

Can drones transform logistics in Africa?

BY ALISON RATCLIFFE | 17.12.2015



Drones in Rwanda could carry loads of up to 100kg by 2025. © 123RF

Rwanda is an aerial roboticist's dream: commercial flights are rare, there are few powerlines, and it has a government that supports great regulatory freedom and sees technology as the solution to many of its problems.

Drones are set to follow phones in the East African nation: as mobiles leapfrogged landlines across Africa, so cutting-edge drones could outpace roads in a continent where only 16 per cent of thoroughfares are paved, but the population is set to double to 2.2 billion by 2050.

Afrotech, an initiative of the École polytechnique fédérale de Lausanne, and London architects Foster + Partners are collaborating on a Rwandan cargo drones project. Construction of the first droneport is planned for late 2016. Two more should arrive by 2020, covering 44 per cent of Africa's fourth-smallest country.

A network of 40 ports is ultimately envisaged (Afrotech director Jonathan Ledgard envisages one in every small town), followed by expansion into such neighbouring countries as the Democratic Republic of Congo, a 2,500km-wide country with fewer than 3,000km of paved road.

The project's first strand, the Red Line, aims to prove that drones are invaluable in the Land of a Thousand Hills by delivering blood and medical supplies to remote populations. The second, future strand, the Blue Line, will ultimately subsidise commercial deliveries in mostly urban environments.

Ledgard envisages the Blue Line evolving through three phases, beginning with "small payloads to government offices, mines, oil and gas installations, ranches and conservancies.

"In phase two, industrial sweetspots such as the spare parts industry in southeast Nigeria will be connected to cities... These routes will serve the new solutions demanded by a sharing economy."

Crucially, Ledgard believes phase three will stimulate e-commerce in Africa. "Wherever you have impecunious young people ubiquitously connected to the internet, e-commerce is desperate to happen... Within a decade, [droneports] will have shops where staff talk customers through shopping options on tablets and goods are shipped by [drone] from a distant warehouse within minutes. In effect, the back room of the village shop will stretch out of sight."

He foresees the Blue Line becoming a multi-billion-dollar business in that period, accounting for 10 to 15 per cent of Africa's transport sector.

Droneports are intended to become "dispersed infrastructure", similar to petrol stations, but richly multi-functional ones: the first will host a health clinic, a digital fabrication shop, a post and courier room, and an e-commerce trading hub, according to Foster + Partners. Afrotech projects that 30 droneports could add one per cent to a country's GDP. The flexibly-designed vaulted brick structures will arrive as a "kit of parts" (frame and construction machinery), with materials and labour sourced locally.

The first Red Line drones will carry 10kg payloads up to 100km. By 2025, the project aims to have 6m-wide drones carrying up to 100kg, with Ledgard expecting their range to one day stretch to "several hundred miles". The drones will be quiet, able to land and take off in tight spaces, and could fly repeatedly through the night.

It's hoped journey costs will be around a quarter that of post or courier, with journey times possibly cut by 90 per cent. Yet Ledgard admits that it is unlikely "within our lifetimes that cargo drones will be competitive with the low cost of arterial road and rail transport. They are about the middle — a medium-sized vehicle shifting medium-sized loads medium distances between middle-sized communities." The challenge, Ledgard says, is to create a high-performance drone with a unit cost close to a Chinese motorbike.

The World Bank ranks Rwanda third in Africa for ease of doing business, but the nation is 30th of the 48 sub-Saharan states in the BMI Logistics Risk Index. Can drones make the difference? Commenting on the drones project, Rwanda's *New Times* recently recalled how, a decade ago, the internet was brought into schools that lacked books: "The programme has worked so well, no one remembers those initial arguments against it. It has worked so well, it has become a model for other countries."

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