

Flying High

Shaping Drone Systems to Propel Cities' Futures

Challenge
Prize Centre

by **nesta** 

Executive Summary

Nesta seeks to catalyse the public vision around urban drone operations and advance fully integrated drone systems technologies that benefit existing cities and regions. Through a collaborative engagement with public leaders and technologists we will convene a consortia of pioneering cities to create an expansive and interconnected series of outcome-based funding opportunities, culminating in live, large-scale and complex urban drones systems demonstrations projects. These will leverage drone-related technological breakthroughs to ensure that cities and the public are at the heart of shaping how this technology integrates into their communities.

Vision

Unmanned, autonomous aviation technology is advancing rapidly and the prospect of drones performing a number of critical services in daily city life – from parcel delivery to health care services to infrastructure maintenance – has become increasingly viable. Drone-based systems could revolutionise how goods and services are delivered and advance cities' broader goals around transport efficiency, economic opportunity and innovation.

However, a number of technical, policy, regulatory and practical barriers need to be overcome to allow large-scale, multi-use, autonomous drone-based systems to operate safely in existing urban environments. Most importantly, cities and their residents should shape how this technology materialises in their communities, rather than allowing the technology to shape cities. We aim to leverage drone-related technological breakthroughs to ensure our cities are increasingly connected in ways that support and promote the very dynamism that make urban environments such exciting, attractive places full of economic, cultural and social opportunity.

To realise the benefits of drone-powered services in cities, we seek to:

- Catalyse the public vision for drone operations in urban environments and develop thoughtful, comprehensive, demand-driven frameworks under which multiple types and providers of drones may operate seamlessly in cities,
- Translate these visions into an interconnected set of technology design opportunities that will be brought to life by cities, technologists and others, and
- Showcase the world's largest multi-class, autonomous drone systems demonstrations in urban environments, developed in collaboration with cities, local stakeholders and industry.

Flying High will position the UK as a worldwide leader in investigating how improved connectivity among transport, logistics, services and communications systems – powered by drones – can strengthen the economic, social and physical fabric of urban places and regions, creating an inclusive and practical vision for the application of drones in our communities.

Approach

We propose the world's largest multi-class, autonomous drone demonstrations in urban environments, stemming from a collaborative engagement with cities and researchers and an interconnected series of outcome-based funding and other opportunities with the tech community.

Over a two-year period, we will:

- Engage a set of communities and urban policy thought leaders to identify opportunities, barriers and implications of developing a multi-level, autonomous drone-based transport and services system in



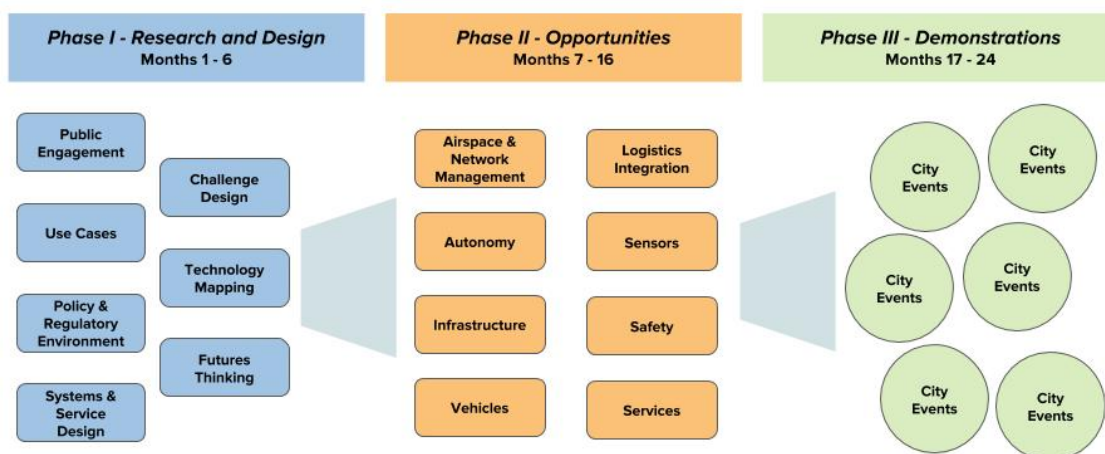
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- urban environments, and use this knowledge to help communities develop local visions for the use of this technology;
- Cascade those design principles, regulatory goals and local interests into a structured set of technology design opportunities that address a range of issues – from airspace and network management to infrastructure and vehicles development to logistics integration – enabling teams to devise efficient, comprehensive and safe drone operations systems; and
- Facilitate large-scale, multi-class, autonomous live urban drone demonstrations that aggregate all product, service and enabling functions, developed in line with visions set out by the host cities, to allow all stakeholders to imagine how drone-based transport and service delivery can help to achieve a city's larger goals around connectivity and innovation.

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Impact

Flying High is an unparalleled opportunity to advance the dialogue on the future of cities and drones. This initiative will enable the UK to articulate how improved connectivity among transport, logistics, services and communications systems – driven by drones – can be integrated into the economic, social and physical fabric of communities.

Why Nesta

Nesta's mission is to spark and grow powerful new ideas to improve how the world works for everyone. We see a world full of potential, where people's ideas have the power to improve everyone's lives. The world is changing, and we need new ideas to tackle the big problems we all face. We want to empower more people to take on these challenges and shape a better future for everyone.

As we have collaborated with cities, technologists and public stakeholders around the future of cities, transport and the rapid development of drone-based technology and systems, we feel the time is ripe to deepen these interconnected research and application strands into the Flying High initiative to best propel this conversation forward.

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