

# TRENTINO:

## Business and Innovation in the Heart of Europe

Tokyo, January 16th 2020  
Italian Cultural Institute

*Innovative  
Ecosystem in  
Europe & Italy  
Japan - Italy  
common points*



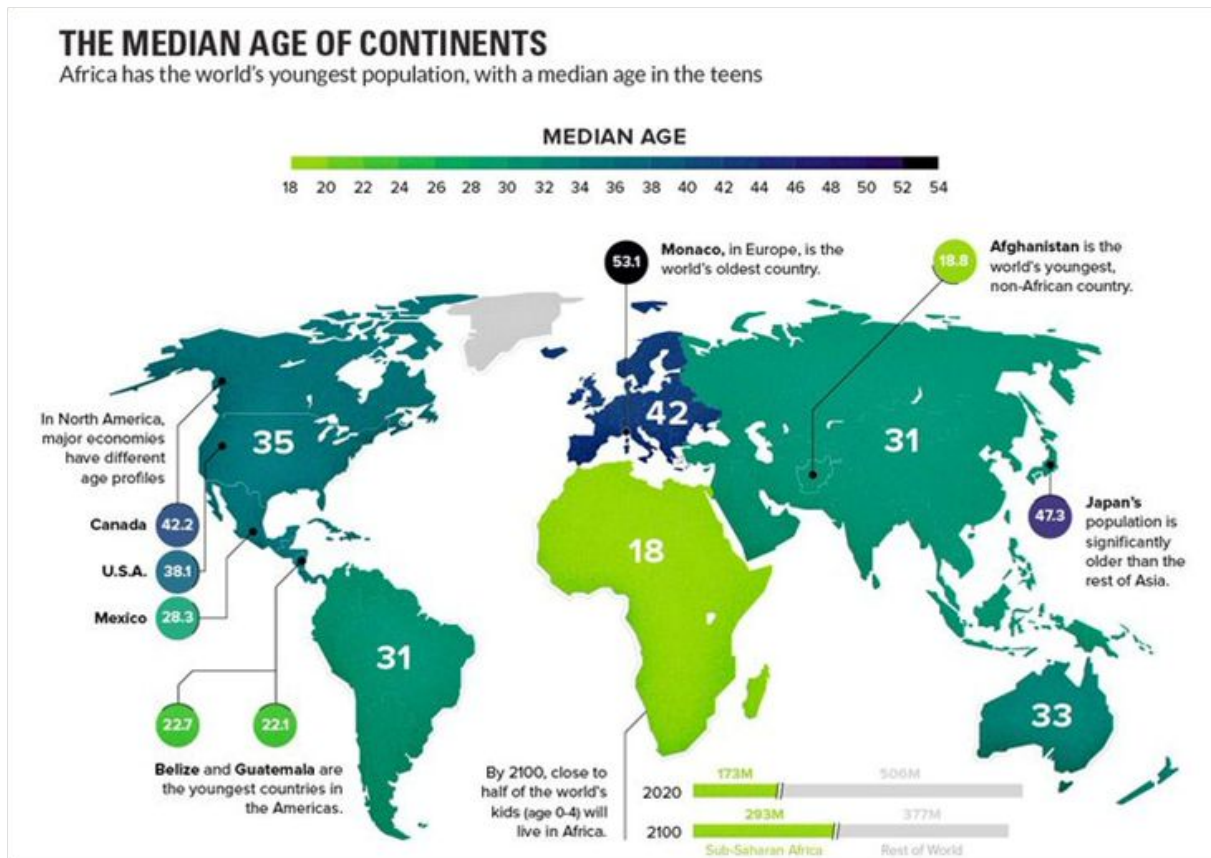
**Emil Abirascid**

- **National** based strategies and policies for start-ups and innovative companies
- **European** based strategies and policies for innovative companies (es: EIT Digital, European Commission's Future Fund, Pan-European Stock Exchange platforms, ...)
- **Makers and shapers**, rules to support the right innovation (Gdpr, Psd2, ...)
- First European-born **unicorns** (Booking, N26, Spotify, Revolut)
- Focusing on new trends: **5G, super-miniaturization, photonics, quantum computing, graphene**

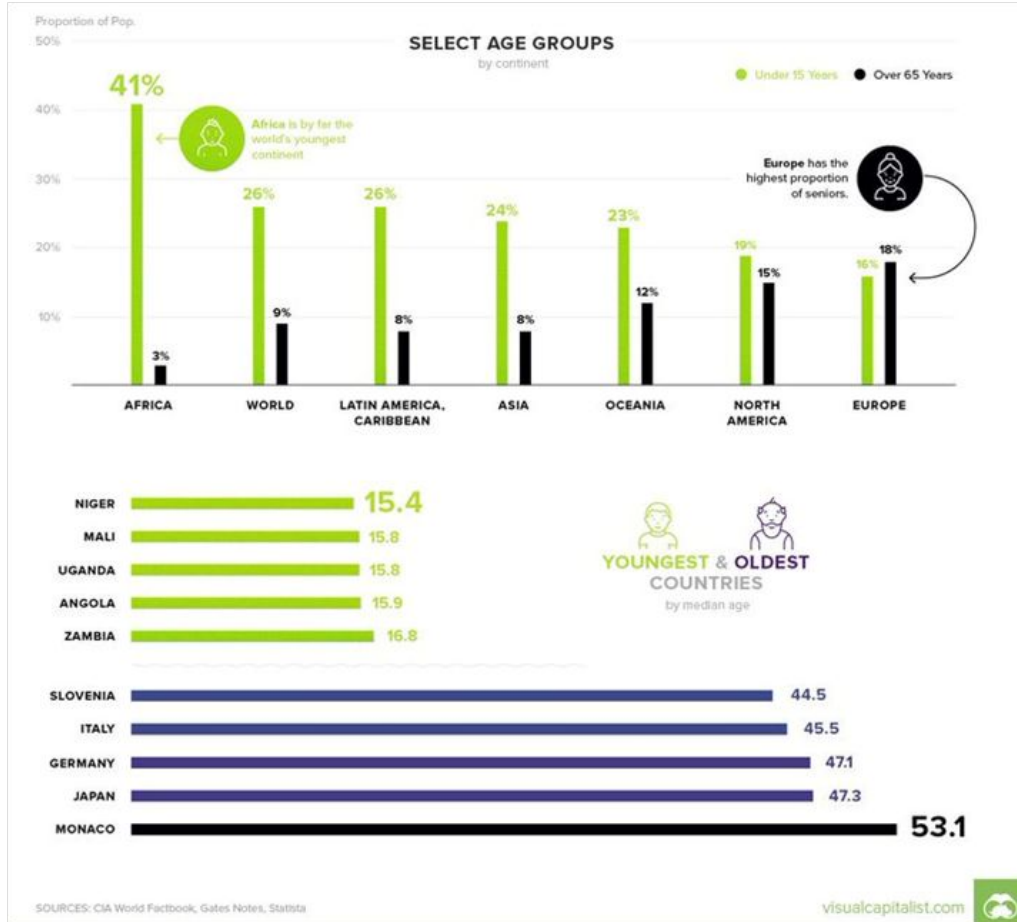
- Quality of Italian innovative entrepreneurs is very high and they are doing new things in a new way, a new mindset is behind the new 'made in Italy'
- Far less funds for start-ups compared to other European Countries such as UK, France, Germany and even Spain (even though the trends are positive year on year thanks also to the Italian and European public funds acting as LPs of VCs) and this is a great opportunity for international investors (both VCs and CVCs)
- Growing attention by corporations and SMEs on scale-ups with innovative products and technologies to buy or to integrate in their businesses (corporations are, in specific cases, becoming, also investors)



- Italy and Japan are among the three countries in the world with the **higher median age of the population** (third is Germany - not counting Principality of Monaco).
- A difference to note is: while **European median age is also high**, **Asian median age is much lower** than the one in Japan.
- Handling the aging of the population requires **innovative solutions, both technological and social** (see for example the article 'How to get ageing populations to invest in their health' by the World Economic Forum <https://www.weforum.org/agenda/2019/12/ageing-population-healthcare-needs>)



# ITALY AND JAPAN, COMMON POINTS - MEDIAN AGE POPULATION



## Which nations have the highest percentage of people aged 60+?

Japan	
Italy	
Germany	
Finland	
Sweden	
Bulgaria	
Greece	
Portugal	
Croatia	
Channel Islands, UK	

- Italian and Japanese economies have some sectors in common such as robotics and industrial machines and advanced manufacturing
- Main Italian exports sectors are pharmaceutical and industrial machines (more than food, fashion, furniture and fast cars)
- Japan is the 15th country in the world as importer of Italian products and goods

**Tabella 5A - Principali paesi destinatari delle esportazioni italiane. Graduatoria in base ai dati del 2019 <sup>(\*)</sup>**

Pos.	Paese	2016		2017		2018		Gen.-apr. 2018		Gen.-apr. 2019	
		mln euro	peso %	mln euro	peso %	mln euro	peso %	mln euro	peso %	mln euro	peso %
1	Germania	52.703	12,6	56.043	12,5	58.096	12,6	19.486	13,1	19.728	12,9
2	Francia	44.008	10,5	46.333	10,3	48.421	10,5	15.971	10,7	16.409	10,7
3	Stati Uniti	36.888	8,8	40.433	9,0	42.449	9,2	13.330	9,0	14.203	9,3
4	Regno Unito	22.417	5,4	23.185	5,2	23.451	5,1	7.389	5,0	8.402	5,5
5	Svizzera	18.966	4,5	20.575	4,6	22.358	4,8	6.882	4,6	8.108	5,3
6	Spagna	21.054	5,0	23.260	5,2	24.001	5,2	7.868	5,3	7.869	5,1
7	Belgio	13.525	3,2	13.488	3,0	13.180	2,8	4.336	2,9	4.553	3,0
8	Polonia	11.240	2,7	12.650	2,8	13.404	2,9	4.575	3,1	4.302	2,8
9	Cina	11.057	2,6	13.489	3,0	13.169	2,8	4.083	2,7	4.114	2,7
10	Paesi Bassi	9.710	2,3	10.500	2,3	11.628	2,5	3.759	2,5	3.796	2,5
11	Austria	8.884	2,1	9.522	2,1	10.167	2,2	3.305	2,2	3.409	2,2
12	Turchia	9.599	2,3	10.112	2,3	8.784	1,9	3.163	2,1	2.500	1,6
13	Romania	6.679	1,6	7.440	1,7	7.496	1,6	2.401	1,6	2.463	1,6
14	Russia	6.690	1,6	7.955	1,8	7.596	1,6	2.311	1,6	2.298	1,5
15	Giappone	6.022	1,4	6.554	1,5	6.481	1,4	2.004	1,3	2.262	1,5

Fonte: elaborazioni Osservatorio Economico Ministero Sviluppo Economico su dati Istat

- **Traditional Italian economic sectors** such as fashion and food (fashion-tech and food-tech) are very important but we must consider the wider scenario
- **Pharma, biotech, medical devices** are a key sector of the Italian made innovation and is important also to address the aging of population
- Industrial machines including **robotics, digital solutions, computing, miniaturization, advanced manufacturing** are a key ground to foster collaboration between Italy and Japan, including business partnerships and investments
- Opportunities are also in the **financial sector (fintech), in the energy sector, new materials, automotive, entertainment (media, sport-tech)**



## ITALIAN COMPANIES SUCCESS STORIES IN JAPAN (by IID)

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- Since 2016 the **Italian Innovation Day (IID)** in Tokyo are bringing Italian innovative companies to meet with Japanese's business and finance community. So far **three of these companies are already working on the Japanese market and with Japanese counterparts**. These examples are important because they come from strong partnerships between Italian and Japanese actors.
- **Enerbrain** based in Turin was at **IID Tokyo on 2017** where started its conversation with a Japanese partner to forge a joint venture and **today has a full office in Tokyo** (Enerbrain Japan K.K.: Yamaichi Bldg. 4F. 1-20-8 Hamamatsu-cho Minato-ku Tokyo). The company develops and sells full systems for energy efficiency for large buildings such as malls, airports, stations, office buildings, universities.
- **TeiaCare** based in Milan was at **IID Tokyo on 2018** and since then participated to **NTT Data competition, Deloitte innovation day** in Japan, was the only Italian company at the **Well aging society summit 2019** in Tokyo and is invested by the **Japanese investor Fresco Capital**. TeiaCare develops technologies for elderly facilities and nursing homes
- **Design Italian Shoes** based in Central Italy was at **IID Tokyo 2016** and now has agreement with local distributor to better sell its personalized high quality shoes customers can configure online



The [Forum per la ricerca](#) is a key initiative by the Trentino Regional Government (whose works I personally coordinated) to identify the main sectors where to invest in the next years. The Forum per la ricerca published a [document called 'Carta di Rovereto sull'Innovazione'](#) that identify specific sectors such as [Red Biotech](#), [Hydrogen](#), [the use of wood as, for example, in packaging and construction](#), and underline the need to foster the [social, environmental and cultural impact](#) of the new technologies and discoveries. Furthermore the Forum emphasize the need to [support the creation of innovative start-ups and scale-ups via financial and non-financial](#) initiatives, tools and programs



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TRENTINO



**Raffaele Farella**



## MANUFACTURING LEADERSHIP

- 2° in the EU for manufacturing
- 1° for jewellery production
- 1° for superyacht production



## STRATEGIC LOGISTIC HUB

Gateway for 500 mln EU customers and 270 mln from Northern Africa and the Middle East

## TOP ECONOMY

- 3° in the Eurozone
- 9° in the world

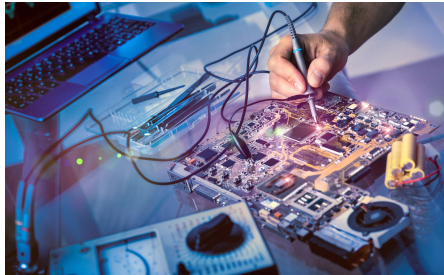


## WORLD HERITAGE

1° for UNESCO World Heritage Sites (55 in total)

## LIFESTYLE

- 1° in the world for population health level
- 2° in the world for longevity



## WORLD UNIVERSITY RANKING

• 4° in the EU and 7° in the world for number of universities



## R&D AND INNOVATION

- 1° in the EU patents' growth rate [in 2017, + 4.3% vs the + 2.6% EU average]
- In the Top 5 in the EU for no. of researchers



## ABOUT TRENTINO

**6,207**

Surface area

**36.101**

Income per capita

**5,7%**

Unemployment rate

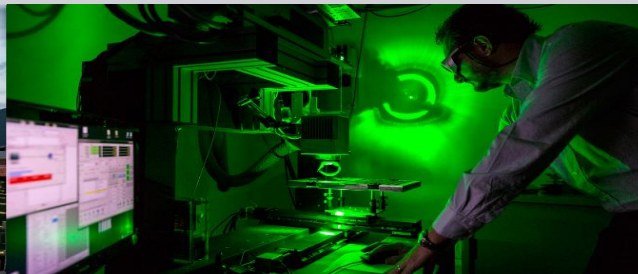
**6,8%**Innovative startups  
1° in Italy**6 mln tourists**

Per year





## 7 REASONS WHY



1.

### Responsably autonomous

Special status of Financial, legislative and administrative autonomy. 90% of taxes revenues are invested locally. An efficient and reliable regional administration.

2.

### Quality of life and security

A land of extraordinary beauty with more than 5.5 million tourists every year. Trento is one of the top Italian Cities to live in (Italia Oggi – Quality of life and “Il sole 24 ore” National survey on the quality of life in Italy).

3.

### A solid economy

Innovative and dynamic industrial system. Per capita GDP in the Region 28% higher than in EU average. Specializations: Mecathronic, Green Tech, Biotech.

4.

### Research for growth

1,82% GDP invested in the research sector, 1 university (ranked as the best Italian university for quality of research and internationalization) 40 public and private research centres 152 innovative startups Every 10.000 corporations.

5.

### Strategic position

A natural bridge connecting Central Europe and Mediterranean markets. a region served by an efficient infrastructural system (Brenner Corridor: Motorway and railway) Broadband with more than 1.100 km of optical fibre.

6.

### Sustainable development

Endorsement of a sustainable use of the territory and the innovation “green & clean” to ensure the welfare of the people and our environment.

7.

### A single referent

For all the phases of settlement inside our territory: real estate, research contracts, credit access, incentives support, analysis of the economical and financial means, research of suppliers and local partners.

# WHY INVEST IN TRENITINO

INVEST  
IN ITALY

ITCA  
ITALIAN TRADE AGENCY

INVITALIA

TRENITINO

## INCENTIVES



### LESS TAXES, MORE INNOVATION

Exemption for new companies established in Trentino from payment of IRAP (Regional Tax on Productive Activities) and devoted grants and Funds for R&D and innovative projects.



### INVESTMENT IN HIGH TECHNOLOGY INSTALLATIONS

Financial support that invest in innovative technology installation (Grace leasing Model).



### FIXED INVESTMENTS

Financial aid to foster the investments in real estate, Installations, equipment, Machinery, patents and Purchase of know how.



### TAX CREDIT

Financial measure to cut contribution through deductible costs.



### INVESTMENTS IN ENVIRONMENTAL PROTECTION

Subsidies (from 40% to 60% of eligible costs) for green building investments and energy efficiency equipment and installation and co-generation plants.



### PROJECT FINANCE

Trentino Alto-Adige strategic fund: innovative tool complementary to the traditional banking sector instruments.



### INTERNATIONALISATION

Subsidies for attendance to international trade fairs: up to 50% of costs; 30% of cost to joint missions in non EU Countries; 50% internationalisation Projects.



### PRODUCTIVE SPACES

**1.2 million sq.m.** ready to use **2 technology and industry Hubs** (Mechatronic parks and green technology parks).



## RAFFAELE FARELLA

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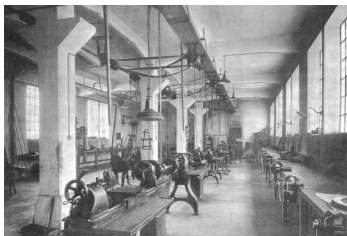
TRENTINO

TRENTINOSVILUPPO

BUSINESS DEVELOPMENT AND DESTINATION MARKETING AGENCY

**Mauro Casotto**

## SUCCESS STORY #1 OPT (ITALY-JAPAN)



1919

**Foundation of the company.** Original name: Prothesis workshop of Trento (Officina di protesi Trento).



1926

The **first operating table** was produced.



1985

The company - based in Trento - moved to **Calliano**. It grew by producing high-performing surgical tables for the global market.



2013

The Japanese group **TKB Corporation** - leader in the distribution of medical devices all over the world - acquired OPT.



TURNOVER: **12.446 million euro**

EMPLOYEES: **66**





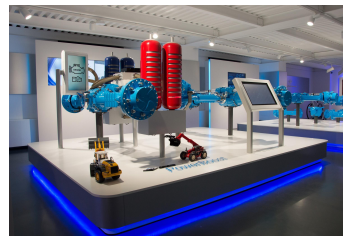
### 1904

Foundation of **Dana Incorporated** in Maumee (Ohio - USA).



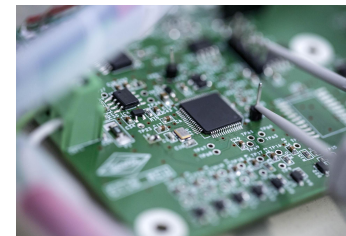
### 1962

German entrepreneur Federico Hurth founded **Hurth Italiana SpA** in Arco, Trentino (Italy).



### 1997

**Dana Holding Corporation** acquired Hurth, which became the headquarters of Dana Italy.



### 2015

In the Mechatronics hub of Rovereto, in Polo Meccatronica) opened **Dana Mechatronic Research**, a research spin off counting on 20 high skilled employees.



TURNOVER IN ITALY: **784.626 million euro**  
EMPLOYEES: **1,216**





### 1956

**Bonfiglioli** was founded in Bologna as one of the biggest companies in the world in the power transmission sector.

### 2011

The company chose to grow within **Polo Meccatronica**.  
Foundation of **Bonfiglioli Mechatronic Research**.

### 2013

The **headquarters grew**. So did the employees, which went from 30 to 90 in 2018. A new business unit - named "**Mechatronic and motion systems**" - was born.

### 2020

An **innovative plant** has been opened within Polo Meccatronica. More than **100 workers** will be employed in Trentino. Expected turnover: 21.7 million euro.



**Bonfiglioli**



BONFIGLIOLI RIDUTTORI TOTAL TURNOVER: **973.33 million euro**

TOTAL EMPLOYEES: **3,899**



### 1983

Giorgio Salvadori founded a **family company** specialised in the reconstruction of tyres.



### 1990

The company entered the **recycling market** by producing the first machinery for tyres-cutting. In **2005**, it settled down in Polo Meccatronica.



### 2016

The **American corporation TRC** acquired the company.



### 2018

The company grew and launched **MT-Rex**, the only machinery in the world able to chop 6-tonne tyres.



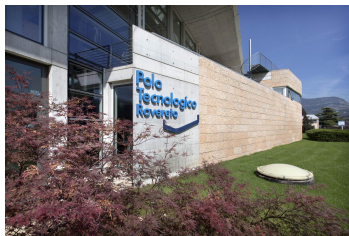
TURNOVER: **8.973 million euro**

EMPLOYEES: **34**

# THE INNOVATION SYSTEM OF TRENINO

TRENTINOSVILUPPO  
BUSINESS DEVELOPMENT AND DESTINATION MARKETING AGENCY

TRENTINO



TRENTINOSVILUPPO  
BUSINESS DEVELOPMENT AND DESTINATION MARKETING AGENCY



UNIVERSITÀ  
DI TRENTO



FONDAZIONE  
EDMUND  
MACH

H I T  
HUBINNOVAZIONE TRENINO

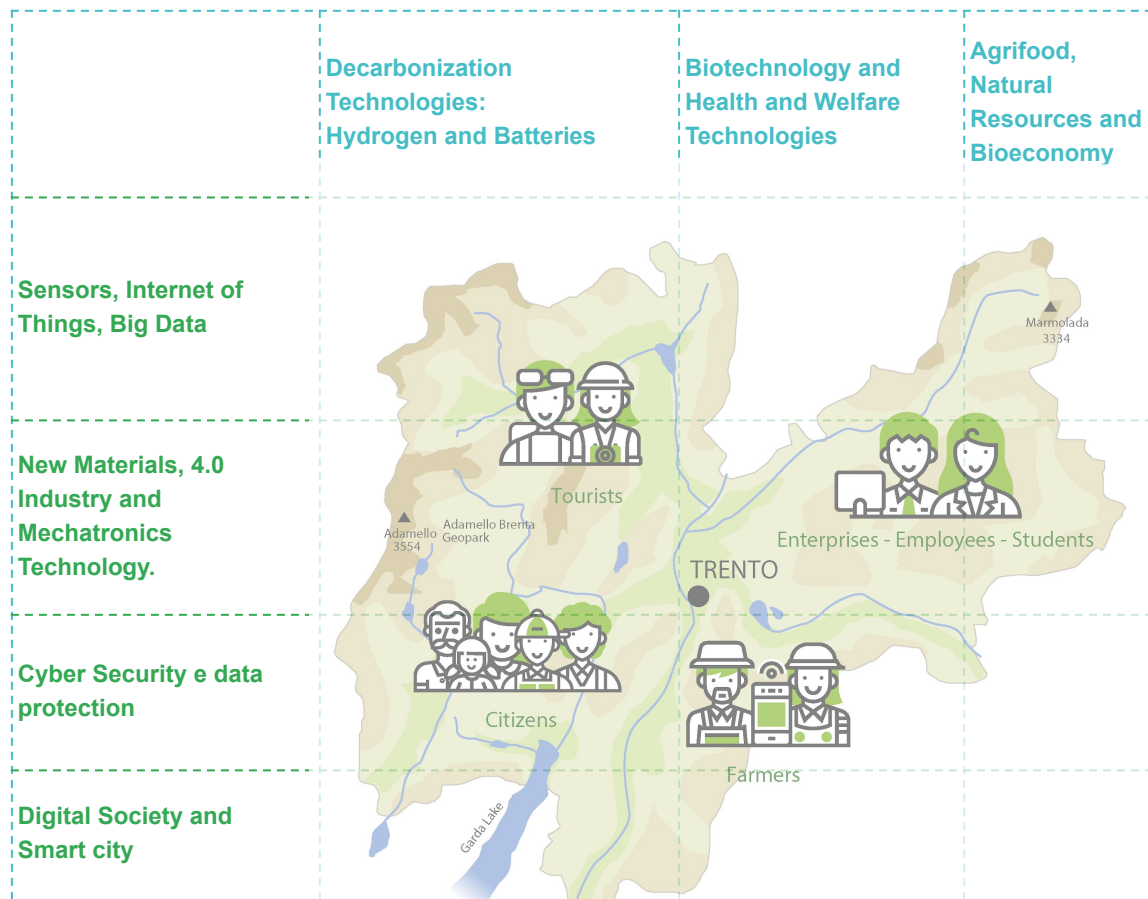
- Promotes the results of scientific research in Trentino through **technology transfer activities** to private companies and investors.
- Supports stakeholders and Trentino companies in **innovation processes and internationalisation** in national and European networks (eg Cluster Technologies, KIC, Technology Platforms).
- Stimulates **integrated training, infrastructures, skills and services** to accelerate innovative and highly technological businesses.



Trentino Research Habitat  
ECOSISTEMA INNOVATIVO

## TRENTINO 2030

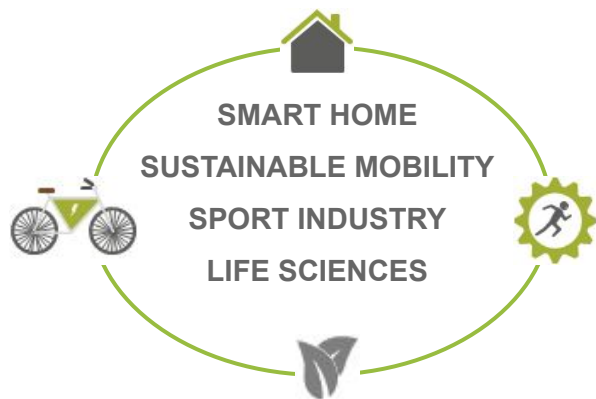
HUMAN  
INNOVATION  
LAND





A business innovation center leader in Europe for the following fields: **sustainable construction industry, renewable energies and environmental technologies.**

New focuses:



**TESS LAB**

Laboratories of technologies & services  
for sustainability



**100,000 mq**

**25,600 mq** of new  
buildings that will be  
inaugurated in February  
2020, designed by **Kengo  
Kuma**



## PROM FACILITY

Is a fast prototyping lab which supports companies with services of design, simulation, fast prototyping with additive manufacturing machines, testing







## Research for growth

Strong local R&D network,  
up to 80% non refundable  
grant on R&D projects



## Single contact point

A dedicated team supporting  
enterprises in every steps



## Ready-to-use spaces

Buildings and industrial  
areas available



## Technology Parks

Innovation centres  
dedicated to strategic  
sectors of Trentino



## MAURO CASOTTO

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TRENTINO



UNIVERSITÀ  
DI TRENTO

*Workshop  
"Trentino:  
Business and  
Innovation in the  
Heart of Europe"*

**Maurizio Marchese**



*It is a middle-size, comprehensive University,  
located in the North East of Italy.*

*Distance from Trento to:*

*Verona            98 km*

*Venice            157 km*

*Innsbruck       173 km*

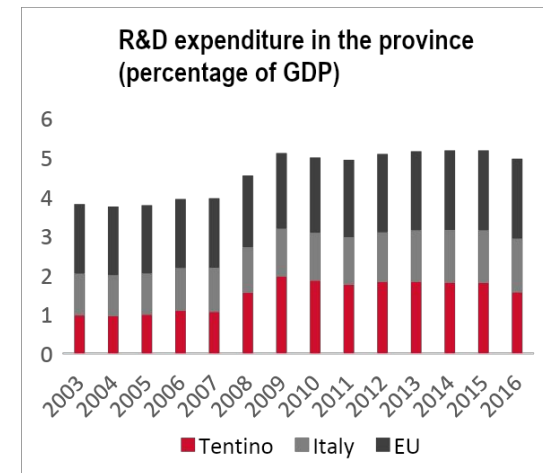
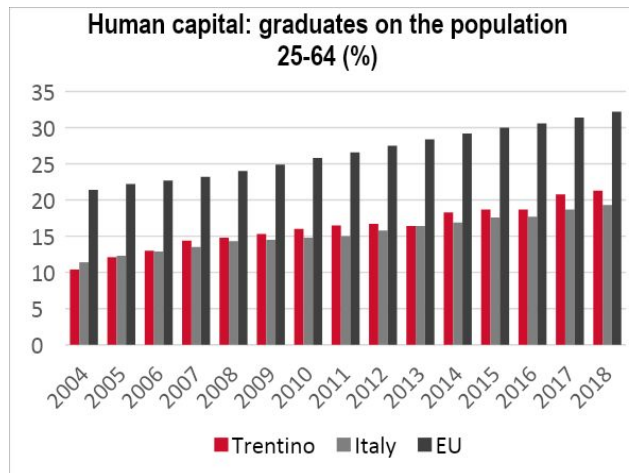
*“Leading university in Italy for quality of  
research and education.*

*At the center of the economic and social  
innovation in the Trentino region”*

Fifty years ago, Trentino was one of the poorest regions in Northern Italy: in 1967 the net migration rate (migrants-repatriates on the population) was negative

Afterwards, we can describe three periods of the economic policy:

- In 1960 - Attraction of **investments in labor intensive production**. Also founding of FBK and the University of Trento
- In 1985 - New **welfare instruments** to face increasing unemployment
- In 1995 - Focus on **R&D and innovation**, human capital, and soft industries



**The rate of employment (15-64)**

<b>1977</b>	T=58.3%	M=80.9%	F=36.5%
<b>1997</b>	T=62.8%	M=76.7%	F=48.7%
<b>2017</b>	T=67.6%	M=73.0%	F=62.1%





16.277 students



560 Ph.D. students



621 professors  
and researchers

260 post-doc  
researchers



675 administrative  
staff



14 departments/research centres

116 research laboratories

1 language centre

3 sport facilities

4 libraries

TYPE OF RANKING	INTERNATIONAL RANKING	NATIONAL RANKING
EUROPE TEACHING RANKINGS (2018)	36 out of 242	1 out of 25
THE WUR (2018)	[251-300]	5 out of 39
QS UNIVERSITY RANKINGS (2018)	[441-450]	10 out of 30
CENSIS (2017)	-	2 out of 17
IL SOLE 24 ORE (2017)	-	2 out of 61





2011 - 2020



The University of Trento is one of the founders of **Hub Innovazione Trentino - HIT**, a Foundation focused on promoting advanced technology transfer (ATT). It brings together the whole regional value-chain - University, research centres and the development agency – thus giving more critical mass and strength to the regional participation in strategic R&I networks at national and international level.

It supports added-value actions of interest to the whole R&I ecosystem.



The University of Trento is part of **SMACT (Industry 4.0)**: a consortium that will oversee the Competence Centre of Triveneto Region to encourage research and business collaboration in 5 types of technologies: **Social, Mobile, Analytics, Cloud and Internet of Things**.

- Formed by 8 north-eastern universities, two research institutes, the Chamber of Commerce of Padova and 29 private companies
- It received funding amounting to **7 million €** from the Italian Ministry of economic development



2011 - 2020

**EIT Digital** is a leading European digital innovation and entrepreneurial education organization driving Europe's digital transformation

Trento hosts the **Italian Node of EIT Digital**, which clusters public and private organisations that are driving the digital innovation and transformation in Italy



- It aims at global impact through European innovation fuelled by **entrepreneurial talent and digital technology**
- It embodies the future of innovation through a **pan-European ecosystem** of over 200 top European corporations, SMEs, startups, universities and research institutes, where students, researchers, engineers, business developers and entrepreneurs collaborate in an open innovation setting
- Broad location: Amsterdam, Berlin, Braga, Budapest, Brussels, Eindhoven, Edinburgh, Helsinki, London, Madrid, Milano, Munich, Nice, Paris, Rennes, Stockholm, Trento, and San Francisco



UT is in the ECIU network since 2018.

Network formed by similar young research-intensive universities, with particular strengths in engineering and social sciences, committed to innovative teaching&learning and with a strong connection with the entrepreneurship world

2011 - 2020

Main and important achievement: **the ECIU university**

- It offers **student-centred curricula** jointly delivered across inter-university campuses, where a diverse student bodies can build their own programmes and experience mobility at all levels of study
- It adopts a **challenge-based approach** according to which students, academics and external partners can cooperate in inter-disciplinary teams to tackle the biggest issues facing Europe today





- UT is working to develop its **international scope**, establishing and developing **networks and partnerships** to guarantee the opportunity of **international cooperation with regard to education, research and relations with industry.**
- Main actions:
  - 135 bilateral agreements with non EU HEIs
  - 31 double degree agreements
  - 300 university Erasmus<sup>+</sup> partners in more than 30 European countries
  - Specific services for international students: scholarships, university curriculum counselling, welcome service, accommodation, language centers



### ACTIVE BILATERAL AGREEMENTS:

Hitotsubashi University

University of Tokyo

Tokyo Institute of Technology

Nara Institute of Technology

Nagasaki University

Tohoku University

Chiba University

Kanazawa University

Keio University

RIKEN Brain Institute

Tokyo University of Foreign Studies

### **Centre for Integrative Biology (CIBIO) and University of Tokyo**

Studies of the epigenome in embryonic development and pathologies  
Artificial Biology, Synthetic Biology

### **Department of Industrial Engineering and Nara Institute of Science and Technology**

Robotics for home automation applications  
Augmented Reality interfaces for clinical settings

### **Department of Cognitive Science/Center for Mind/Brain Sciences and University of Tokyo, Tokyo Institute of Technology**

Human Computer Interaction  
Comparative physiological correlates of mother-child social interactions

### **Department of Information Engineering and Computer Science and University of Nagasaki**

ICT Technologies applied to Cultural Heritage



## MAURIZIO MARCHESE

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University of Trento

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TRENTINO



FONDAZIONE  
BRUNO KESSLER

*FBK: cutting edge  
research and  
innovation for  
industry and  
science*

**Gianluigi Casse**



Based on **scientific excellence** we provide **unique innovation capabilities** to institutional and industrial partners.



<b>7</b>	<b>200+</b>	<b>43</b>
Research centres	Scientific publications (2018)	New EU projects (2018)
400+	500+	20
Researchers	Contributions to conferences (2018)	Joint labs and co-located companies
100+	39	27
PhD students (from 25 countries)	Patents	Innovative start-ups

Over 130 people between researchers, engineers and PhD students.

- Wide base of complementary competences
- know-how and state of art research infrastructure
- outstanding results in both research and innovation fields.

Photonics

CMOS sensors, imagers

MEMS, Bio-Mems

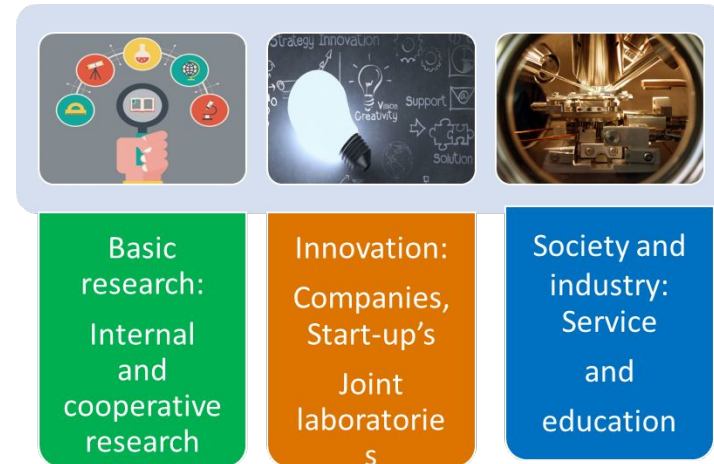
Nanotechnologies

Innovative Materials and Interfaces

Micro and Nano devices

Energy and sustainable future

Quantum Technologies



## 6" Microfabrication Area Clean Room Detectors



## Clean Room MEMS



## Testing Area



## Integration Area

## Analytical facility:

- D-SIMS Dynamic Secondary Ion Mass Spectrometry
- ToF-SMS Time of Flight Secondary Ion Mass Spectrometry
- XPS X-Ray Photoelectron Spectroscopy
- SEM-EDX-EBSD Scanning Electron Microscopy
- AFM Atomic Force Microscopy
- XRD/XRF X-ray Diffraction / X ray Fluorescence
- Raman spectroscopy

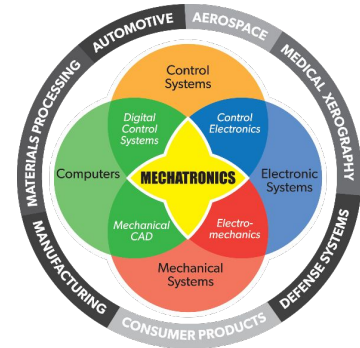




According to the principles of “**Industry 4.0**”, development time/prototyping can be reduced through technology in the following areas:

- **mechanical**: 3D printing, AM-machining
- **electronics**: customized and integrated systems
- **ICT**: simulation, networking, the Internet of Things
- **system integration**: Product prototyping
- **metrology**: accurate measurement of the product, qualifications and certification

- Development of innovative artefacts for specific applications
- New materials
- Embedded electronics and sensors
- Sensors for IoT systems



# Beyond State of the art sensors and devices developed for Science, transferred to Industry.

**EUCLID**  
The construction of ESA's Euclid space mission to explore the 'dark Universe' will be led by Italy's Thales Alenia Space as prime contractor, beginning the full industrial phase of the project.

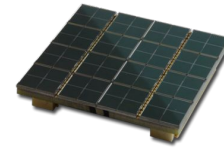
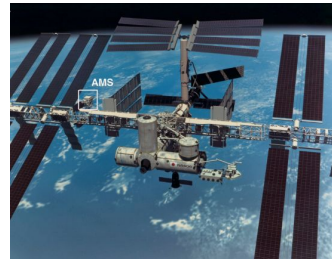
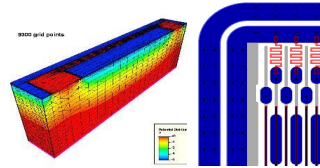
**ESA MICROSCOPE**  
MICROSCOPE à traînée Compensée pour l'Observation du Principe d'Équivalence  
Launch: April 2016

**ESA LISA PATHFINDER**  
The aim of the LISA Pathfinder mission is to demonstrate, in a space environment, that free-falling bodies follow geodesics in spacetime, by more than two orders of magnitude better than any past, present or planned mission.  
Launch: 2 December 2015

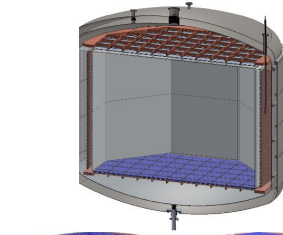
**ESA GAIA**  
Launched in 19 December 2013, ESA's Gaia satellite started routine scientific operations on 25 July 2014. As it scans the sky from its location at the L2 Lagrange point, Gaia records the position, brightness, and colours of any object brighter than 20<sup>th</sup> magnitude that crosses its field of view.

**MEMS MASS FLOW SENSORS**

Photos: by ESA and FBK

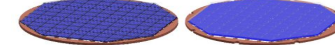


**darkside**  
two-phase argon TPC for Dark Matter Direct Detection

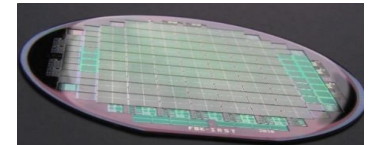
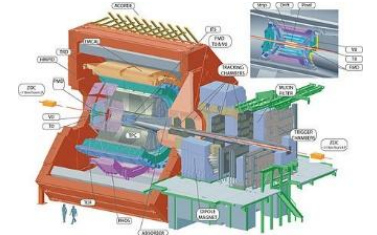


~ 23t of UAr

**TPB WLS:**  
emission at 400 – 450 nm



SiPM tiles

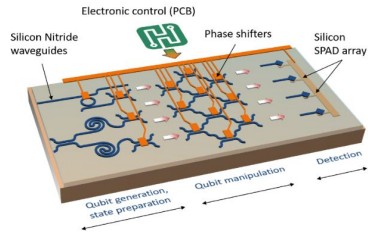




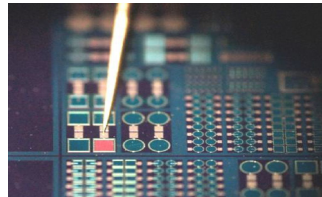
FBK has adaptable models for collaborating with enterprises:

- joint innovation labs (co-working operations of FBK scientists and industry personnel)
- contracted research
- customization of industrial or FBK products to industry needs
- Pilot productions (product engineering)
- KET provider to industries of various size
- Technology support to start-ups according to adaptable funding methods.

## Frontier research with innovation in mind: Quantum Technologies



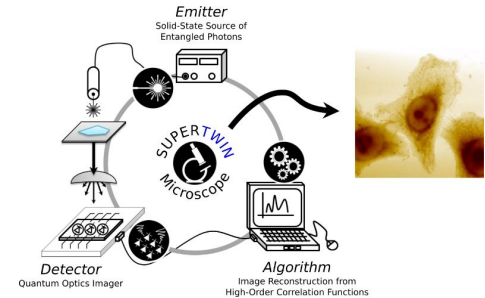
QRANGE



Si-LED



CMOS SPAD detector



Technology provider to Trentino industries (robotics, material treatment, energy, niche industries ...).

Joint labs for advanced innovation projects (e.g. the Italian National mint (IPZS) for secure ID systems and new materials).

Several international large scale companies (e.g. Broadcom, and from Japan Horiba, Rigaku. More companies ask for confidential collaborations).



**Local company Gemmarum, Cavalese, Tn, Italy**

**Industrial problem:**

Developing an instrument for jewellers for reliable automatic evaluation of the colour of diamonds

**Results:**

- Instrument co-developed and tested by FBK
- Innovative stone centring and lighting system
- self-calibration system
- tested and certified with the highest international standards (GIA, HRD, IGI)
- 1 shared patent
- New company for commercialization: Gemchrom (<http://www.gemchrom.com/>)



Boeing	Ebay	Google	Docomo
esa	Eni Saipem	Engineering	NCI Agency
Telefonica	Unifarm	ST	Ericksson
Eads	IBM	Broadcom	Cisco Systems
HORIBA	RIGAKU	MIT	Orange

*Other confidential*



## GIANLUIGI CASSE

**FBK-CMM Director**

**Fondazione Bruno Kessler**

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[cmm.fbk.eu/it/people/detail/gianluigi-casse/](http://cmm.fbk.eu/it/people/detail/gianluigi-casse/)



TRENTINO



UNIVERSITÀ  
DI TRENTO

*Advanced  
manufacturing  
and mechatronics*

**Mariolino De Cecco**  
*Biral, Bosetti, Fontana, Da Lio*



- Main focus is the system-level engineering of **intelligent mechanical systems**
- Emphasis is on **integration of functions** by a **multi-disciplinary approach**: from mechanical system to manufacturing, from sensing and data fusion to mathematical methods for dynamic systems modelling, from control systems to Robotics, from Cognitive Systems to Mixed Reality

Participation to several H2020, ESA, EIT projects

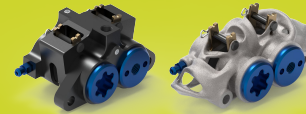
### Research topics:

- Manufacturing Systems and Industrial Automation
- Mechanical Measurements and Sensor Data Fusion
- Mobile vehicles robotics
- Space Technologies
- Accessibility and Assistance Living



Assistance in the grinding process  
through MR

Fly



Topological optimization and metal AM  
fabrication of powertrain components



AR&AI-based  
classification



BLM GROUP

Design, simulation and testing of  
hypersonic nozzles for low gas  
consumption in laser cutting




## DREAMS4CARS





...  
**Artificial brain inspired driver for autonomous driving**

**Low-cost, cloud-based monitoring of large number ( $10^4$ ) antenna poles for cellular TLC**



**C-ITS including I2V and V2I communications and VMS/VSL functions into low-cost, integrated strip markers on the road**

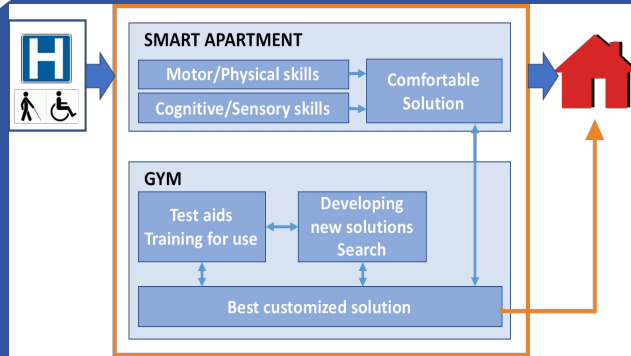



Pallet pose detection

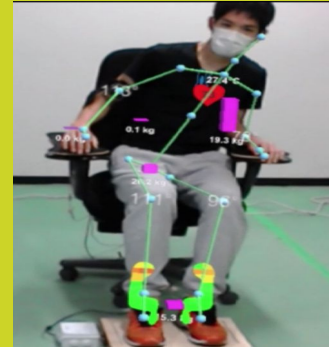
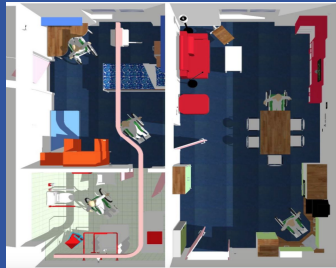








Bridge the outcome of the acute care to the autonomy in the return home



**MiRO** Measurements  
Instrumentations  
Robotics  
LAB

Interactive  
Media Design Lab

Collaboration with  
**Nara Institute of  
Technology**

Industrial exploitation of the territorial lab





## MARIOLINO DE CECCO

Associate Professor

Department of Mechanical and Structural Engineering

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TRENTINO



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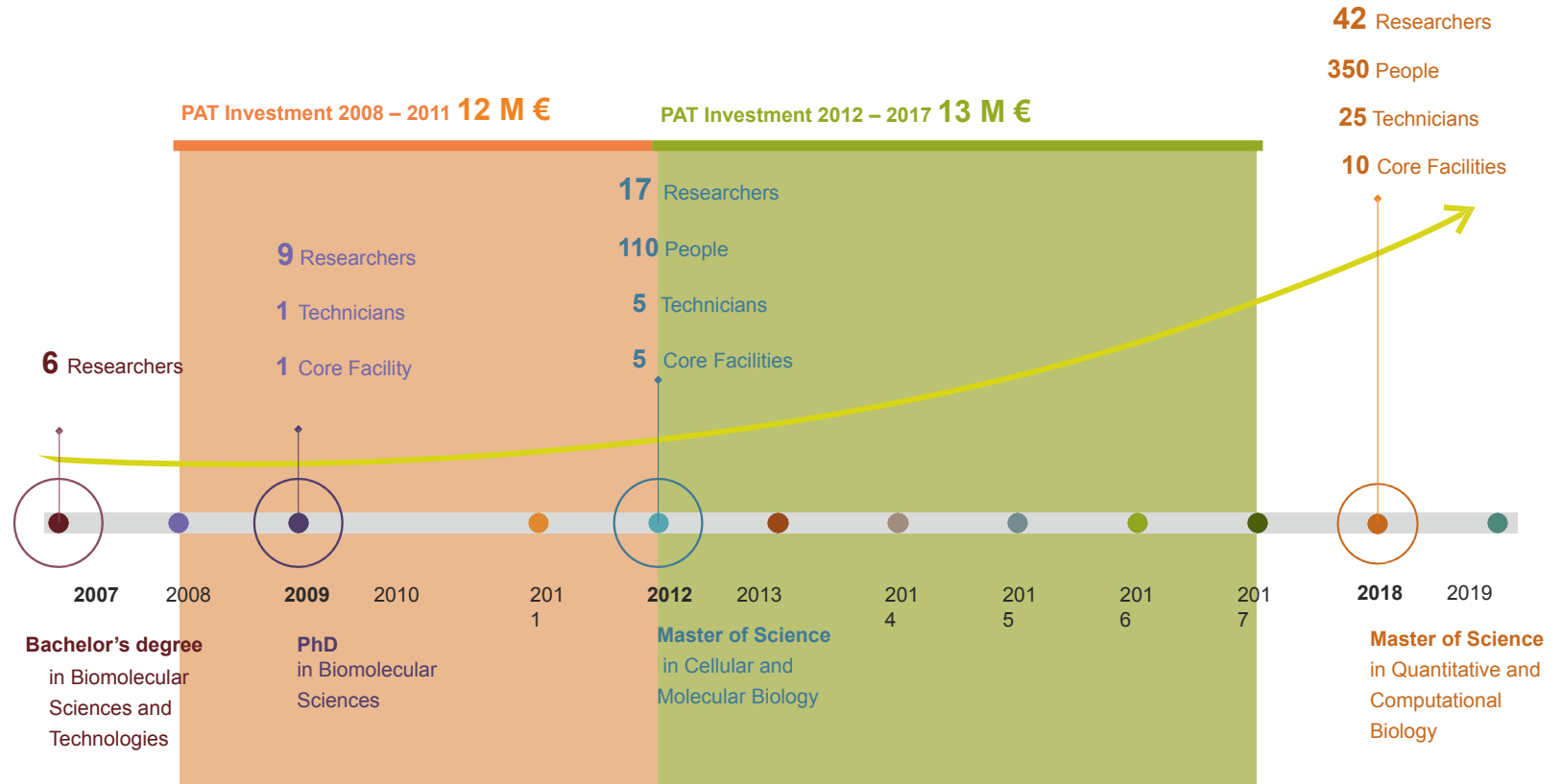
DEPARTMENT OF CELLULAR,  
COMPUTATIONAL AND  
INTEGRATIVE BIOLOGY

**Alessandro Quattrone**

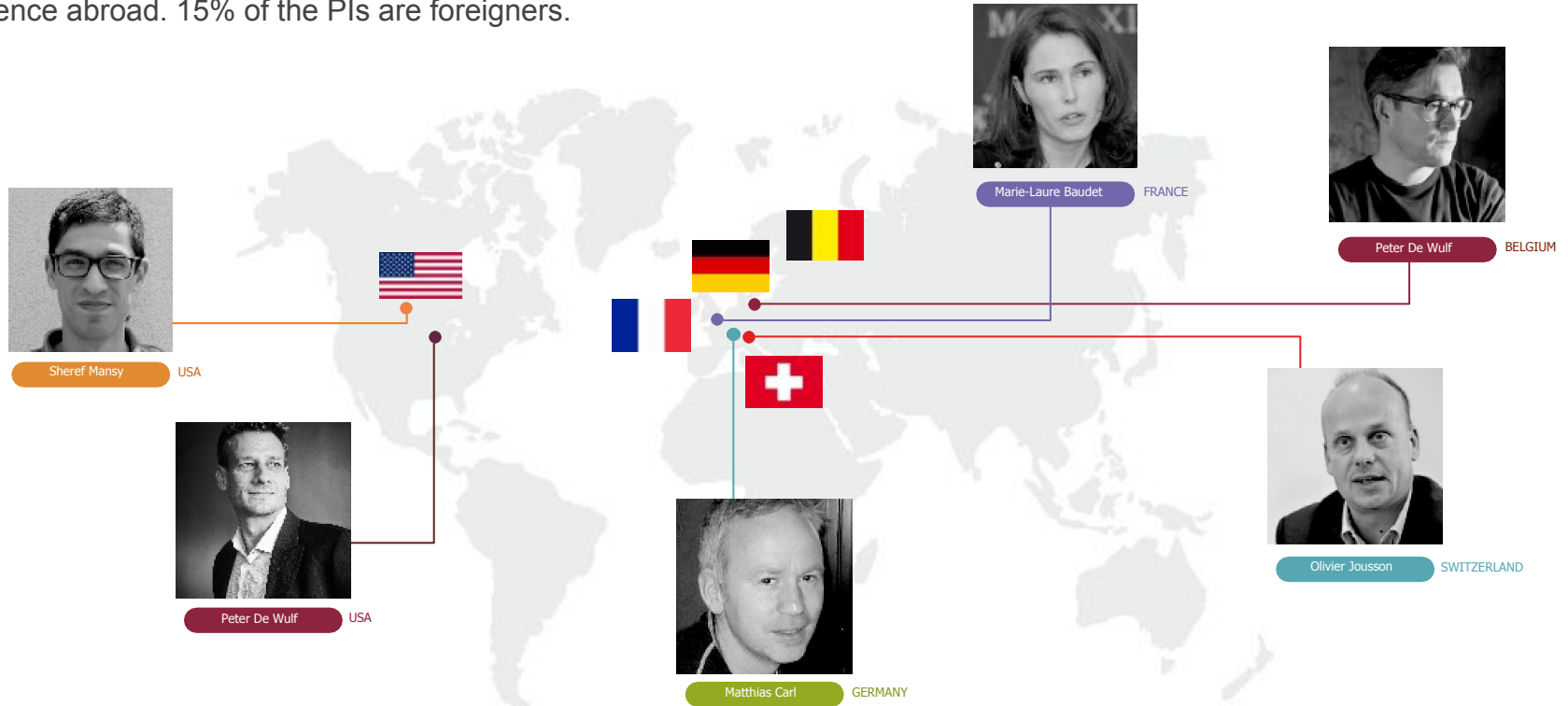
# THE DEVELOPMENT PROJECT OF CIBIO

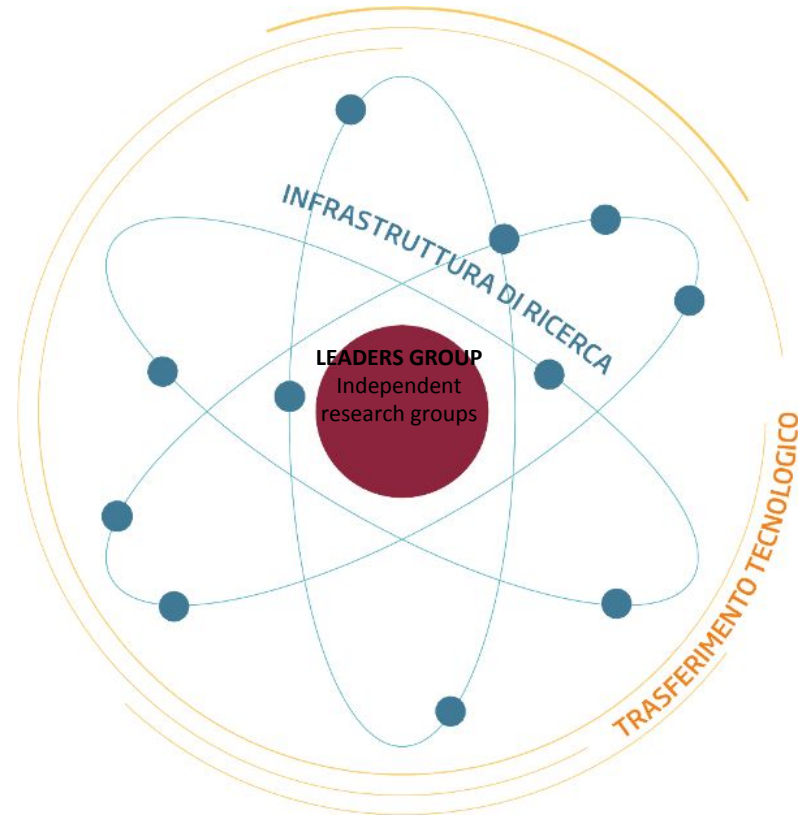


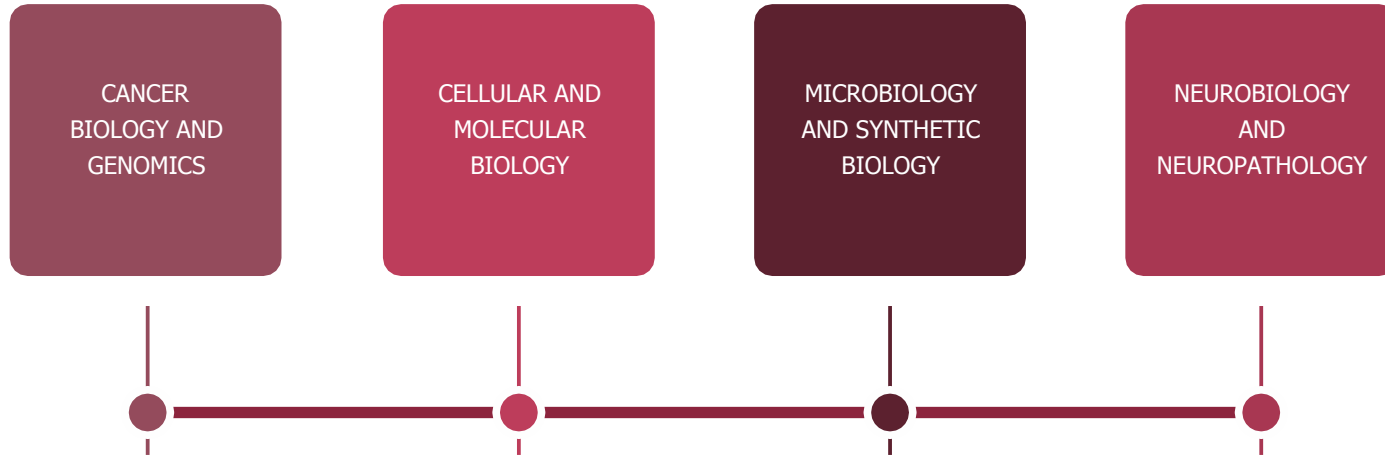
UNIVERSITÀ  
DI TRENTO



All CIBIO researchers collected at least a 2-year research experience abroad. 15% of the PIs are foreigners.









ADVANCED IMAGING



CELL ANALYSIS &  
SEPARATION

HIGH THROUGHPUT  
SCREENING & VALIDATION



NEXT GENERATION  
SEQUENCING

BIO-ANALYTICAL MASS  
SPECTROMETRY



MODEL ORGANISM

PROTEIN TECHNOLOGY



BIOINFORMATICS

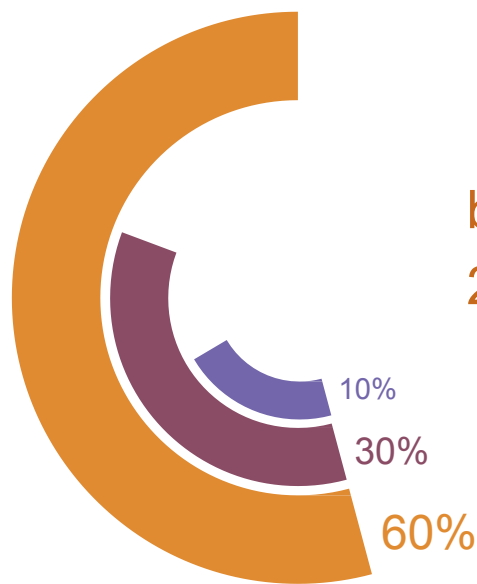
CELL TECHNOLOGY



GRANT SUPPORT  
LAB MANAGEMENT



Strategic financing for the CIBIO Development Plan achieved through **official guidelines between the Autonomous Province of Trento and the University of Trento.**

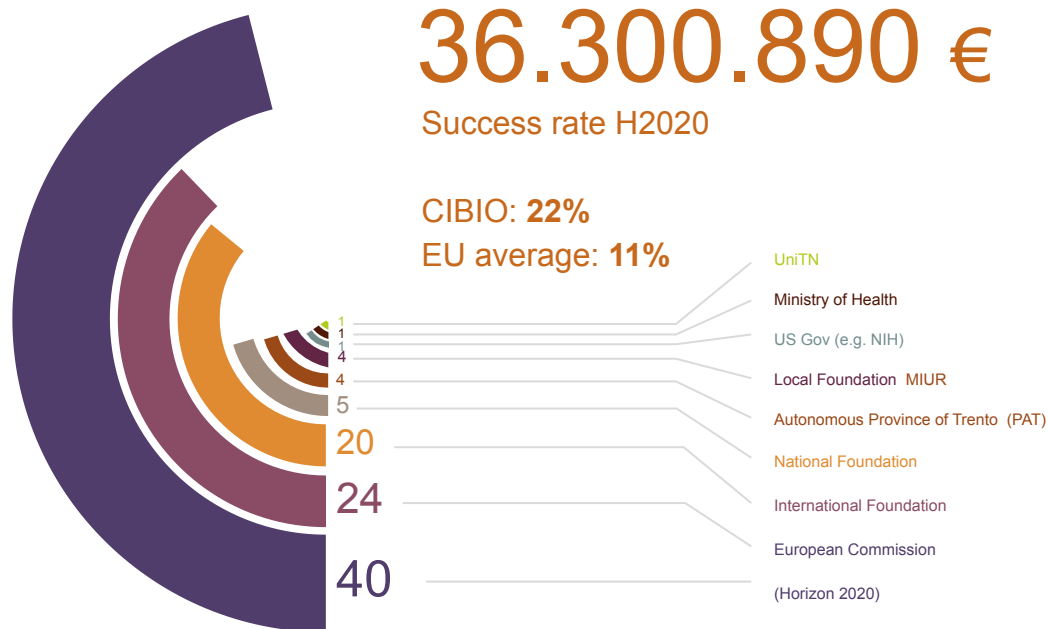


# 18 M €

between 2008 and  
2016

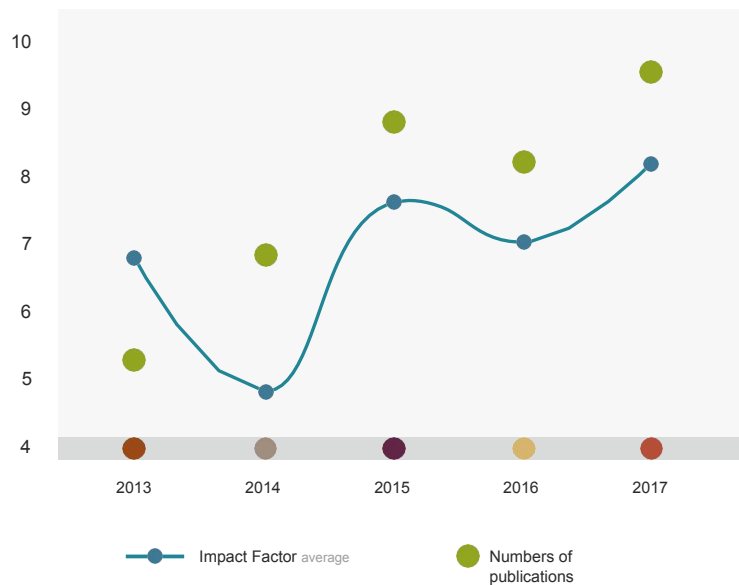
Pillar 2  
Research infrastructure





**Pillar 2**  
Research infrastructure





Impact factor average **7.0**

Impact factor average 2017 **8.3**

Higher impact factor **43.3**

Around **90** articles/year

**25** articles/year on periodicals with IF > 10

Cell

Cancer  
Cell

Science  
Translational  
Medicine  
AAAS

nature  
biotechnology

Nucleic Acids  
Research

CANCER DISCOVERY

nature

nature  
genetics

Science





Spain

## CENTRE FOR GENOMIC REGULATION

519 People 8,6

Average IF

16 M €/year Intramural Funding Major  
extramural Funding: Catalogna State,  
European Commission



Germany

## INSTITUTE OF MOLECULAR BIOLOGY

235 People 7,1

Average IF

10 M €/year Intramural Funding Major extramural  
Funding: German Research Foundation, European  
Commission



Italy - Trento

## CENTRE FOR INTEGRATIVE BIOLOGY

270 People 7,7

Average IF

1,5 M €/year\* Intramural Funding Major  
extramural Funding: European Commission,  
Foundations



Italy - Milan

## EUROPEAN INSTITUTE OF ONCOLOGY

207 People - 314 Clinicians 7,0 Average

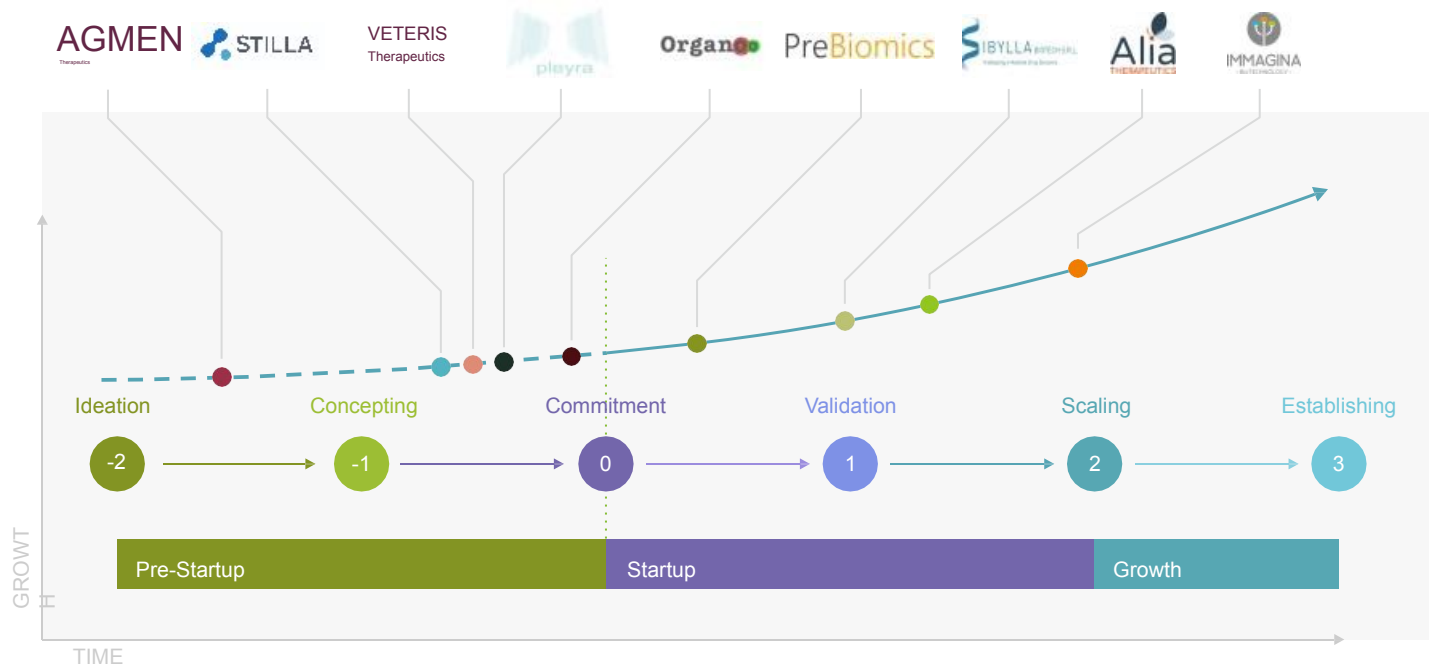
IF 10 M €/year Intramural Funding Major  
extramural Funding:

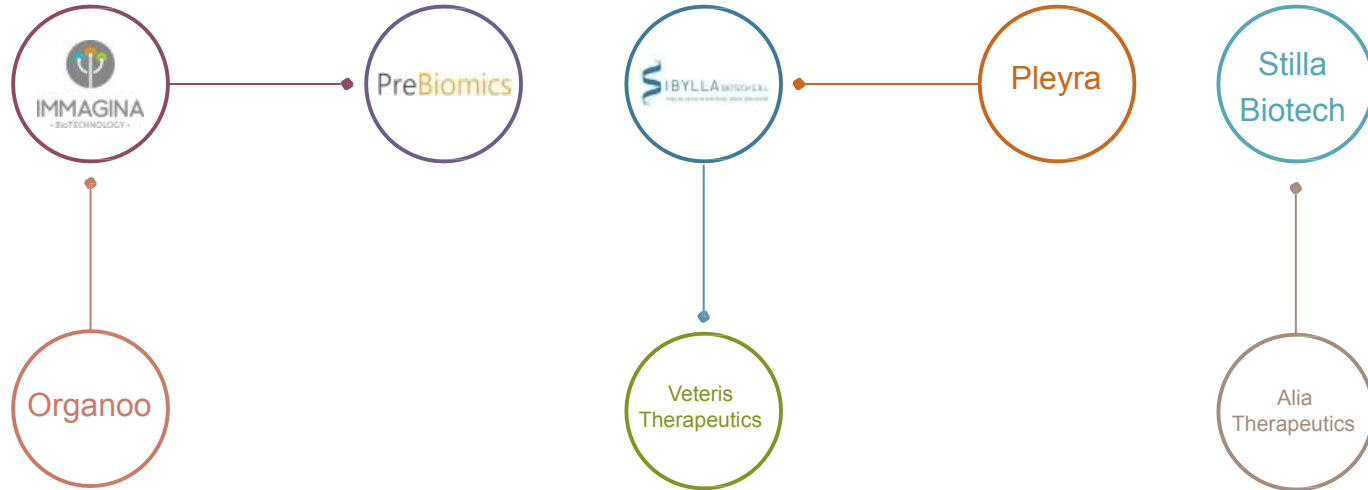
Ministry of Health, Donations, Foundations

(\* ) 4 M including salaries, not included (IEO) or partially included  
(CRG, IMB) in other cases.













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Director of CIBIO

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[cibio.unitn.it](http://cibio.unitn.it)