

# Drones delivering packages in cities won't take off – here's why

by [Richard Andrew Williams](#), [Heriot-Watt University](#)

You may have gasped with disbelief the first time you saw a photograph of a drone home-delivering a box from Amazon or cakes from a bakery or carrying a bag of crisps. Until recently, this was the stuff of science fiction. Your initial reaction was probably: “Amazing ... but will it ever take off?”



Drones – or unmanned aerial vehicles, as we once called them – have now become capable of lifting and delivering on the back of continued research and technological ingenuity. Amazon has recently been trialling drones [in Australia](#) and [the UK](#), but don't get too excited: this is likely to be an exception rather than a norm. The practical reality of using drones in cities remains far away and is getting ever more distant.

There are already too many potential problems to let drones fly with sufficiently loose restrictions in cities to make a delivery business viable. One major issue is drones interfering with aircraft, thanks to surging numbers of [near-misses](#). Drones are also [increasingly](#) being used to fly drugs and other contraband into prisons.

In the US, there have been [fears about](#) camera-equipped drones stalking celebrities for paparazzi. There have also been stories about invasive drone surveillance, both on behalf of [the state](#) and [private individuals](#).

# Drone law

The biggest backlog of legal cases in the US [is reportedly](#) drone claims over issues including safety, noise, damage, personal intrusion and privacy. The whole area is a growing business for lawyers, with [drone law journals](#) springing up and fierce debates over whether, [for example](#), drones fall within the definition of aircraft for legal purposes.

New US flight rules introduced last August did lead some optimists to [predict](#) a new business opportunity that could create 100,000 new jobs, but the reality is that the whole sector is in a mess. The US Federal Aviation Authority [has explicitly](#) said drone deliveries are off limits, at least pending further research into their consequences.

At the same time, technologies are emerging that are designed to down drones. Your initial reaction might be that these will never work either, but I'm not so sure.

A great recent [British engineering invention](#) is the SkyWall100. It looks like a bazooka gun and uses laser-guided targeting to fire a ball. This opens into a net that engulfs the drone and brings it to earth under a parachute. It went on sale late last year and is retailing at between £50,000 and £65,000 depending on the size of the order. So far, it has attracted a promising level of interest.

The SkyWall100 is safer and less messy than shooting down drones with bullets, yet it opens up a cavern of legal ambiguities. In the UK, for example, it's classed as a firearm so can only be owned by someone with the appropriate licence – restricting them mainly to the police or military. The US has looser firearm restrictions, of course, but firearms still generally can't be discharged within city limits. However, the SkyWall100 is not classified as a firearm in the US, so it can be discharged anywhere.

Among [other techniques](#) for taking out drones, one is the Battelle DroneDefender, which is a large gun that fires a “cone of energy” at a device that disrupts GPS systems. So far, these are only in use by the military and not permitted for public sale.

## Going down ...

If the likes of the SkyWall100 are going to let people prevent drones from moving over their private property to avoid their nuisance, noise and frankly hazard of failure, a new sport of “drone downing” could easily become extremely popular in the coming years – at least in America. Drone-downing raises the alluring prospect of capturing free booty if it strays illegally into your property. So what constitutes illegal?

While I stress I am no lawyer, the US rules for protecting your drone from such potshots [would appear](#) to be [as follows](#). It must weigh less than 25kg and can't be out of your line of sight or higher than 400ft in the air. It can only be flown in daylight, and at dawn and dusk it needs special lights to make it visible. It also can't be flown over groups of people or near stadiums or airports.



Mission: impossible?

[Alex Kee](#)

In the UK, [the rules](#) are similar, but with slightly tougher weight restrictions and additional requirements – it must be at least 150 metres from a building and 50 metres from a person or vehicle. If I was planning to build a shopping or pizza delivery business based on using drones that delivered to homes in cities, restrictions like these would make me more than a little jittery.

Put all this together and it's virtually impossible to see drone deliveries becoming viable in cities. It might be a different story in remote locations where special deliveries

may be deemed acceptable and welcomed, but otherwise I'm afraid this is one vision of the future that has no chance of coming to pass. It is an example of a clearly brilliant concept that is colliding badly with human nature and reality.

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