

project skyway



It can be an eye-opener to stumble into a world of special interest and find a huge industry, supported by thousands of seriously committed enthusiasts with a shared perspective on life (for example, motor racing, aircraft and flying, country pursuits, music festivals, and classic buses, to name but a few). Sometimes we enthusiasts for one of these worlds may also enjoy others, limited only by the time we have available, the cash to hand, and the tolerance of friends and family.

Special interests can also draw followers away from reality and accountability. When huge sums of money are made available for research and development by a very tight circle of enthusiasts, there is a tendency for them to neglect the need to grow their constituency of support, and thus to make us jump when they emerge, nearly fully formed, into the daylight: examples are driverless cars and lorries; delivery robots that will trundle to your door with an order from Kentucky Fried Chicken or whatever (at least, that's what is possible in Milton Keynes); and neighbourhood nuclear plant.

One such specialist world is that of drones. While we weren't looking, at the Farnborough Air Show on 19 July 2022 the government announced Project Skyway.¹ According to Ian Crosby, writing in *Dronelife*, this is:

*'the largest and longest network of drone superhighways in the world. [It] will connect cities and towns across the country, enabled by a consortium led by UTM (Unified Traffic Management) solution provider Altitude Angel, alongside BT, EE, and various UK tech start-ups. Over the course of the next two years, this group will develop 165 miles of drone superhighways, linking airspace above Reading, Oxford, Milton Keynes, Cambridge, Coventry, and Rugby.'*²

The idea of dedicated airspace corridors for drones was predictable for those of us involved in planning for the logistics industry. The inexorable rise of HGV traffic around the UK really took off in the 1980s, when manufacturers realised that it was so much

cheaper to have their 'inventory' (supplies of parts) stored at the place they were made (at the maker's expense) or in the trailers of a column of HGVs trekking along the motorways arriving 'just in time' to be used. Supermarkets were in the forefront, too, needing to have thousands of products sent to a regional warehouse from which mixed loads could be delivered to the individual outlets at dawn.

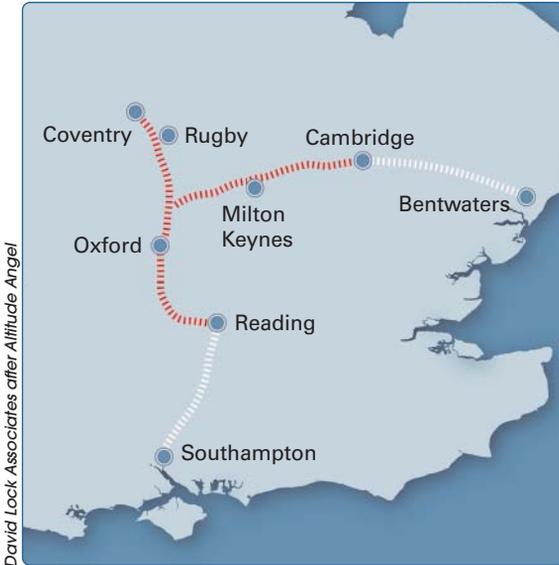
This astonishingly sophisticated revolution was one that took place mostly out of sight from the public, who took it for granted that their supermarket would have fresh supplies every day (while at the same time moaning about the heavy lorry traffic on the roads and why 'they' needed all these huge warehouses everywhere!).

Meanwhile, fuelled by our strategic failure to modernise our antique industrial and manufacturing base, it became commonplace to assemble products such as cars using components actually manufactured in parts of the world where that could be done more cheaply. Even when we realised what a dreadful error this was in terms national economic planning, we still failed to substitute those imports by manufacturing them here: there was always a cheaper source in the world, somewhere, if you didn't care about the local working conditions and environmental impacts of that cheapness.

Brexit also made a difference to the lifeline that is the HGV industry. Market forces generally had led to many HGV drivers in the UK being drawn from poorer nations in the EU. Since Brexit, many of those drivers have left. The system for recruiting and training new UK-based HGV drivers was disrupted by Covid and administrative sloth. Annual salaries for HGV drivers are now in the range £32,000-56,000 per annum, and the shortage of drivers is somewhere between 45,000 and 70,000.

All of the above has encouraged investment in drone delivery systems to avoid using HGVs. The drone industry had grown at a spectacular rate (not least for military applications) and was ready to respond. The urgent need improve air quality in older towns and cities was also a spur.

In summary, therefore, there has been the coincidence of the rising need to move large quantities of stuff around the UK (and in trade with other countries), while trying to reduce the manpower employed and the air quality impacts of all that transport. Drones are ready to be part of the solution.



David Lock Associates after Altitude Angel

Diagrammatic rendition of Project Skyway, and possible extensions

Land use and economic development

In land use terms the superhighway concept will require drone port facilities at the major feed points (let’s coin them ‘droneports’), where we should expect demand for large logistics buildings and an upgraded local highway system to serve them. We have seen this with multi-modal freight centres on railway networks. There is also talk of requiring smaller drop-off sites for parcels to be lowered and picked up while the drone stays airborne.

Some of the local planning authorities for areas that are to be hosts to all this see wider economic development potential:

‘The plans for [Project Skyway] were proposed as part of the Department for Business, Energy & Strategy (BEIS) Innovate UK programme which aims to support business growth through the development and commercialisation of new products, processes, and services. The Skyway superhighway network aims to help unlock the huge potential offered by unmanned aerial vehicles and be a catalyst to enable growth in the urban air mobility industry.’³

Towns and cities on the superhighway will enjoy boasting rights. The announcement ‘is excellent news for the town’, said Councillor Tony Page, Reading’s Lead Councillor for Climate Strategy and Transport: *‘Reading has always been at the forefront of technological advances and has long had a reputation for unrivalled connectivity and as the centre of innovative IT and technology. I’m also*

pleased that this ambitious project is being spearheaded by a Reading based company. This project will put Reading at the forefront of an initiative which has huge potential. As a Council, we strive to ensure our town’s economic growth goes hand-in-hand with achieving our climate goals. The potential access to ‘green’ transportation here complements our own strides towards zero carbon, as well as unlocking the economic potential of harnessing this new technology.’⁴

Hardware, safety, noise, and visual impact

Apart from the droneports and delivery/pick-up pads, the hardware for Project Skyway is presented as being digital, and the implication is that it is physically invisible. But this doesn’t sound wholly resolved:

*‘Skyway partners will collaborate to deploy a **ground-based**, networked DAA [detect and avoid] solution, **where possible** on existing infrastructure, which is hooked up to Altitude Angel’s global UTM [unified traffic management] system, which ‘stitches’ data from multiple sources together in real-time to create an ultra-high-resolution moving map of the low-altitude sky. Skyway does not rely on drones carrying specific onboard sensors to ‘see’ other aerial traffic: instead, it proposes to put higher-power, better sensors from multiple manufacturers **on the ground, along a sensor network**, which in turn is then processed in real-time to provide guidance. This means drones don’t need to compromise payload, range or efficiency and can ‘tap into’ even higher resolution data, from multiple sensors, from the ground-based network.’³ (Emphasis added.)*

Drones are covered by regulations overseen by the Civil Aviation Authority (CAA). You must be registered, not endanger anyone with your drone, and at present always have it in your sight. The government has been working with the CAA, which has been given £2.6million in funding for future flight projects and to develop the framework for drones for various uses, including commercial.⁵

The intention is that ‘the superhighway will be able to support fully automated drone flights beyond visual line-of-sight (BVLOS) from any drone company which completes a series of basic technical integrations which, crucially, don’t require specialist hardware on-board the drone.’⁶

The amount of noise depends on the size of the drone and the means of propulsion. Currently, the large drones (for military uses) are propellor driven, like all drones, but make a high-pitched sound which is apparently annoying even when flying at their typical high altitude (and before they hurt you).

The noises of the variety of types of drones we shall see, perhaps at lower heights along Project Skyway, are not yet clear.

Cranfield University Senior Lecturer Simon Jude speaks of drones generally when he says:

*'People's knowledge and attitudes might change if they know what [the drone] is being used for. If it's an emergency medical support, you're probably going to be a lot more accepting of the noise. So what happens if you get multiple [drones], or an agricultural use where you might get a number of drones collecting and saving data all at once? I live in a rural location, a very quiet location, and it might annoy me more than if you were in a city or an urban landscape where there's lots of other noise.'*⁷

He will be concerned to learn that Project Skyway appears likely to route drones away from urban areas.

The degree of visual impact has to be 'not yet known', as the number of drones, their variety and range of payload are factors that are not yet clear. Currently, larger-payload drones fly in the range of 18,000–30,00 feet (5,500–9,000 metres) above ground,⁸ but perhaps those heights are a military rather than environmental imperative.

So what?

This subject is an important one. As explained by Richard Parker of the consortium leaders Altitude Angel:

*'The capability we are deploying and proving through Skyway can revolutionise the way we transport goods and travel in a way not experienced since the advent of the railways did in the 18th century: the last 'transport revolution'.'*⁹

Note, 'travel' means possibly for people, too.

Second, this isn't a sci-fi fantasy. Drones cannot be disinvented and are in widespread use. The technological drivers might have been military at big scale, and for survey and security work at smaller scale, but the use of drones is now a thread through human endeavour.

Third, this project has land use implications. But while land use is our root, it is not our whole span of interest. Everything is connected, and planners are helpful panoptic people.

Last, it is so silly that more effort is not being taken to carry us all along with this blossoming technology. Project Skyway should be exposed to the light and properly exposed to public discussion. To jump from present specialist silos straight to Nationally Significant Infrastructure Project (NSIP) procedures (which would be the predictable path)

would be unnecessarily aggressive. It would not be a vote-winner for people to hear of an imminent scheme for unmanned drones loaded with unknown stuff, controlled by unknown persons for unknown purposes, to be buzzing through the air above their home or their countryside rambles. We need to talk about it.

● **David Lock CBE** is Strategic Planning Adviser at David Lock Associates and with colleagues has maintained a deep involvement with the logistics industry since commencement of the consultancy in 1988. He is a Vice-President and former Chair of the TCPA, and lives close to outlined routes of Project Skyway at the Milton Keynes spur. The views expressed are personal.

Notes

- 1 Announced by Kwasi Kwarteng, then Secretary of State for Business, Energy and Industrial Strategy, a Department made into three on 7 Feb. 2023. The government statement on Project Skyway has not been rescinded
- 2 IM Crosby: 'The world's largest drone superhighway: UK's Project Skyway'. *Dronelife*, 19 Jul. 2022. <https://dronelife.com/2022/07/19/the-worlds-largest-drone-superhighway-uks-project-skyway/>
- 3 'Farnborough 2022: UK funds Project Skyway 'drone superhighway' under UKRI research grant'. *Unmanned Airspace*, 18 Jul. 2022. www.unmannedairspace.info/uncategorized/farnborough-2022-uk-funds-project-skyway-drone-superhighway-under-ukri-research-grant/
- 4 Quoted in 'The world's largest drone superhighway: UK's Project Skyway' (see note 2)
- 5 See CO Sladden: 'World's first drone superhighway to be built in UK'. *Verdict*, 20 Jul. 2022. www.verdict.co.uk/worlds-first-drone-superhighway-to-be-built-in-uk/ — where there is reference to the BEIS *Drone Ambition Statement*, in which the government sees the potential that drones could contribute £45 billion to the UK economy, with over 900,000 drones in the skies by 2030, carbon emissions reduced by 2.4 million tons, £22 billion in net cost savings, and 650,000 associated jobs
- 6 See 'UK consortium reveal blueprint to build 165 mile drone 'Superhighway''. News Story. Altitude Angel, 24 Mar. 2022. www.altitudeangel.com/news/uk-consortium-reveal-blueprint-to-build-165-mile-drone-superhighway
- 7 Quoted in 'Skyway Project is drone 'superhighway''. *Security Journal United Kingdom*. <https://securityjournaluk.com/skyway-project-is-drone-superhighway/>
- 8 Wikipedia tells us (for which thanks) all the bands of heights for unmanned aerial vehicles (UAV) — drones — from which the writer guesses these to be relevant to Project Skyway: NATO type, 10,000 feet (3,000 metres) altitude, up to 50 kilometre range; Tactical, 18,000 feet (5,500 metres) altitude, about 160 kilometre range; and MALE (medium altitude, long endurance), up to 30,000 feet (9,000 metres), range over 200 kilometres. See <https://tinyurl.com/2rrd4uym>
- 9 Quoted in '165-mile 'drone superhighway' to be built in UK'. News Story. Flyer website, 18 Jul. 2022. <https://flyer.co.uk/165-mile-drone-superhighway-to-be-built-in-uk/>