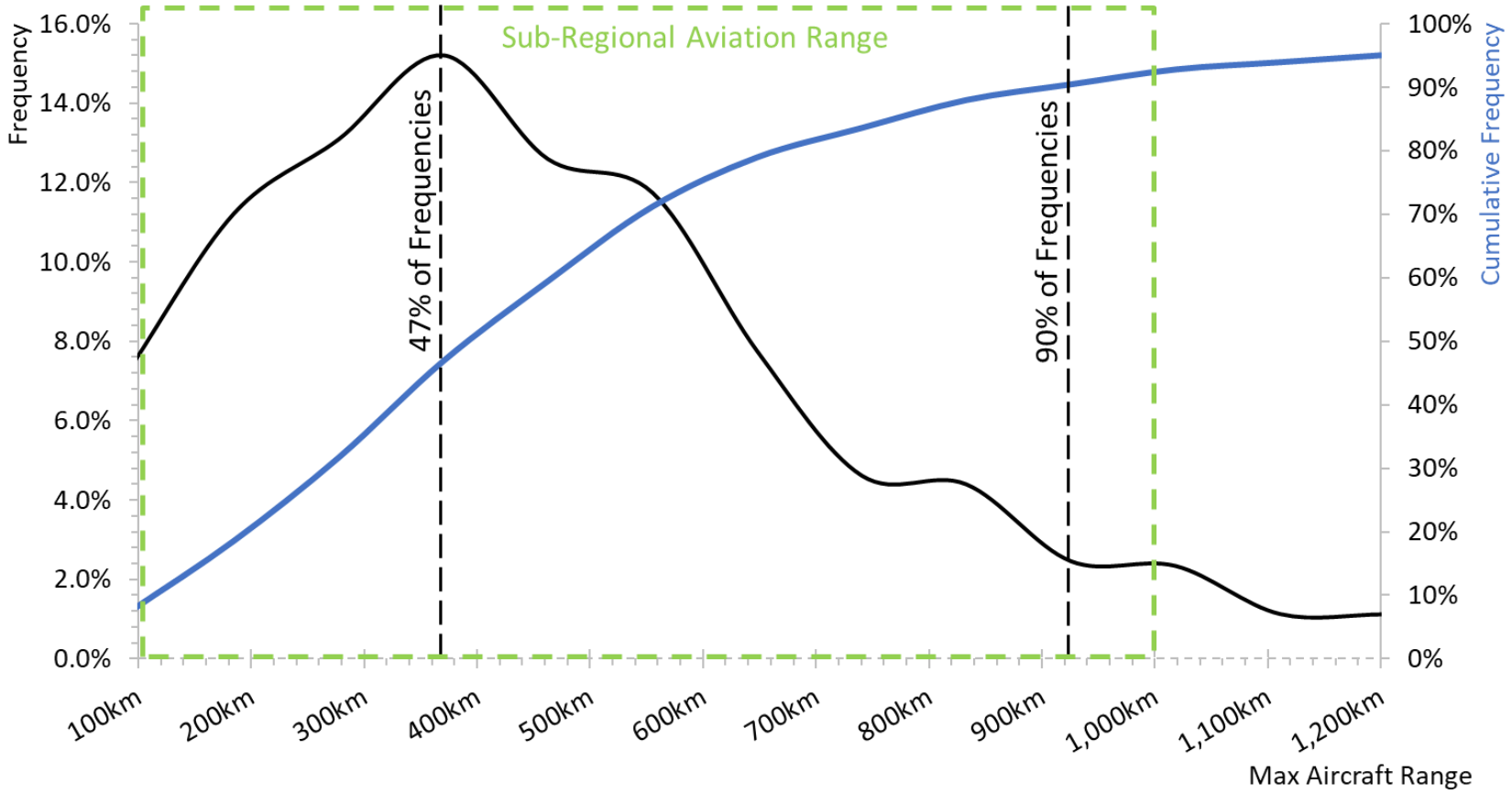
https://sacd.larc.nasa.gov/ram

https://www.regionalgateway.net/mags/SXNzdWUxNiBNYXJjaDIwMjNj_March_2023c/index.html

EA Maven

Regional Jets/Turbo Props
Frequency Distribution vs Cumulative Frequency - Europe

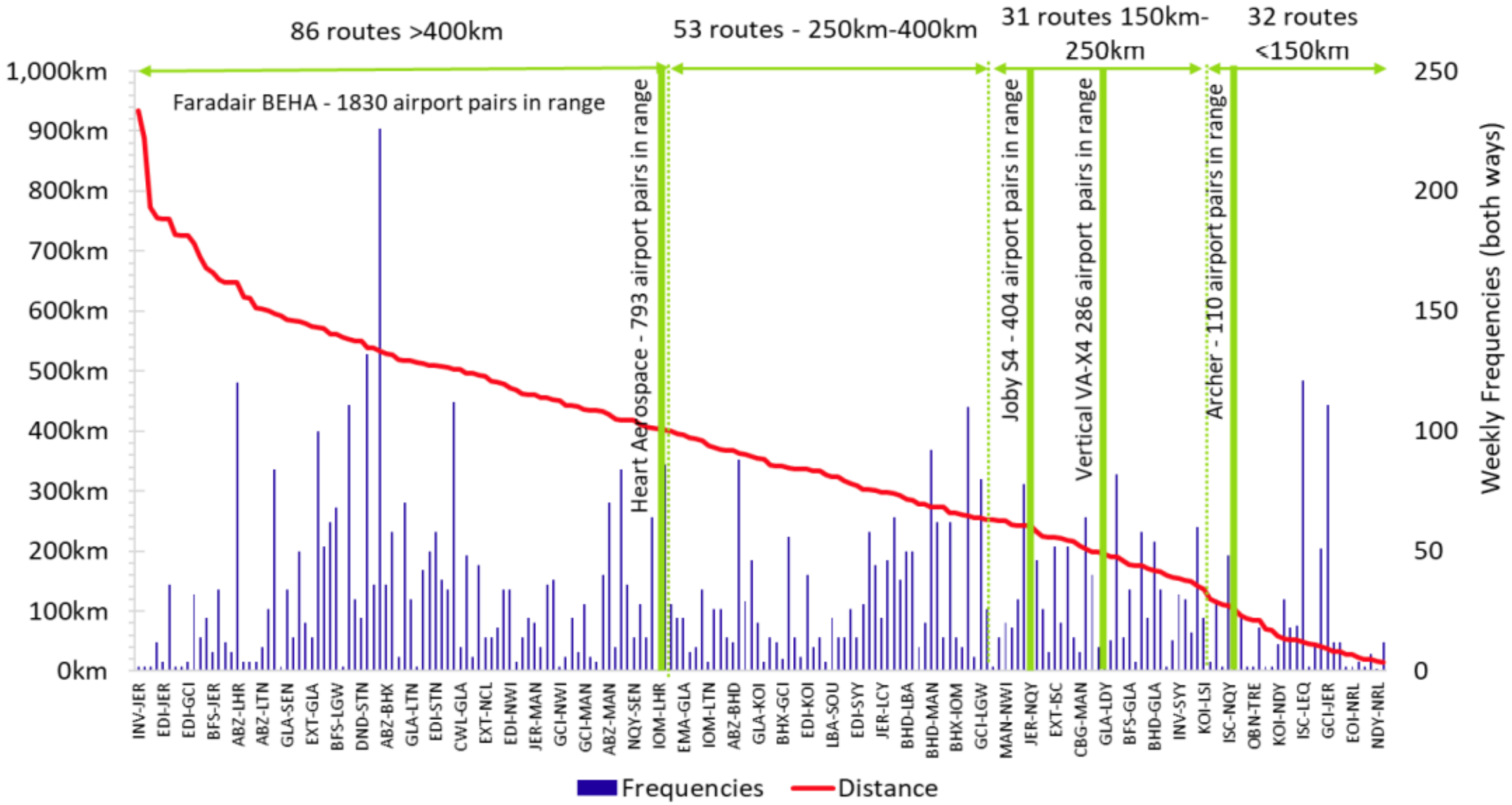
Source: EAMaven analysis



- 47% of frequencies in Europe are offered within 400km, and 90% of frequencies are within 900km.
- There is a clear demand for sub-regional services up to 1000km.

UK Domestic Flights - Distance & Frequencies (Both Ways)

Source: EAMaven analysis



The Big Numbers at a glance

14
ECTOL ROUTES

6
EVTOL ROUTES

ECONOMIC STIMULATION THROUGH INCREASED PRODUCTIVITY =

£2.6m
PER WEEK

£124m
PER YEAR

1,854
AVERAGE UTILISATION HOURS PER YEAR PER AIRCRAFT

160
4 PASSENGER EVTOL AIRCRAFT

64
19 PASSENGER ESTOL AIRCRAFT

224
TOTAL AIRCRAFT REQUIRED

£704m
ANNUAL REVENUE GENERATED PER YEAR =

£3.1m+
IN REVENUE GENERATED PER AIRCRAFT

TIME SAVINGS =

11
PERSON YEARS SAVED PER WEEK
OR

528
PERSON YEARS ANNUALLY

9,000
TONNES OF CARBON EMISSIONS REDUCED FROM CAR JOURNEYS

UK Research and Innovation

Date 2022

UK Advanced Air Mobility (AAM) Market Assessment

An analysis of 20 potential routes in the UK for AAM aircraft operations

UK Cities Market Assessment

AAM UK City Index - Big Numbers – all routes

368 cities analysed*

13,281 routes analysed**

of 40,906 routes in total (with no distance restrictions)

TAM – 9.8m/470.4m travellers weekly/annually***

80.3% of travellers by car producing significant carbon emissions

31.4% business travellers 68.6% of leisure/VFR travellers

** Based on LAU1 UK spatial division of 400 shapes. 1 shape = 1 city (largest), London includes 32 shapes.*
*** Total possible routings between all cities within distance (50-120 statute miles) and with population (min 20k inhabitants per city)*
**** Sum of all travellers on 13,281 routes analysed. Demand numbers scaled down based on population distribution (city-city demand adjustment).*

EA Maven

Big Numbers – top routes

264/994 cities*/routes** analysed

TM – 6.6m/316.8m travellers weekly/annually***

75% of travellers by car producing significant carbon emissions

33.3% business vs **66.4%** leisure/VFR travellers

1.7m/85.4m hours saved weekly/annually if switched to AAM****

203/9.7k years! weekly/annually

£46.7m/£2.2bn per week/year****

Economic stimulation through increased productivity

** Based on LAU1 UK spatial division of 400 shapes. 1 shape = 1 city (largest), London includes 32 shapes. Cities selected based certain sifting criteria.*
*** Total possible routings between all cities based on 3 main selection criteria: distance (50-120 statute miles), population (min 20k inhabitants per city), travellers (min Xk travellers per week)*
**** Sum of all travellers on 994 routes analysed. Demand scaled down based on population distribution (city-city demand adjustment).*
***** Based on mixed capture rates of top 994 routes (proxied against other EA Maven AAM demand modelling analysis). Time savings based on flight time vs car/rail travel time ratios for business and leisure travellers. Economic stimulation based on the DfT WebTag data.*

EA Maven

Big Numbers – Business Travellers

69.6% of business travellers travel by car on all **994 routes**

475 routes with business travellers % share of more than **30%**

26 routes with business travellers % share of more than **50%**

On top 26 business routes

TM – 160k/7.6m travellers weekly/annually***

48.7% of business travellers by car on **top 26 business** routes

£335k/£16.1m per week/year****

Top **26 routes**

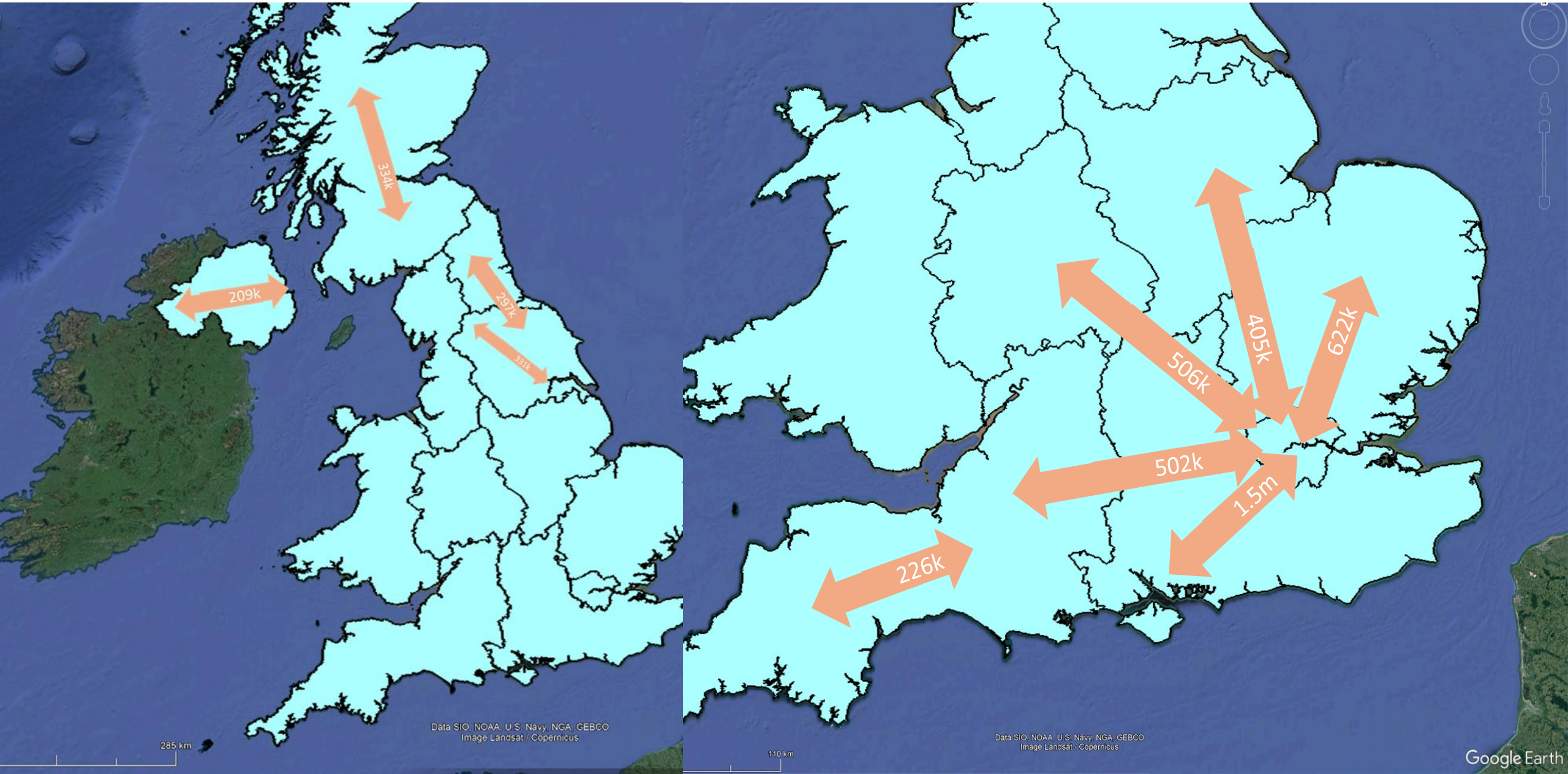
Economic stimulation through increased productivity

** Based on LAU1 UK spatial division of 400 shapes. 1 shape = 1 city (largest), London includes 32 shapes. Cities selected based certain sifting criteria.*
*** Total possible routings between all cities based on 3 main selection criteria: distance (50-120 statute miles), population (min 20k inhabitants per city), travellers (min Xk travellers per week)*
**** Sum of all travellers on 994 routes analysed. Demand scaled down based on population distribution (city-city demand adjustment).*
***** Based on mixed capture rates of top 994 routes (proxied against other EA Maven AAM demand modelling analysis). Time savings based on flight time vs car/rail travel time ratios for business and leisure travellers. Economic stimulation based on the DfT WebTag data.*

EA Maven

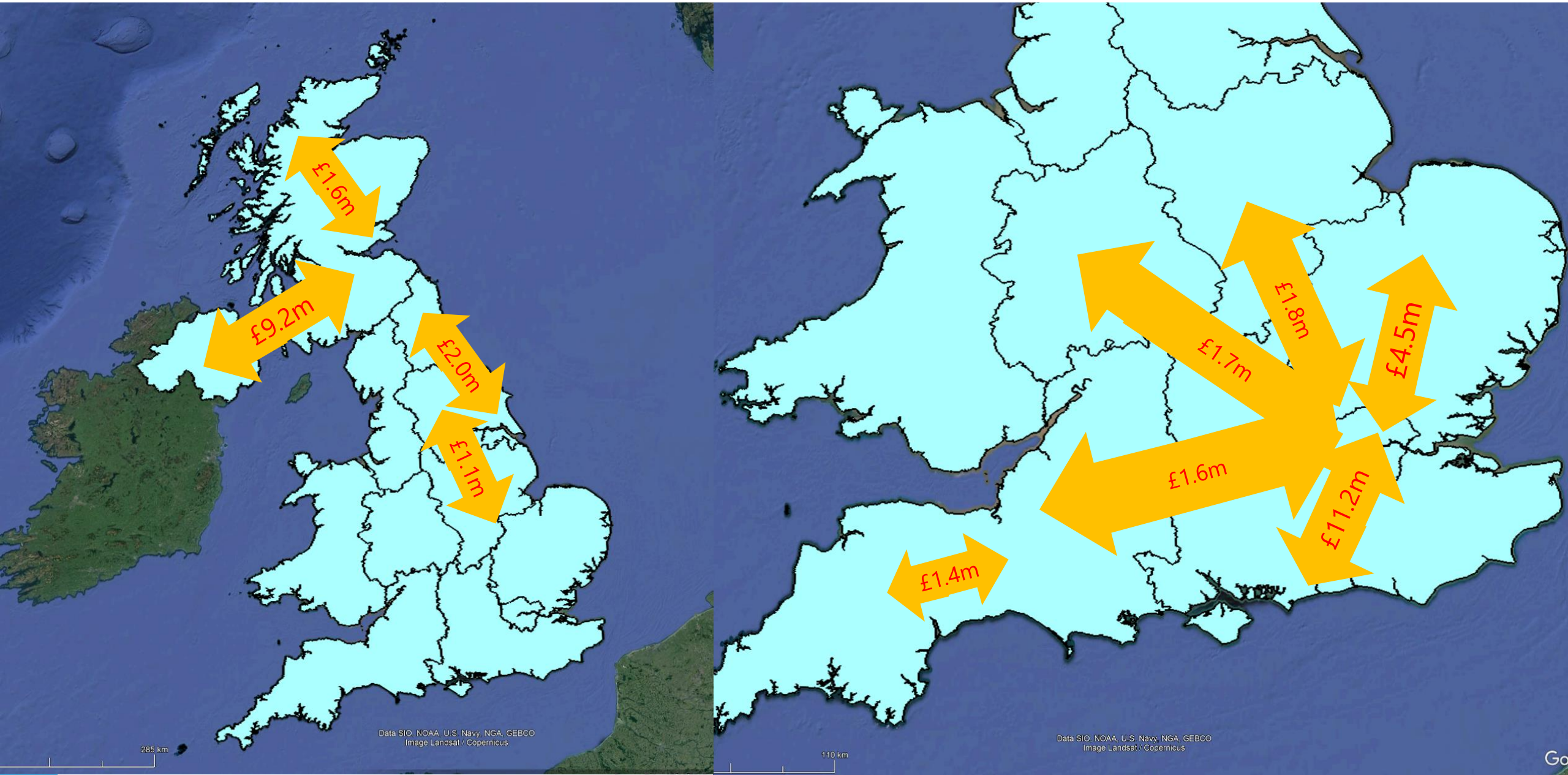
Weekly travellers both ways by region (top 10)

Based on top 994 routes between 264 cities, routes between 50-120 miles, population min 20k, Xk traveller's weekly minimum.



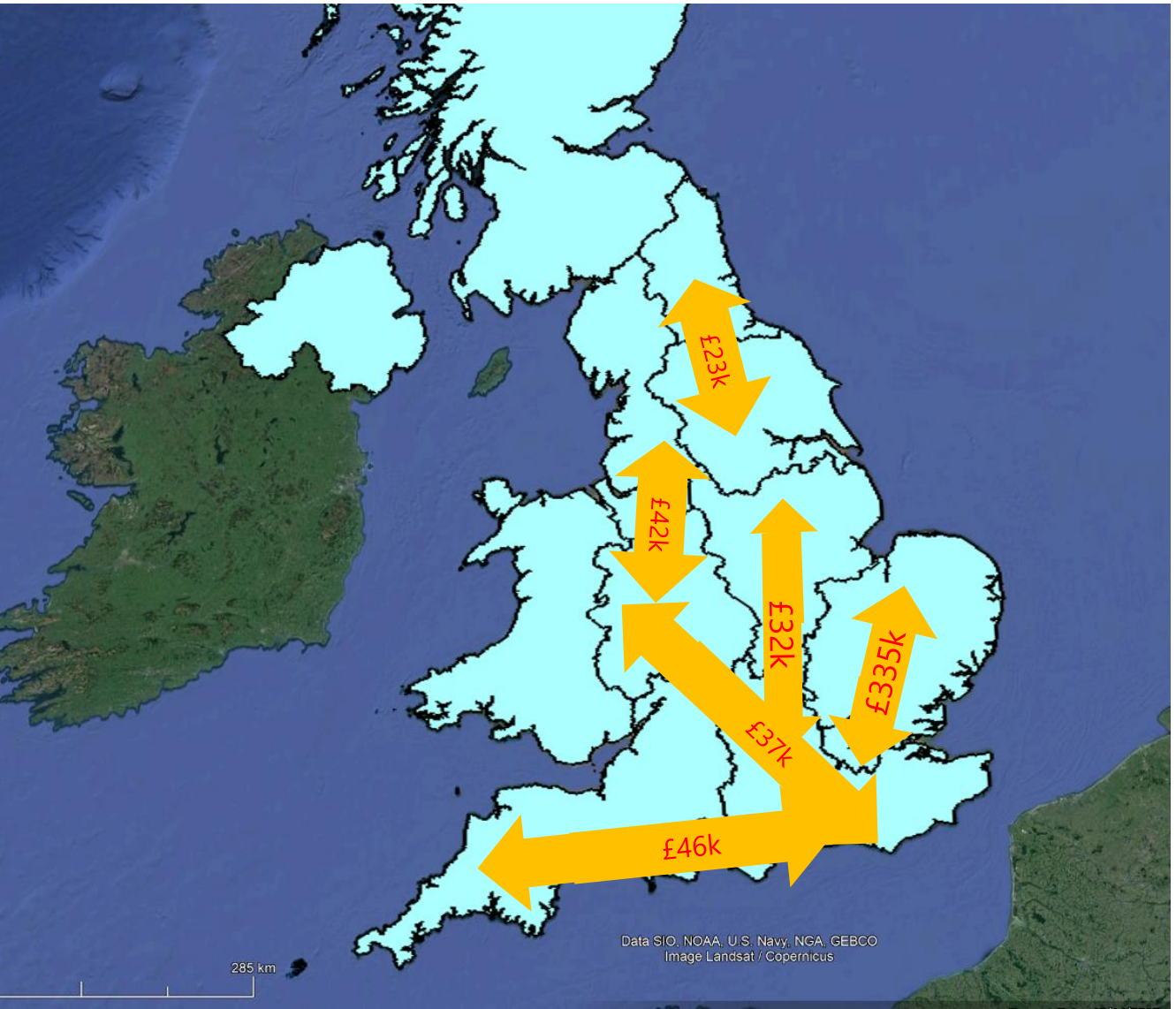
Weekly Economic Boost by Region (top 10)

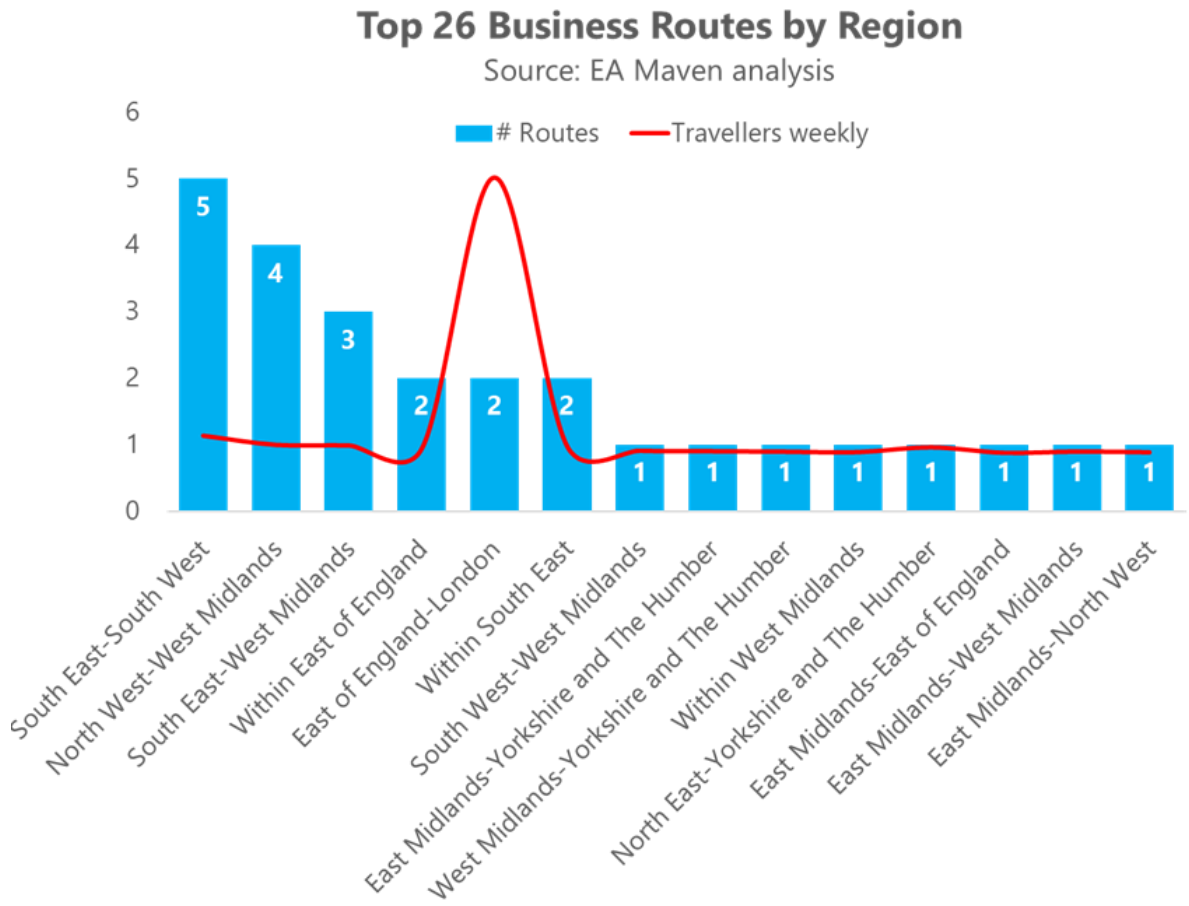
Based on time saved from switching modes



Top 26 Business Travellers' Routes*
Weekly Economic Boost by Region (top 5)

Based on time saved from switching modes





** Total possible routings between all cities based on 3 main selection criteria: distance (50-120 statute miles), population (min 20k inhabitants per city), travellers (min Xk travellers per week) and >50% of business/work travel.*

Big Numbers – Top Cities – Networking Potential

264
Cities with a share of
994 routes*

=>50
routes
3 cities – go on, have a guess

20-49
routes
15 cities

10-19
routes
47 cities

96
routes
For the top city

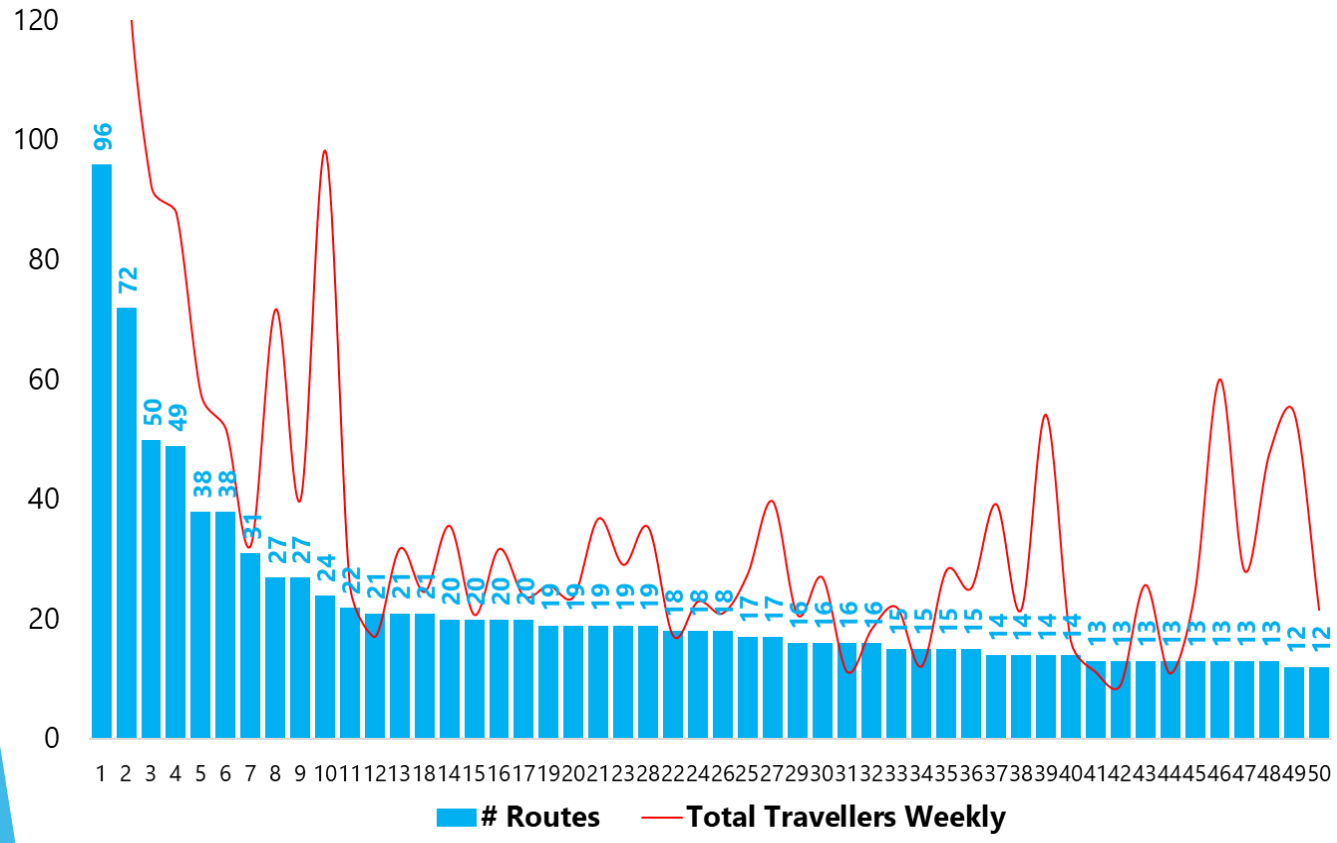
3.5m
Travellers weekly on the 96 routes
from the top city

** All routes from/to cities with at least Xk weekly demand, based on weekly travels mobility data, annualised.*

EA Maven

Market Assessment (Top 994 routes - travellers)

Top UK Cities - networking potential
The number of routes & total travellers weekly
Source: EAMaven analysis



Routes	In no order	Number of Cities	Travellers weekly combined
21-96	Redacted	14	5.76m
15-20		22	1.59m
<15		228	5.94m

- The top 994 routes identified are served from/to 264 Cities UK.
- The networking potential for each City is analysed based on the number of possible routes that could be served from/to each city.
- Detailed analysis on the routes from each city would be available in the paid version of the report.

** Based on UK spatial division of 400 shapes. 1 shape = 1 city (largest), London includes 32 shapes. Cities selected based selected sifting criteria. Total possible routings between all cities based on 3 main selection criteria: distance (50-120 statute miles), population (min 20k inhabitants per city), travellers (min Xk travellers per week) Sum of all travellers on 994 routes analysed. Demand scaled down based on population distribution (city-city demand adjustment). Based on mixed capture rates on top 994 routes.*

EA Maven

UK Cities AAM Aircraft Capabilities

Electric Aircraft (eVTOL)	Top 994 City Pairs in Range**	City Pairs in Range*
 EVE Air Mobility – 60m	342	6742
 Volocopter Volo Region – 60m		
 Wisk – 90m	833	12433

** Based on all possible routings from/to 368 cities (mobility data analysis), with no distance threshold or minimum travellers' restrictions*
*** Based on top 994 routings from/to 298 cities (mobility data analysis) with distances longer 50-120miles and min Xk travellers per week. Cities with population of 20k minimum*

EA Maven

Electric Aircraft (eVTOL)	Top 994 City Pairs in Range**	City Pairs in Range*
 Auto Flight– 100m	895	14455
 Vertical VX4– 100m		
 Archer Midnight – 100m		

** Based on all possible routings from/to 368 cities (mobility data analysis), with no distance threshold or minimum travellers' restrictions*
*** Based on top 994 routings from/to 298 cities (mobility data analysis) with distances longer 50-120miles and min Xk travellers per week. Cities with population of 20k minimum*

EA Maven

Electric Aircraft (eVTOL)	Top 994 City Pairs in Range**	City Pairs in Range*

JobyS4 – 150m

Ehang – 150m

Lilium Jet – 155m

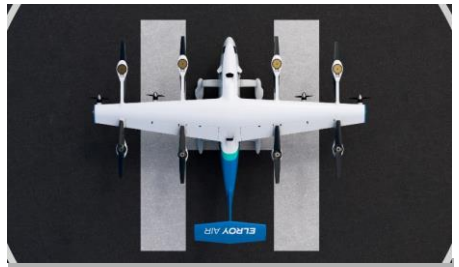
994

23868

24778

** Based on all possible routings from/to 368 cities (mobility data analysis), with no distance threshold or minimum travellers' restrictions*
*** Based on top 994 routings from/to 298 cities (mobility data analysis) with distances longer 50-120miles and min Xk travellers per week. Cities with population of 20k minimum*

EA Maven

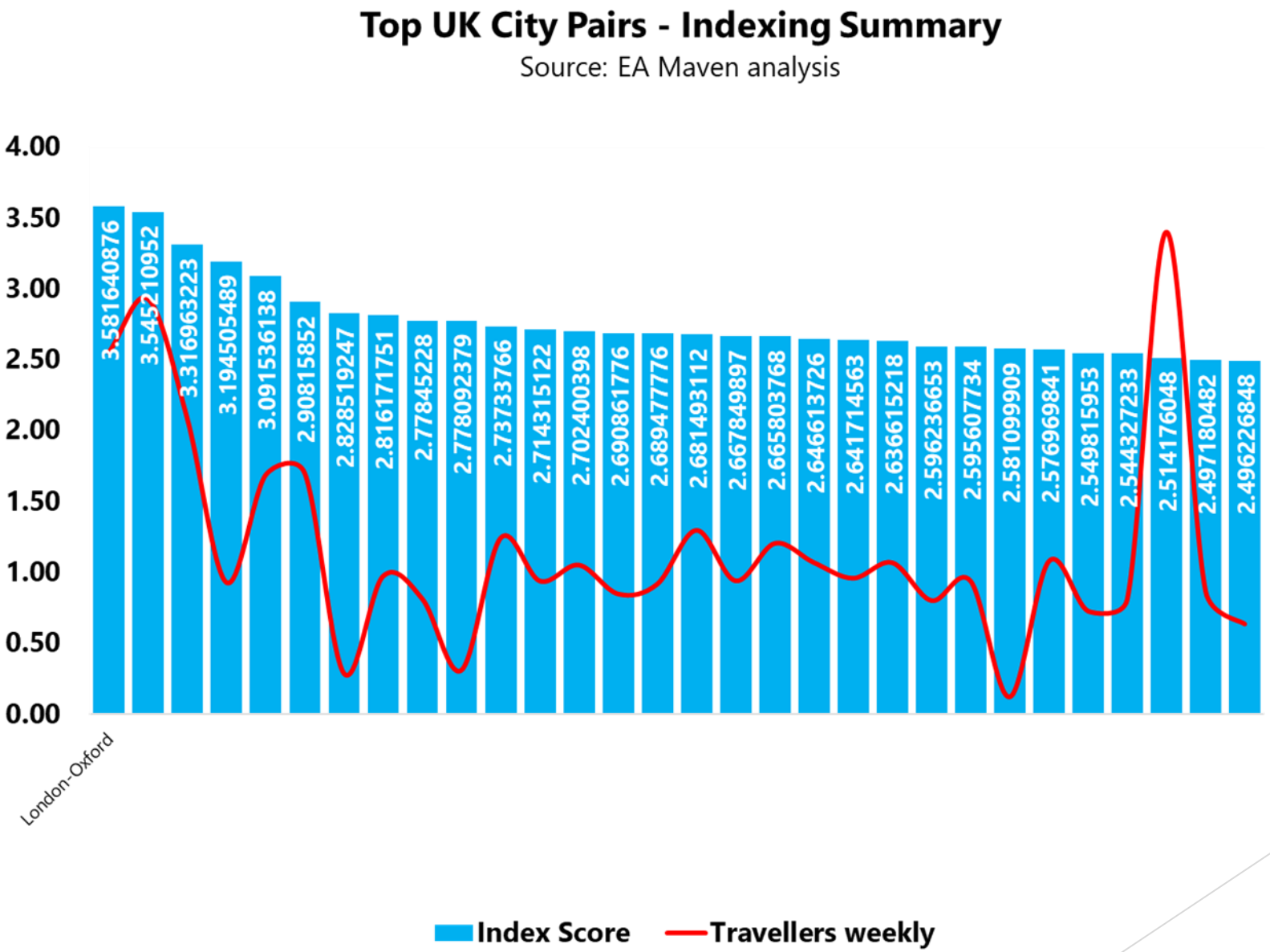
Electric Aircraft (eVTOL)	Top 994 City Pairs in Range**	City Pairs in Range*
 Aerofugia – 185m	994	29424
 BETA – 250m		35503
 Elroy Air – 300m		37648

** Based on all possible routings from/to 368 cities (mobility data analysis), with no distance threshold or minimum travellers' restrictions*
*** Based on top 994 routings from/to 298 cities (mobility data analysis) with distances longer 50-120miles and min Xk travellers per week. Cities with population of 20k minimum*

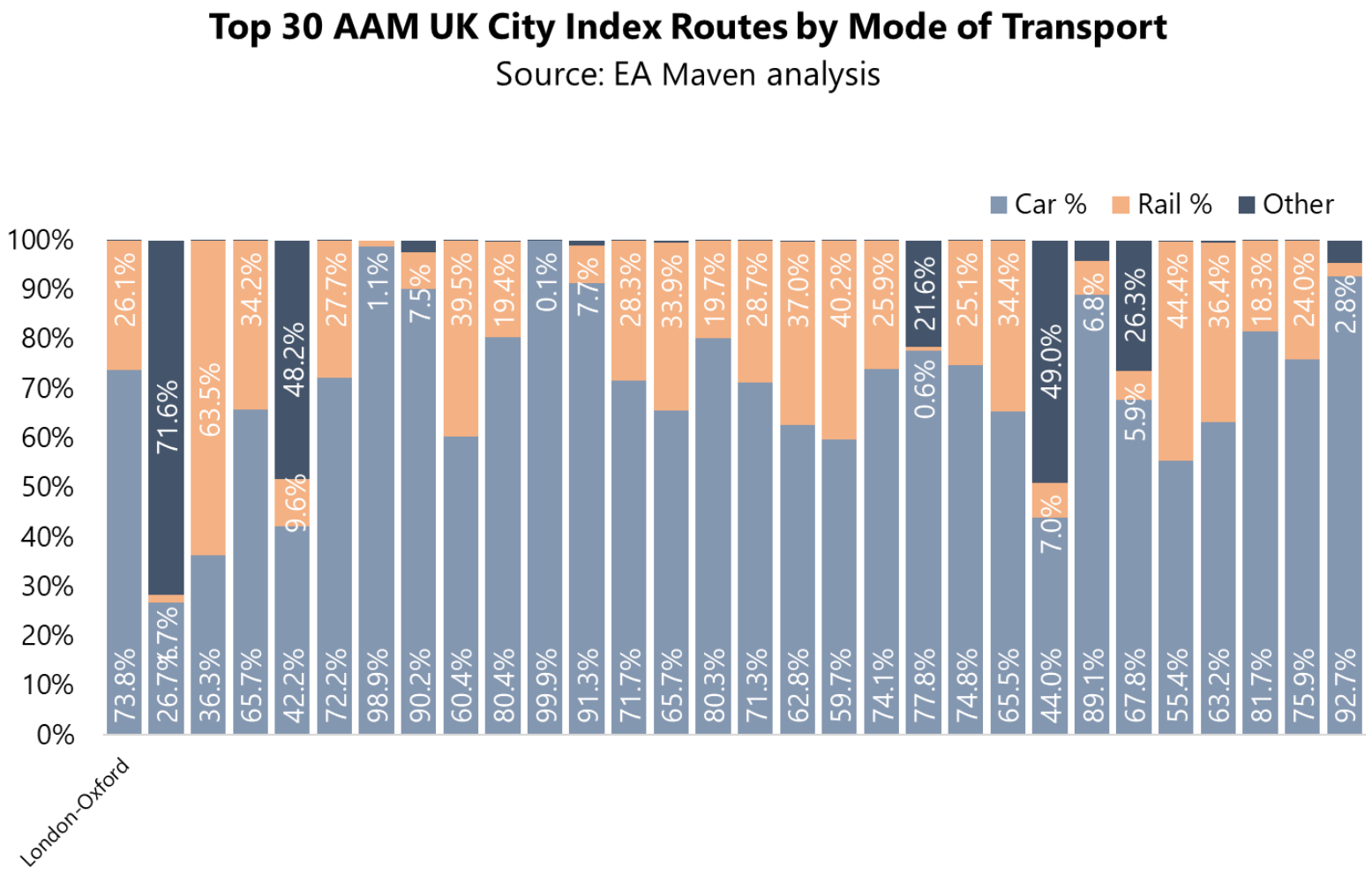
EA Maven

AAM UK City Index
List of Routes

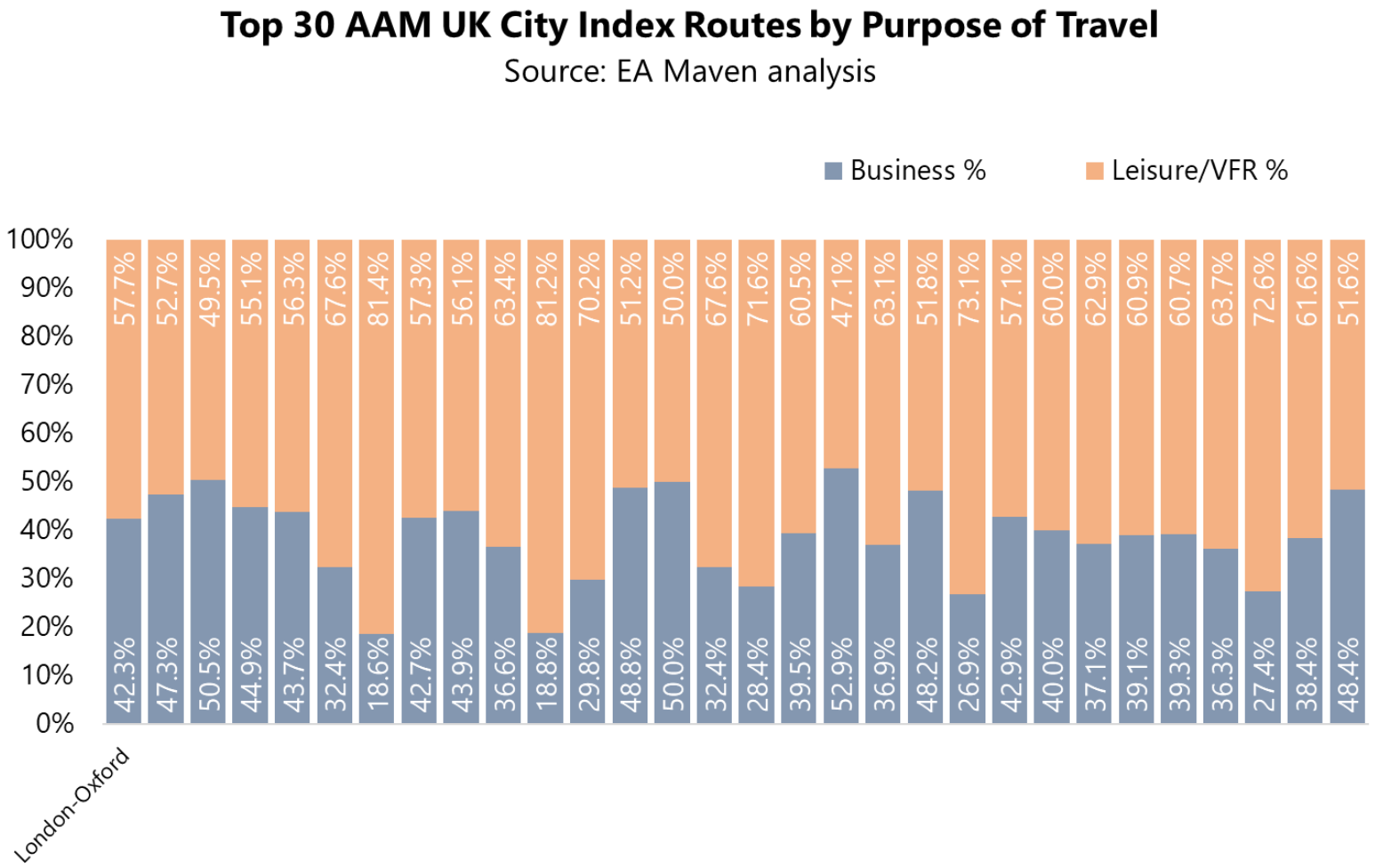
AAM UK City Index - Routes List



AAM UK City Index - Routes List



AAM UK City Index - Routes List



THANK YOU!

Darrell Swanson
Director | Co-Founder

+44 7500 921 365
darrell@eamaven.com
www.eamaven.com

Jarek Zych
Director | Co-Founder

+44 7533 869 529 | +48 601 970 816
jarek.zych@eamaven.com
www.eamaven.com

EA Maven