

# PIONEERING 4G/5G CONNECTIVITY FROM SPACE: OPPORTUNITIES, CHALLENGES & SOLUTIONS

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OQ Technology Sarl



**ROHDE & SCHWARZ**

Make ideas real





# Pioneering 4G/5G Connectivity from Space

## Opportunities, Challenges & Solutions

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# OQ Technology today

The fastest growing 5G NB-IoT company worldwide

- OQ Technology is a Low Earth Orbit satellite operator
- The world's first LEO 5G IoT satcom company
- Global IoT and M2M satcom solutions
- Multi-Industry: energy, mining, logistics, maritime, agriculture
- Our patented technology enables billions of users to have IoT connectivity anywhere and using existing **unmodified** 5G NTN IoT modules and both terrestrial and satellite networks





# About OQ Technology



Founded in  
2016



HQ in Luxembourg  
KSA, Greece, UAE, Rwanda



Global coverage



International  
partnerships and  
customers



20+ 3GPP  
contributions  
made  
One standard  
3GPP – 5G NB-  
IoT / NTN Rel.  
17



9 Patents granted  
in EU & US

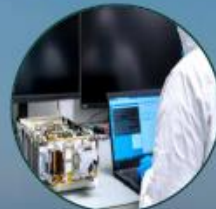


Notified OQ  
own ITU filings  
– Licensed  
spectrum and  
landing rights



€ 20 Million Funding  
raised up to date

Raising Series-B



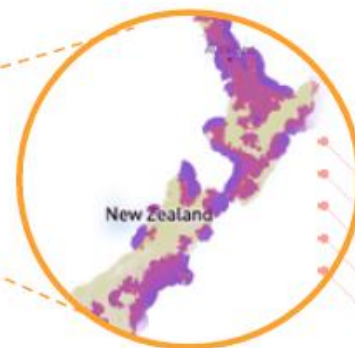
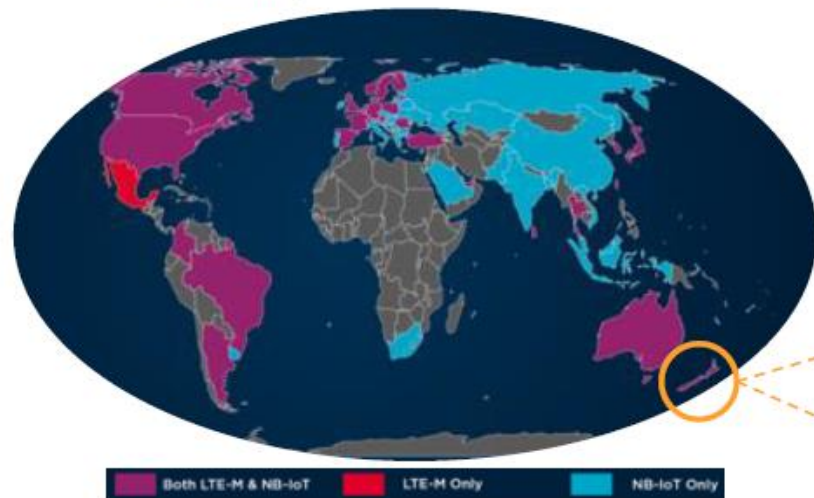
# Today's IOT Networks Have Limitations

CELLULAR is limited

- Cellular covers <20% of the world. \*
- Fragmented
- Rural coverage gaps
- No roaming
- No mobility

SATELLITE IoT not viable.

- Bulky and Power-hungry
- Hardware & Connectivity VERY EXPENSIVE
- Non-Cellular Standard / Proprietary
- No indoor reach



\*Source: GSMA, 2021

# The Unconnected



**5.61**  
BILLION

**1.0 \$**  
TRILLION



**750**  
MILLION

**20 %**  
COVERAGE



**2.5**  
BILLION

**31%**  
OF  
POPULATION



**50%**  
FATALTY  
REDUCTION

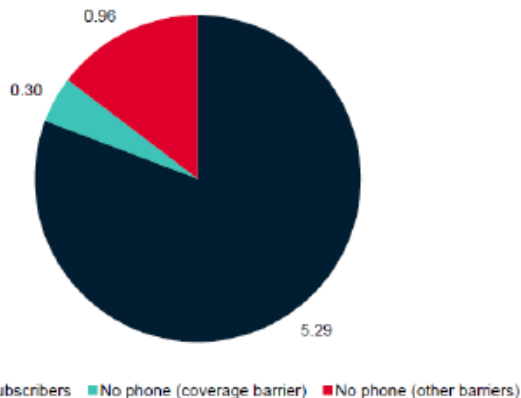


**5 American**  
Players  
Vs.  
**?? European**  
Players

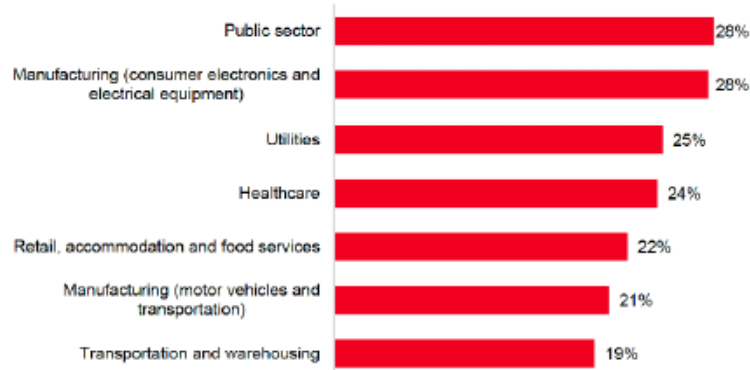
# Problem Overview

OQ Technology enables sustainable growth to vital industries

Billion



Note: Data as of 2021  
Source: GSMA Intelligence



N=2,900  
Source: GSMA Intelligence Enterprise in Focus Survey 2021

- 80% of the world has no mobile coverage
- Limited sustainable growth for vital sectors such as logistics, energy, agritech and utilities without connectivity

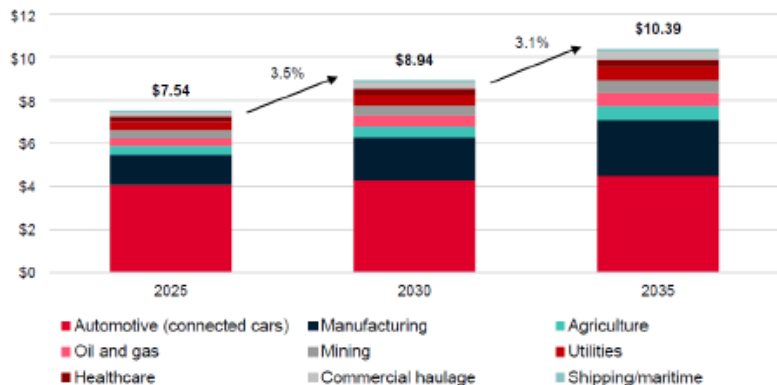


# Great Growth Opportunities

Satellite 5G IoT to reach US\$10.4 billion and connect 1.9 billion devices by 2035

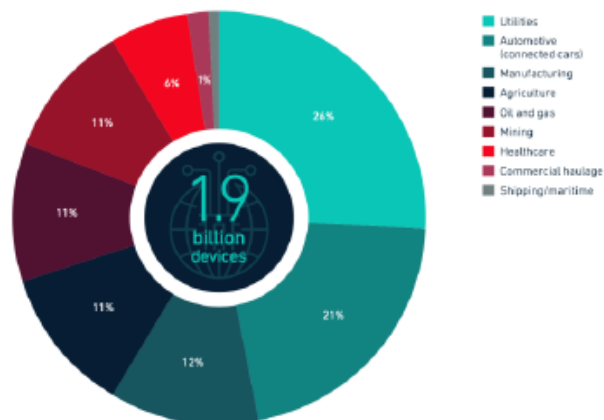
D2D satellite IoT addressable revenues will reach \$10.4 billion by 2035, mainly due to connected cars

Revenue (billion per year)



Around 1.9 billion devices (8% of the IoT market) will be addressable for direct-to-device satellite by 2035

Sector share of total



80% of the D2D IoT market requires **real-time connectivity** by satellite

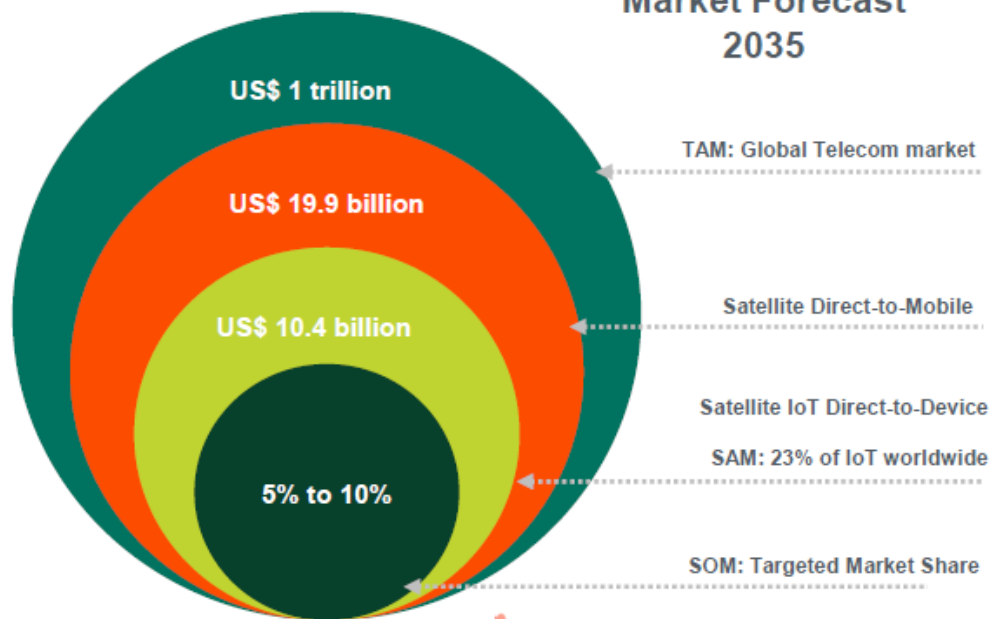


# Market Opportunity

Satellite IoT market to reach US\$10.4 billion by 2035

- OQ Technology is well positioned to address the Satellite IoT Direct-to-Device market **as early as 2024** with its 10 satellites in orbit.
- OQ Technology's short-term growth will be driven by **real-time IoT applications**, requiring the completion of the full satellite constellation.
- OQ Technology's business plan reasonably targets a market share of the Satellite IoT Direct-to-Device market **of 5% to 10% by 2035**.
- OQ Technology's long-term growth will be fuelled by the demand for **Satellite Direct-to-Mobile services** estimated at US\$19.9 billion.

## Market Forecast 2035



# The OQ ONE SOLUTION

## → ONE NETWORK

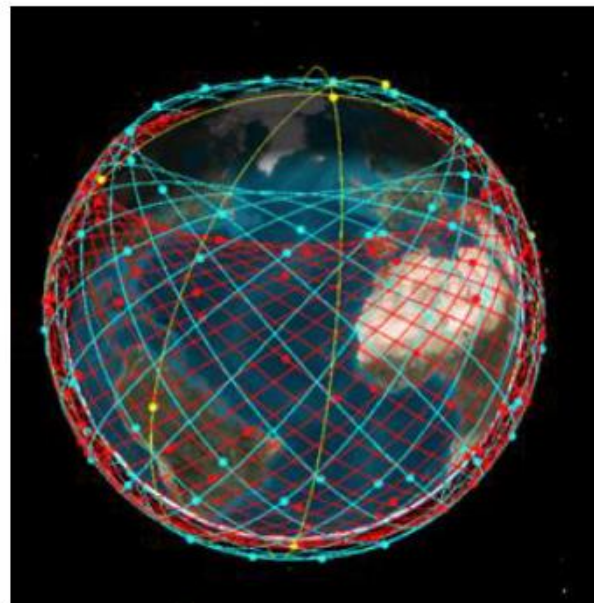
TRULY GLOBAL COVERAGE → NO COVERAGE GAPS → ULTRA-LOW, ULTRA-RELIABLE LATENCY

## → ONE SIM

GLOBAL ROAMING → NO FRAGMENTED NETWORKS → OPERATIONALLY SIMPLE

## → ONE STANDARD

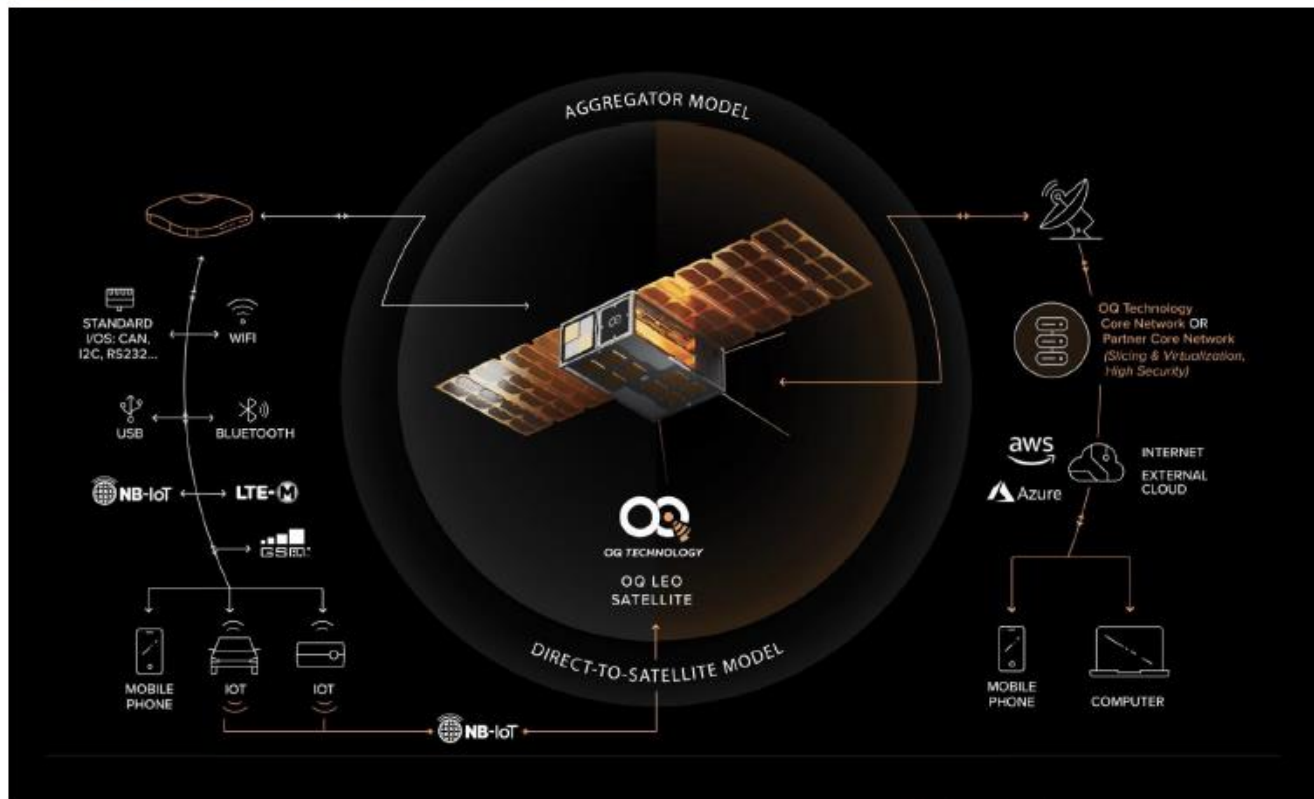
CELLULAR 5G 3GPP COMPATIBLE → WHOLESALE MNO MODEL



# At the heart of OQ Technology

## 5G IoT platforms and 3GPP protocol standardization

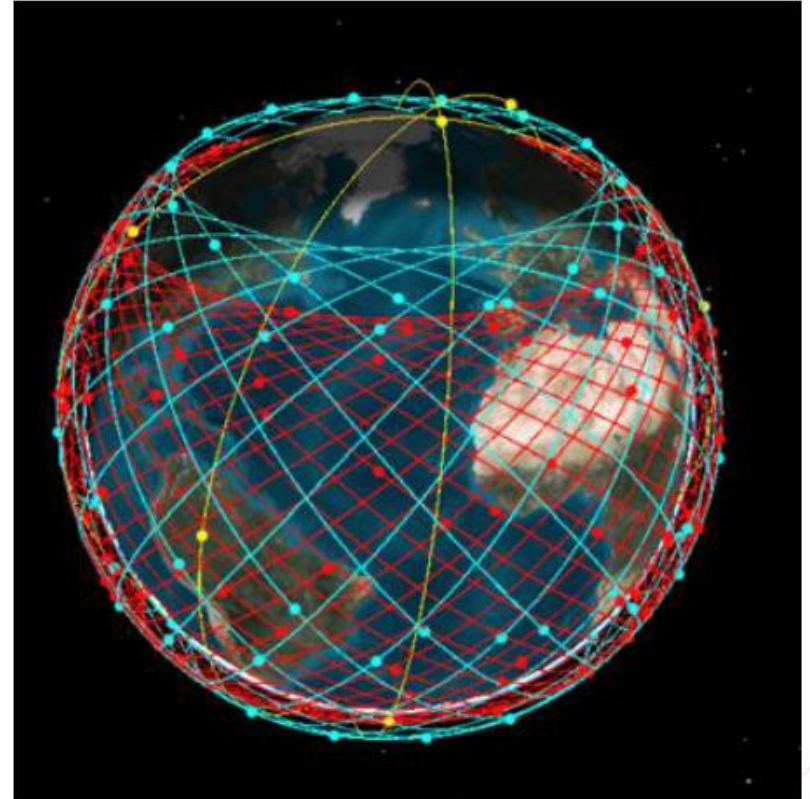
- IoT platforms
- Device management
- Application enablement
- Interoperability
- Security and privacy



# Global Satellite Service Coverage

Constellation of LEO satellites in different planes offering worldwide coverage

- OQ provides global coverage
- OQ is expanding its commercial licensing and landing rights in many countries through direct licensing or partnerships.
- Service Level Availability:
  - High Service Availability (Level 1): Middle East, Africa, International Waters, Australia, Asia, South America
  - Medium Service Availability (Level 2): Europe
  - Unavailable, will be available in future (Level 3): North America, India, China





# Our missions so far





# Products and Services

Comprehensive 5G IoT ecosystem

## Standard Devices

Interoperable SAT/Terrestrial  
Competitive prices – Product ecosystem  
Works indoors

OQ ONE



OQ TrackMe



3rd Party Standard NTN Modules



## Connectivity

Wholesale distribution  
Global Coverage – Roaming with  
Mobile Carrier (World SIM Card) -  
Flexible data plans bundled with HW



Technology/Solution Partners  
Channel Partners – Service Providers  
MNOs/MVNOs



## Platform

OQ Network Management System:  
Comprehensive dashboard  
designed to improve operational  
performance



# D2M Feasibility Study

## Innovative 5G applications – making things possible

- World's population becomes more reliant on mobile devices
- Constant satellite connectivity is becoming possible regardless of location
- Race to be the “FIRST CELL TOWER IN SPACE” is ON. This change due to the 5G shift!
- Major players are getting ready: SpaceX, ViaSat/Inmarsat, Iridium, GlobalStar, Lynk Global, AST Space Mobile
- OQ Technology is the only European player addressing this today
- Won recently & concluded 500k EUR contract with ESA to study the feasibility of upgrading OQ satellites to address direct-to-mobile.





Utilities



Livestock



Maritime



Logistics



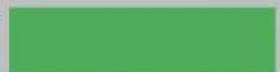
Rescue



Mining



Energy



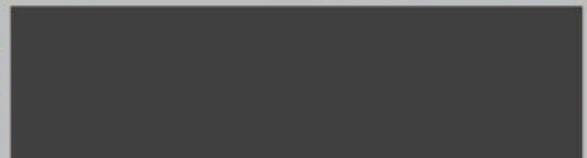
Security



Transportation



AgriTech



Wearables

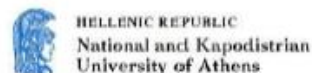


# Anchor Customers



And many more ...

# Partnerships





# Awards and Recognitions

Recognized Leader in the IoT Industry



**NOKIA**

Winner Nokia Open Innovation Challenge 2017



Mobile Satellite Newspace Award 2024

أرامكو السعودية  
saudi aramco



ARAMCO Space Age 2024 Award



Space Tech Solution of the Year 2021



Middle East Technology Excellence Award 2023



Top 10 Startups in Luxembourg

# ESG Enabler

Satellite IoT applications have a positive impact on ESG programs

## E: Environment

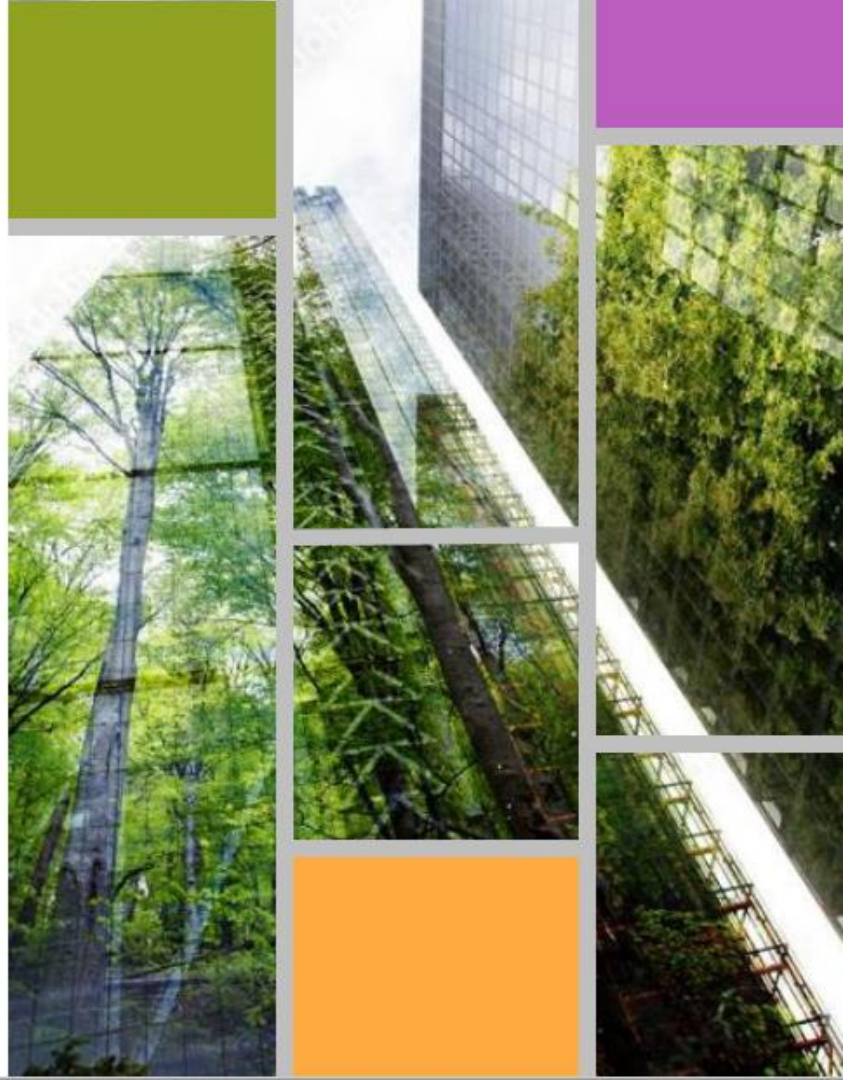
- Better use of resources
- Reduced energy consumption & lower carbon emissions
- Monitoring and conservation efforts

## S: Social

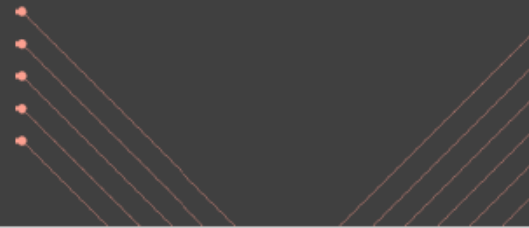
- Improving quality of life
- Enabling diversity and inclusion
- Access to rural areas

## G: Governance

- Gathering important data & set targets
- Real-time data collection and analysis
- Better compliance and governance



Thank You  
[www.oqtec.com](http://www.oqtec.com)



# Value Proposition

## OQ Technology Advantages



### 3GPP Standards:

- o Players following the 3rd Generation Partnership Project standard of 5G.
- o Any 3GPP-compliant device with NTN capabilities can connect to OQ Technology's network. Free from proprietary lock-ins, allows **scalability and easy integration**.
- o OQ has more than 14 contributions to 3GPP NTN standards



### Patents:

- o OQ Technology has been **granted 9 NTN Patents** (more in progress)
- o Patents are part of company's IP strategy, encompassing hardware and software as well as payloads
- o Protection and barrier to entry
- o **OQ patent claims map into the 3GPP NTN standard**



### Operating on Regulated 5G Spectrum:

- o OQ has **notified and brought-into-use own ITU spectrum filings** allowing the system to be used for premium enterprise, controlled applications that require high reliability and service quality without leasing expensive spectrum



### First-Mover Advantage:

- o OQ Technology boasts significant licenses & landing rights across Asia, Africa, Australia, and Europe. Licensing initiatives for the Americas are in progress
- o OQ has the first-mover advantage **having de-risked the technology and business since 2016.**



# Partnership Testimonial

LEO Satellite IoT Case Study: <https://rb.gy/p53eb>

*“ OQ Technology successfully transmitted sensor data, including temperature, humidity, and CO2 emissions, from a remote oil wellhead to Aramco headquarters. OQ is currently establishing a global subsidiary in Saudi Arabia, which will become the only 5G space network operations center in the Middle East ”.*

**Mr. Nabil Al Nuaim** - Aramco's SVP of Digital & Information Technology



وزارة الطاقة  
MINISTRY OF ENERGY



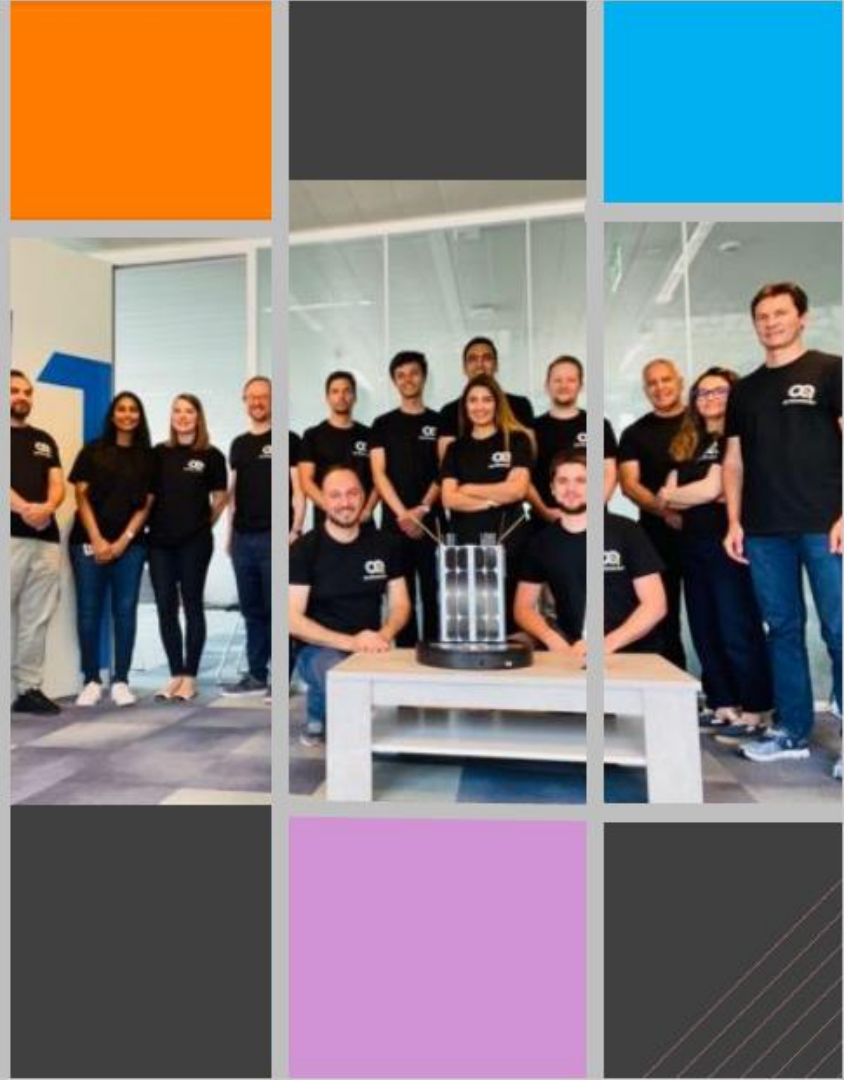
هيئة الاتصالات والفضاء والتقنية  
Communications, Space &  
Technology Commission

أرامكو السعودية  
saudi aramco





# Our Team



# Our Leadership Team

30 employees by 2024



Mohammed Al-Muhairi - Investor Co-Founder



Omar Qaise - Founder & CEO



Cyril Dufoing - CTO



Prasanna Nagarajan - CIO



Marwah Naseem - Acting COO



Michael Haller - Finance



Test. Measure. Innovate

THANK YOU  
VERY MUCH

**ROHDE & SCHWARZ**

Make ideas real

