Phi-Labs
Entrepreneurship & New Business Models

Frascati, 12 November 2018
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SpaceTec Partners – where space technology means business
### Past engagements and clients along the space value chain

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<td>Cosmo-SkyMed Progr. Mgmt.</td>
<td>Maritime Services</td>
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<td>Galileo use in outer space</td>
<td>User Feedback Mechanism</td>
<td>Copernicus Cost Benefits Analysis</td>
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<td>Galileo Timing Service Concept</td>
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<tr>
<td>Earth Observation</td>
<td>Navigation</td>
<td>Other Space</td>
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**Past engagements and clients along the space value chain**

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  - Galileo use in outer space
  - Non-dependence study atomic clocks
  - EU Micro-Launcher Demand & Supply Analysis
  - SSA Impact Assessment
  - H2020 Development
  - Small Satellite Market Analysis
  - PPP Evaluation Support
  - CleanSpace Impact Assessment

- **Data**
  - Cosmo-SkyMed Progr. Mgmt.
  - User Feedback Mechanism
  - Galileo Timing Service Concept
  - Galileo High Precision
  - EGNOS Programme Support
  - Geo Cluster development
  - Copernicus Data Policy Study
  - EO VHR Study
  - Access to Finance Study

- **Information**
  - Maritime Services
  - Copernicus Cost Benefits Analysis
  - Downstream Market Assessment
  - Ecosystem Workshops
  - Space Innovation Procurement
  - EMS Outreach
  - Copernicus Accelerator
  - InfoSessions
  - Data Security Study
  - GNSS.asia Challenge
  - Incubator development
  - Space Ecosystem development
Selected startups from SpaceTec’s coaching portfolio

**Strategy**
- mynaric: Laser terminals air & space
- Aeronautik: The 3rd aircraft
- DATACOMPASS: Marine real-time analytics
- accurision: Low-power cm-positioning for IoT

**Investment Readiness**
- Terraloupe: Geointelligence & machine learning
- UBISCALE: Enabling geolocated IoT
- NAVDEC: Safe marine navigation
- ChipCraft: Single-chip based navigation

**Market Access**
- VanderSat: High-resolution moisture data
- baimos: IoT authentication
- ThinXNet: Operating system for IoT
- TeleOrbit: Locating solutions

**Funding**
- United Maps: Hyperlocal maps
- BASELABS: Data fusion for automated driving
- astrocactum: Connected space telescopes
- Nogago: Mobile app for Outdoor
NewSpace technology trends

- **As of March 2018**
- **Innovation Trigger**
  - Autonomous Vehicles
  - Deep Learning
  - Quantum Computing
  - Energy Harvesting in Space
  - Strong AI
  - Manufacturing in Space

- **Peak of inflated Expectations**
  - Predictive Maintenance for Space Systems
  - Smart Robots
  - Edge Computing
  - 5G
  - Nanotechnology

- **Trough of Disillusionment**
  - IoT Platform
  - 3D Printing in µ-Gravity
  - Evolved reusable Launcher Systems
  - Autonomous Vehicles
  - Evolved expendable Launcher Systems
  - Autonomous Operations performed by weak A.I.
  - Carbon Nanotube Electronics
  - Commercial UAVs (Drones)
  - Holistic Observation and Health Monitoring
  - Optical Communications
  - Automated Change Detection
  - Software Defined Anything (SDx)
  - Automated Data Fusion
  - Consumer 3D Fusion

- **Slope of Enlightenment**
  - Augmented Reality
  - Space-based M2M Services
  - Virtual Reality
  - Strong A.I.
  - Autonomous Operations performed by weak A.I.
  - Carbon Nanotube Electronics
  - 3D Printing in µ-Gravity

- **Plateau of Productivity**
  - Enterprise 3D Printing

Plateau will be reached in:
- Less than 10 years
- More than 10 years
GeoIntelligence is a key pillar in NewSpace

- Number of Earth Observation satellites tripling vs last decade
- Free open data sets providing an enormous amount of data available for analysis
- Near real-time and high resolution satellite imagery heralding a new wave of services
- New modes of data transmission and distribution in the sky, air and on the ground
- Leaps in processing, big data and grid computing allowing petabytes to be analysed
- Innovative method for weather forecasting
- Earth observation a key alternative data for financial markets
GeoIntelligence is mostly a complex B2B or B2G game

Weather forecasting value chain and key players

**Weather Satellite System Providers**
- AIRBUS
- ThalesAlenia
- EUMETSAT
- Lockheed Martin
- Boeing
- Mitsubishi Electric
- Tyvak
- Blue Canyon Technologies

**Satellite Operators**
- EUMETSAT
- ESA
- NASA
- JAXA
- ISRO

**Global Weather Modelling Operators**
- ECMWF
- NCEP
- Environment Canada
- The Weather Company
- MeteoGroup
- Meteo-Logic
- Meteo-France
- Meteo-Service

**Commercial Weather Services Providers**
- AccuWeather
- MeteoGroup
- Meteo-Logic
- Meteo-France
- Meteo-Service

**PUBLIC SECTOR DRIVEN**
- + other NMS with regional models

**PRIVATE SECTOR DRIVEN**
- Spire

**EMERGING ACTIVITIES**
- AND THEIR AMBITIONS

Source: SpaceTec Partners Analysis
B2B or B2G Business Models for a player like Spire

**PRODUCT**

- GPS-RO PROFILES
- NUMERICAL WEATHER PREDICTION OUTPUT
- THEMATIC DATA PRODUCTS

**TARGET CUSTOMERS**

- Numerical weather prediction centres
- Commercial weather service providers
- End-users in application domains
More Geolntelligence examples – with European founders

**ICEYE**
Detect changes, gain insights and make better decisions

**SPACE\text{KNOW}**
Transforming data from space into actionable intelligence

Economic activity and resources feed into financial info terminals

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**partners**
Natural resource management: Oil reservoirs

Oil storage monitoring using German Satellite TerraSAR-X

A birdseye view of the global economy
Networking is key in B2B: A SpaceTec coaching example

VanderSat turns satellite-derived climate data into valuable information across all sectors with patented downscaling method to get higher granularity out of EO data.

**2015/16:** SpaceTec Partners meets VanderSat at networking events

**JUL ‘16:** SpaceTec Partners visits VanderSat and discusses target customers

Satellite observed water data. Globally, Daily
How SpaceTec Partners works with Startups

Real life example of “AIDA” in B2B market development

<table>
<thead>
<tr>
<th>A</th>
<th>Awareness</th>
<th>Attract the customer/user attention</th>
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<tbody>
<tr>
<td>I</td>
<td>Interest</td>
<td>Raise user interest by focusing on and demonstrating advantages and benefits</td>
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<tr>
<td>D</td>
<td>Desire</td>
<td>Convince users that they want and desire the product/service and that it will satisfy their need</td>
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<tr>
<td>A</td>
<td>Action</td>
<td>Lead users towards taking action and adopting the product/service</td>
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JUL ‘16: SpaceTec Partners introduces VanderSat to SwissRe using a 4 page concept teaser

AUG ‘16: SpaceTec- arranged teleconference with SwissRe experts

SEP ‘16: VanderSat capability demonstration at SwissRe HQ with SwissRe data

OCT ‘16: SpaceTec proposed exclusive R&D Contract

MAR ‘18: Press announcement: VanderSat included in opti-crop, the SwissRe farm management platform
SpaceTec Partners work with GeoIntelligence entrepreneurs

**Services**

- Refine business plans and value proposition
- Develop business strategy
- Identify potential customers and approach strategy
- Support licence and co-operation agreements
- Define staff requirements and support recruiting
- Link to extensive network in industry and institutions
- Support fundraising and liaison with investors

**Arrangement**

- Mentoring in ESA-BICs or Phi-Lab
- SpaceTec-supported Accelerators
- EIC coach under SME Instrument
- Certified coach of selected seed funds
- “Sweat Capital”
We can help you advance on the space financing chain

<table>
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<tr>
<th>Idea</th>
<th>Incubation</th>
<th>Seed</th>
<th>A-Round</th>
<th>Later Stage</th>
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<td>Incubators &amp; Accelerators</td>
<td>Regional funds (DE)</td>
<td>Generic Private Venture Capital</td>
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<td>- ESA business incubation centre</td>
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<td>- Copernicus Accelerator</td>
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<td>Research programmes (e.g. ESA, H2020, National)</td>
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<td>- Wasserschutz-Gründerfonds</td>
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<td>Networking platforms</td>
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<td>Specialised Space Venture Capital</td>
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Talk to us during ESA Φ-week