



# DRONES AT WORK

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AUSTRALIAN INDUSTRY APPLICATIONS  
FOR DRONE TECHNOLOGY

# INDUSTRY APPLICATIONS FOR DRONES

- ✓ Agriculture Sector
- ✓ Airlines & Airports
- ✓ Asset Inspection
- ✓ Aviation
- ✓ Building Inspections
- ✓ Construction Industry
- ✓ Corporate Marketing
- ✓ Deliveries
- ✓ Education
- ✓ Energy
- ✓ Emergency Services
- ✓ Emergency Systems
- ✓ Entertainment
- ✓ Engineering
- ✓ Environment & Climate
- ✓ Urban Planning
- ✓ Government Sector



# INDUSTRY APPLICATIONS FOR DRONES

- ✓ Manufacturing & Inventory Management
- ✓ Mapping
- ✓ Media Management
- ✓ Mining Operations
- ✓ Police & Security
- ✓ Real Estate
- ✓ Realistic Future
- ✓ Healthcare
- ✓ Hospitality
- ✓ Sales & Marketing
- ✓ Shipping
- ✓ Special Occasions
- ✓ Tourism Industry
- ✓ Videography & Photography
- ✓ Weather
- ✓ Sports Events





# ECONOMIC IMPACT OF DRONES



## MEDIUM UPTAKE SCENARIO

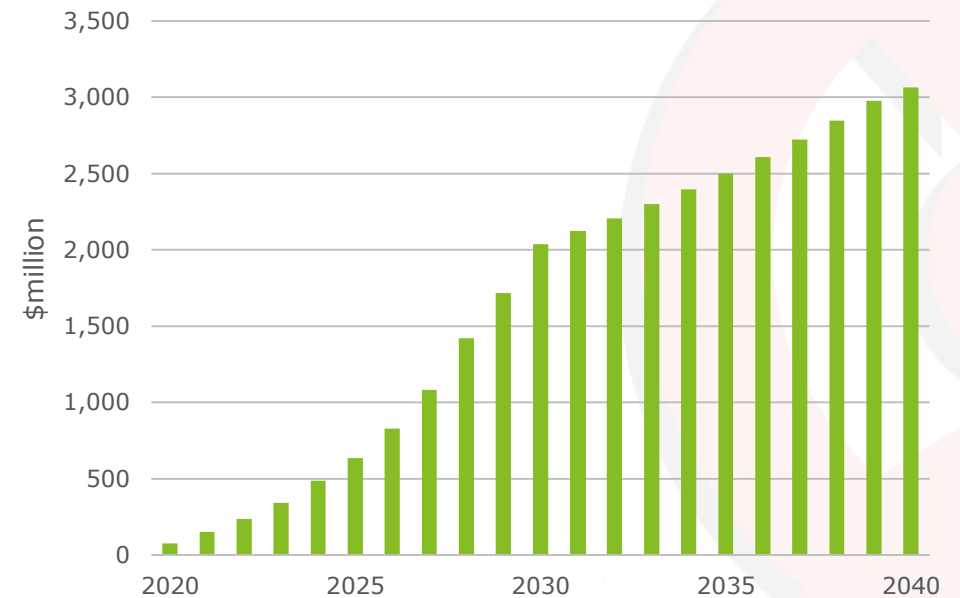
**AUSTRALIAN REAL GDP  
IS PREDICTED TO EXPAND  
\$14.5b**

Source: Economic Benefit Analysis of Drones in  
Australia

Department of Infrastructure, Transport, Regional  
Development and Communications

Deloitte Access Economics, 23 October 2020

**Australian Economy Wide Impacts: 2020 to 2040  
(Medium Uptake Scenario)**



# INDUSTRY IMPACT OF DRONES



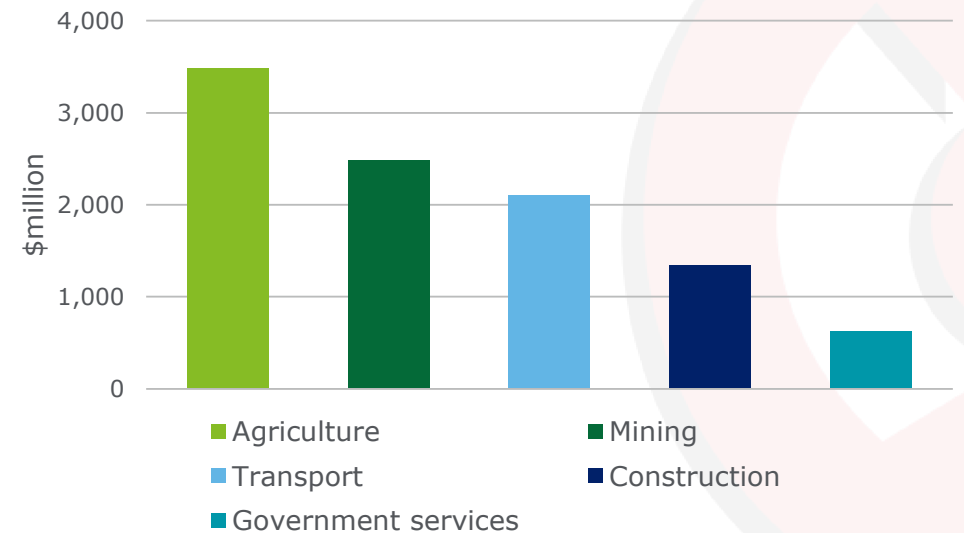
**DIRECT COST SAVINGS AT  
7% REAL DISCOUNT RATE  
\$9.3B**

Source: Economic Benefit Analysis of Drones in  
Australia

Department of Infrastructure, Transport, Regional  
Development and Communications

Deloitte Access Economics, 23 October 2020

**Australian Industry Impacts: 2020 to 2040  
(Medium Uptake Scenario)**



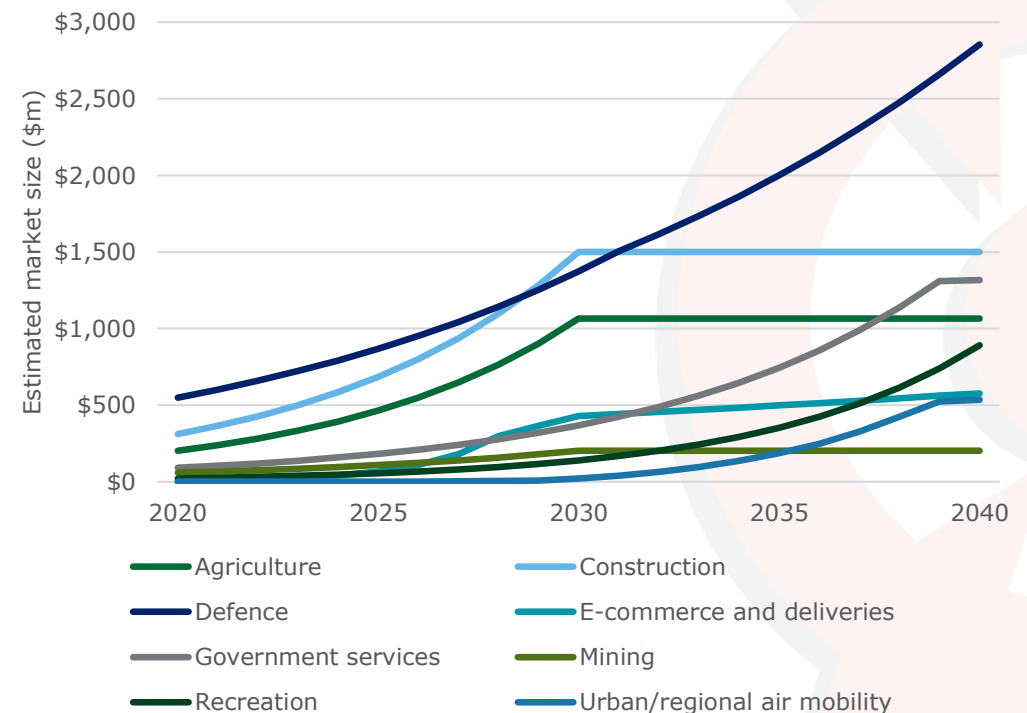
# DRONE INDUSTRY MARKET SIZE

Source: Economic Benefit Analysis of Drones in  
Australia

Department of Infrastructure, Transport, Regional  
Development and Communications

Deloitte Access Economics, 23 October 2020

**Australian Est. Market Size  
by Compelling Use Cases: 2020 to 2040  
(Medium Uptake Scenario)**



# INDUSTRY PENETRATION AND SIZE

Source: Economic Benefit Analysis of Drones in  
Australia

Department of Infrastructure, Transport, Regional  
Development and Communications

Deloitte Access Economics, 23 October 2020

## Summary Finding of Compelling Use Cases Including Market Analysis (Medium Uptake Scenario)

Use cases	TAM	Market penetration – 2040 (%)	Est. market size – 2040 \$m
Urban / regional air mobility	Airport taxi trips	Airport taxi passengers	1.5% to 25% \$285m
	Point-to-point trips	Other taxi trips	0.1% to 3% \$234m
	Regional air mobility	Short route domestic aviation	0.1% to 3% \$74m
E-commerce and deliveries	Express parcel deliveries	Express parcels	13% to 22% \$223m
	Food deliveries	Food deliveries	53% to 75% \$264m
	Regional and remote pathology deliveries	Pathology tests	4% to 9% \$88m
Agriculture, forestry and fishing (AFF)		AFF businesses	27% to 67% \$1,066m
Construction (Con.)		Con. businesses	41% to 75% \$1,501m
Mining (Min.)		Min. businesses	41% to 75% \$202m
Government services		Government spend	17% to 67% \$1,316m
Defence		Defence spend on surveillance	75% to 95% \$2,855m
Recreational		Population	2.5% to 40% \$891m

# AGRICULTURE SECTOR

- ✓ Plant Type, Count, Health & Height
- ✓ Infrared Sensing
- ✓ Fertilizer Spraying
- ✓ Crop ID
- ✓ Yield Monitoring
- ✓ Pest & Weed Control
- ✓ Stock Herding
- ✓ Feral Animal Monitoring
- ✓ Land Use
- ✓ Leaf Area Index
- ✓ Soil Type & Moisture
- ✓ Growth Stage
- ✓ Nitrogen Deficiencies
- ✓ Detasseling
- ✓ Soil Classification
- ✓ Spectral Imaging



# ASSET INSPECTIONS

- ✓ Solar Panels & Arrays
- ✓ Mobile Phone Towers
- ✓ Wind Turbines
- ✓ Roofs
- ✓ Power-lines
- ✓ Conveyors
- ✓ Radio Towers
- ✓ Dam Walls
- ✓ Bridges
- ✓ Offshore Rigs
- ✓ Pipes
- ✓ NERC ROW Monitoring
- ✓ Asset Verification



A line of drones, each carrying a white cube with yellow stripes, flies in a diagonal line across the sky. The background is a cityscape at dusk, with lights from buildings and streets visible. The sky is a mix of blue and orange.

# AVIATION INDUSTRY

- ✓ Asset & Plant Inspections
- ✓ Property Valuations
- ✓ Building Inspections
- ✓ Rooftop Inspection
- ✓ Solar Panel Inspection
- ✓ Roof Leakage Detection
- ✓ Property Restoration
- ✓ Property Maintenance
- ✓ Insurance Assessment
- ✓ Claims Adjustment
- ✓ Maintenance Surveys



# BUILDING INSPECTIONS

- ✓ Asset & Plant Inspections
- ✓ Property Valuations
- ✓ Building Inspections
- ✓ Rooftop Inspection
- ✓ Solar Panel Inspection
- ✓ Roof Leakage Detection
- ✓ Property Restoration
- ✓ Property Maintenance
- ✓ Insurance Assessment
- ✓ Claims Adjustment
- ✓ Maintenance Surveys
- ✓ Progress Monitoring & Reporting
- ✓ Photogrammetry 3D Models
- ✓ Pre-works Inspection



A construction worker wearing a white hard hat and a high-visibility yellow safety vest is seen from behind, holding a remote control. A drone is flying in the sky above a construction site with a building under construction in the background.

# CONSTRUCTION INDUSTRY

- ✓ Project Planning
- ✓ Liability Assessment
- ✓ 3D Scanning & Mapping
- ✓ BIM Creation
- ✓ Digital Terrain Mapping
- ✓ Sub-divisions
- ✓ Surveying
- ✓ Project Management
- ✓ Virtual View
- ✓ Site Documentation
- ✓ Construction Progress Monitoring
- ✓ Asset Inspections
- ✓ Construction Marketing



# CORPORATE MARKETING

- ✓ Marketing
- ✓ Sports
- ✓ Events
- ✓ Conventions
- ✓ Floating Advertising
- ✓ Trade Shows
- ✓ Product Launches
- ✓ Window Cleaning
- ✓ Mobile Advertising
- ✓ Virtual Tours





## DELIVERIES

- ✓ Medical Supplies
- ✓ Medication
- ✓ Groceries
- ✓ Parcel Post
- ✓ Mail
- ✓ Farm Direct Produce
- ✓ Take-away Meals
- ✓ Convenience Stores
- ✓ Beverages
- ✓ Restaurant Deliveries

# EDUCATION

- ✓ University Studies
- ✓ Aeronautical Studies
- ✓ Software Development
- ✓ Industrial Engineering
- ✓ Robotics Engineering
- ✓ 3D Printing
- ✓ Pilot Training
- ✓ Industry Application Training
- ✓ Photography
- ✓ Surveying
- ✓ Software Analytics
- ✓ Augmented Analysis
- ✓ Coding
- ✓ Algorithm Development
- ✓ Machine Learning
- ✓ Deep Learning





A thermal image of a residential building with solar panels. The image shows the roof and surrounding area with various temperatures indicated by colors. A semi-transparent black box is overlaid on the right side of the image, containing the title 'ENERGY' and a list of applications. The 'GLOBAL DRONE SOLUTIONS' logo is in the bottom right corner.

# ENERGY

- ✓ Infrastructure & Compliance Inspection
- ✓ Contaminated & Hazardous Areas
- ✓ Leakages & Spread Detection
- ✓ Energy Exploration
- ✓ Buildings & Transmission Efficiency Mapping



# EMERGENCY SERVICES

- ✓ Search & Rescue
- ✓ PFDs Delivery
- ✓ Thermo Sensing
- ✓ Natural Disasters
- ✓ First Aid Delivery
- ✓ Equipment Delivery
- ✓ Drone Ambulance
- ✓ Hazmat
- ✓ Arsonist Detection
- ✓ Surf Lifesaving
- ✓ Rapid Response



An aerial view of a massive crowd at night, illuminated by vibrant, multi-colored lights (red, blue, green, yellow) that create a dense, glowing pattern across the entire scene. The lights appear to be part of a large-scale entertainment event or festival.

# ENTERTAINMENT

- ✓ Music Festivals
- ✓ Concerts
- ✓ Videos
- ✓ Movies
- ✓ Celebrity Awards
- ✓ Light Shows
- ✓ Acrobatics
- ✓ 3D Gaming
- ✓ Drone Puppeteers
- ✓ Drone Racing
- ✓ Drone Combat
- ✓ Floating Projection Screens

# ENGINEERING

- ✓ Civil Design Mapping
- ✓ Asset Monitoring
- ✓ Photogrammetry Services
- ✓ Measurements (Lidar Services)
- ✓ Digital Elevation Modeling
- ✓ 3D Feature Generation
- ✓ Thermographic Imaging
- ✓ Lidar Services





# ENVIRONMENT & CLIMATE

- ✓ Land Cover Mapping
- ✓ Carbon Capping
- ✓ Renewable Energy
- ✓ Dumping Monitoring
- ✓ Waterway Monitoring
- ✓ Ice Flow Monitoring
- ✓ Wildlife Conservation
- ✓ Conservation Drones
- ✓ Wildlife Counts
- ✓ Animal Mapping
- ✓ Marine Biology
- ✓ Land Erosion
- ✓ Sample Collection
- ✓ Ecosystem Research
- ✓ Artificial Earthworms
- ✓ Artificial Bees





# GOVERNMENT SECTOR

- ✓ Law Enforcement
- ✓ Local, State & Federal Governments
- ✓ Search & Rescue
- ✓ Disaster Planning
- ✓ Public Safety
- ✓ Event Management
- ✓ Weed Reduction
- ✓ Working at Heights
- ✓ Asset Management
- ✓ Pest Control
- ✓ Waste Collection & Removal





# HEALTHCARE

- ✓ Medication & Prescription Delivery
- ✓ Blood Donation Delivery
- ✓ Lab Sample Collection & Delivery
- ✓ Vaccine Storage & Delivery
- ✓ Organ Transport
- ✓ Ambulance Drone

# HOSPITALITY

- ✓ Food Delivery
- ✓ Convenience Store Delivery
- ✓ Grocery Delivery
- ✓ Food & Beverage Service
- ✓ Drone Waiter





# MANUFACTURING & INVENTORY MANAGEMENT

- ✓ Manufacturing
- ✓ Assembly Lines Inspection
- ✓ Raw Materials Discovery
- ✓ Payload Delivery
- ✓ Equipment Transport
- ✓ Inventory Location
- ✓ Inventory Measurement
- ✓ Order Compilation & Inspection

# MAPPING

- ✓ Land Cover Mapping
- ✓ Forestry Mapping
- ✓ Biomass
- ✓ Disease Detection
- ✓ Environmental Mapping
- ✓ Hydrology & Geological Mapping
- ✓ Water Management Support Mapping
- ✓ Wind Farm Mapping
- ✓ Solar Power Plant Mapping
- ✓ Transmission Line Mapping
- ✓ Emergency Response Mapping
- ✓ Disaster Site Monitoring & Mapping
- ✓ Hazard Mapping
- ✓ Archaeological Site Mapping
- ✓ Surveying
- ✓ Mining & Resources







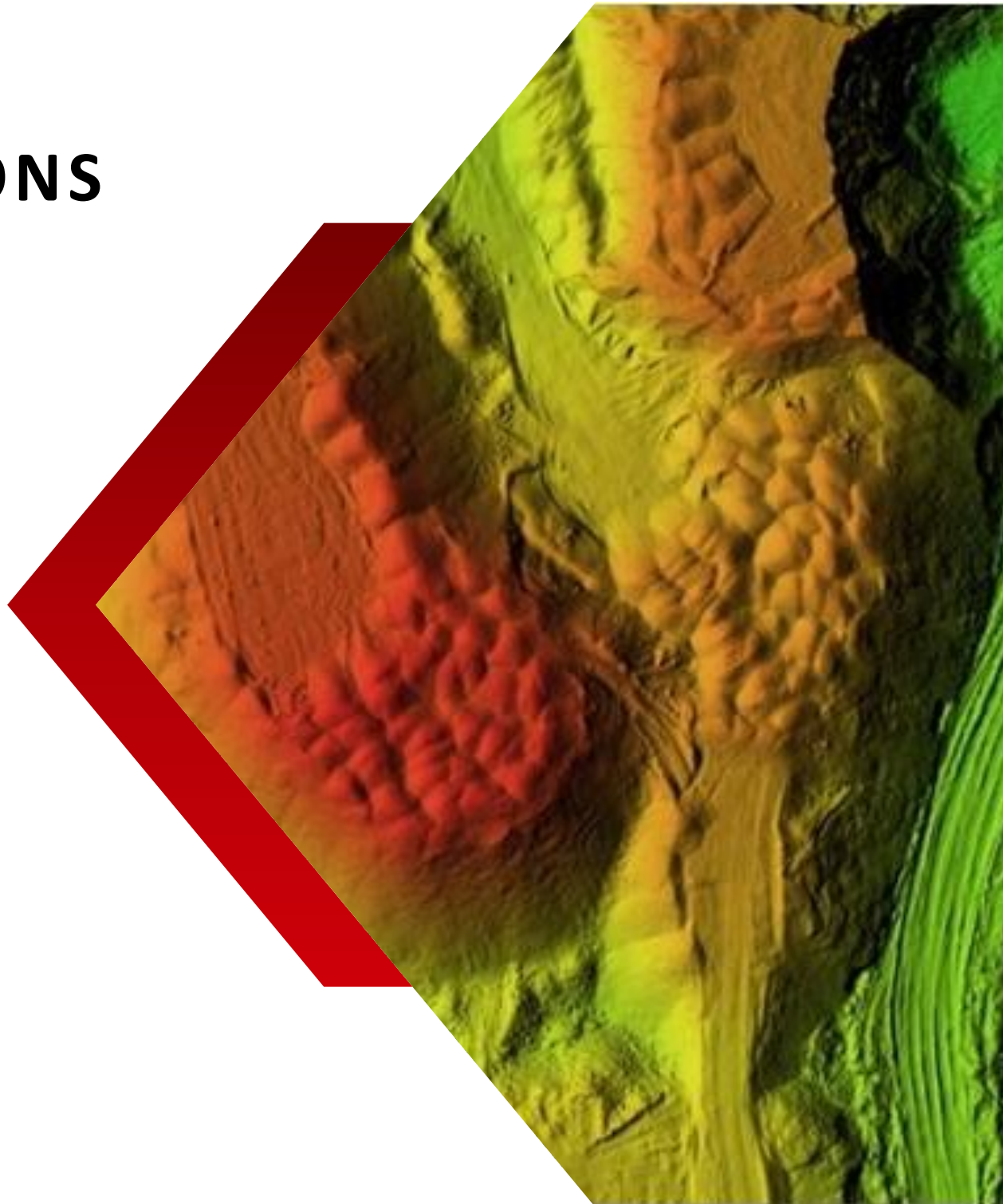
# MEDIA MANAGEMENT

- ✓ Journalism
- ✓ News
- ✓ Advertising
- ✓ Marketing
- ✓ Television
- ✓ Weather
- ✓ Social Vlogs



# MINING OPERATIONS

- ✓ 3D Modelling
- ✓ Environmental Assessment
- ✓ Multi Spectral Imaging
- ✓ Rehabilitation Surveys
- ✓ Digital Terrain Mapping
- ✓ Digital Terrain Models
- ✓ Digital Elevation Models
- ✓ Stockpile Measurement
- ✓ Volumetric Analysis
- ✓ Pit Survey
- ✓ Digital Ortho-mosaic
- ✓ Oil Spill Tracking
- ✓ Pipeline Monitoring



# POLICE & SECURITY

- ✓ Police Surveillance
- ✓ Border Patrol & Detection
- ✓ Coast Guard
- ✓ Anti-poaching
- ✓ Drug Enforcement
- ✓ Grow-op Detection
- ✓ Highway Patrol & Enforcement
- ✓ Military Uses
- ✓ Private Investigation
- ✓ Crowd Control
- ✓ Protective Swarms



# REAL ESTATE

- ✓ Real Estate Photos & Video
- ✓ Real Estate Inspections
- ✓ Residential Real Estate Marketing
- ✓ Commercial Real Estate Marketing
- ✓ 360° Area Shots
- ✓ Infrared Analysis
- ✓ Property Tours
- ✓ Showcase Properties





# SALES & MARKETING

- ✓ Boats
- ✓ Motorbikes
- ✓ Cars
- ✓ Aircrafts
- ✓ Advertising
- ✓ Floating Signage
- ✓ Drone Tours
- ✓ Visual Marketing
- ✓ Promotional Item Delivery
- ✓ 3D Printing

# SHIPPING

- ✓ Safety Inspections
- ✓ Compliance Inspections
- ✓ Detect & Identify Emission Infractions
- ✓ Navigational Aids
- ✓ Search & Rescue
- ✓ Autonomous Shipping
- ✓ Cargo Management
- ✓ Parts & Medical Deliveries
- ✓ Bio Security Inspections





A large, ancient rock formation with a carved face, possibly a natural rock formation or a large statue. A man in a dark suit and a woman in a white dress are standing on a rocky ledge in front of the formation. The background is a lush green forest.

# SPECIAL OCCASIONS

- ✓ Weddings
- ✓ Proposals
- ✓ Engagements
- ✓ Birthdays
- ✓ Anniversaries
- ✓ Jamborees
- ✓ Funerals



# SPORTS EVENTS

- ✓ Football
- ✓ Marathons
- ✓ Cycling
- ✓ Horse Racing
- ✓ Basketball
- ✓ Boxing
- ✓ Surfing
- ✓ Golf
- ✓ Sky Diving
- ✓ Fitness
- ✓ Bungee Jumping
- ✓ Officiating Assistance



# TOURISM INDUSTRY

- ✓ Attractions
- ✓ Resorts
- ✓ Wildlife
- ✓ Parks
- ✓ Charter Hire
- ✓ Eco
- ✓ Fishing
- ✓ Whale Watching
- ✓ Remote Tours
- ✓ Landmark Visits





# URBAN PLANNING

- ✓ Traffic Studies
- ✓ Population Studies
- ✓ Terrain Change Mapping
- ✓ Weather Change Mapping
- ✓ Water Change Mapping
- ✓ Resource Change Mapping
- ✓ Traffic Direction
- ✓ City Centre Redesign



An aerial photograph of the Golden Gate Bridge, showing its iconic red-orange steel structure, suspension cables, and the bridge deck spanning across the water. The background features a clear blue sky and distant hills.

# VIDEOGRAPHY & PHOTOGRAPHY

- ✓ Home Movies
- ✓ Children's Sporting Events
- ✓ Promotional Videos
- ✓ 360° Panoramas
- ✓ Landmark Flyby
- ✓ Sports Event Coverage
- ✓ Live Event Coverage
- ✓ Traffic Reporting
- ✓ Aerial Cinematography
- ✓ Documentaries & Expeditions



# WEATHER

- ✓ Follow Weather Patterns
- ✓ Document Severe Weather
- ✓ Predict Severe Weather
- ✓ Severe Weather Warnings
- ✓ Inhospitable Location  
Data Gathering





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