

# *THE FUTURE OF DELIVERY DRONES*

THE SLOW COLLAPSE OF DRONE DELIVERY DREAM. *WILL THEY EVER TAKE OFF?*



(Tech vision, 2020)

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# The future of delivery drones

## *The slow collapse of drone delivery dream. Will they ever take off?*

Drones were presented as the future of transportation and a breakthrough technology for big logistics companies like DHL. In 2013, Amazon announced drone delivery service as an experiment. Customers around the world cheered in excitement as it meant a package could be delivered to your doorstep within 30 minutes of placing the order. Competitors of Amazon and other logistics companies rushed to invest in drone technology. Stock price of Amazon went through the roof as many saw this as a step towards the end of shopping at the traditional brick and mortar stores.

### **Why are drones struggling to take off?**

After 9 long years and several trials, it has failed to deliver on its promises and the hype around drones has slowly died down. Since the beginning, drone delivery was plagued with issues and has failed to overcome them. Progress has been slow, even for companies as big as Amazon, DHL, and UPS. Online ordering has boomed especially since the beginning of Covid-19 pandemic. Yet, the skies are still not filled with drones delivering groceries to your doorstep. Even in ideal circumstances when most of the population stayed at home, ordered even basic necessities online and only essential shops stayed open, drone delivery failed to take off and there are major hurdles in its way which have halted its universal adoption.

### ***The last mile problem***

One of the main causes of its steep fall in popularity is the notorious “last mile

problem”. In supply chain management the “last mile” is considered to be the most difficult part of the supply chain which is also the most inefficient. Drone delivery has failed to alleviate the stress a supply chain faces during its last mile before it is delivered to a customer. In fact, drones face several additional challenges during the last mile. Once a drone reaches its destination, what exactly should it do? Dropping the package in the backyard of a house might damage the contents inside, waiting for the customer to open the door wastes valuable time, leaving it on the front door may result in the package being stolen or a curious household pet chewing the box.

What Makes People Anxious About Drone Delivery?

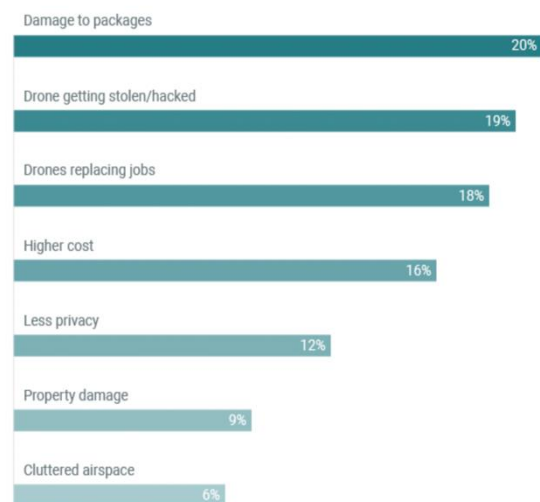


Figure 1 – Survey results (Panko, 2020)

### ***Restricted airspace***

Many cities around the world have restricted airspace and no fly zones. This limits the coverage area of a drone and adds additional flying time if it has to fly around the restricted airspace to reach its

final destination. Planning efficient flying routes for drones could very easily turn into a logistical nightmare.

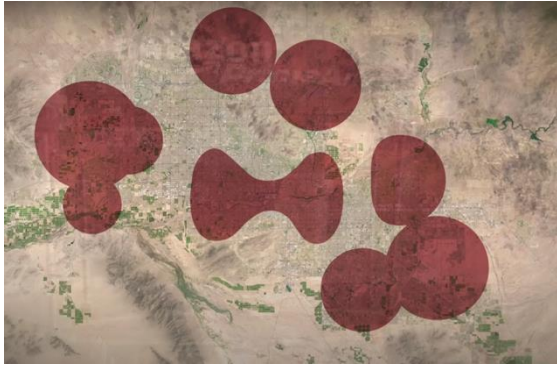


Figure 2 - Restricted airspace map of Phoenix, Arizona (Federal Aviation Administration, 2022)

### ***Drone abuse***

Many people are against the introduction of drones due to privacy concerns and do not want drones flying over their property, while others prefer to shoot them down for fun. Drones are expensive machines and losing these machines to vandalism can cause unnecessary losses for a company.

### ***Limited batteries equal limited flying***

One of the biggest problems every electric device faces is battery power. Batteries also degrade over time and need to be replaced. Weather conditions can have a huge impact on the range of a drone which also makes the range very unpredictable. For example, a windy day can dramatically reduce the range of a drone on a given day and making calculations to ensure there is a drone available at the right time to deliver an order on time can be very difficult.

### ***Visual sensors***

Although visual sensors on modern drones have improved greatly in the past few years, they are still not perfect for detecting small flying objects such as other small birds. There have been several reported incidences where drones crashed

into power lines which resulted in a complete blackout for a neighborhood.

### **What is being done?**

Drones have a lot of potential, but they have a long way to go before they can completely replace delivery vans although they can and, in many ways, already are assisting by restocking delivery vans which are in route to rural areas. In the developing world, where infrastructure is in a bad state, DHL has partnered with GIZ and drone maker Wingcopter to deliver essential medical supplies to remote regions of Africa. In disaster struck areas, drones are being used by rescue services to surveil or send emergency supplies that are critically needed.



Figure 3 - DHL parcelcopter in action (DHL, 2022)

### **What should be done in the future?**

It is important to shift focus from finding use-cases that drones can fulfill to finding use-cases that “only” drones could fulfill. While at the same time working on advancing battery and visual sensor technology and modify first generation drones to adapt to the laws and expectations of the society.

“ I don't expect drone deliveries to never happen, but they may only play a big role where it is economically beneficial to use them.

(Benowitz, 2021)

Drones might not become the most popular form of delivering groceries or packages from Amazon to your doorstep anytime soon, but as the early use case matures, acceptance will rise, and innovators will find more uses that only the novel technology can fulfill. Eventually it will reach closer to the vision that drone technology once promised at the peak of the hype and behind delayed expectations, before an average person realizes, drone technology will have actually made a major impact on the world.

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