

**DTLX – SESTRAN
30 MAY 23**



DTLX
DRONE SOLUTIONS

The logo features the word "DTLX" in a bold, sans-serif font. The letters "D", "T", and "L" are dark blue, while the "X" is split into two colors: cyan on the left and green on the right. Below "DTLX" is a horizontal line, followed by the words "DRONE SOLUTIONS" in a smaller, dark blue, sans-serif font. The logo is centered on a white rectangular background.

BEYOND VISUAL LINE OF SIGHT

- **Today drones are limited to flights within Visual Line of Sight (VLOS)**
 - Within 500m of the pilot / one drone per pilot
- **The BVLOS Revolution is underway 2020 – 2026 – 2030**
 - Flights beyond 500m
 - Multiple drones controlled by a single remote operator
 - Increasing autonomy
 - Enables drone deliveries, long range infrastructure inspection and flying taxis
- **Large, Rapidly Expanding Global Drone Market**
 - \$5Bn VC investment in last two years¹
 - £76 billion by 2035²
 - \$1 Trillion total addressable market by 2040³
- **Regulatory, not technology, constrained industry**
 - The regulatory challenge is the safe integration of manned and unmanned aviation
 - ‘Solving’ the regulation will enable the industry to commercialise and scale
 - Cost reduction through move to mass manufacture
 - Development of operational procedures and business models
 - UK drone industry scaled by 2030
 - Offshore and Rural environments offer the best early opportunities

Notes:

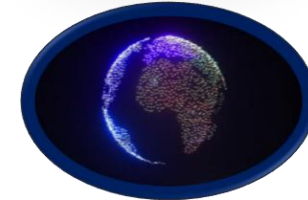
1. Forbes
2. Innovate UK
3. Morgan Stanley – Total addressable market



Long Range Survey



Remote Inspection



‘Swarming’



Logistics



eVTOL



Ground Infrastructure



DTLX: A CONSULTANCY ‘PLUS’



UK BASED, GLOBALLY OPPORTUNISTIC

DTLX OFFERING



Nigeria



UK



Australia

Drone Consultancy

"WHERE WE'RE GOING, WE DON'T NEED ROADS"
FORCES RESEARCH

PROJECTS

X

Drone Media

A NEW FORM OF ENTERTAINMENT AND MARKETING

DRONE LIGHT SHOWS

- A new entertainment experience
 - Complement or replace fireworks
 - Images and messages across the sky
- Environmentally aware
 - Made to be the only noise
- Indoor and outdoor events
 - Large public events
 - Marketing and product launches

DTLX - SCOTLAND'S FIRST DRONE LIGHT SHOW PROVIDER

X

Sales & Solutions

THE SOLUTION

Unmanned Cargo eVTOL
With The Highest Payload Capacity In Its Class

Photo of Rhaegal Alpha, details of Bravo provided unless otherwise noted

RHAEGAL ALPHA: <1 TONNE, 1000 NM
RHAEGAL BRAVO: <2.5 TONNES, 1000NM

X

MAKING ANGUS A HUB FOR THE DEVELOPMENT OF DRONE TECHNOLOGY

MERCURY DRONE PORTS

X

ACCELERATING THE VERTICAL MOBILITY REVOLUTION

AIRSPEDER - EVTOL RACING

- Driving a new industry
- Leave no trace
- Tourism marketing
- TV/Online event
- Full SMART ecosystem

THE OPPORTUNITY TO MAKE SCOTLAND THE FUTURE F1

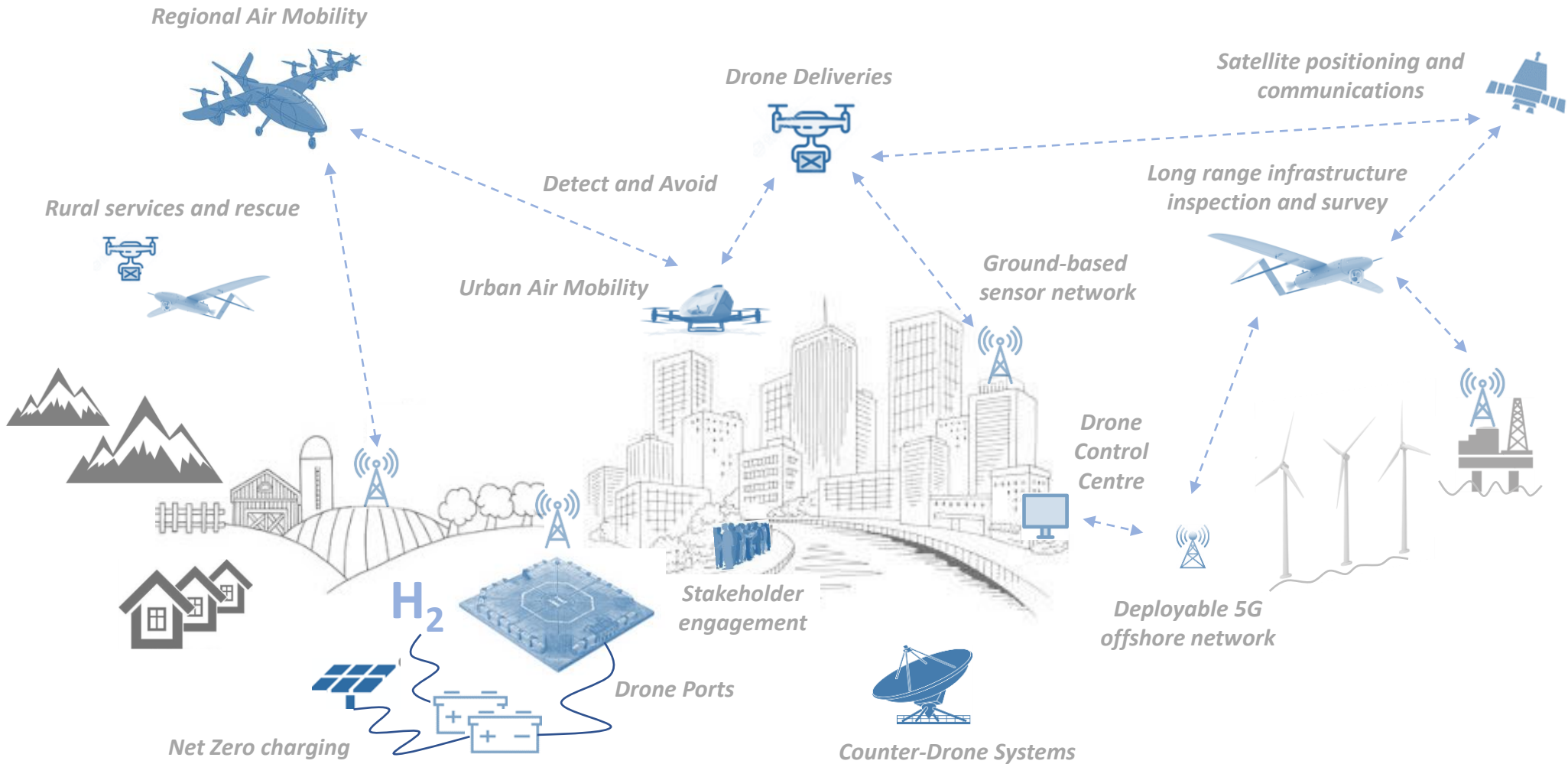
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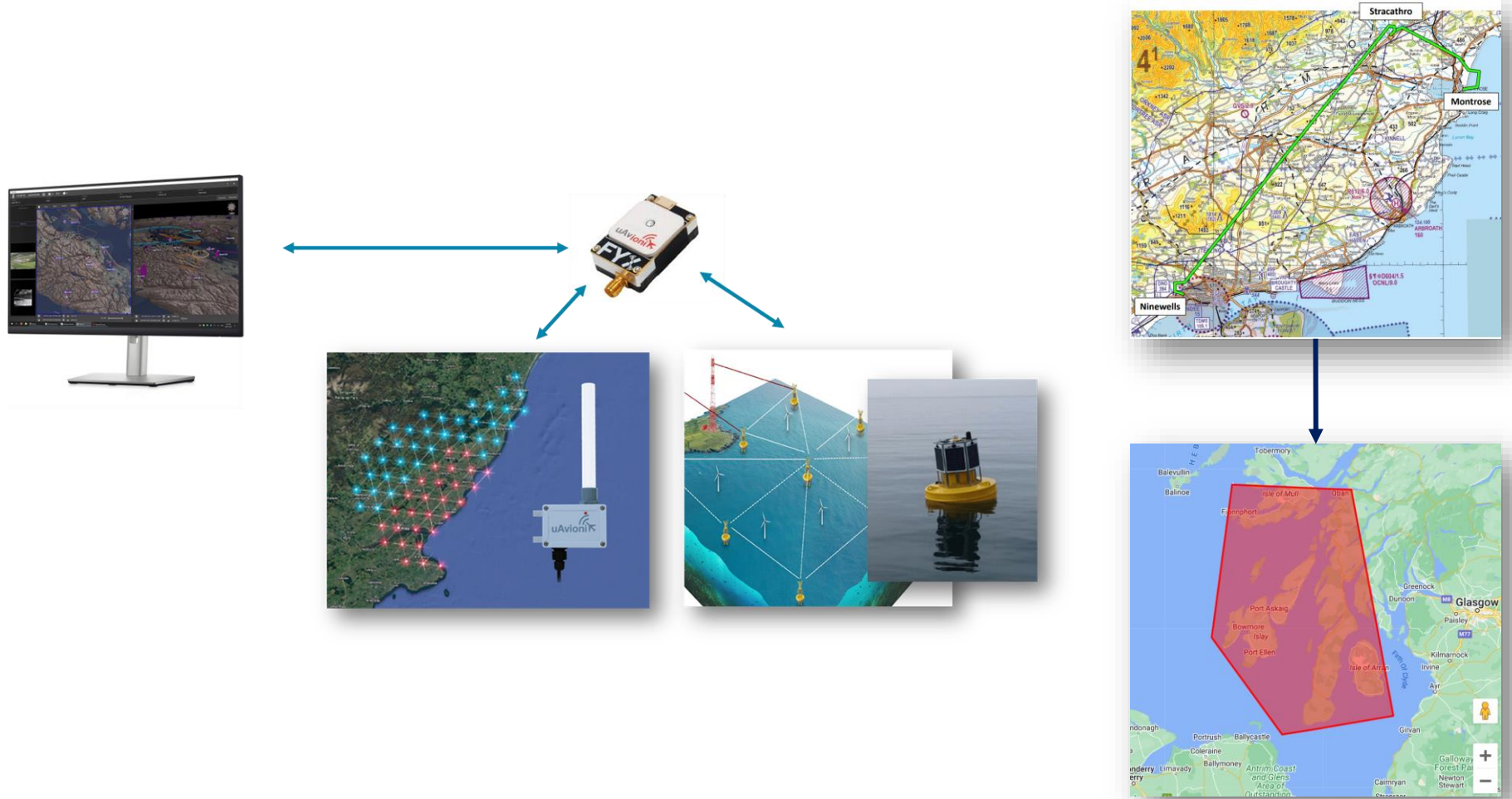
**“WHERE WE’RE GOING, WE
DON’T NEED ROADS”**

DOC – BACK TO THE FUTURE

UNIFIED AIRSPACE



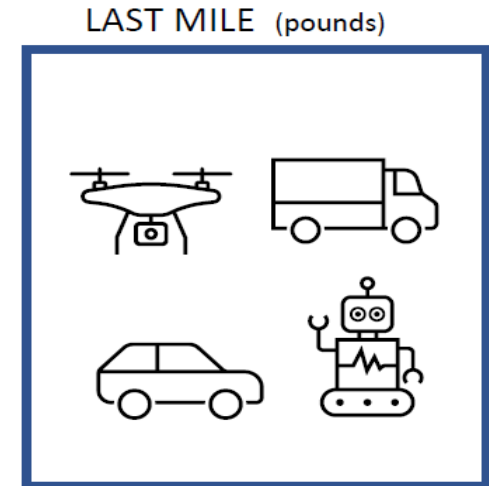
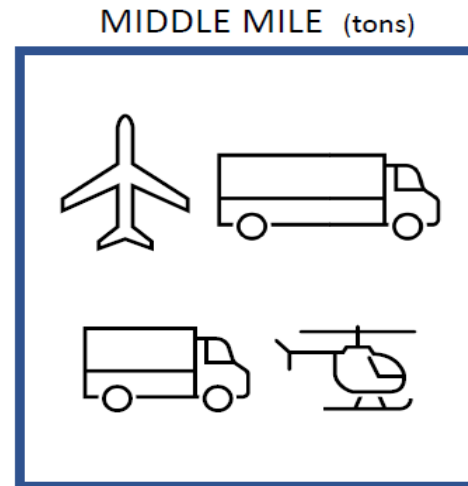
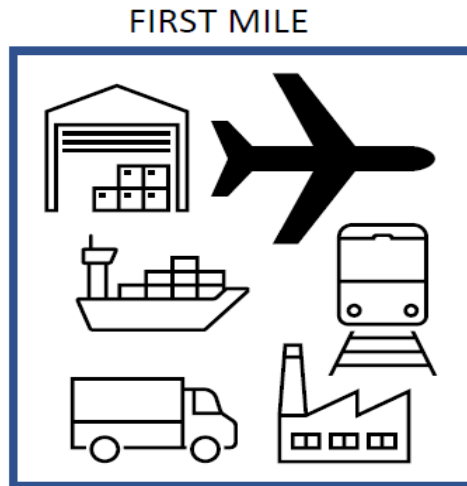
TECHNICAL SOLUTION



4,000 MIDDLE MILE DRONES

DHL MARKET ESTIMATE FOR EUROPE

THE LOGISTICS MARKET



current issues, challenges and problems associated with end-to-end logistics

Weather	Tarmac	Support Eqmpt.	Emissions	Missiles
Wind	Mud	Containers	Compliance	Weight Limit
Rain	Sand	Monitoring	Emergencies	Remote Locals
Snow	Marshy Soil	Communications	Loading	Accessibility
Icing	Security	Tracking	Unloading	Price
Safety	Theft	Maintenance	Drivers	Cost
Roads	Schedule	Repairs	Pilots	Margin
Terrain	Expediting	Fueling	Fatigue	Affordability
Landing Zone	Support Crew	Charging	IED Bombs	Humanitarian



**1,000 DELIVERIES PER DAY PER 6KM
1.2 KG, AV. 6 MINS PER DELIVERY**

LAST MILE DELIVERY



<https://youtu.be/IVVWWAtdbSM>



**5 KG, 100KM
MEDICAL: £50 (DRONE) VS £100 (VAN)**

RURAL AND SHIP TO SHORE



<https://vimeo.com/721406869>



SABREWING
VTOL: 1 / 2.5 TONNES OVER 1,800KM
STOL: 2 / 4 TONNES OVER 1,800KM

MIDDLE MILE



<https://youtu.be/fGbXzihjXfU>



PRICE OF AN UBER
200 KPH, 150 KM, 60DB

EVTOL



<https://youtu.be/dOhM9xlwOKE>



2024 PARIS OLYMPICS
€110 PER FLIGHT

VERTIPORT



<https://vimeo.com/778515028>



MIDDLE MILE MARKET

LEADING CAPABILITY IN THE HEAVY LIFT DRONE MARKET

Rhaegal Alpha





 1823
  2277
  1900



Rhaegal Bravo




 2450
  4550
  1900

Dronamics





 350
  2500


Cessna Sky Courier




 2722
  460

Joby Air Taxi




 1200
  460

Beta Tech Alia 250




 350
  545

Cessna 208 Caravan




 1360
  1900

Elroy Chaparral




 230
  485

Pipistral Nuuva V300




 460
  300

Lillium





 600
  300

Pilot Y/N 

CTOL  KG

VTOL  KG

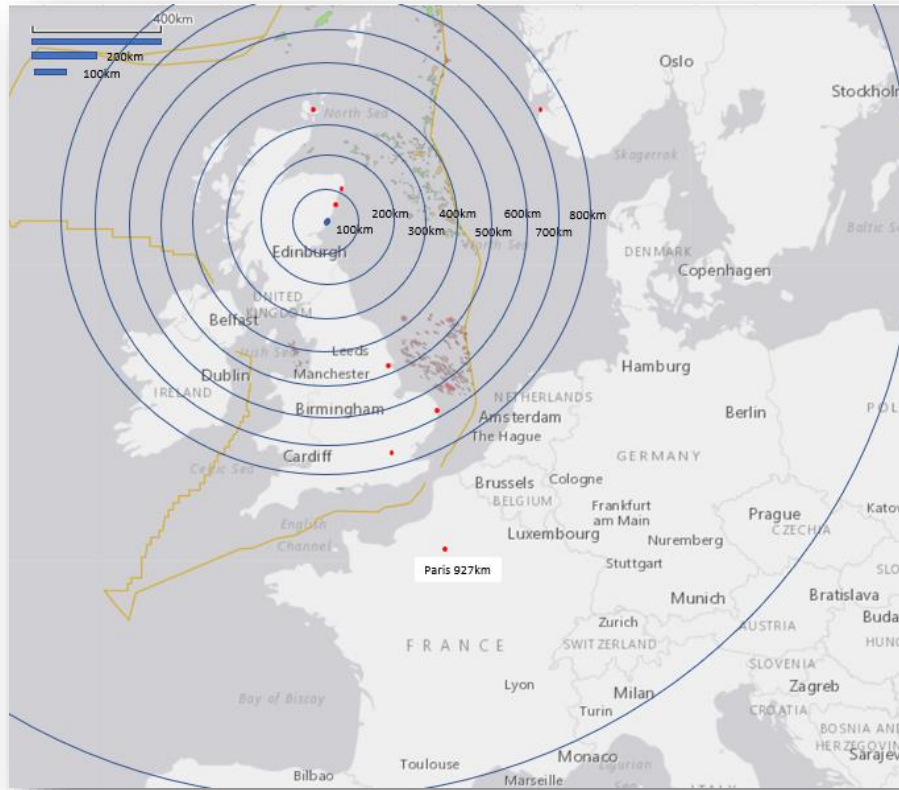
Distance  KM



**SCOTLAND TO NORWAY AND
EUROPE – SAFER, GREENER
AND CHEAPER**

RANGE EXAMPLES

Ranges based on 800km rtn trip, 1,600km one way + plus 200km reserve



Drone Port Montrose

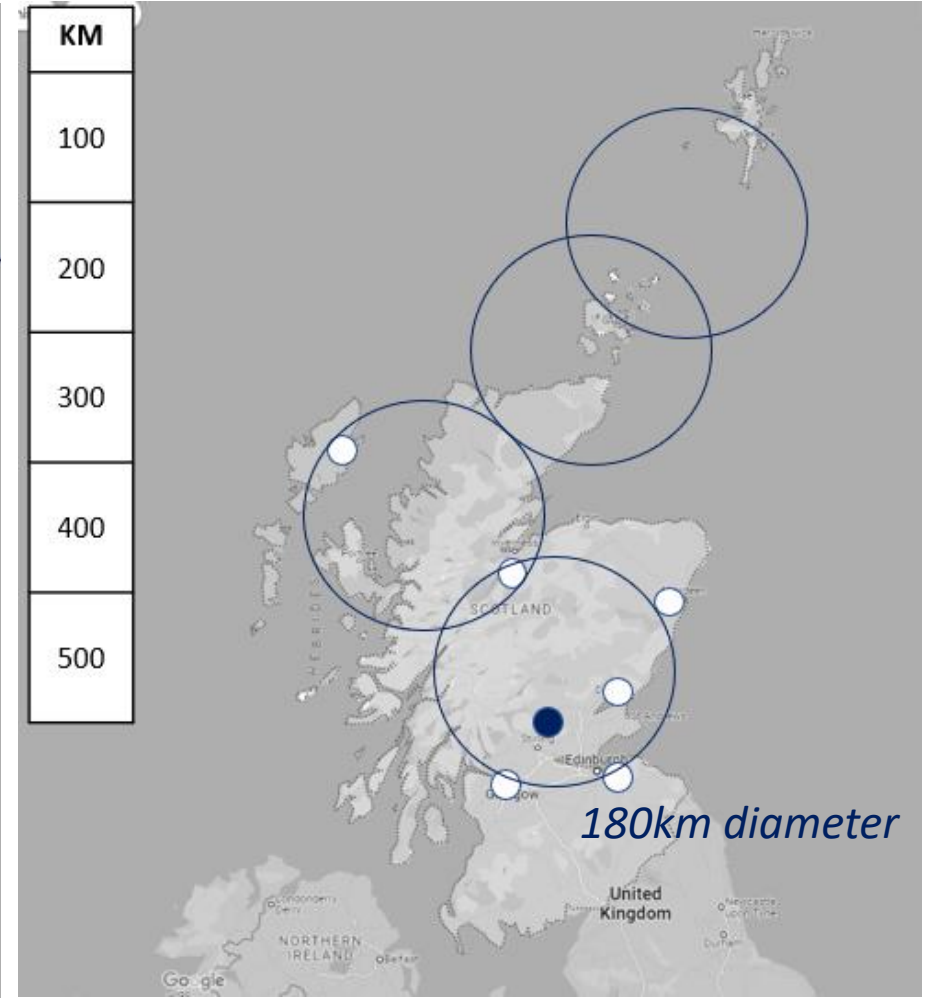
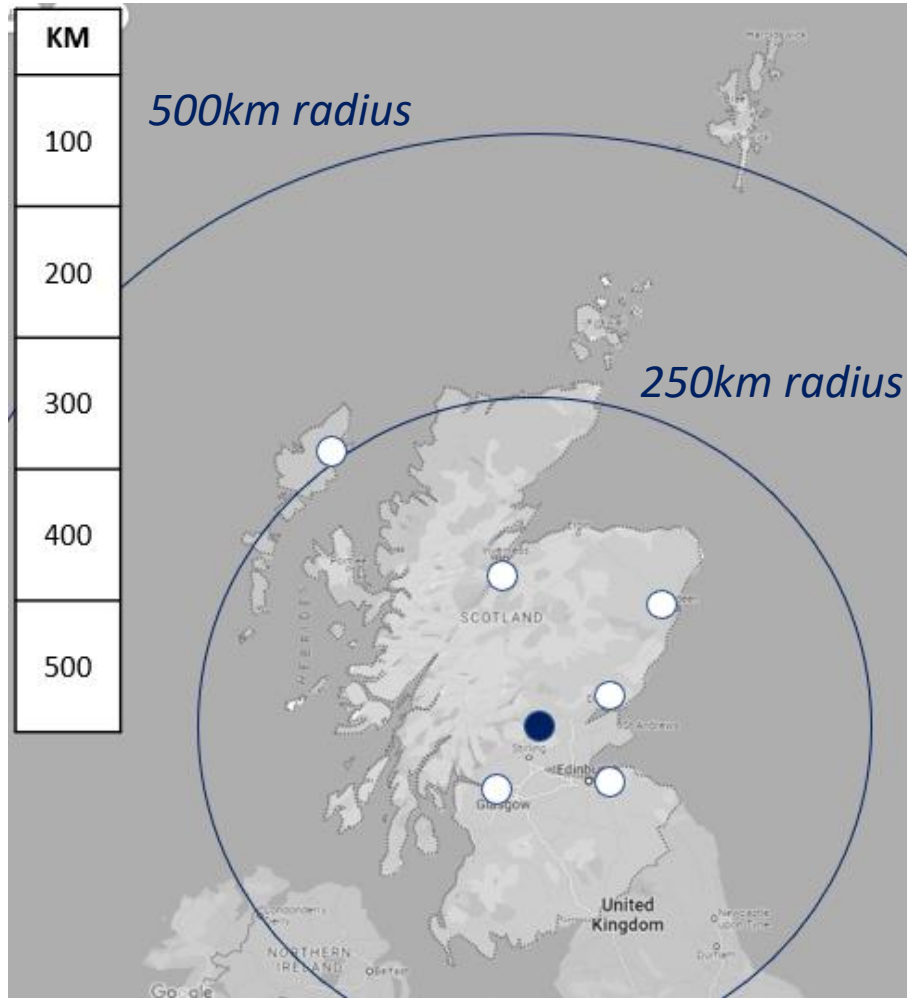


Drone Port Europe



**ONSHORE AND OFFSHORE
SAFER, GREENER, CHEAPER**

RANGE EXAMPLES



DRONES OFFER ADVANTAGES IN HIGH COST, LOW VOLUME MARKETS

COMPARISONS

Vehicle / Aircraft	£ / Tonne / KM	Other
Loganair Min charge £27, <37kg	£0.93 Average of Scottish fares	
Dronamics 350 kg, 2,500 km, CTOL	£1.73 ~2 / Kg	
Sabrewing 2.5 tonnes, 1,800km VTOL/CTOL	£0.40	Offshore flight ~£1,000
13 tonne 'Rigid' HGV <small>(motortransport)</small> 60,000 miles / year	£0.07	£167 per mile (full load)
Drone rural medical delivery		~£50 (vs £100 for a van)
Drone Middle mile island delivery		~£500 (vs £2,000 for a van)
S92 helicopter		£10 – 20,000 / flight



WHO NEEDS ROADS?

Road Maintenance (Scotland)

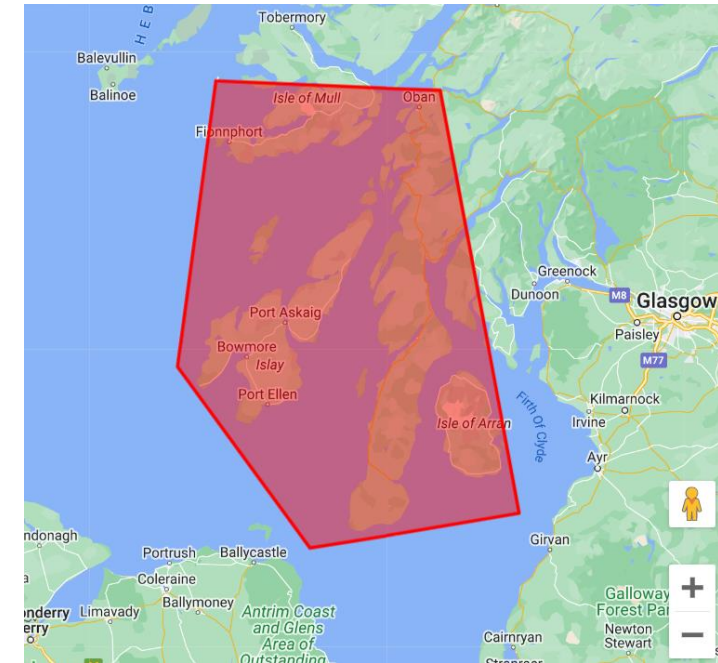
- Trunk road expenditure = £47,500 / km / year
- Local road expenditure = £9,400 / km / year

Construction

- HS2 = £403,000,000 / mile
- 'A' road (UK) = £12,800,000 / km

'Logistics in Depth'

- Move offshore logistics away from ports
- Business to business sites



Transponder Mandatory Zone

- Argyll (NHS) = ~£1,000,000
- Scotland (onshore) = ~£10 – 20,000,000



DTLX A Drone Solutions Company Delivering the Opportunities of Beyond Visual Line of Sight Flight

Framing Workshop Proposal

1 THE DRONE OPPORTUNITY AND SUPPORTING OUR CLIENTS' SUCCESS

UKRI estimate the global drone industry to worth \$45 billion by 2030 and \$74 billion by 2035¹. In the UK by 2030 it is forecast that drones will create over 650,000 jobs, increase GDP by 1.8%, provide 16% of cost savings and reduce Carbon emissions by 2.4 million tonnes per year.

DTLX is a Drone Solutions company based in the North East of Scotland whose mission is to support the public and private sector realise this opportunity by integrating Beyond Visual Line of Sight (BVLOS) drone operations into both their existing and future operations. As a result of decades of experience working in the offshore energy sector DTLX has a particular, although not exclusive, focus on operations in the offshore energy sector.

The opportunities that BVLOS presents public and private include:

- Long range infrastructure survey of pipelines, railways and wildlife, both on and offshore
- Remote inspection and security of assets such as offshore energy assets
- Drone deliveries and logistics both onshore and offshore without the need for airports
- By 2035 eVTOL, flying taxis, will complete a low carbon integrated transport network

2 HELPING OUR CLIENTS SUCCESSFULLY INTEGRATE DRONES INTO THEIR OPERATIONS

DTLX's consultants have multi-sector sector experience in the development of both public and corporate strategy and business cases using a flexible 4 phase approach and industry recognised project management methodologies to identify, develop and execute single drone based projects or wider multi-element programmes.

PHASE 1: FRAMING WORKSHOP

- A face-to-face one day workshop held at the client's preferred location facilitated by DTLX. The day kicks off with an overview of the drone industry and the client's business aims, existing areas of expertise and in house technologies to enable a brainstorming session during which a 'mind map' and an opportunity and risk identification matrix will be developed using whiteboards and flip charts.
- Deliverable(s): a 5 – 10 page report on the workshop framing the client's 'drone opportunity'
- Planning figures: 2 – 5 days of DTLX consultancy @ £700-£1,400 / day depending upon reporting and resource requirements. For the best results a broad range of client employees and leadership should attend the one day workshop

PHASE 2: STRATEGY DEVELOPMENT

- Working with a client development team or key members from different sites, explore in detail the opportunities identified during the Phase 1, compiling a prioritised list of conceptualised projects and a high level delivery programme. The strategy is

¹ UKRI 2020. <https://uk.ktn-uk.org/wp-content/uploads/2021/06/UKRI-130821-FutureFlightVisionRoadmap-1.pdf>

DTLX CONTACT

Framing Workshop Proposal

- developed iteratively allowing the concepts to be tested with client teams and leadership to ensure alignment with wider corporate strategies and their deliverability.
- Deliverables: a strategy document and supporting overview presentation to enable the roll out of the strategy across the department and/or organisation. Includes budgetary level cost estimate and schedule.
 - Planning figures: 1 – 3 months of DTLX consultancy delivered by 1 or 2 personnel @ £1,000-£2,000 / day depending upon number of sites and complexity of the business. Client interviews and regular feedback from leadership required.

PHASE 3: DRONE INTEGRATION PROGRAMME DEVELOPMENT

- Development of an actionable project or suite of projects either funded by the client or through working with consortia to win government or other public body funding
- Deliverable(s): project execution plans with funding in place, ready to commence
- Planning Figures: 1 – 3 months of DTLX consultancy delivered by 1 or 2 personnel @ £1,000-£2,000 / day depending upon number of sites and complexity of the business.

PHASE 4: PROJECTS AND PROGRAMME EXECUTION

- Either leading or supporting the client's project management team to deliver the project or wider programme to achieve the strategy defined in Phase 2.
- Deliverable(s): Routine reporting with each project concluded with the issue of a close out report.
- Planning Figures: 1 – 3 months of DTLX consultancy delivered by 1 or 2 personnel @ £1,000-£2,000 / day depending upon number of sites and complexity of the business.

Richard Stark (UK)
Richard@dtl.group
+44 7961 812 841

