



Welcome in a new world of Solutions and Provision of Services

# Gordionet Space

Outsourcing Services for ICT-TLC-Digital-Industry

Gordionet Business Agency

Project-Market-Business-Technologies Analysis/Intelligence - Business Development - Marketing & Sales -  
Offering and Executive Engineering - Tendering/Bidding - Integration - Solutions Marketing/Management

# Space Economy Scenario

The Space Sector in complementarity-alternative to the Terrestrial one, is in great expansion dual-use Civ/Mil thanks to the constant increase in reliability, capacity, performance, components-systems miniaturisation, global coverage of LEO MEO constellations, decreasing cost of technologies and services

From niche offer due to limited capacity/high costs (intercontinental communications, Digital Divide, Backhauling, VSATs, EO reserved for a few entities, etc.), to a new paradigm of abundance and competitive costs for nextgen LEO / MEO / GEO never experienced before

SatCom (GEO-LEO), SatEO (LEO), SatNav (GEO-MEO), benefit from the experience gained on Terrestrial for Software-Defined, Virtualisation, Cloudization, Edge, Hyperscaling, AI/ML, Digital Twin, As-a-Service, 5G Slicing

Global development trends currently focused on Multi-Orbit, Multi-Band, In-Flight Flexible Payloads, RF/IF over IP, RF MW to Laser for ISLs and UpDown Links, 5G NTN (Sat D2D)



# Gordionet's experience in the Satellite sector

Gordionet with presence in Italy and Brazil, is a professional nano-enterprise created by Managers from multinational corporations, specialized in ICT/TLC/Digital/Industry Integration, Digital Transformation, AI/ML-based Cybersecurity, Virtualization, Cloudization, Outsourcing Services  
Gordionet Business Agency

The long experience acquired in the Satellite Sector in several companies, has allowed Gordionet to operate in Ground Segment Projects and Integrations such as Teleports, VSATs, Satellite SCADA/IoT for ESCO, Satellite Internet Terminals, COTM/P Communication-On-The-Move/Pause

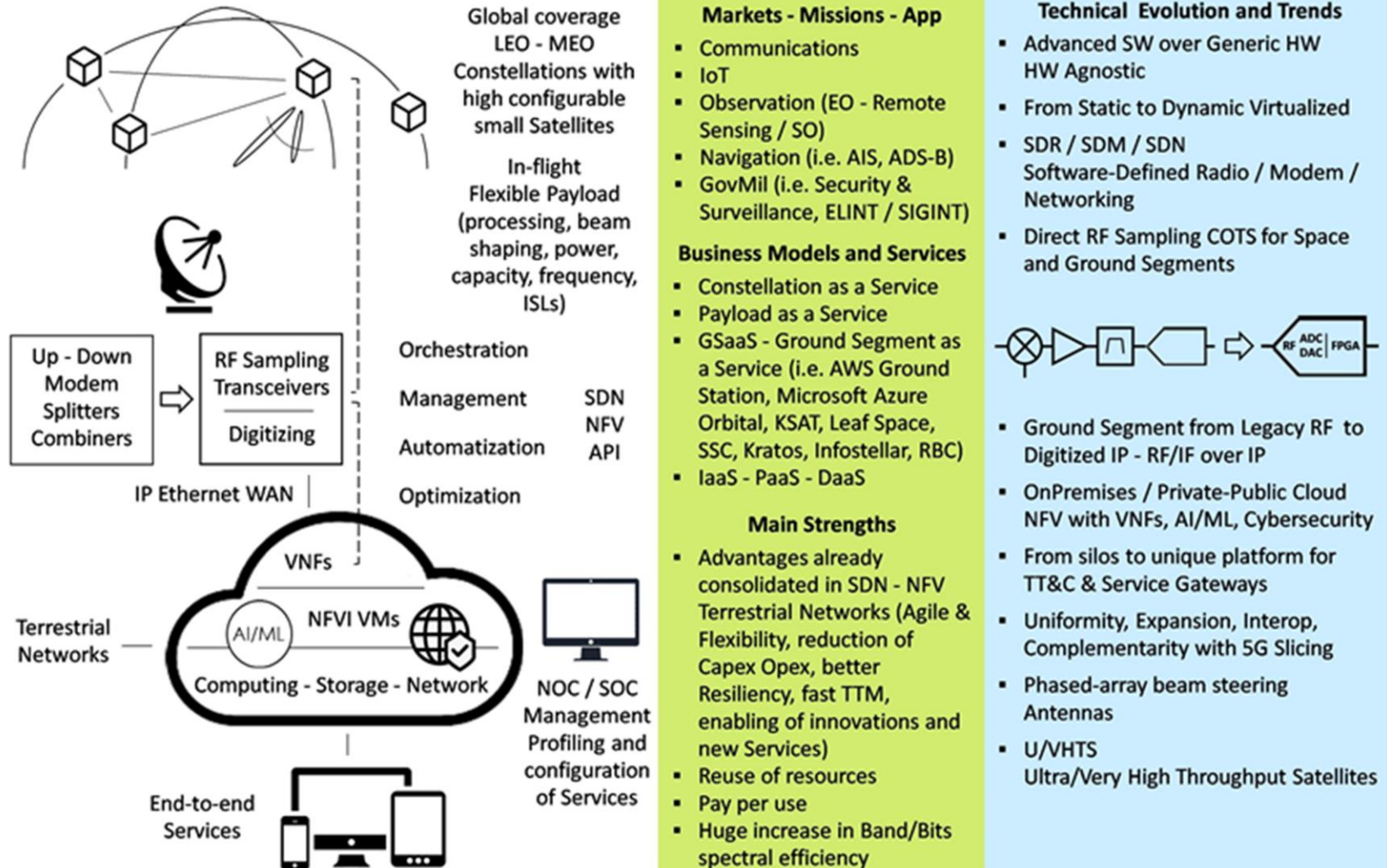
Thanks to the growing demands of the market, Gordionet is increasingly involved in Professional Outsourcing Services and for the Satellite Sector, has become an expert in Space Economy, implementing Services such as Surveys, Market-Business-Technologies Analysis/Intelligence, Projects, Business Plan, Business Development, Product Marketing/Management, Proposal and Executive Engineering, Bidding/Tendering, Project Management, GTM Go-To-Market, MarComTech Content Creation and Strategies, including the decisive contribution to the acquisition of 4 ESA Artes 4.0/InCubed projects and a NATO project survey on behalf of two sector Customers

Gordionet approved by ASI for inclusion in Italian Space Industry

# Example of evolutionary Scenario synthesized by Gordionet

A piece of future

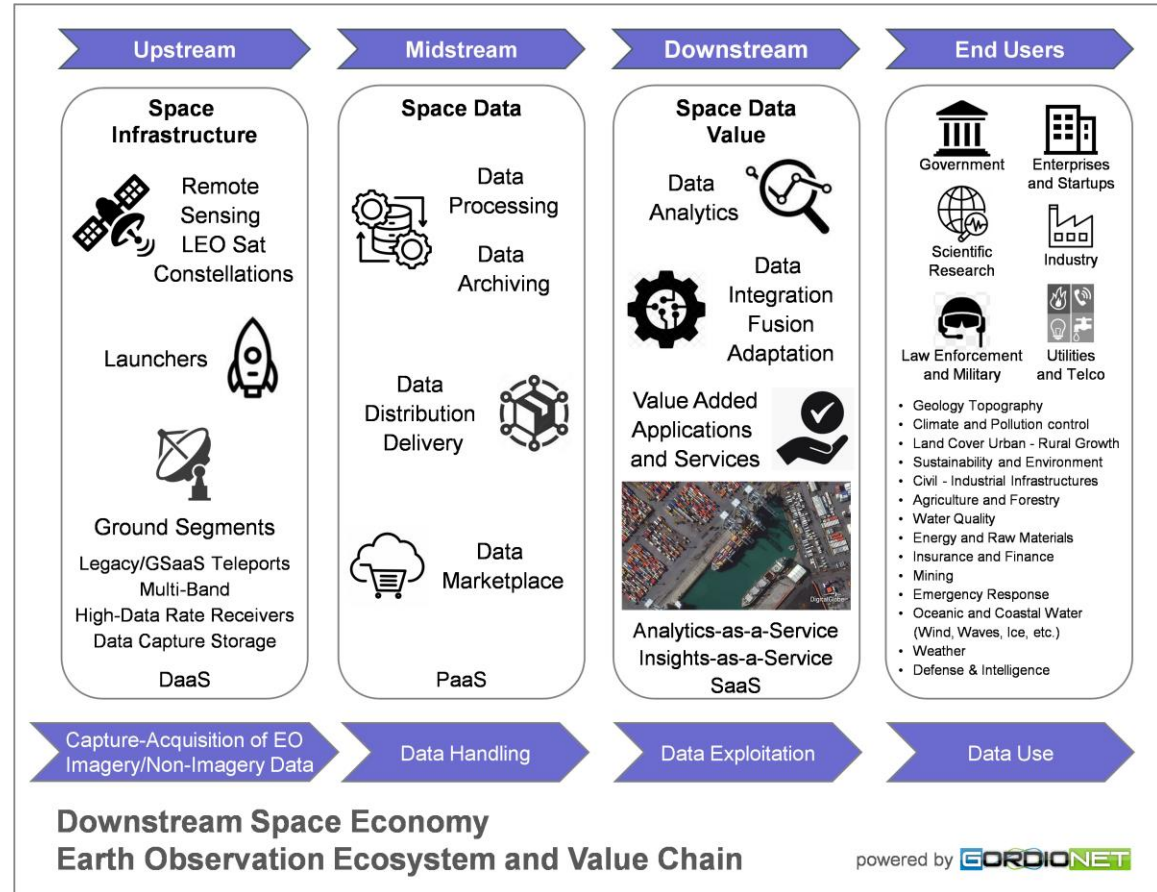
The revolution of Satellite dynamic virtualization into the Cloud



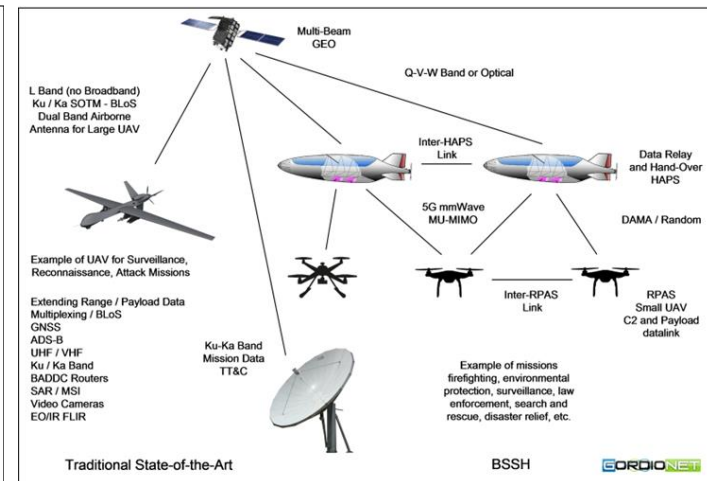
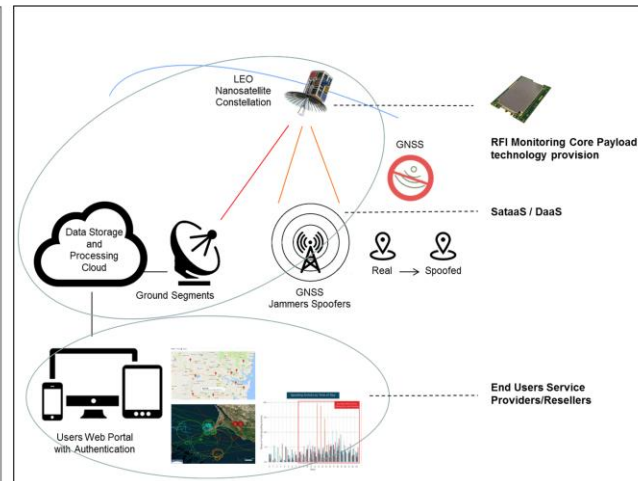
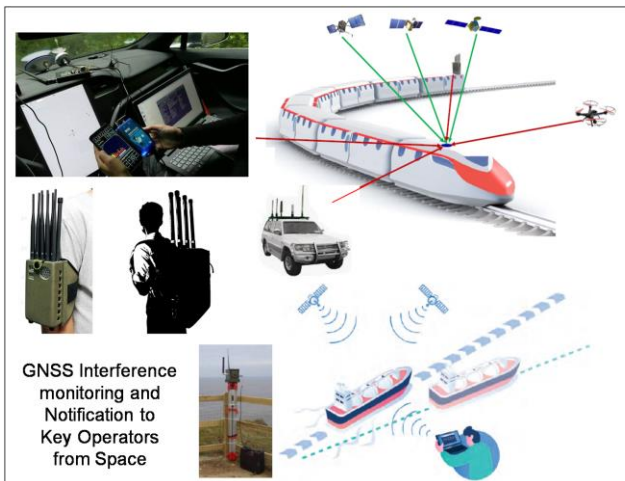
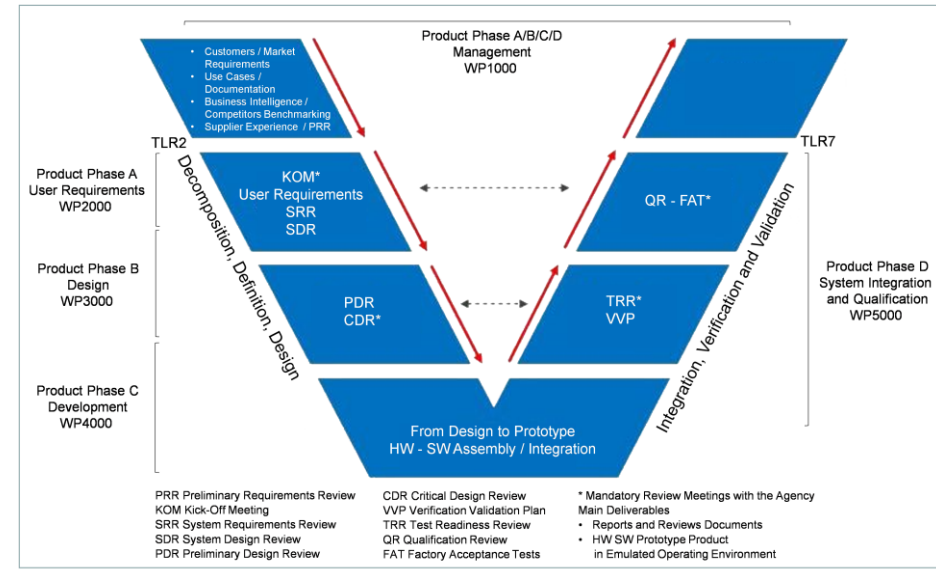
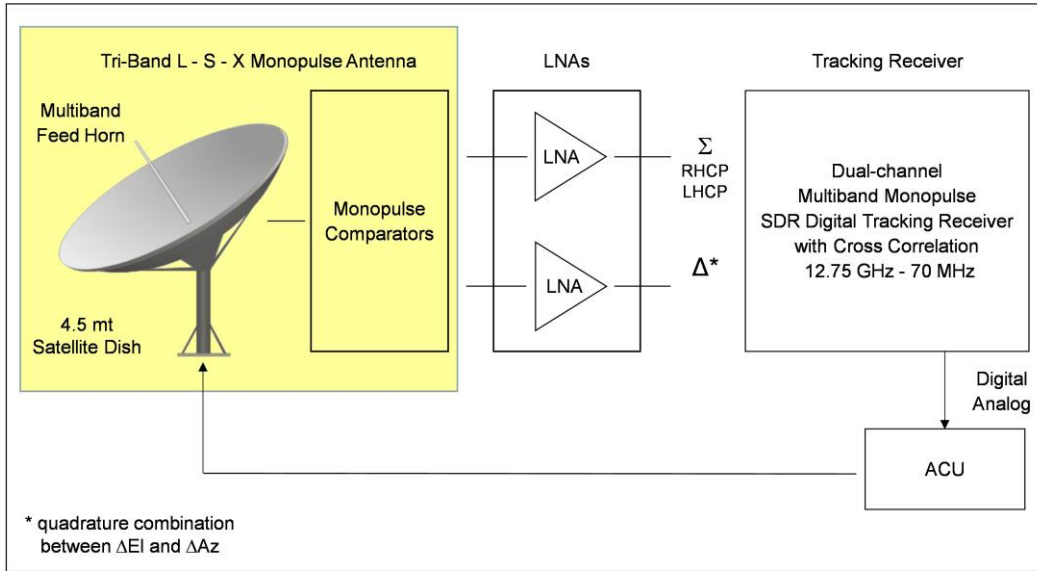
# Examples of abstracts from Gordionet surveys and contributions ESA projects on behalf of Customers - 1

Tri-Band Earth Observation Antenna for Upstream Ground Segment with scenario insights of Downstream Space Economy, Ecosystem, Value Chain

EO Downstream Economy has long been a consolidated ecosystem in constant growth for Upstream-Midstream-Downstream, thanks to an ever-increasing quality, accessibility and affordability of satellite data, and to a continuous evolution of Onboard Payload Passive/Active Remote Sensing with increasingly higher spectral-spatial-temporal-radiometric data resolutions, increasing capacity for Data Capture - Acquisition, Cloudization and VAS DaaS - PaaS - Analytics/Insights/Software-as-a-Service



# Examples of abstracts from Gordionet surveys and contributions ESA projects on behalf of Customers - 2



# Examples of abstracts from Gordionet surveys and contributions ESA projects on behalf of Customers - 3

## Deepfake Satellite Imagery/Geography

Deepfake Satellite Imagery/Geography have long been causing worldwide concern and threat on par with deepfakes on photos, videos, audios

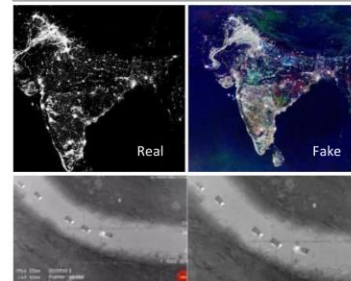
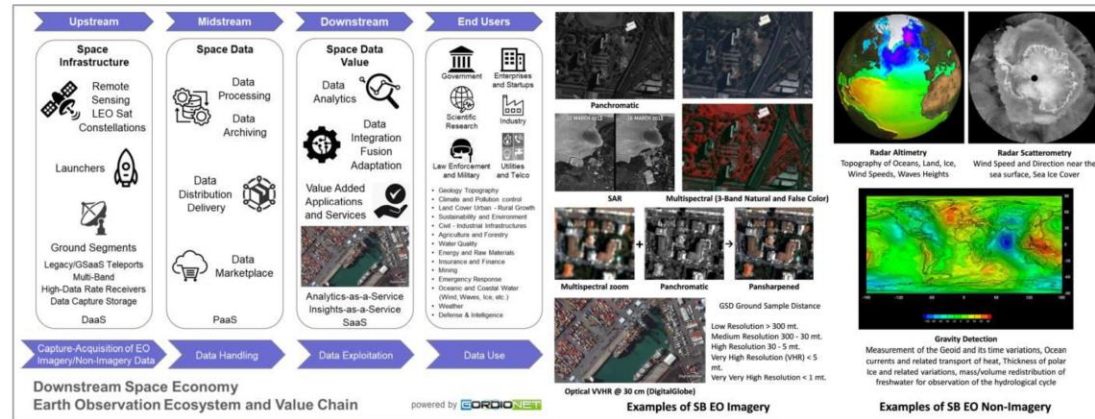
AI-ML-DL algorithms operate alterations from real content by realistically modifying or recreating and corrupting source images, according to processes and sophistications incomparably higher than photoshopping

Misuse can trigger disinformation, threaten national security, mislead public perception, influence political decisions, manipulate market trends, generate altered images for social-political-military purposes

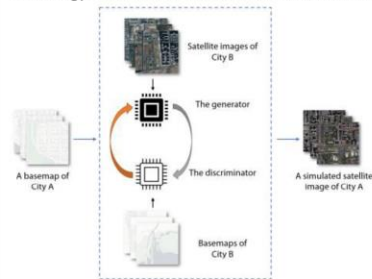
Deep Learning has revolutionized the analysis and interpretation of satellite and aerial imagery, addressing complexities such as the large size of images and a wide range of object classes

Detecting and countering Deepfake Imagery is done in the same domain as satellite image processing based on methods, techniques and algorithms for Segmentation, Classification, Object Detection, through Deep Learning models - Convolutional Neural Networks (CNN Unet, ResNet, SegNet) with training and epochs steps and processes (tools such as Python over Tensorflow Framework)

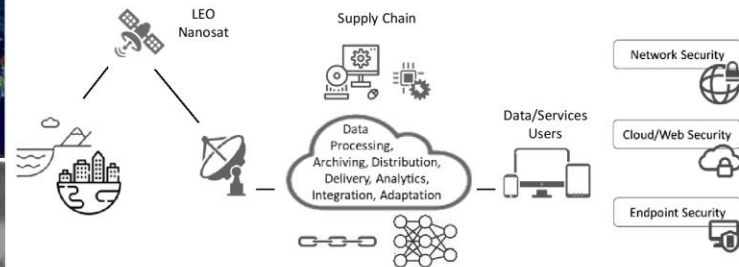
Best practices and technologies integration of Blockchain, Cybersecurity, Crowdsourced Fact-Checking



Military images of video games using AI and deepfake technology distributed with false content information



Bo Zhao - University of Washington  
AI-generated satellite imagery above image



DL CNN model in Blockchain environment (Ethereum - IPFS - Hyperledger)  
Image Acquisition - Preprocessing - Image and Metadata Hashing (i.e. SHA-256)  
- Blockchain Registration by Smart Contracts - Cryptographic and Decentralized Security (PoW, PoS consensus algorithms) - Integrity Verification

### End-to-end info generation chain

- Information Generation
- Verification and Validation
- Packaging and Structuring
- Archiving and Preservation
- Ethical and Legal Considerations

### Potential Interference

- Source Manipulation
- Unauthorized Access
- Content Fabrication
- Intermediary Manipulation

### Methods for detecting and countering interference

- Verification and Fact-Checking
- Source Authentication
- Content Analysis and Monitoring
- Metadata Verification
- Platform and Algorithmic Interventions
- Collaboration and Information Sharing
- Incident Response and Forensic Investigation
- Encryption and Data Security
- Countering Deepfakes and Synthetic Media
- Provenance Tracking and Auditing

# Gordionet Partnerships and projects support 1

Space Security / Brochure-WhitePaper on-demand

**CYBERSECURITY FOR SPACE ECONOMY**

**1 Profiled Cybersecurity: only what is needed effectively**

Cybercrime attacks have reached unsuspected services in Cyberspace, considered as the fifth dimension of the information society, with its impactness, its global reach, and its cost of technologies.

**Space Sector Critical Infrastructure**

Space Sector Critical Infrastructure is a thick surface composed of three potentially vulnerable segments: Ground Segment, Space Segment, User Segment (the last one as the weakest link in the chain). The propagation via OnPrem-Cloud, Satellite Data Channels, TT&C, ISL.

**Next-generation Cybersecurity**

From the study of evolutionary Scenarios, Customer Needs, Regulations

From the union of skills in Security, Cybersecurity, Virtualization, Cloudization, BC/DR Backup, Space

**Space Security**

Nesecon and Gordionet present a Brochure-WhitePaper dedicated to Space Security

Space Economy SatCom-SatEO-SatNav in strong expansion with Critical-Strategic Infrastructures of Space/Ground-Terrestrial Segments and Supply Chain

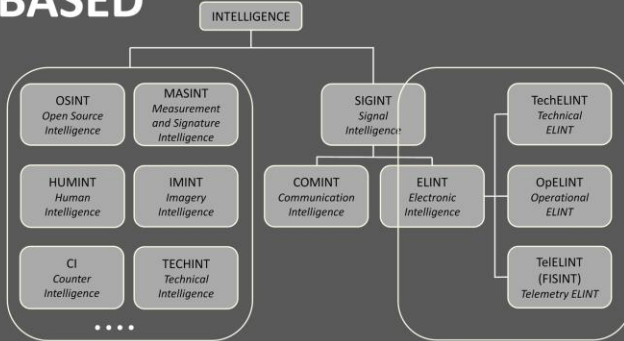
Customized modular proposals of Prediction-Prevention and Detection-Response Dynamic Multilayer, AI/ML-based (Rule/Scoring No Signature), Network, WebApp & API Protection, Endpoint

**Read more on-demand**  
[info@gordionet.com](mailto:info@gordionet.com)

# Gordionet Partnerships and projects support 2

Space-based ELINT / RFI Radio Frequency Interference security for SatCom/SatEO/SatNav GNSS  
 Gordionet support for a Customer in a project for NATO

## SPACE-BASED ELINT



- Electronic Warfare (EW) has tremendous importance to determine, exploit, reduce or prevent hostile use of Electromagnetic Spectrum (EMS)
- Electronic Intelligence (ELINT) is a fundamental part of EW for **Interception/Detection, Classification, Geolocation** of non-communicative signals (radars, missiles guidance systems, aircrafts, communication systems, weapon systems) to understand electronic activities, intentions and capabilities of adversaries or RFI Radio Frequency Interference

**Airborne-based ELINT**  
 Fighter Jets,  
 Special Mission Aircrafts,  
 Transport Aircrafts, UAVs

**Ground-based ELINT**  
 Base Stations,  
 Vehicle-mounted, Soldiers

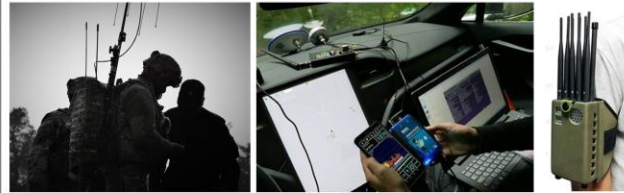
**Naval-based ELINT**  
 Ships, Submarine, UUVs

**Space-based ELINT**  
 GEO, LEO

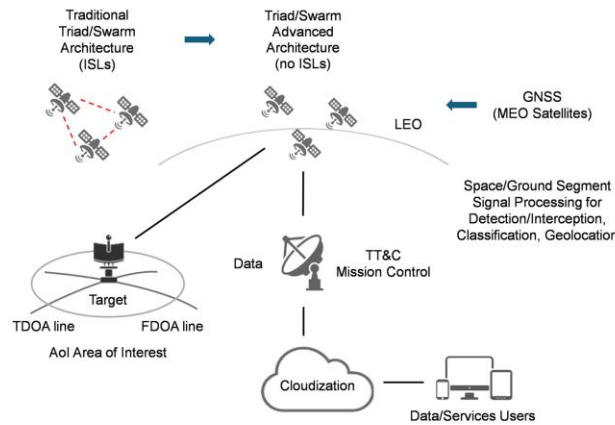
- RFI Radiofrequency Interference has become increasingly relevant with the risk of Civil GNSS Jamming-Spoofing therefore EMS Monitoring / Surveillance is now considered a Dual-Use Civ/Mil activity
- Any RF emitter, hostile or not, can represent a huge risk of Interference-Jamming-Spoofing for Terrestrial/Space infrastructures, and ELINT systems fall within the management of Signal/Space Security



- **Space-based ELINT** currently represents the most interesting development platform compared to terrestrial ones (Air, Ground, Naval)
- Persistent coverage of large areas, No need for physical access to the target area avoiding the risk of detection/interception, Accuracy, Flexibility, Real-Time Intelligence, SA Situational Awareness, Protection of critical-strategic communication infrastructures
- Developing and operationalising Space-based ELINT requires mastering high-end technologies and developing efficient SW-based solution



- Monitoring/Surveillance of the Target achieved by sophisticated triangulation AI/ML algorithms through Triad/Swarm of satellites
- The use of Payload-as-a-Service in LEO Nanosats/CubeSats with designed or COTS components, has revolutionized the scenario with Cost Effectiveness, Reliability, Flexibility, BC Business Continuity



- Respect to Inter-Satellite Links (ISLs) synchronization with considerable power and complex system management, in LEO PNT (Positioning, Navigation, Timing) architectures, autonomous satellites based on TDOA/FDOA technique use GNSS signals and Chip-Scale Atomic Clocks (CSACs) without ISLs, minimum Space/Ground Segment requirements, and GNSS for orbit determination and time synchronization

Gordionet Business Agency - Market-Business-Technology Analysis/Intelligence I  
 Projects I Expert in Space Sector/Economy I [gordionet.com](http://gordionet.com)



# Introduction to the recent survey on ESPAA

## Electronically Steering Phased Array Antennas

*From Gordionet Survey on ESPAA Electronically Steered Phased Array Antennas*

Eutelsat Tooway over GEO Ka-Band 22/6 Mbps down/up, 15 years ago was revolutionary for Digital-Divide with FWA still non-existent and a compact non-VSAT terminal.

Gordionet has integrated dozens of Tooway B2B/C systems

Starlink is currently disruptive for Digital-Divide.

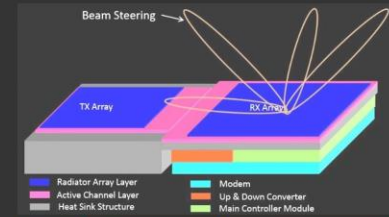
Self-pointing terminal in Ku-Band over LEO in a system that also includes Ka- and V-Band, speed 40-220/10-20 Mbps down/up (precautionary specifications being a constantly growing Constellation which in some regions already reaches 300 Mbps down, net of geo locations and congestion), latencies 25-60 ms compatible with live streaming, videoconf and gaming, ESPA Electronically Steered Phased Array flat antenna, technology already used for COTM/P CommunicationOnTheMove/Pause (Fixed, Mobile Vehicles and Trains, Maritime, Avionics, UAV, Military), App control, Ikea-style installation documentation

In addition to Nanosatellites and Via Sat Internet Terminals, Single/Dual-Band ESPA Antennas for Legacy/GSaaS Teleports are already on the market

With B2B/C terminal-subscription prices continuously falling, Starlink compares itself with FWA (over Radiolink-5G) and surpasses FTTC including cases of FTTH/B NOK delivery due to the impossibility of passing the fiber between ROE and Modem Router which requires investments in alternative channeling to be paid by the user

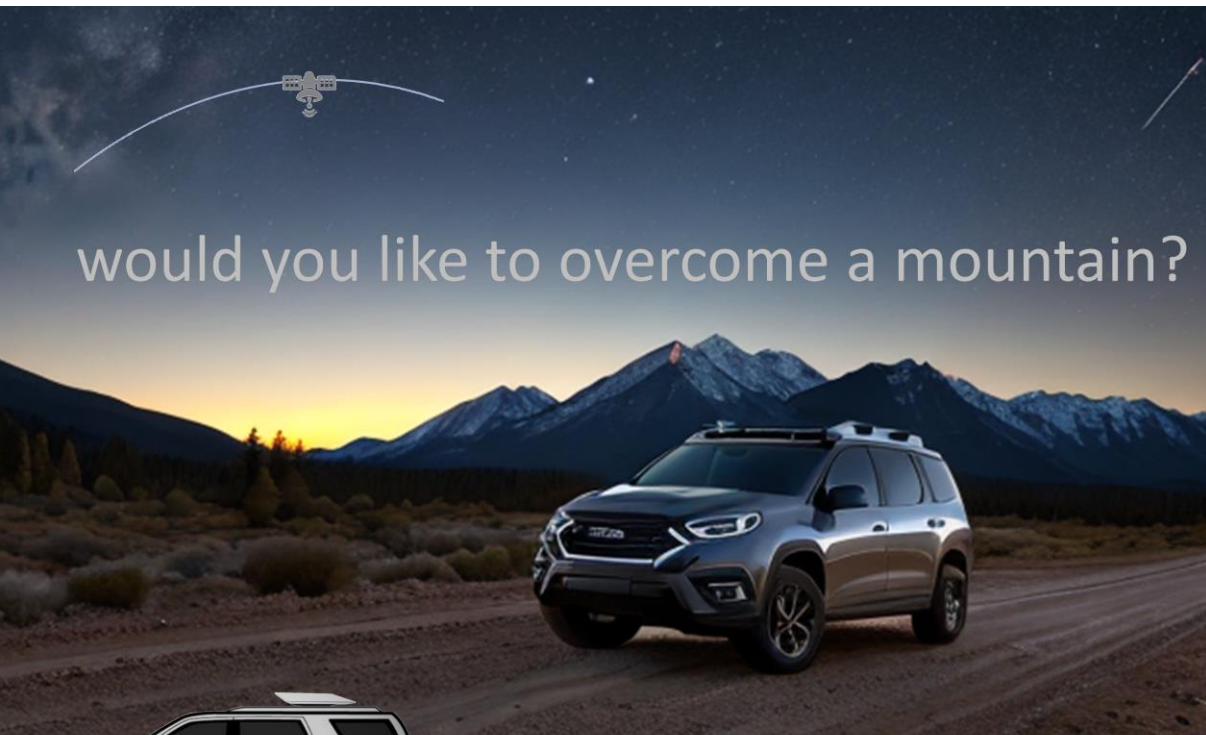
Strategic assessments are multiplying for greater complementarity between Terrestrial and HT Satellite Networks that goes beyond Backhauling, also due to FTTH-5G slowdowns and difficulties (investments, FTTH construction delays as for the gray areas, 5G Slicing not taking off)

The technological evolution continues on Ground/Space Segments for SatCom - SatEO - SatNav, with focus on Multi-Orbit, In-Flight Flexible Payload, RF/IF over IP, Software-Defined, Virtualization, Cloudization, 5G NTN




# SatCom - COTM/P Communication-on-The Move/Pause for Vehicles

Mobile Office - Hotspot - Internet - Video (SNG) - IoT - Telemedicine - Energy Plants, Wind Farms, Oil & Gas works along pipelines - Emergency



would you like to overcome a mountain?



**GORDIONET**  
LEO COTM-P up to 220d/25u Mbps - GB/TB according monthly service subscription  
Mobile Office - Hotspot - Internet - Video - IoT - Telemedicine - Emergency  
Supply or adaptation of SUV/Minivan - Terrestrial WiFi Extender - Portable Power Station



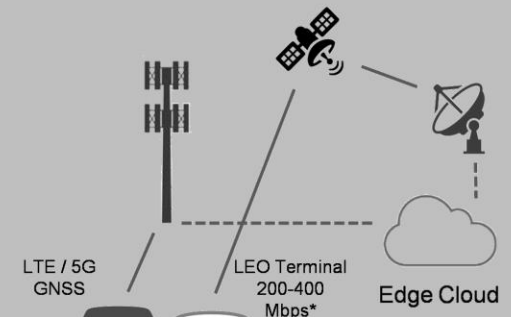
4G 5G  
WiFi  
Bluetooth  
Telemedicine Mobile Unit  
Covid-19

# Abstract from Gordionet Railways Surveys/Projects

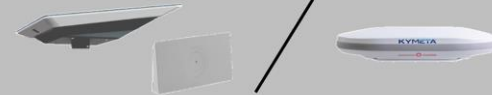
## Train-to-Ground Communication



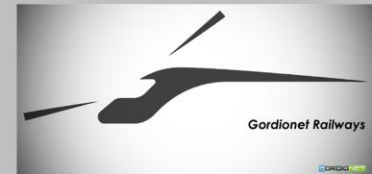
- Train-to-Infrastructure, Mobile, Satellite
- Hybrid 5G - LEO SatCom with WiFi extension is currently considered the best model
- 5G vs/complementarity LEO SatCom (intended as stable coverage on the national - international urban/suburban/rural railway line)
- Current test results for download/upload speed-latency on-the-move, upload speed fundamental for Operations / Passengers real-time video Services
- Advanced Load Balancing Router
- For onboard systems Rail stds are needed (i.e. EN50121-3-2), more rigorous for Operations less for WiFi Passengers
- Traffic percentage estimate Operations vs Passengers, average monthly TB per Passenger
- Services percentage estimate 5G vs LEO SatCom
- Business models under discussion comparing Capex investments (carriages and Control Center adaptation) and Opex reduction / ROI - Services revenues



PIS Passengers Information System - IoT - Video Surveillance - Driver Information - Infotainment / Audio Video distribution - Ticketing - Payment System - Train Diagnostics - Emergency Comm



LEO Terminals Business/Enterprise versions



# Events, Seminars, Workshops



**CYBERSECURITY  
PER SPACE ECONOMY**

La sfida sulla Sicurezza nelle infrastrutture critico-strategiche  
del Settore Satellitare in costante espansione

Webinar 25 Settembre 2024 - H16:00

Con i patrocini di

**ASSINTEL**  
ASSOCIAZIONE NAZIONALE  
IMPRESSE ICT

**CSIG**  
Ivrea - Torino

**NESECON** **GORDIONET**  
SAFE-DIVE INTO THE NET

c21-virtual events 'The 5th Epoch Series -  
Hyperconverged TMT Networks: Space + Terrestrial'

Gordionet 'Cybersecurity for the Space Economy'  
(Presentation on-demand)

Gordionet 'A New World of Solutions and Service  
Provision from Space' [YouTube Video](#)



**The 5G Journey... and the 6G Destination**

Hyperconverged TMT Networks: Space + Terrestrial Multi-Play

the 5th epoch series  
from c21-virtual

Paul Stahl  
c21-virtual  
Executive Director

# Strategies of Market Business Technologies Analysis - Business Development - Marketing & Sales - Go-to-Market / 1

- From Product oriented/Marketing oriented to Customer Needs oriented
- Whatever the Product or Service, pay attention to global trends such as Multi-Orbit, Multi-Band, In-Flight Flexible Payloads, RF/IF over IP, RF MW to Laser i.e. ISLs, 5G NTN, and especially in ICT-Digital evolution where Satellite sector is less experienced than Terrestrial such as Virtualization, Cloudization, Hyperscaling, AI/ML, Digital Twins, etc.
- More focus on SW than HW (advanced SW over generic/agnostic HW)
- Always clearly indicate where Space & Defense Product - Service fits into the End-to-End scenario, highlighting differentiations and competitive advantages



powered by **GORDIONET**

**GINKO-S Project**  
Global GNSS Interference Monitoring and Notification to Key Operators from Space

Solution Introduction Contents, images and specifications are to be considered as preliminary.

Global Navigation Satellite System (GNSS) is considered the invisible utilities of the modern society, increasingly dependent on GNSS for safety-related and commercially sensitive PNT applications in a variety of economic and industrial sectors, ranging from finance to transportation systems, to energy and telecommunications, just to mention some.



Detection and localization of intentional/unintentional jamming and spoofing, has long become a global necessity and urgency.

- GINKO-S Project Main Aspects**
- Jamming and Spoofing Monitoring of RF Sources
  - LEO Satellite Global Coverage
  - Detection
  - Identification
  - Classification
  - Geolocation
  - Mapping
- Main Technologies & Techniques**
- SDR
  - Signals Pre-Postcorrelation



powered by **GORDIONET**

**4-Channel Multiband Monopulse Digital Tracking Receiver SDR based**

Product Prelaunch Contents, images and specifications are to be considered as preliminary.

70 MHz - 9 GHz  
L - S - C - X Band



TTC system is one of the most important subsystems for communication Space - Ground - Space links.

- All-in-one tracking down conversion and reception
- High pointing accuracy
- Digital and Analog Output
- Extremely low phase noise
- Low power consumption
- Drastically lower price than traditional market solutions
- Indoor RU, Outdoor, Board Housing Solutions

locking, symbol tracking, data demodulation, beam tracking, AGC processing and filtering, has been

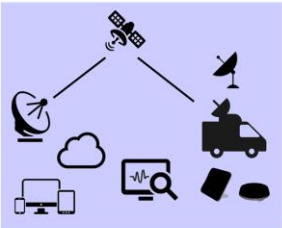
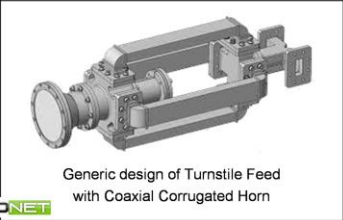
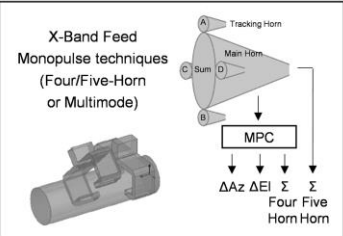
- Main Technical Specifications**
- RF Input**
- Frequency : 70 MHz - 9 GHz
  - Bandwidth : 5 MHz
  - Impedance : 50 Ω
  - VSWR : ≤ 1.5
  - Isolation Between channels : ≥ 50 dB
  - Noise Figure : < 7.5 dB
  - Sum channel dynamic range : -95 dBm to -20 dBm
  - NSD : -143 dBFS/Hz @ 1 MSPS min sampling rate (0.5 MHz BW), -153 dBFS/Hz @ 10 MSPS max sampling rate (5 MHz BW)
  - Damage level : -8 dBm
  - Input noise spectral density : -167 ± 10 dBm/Hz
  - Minimum Signal/Noise density : 3.6 dB for Non-coherent mode

# Strategies of Market Business Technologies Analysis - Business Development - Marketing & Sales - Go-to-Market / 2

- For any ESA Artes4.0/InCubed project with COTS integration or HW SW Onboard/Ground development, from TLR7 onwards respect chronograms and subsequent commercialization phases of Product - Service
- Structuring Account/Business Plans for both Ongoing and Business Development within consolidated processes, methods and tools (Agile, Scrum, CRM...), continuously exchanging all the necessary information among R&D, Integration, MarCom, Sales, Operations, Management, functional and hierarchical Depts
- Business Development and Sales strategies based more on Inbound (attractiveness) than on Outbound Marketing (proselytism)
- Communication and Digital Marketing including Social Media taking reference from US-Asian markets, even if some customer segmentations are historically not inclined to the promotion (Military, Public Administration, etc.)

General considerations: Monopulse High-Order Multimode techniques are predominantly better than Multi-Aperture techniques in terms of size, complexity, precision, simplicity and flexibility.

Monopulse Technique	Main features and applicability
Multi-Aperture Four-Horn/Probe	<ul style="list-style-type: none"> <li>• Sum signal (<math>\Sigma</math>) is generated by a Monopulse Comparator</li> <li>• For X-Band the traditional Monopulse Four-Horn technique is currently the most used</li> </ul>
Multi-Aperture Five-Horn/Probe	<ul style="list-style-type: none"> <li>• Sum signal (<math>\Sigma</math>) is generated by a central Aperture/Probe in the Horn</li> <li>• X-Band Five-Horn are used in many LEO satellite applications and do not suffer the effect of tracking modulation variation with incident linear polarization angle changes like the TE21 feeds</li> <li>• Five-Horn feeds can offer high aperture efficiency comparable to the TE21 design, however the autotracking modulation slope is inferior to the Four-Horn feed. The reduced autotracking slope is caused by the increased tracking horn displacement from the boresight axis as compared with the Four-Horn design</li> </ul>
High-Order Multimode TE21	<ul style="list-style-type: none"> <li>• In the recent earth stations the use of TE21 or HE21 is enough for tracking in either linear or circular polarized cases, and in the circular waveguide TE21 or TM01 mode or both of them, are utilized to generate the difference signal (<math>\Delta</math>)</li> <li>• TE21 has been considered as the best mode for tracking, along with TE11 as dominant mode, and TE21 mode couplers in Ka-Band are designed for tracking LEO</li> </ul>
High-Order Multimode TE11	<ul style="list-style-type: none"> <li>• TE11 mode is utilized for the sum signal (<math>\Sigma</math>)</li> </ul>
High-Order Multimode TM01	<ul style="list-style-type: none"> <li>• TM01 mode is also utilized for the difference signal (<math>\Delta</math>)</li> </ul>



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# Gordionet Business Agency Outsourcing Services



Gordionet Business Agency is a modular proposal of **Digital/ICT/TLC Outsourcing Services** for **Enterprise, PA, Carriers/Service Providers, Industry, Utilities, Energy, Railways, Oil & Gas**, valid in all cases in which the Customer wants to outsource activities or doesn't have the internal resources necessary to tackle projects or processes.

As if we were an integral part of the Customer Company, we quickly set-up and develop Support Services in total coordination and complementarity with the internal Management, at a fraction of the cost compared to permanent resources.

Making a comparison with OnPremises-Cloud platforms, Gordionet Business Agency can be considered as a Cloud Outsourcing Service

- Surveys - Market Analysis
- Business/Market Intelligence
- Sector Study
- SWOT - Canvas
- Business Plan
- Technologies Scouting
- Vendors Selection
- HR Selection
- Integration Implementation
- Project Management
- Business Development
- Lead Generation
- Marketing & Sales
- Proposal and Executive Engineering
- Bidding - Tendering
- Solutions - Products
- Marketing/Management
- Competitors
- Landscape/Benchmarking
- Product Documentation
- Pricing
- Positioning of Company - Products - Solutions
- Content Creation for Communication
- Brochures - Data Sheets
- Use Cases
- Websites - Social Media
- Seminars and Training

## Why Gordionet Business Agency is competitive and it may represent a future Contractor model

**Constantly evolving ecosystems**  
 Scenarios of Digital Transformation, impressive "advanced SW over generic HW" with AI/ML/Blockchain, Software-Defined, Virtualization, Edge, Cloud, IoT, XaaS, Network Slicing, LEO Satellite, Cybersecurity, require a technical commercial organization in which many companies cannot invest.

**Competence, flexibility, exponential learning curve**  
 Decades of tactical-strategic managerial activity, commercial, implementation of Infrastructures, Platforms and Services, have consolidated a method independently of technological solutions, in a context of skills aggregation, creativity and emotional intelligence

**An internal resource without the costs of an internal resource**  
 Based on support needs, we quickly immerse ourselves in the reality of the Customers' market, organization and portfolio, to implement the requested Services

**On-demand support with temporary customizable modularities**

[Gordionet Business Agency EN](#)

[Gordionet Business Agency IT](#)

## Examples of past Projects

# Broadband via Satellite

## Satellite Broadband unlimited freedom

- Ground Segments Access VSAT Ku - Ka Bands / Teleports, for innovative 3-4Play Services
- Eutelsat Tooway B2B - 22 / 6 Mbps
- VoIP, Data, Remote Access Servers - Platforms - Applications, IP Video (Videoconferencing, Video Surveillance, Streaming, Webcasting), Mobile Backhaul, Rural Broadband, SCADA and IoT for ESCO Oil & Gas, Forestry and Border Monitoring Control, Media Broadcast by Satellite, Military X Band
- IoT via Satellite BGAN L Band
- Earth Observation Geo-Information Services
- SOTM Satellite On The Move
- VPN profiling over Sat
- Business Development, Localization, Customers acquisition, Marketing & Sales, System Engineering and Integration, Program Management, Training





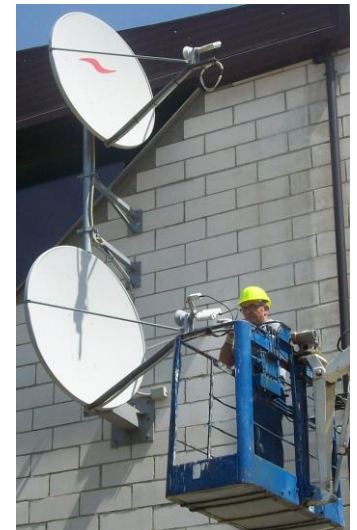
# Gordionet for ESCO, Utilities, Enterprises - 1

Gordionet has acquired an excellent experience in the implementation of infrastructures, platforms and services for isolated sites such as those for the production of photovoltaic, solar, wind, hydro power, managed by ESCO Energy Service Companies.

The needs of these sites are mainly in the possibility of LAN / WAN networks optimized for data transmission, remote parameter control, communication, security and video surveillance, whose overall integration requires multidisciplinary skills.

The location of sites in remote and isolated areas, normally requires satellite connectivity with profiles and optimizations for all voice - data - video services with the eventual providing of remote control through Gordionet NOC - SOC Services.

Remote and isolated areas further imply a flexible and professional rapid intervention organization for both implementations and maintenance, guaranteeing all the safety standards that are particularly harsh on the energy production sites due to the presence of high - medium voltage systems and in some cases high voltage transformers, that require special access procedures and on-site operations





# Gordionet Eutelsat Tooway



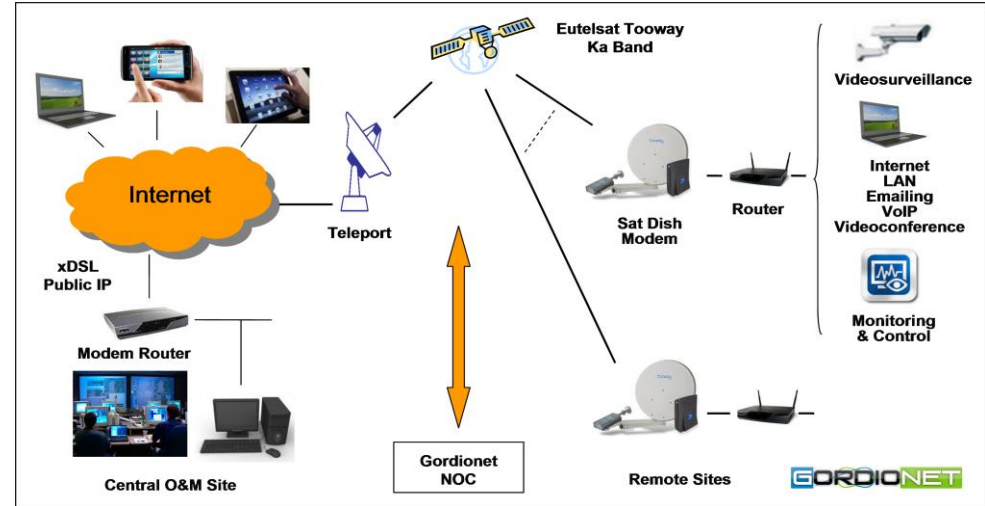
Gordionet was one of the first European integrators-resellers of Tooway Internet via Ka-Band Satellite, implementing dozens of systems for B2B/C

Exhibition stand with live Internet and Videoconference via Sat in a survival tent during a fair in the province of Rome in **2009**

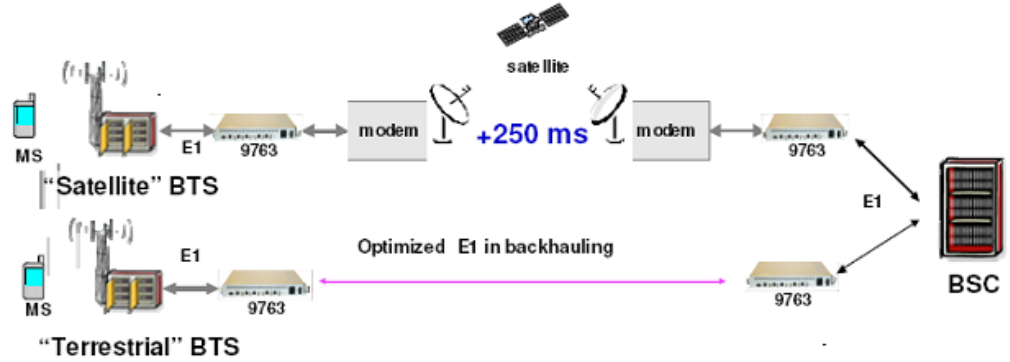
# Broadband via Satellite Internet and VPN

Gordionet designs, integrates and implements satellite connectivity with VSAT, Tooway and COTM Communication On The Move, with special care to the quality of professional installation and connectivity project

4Play voice-data-video-IPTV Traffic with VoIP Services, LAN Extension, IP Video, TV, Videoconferencing, Video Surveillance, SCADA Monitoring and Control for ESCO Energy Service Companies with parameters transmission in the Electric - Photovoltaic - Hydro - Wind Power Plants



# Alcatel A-bis compression in Satellite Backhauling for TIM Aethra Video Communication via Broadband Satellite (A. Bucciarelli as Alcatel and Aethra Director)



## Video Communication via Broadband Satellite



**Services and Connectivity**  
Professional Videoconferencing improves business performance, drastically reduces costs by avoiding unnecessary travel, improves the quality of professional and personal life, and contributes to saving the environment through the reduction of CO2 and PM10 resulting from less frequent travel.

Satellite communication guarantees Worldwide Coverage, particularly important for people and offices spread over extensive and complex mountainous regions or in other areas where it is simply not possible to have the adequate capacity levels available in the Digital Divide, the rapid implementation and activation, flexible use of satellite bandwidth, the high-quality backbone.

**Skills**  
Skylogic and Opensky, subsidiaries of Eutelsat, offer a complete satellite infrastructure with SCPC, Trunked and Mesh connections and flexible and personalized VPN Services based on customer requirements, such as bandwidth capacity and on-demand activation, with particular attention to cost and performance optimization. The international network is managed by a Teleport in Turin, Italy, with bandwidth and broadcasting control & management 24x7D.

Aethra is a world leader in the Video communication and Telecommunications markets thanks to a total range of Systems and Services for Videoconferencing and vertical applications such as Telemedicine and Distance Learning.

In the convergent Unified Communications scenario, Aethra offers high-quality business Videoconferencing anywhere anywhere with Group Systems, next-generation IP Videophones, Webconference SW applications for PC, Convergent VAS over 3G Mobile, with Multipoint, Routing and Gateway functionalities.

The Aethra Service Center manages the assistance provided to its customers and offers Rich Media Managed Services, with flexible combinations of Systems – Traffic – Services with the possibility of operating and financial Leasing.

**Synergies and Benefits to the Customers**  
Thanks to the combination of strength and capability, the partnership between Aethra and Opensky Skylogic, represents an innovation and an advantage for all customers within Small, Medium and Large Enterprises and Organizations, Government Bodies and Rural Communities. The potential arising from this agreement is available to all Sales Partners, Distributors, Resellers and Dealers worldwide.

**The Network**  
The total network scenario made available through these synergies, allows customers to choose from any type of configuration in terms of system, connectivity, capacity and service.



### Main characteristics of the End Point Systems and Satellite Access\*

#### Aethra Vega X3 Group System

For small-medium meeting rooms for groups of 2- 5 people, with connectivity up to 512 Kbps over ISDN and up to 2 Mbps over IP H.323 - SIP, video coding H.261 H.263++ H.264, Dual Video H.239, Continuous Presence, Frame Rate up to 30 fps @ 768 Kbps, Video resolution up to 4CIF, Broadband audio 14 KHz, Embedded 4-site MCU

#### Aethra Mala XC IP Videophone

A top class next-generation IP Videophone for personal and executive videoconferencing: POTS, IP H.323, SIP, Transmission rate up to 768 Kbps, monitor LCD TFT 7" 16:9 at high-resolution 800x480, CIF@30 fps, Broadband Audio 14 KHz, Video IPPBX, IP Centrex, IP PBX Hosted, Web Browsing, Emailing

#### Codec Aethra AVC500 + SD Camera

For large meeting rooms with customised audio and video installations

#### Satellite access system Skylogic D-Star

Antenna from 0.9 to 2.4 m, Bandwidth C or Ku, SSPA from 0.5 to 5 W, Access MF-TDMA / DVB RCS, Modulation QPSK – BPSK, Symbol Rate from 156 KSym/s to 1.25 MSym/s

### Example Proposal

Service	Bandwidth for access point UL / DL	Main characteristics of the service
SatLink Flat	Basic 128 / 128 Kbps Super 256 / 256 Kbps	Dedicated bandwidth per single terminal
SatConference Flat	Basic 512 / 512 Kbps	Dedicated bandwidth for 1+ terminals
SatConference On-Demand	Minimum 2 Mbps	Dedicated bandwidth for 1+ terminals Advance booking, hourly rate


For all technical and sales oriented details, Aethra and Opensky Skylogic invite you to refer to the corresponding qualified partner, distributor or integrator.

\* all characteristics are detailed on websites [www.aethra.it](http://www.aethra.it) [www.open-sky.it](http://www.open-sky.it) in collaboration with [www.skylogic.it](http://www.skylogic.it)



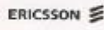
# Creation of ERISAT concept as integration of Terrestrial systems and VSAT

(A. Bucciarelli as Ericsson Director)



ERISAT


Switching in the sky




ERISAT Standard F1 In-orbit Satellite Earth Station with MD110 Point-to-Point Connection



VSAT Rural Network Remote sites with Ericsson Edge Small Public Exchange

**ERISAT, Switching in the sky**

ERISAT was created five years ago. It is a concept of Total Solution which proposes the integration of earth systems directly produced by Ericsson, and satellite communications, giving the Customer the advantage of a single interface able to manage the entire project with a "key in hand" philosophy.


Within the global net which can accommodate VSAT architectures and technologies or very precise point-to-point connections, ERISAT permits the integration of the wireless gateway for the public and private user products like AXE, ANS, AXD, MD110, BusinessPhone, Edge, with the terrestrial earth link and connections of the most through Transport Networks and

The Access of wireless and wireless.

The ERISAT solution with its voice services, data services, images and Internet, is strongly recommended in the case of a small number of users in a large geographic area with the added requirement of a rapid activation of the system and specifically for Rural Networks where continuous links may be present.

The satellite transmission is generally preferred in long distance connections both for synchronous (SVC-DSC) networks as well as fixed networks (AXE-4000).

ERISAT obviously serves a need in the market which has presented the realization of contracts for the approximate value of 13 billion with the projects in Nigeria, Tanzania and Latin America in the space of five years.



ERISAT




Red Rural Integrada de Comunicación Voz y Datos por Transmisión VSAT


Ericsson Telecomunicazioni - ROMA



# Creation of a Total Solution concept with Shelterized/Transportable Ground Stations including PABX - Elettronica SpA (Leonardo)

(A. Bucciarelli as Elettronica SpA Satellite System Engineer / Commercial Proposal Manager)

**"STCS 2000"**  
STAZIONI PER COMUNICAZIONI VIA SATELLITE  
Satellite Earth Stations



**el** ELETTRONICA S.p.A.

WINDING SYSTEMS - AEROSPACE - ELTECH - MICROTECH

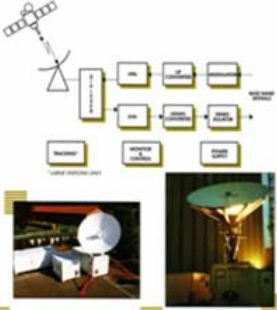


Lo standard di trasportabilità e mobilità stabilisce i livelli di ingegnerizzazione:

- Capacità di lavorare 24 ore su 24
- Capacità di lavorare in zone di estrema difficoltà (alta quota, zone polari, zone desertiche, ecc.)
- Capacità di lavorare in zone di estrema difficoltà (alta quota, zone polari, zone desertiche, ecc.)
- Capacità di lavorare in zone di estrema difficoltà (alta quota, zone polari, zone desertiche, ecc.)

Il sistema è in grado di operare in modo continuo in ogni condizione ambientale.


Il sistema è in grado di operare in modo continuo in ogni condizione ambientale.



**S**PECIFICAZIONI TECNICHE PER GLI STAZIONI PER COMUNICAZIONI VIA SATELLITE

Block Diagram: C, T, S, R, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ.

**"CS 101"**  
STAZIONE DI COMUNICAZIONE  
Communications Station



**el** ELETTRONICA S.p.A.

WINDING SYSTEMS - AEROSPACE - ELTECH - MICROTECH



# Thank you!

**GORDIONET**



Smart Integration  
Digitalization  
Business Aggregation  
Outsourcing Services



Imagine the world as you would like it

Smart Integration  
Digitalization  
Interactivity

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Constant Touch

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