

Space Applications funding: a world of opportunities

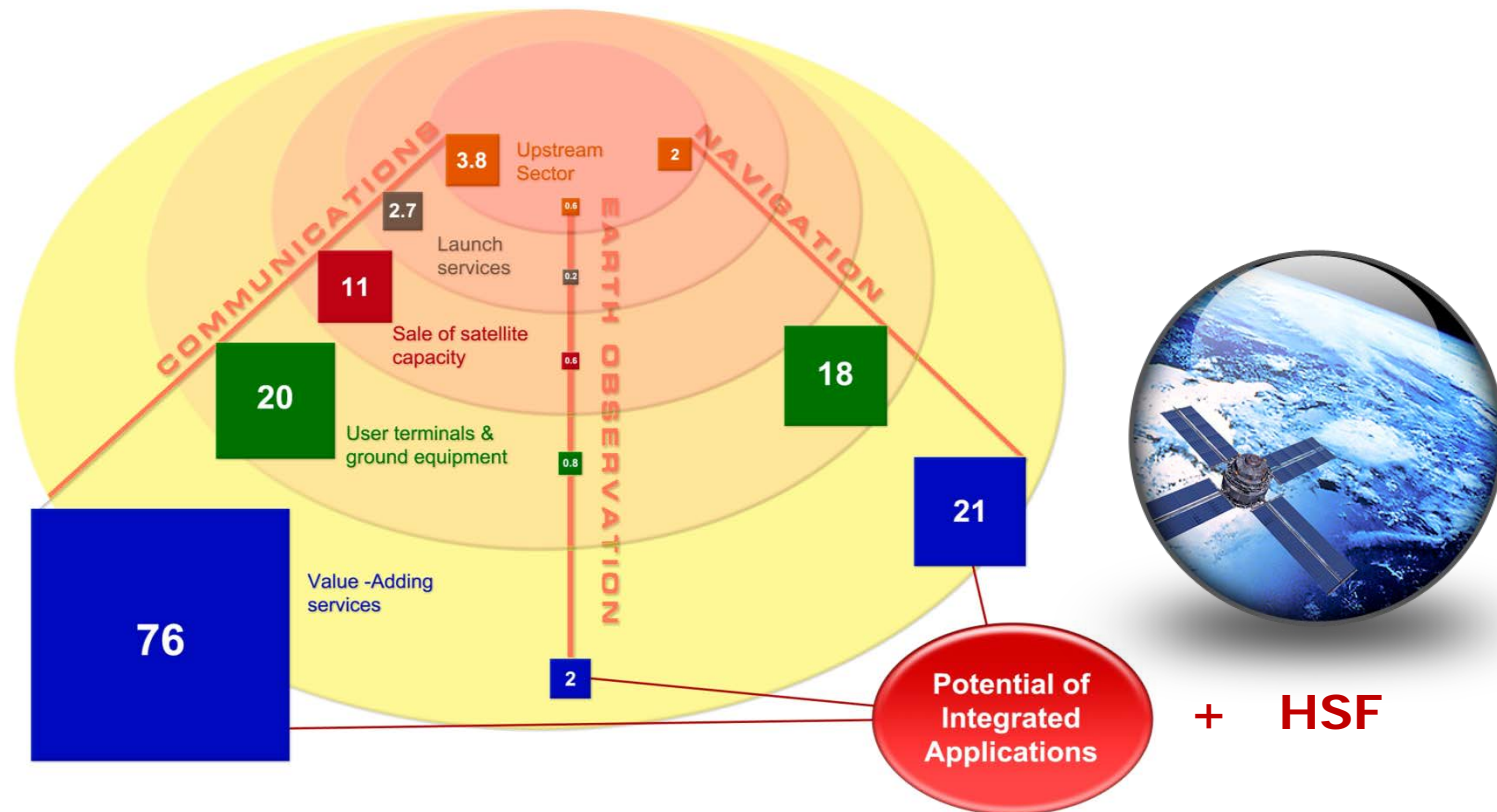
Innovative Funding Opportunities Offered by IAP Programme

6th Annual ARTES Applications Workshop
in Cooperation with BELSPO, April. 27-28th 2016, Brussels
Amnon Ginati, European Space Agency (ESA)
Amnon.ginati@esa.int

European Space Agency

The Three Value Chains in Commercial Satellite Applications

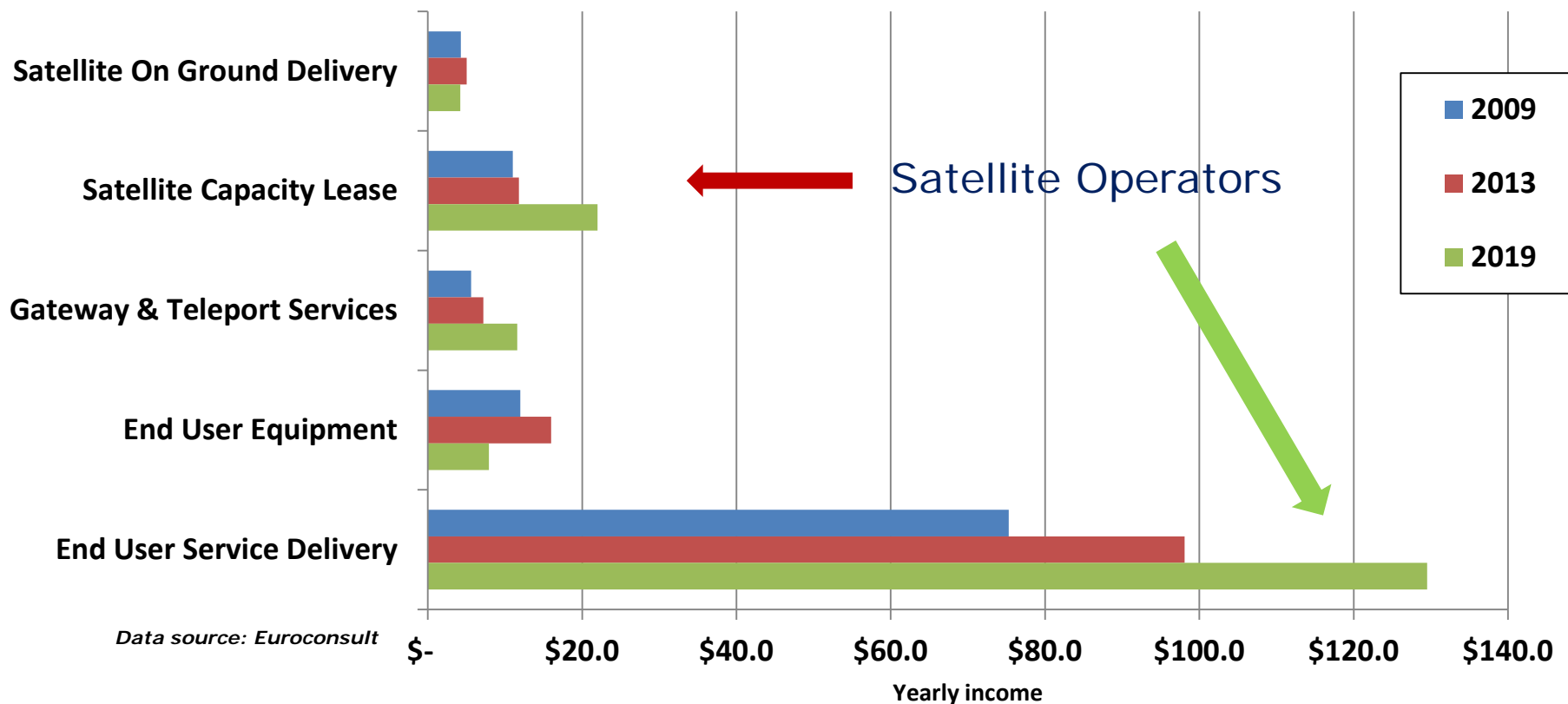
Global Space Market Revenue in US\$Bn



Source: Euroconsult & GSA, 2009/10

2009-2019: Revenues shifting downstream in the value chain

Variation of income for each role of the value chain
(in \$ Billions)



Data source: Euroconsult

BENEFITTING THE UK

There is a global market for satellite data and the UK is at the forefront of providing satellite solutions to the world.

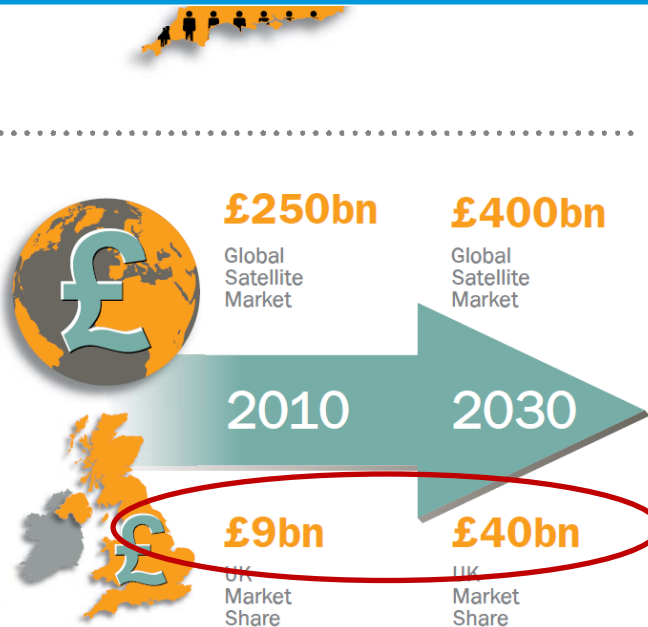
UK Government and industry are committed to growing a **£40 billion UK industry** by 2030.



UK Growth will be achieved through a mix of space infrastructure and space-enabled services, with the aim to grow downstream revenues.

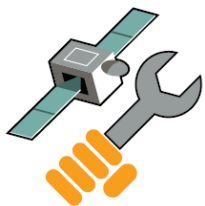


With long standing expertise in satellite manufacture and data applications, combined with an entrepreneurial outlook, the UK is well placed to take advantage of the changing landscape ahead.

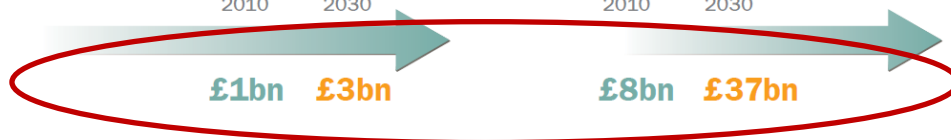
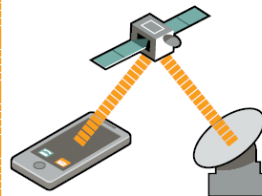


Extract from the 2014 UK „Satellites for Everyone“

MANUFACTURE AND INSTRUMENTS



SERVICES AND APPLICATIONS



Provide Far-reaching Funding Opportunities SMEs/Start-Ups Training/Funds etc



Funding Stream (exists up to Demo)

Seed
Capital

Start-up
Capital

Development
Capital

Concept
Development

Feasibility
Study

Demonstration
Project

Project
Company
Creation

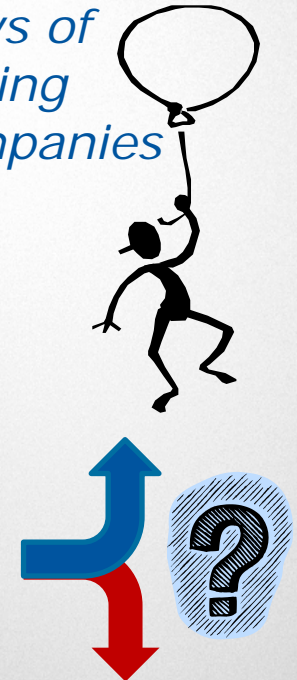
Service
Incubation

Investment &
rollout readiness

Business Support Stream

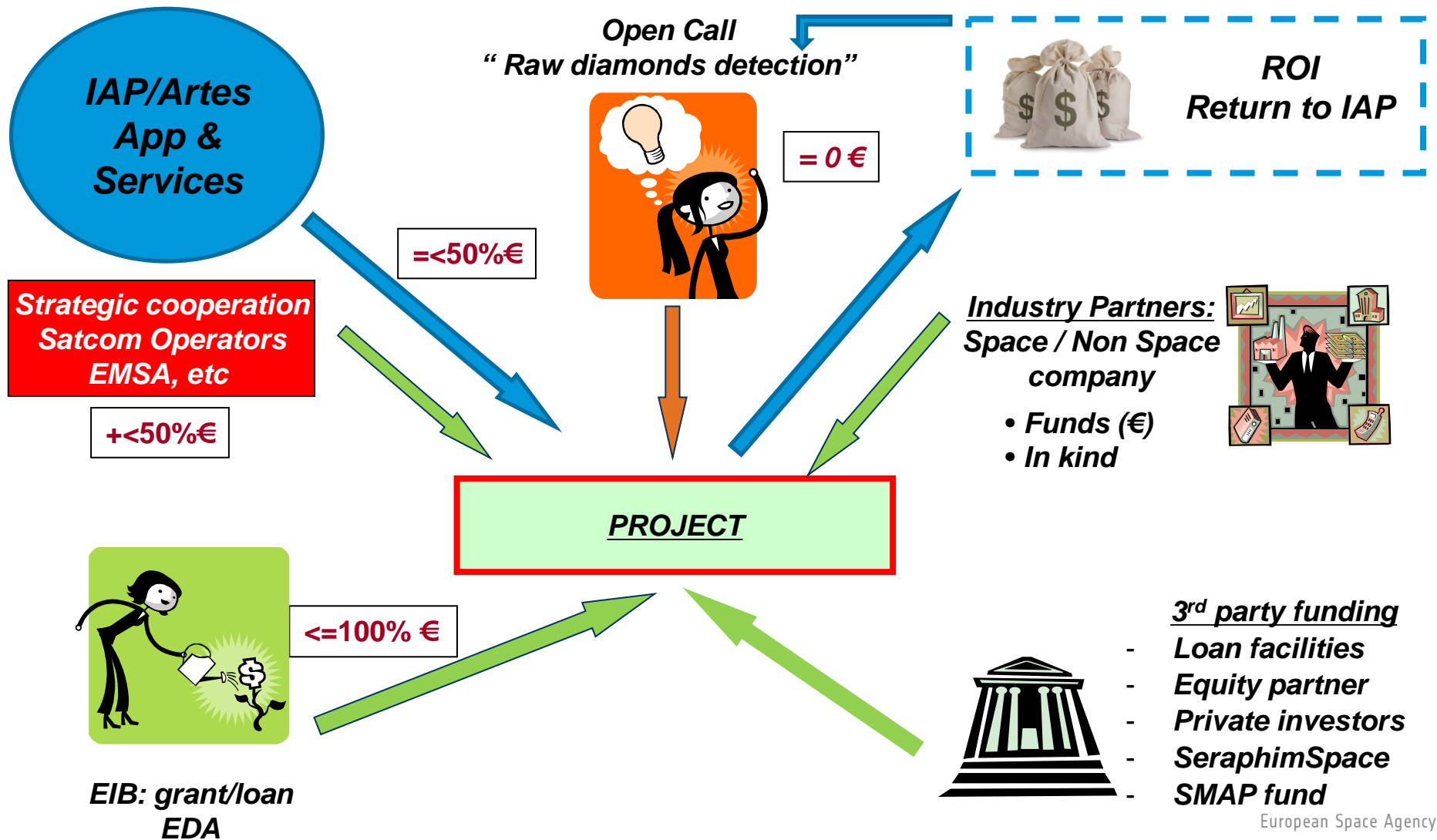
*New ways of
supporting
project/companies*

*Funding/
Resource
Cliff*

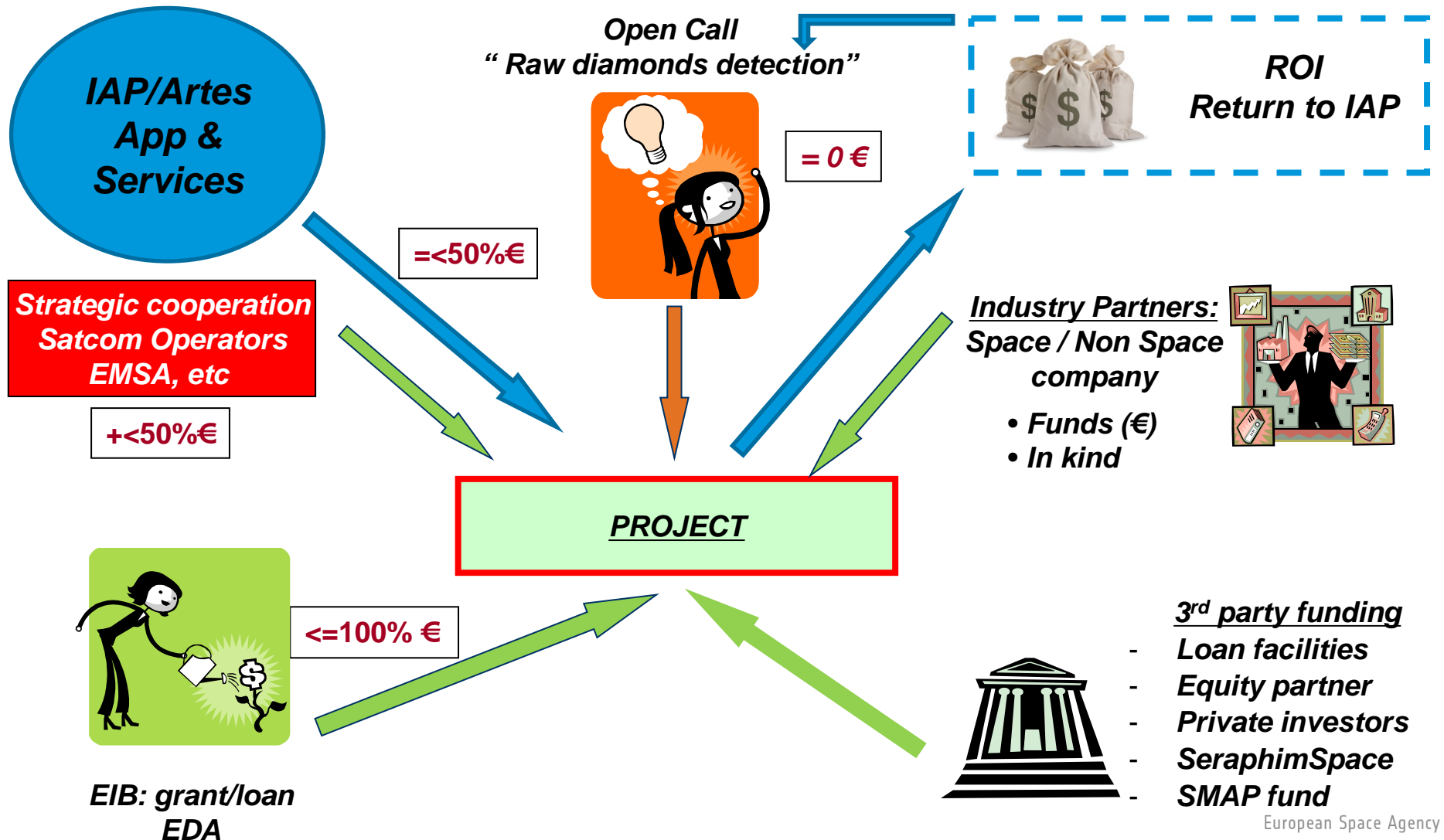


*No further support for
Project/companies*

Various Options are available to Promote New Applications/Services Ideas



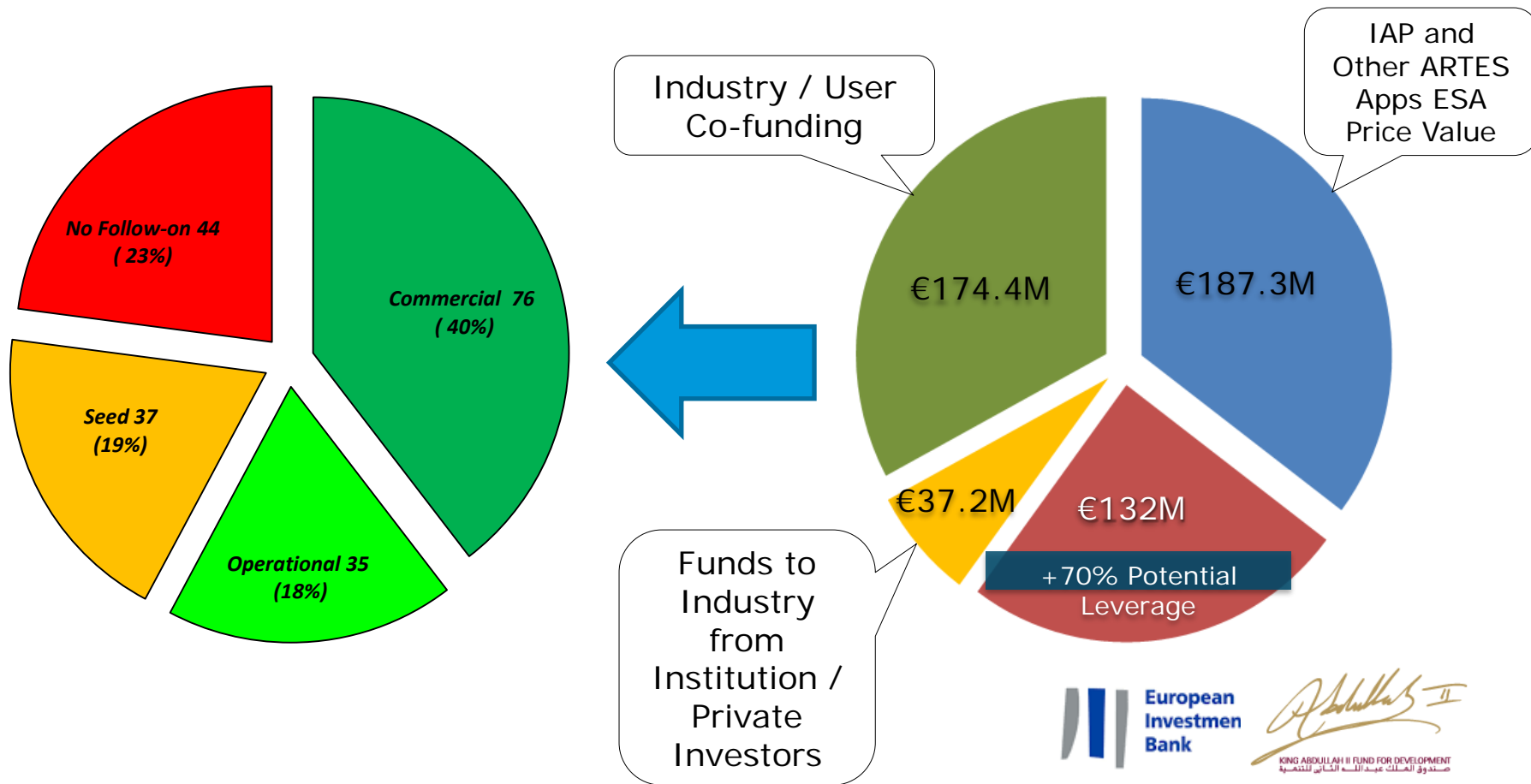
Various Options are available to Promote New Applications/Services Ideas



Achievement & Financial Structure



The data collection initiates from the **192** completed and appraised projects from ARTES Integrated applications and service programmes.



IAP Socio-Economic Impact (SEI)

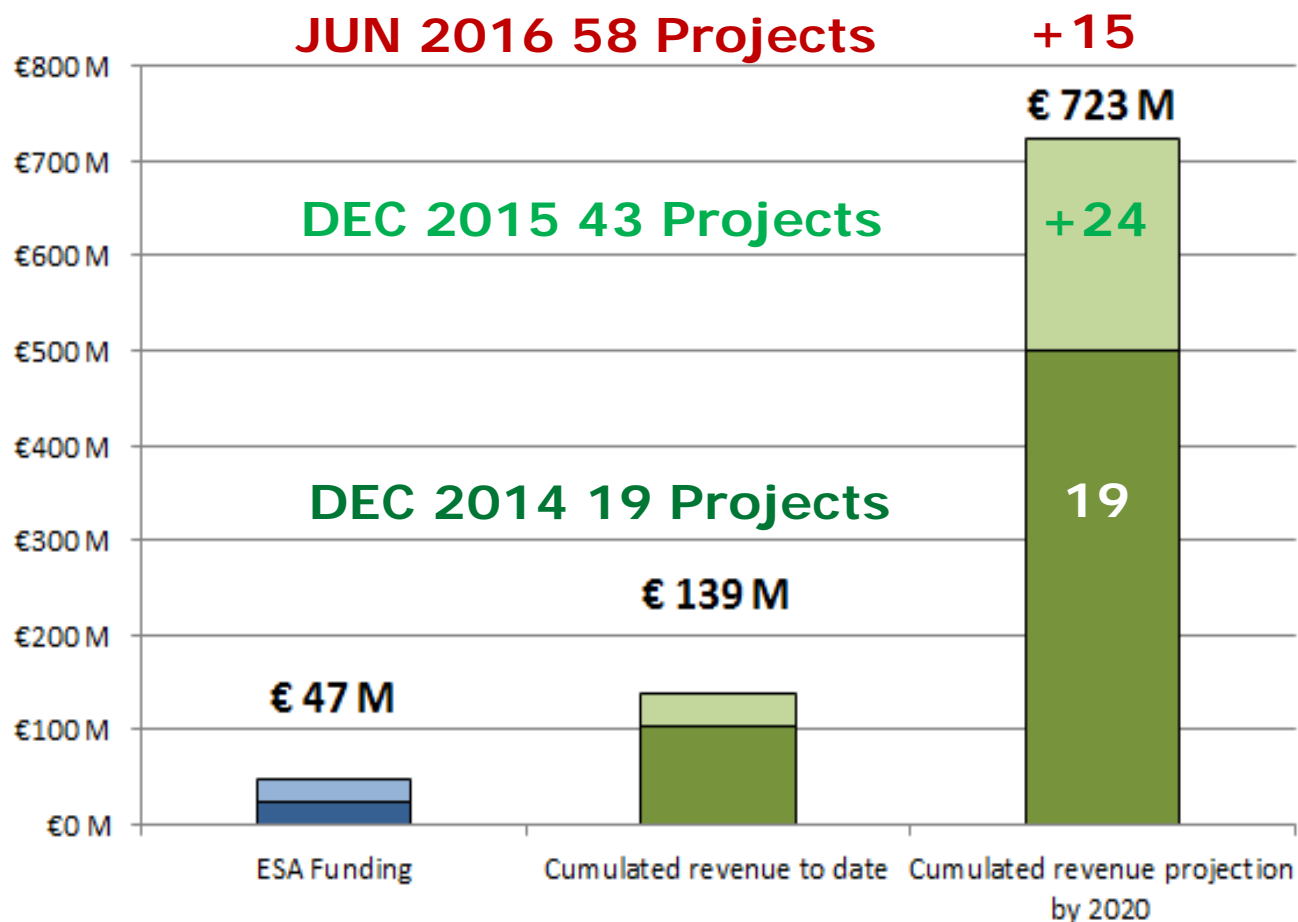
43 project's: Dec 2015



impact appraised against
10 Societal -Economic
indicators

Cumulated revenue to Date, 3 : 1
Cumulated revenue projection 2020, 15 : 1

#	Description
1	Revenue 15 : 1
2	Exports >70%
3	Jobs 280.5
4	Investment leverage € 30.2 mln
5	R&D spend uplift
6	Extent of the value chain
7	Addressable market size
8	Value creation
9	Societal benefits
10	Innovation impacts

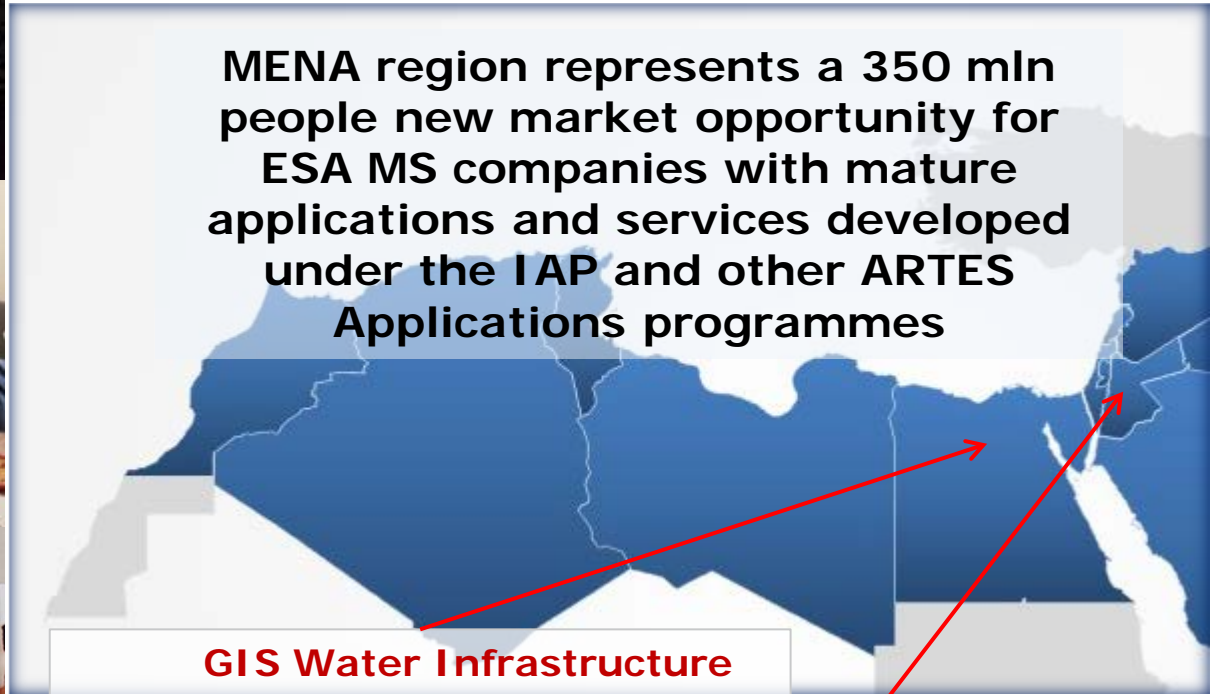


S4Med and SMAP in collaboration with EIB



S4Med has been initiated to foster economic growth in the FEMIP countries

MENA region represents a 350 mln people new market opportunity for ESA MS companies with mature applications and services developed under the IAP and other ARTES Applications programmes



GIS Water Infrastructure Mgt in Egypt

The **SMAP** TA in Jordan and up to 16 mln € fund will foster collaboration between European companies and local entrepreneurs.

European Space Agency

FEMIP, Facility for Euro Mediterranean Investment Partnership
MENA, Middle East and Northern Africa
S4Med, Space for Mediterranean Programme
SMAP, Space for Mediterranean Acceleration Programme

Seraphim Space

FINANCIAL TIMES

August 10, 2015 1:17 pm

European Space Agency teams up with venture fund

Peggy Hollinger, Industry Editor

Share Author alerts Print Clip



European Space Agency

The European Space Agency is linking up with the UK's first venture fund focused on the business of space to provide potential investments in promising start-ups.

The unusual alliance will give an ESA director a seat on the advisory board of Seraphim Capital, which will launch the £83m Space Venture Fund in October.

Even the private equity industry is sitting up and taking notice. A new dedicated space fund is to be launched by Seraphim Capital in October and is being backed by investors including Airbus, a major player in the sector.

The Telegraph

artes applications

[HOME](#)
[OPPORTUNITIES](#)
[PROJECTS](#)
[COMMUNITY PORTAL](#)
[BUSINESS NETWORK](#)

ARTES Applications Portal

- About ARTES Applications
- Event Calendar
- News Archive

ARTES 20 Integrated Applications Promotion

- Overview
- Working with ARTES 20 IAP
- Funding Schemes
- Proposal Guide
- Open Competition
- Direct Negotiation

ARTES 3-4 Satcom Applications

- Overview
- Working with ARTES 3-4 SATCOM-APPS
- Funding Schemes
- Proposal Guide

Media

- Videos

Contact & Support

- Documents

SERAPHIM SPACE VENTURE CAPITAL TO NURTURE ESA SPACE APPLICATIONS

Magali Vaissiere, Director of TIA at ESA, and Mark Boggett, Managing Director at Seraphim Space at the signing of the agreement.

ESA has signed an agreement with the £83 million (£116 million) Seraphim Space & Special Situations Fund to work alongside ESA's Advanced Research in Telecommunications Systems (ARTES) Applications programme. The Fund will also back other space-related investment opportunities beyond ESA.

But this time there will be no rocket on the launchpad. And instead of scientists, it will be private investors watching nervously as a dedicated private equity fund aimed at backing start-up space firms boosts the industry into the centre of the business world.

The fund will be launched by Seraphim Capital in October and is being backed by investors including Airbus, which already has a presence in the space industry through its ownership of Surrey Satellite Technology, one of the world's leading small satellite makers. It will be followed by two more funds later in the year.

MailOnline

European Space Industry to get Venture Capital Boost

By Caleb Henry | August 27, 2015 | Europe, Feature, Regional, Satellite TODAY News Feed, Technology



Mark Boggett, managing director of Seraphim Capital. Photo: Seraphim Capital

[Via Satellite 08-27-2015] The European space industry is soon to gain a boost in venture capital once the London-based **Seraphim Capital** launches the Seraphim Space and Special Situations Fund during the fourth quarter of this year. The venture fund, which recently partnered with the **European Space Agency's** (ESA) Advanced Research in Telecommunications Systems (ARTES) applications program, is poised to accelerate startup and small business activity within the U.K. space industry.

"The economics of space have changed significantly in the last few years and that change is accelerating," Mark Boggett, managing director of Seraphim Capital, told *Via Satellite*. "The reason we are thematically focusing our new fund on space is that we now consider that space technologies can be evaluated side by side with their terrestrial counterparts. We consider the corporate venture fund model adopted by Seraphim Space further lowers the risk through the access to the corporate evaluation resources and capabilities."



"Space is the Limit"

Thank You!

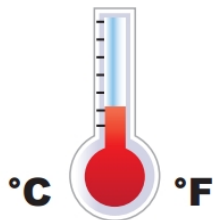


Frederick Ronse
CEO





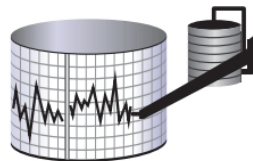
Pressure



Temperature



Location



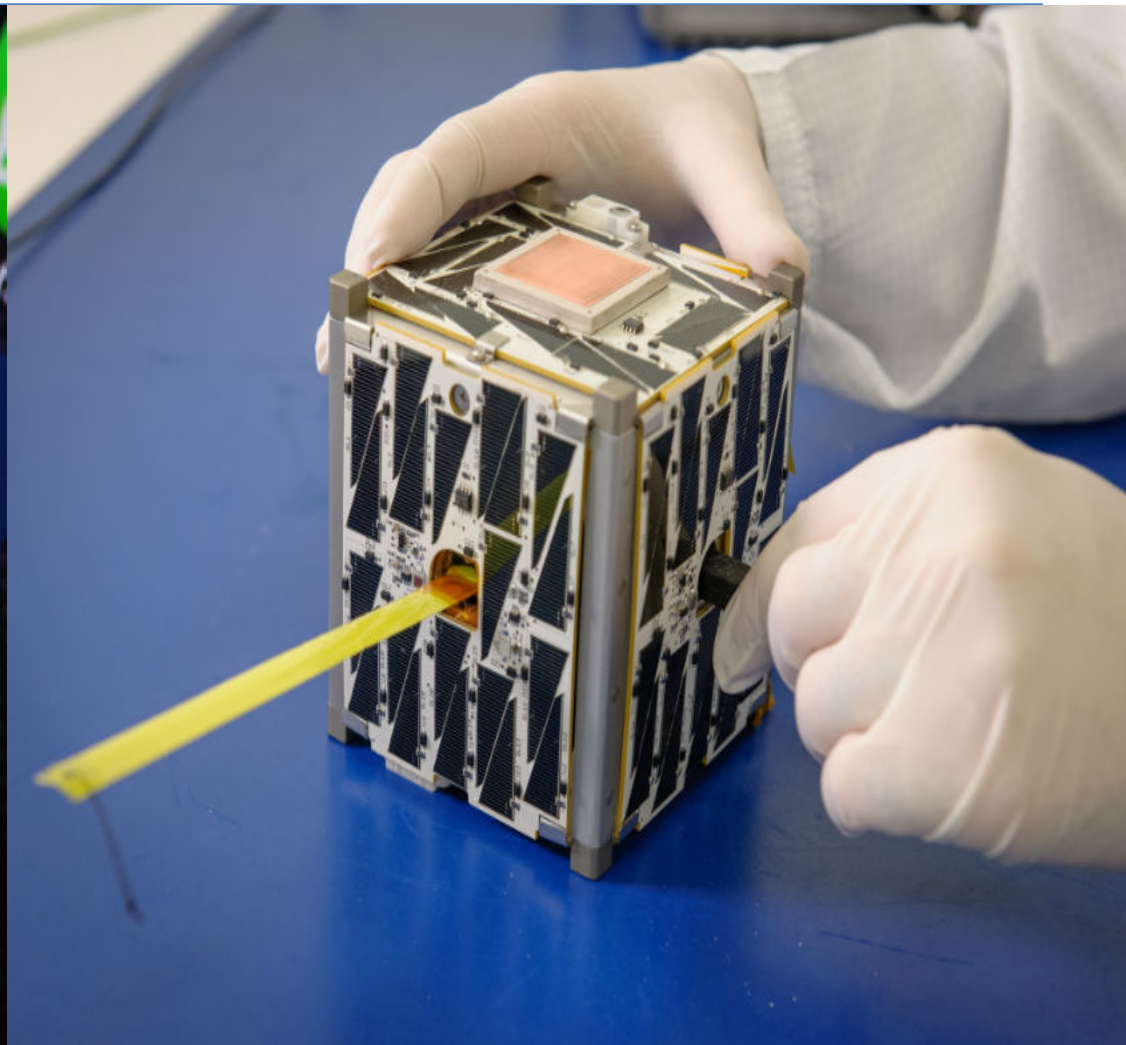
Shocks



Level



Leakage













Oasis
SPACE VENTURES

Yousef Hamidaddin
CEO

Fund Terms

<i>Offering</i>	<i>Euro up to 16,000,000</i>
<i>Term</i>	<i>6 Years, plus an optional 2-year extension</i>
<i>Minimum Commitment</i>	<i>Euro 100,000 for individuals Euro 400,000 for Institutions</i>
<i>Carried Interest</i>	<i>80% to limited partners and 20% to the general (after return of capital)</i>
<i>Management Fee</i>	<i>3%</i>
<i>Fund Raising Maturity</i>	<i>18 Months</i>
<i>Committed</i>	<i>EIB: Euro 3,000,000 KAJD: Euro 500,000 HNWI: Euro 200,000</i>

Partners and Fund Manager



Fund Manager &
Service Provider



Technical Partner



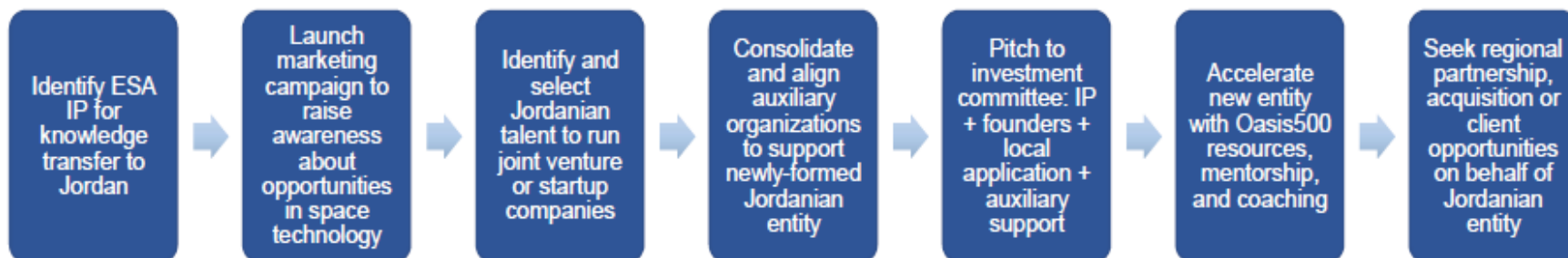
Anchor Limited
Partners



European
Investment
Bank

Process

The OSV process is designed to facilitate knowledge transfer and create a successful launch and growth of the new Jordanian entity. There is also a focus on exit opportunities after sufficient acceleration and guidance.





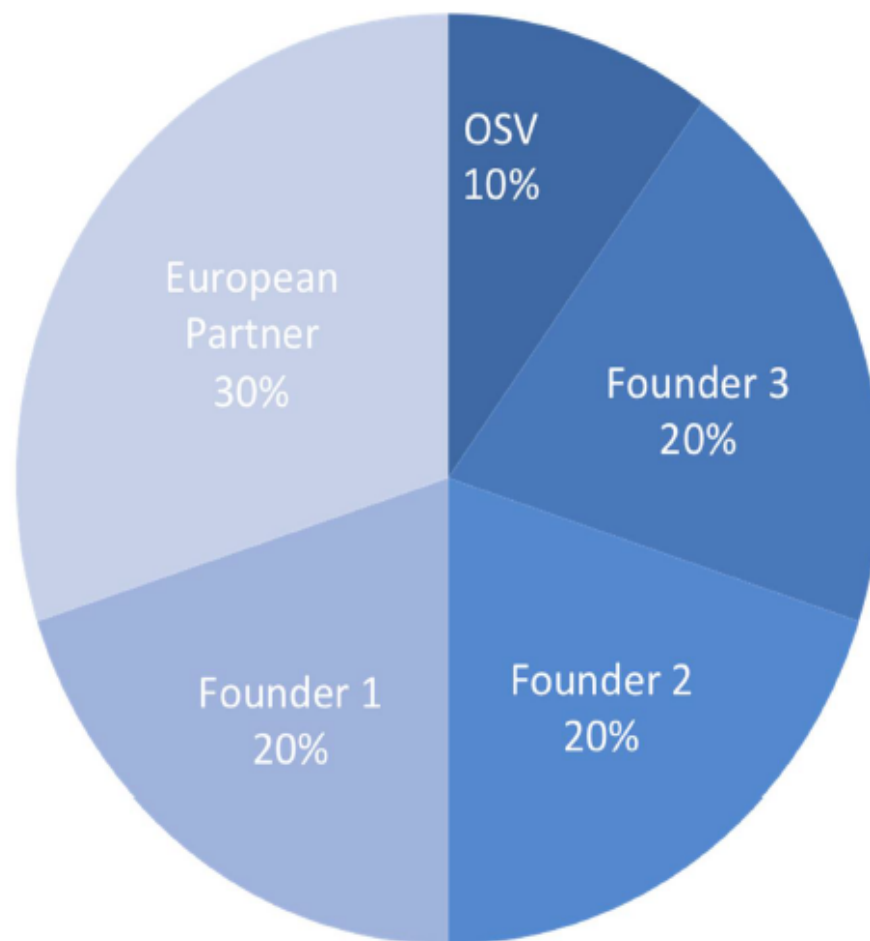
Potential Equity Structure for Startups

Each new startup will receive 50,000 EURO to 250,000 EURO in seed funding.

FOUNDERS: We will seek teams with three founders, in order to ensure a diverse skill set among senior management.

EUROPEAN PARTNER: The patent-holding company in Europe will hold a stake in the new legal entity

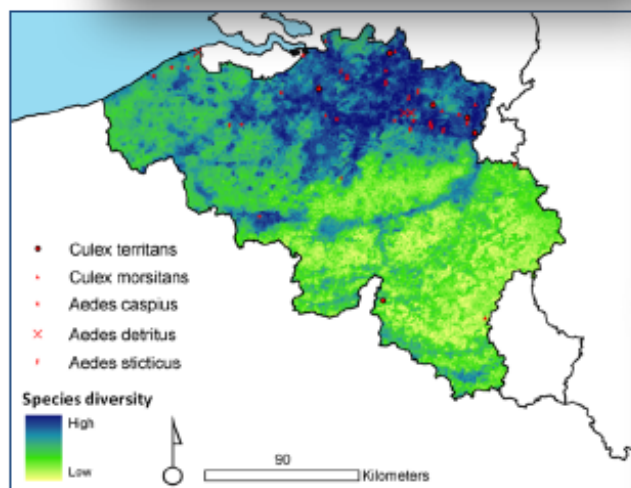
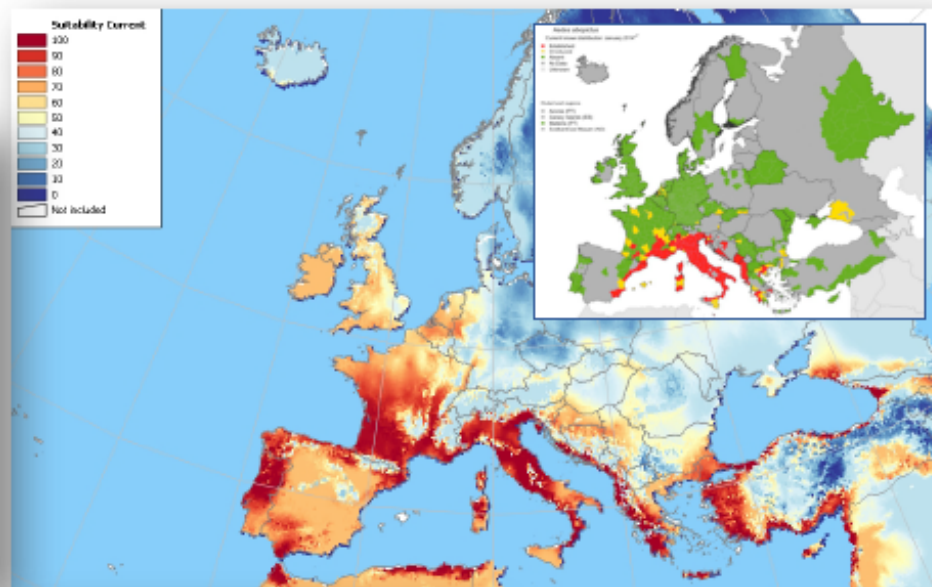
OSV: will take an equity stake in the new entity.





Guy Hendrickx
CEO





Site	Source	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Station 1	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 2	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 3	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 4	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 5	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 6	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 7	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 8	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 9	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 10	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 11	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 12	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 13	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 14	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 15	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 16	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 17	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 18	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 19	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 20	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 21	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 22	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 23	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 24	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 25	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 26	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 27	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 28	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 29	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Station 30	EC	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+



Vision & Mission

Our vision is to become a world leader in sustainable precision pest management solutions

Our mission is to provide adapted spatial tools for the surveillance, monitoring and control of pests:

- To conduct research
- To control vector-borne diseases
- To improve comfort

Our solutions

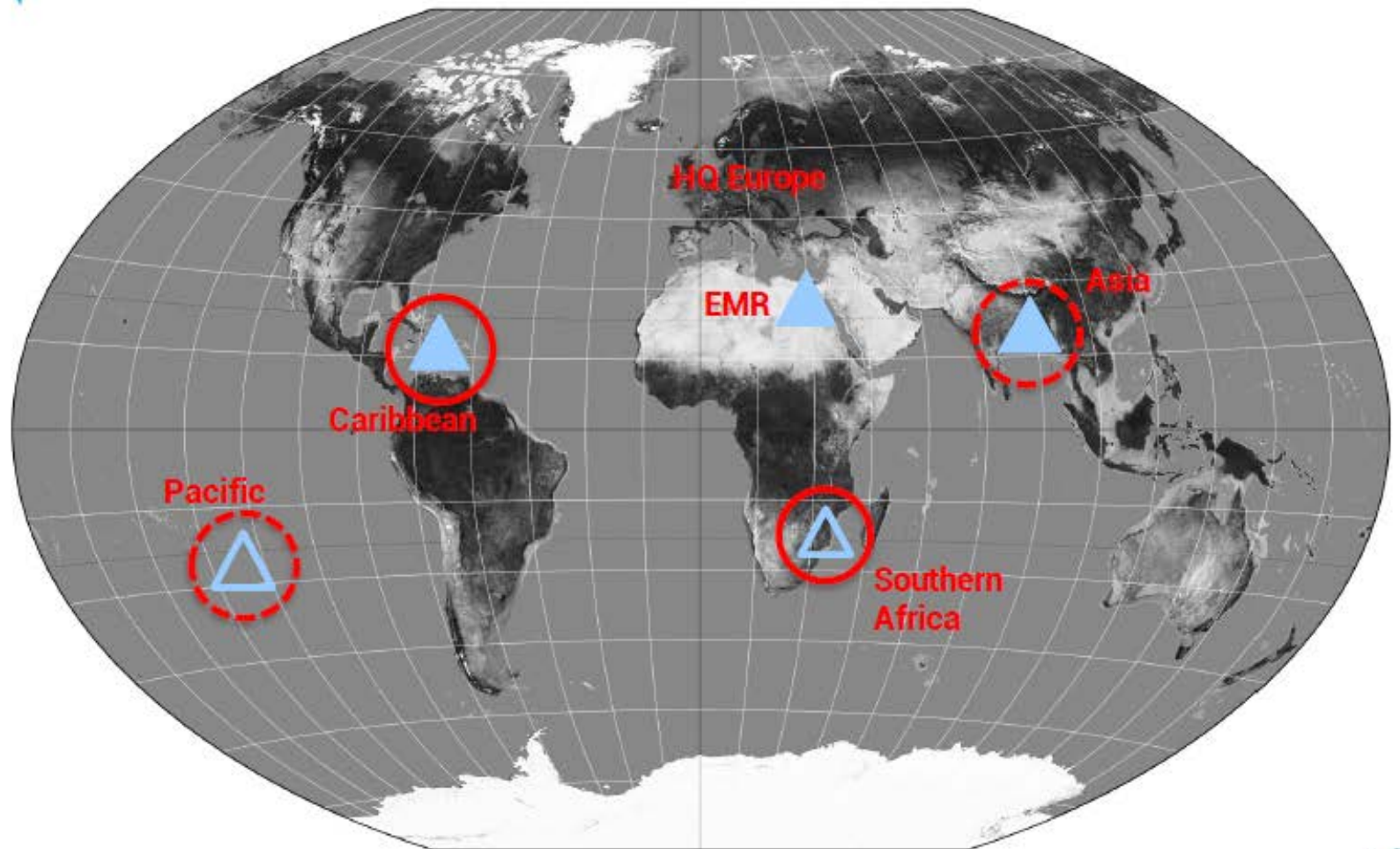
Product type	Software	Info System	Service
Clients			
Research	VECMAP™	+	-
Public Health	+	SmartVEC™	+
Hospitality	-	+	SmartSenZ™

€

Roadmap

ROADMAP		2016				2017				2018				2019				2020			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Investment Plan																					
ROUND 1	Business Plan																				
	Implementation																				
ROUND 2	Business Plan																				
	Implementation																				
Product Commercialization																					
VECMAP	V1.0 Prepare for market																				
SmartVEC	V1.0 Commercial launch																				
	V2.0 Prepare for market																				
	V2.0 Commercial launch																				
	V3.0 Prepare for market																				
	V3.0 commercial launch																				
	Vx...																				
SmartSenZ	Demonstration																				
	Prepare for market																				
	Commercial deployment																				
Regional HUB Deployment																					
REGIONAL HUBS	Pacific																				
	Caribbean																				
	Southern Africa																				
	Asia																				

Geographical spread





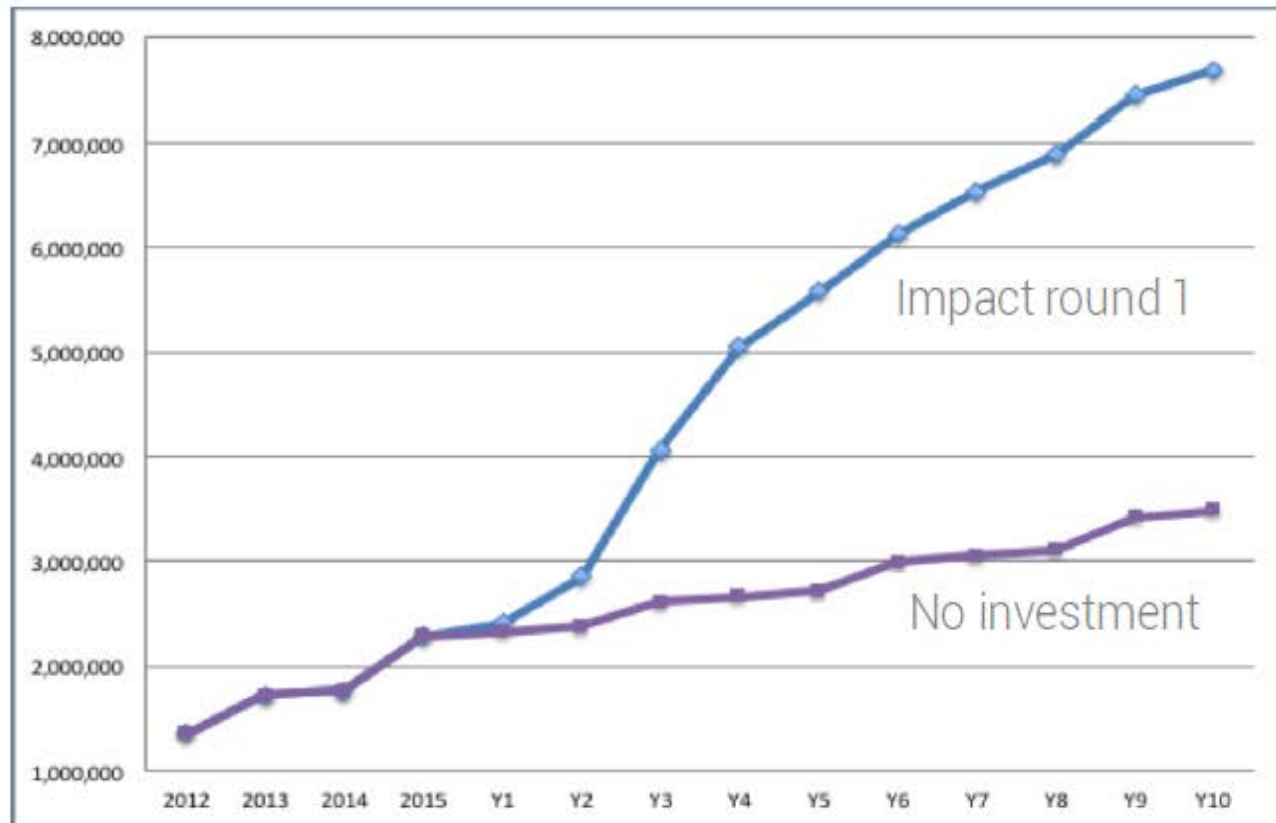
Acquired investment Round 1

BNP Paribas FORTIS Investment Capital € 500K

- € 355K = VECMAP® and SmartVEC® to the market
- € 145K = first year co-funding Smart-SenZ® demo project (ESA IA Program)
 - In situ demonstration: Guadeloupe & South Africa
 - Development of Business Plan → Investment Round 2

Round 1

Added value





Where are we now?

- Avia-GIS
 - Converted from bvba into NV
 - Differentiation sales training (expert-to-expert)
 - Establishment of external advisory board
 - Marketing campaign starts Q3 2016
- SmartSenZ
 - Assessing option to speed-up commercial activities (ZIKA!!)
- Preparing Investment Round 2
 - Several partners confirmed interest: GIMV, AAAFund, Capricorn, OAK Invest, Metiscorp
 - BIO Invest: opportunity to expand to social sector

Seraphim Space

James Bruegger
Investment Director

Investing in technologies already
addressing, originally derived from,
or of potential benefit to the space sector

Venture Capital: Seraphim Space Fund

- £80m fund / £50m first close – end May 2016
- Backed by 7 leading space companies
- Founder/CTO of Google Earth & Google Maps on advisory board
- Strategic Agreement with The European Space Agency
- Targeting 'A round' investment opportunities
 - post seed / pre profit
 - Technology developed / +2 customers / some revenues



Investing in tech already addressing, originally derived from or of potential benefit to space



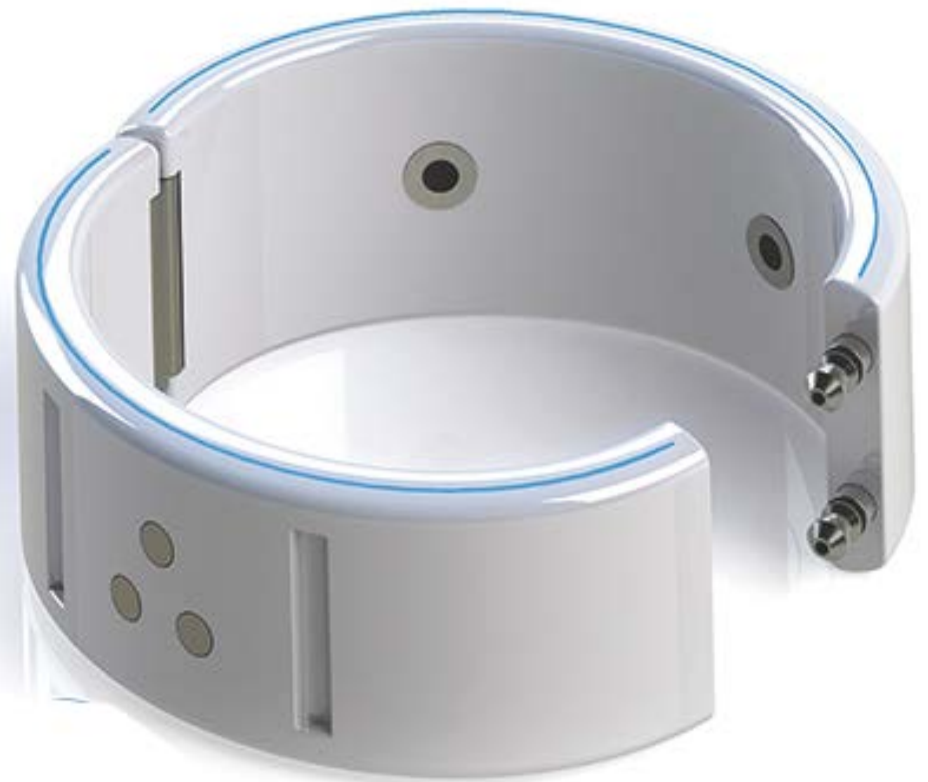
- **IP spin outs from space corporates**
- Commercialisation of developed tech
- **Space enabling tech opportunities**
- AI, robotics, drones, nanomaterials,
- **Software opportunities**
- Navigation, satellite imagery, comms
- **Hardware opportunities**
- Nanosats, space energy, launch vehicles

'A' round (i.e. Post Seed) investment focus



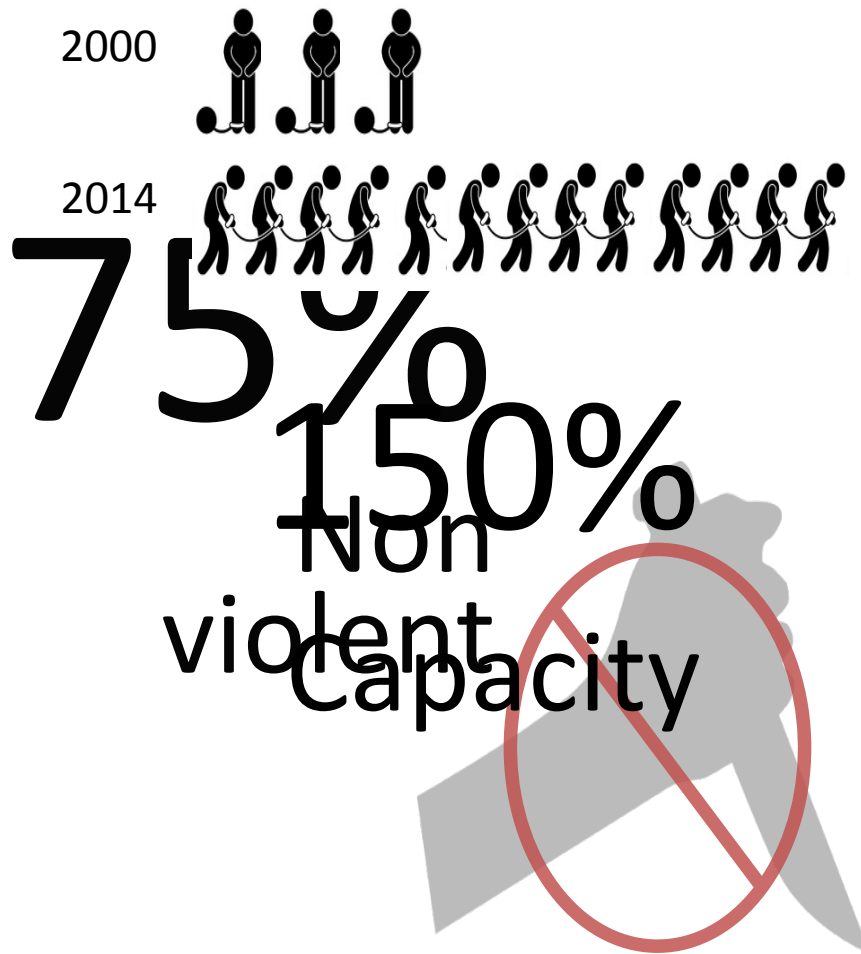
Urs Hunkeler
CTO

VCs or not VCs



Dr. Urs Hunkeler, CTO
PhD EPFL in Telecom

A Worldwide Social Problem



EU
R ~8'000
Per Month

The company in a nutshell

- Founded in 2010 at the Swiss Federal Institute of Technology in Lausanne (EPFL)
- In 2015, 19 employees
- Headquarters: Le Noirmont JU, 400 m²
- Laboratory : EPFL VD, 60m²



- More than CHF 5.75 M invested so far (all sources)
- First order from South Africa of USD 2.8M in 2014
- Corporate investors, and private investors: 4 MCHF
- Recently converted 2.2M CHF bridge loan.
- **Received a bid from an U.S. competitor for an acquisition in 2015 (refused).**

What Kind of Funding for Your Project?

Bank Loan

- without guarantees?

VC

- Pressure to sell the company: exit in 3 to 5 years
- Find new investors (other VC's)
- Control of the company
- Return, Return, Return: 3 to 5 times the investment

(Private) Investors

- Longer term investment
- Industrial and value-creation spirit
- Job creation in the region
- In love with the project => be part of the adventure

How to Chose?

- Do you want to be in control of your project?
- Do you want to earn your own entrepreneurship experience?
- Do you want to choose your destiny?

chose private investors

- Do you want to go fast?
- Do you want to quickly earn money?
- Are you interested primarily by the return?


work with VCs

There is no best choice. It really depends on your preferences.

You must choose your strategy for the next 3 years.

Read carefully and try to understand the impacts for you and your company of every point of the term sheet.

It is YOUR company and your dreams !!!



"The best way to predict the future is to invent it"
(A.Kay 1971)