
Drone Application Report 2022

DRONE
INDUSTRY INSIGHTS

Industries, Methods, Payloads, Case Studies

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GLOSSARY

TERM	EXPLANATION
AI	Artificial Intelligence
BIM	Building Information Modelling
BVLOS	Beyond Visual Line of Sight
CAGR	Compound Annual Growth Rate
CV	Computer Vision
DEM	Digital Elevation Model
DSM	Digital Surface Model
DSP	Drone (as a) Service Provider
DTM	Digital Terrain Model
EO	Electro Optical (Sensor)
ERP	Electronic Resource Planning
EVLOS	Extended Visual Line Of Sight
FAA	[US] Federal Aviation Authority
FOD	Foreign Object Damage
FPSO	Floating Production Storage and Offloading
FPV	First Person View
GCP	Ground Control Point
GIS	Geographic Information System
GNSS	Global Navigation Satellite System
GPR	Ground-penetrating Radar
GPS	Global Positioning System
GSD	Ground Sampling Distance
HALE	High-Altitude Long Endurance
HAPS	High-Altitude Pseudo Satellite
HD	High-Definition
IED	Improvised Explosive Device
IR	Infrared (Sensor)
LiDAR	Light Detection and Ranging
LWCI	Leaf Water Content Index
MALE	Medium-Altitude Long Endurance
MRO	Maintenance Repair & Overhaul
MTOW	Maximum Takeoff Weight
NAICS	North American Industry Classification System
NDRE	Normalized Difference Red Edge Index
NDGI	Normalized Difference Greenness Index
NDVI	Normalized Difference Vegetation Index

TERM	EXPLANATION
NDT	Non-Destructive Testing
NGO	Non-Government Organization
NIR	Near-Infrared
PPK	Post-Processed Kinematic
PV	Photo-Voltaic
QR	Quick Response (code)
RFID	Radio-frequency identification
RGB	Red Green Blue (Sensor)
ROAV	Remotely Piloted Aerial Vehicle = Drone
RTK	Real-Time Kinematic
SAVI	Soil Adjusted Vegetation Index
SLAM	Simultaneous Localization and Mapping
SLT	Separate Lift Thrust
TAM	Total Addressable Market
TCO	Total Costs of Ownership
UAS	Unmanned Aerial System = Drone
UAV	Unmanned Aerial Vehicle = Drone
USD	US Dollar [\$]
UTM	Unmanned Traffic Management
UXO	Unexploded Ordnance
VGI	Volunteered Geographic Information
VIDAR	Vibration Detection And Ranging
VLOS	Visual Line Of Sight
VTOL	Vertical Take Off and Landing

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 - 2 SCOPE AND METHODOLOGY
 - 3 INTRODUCTION
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 - 5 INDUSTRY VERTICALS
 - 6 METHODS
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SAMPLE

1 EXECUTIVE SUMMARY

DRONE MARKET ENVIRONMENT

Drones have arrived in all global industries, and they are revolutionizing a variety of business methods. The drone market environment is split into three major segments: hardware, software and services. In all segments, there is a strong drive to innovate, disrupt and expand. As competition is growing and new markets are tapped, quality and user-friendliness become increasingly important. So important, in fact, that in a best-case scenario no human interaction is required.

DRONE INDUSTRIES

This report distinguishes 17 industries according to the NAICS (North American Industry Classification System) logic. Each vertical brings its own set of drone use cases, market opportunities and operational and regulatory hurdles. The largest industries where drones are used are XX, XX, and XX.

DRONE METHODS

Aside from *where* drones are being put to work (industries), it is important *how* they are put to work. A particular method always represents a certain technology stack (e.g. optical sensor, spraying devices, cargo bay) which has influence on the design and market opportunity.

DRONE MARKET SIZE AND GROWTH

The global drone market generated approximately XX USD in worldwide revenue in 2021. By 2026, the global drone market is expected to generate over XX USD, with growth projected to be at XX% CAGR.

By 2026, the commercial market is expected to generate over XX USD growing at a CAGR of XX%. Meanwhile, the recreational market is expected to marginally contract at a CAGR of XX% to XX USD in 2026.

DRONE MARKET DYNAMICS

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2 SCOPE & METHODOLOGY

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- 2.1 Research Methodology
- 2.2 Scope Definition & Research Design
- 2.3 Data Collection
- 2.4 Data Analysis
- 2.5 Market Model
- 2.6 Data Validation
- 2.7 Report Creation

SUMMARY

- At Drone Industry Insights, we follow our proprietary research approach when creating all industry reports. This involves first defining the scope of the research, identifying the limitations, and creating the research design. Next, we set out to collect all data that is necessary.
- Once we have collected and consolidated all the necessary data for the report, we begin our analysis based on real data, which is why we always begin with a bottom-up approach. If necessary, we employ a top-down approach to generate further insights.
- Following our analysis, we triangulate our data in order to cross-check and validate our findings. To do that we rely on all three types of data: primary, secondary and proprietary.
- Finally, after we've collected, analyzed and validated data we begin to formulate it into findings and actionable trends. During this time our analysts design, write and proof-read our reports, before releasing them online.

2.1 RESEARCH METHODOLOGY

RESEARCH WORKFLOW

At Drone Industry Insights, we follow our proprietary research approach when creating all industry reports. This involves first defining the scope of the research, identifying the limitations, and creating the research design. Following that, we set out to collect all data that is necessary. We begin by consolidating our own proprietary data as well as available secondary data. Having looked it over, we identify gaps that must be filled using both primary and secondary sources.

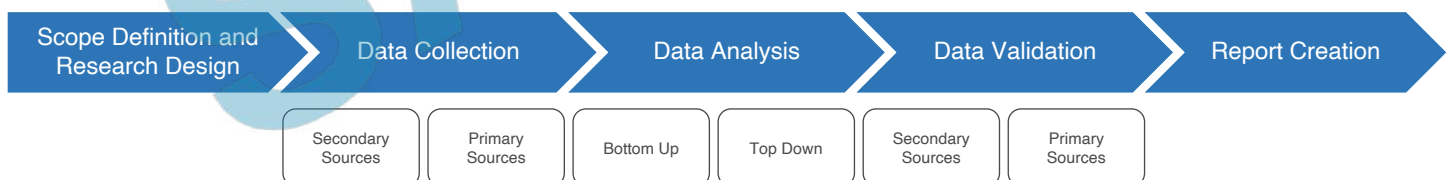
Once we have collected and consolidated all the necessary data for the report, we begin our analysis. Our primary objective is to produce reports based on real data, which is why we always begin with a bottom-up approach. If necessary, we may employ a top-down approach to generate further insights.

Following our analysis, we are careful to never be too brash in coming to a conclusion. This is why we triangulate our data – in order to cross-check and validate our findings. In order to do that we rely on all three types of data: primary, secondary and proprietary.

Finally, after we've collected, analyzed and validated data we begin to formulate it into findings and actionable trends. During this time our analysts design, write and proof-read our reports,

before releasing them online. Report design and writing involves the creation of dedicated graphs, charts and tables for the report in question, as well as the write up of trends, use cases and research findings. Meanwhile, the proof-read phase involves two analysts reading the entire report in order to produce a final meticulous product for our customers.

All Drone Industry Insights content brings added value. In our research we deliver the essence, not merely filling pages with content but carefully construct every paragraph, chapter and report to bring out the essence of the topics.



EXCLUSIONS

Please note that Drone Industry Insights report do not:

- Consider underwater drones;
- Consider ground robots or unmanned ground vehicles;
- Employ total addressable market (TAM) models to arrive at market figures;
- Include an analysis of the passenger drone market into total global commercial drone market figures because this segment of the drone market does not yet yield revenue. They do, however, analyze and consider passenger drone companies, investments, contracts and regulations;

PROPRIETARY ANALYTICAL FRAMEWORKS:

Depending on the research scope and objectives, at Drone Industry Insights we also create our own matrices, indexes and analytical model including, but not limited to:

- The Drone Industry Insights Market Model
- The Drone Industry Insights Drone Readiness Index (drone regulation)
- The Drone Industry Insights Drone Company Ranking Model
- The Drone Industry Insights Global Activity Index ■

2.2 SCOPE DEFINITION & RESEARCH DESIGN

Our scope is defined, and each research study is designed according to the research objectives set out at the very beginning. Depending on the nature of the report the objectives can vary greatly: from creating a competitive ranking, to producing a market landscape, to forecasting the size and growth of the market, comparing national drone regulations, analyzing key strengths, weaknesses, opportunities and trends, and much more.

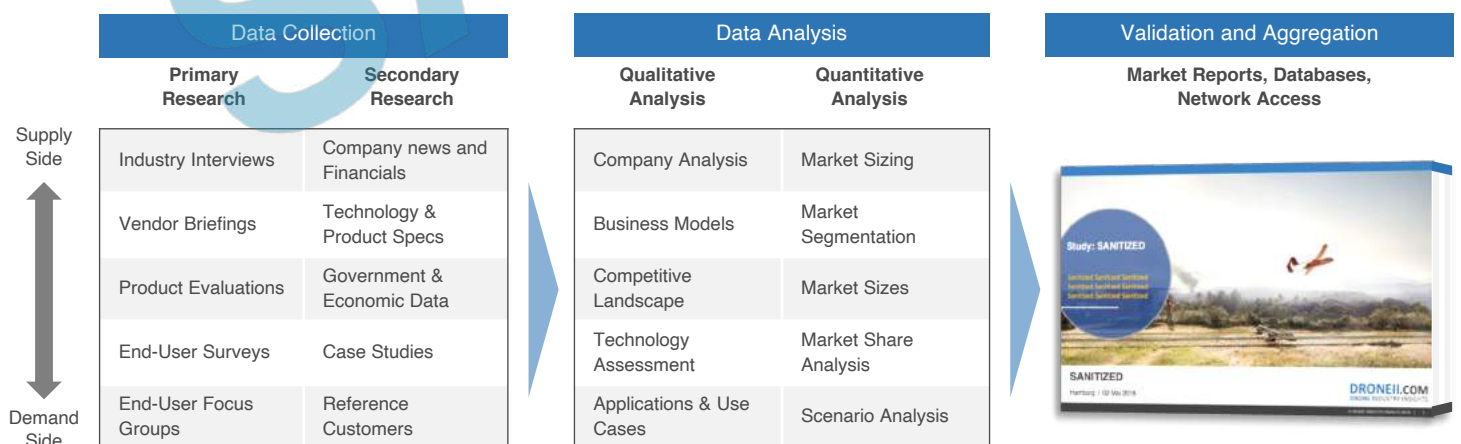
These objectives could be, but are not limited to:

- To define, describe, and forecast the size of the commercial drone market based on segment, region, country, application method, and industry.
- To forecast the size of different segments of the market with respect to various regions, including North America, Europe, Asia Pacific (APAC), the Middle East and Africa (MEA), and Rest of the World (RoW), along with key countries in each of these regions
- To identify and analyze key drivers, opportunities, and restraints influencing the growth of the market
- To identify technology trends that are currently prevailing in the drone or counter-drone industry.
- To profile leading players in the market based on their product and service portfolios, financial positions, and key growth strategies

- To analyze the commercial drone regulatory landscape by identifying and analyzing national drone regulations in different countries, according to the Drone Industry Insights Drone Readiness Index.
- To consider all stakeholders in the global commercial drone industry and take into account the bigger picture trends while analyzing detailed and specific data.
- To strategically profile the key players and comprehensively analyze their market shares along with detailing the competitive landscape for market leaders.

Having set out the research objectives and defined the scope of the study, our team then goes on to design the research. This involves determining:

- Which data is necessary for the study?
- What data do we currently have on hand ?
- Which data can only be acquired through primary research?
- Which companies, customers, technologies and/or countries are being considered?
- What form of analysis, if not both, is more suitable – quantitative or qualitative?



Our research studies involve secondary information, directories, and databases such as Crunch Base, Hoovers, Bloomberg BusinessWeek, Factiva, and many other confidential sources to identify and collect information relevant to the market. The primary sources considered include industry experts as well as service providers, vendors, system integrators, solution providers, developers, alliances, and organizations related to all segments of the value chain of this industry.

In-depth interviews with various primary respondents, including key industry participants, subject matter experts, industry consultants, and C-level executives, are conducted to obtain and verify critical qualitative and quantitative information pertaining to the drone commercial drone market as well as to assess its growth prospects. ■

2.7 REPORT CREATION

REPORT DESIGN

Once we've collected, analysed and validated data we begin to formulate it into findings and actionable trends. The first step in doing this involves designing our table of contents as well as the format of the report in order to create a document to suit our readers as well as our corporate identity. This involves determining the:

- Length of the report in pages,
- Breakdown of the report in chapters,
- Format of the report,
- Positioning of graphs, charts and tables within the report, and more.

Report design is a crucial aspect of our workflow as during this time our analysts work hard to take very technical and specific findings and present them clearly to our readers.

REPORT WRITING

Following the design, we undertake the task of writing up the reports. This requires description and analysis of our charts, graphs, tables and any databases accompanying the final .pdf product. During this time we turn figures into trends and numbers into actionable insights. Further, we create the necessary figures that we designed in the previous phase.

PROOF-READING

At Drone Industry Insights, we take quality assurance very seriously. For this reason, *all* of our reports are proof read by at least two analysts in addition to the ones tasked with writing the initial draft. Our proof-reading process entails feedback sessions and editing rounds in order to create a polished product at the very end. ■



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3 INTRODUCTION

CONTENTS

- 3.1 Drones: What are they and what can they do?
- 3.2 Drone Configurations
- 3.3 Major Segments of the Drone Ecosystem
- 3.4 Drone Application Categories and Methods
- 3.5 Drone Industry Verticals and Use Cases
- 3.6 Drone Market Observations

SUMMARY

- SANITIZED
- SANITIZED
- SANITIZED
- SANITIZED
- SANITIZED

SAMPLE



3.4 DRONE APPLICATION CATEGORIES AND METHODS

To structure the vast number of applications in the drone space, the below listed categories shall help to get a better understanding of the individual methods. In general, we distinguish between "sensing" (which includes all applications

where data is recorded in close proximity or on remote) and "action/interaction" (which includes optical, acoustical and/or physical interaction with someone or something). ■



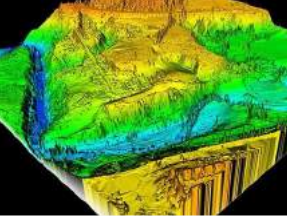





SENSING		ACTION/INTERACTION	
	XX and XX SANITIZED		XX and XX SANITIZED
	XX and XX SANITIZED		XX SANITIZED
	XX and XX SANITIZED		
	XX and XX SANITIZED		
	Other SANITIZED		Other SANITIZED

Figure 7: Drone application methods

3.5 DRONE INDUSTRY VERTICALS AND USE CASES

#	INDUSTRY VERTICAL ¹	SUB CATEGORY	USE CASE EXAMPLES
1	Agriculture	<ul style="list-style-type: none"> Animal Production Crop Production Fishery/Hunting Forestry 	soil quality, crops health, optimizing fertilization, forest health, weed growth, disease identification
2	Arts & Entertainment		aerial filming, advertisement production, swarm light shows, drone racing competition
3	Construction	<ul style="list-style-type: none"> Construction of Buildings Heavy and Civil Engineering Construction 	surveying of construction sites, topographic surveys, site management, BIM
4	Courier Services & Warehousing	<ul style="list-style-type: none"> Postal Services, Couriers and Messengers Warehouse Management 	drone delivery, warehouse inventory
5	Educational, Scientific & Technical Services		wildlife studies, air quality measurements, agriculture field experiments, probe collection, archeological structures, thermal volcano mapping, counting seagulls/polar bears, etc.
6	Energy	<ul style="list-style-type: none"> Oil & Gas Extraction & Distribution Power Generation and Distribution Water, Sewage and Other Systems 	inspections of chimney, refineries, powerlines, transmission towers, pipelines, off-shore platforms, flare stacks, PV plants, boilers, gas detection
7	Health Care & Disaster Relief		find missing people, blood delivery, defibrillator delivery, cellular coverage and temporary ad-hoc networks
8	Information & Motion Picture	<ul style="list-style-type: none"> Broadcasting/Hosting Motion Picture Production 	aerial cinematography, live broadcast, TV, news and movie production, transmission/cell tower inspection
9	Insurance		damage assessment on rooftops or infrastructure, underwriting assessments
10	Mining & Quarrying	<ul style="list-style-type: none"> Open Pit Mining Underground Mining Quarrying 	volumetric surveys, area mapping, water sampling, inspection of mines
11	Public Emergency Services	<ul style="list-style-type: none"> Police Fire Department Other (National) Security Authorities 	firefighting, police and other emergency services, maritime pollution
12	Public Administration	<ul style="list-style-type: none"> Environmental Quality Programs Services Housing Programs, Urban Planning, and Community Development Legislative and Other Government Support 	vegetation & wildlife monitoring, analyzing flooding zones, city mapping, land surveying
13	Real Estate & Industrial Plants	<ul style="list-style-type: none"> Real Estate Industrial Plants 	as-built documentation, property mapping, roof inspection, thermal surveys, industrial building inspection
14	Safety & Security		search & rescue, border patrol, perimeter security, landmine detection, festival crowd monitoring
15	Telecommunication		cell tower inspection, vegetation encroachment, add cellular coverage at e.g. events, measure network coverage
16	Transportation Infrastructure	<ul style="list-style-type: none"> Air-, Rail-, Road- and Water Transportation Infrastructure & Maintenance 	bridge/airport/road/railway inspection, corridor mapping
17	Waste Management & Remediation Services		landfill capacity calculation, landfill cell management, detection of gases

Table 1: Commercial drone use cases across industries

Source: Drone Industry Insights

DRONE MARKET INDUSTRIES

In addition to application methods (i.e. ways of applying drones) listed on the slide before, the drone market can also be split according to industries in which drones are used. Within this market report we split the drone market into 17 industries listed above. Each brings its own set of use cases, market opportunities and industry hurdles. Thus, the size, share and growth of each is examined individually as well as in comparison to one another.

DRONE MARKET USE CASES

The right column in Table 1 gives a thorough outline of current use cases in the commercial drone market. These use cases vary greatly in how common they are – and indeed this alongside many other factors will affect the return on investment (ROI) of each use case. ■

¹ Based on NAICS (North American Industry Classification System). See Appendix for more details.

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4 DRONE MARKET SIZE

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- 4 Definitions and Introduction
- 4.1 Total Market Size 2021-2026
- 4.2 Market Size by Industry 2021-2026
- 4.3 Market Size by Method 2021-2026

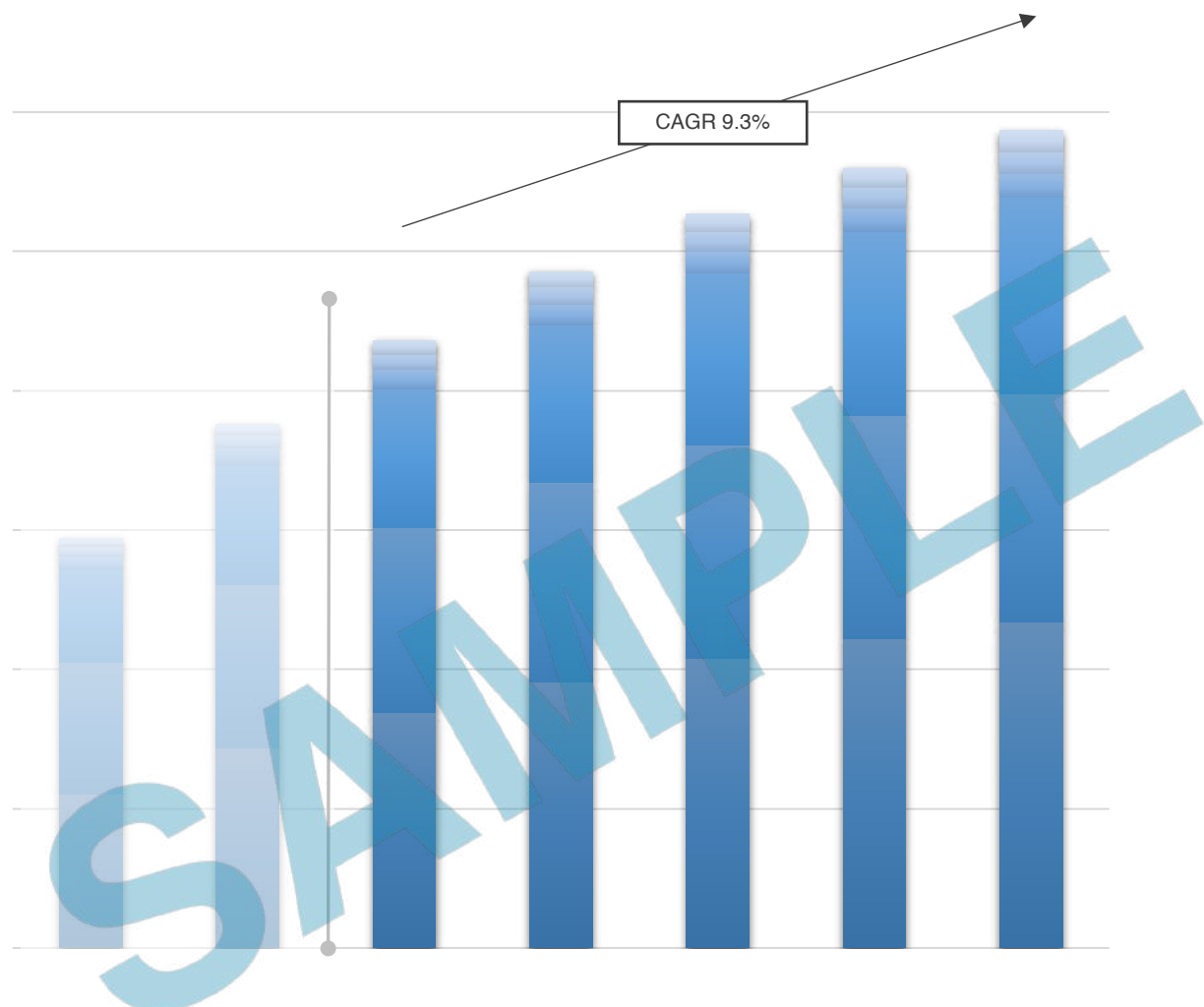
SUMMARY

- SANITIZED
- SANITIZED
- SANITIZED

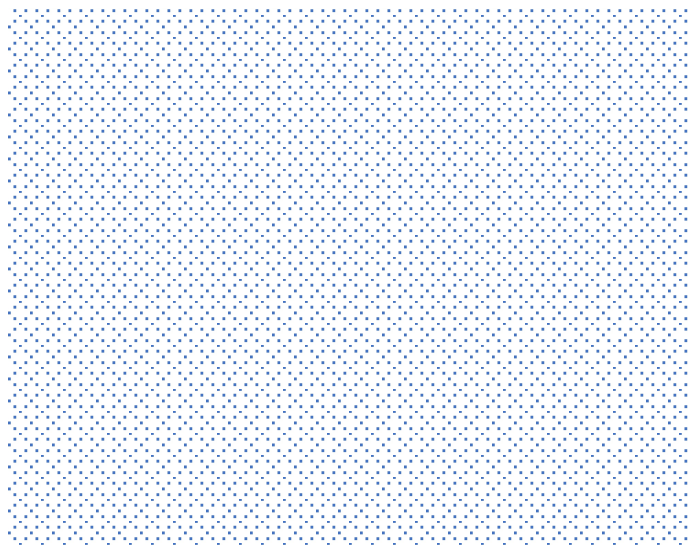
SAMPLE



4.1 DRONE MARKET: COMMERCIAL VS. RECREATIONAL 2021-2026



Graph 1: Commercial drone market size in Energy by region 2021-2026



Region	CAGR (2021-2026)
REGION	XX %
REGION	XX%
REGION	XX %
REGION	XX %
REGION	XX %
REGION	XX %

4.2 MARKET SIZE BY INDUSTRY 2021-2026

Industry	2020	2021	2022	2023	2024	2025	2026
Global Total							
XX							
XX							
XX							
XX							
XX							
XX							
XX							
XX							
XX							
XX							
XX							

Table 2: Commercial drone market size for Energy by country 2021-2026

	Energy Industry per Country	CAGR (2021-2026)
	COUNTRY	XX %
	COUNTRY	XX %
	COUNTRY	XX %
	COUNTRY	XX %
	COUNTRY	XX %
	COUNTRY	XX %
	COUNTRY	XX %
	COUNTRY	XX %
	COUNTRY	XX %
	COUNTRY	XX %
	COUNTRY	XX %
	COUNTRY	XX %

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- 5.6 Energy
- 5.7 Health Care & Disaster Relief
- 5.8 Information Information & Motion Picture
- 5.9 Insurance
- 5.10 Mining & Quarrying
- 5.11 Public Emergency Services
- 5.12 Public Administration
- 5.13 Real Estate & Industrial Plants
- 5.14 Safety & Security
- 5.15 Telecommunication
- 5.16 Transportation Infrastructure
- 5.17 Waste Management & Remediation Services



5 DEFINITION & INTRODUCTION

DRONE INDUSTRY VERTICALS

In this report we split the drone market into 17 industries listed below. Each brings its own set of use cases, market opportunities and operational and regulatory hurdles. Thus, the size, share and growth of each is examined individually as well as in comparison to others.

The industry vertical definitions shown below follow the NAICS (North American Industry Classification System) logic.

INDUSTRY VERTICAL
• Agriculture
• Arts & Entertainment
• Construction
• Cargo, Courier Services, Intralogistics & Warehousing
• Educational, Scientific & Technical Services
• Energy
• Health Care & Disaster Relief
• Information & Motion Picture
• Insurance
• Mining & Quarrying
• Public Emergency Services
• Public Administration
• Real Estate & Industrial Plants
• Safety & Security
• Telecommunication
• Transportation Infrastructure
• Waste Management & Remediation Services

Table 2: Industry definition based on NAICS

DRONE ADOPTION

The reasons for drone adoption per vertical are different but, in many aspects, similar. Drones support in mainly two ways:

1. Effectivity: Give access to something where there was no access before or where access means extremely high efforts (e.g. bridge, chimney, wind turbine inspection)
2. Efficiency: To dramatically improve the process. This applies improved workers safety, improved result quality, for time saving and cost savings. Cost savings can mean two things:
 - Direct savings: the drone-based process is much quicker than the conventional process (e.g. surveying a

coal mine with three surveyors for two days vs. acquiring all data via drone in 15 minutes)

- Indirect savings: the drone-based process allows to keep production running. These saving are extremely high and can outweigh the direct saving by a factor of 1000 (e.g. a 20min offshore oil-rig flare stack inspection by drone vs. shutting down the plant for three days, build scaffolding, make manual inspection, remove scaffolding and continue production)

The graph below shows the main reasons for adopting drone technology.

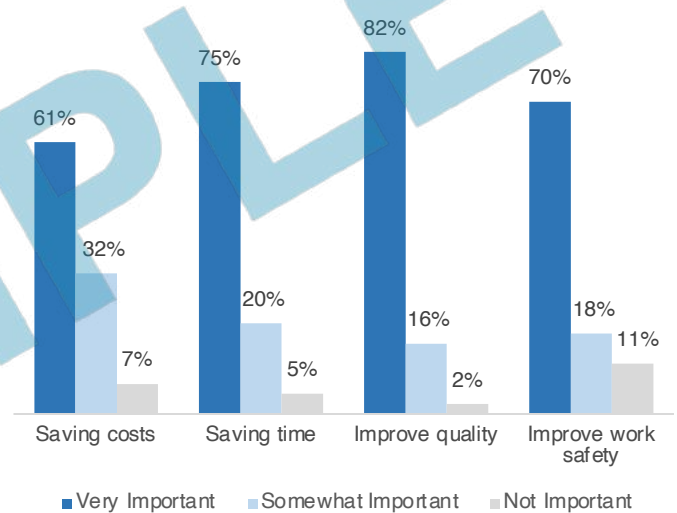


Chart 3: Reasons for adopting drones (n=44),
Source: Drone Industry Barometer 2021

Of course, all businesses are different (insurance, energy, agriculture, etc.), and the questioned aspects might apply more or less strong to the day-to-day drone's operation.

MARKET DYNAMICS

The market dynamics listed in the following chapters highlight the overall changes of drone technology and what this means for each industry. In order to avoid unnecessary repetitiveness, the listed examples are not comprehensive and only represent specific industry-relevant dynamics. ■

5.1 AGRICULTURE



CONTENTS

5.1.6 Case Study – Mangrove Restoration

- 5.1 Agriculture
 - The Role of Drones
 - Application Examples
 - Typical Results
 - Typical Technology Stack
 - Market Dynamics
 - Industry Facts
- 5.1.1 Case Study – Forest Inventory
- 5.1.2 Case Study – Palm Tree Counting
- 5.1.3 Case Study – Crop Analysis and Spraying
- 5.1.4 Case Study – Drone Spraying
- 5.1.5 Case Study – Radar Mapping

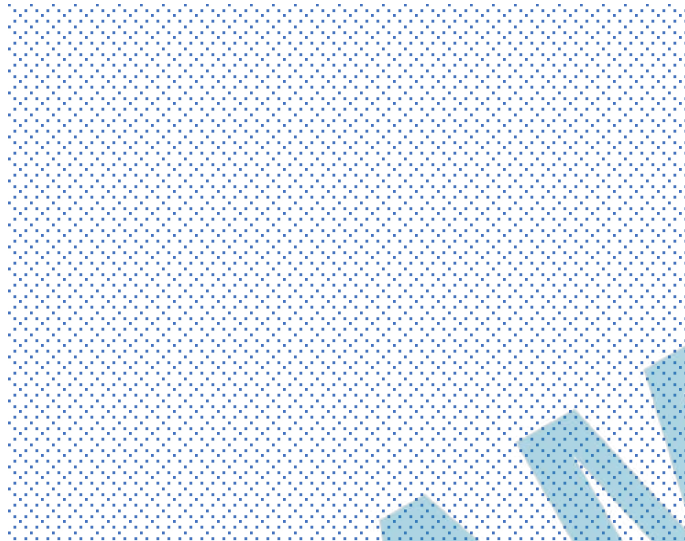


5.1 AGRICULTURE

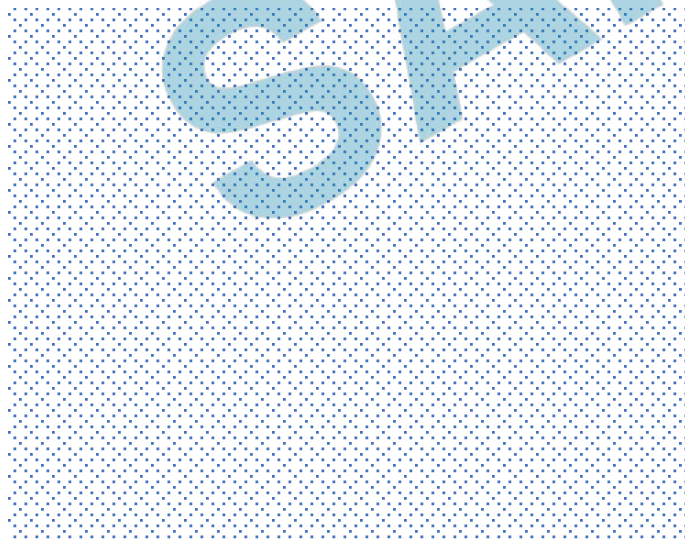


The Agriculture, Forestry, Fishing and Hunting sector comprises establishments primarily engaged in growing crops, raising animals, harvesting timber, and harvesting fish and other animals from a farm, ranch, or their natural habitats.

THE ROLE OF DRONES:



1. ANIMAL PRODUCTION



APPLICATION EXAMPLES:

- *Localization & Tracking*
 - SANITIZED
 - SANITIZED
- *Inspection*
 - SANITIZED
 - SANITIZED

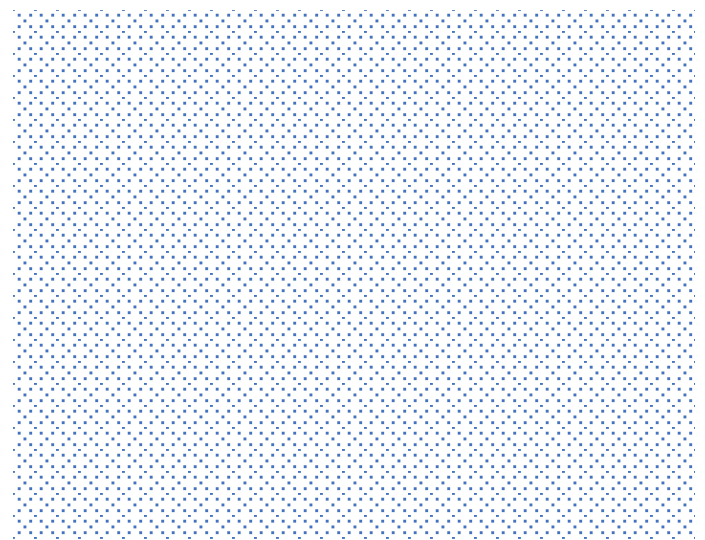
2. CROP PRODUCTION



APPLICATION EXAMPLES:

- *Mapping & Surveying*
 - SANITIZED
 - SANITIZED
 - SANITIZED
- *Dispensing & Spraying*
 - SANITIZED
 - SANITIZED
- *Other*
 - SANITIZED

3. FISHERY & HUNTING

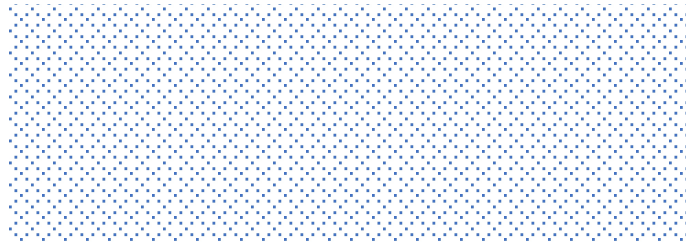


5.1 AGRICULTURE

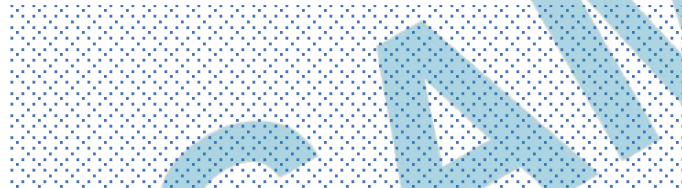


INDUSTRY FACTS:

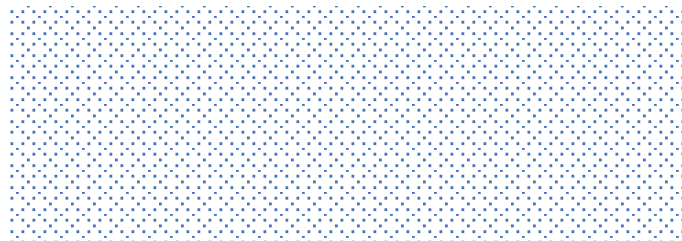
Current market volume



Future market volume




Technological complexity



5.1.1 CASE STUDY – FOREST INVENTORY



Location:

 São José dos Campos, Brazil

Date:

 2020

Company:



Value added

Time saving



Costs saving



Quality increase



Safety increase



Operational Characteristics:

Drone: Multicopter (DJI M600 Pro)

Operation Mode: VLOS

Autonomy Level: Level: 3 - Conditional

Operating Environment: Rural

Payload: Forest Keeper RD350 (3,5kg)

Total distance/area covered: Up to 4km

Total flight time: 25min

Control: Pre-programmed waypoints

Further operation-relevant details:
Day and night flight

Problem Description

SANITIZED

Solution Description

SANITIZED

Further Observations/Findings

- SANITIZED

5.3 CONSTRUCTION



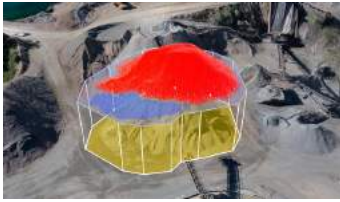
CONTENTS

- 5.3 Construction
 - The Role of Drones
 - Application Examples
 - Typical Results
 - Typical Technology Stack
 - Market Dynamics
 - Industry Facts
- 5.3.1 Case Study – Geomagnetic Detection
- 5.3.2 Case Study – Highway Construction Monitoring
- 5.3.3 Case Study – Construction Site Orthophoto

SAMPLE



5.3 CONSTRUCTION

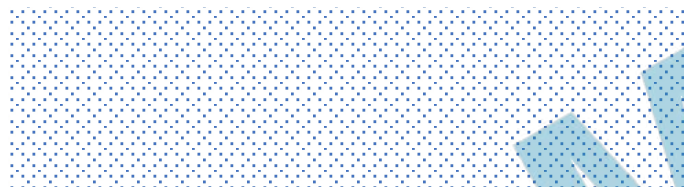


A DEM of a stockpile helps builders and project managers to better plan the construction project.



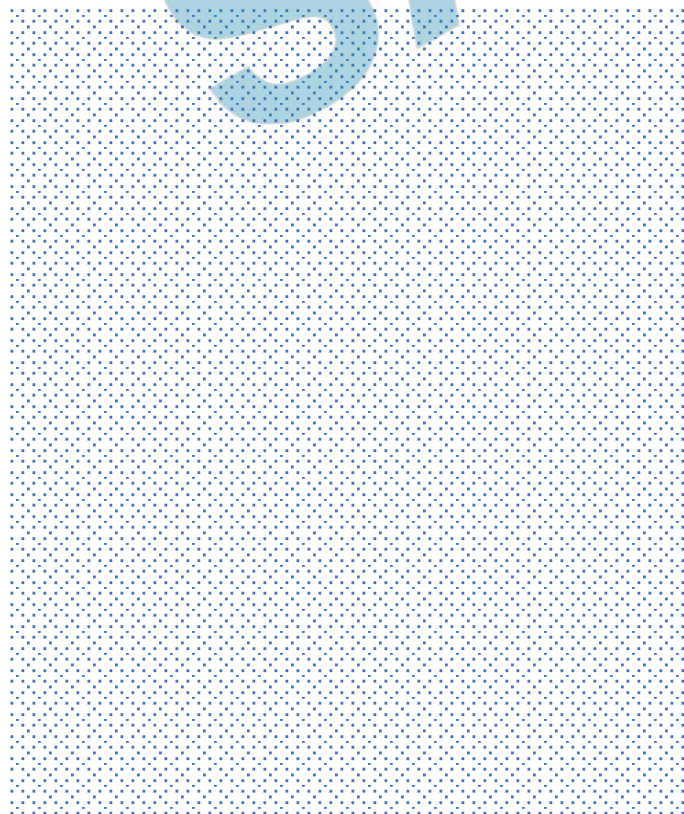
An interactive DSM provides a 360° perspective from a construction site and enables customers, employees and other stakeholders to explore/re-design a construction site remotely.

TYPICAL TECHNOLOGY STACK:



- *Platforms:* SANITIZED
- *Payloads:* SANITIZED

MARKET DYNAMICS:



INDUSTRY FACTS:

Current market volume



Future market volume




Technological complexity



5.3.2 CASE STUDY – HIGHWAY CONSTRUCTION PROJECT



Location: **Date:** **Company:**

 Sarawak,
Malaysia

 2017-
2019



Value added

Time
saving



Costs
saving



Quality
increase



Safety
increase



Operational Characteristics:

Drone: Multirotor

Operating Environment: Rural

Control: Pre-programmed waypoints

Autonomy Level: 2 - Partial

Total distance/area covered: 830km

Further operation-relevant details:
Ground Control Points

Payload: EO sensor

Total flight time: Total 150h
(20min/flight)

Operation Mode: VLOS

Problem Description

SANITIZED

Solution Description

SANITIZED

Further Observations/Findings

- SANITIZED
- SANITIZED
- SANITIZED
- SANITIZED

AGENDA

- 1 EXECUTIVE SUMMARY
- 2 SCOPE AND METHODOLOGY
- 3 INTRODUCTION
- 4 DRONE MARKET SIZE
- 5 INDUSTRY VERTICALS
- 6 METHODS**
- 7 APPENDICES

6 METHODS

CONTENTS

- 6 Definitions & Introduction
- 6.1 Photography & Filming
- 6.2 Mapping & Surveying
- 6.3 Inspection
- 6.4 Localization & Tracking
- 6.5 Spraying & Dispensing
- 6.6 Delivery
- 6.7 Others

SUMMARY

- SANITIZED
- SANITIZED
- SANITIZED

SAMPLE

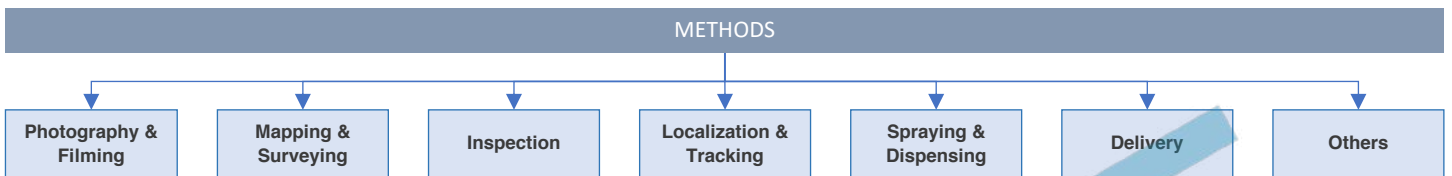


6 DEFINITIONS & INTRODUCTION

OVERVIEW

The commercial drone market can be sorted into various (application-) methods. The methods describe the type of

“mission” of the drone, which is strongly tied to a specific technology stack. We distinguish six main methods and collect new and niche methods under “others”.



PHOTOGRAPHY & FILMING

The use of cameras to capture images and the production of aerial videos for recreation, entertainment, information or advertising purposes.

MAPPING & SURVEYING

Creating a diagrammatic representation (incl. 3D modelling) of a given object or area and detailed examination of a geo-referenced section of the earth's surface with the purpose to study or measure altitudes, angles, distances, structures, etc.

INSPECTION

Inspection and examination of a given reference object with the intent to find faults, errors, problems, malfunctions or other specific phenomena that might affect the functioning of that object.

LOCALIZATION & TRACKING

The goal of the method Localization & Detection is to seeking and supplying the geographical coordinates of activities, persons or life stock, or the process of recognizing something as a certain person, phenomenon, or activity.

SPRAYING & DISPENSING

Aerial distribution of solids (e.g. fertilizer or seeds), or the process of spreading liquid substances (e.g. water, insecticide or fertilizer).

DELIVERY

Delivery consists of the transportation of packages, food, pharmacies, or other goods either on demand or according to a given schedule.

OTHERS

The use of drones for certain purposes that requires a different/unique technology stack for e.g. advertising (e.g. banner), announcing (e.g. emergency instructions), broadcasting (e.g. live transmission of events), cell service (e.g. transmitting cellular data via drone), electromagnetic surveying (e.g. magnetometer, GPR), close-proximity sensing (e.g.

ultrasonic), entertainment (e.g. drone shows), measuring (e.g. gas, radiation), sampling (e.g. water), or warehouse management.

METHODS USED MOST IN THE INDUSTRY

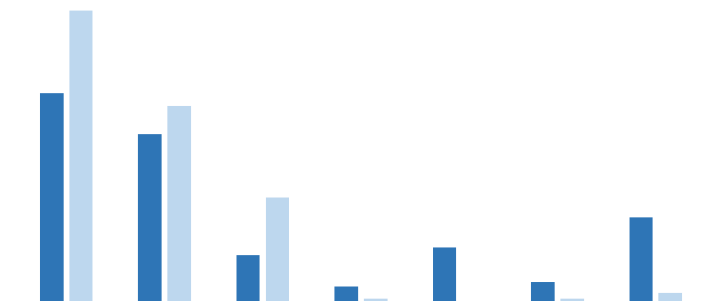
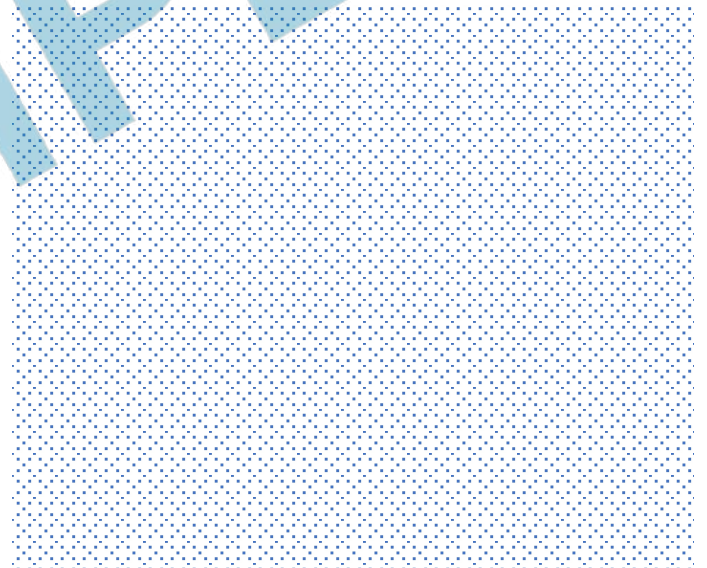


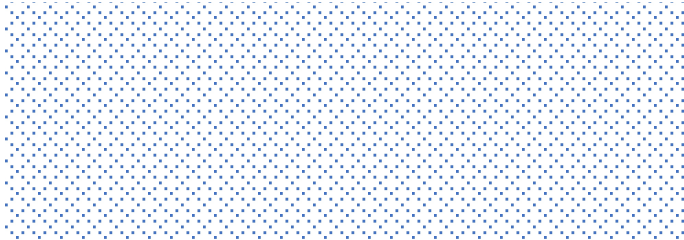
Chart 4: Methods used most in the drone industry today
Source: Drone Industry Barometer 2021

Starting from chapter 6.1, we'll discuss those methods in greater detail, including the main industries, the general technology level, market dynamics, the current and future market volume. ■

6.3 INSPECTION

The Inspection method describes the examination of a specific reference object with the intention of finding technical problems, malfunctions, damages or other specific phenomena that could affect the function of that object.

THE ROLE OF DRONES:



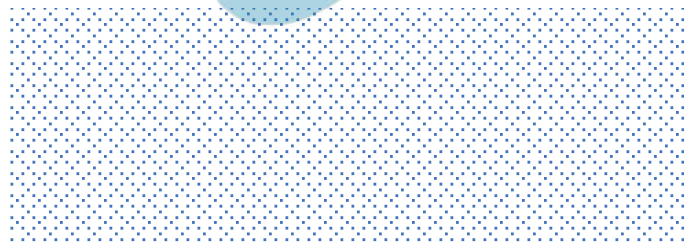
Drones offer the following benefits for inspections:

- SANITIZED
- SANITIZED
- SANITIZED
- SANITIZED

MAIN INDUSTRIES:

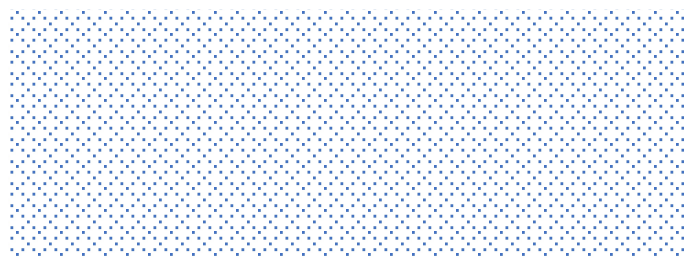
- SANITIZED
- SANITIZED
- SANITIZED

TYPICAL TECHNOLOGY STACK:



- *Platforms:* SANITIZED
- *Payloads:* SANITIZED

MARKET DYNAMICS:



- SANITIZED
- SANITIZED
- SANITIZED
- SANITIZED
- SANITIZED

METHOD FACTS:

Current market volume.



Future market volume



Technology level



AGENDA

- 
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