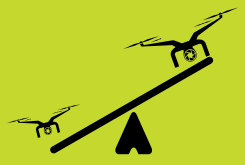
# SEND IN THE DRONES

## Fast facts.

Many kinds of drones (also called unmanned aerial vehicles or “UAVs”) have been designed to suit different applications. Drone investment began with the military, which is still about 70 per cent of the market according to a 2016 report from Goldman Sachs, but delivery and monitoring functions are rapid-growth markets.

- Most people are familiar with “hobby” drones that range in weight from about 0.3 to 2 kg, while the average carrying capacity for commercial drones ranges from 20 to 220 kg. Yes, that means some drones with special motors can carry a human being! (But for now, plan on still driving your kids to school…)



- Early enthusiasm for Jetson-style delivery drones has encountered real-word obstacles. According to Jeff Wilke, CEO of Amazon Worldwide Consumer, the company has built electric drones that can fly up to 15 miles and deliver packages under five pounds to customers in less than 30 minutes. Challenges include battery power for return trips, municipal air space restrictions, secure delivery, and other issues.
- A Price Waterhouse Cooper study estimates the global drone market at $127 billion, though non-military applications are currently a much smaller (though fast-growing) market.

- Drones are being used for environmental monitoring purposes and are part of daily operations across industries as varied as insurance, agriculture, and journalism. Consulting firm BCG estimates the industrial drone fleet in Europe and the US will be $50 billion by 2050, with more than a million units in operation.

- Drones are used for industrial inspections, primarily in oil and gas, energy, infrastructure and transportation fields. Most inspections are close (within three meters) and low since they are examining equipment that is near or on the ground. Usage is expanding into surveillance of coastal areas because their digital, easy-to-compare datasets are well suited to monitoring soil erosion, while 3D point cloud outputs allow accurate volume calculations. Volunteers for the Amazon Rainforest Conservancy [https://amazonrainforestconservancy.com] used drones to characterize the forest canopy and biota of the lands it protects in the Peruvian Amazon.

## USEFUL LINKS

Environmental monitoring drones
http://scentroid.com/scentroid-dr1000/

Environmental drone applications
https://blog.ferrovial.com/en/2017/06/drones-for-environmental-monitoring/

Encryption software for drones
https://www.sensefly.com/2019/11/25/emotion-flight-planning-software-new-encryption-standard-multispectral-rtk/

Top 10 drones for environmental monitoring
https://www.outstandingdrone.com/monitor-environmental-concern-drones/

Drones usage in environmental monitoring and disaster management
https://link.springer.com/chapter/10.1007/978-3-319-91068-0_3

Long-range drones
https://3dinsider.com/long-range-drones/

Market analysis
https://www.toptal.com/finance/market-research-analysts/drone-market

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