



# Nokia Drone

# Networks

UAV based, real-time  
data collection



NOKIA

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# Introduction

The use of unmanned aerial vehicles (also called UAVs or drones) is rapidly increasing among professionals and amateurs. Authorities are racing to develop legislation to regulate their use. The regulations encourage pilots to operate drones responsibly and encourage manufacturers to stick to certain quality standards.

A single, hand operated drone equipped with a video camera is sufficient in some situations, but Nokia Drone Networks is a comprehensive solution.

**Nokia Drone Networks brings an end-to-end UAV data collection and processing platform to the market.** It includes Software, Hardware and Services for our partners, network operators (CSPs) and industrial customers with Nokia RAN or Edge-Cloud equipment.



# Technology to help the world act together

Nokia Drone Networks – A turnkey solution  
for drones-as-a-service



Edge-cloud based  
data collection  
platform



Made in Finland



Software, SLAs  
and services by  
Nokia



Integrated GPU,  
Onboard Apps



4G/5G data collection  
and processing,  
BVLOS ready



aaS or CAPEX



# Market

## The potential of 5G connected drones

A growing industry waiting for the power of 5G



€32bn

Expected global revenue by industrial drones in 2024

8.3%

Annual growth (CAGR) of industrial drones until 2030

1

End-to-end 5G UAV platform for automated data collection at the edge:  
Nokia Drone Networks



# Use cases



## Drone use cases

# Public safety

### Emergency response support

Drones are dispatched to the incident scene before people for better situational awareness.

### Search and rescue

More effective search with thermal cameras

Mapping and evacuation route management

### Perimeter security

Border inspection

Perimeter surveillance

## Drone use cases

# Public safety

### Prevention

Find hot spots in forests or dry areas to prevent and mitigate fires

Monitor fire in cities

Incident warning

Evacuation route management

### Incident and monitoring support

Enhance decision making with video streaming that improves situational awareness, supports resource planning and risk evaluation.

Sensors and analytics identify hazardous substances

### Inspection

Verify a fire is extinguished through HD or thermal video streaming

Gas leakage detection

Damage inspection for insurance



## Drone use cases

# Mining

### Mine security



24/7 automated mine  
area monitoring

Safety and security

Survey and  
inspect  
tailing dams

Monitor  
water and air  
quality

### Environmental monitoring



### Volumetric monitoring



Swap your  
payload  
to LiDAR  
scanner and  
use it for  
volumetric  
monitoring  
of stockpiles

## Drone use cases

# Ports

### Maritime monitoring



Vessel and traffic  
monitoring

Coastguard  
and port  
management  
support

### Port security



24/7 automated port  
area monitoring

Safety and security

### Water quality monitoring



Detect oil and  
chemical leaks

Monitor water  
quality



## Drone use cases

# Utilities

### Wind turbine inspections



Wind turbine drone inspection identifies blade delamination, core defects, internal component failure, and other key defects.

### Power line inspections



Inspect power lines and transmission towers from a safe distance. Using drones is faster, cheaper, more comprehensive, and more accurate.

### Gas refinery inspections



Gas sensing  
Gas emission monitoring

Identify temperature differences with thermal camera

## Drone use cases

# Oil and Gas

### Gas refinery inspections



Inspect hard-to-access areas after severe weather.

Security and surveillance

### Pipeline inspections



Leakage detection

Gas sensing

### Offshore oil platform inspections



Remotely analyse offshore platforms

Oil leakage detection

Gas emission monitoring

Security and surveillance



## Drone use cases

# Defence

### Intelligence gathering



Drones equipped with high-resolution cameras and sensors let them collect data and images from a distance.

### Search and rescue



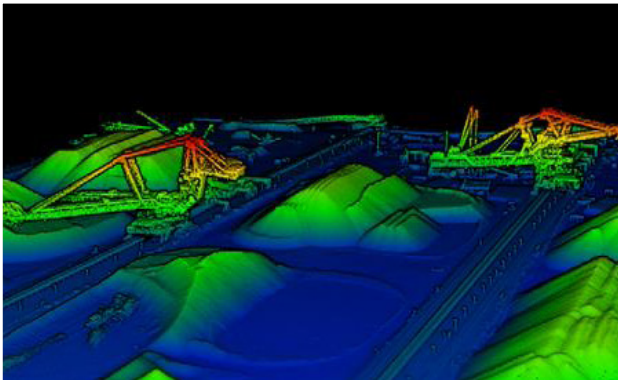
Drones are used to locate and rescue personnel in hazardous or inaccessible areas. Drones can also be used to drop supplies to troops in the field.

### Surveillance and reconnaissance



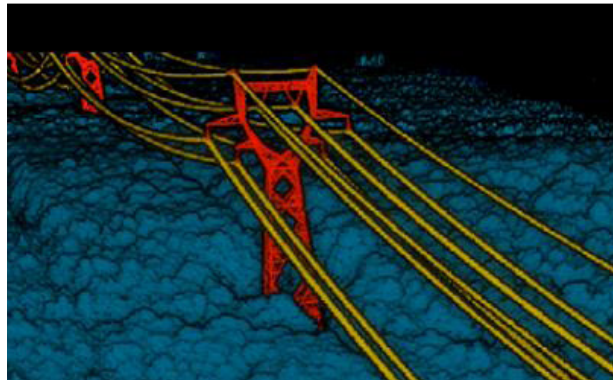
Drones are used to track troop movements and assess terrain. This information is used by military planners to develop strategies and tactics.

# What LiDAR scanning does for industries



## Mining

Swap your payload to a LiDAR scanner and use it for volumetric monitoring of stockpiles.



## Utilities

Use LiDAR scanners to measure the distance between foliage, different vegetation and power lines to make well-informed decisions and predict areas that will become problematic in the near future.



## Rail

Use drones equipped with LiDAR to identify infrastructure defects, environmental threats and other maintenance issues on your rail tracks.



## Case study: Citymesh

### Belgium: World's first nationwide drone network

Real-time, aerial data collection  
that support first responders



We've been impressed with Nokia as our partner for reliable wireless connectivity and an outstanding turnkey Drone-in-a-Box solution that we can customise to our specific needs. Together, we're making Belgium safer and proving just how innovative we are as a nation.

**Hans Similon, General Manager, Citymesh Safety Drone**

#### Challenges

Belgium's emergency services receives more than two million calls a year. Typically, police and fire brigades are dispatched with incomplete data that can hinder their response efficiency.

Citymesh, a mobile service provider focusing on B2B connectivity, was looking for a solution to improve first responders' situational awareness in the critical first minutes following an emergency call.

#### Solution

The Nokia Drone Networks platform includes 70 Drone-in-a-Box units, provides secure 5G-connected drone services across Belgium

They're equipped with video and thermal cameras, drones are on stand-by 24/7 and remotely managed from five centralised operations centres

Drones can be operated remotely and comply with aviation regulatory bodies such as EASA in Europe and FAA in the United States.

#### Benefits

The drones capture real-time footage – like smoke plumes, fire parameters, and number and location of people – and transfer it to control centres even before emergency teams have had time to leave.

These aerial images are essential to identifying a plan of action that can save lives and limit damage to affected assets and natural resources.

# Unique selling points

### Connectivity

- 4G/5G connected Drones, network based platform for multiple use-cases
- 3GPP based security and reliability
- Integration into existing platforms and M2M IoT
- Connectivity customisation, controlled spectrum

### Automation

- Command centre based control (PC)
- 1 Control station / operator, multiple drones
- Built for remote operations with Docking Station
- Full pre-flight planning, automation, scheduling
- APIs to connect any 3rd party SW for automation

### End to End

- 100% built and owned by (Nokia)
- Software, Hardware, Services, Support by Nokia
- Within public or private wireless networks
- Full supply chain and roadmap transparency
- Customisation-as-a-Service for special use-cases

### Certification

- Nokia internal and external certification
- As a UAV, Audio and Video Equipment and 4G / 5G UE
- In line with industrial machinery standards
- Continuously evolving set of supported standards



# Why Westcon?

Westcon-Comstor and Nokia provide the building blocks needed to unleash the full potential of high-performance, end-to-end private wireless networking, overcoming the challenges of local connectivity and Wi-Fi in remote locations, large plants or temporary sites.

With the expertise of our Westcon NOKIA Team, we accelerate your NOKIA sales and help you explore new business opportunities.



## Pre-sales and professional services

Highly skilled Professional Service organisation with fast delivery times and support from our Nokia certified EMEA Westcon pre-sales team.



## InsideAGENT

- Our award-winning Data Intelligence Service for targeted demand generation
- Customer and Prospect Profiling
- Proactive Business Development



## CIRCUIT Solution Lifecycle Management

- Adoption: Services and Training
- Optimisation: Enhance and Up-sell
- Proactive Renew and Refresh



## Flex Financial Services

- Everything as a subscription.
- Our funding means unlimited options for you to close more business, faster.



## Tech Xpert Community

- A community that rewards members for continuous learning, while expanding technical capabilities.



## Global Supply Chain Solutions

- Tax-efficient sales across borders
- Managing risk prevention
- Compliance expertise



**Partner Success.**

**It's what we do.**



[www.westconcomstor.com](http://www.westconcomstor.com)



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