

WHITE PAPER

The Future of Drone Delivery

A WORLD WITHIN REACH



WHITE PAPER
→ DRONE APPLICATIONS
NEXT-GEN DELIVERY

draganFLY
INNOVATIONS INC

→ WHITE PAPER

CONTENTS

P4

The Future of Delivery

P7

Medical Supplies

P11

Emergency Services

P13

Remote Communities

P15

Last-Mile Delivery



DISCLAIMER

Draganfly Inc. ("Draganfly" or "the Company") is committed to delivering new-generation drone technology and hardware. The Company is providing the following white paper (and associated communications) for general information and educational purposes only. It is not intended as a substitute for commercial, financial, or legal advice from a licensed professional. The markets covered throughout are complex and require significant due diligence. As such, we encourage readers to seek professional services before implementing strategies based on the information.

We do not guarantee the completeness of any information provided in this report or across any associated communications. The information provided within should be used as a backgrounder for additional research. Please understand your risks before taking action, and expand your research beyond these materials to make fully informed decisions.

This report relies on various sources, which we believe to be reliable, credible, and accurate — however, we cannot guarantee this. Although every effort has been made to ensure that the information provided is accurate, information of this nature is likely to change and evolve. As such, we can not be held responsible or liable for inaccuracies, errors, or omissions, nor any damages resulting from the use of the information and data. We cannot guarantee that the report and its associated materials will always be available. We also do not have control over external content that is linked to and cannot be held responsible for outcomes resulting from the use of said content. The inclusion of any links, unless otherwise expressly stated, should not be seen as an endorsement or recommendation of that website or the views expressed therein.

By navigating this report and associated web content, you expressly agree that Draganfly is not responsible for personal and professional decisions made based on said content, regardless of circumstances.

For any questions, please email us: info@draganfly.com

FORWARD-LOOKING STATEMENT

This Impact Paper contains forward-looking statements, which hold inherent risks and uncertainties, and a number of factors could cause different results from those posed in any forward-looking statement. These factors include but are not limited to: growth of the referenced markets, market volatilities, local and global economic conditions, evolving growth strategies, evolving regulations, and shifting business conditions. In some cases, forward-looking statements can be identified by words or phrases such as "may," "will," "expect," "anticipate," "target," "aim," "estimate," "intend," "plan," "believe," "potential," "continue," "is/are likely to" or other similar expressions. All information provided in this paper is as of July 2022, and Draganfly Inc. undertakes no duty to update such information.



draganfly
INNOVATIONS INC



→ DRONE DELIVERY

BACKGROUND

The Future of Drone Delivery

Demand for drone hardware and services has never been greater. From emergency medical deliveries to agricultural management – community, government, and corporate drone usage is expected to see enormous growth up to and beyond 2028.

“OVER THE PAST THREE YEARS, THERE HAVE BEEN OVER 660,000 COMMERCIAL DRONE DELIVERIES TO CUSTOMERS... AS OF EARLY 2022, WE ESTIMATE THAT MORE THAN 2,000 DRONE DELIVERIES ARE OCCURRING EACH DAY WORLDWIDE.”

MCKINSEY GROUP



Critical Delivery Applications

Medical

EMS

Remote



Global Delivery Challenges

- Long delivery times
- Emergency scenarios
- Medical product lifespans
- Safety and access
- Complex logistics



Drone Delivery Solutions

- Reduce delivery and response times
- Greater operational efficiency
- Increased safety
- Cost savings



→ DRAGANFLY

COMMANDER 3XL



The Swiss Army Knife of drones.

A HIGH-ENDURANCE, WEATHER-RESISTANT, MULTI-ROTOR UAV THAT'S EASY TO ASSEMBLE AND TRANSPORT. IDEAL FOR HIGH-STRESS, HIGH-RISK APPLICATIONS DUE TO EASE OF USE AND ABILITY TO RAPIDLY DEPLOY.

The Commander 3 XL Drone supports automated and manual flight, making it an ideal choice across diverse applications like safety and agriculture.

Designed for easy assembly and rapid deployment, this 'Swiss Army Knife' of drones is capable of drop and winch-down systems to transport up to 26 pounds of payload. It performs extremely well in light rain and snow.

Technology

- Components designed to ensure the airframe can pack down into a transportable case
- High-endurance, electric multi-rotor
- A simple rectangular tube fuselage
- Patented carbon fiber-folding airframe with interchangeable payloads

XL Specifications

24-mile
flight range

45-mile
max airspeed

50-min
flight time



SOURCES: VERIFIED MARKET RESEARCH, RESEARCH & MARKETS, DRAGANFLY, MCKINSEY

→ BACKGROUND

"THE OUTBREAK AND WIDE SPREAD OF THE PANDEMIC HAVE LED TO AN INCREASE IN DEMAND FOR AND USE OF DRONES..."

RESEARCH & MARKETS

Pandemic Impact

Spurred by the increased need for medical supplies during the pandemic, delivery services are anticipated to continue leading global drone demand.

Overview: Global Drone Requirements

- Faster delivery of medicines during emergencies
 - Rapid pharmaceutical delivery
 - Blood, vaccines, anti-snake venom, emergency medicines, and defibrillators in rural areas
 - Lab specimens, paperwork, prescriptions
-

Regulatory Overview

Complex U.S. drone regulations still trail more liberal air spaces like Canada and Europe. However, as of 2021, FAA rules now allow drones to fly over structures and outside of a pilot's line of sight, indicating an evolution towards drone acceptance and increased delivery allowances.

Going forward, we are likely to see regulatory variations based on region and population size, with more relaxed regulations in suburban, rural, and remote areas.

Safety

When compared to on-road deliveries, helicopter search and rescue, on-foot searches, and battlefield deliveries, drones offer a far safer option for search, rescue, and medical supply delivery.



SOURCES: GRANDVIEW
RESEARCH, FORBES, ESRI

→ COMMANDER 3 XL



Components

- Propellers: quick-release or folding
- Two quick-release arm assemblies
- Landing folds below each motor along the length of the arm
- Batteries semi-permanently attached to carrier plates, allowing for automatic connection

Key Features

Significant Payload Capacity → carries 26 pounds for approximately 20 minutes

Weather-Resistant Design → strong performance in light rain and snow

Extendable Range → multiple configurations for radio equipment, including point-to-point and cellular link

Timely Deliveries → utilizes drop or winch down systems to deliver payloads

Secure Communications → North American-built flight controllers, sensors and radios

"AFTER YEARS OF RESEARCH, TESTING, AND REGULATORY CHANGES, THE IDEA OF AIRBORNE DRONE DELIVERIES FOR GROCERIES AND OTHER GOODS IS CLOSER TO REALITY."

ESRI



→ BACKGROUND

Infrastructure

Infrastructure gaps and issues can cost countries trillions in lost GDP. From truck delivery traffic that deteriorates roads and bridges to the creation of smart cities – drones will have a significant role to play in reducing the need for rigorous infrastructure repair and complex management.

Supply Chains

Wrong turns are costly for businesses and people alike. The resulting delivery delays and increased labour expenditures mean that bottom lines – and even lives – can be put at risk.

When compared to road delivery operations (trucks, boats, bikes, etc.), drone delivery can offer very rapid and economical delivery, over vast terrain.

SOURCES: GRANDVIEW RESEARCH, COUNCIL ON FOREIGN RELATIONS

→ DRAGANFLY

HEAVY LIFT

THE HEAVY-DUTY * INDUSTRIAL UAV FOR RAPID DELIVERY



Draganfly's Heavy Lift Drone is a versatile, industrial, multi-rotor unmanned aerial vehicle (UAV) that is designed to lift more and fly further.

Capable of automated missions and manual flight operations, this robust UAV has a payload lift capacity of 67 pounds and a flight time of up to 55 minutes. The result: high-capacity deliveries over wide areas.

The Heavy Lift Drone is designed and manufactured in North America, and is compatible with many interchangeable payloads like optical and thermal imaging solutions, specialized delivery containers, communications, and LiDAR systems.

Heavy-Duty Drone

This industrial UAV handles heavy winds and high elevations with ease. The lifting capacity allows for flexibility when carrying large, high-end sensors like hyperspectral and bathymetric LiDAR to conduct large-area surveys.

Delivery Near & Far

The modular parcel delivery system payload box can fit objects and parcels up to 15" x 17" x 34" in size. Capable of 30-km range, this system can be used as a low-cost, highly efficient automated transportation method.

Heavy Lift Specifications

67-lb
payload

55-min
flight time

30-km
range



* Subject to TCAA and FAA regulations.

→ DRONE DELIVERY

MEDICAL

Beyond the Call of Duty

From an aging global population to growing national security threats, refugee crises, and pandemic impact – efficient delivery of life-saving medical supplies grows more critical every day. As a result, healthcare delivery drone technology has become top-of-mind for communities, governments, and corporations.

Public Health

For battlefield response, disaster relief, and more, drones are deployed to support: casualty data collection, hazard detection, epidemiology, communications, and delivery of vaccines, drugs, blood, organs, defibrillators, etc.

Medical Drones

Medical drones have proven to be a more economical and safe option when compared to plane and helicopter transport. In dangerous regions like war zones, refugee camps, and natural disaster areas, drone delivery options become all the more important.

"THE COVID-19 PANDEMIC, AGING POPULATIONS AND THE INCREASING SHORTAGE OF SKILLED WORKERS POSE GREAT CHALLENGES FOR THE DELIVERY OF SUPPLIES FOR PEOPLE WITH AND WITHOUT CARE NEEDS."

STEPHAN, ET. AL.

Pandemic Impact

In the wake of the pandemic, governments and corporations have placed renewed investment into drone delivery, particularly in North America, Asia-Pacific regions, and developing countries, to address drug and respiratory device demand.

SOURCES: THE LANCET, GRANDVIEW RESEARCH, NAM, DRAGANFLY, STEPHAN ET AL.



→ APPLICATION

KEY USES

- War-zone response and delivery
- Health supply logistics
- Pharmaceuticals
- Medical supplies
- Blood and organ transfers
- Refugee supplies
- Lab specimens
- Medical device transport

NETWORKS

- Battlefield hospitals
- Refugee clinics
- Diagnostic laboratories
- Pharmaceutical companies
- Medical device companies
- Blood banks
- Public health departments





→ MEDICAL DELIVERY IN FOCUS

RWANDA

Health SDGs

In efforts to meet the UN's Sustainable Development Goals related to childhood and maternal mortality, sub-Saharan African countries are under pressure to deliver safe blood through increasingly strained supply chains. It is a task that has increasingly been supported by drone delivery, to treat anaemia and support surgery:



54%

of blood transfusions in developing nations are given to children

70%

of all blood transfusions are for young children with severe anaemia

Rwandan Drone Impact

In 2017, Rwanda first deployed drones to deliver blood to remote health facilities, resulting in significantly faster deliveries and reduced product expiration, by 67% over the entire year.

Because blood products, vaccines, and tests are so time sensitive, the ability to deliver efficiently and economically is of the highest importance to these communities.

→ IN FOCUS



BLOOD DELIVERY

"MOST TRANSFUSIONS ARE GIVEN TO CHILDREN AND WOMEN AS THE RESULT OF MALARIA OR OBSTETRIC COMPLICATIONS, AND TO OTHER PATIENTS BECAUSE OF ROAD ACCIDENTS. AS SUCH OCCURRENCES ARE AMONG THE LEADING CAUSES OF MORTALITY IN RWANDA, BLOOD PRODUCTS ARE ESSENTIAL FOR EMERGENCY DEPARTMENTS."

[NISINGIZWE, ET AL.](#)

"AN ESTIMATED 2 BILLION PEOPLE LACK ACCESS TO BASIC MEDICINES – PARTLY BECAUSE THEY LIVE IN REMOTE LOCATIONS."

[WEF](#)



SOURCES: THE LANCET, DRAGANFLY, WORLD HEALTH ORGANIZATION, NISINGIZWE ET AL., WEF



→ USE CASE STUDY

UKRAINE

Draganfly in Ukraine: Delivering Humanitarian Aid

As of Summer 2022, the war in Ukraine has cost the lives of at least 5,000 civilians and thousands more service women and men. Casualties have reached the tens of thousands, making rapid delivery of medical supplies to battlefields and civilian regions more crucial by the hour.

In Spring 2022, Draganfly partnered with Coldchain Delivery Systems, a leader in medical material management, to deploy medical-response drones to Revived Soldiers Ukraine (RSU), a non-profit organization. Once on the ground in Ukraine, Draganfly's professional pilots provided virtual training to RSU's drone operators to deliver support to Ukrainian service men and women.

"IN ADDITION TO AMBULANCES AND CARS, HIGH-TECH SOLUTIONS LIKE DRONES ARE CRUCIAL FOR SAVING LIVES. WHILE WE HAVE ACQUIRED A SMALL FLEET, WE NEED MORE AS THE CRISIS CONTINUES. DRAGANFLY'S SPECIALIZED DRONE SYSTEMS WILL ENABLE OUR CREWS ON THE GROUND TO ACCESS HOTSPOTS AND PROVIDE HUMANITARIAN AID."

IRYNA VASHCHUK DISCIPIO, PRESIDENT, RSU

A LIFE-SAVING DELIVERY SYSTEM

Draganfly's Medical Response Drone is equipped with a temperature-managed Medical Response Payload Box, which can transport up to 35 pounds of temperature-sensitive medical supplies, like blood, pharmaceuticals, insulin/medicines, vaccines, water, and wound-care kits. The drone and payload are designed to be configurable for ease of access or drop delivery.



→ UKRAINE IN FOCUS

CRITICAL AREAS

- battlefield response and delivery
- medicine shipments
- medical device transport

> 11,000^{*}
civilian casualties

> 12 million
displaced



* OHCHR estimates that the actual numbers are considerably higher.



SOURCES: OHCHR, DRAGANFLY



→ UKRAINE MEDICAL DELIVERY

“THE SITUATION IN UKRAINE CONTINUES TO CHANGE RAPIDLY. DRAGANFLY’S MEDICAL RESPONSE DRONES WILL HELP ENSURE THE TIMELY DELIVERY OF TEMPERATURE-SENSITIVE MEDICAL SUPPLIES AND LIFE-SAVING EQUIPMENT TO DANGEROUS AND HARD-TO-REACH AREAS.”

WAYNE WILLIAMS, FOUNDER OF COLDCHAIN DELIVERY SYSTEMS

The Logistics of Humanitarian Aid

When combined with training, donations, and deliveries, drones have been instrumental in scaling up humanitarian aid operations in Ukraine. Draganfly delivered drones in Spring 2022 and will provide additional medical response and search-and-rescue drones later in the year.

“THE CRISIS ACROSS UKRAINE CONTINUES TO CREATE CHALLENGING CONDITIONS FOR EMERGENCY CREWS TRYING TO PROVIDE AID TO THOSE IN NEED. OUR MEDICAL RESPONSE DRONE AND SUBSEQUENT DRONE SOLUTIONS WILL HELP RSU EFFECTIVELY ACCESS HOTSPOTS AND DELIVER CRUCIAL MEDICAL SUPPLIES AND EQUIPMENT TO AFFECTED UKRAINIANS,” SAID CAMERON CHELL, CEO OF DRAGANFLY.

CAMERON CHELL, CO-FOUNDER OF DRAGANFLY



→ UKRAINE

CRITICAL AREAS

> 5,200*
civilians killed

> 8,400*
civilians injured

* As of Sept. 12, 2022: OHCHR estimates that the actual numbers are considerably higher.



SOURCES: COLDCHAIN DELIVERY SYSTEMS, DRAGANFLY

→ DRONE DELIVERY

EMERGENCY

Search, Supply, Rescue

As human impact on the environment grows, so do the global ramifications, ranging from natural disasters like hurricanes and landslides to infrastructure collapse. Often, it's those in developing nations, with fewer resources, who must bear the greatest losses from these events. As such, tools like drones have a significant role to play in keeping people safe and reducing the cost of emergency response.

Emergency Issues

- Landslides
- Floods
- Hurricanes
- Drought
- Famine
- Highway Accidents
- Climbing Accidents
- Forest Fires
- Ski Accidents
- Earthquakes

"WITH INCREASING GLOBAL SURFACE TEMPERATURES THE POSSIBILITY OF MORE DROUGHTS AND INCREASED INTENSITY OF STORMS WILL LIKELY OCCUR. AS MORE WATER VAPOR IS EVAPORATED INTO THE ATMOSPHERE IT BECOMES FUEL FOR MORE POWERFUL STORMS TO DEVELOP."

UNITED STATES GEOLOGICAL SURVEY

Drone Solutions

By combining drone types — search-and-rescue and larger delivery drones — rescue teams can implement robust search, supply, and recovery efforts before teams reach the emergency area. This not only improves the chances of survival but also improves safety for emergency crews.



→ EMS

KEY USES

- Drone first response
- Time sensitive events
- Search-and-rescue operations
- Remote, hard-to-reach locations
- Fire services
- Emergency medical services
- Disaster response

KEY BENEFITS

- Increase situational awareness
- Operational efficiency
- Real-time dual video
- Encrypted streaming
- Autonomy software
- Manual capabilities
- Remote communication
- Delivery of near real-time data
- Thermal sensor detection



SOURCES: DRAGANFLY,
USGS, DAUD, ET. AL.



→ EMERGENCY DELIVERY

"DRONES HAVE BEEN SHOWN TO SIGNIFICANTLY IMPROVE THE SURVIVAL RATE AND COST-EFFECTIVENESS OF EMERGENCY CARDIAC ARREST RESPONSE."

DAUD, ET AL.

Emergency Delivery Overview

Harnessing recent battery innovations, supplies can be delivered efficiently and quickly, bringing crucial supplies and equipment to dangerous or hard-to-reach areas. Rapid locating and delivery improve patient outcomes while establishing secure remote communications, patient evaluations, and data transmission ahead of EMS crew arrivals.

Temperature-managed payloads maintain cold chain requirements for sensitive medical supplies. This configurable hardware can be top or bottom-mounted, allowing for ease of access or quick-release missions.

"[STUDIES DEMONSTRATE] THE SUCCESSFUL TRANSPORT OF DISASTER MEDICAL ASSISTANCE TEAM EQUIPMENT, AED, INSULIN, AND EMERGENCY FOOD... DRONES ARE ONE OF THE MOST PROMISING DISASTER MITIGATION AND INTERVENTION STRATEGIES AVAILABLE AT THE MOMENT."

DAUD ET AL.



→ DRAGANFLY



KEY USES

Public Safety: Delivery & Assessment

- Collision reconstruction
- Site monitoring
- Search and rescue
- Digital surface modeling
- Tactical overwatch
- Fire services
- Simultaneous dual video stream

These drone systems can geolocate areas of interest, locate survivors, make temperature-sensitive deliveries – like blood, vaccines, and test samples – all while providing critical life-saving information before ground crews arrive on-scene. These systems are regularly able to find and delivery supplies to victims more quickly than in-person rescue teams.



SOURCES: DRAGANFLY,
DAUD ET AL.



→ DRONE DELIVERY

REMOTE

Communities within Reach

In developing and developed nations alike, and across vast rural landscapes, remote drone delivery will become ever more critical as pressures mount on global logistics, agriculture, supply chains, and medical services. Vast, geographically diverse regions like Canada, Australia, and the U.S. are likely to expand their drone usage to address dispersed populations.

Pandemic Pressures

As global economics, logistics, and medical response networks shift, so too will the need for efficient drone services and ongoing innovation. As a result, reliability and economics will remain top-of-mind for vulnerable remote and rural communities: everything from food and consumer goods to pharmaceuticals, medical supplies, and test kits.

"AT THE BEGINNING OF THE COVID-19 PANDEMIC, CASES AND DEATHS WERE CONCENTRATED IN LARGE URBAN CENTERS. HOWEVER, AS THE PANDEMIC PROGRESSED, RURAL COMMUNITIES BEGAN TO BEAR A HIGHER BURDEN FROM THE VIRUS."

MCKINSEY GROUP

Reinventing The Last Mile

The last mile of product delivery is often a costly logistical undertaking, and therefore potentially lucrative.

Thus, the rapid expansion of e-commerce offerings and demand for goods will continue to be supported by drone and service innovations, particularly across locations like islands, mountain ranges, and deserts.

SOURCES: SUAS NEWS, EMERGEN RESEARCH, MCKINSEY, UNIVERSITY OF CALGARY, CHITTA & JAIN



→ DRAGANFLY

KEY USES

- food delivery
- supplies
- disaster relief
- spare parts
- viral test kits
- postal services
- e-commerce
- security
- ship resupply
- humanitarian aid

BENEFITS

- **Safety** and speed
- **Cost:** drone delivery can be significantly more cost effective than road, sea, or plane transport; as much as 50% of the cost of operating cargo ships is reserved for human resources*
- **Automation:** reduces human error, allowing increased efficiency, especially as hardware and software is iterated upon
- **Reduced Carbon Footprint:** when compared to truck, car, ship, or plane delivery
- **Remote Access:** islands, Arctic regions, deserts, mountain regions

*SOURCE: BLOOMBERG



→ REMOTE DELIVERY

The Regulatory Environment

As drone usage grows, so too does the regulatory landscape. Regulations vary widely across nations, regions, and drone usage types, and they will continue to evolve.

While regulatory shifts will remain top-of-mind for commercial operations, they are expected to create a net positive, ensuring safety and reliability for remote and rural communities. There are ways to make an impact on the current regulatory environment, and Draganfly is actively pursuing opportunities to make a difference under current relations.

Downstream Community Impact

The inherent scalability of drone services will continue to have positive implications for communities beyond delivery applications. By stimulating training, research and development, innovation investment, and STEM job creation, remote economies are likely to see tangential benefits from the growth of drone delivery usage and continued innovation.

Ongoing Research

While drone deliveries in crowded urban areas have proven challenging from a technical and regulatory standpoint, remote postal delivery testing is still receiving significant investment. From Singapore and Australia to Switzerland and Germany – postal services continue to invest in pilot programs on land and at sea.

“GARTNER PREDICTS THAT IN 2026, MORE THAN ONE MILLION DRONES WILL BE CARRYING OUT RETAIL DELIVERIES, UP FROM 20,000 [IN 2021].”

WIPRO



SOURCES: SUAS NEWS, WIPRO, UNMANNED AIRSPACE



→ DRONE DELIVERY

REGIONAL

Leading adopters include:

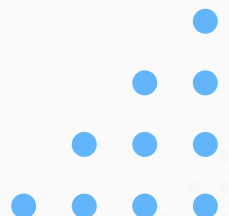
China, Japan: parcels and shipments

Rwanda, Ghana: medical supplies and test samples

Australia, Vanuatu: food, personal, and home care products

Finland, Iceland, Switzerland: food, medicines, retail products

U.S., Canada: various packages



→ DRONE DELIVERY

THE LAST-MILE IN CONTEXT

From Road to Air

For a small or medium-sized delivery company, missed turns aren't an annoyance, they're bad for business. Delivery companies collectively lose almost \$6 billion each year due to last-mile routing issues. These issues increase labour hours and cause delivery delays, which heavily impact bottom lines, customer experiences, and health.

Compared to road-based last-mile delivery – by car, van, boat, and bike – drone delivery consistently provides faster, cheaper, and more efficient delivery, per mile, over a longer range. What's more, the impact on infrastructure and the environment can be drastically lowered by drone usage.

In Focus: New York Medical Delivery

HOSPITAL DELIVERY

MONTEFIORE NEW ROCHELLE HOSPITAL → GLEN COVE HOSPITAL

Terrain: Separated by Long Island Sound

Door-to-door Drive: 1-hour drive, 28 miles

Drive from hospital to water: 6 minutes, 1.3 miles

Drone Delivery Results → only 9 miles over water

- Improved safety
- Shorter delivery times
- Reduced carbon footprint and GHG emissions
- Cost reductions: gas, labour, insurance

SAVINGS BREAKDOWN NYC DRONE MEDICAL DELIVERY

\$40

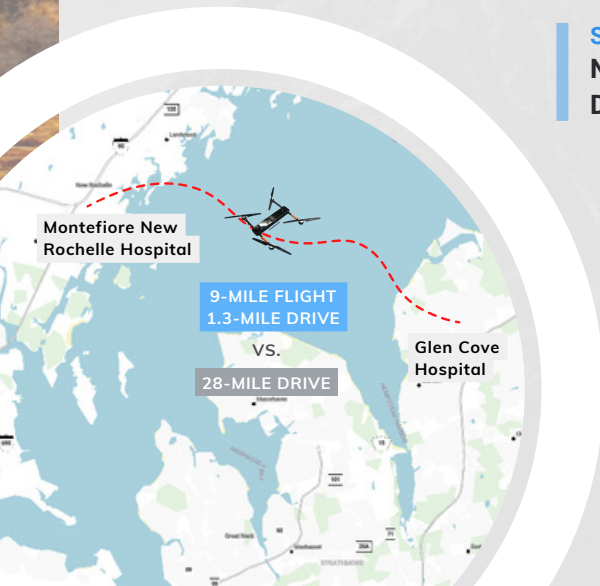
per trip

\$4K

in vehicle costs
over 100 trips

0.5 tons

of carbon emissions
over 100 trips



→ DRAGANFLY

AIR VS. ROAD

Cost → 10% less

to deliver via drone
vs. road transport

Speed → in minutes

vs. hours and days
for road transport

Infrastructure Impact

"BY AVOIDING THE CONGESTION THAT REGULARLY CLOGS DELIVERY ROUTES, DRONES NOT ONLY IMPROVE DELIVERY SYSTEMS BUT ALSO DELIVER ECONOMIC EFFICIENCIES THAT CAN PAVE NEW PATHS FOR BUSINESS DEVELOPMENT."

[TRUCKS.COM](https://www.trucks.com)

Environmental Impact of Traditional Transport:

Greenhouse Gas (GHG) Emissions

16% of U.S. GHGs
from transportation

11% of U.S. GHGs
from road emissions

41% of global GHGs from
medium and small
truck road emissions

SOURCES: FORBES, VISUAL
CAPITALIST, OPEN STREET MAP

→ DRONE DELIVERY

Last-Mile Growth & Pandemic Impact

Before the COVID-19 pandemic swept the world, locked communities down, and sent e-retail sales skyrocketing, businesses and people were already increasingly reliant on last-mile delivery of goods – and efficient logistics operations.

Online shopping is one of the most popular online activities across the globe, and by 2040, it's projected that almost all purchases will be completed online. In 2019, e-commerce sales worldwide reached US\$3.53 trillion and e-retail revenues are projected to double by the end of 2022, to US\$6.54 trillion.

The impact of online shopping on infrastructure and the environment is clear, with trucking now a major contributor to greenhouse gas emissions and infrastructure decline. As such, the potential for drones to improve logistics in suburban and remote areas grows yearly.

"TRANSPORTATION DURING THE LAST MILE IS AMONG THE MOST ENERGY CONSUMING OPERATIONS IN THE SUPPLY CHAIN DUE TO THE HIGH NUMBER OF SINGLE-PACKED PARCELS CARRIED IN COMMERCIAL VEHICLES OR PASSENGER CARS..."

CHALMERS UNIVERSITY OF TECHNOLOGY



→ DRAGANFLY LAST-MILE

Emission Reductions

84% less GHGs from drones than diesel trucks

94% less energy per parcel when delivered via drones vs. trucks

Booming E-Commerce & Logistics

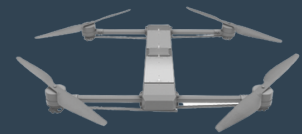
95% of purchases are estimated to be made online by 2040

\$6.54 trillion

projected e-retail revenue worldwide in 2022

43% of the logistics industry made up by trucking





30% increase of urban last-mile delivery emissions by 2030



SOURCES: FORBES, VISUAL CAPITALIST, CHALMERS UNIVERSITY, CARNEGIE MELLON UNIVERSITY, THE NEXT WEB



For more than two decades, Draganfly has been a leader in the professional drone industry, supporting clients with enterprise drone solutions, contract engineering services, custom software, professional UAV services, and more. To learn more about our legacy and the people who got us where we are today, visit our website, or send us a message.

 draganfly.com  info@draganfly.com  [draganflyinc](https://www.linkedin.com/company/draganflyinc)  [draganfly](https://twitter.com/draganfly)

NASDAQ: **\$DPRO** CSE: **DPRO** FSE: **3U8**

