STRATOSYST HAPS SERVICES FROM STRATOSPHERE

Today's technologies utilized for telecom, Earth observation or navigation have certain limits.

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Satellites

high latency, limited data capacity, Space debris, high CAPEX, low temporal resolution



Drones



1

highly limited reach, operation constraints

Problem

On-Ground Infrastructure

limited reach, high CAPEX, damage-prone,



These limits prevent current technologies to extend their services on a real global scale and at the highest possible quality at the same time.



Solution = HAPS

(High-Altitude Pseudo satellite)

What is HAPS

HAPS is an aircraft that flies over a specific location at an altitude 18 – 20 km above the ground

for weeks to months.

Types of HAPS

Lighter than air (**Airships or Balloons**) or Heavier than air (**Aircraft**). Companies across the world are working on both types of the platforms.

Early adopters of these platforms are mainly telecommunication companies (AT&T, T-Mobile), Earth observation companies (Planet, Spire) and governments or agencies (NATO, ESA, NASA).

What HAPS solve

HAPS are part of the infrastructure that we use every day for **telecommunication**, **weather prediction**, **traffic**, **maps etc**. Technology like satellites, ground stations or drones can't cover specific large areas (cities or remote areas) for a long period of time (days – months). Satellites are great for global coverage and drones for short missions.

HAPS platforms fill this gap. The platform can be used for 5G data or surveillance missions, can be launched within a day and can operate remotely.



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Why we have the best technology

HAPS = High-Altitude Pseudo-satellite

Stratosyst provides sustainable, reusable satellite-like services from the stratosphere for fraction of the cost. We offer long-term operation with low latency, high resolution and rapid deployment.

The main competitive advantages:

- Light and compact design for small payloads up to 30 kg.
- Images with exceptional resolution of 7 cm
- Telecom data (3G, 4G, LTE, 5G, 6G)
- Small size of the platform compared to competitors
- Lower cost than satellites with similar performance

Our container solution enables quick and simple launch from anywhere in the world.









Ground station







Specific Use Cases



Earth Observation

Live monitoring

HAPS will provide customers currently using only satellite pictures with better spatial and temporal resolution. The data can be used by Insurance companies, marketers, farmers or traffic monitoring companies.





Telecommunication

Digital divide

HAPS will create additional layer of infrastructure to the satellite and ground network that we are using today. 3b people are lacking connectivity and HAPS will help with bringing these areas online

Natural disasters, illegal migration, search & rescue missions or wild fires are just shortlisted use cases where the HAPS can help police or fire brigades to solve the problem faster and save lives and assets.

What HAPS can do

Civil Security

Safety



Defense

Intelligence

We can see now how important is tt to have effective intelligence and how stelth target verification on survelliance can help with ddecision making in warfare.



IoT

Smart cities

Autonomous mobility, agriculture or delivery are booming. These activity are highly dependent on stable and fast internet connection that is expensive to build. HAPS can offer these services from the sky.







Stratospheric environment is challenging for payload. Since the EO market for HAPS is growing, we decided to build on space technologies and modify them to optical payload designed specifically for the stratosphere.

HAPS Payload

HD Imagery from the stratosphere

- GSD 7-30 cm •
- Design for stratospheric environment •
- Highly reliable camera designed for geo-mapping
- Multiple optics: 150 860 mm
- Market ready in 2024





STRATOSCOUT

SERVICES FROM THE STRATOSHERE

STRATOSYST's Stratoscout is a single-balloon platform harnessing Super-Pressurized Balloons, controlled by **STRATOTEGIC's Fligh Control** software developed exclusively for Stratoscout.

Stratoscout is designed **to float at a stable stratospheric altitude months uninterruptly**. This ability is achived by control of an internal pressure. The balloon is filled with lifting gas (helium). The critical innovation is a sealed airtight envelope maintaining a constant pressure differential between the gas inside the balloon and the external atmospheric pressure.

- Parabolic long-term flights
- Rapid deployment
- Low cost compared to satellite services
- Extended operational endurance compared to UAVs
- Easy global transportation
- Launch from any location
- Solar powered
- Termination upon command or automated
- Payload based on application needs: optical, IR, SAR, Lidar, telecommunications





stage; by 2029, HAPS market could generate USD 3.8 B in value as stated in NSR report 2020.

Airships revenue for the period 2019-2029 (in EUR millions)





Market

The HAPS market is gaining traction thanks to new technologies, but many vehicles are still in the experimental

Total Addressable market in EO and Telecom will reach around \$750M in 2029 and will grow, especially in telecom.

We focus on EO and smaller telecom payloads. That represents around 70% of the market.

Telecom will become the main market with the upswing of 5G and IoT. With expansion of satellite constellations & global tackling of digital divide the market will reach almost \$3000B and HAPS will play a crucial role in the overall infrastructure.

Long-term goal is to become a major player in both fields. This represents revenues in hundreds of Millions USD per year.







Revenue - EO

The best coverage and resolution on the market

1. Data Sales: HAPS can capture high-quality imagery and collect valuable geospatial data. Revenue can be generated through the sale of this data on a per-image basis or through subscription models.

2. Monitoring and Surveillance Services: This can be valuable for border control, environmental monitoring, infrastructure inspection, and security purposes. Revenue can be generated by offering monitoring and surveillance services to organizations and agencies that require real-time or periodic updates.

3. Research and Development Partnerships: HAPS platforms provide unique research opportunities in various scientific fields, including atmospheric studies, climate monitoring, and ecological research. Research institutions, universities, and scientific organizations can collaborate with HAPS operators, leading to partnerships and revenue generation through grants, contracts, or research funding.





Revenue - Telecommunication

Enhance coverage, connectivity, and capacity for telecommunication providers

 Service Subscriptions: Telco companies can offer HAPS-based communication services to customers, charging subscription fees for access to enhanced coverage and connectivity.

2. Data Services: HAPS can enable data transmission, including internet connectivity, in underserved or remote areas. Telco providers can offer data plans and charge for the data consumed by users accessing these services.

3. Partnership Agreements: Collaboration with Telco companies to extend their coverage and capacity in specific regions. These partnerships can involve revenue-sharing models or service-level agreements.

4. IoT and M2M Connectivity: HAPS can support Internet of Things (IoT) and machine-to-machine (M2M) communication, enabling connectivity for various applications (autonomous cars, smart home, agriculture). Telco providers can generate revenue by offering IoT/M2M connectivity plans utilizing HAPS infrastructure.



Competition

We are not the only one interested in the potential of the stratosphere



Airbus Zephyr

UK

The most developed project of HAPS platform. Originally developed by QinetiQ and sold to Airbus in 2013. Starting commercial operation in 2024 as AALTO.





Thales Alenia Space



The biggest HAPS platform with payload capacity up to hundreds of kilograms. The program was officially launched in April 2016. Commercial operation expected by 2028.

HAPS Mobile

Japan

Telecommunication project of

SoftBank is working together with AeroVironment on fixed-wing aircraft. First test flight of prototype performed.





Sceye

USA

Classical airship design of Sceye utilize the historical design with modern materials and electronics. Sceye is a material science company. Testing of demonstrators.

Others

Globally

Most of the companies in HAPS industry joined HAPS alliance where we work together on education and regulatory framework.

















































