

The missing link between innovation and competitiveness: the route from innovation to competitiveness

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BIOVALLEY INVESTMENTS COMPANY: VISION

BioValley Investments is set as a “Family Office” by Diego Bravar (founder of TBS Group) for investing in the BioHighTech field and for accelerating **the development** of the equity value of the target companies in a disruptive entrepreneurial ecosystem

Some Alpe Adria geographical regions of investments:

- Friuli-Venezia Giulia Region in Italy
- Bordering Regions in Italy (Veneto, Trentino-Alto Adige)
- Bordering Countries (Austria, Slovenia, Croatia)

BioHighTech field:

- MEDICAL TECHNOLOGY
- BIO TECHNOLOGY
- BIOINFORMATIC & MEDICAL INFORMATIC

Target companies:

- TBS Group and other BioHighTech Micro, Small and Medium Size Companies



BIOVALLEY INVESTMENTS COMPANY: MISSION

- Develop with scientific networks of universities, health & social research centers and science & technology parks a disruptive entrepreneurial ecosystem in some Alpe Adria Regions accelerating the incubation process of BioHighTech companies
- Accelerate with Smart Health Clusters the growth of BioHighTech companies in some Alpe Adria Regions improving their industrial synergies with BioHighTech companies networks and their innovation process with scientific networks
- Invest minority equity in micro, small and medium size BioHighTech companies for accelerating their development and their equity value and for supporting the stable development of the equity value growth in a large size BioHighTech company (TBS Group) with further direct and indirect equity minority investments

ENTREPRENEURIAL ECOSYSTEM

The modern temple of the entrepreneurial ecosystem is like many temples of the ancient world: both are held up by pillars. Like the pillars of ancient temples—made of sand and limestone held together by cement—the pillars of the economic ecosystem are made of individuals and institutions that are held together by the “cement” of incentives created by institutions that influence the behavior of people

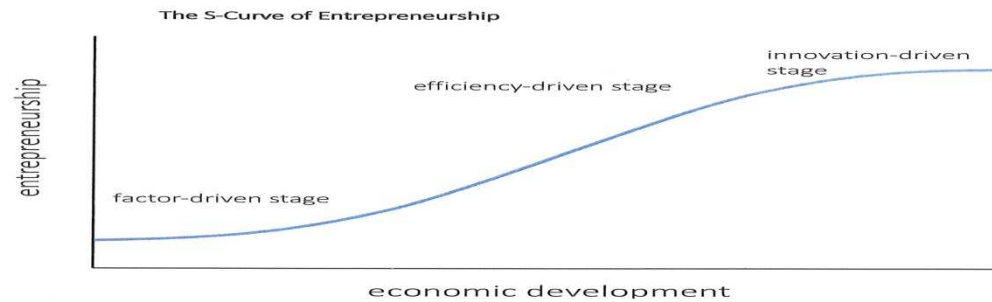
The entrepreneurial ecosystem rests on 14 pillars of development, which hold up three large building blocks consisting of attitudes toward entrepreneurship, entrepreneurial abilities, and entrepreneurial aspirations. The pillars must be of similar height and strength for a fully developed economy to flourish, and they need constant attention, continuous improvement, and careful maintenance.

ENTREPRENEURSHIP AND ECONOMIC DEVELOPMENT

GEI defines entrepreneurship as “the dynamic, institutionally embedded interaction between entrepreneurial attitudes, entrepreneurial abilities, and entrepreneurial aspirations by individuals, which drives the allocation of resources through the creation and operation of new ventures.”

In his classic text, *The Stages of Economic Growth*, W. W. Rostow suggested that countries go through five stages of economic growth. While focused on the age of high mass consumption, Michael Porter followed recent developments in the economics of innovation. Porter has provided a modern rendition of Rostow’s approach by identifying three stages of development: (1) a factor-driven stage, (2) an efficiency-driven stage, and (3) an innovation-driven stage.

Relationship between entrepreneurship and economic development: the s-curve of entrepreneurship



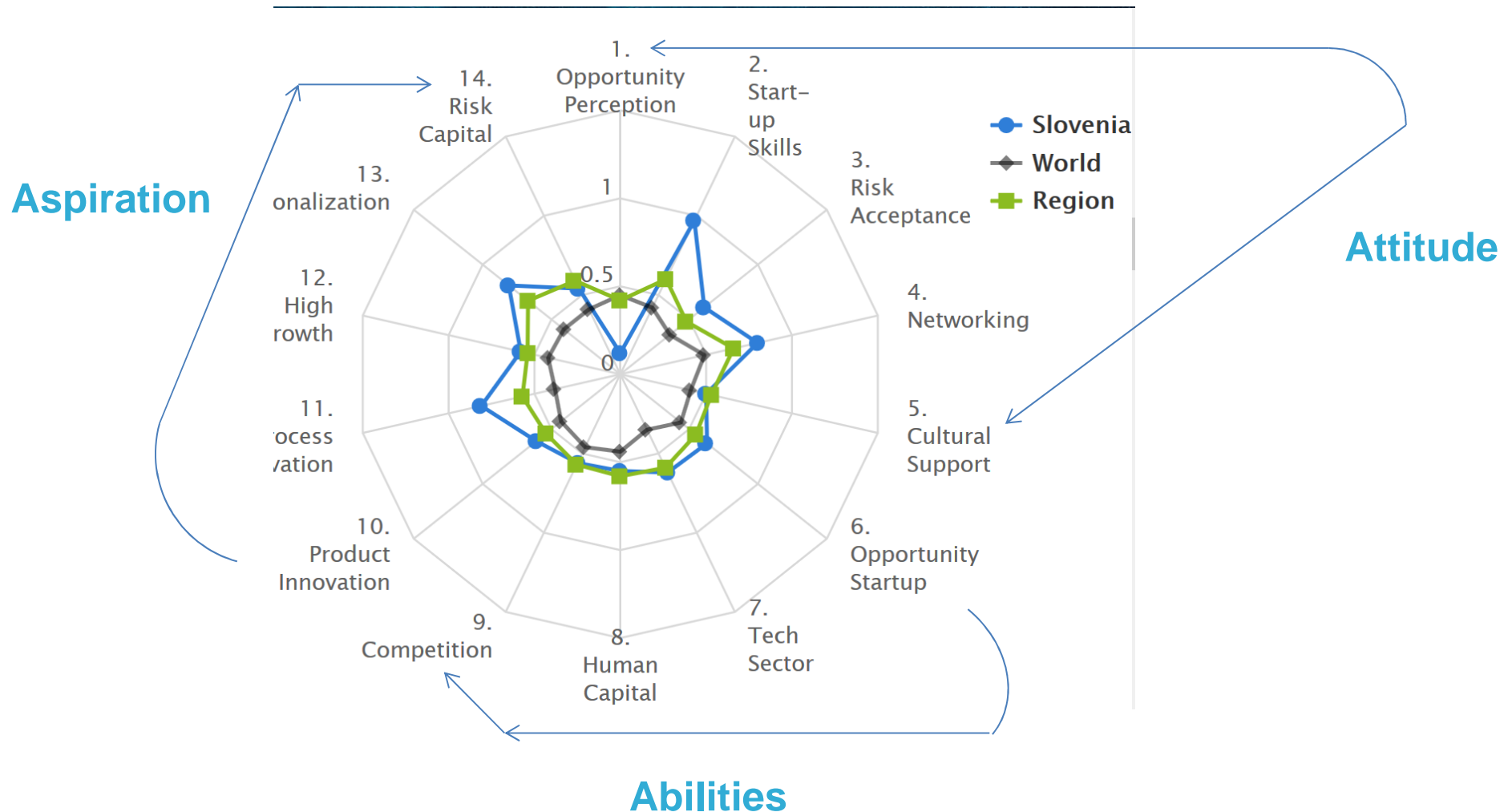
2016 GEI Index and ranking of 132 countries



Country	Rank	GEI
U.S.A	1	86.2
Canada	2	79.5
Australia	3	78.0
Danmark	4	76.0
Sweden	5	75.9
Taiwan	6	69.7
Iceland	7	68.9
Switzerland	8	67.8
UK	9	67.7
France	10	66.4
...		
Slovenia	31	-
...		
Italy	48	41.1

Source: Global Entrepreneurship Index Report 2016

Global Entrepreneurship & Development Index (GEI) 2016 in some Alpe Adria European regions (blu), versus European region (green) and World (black): Slovenia is n. 31 in the Rank



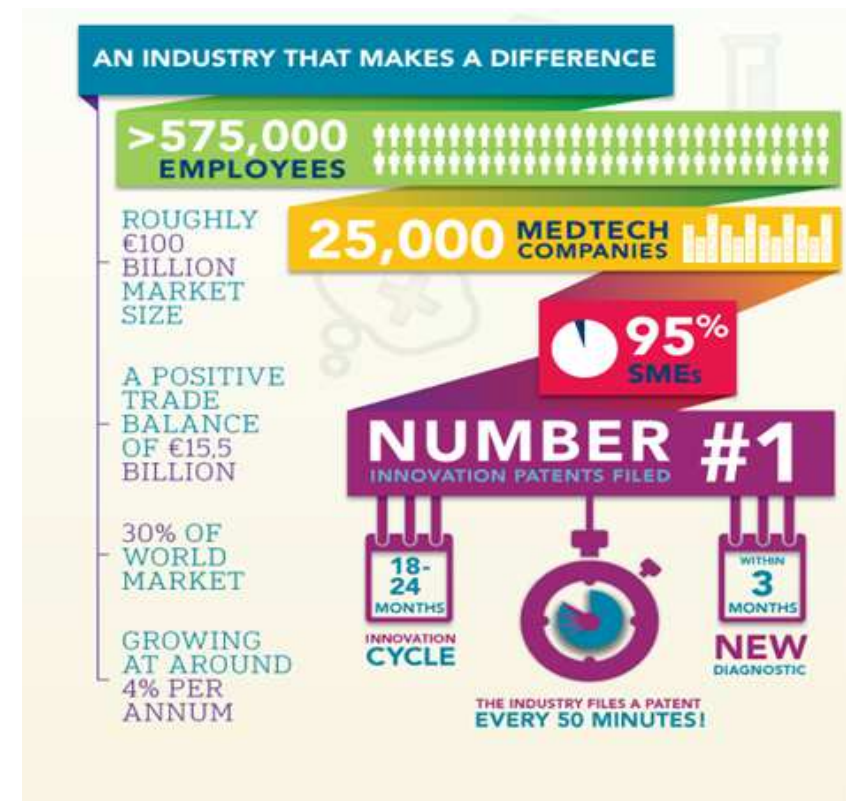
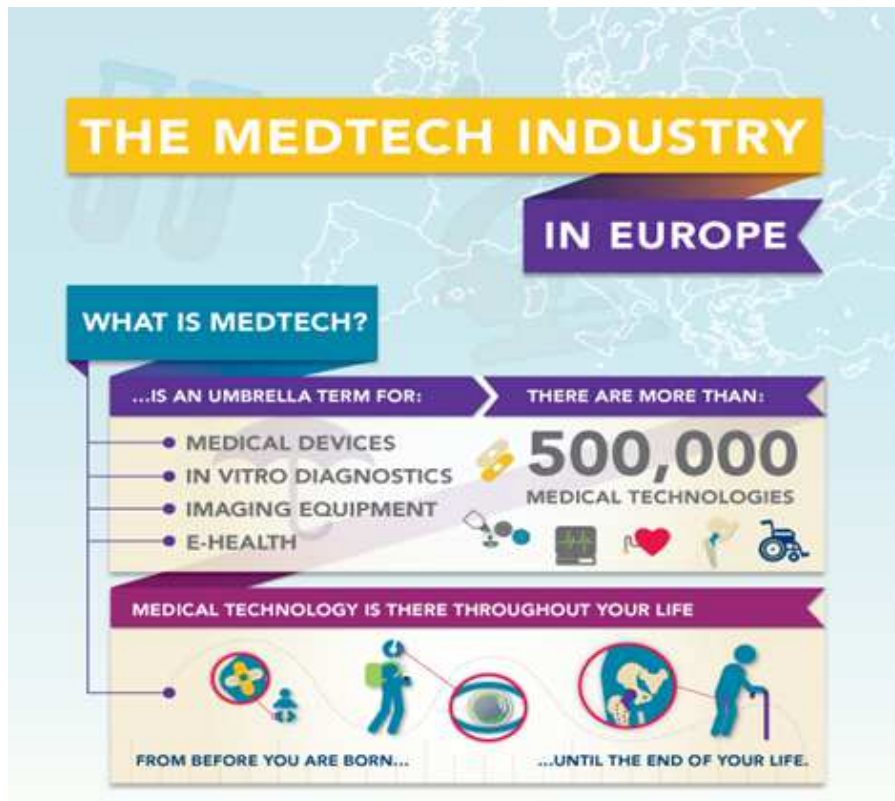
SOURCE: GEI INDEX 2016

Global Entrepreneurship & Development Index (GEI) 2016 in some Alpe Adria European regions (blu), versus European region (green) and World (black): Italy is n. 48 in the Rank



SOURCE: GEI INDEX 2016

BioHighTech field: MedTech Industry in Europe



BioHighTech field: Medical Technology Market in Europe and comparison with other relevant markets

Per capita spending on various fields, in €, latest year available



BioHighTech field: MedTech Italian Market

ITALY	YEAR 2012	Growth 2012/2011
	7.4 bln Euro	7%

Source: Assobiomedica

BioHighTech field: BioTech World Market and Italian Market

YEAR 2007	YEAR 2012	CAGR
About 100 bln \$	161 bln \$	9,8%

Source: Biotechnology in Europe – Ernst & Young (ey.com)

ITALY	YEAR 2012	Growth 2012/2011
	7 bln Euro	7%

Source: assobiotec.federchimica.it/default/biotech-in-italia.aspx

BioHighTech field: Bioinformatic and Medical Informatic (Healthcare IT) World and Italian Market

YEAR 2010	YEAR 2015	CAGR
99.6 bln \$	162,2 bln \$	10,2%

Source: Healthcare IT Market, MarketsandMarkets.com

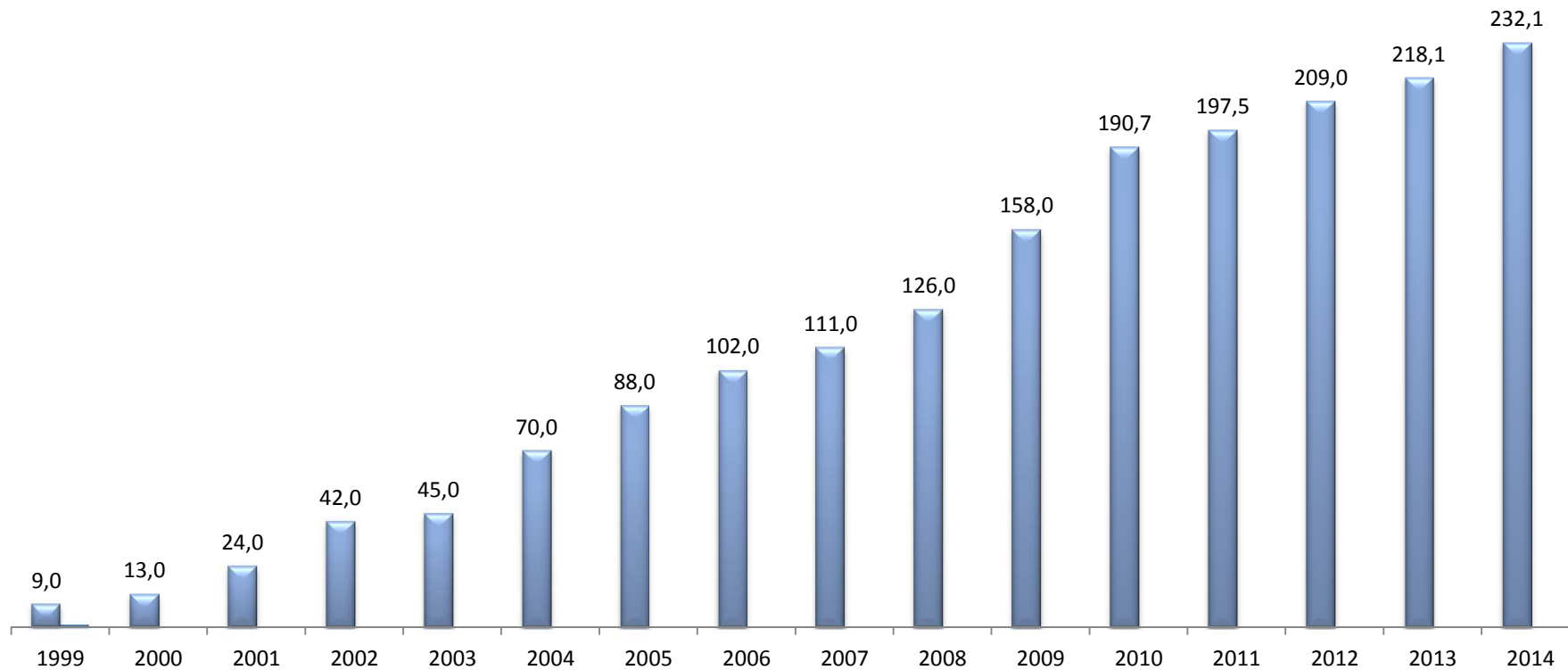
ITALY	YEAR 2012
	0,8 bln Euro

Source: Assinform

BIOVALLEY INVESTMENTS COMPANY: ACTIVITY

1. Since 1987: Minority investment in equity and follow up in the start-up **TBS Group** (now a large BioHighTech company)
2. Since 2014: Support Molecular Biomedicine Center of Trieste (CBM) for developing a Smart Health Cluster between BioHighTech companies networks and Research Centers in health and social care institutions networks in Friuli Venezia Giulia Region (Italy)
3. Since 2015: Minority investment in equity and follow up in **O3 Enterprise S.r.l.** (now a micro BioHighTech company)
4. From 2016: Analysis of minority equity investment opportunities in other micro, small and medium size BioHighTech companies and investing in the target companies, fund raising, accelerating the development and their equity value
5. Starting from 2021: Valorization and return of the investments to the shareholders

1. Biovalley Investment s Company: minority investment in TBS Group (Revenues in the last 15 years - €M)



Clinical Engineering Services in Italy

Expansion to Clinical Engineering Services integrated with telehealthcare and e-Health products and services

European expansion in clinical engineering integrated outsourcing services

Global expansion in clinical engineering & ICT outsourcing services with e-health & e-Government solutions

2.1 Friuli Venezia Giulia Region (FVG Region): Smart Health Specialization Strategy for improving Regional Entrepreneurship and Development Index (REDI)



FVG Region (Italy) has the "real" possibility of transforming the knowledge ("oil") that is in many research institutions and regional Hospitals for developing "industrial innovation" in the regional BioHighTech companies (about 5.000 employees) having adopted a Smart Specialization strategy on "Smart Health" for European Region Research Program (2015-2020).

Trieste regional capital with a potential high GEI index could increase the growth of the BioHighTech companies with an "immediate" use of the huge "national" and "international" investments made in this city during the last 30 years for developing the research activity of numerous Universities and Research Centers even in the Smart Health field (i.e. 2 Universities, 2 Academic Hospitals, Sincrotrone Elettra, International Center for Genetic Engineering and Biotechnology, International Center for Theoretical Physics, etc.).

2.2 Friuli Venezia Giulia Region (FVG Region): Smart Health Specialization Strategy for improving Regional Entrepreneurship and Development Index (REDI)



Area, the main Italian Science Park, with its Innovation Factory and the first Italian Business Innovation Center (BIC) of Trieste with other regional Scientific and Technology Parks, Research Centers, Academic Hospitals and the 3 regional Universities could accelerate the incubation process of the BioHighTech companies transforming the knowledge (“oil”) coming from research activities in equity value of numerous start-ups in the Smart Health field (**Incubation Process Acceleration**).

Biovalley Investments supporting the activity of the Cluster Smart Health of FVG Region (managed by “Center of Biomedical Medicine” - CBM of Trieste) could accelerate the growth of the equity value of the BioHighTech companies of the Alpe Adria regions, starting from FVG Region (**Growth Process Acceleration**).

2.3 Since 2014: Biovally Investments and T&B Company supported CBM for developing in a BioHighTech Company network a Smart Health Cluster of FVG Region

➔ BioHighTech companies: numbers and sizes in Friuli Venezia Giulia Region:

151 companies

- 40% micro companies
- 40% small and medium companies

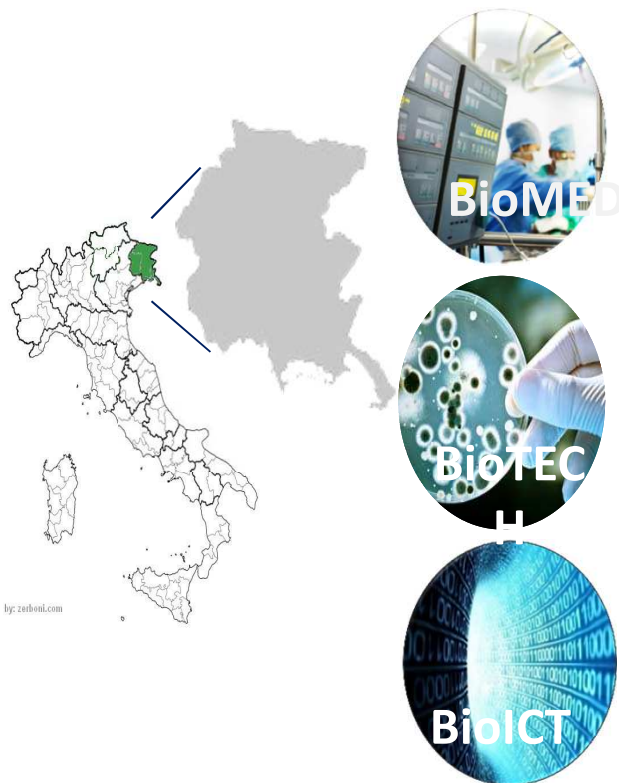


➔ BioHighTech companies trend in Friuli Venezia Giulia Region: sample of 35 companies

	Year				
	2010	2011	2012	2013	Var.% 2010/2013
Turnover (Mln EUR)	129	136	142	147	+14%
Employees number	876	1.024	1.059	1.111	+27%

Source: "Position Paper BioHighTech", CBM Scarl, 2014

2.4 Since 2014: Biovalley Investments and T&B Company supported CBM for developing in a Research Centers and Hospitals network a Smart Health Cluster in FVG Region



- **3 Universities:** Trieste University, Udine University, International School for Advanced Studies – SISSA University
- **2 Research Centers:** International Center for Genetic Engineering and Biotechnology – ICGEB, Synchrotrone Trieste,
- **2 National Research Council Institutions:** IC, Biotechnology Universities Consortium – CIB
- **2 Academic Medical Center Hospitals:** Trieste, Udine
- **2 Research Medical Hospitals:** Burlo Garofolo – Trieste, CRO Aviano – Pordenone
- **4 Scientific and Technology Parks**

3. Since 2015: Biovalley Investments started to invest also in «micro» BioHighTech companies (ie: O3 Enterprise)

Principali Indici di Bilancio

INDICI						
VOCE	2014	2015	2016	2017	2018	2019
VPO	€ 506.060	€ 650.000	€ 780.000	€ 920.000	€ 1.025.000	€ 1.150.000
EBITDA	€ 41.331	€ 80.099	€ 122.154	€ 151.574	€ 138.025	€ 169.421
EBIT	€ 19.940	€ 49.633	€ 94.328	€ 122.779	€ 105.412	€ 133.518
EBITDA/VPO	8%	12%	16%	16%	13%	15%
EBIT/VPO	4%	8%	12%	13%	10%	12%
Utile Netto	€ 7.223	€ 28.887	€ 59.691	€ 80.771	€ 69.378	€ 89.624
PFN	€ 9.741	-€ 75.288	-€ 17.596	€ 58.922	€ 141.664	€ 241.705



4.1 IN 2016: FUND RAISING

Present situation:

BioValley Investments is a minority shareholder in Clinical Engineering & ICT company (C.E.&I.T.), major shareholder in TBS Group

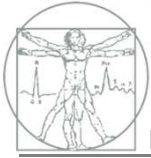
Biovalley investment is a minority shareholder in O3 Enterprise

Future - phase 1 (3 months):

1.7 milion euro through direct fund raising in BioValley Investments

Future - phase 2 (6 months):

30 milion euro through fund raising in BioValley Investments Partners (a Newco that will be set up and managed by BioValley Investments only if will be the opportunity of funds collection)



4.2 IN 2016: TARGET INVESTMENTS IN BioHighTech Companies

- Investments in micro, small, medium size BioHighTech companies (about 2/3 of the fund raising in phase 1 and 1/3 in phase 2)
- Investment in TBS Group (about 1/3 of the fund raising in phase 2 and 2/3 in phase 1)

4.3 FROM 2016: BIOVALLEY INVESTMENTS WILL ACCELERATE THE DEVELOPMENT OF BioHighTech MICRO, SMALL AND MEDIUM SIZE COMPANIES AND THEIR EQUITY VALUE

➔ Strategic management support

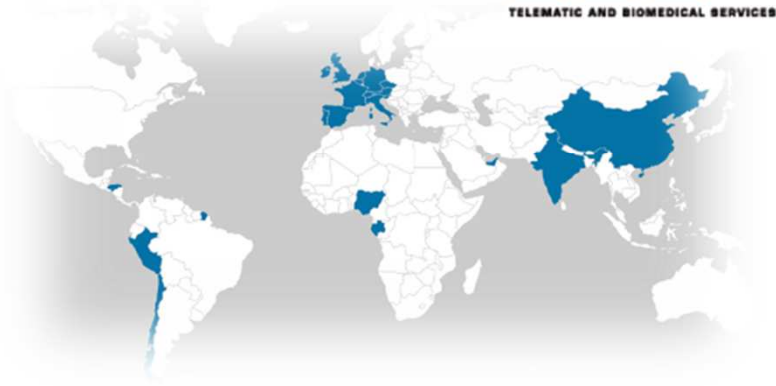
- Business plans analysis
- Industrial synergies identification
- Business network mentoring
- Research projects development

➔ Financial management support

- Direct investment in minority equity
- Financial institutions networking

4.3.1 EXAMPLE OF INDUSTRIAL SYNERGIES IDENTIFICATION

SALES & TECHNICAL NETWORK



NETWORK OF MICRO, SMALL AND MEDIUM SIZE BIOHIGHTECH COMPANIES



4.3.2 EXAMPLE OF BUSINESS NETWORK MENTORING

- Promotion and follow up of a BioHighTech companies network in FVG Region (BioHighTech Net) also for attending the research tenders related to regional Smart Health Specialization
- Evolution of the BioHighTech Net in a European Economic Interest Group also to let the small and medium size companies achieve directly at other regional european research funds programs

4.3.3 Research project development: European Research Fund Programs that involve FVG Region as well (2016-2020)*

- FVG Region Smart Specialization Strategic Program (the «Smart Health Specialization Strategy» is included): 230 mln Euro
- Central Europe Program: 230 mln Euro
- Alpine Space Program: 116 mln Euro
- Adriatic Ionian Program: 99 mln Euro
- Interreg Mediterraneo Program: 276 mln Euro
- Other Interreg Programs (Italy – Austria, Italy – Croatia, Italy – Slovenia): 361 mln Euro

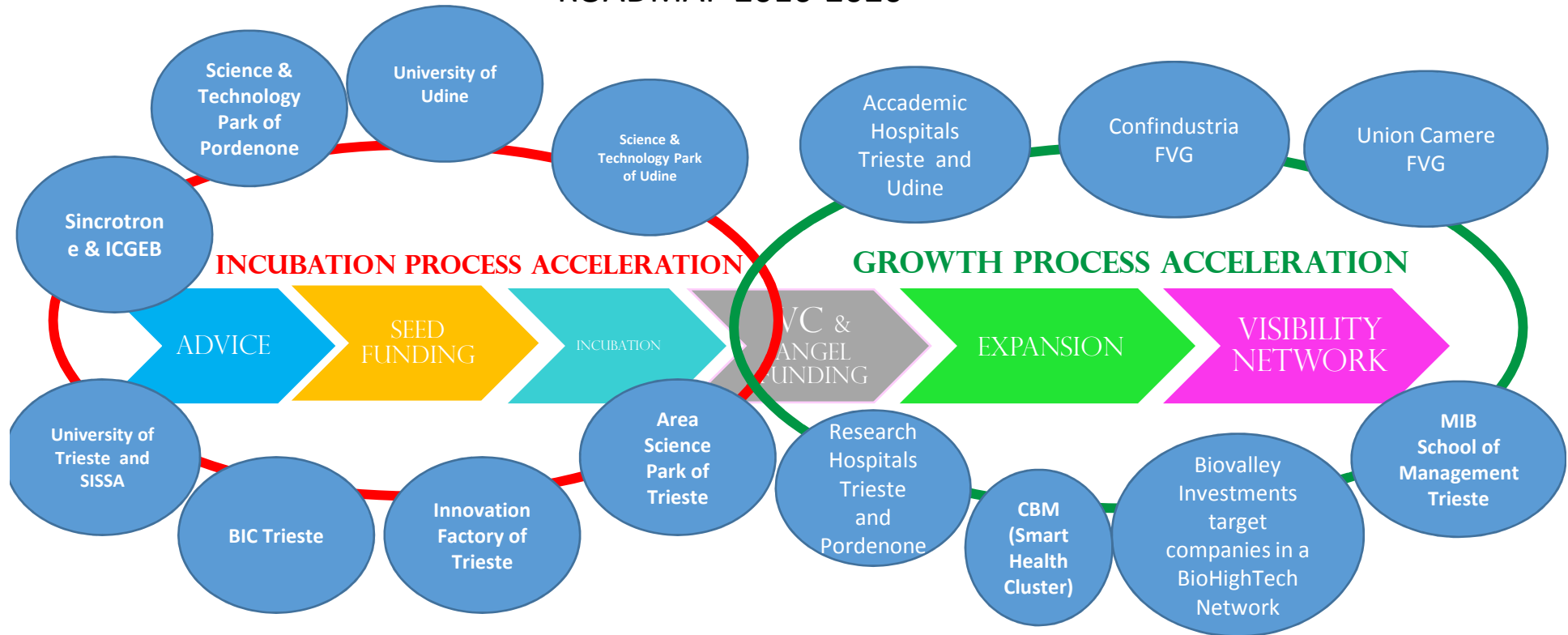
Total Funds: 1.312 mln Euro

*There are other Interreg European programs with other particular loans for the SME: SME Investment Programs, Cosme Program and Fast Track to Innovation

4.3.4 From 2016: Biovalley Investments activity will accelerate growth's strategy of the target companies in a BioHighTech network for developing a disruptive regional entrepreneurial ecosystem



ROADMAP 2016-2020



THANK YOU