



## If Rwanda's drones take off, will Africa's economy soar?

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It's early days but this pioneering technology could be set to transform the continent's infrastructure, e-commerce and agriculture

Paul Kagame, the 58-year-old president of the small East African republic of Rwanda (population 11.3m), wants to turn his country into a regional tech hub. Having ticked off fibre optic broadband, 4G and free public Wi-Fi, he is focusing on drones and the Droneport project.

A collaboration led by [Afrotech](#) – an initiative to pioneer advanced technologies in Africa on a massive scale – the Droneport project brings together the Norman Foster Foundation, architects [Foster + Partners](#), and the [École Polytechnique Fédérale de Lausanne](#) (Afrotech's base).

Drones could ignite Africa's economy – generating an extra \$6trn in GDP from 2020 to 2030, according to Deloitte – by bringing its internet penetration up to that of the West. Cautious bureaucrats, crowded skies and dense populations have kept commercial drones grounded in the West, but light regulation, a unique set of problems and relatively virginal infrastructure suggest they could transform Africa.

Facebook aims to deliver the internet across the continent through stratospheric drones with the wingspan of a Boeing 737. Thousands of feet below, cargo-carrying cousins a fifth their size could shift billions of dollars of African goods. Tinier aerial robots are already tackling chronic oil theft and gathering valuable farming intelligence.

Afrotech's plan is a network of droneports connected by virtual skyways. Its brick-vaulted, avant-garde, light-footprint buildings have been designed by Foster + Partners to act as "dispersed infrastructure" that will house health clinics, digital fabrication shops, drone manufacturing and post rooms and act as e-commerce hubs.

The first droneports will be in western Rwanda. Exact locations will be finalised this summer, with construction due to begin later this year. Three are planned by 2020, covering 44% of the country. Initially, a Redline service – a drone route for medical and emergency use – will test the technology's worth, carrying medical supplies, up to 10kg over distances of up to 100km. A commercial cargo Blueline is planned for 2019, taking 100kg payloads up to 200km by 2025.

Afrotech director Jonathan Ledgard says cross-border flights could be an economic game-changer in a continent where UN figures put intra-African trade at only around 11% and only 16% of thoroughfares are paved – and that's without topographical challenges such as those that Rwanda, the Land of a Thousand Hills, has to live with.

Andreas Raptopoulus, the founder of US drone start-up [Matternet](#), believes Africa's infrastructural immaturity is a plus: "Following the lead of road systems in the West is a nearly impossible task for Africa. You're talking about a massive infrastructure investment and a huge ecological footprint. If you were to deliberately plan out an approach to transportation and logistics in Africa, would you do it in the same way? The answer is no. You would use a few different modes of transportation – and one would be an aerial method like the drone network."

Ledgard offers a specific example of the role drones could play. "Remember that Africa has regional free trade agreements. Cargo drones can take advantage of those. One example would be cross-border flights over Lake Victoria from Mwanza in Tanzania up to Kisumu in Kenya and across to Entebbe in Uganda. If the industry is built with transparency, including CCTV of loading bays and blockchain software on logistics, there is every reason to hope it will be easier to track, and thus tax, than other transport systems."

After a decade as *The Economist's* East Africa correspondent, Ledgard believes that technology holds the key to the continent's prosperity. Roughly three quarters of the population are under 25. Nine out of 10 Kenyans now own a mobile and new smartphones, costing \$30 but with top of the range capabilities, will become available within two years. The continent's youth, passion for digital technology and need to innovate to solve the problems it faces, could help drones become a viable alternative to more expensive and inflexible infrastructure such as roads and rails.

Ledgard foresees three stages of development. At first, small payloads will travel between government offices, mines, oil and gas installations, and ranches. Routes between industrial centres and cities will then open up which will facilitate, he believes, a flourishing of e-commerce.

"Drones can speed up the economic metabolism of smaller towns and enable new business models such as cottage industry manufacturing," he says. "The primary focus of Redline and the biggest commercial opportunities for Blueline are in the towns of 10,000-40,000 people. Connecting them – and linking to the economies, health and services of large towns – will really improve outcomes for large numbers of people."



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