

Trieste, Italy





Title AREA Science Park **Pitch** Developing the economic system of enterprises through innovation and technological research AREA Science Park, Innovation Factory **Organisations** Country Italy **Author** Dr. Richard Woolley (Ingenio CSIC-UPV Universitat Politècnica de València) ☑ Collaboration in R&D Nature of ☐ Lifelong learning ☑ Commercialisation of R&D ☐ Joint curriculum design interaction results and delivery ☐ Mobility of staff ☐ Mobility of students ☑ Academic entrepreneurship ☑ Student entrepreneurship ☐ Governance ☑ Shared resources ☑ Strategic **Supporting** ☑ Structural mechanism Operational ✓ Policy Summary **AREA Science Park** is located in Trieste, North east of Italy, Friuli Venezia

AREA Science Park is located in Trieste, North east of Italy, Friuli Venezia Giulia Region. The Mission of AREA Science Park is to develop the growth and competitiveness of enterprises through innovation and technological research, technology transfer, innovation management, management of R&D programmes and knowledge-intensive enterprise creation. AREA features top quality offices and labs, but also common spaces to encourage daily interaction between the companies and the research groups located there.

AREA has an in-house incubator **Innovation Factory**, which supports would-be entrepreneurs from their initial idea to the birth of their start-up. From business plan validation to company acceleration, Innovation Factory accompanies start-ups along their growth path. Since Innovation Factory was founded in 2006 more than 1,600 business projects have been evaluated and 281 entrepreneurial ideas have embarked upon a valorization process. Fifty new start-up companies have been founded, of which 20 are co-founded by Innovation Factory.



1. BACKGROUND

Following an earthquake in 1976 which devasted the region of Friuli Venezia Giulia, the Italian Government took a strategic decision to revitalise the region by investing in innovative research to boost competitiveness.

This led to the setup of the AREA Science Park as an innovative type of research organisation. The strategy was clearly defined as "to host the highest possible level of research and to translate this research into innovation". The setup of the Science Park was a bold move as the region had no particular indigenous capabilities. However it set out a long term ambitious vision as to what the future could be for the region.

In 1978, a large investment was made in building the first high level facilities to attract other organisations. The initial iconic development was the Elettra Synchrotron Light Laboratory (ELETTRA), specialized in synchrotron and free electron laser radiation experimentation. The ELETTRA synchrotron sent a signal regarding AREA Science Park as a Park that aimed to operate at the cutting edge of science and technology.

The growth of AREA Science Park advanced slowly through phases of construction of the infrastructure, assembling the laboratories, and recruiting highly qualified and skilled people. AREA Science Park management realised that it was going to be necessary to have research centres that focus in big thematic areas. So, over time the AREA Science Park also sought to expand the technology transfer side.

Companies had been present in AREA Science Park from the start, but a more U.S.-style innovation culture, built up around researchers and using intermediaries to move into markets and support companies, did not really exist at this time in the region – or Europe more broadly to a large extent. AREA Science Park identified the problem that there was no formal process to help researchers to translate their ideas into business and started discussions about a new way to address this lack of structured innovation process.

AREA Science Park is a Public Research Organisation, and was officially recognised by the Italian Ministry of University and Research in 2005 as a 'top level national research body' and a national point of reference for technology transfer.

Discussions within AREA Science Park, including the research groups, universities and companies, tried to identify what exactly was needed and what could be done to try and build this more U.S. style process – but to build it in the right way for AREA Science Park, the region and Italy. The solution developed was the creation of then Technology Transfer Department, which started to be implemented from around 1999. From this time on, this Department was developed to be the key intermediary that could help actors in the Park, in Friuli Venezia Giulia

and in the other National Regions when they wanted to innovate or transfer technology to the market. In 2006, AREA Science Park formally launched Innovation Factory, the incubator of AREA Science Park. The purpose of the Innovation Factory was to continue to build the ecosystem to support entrepreneurship culture and the creation of new business with a structured methodology for undertaking technology transfer.

2. OBJECTIVES AND MOTIVATIONS

The mission of AREA Science Park is to develop the growth and competitiveness of local and regional commercial enterprises through innovation and technological research. This mission is supported by a number of specific objectives, which include:

- developing the park as a regional innovation system that is embedded in national and international innovation systems;
- contributing to the competitiveness of regional industry through technology transfer, innovation management, management of R&D programmes and knowledgeintensive enterprise creation;
- increasing regional innovation capabilities through a combined training and mobility program; and
- developing initiatives of capacity building in Europe and abroad, based on strategic planning for sustainable development, innovation management and technology transfer.

The main mission of Innovation Factory is the valorisation of research results from universities and other research performing organisations. Innovation Factory is a company that is wholly owned by AREA Science Park and plays the role as intermediary in technology transfer for business creation. The motivation of Innovation Factory is driven by the need for vehicles to deliver high technology based products to the market that are based on research conducted in the territory where it works. However, Innovation Factory also supports the development of already existing start-ups and helps them with scale-up problems.

The Innovation Factory's mission is different from that of purely commercial organisations as the objective is to try and enhance all the ideas that worth being exploited. Innovation Factory believes in trying to make "all the flowers grow, rather than trying to make one flower more beautiful than all the others". This distinguishes Innovation Factory from venture capitalists and other market organisation who seek one big success to cover sunk costs in many others. Rather Innovation Factory aims to raise the bar of innovation and enterprise for the region, with partial successes and improvements in capacity also considered to be part of a successful development strategy.

3. STAKEHOLDERS

AREA Science Park is a public research organisation under the auspices of the Italian Ministry of Universities and Research (MIUR).

Innovation Factory is the 'in-house' company of AREA, which functions as an intermediary organisation in the marketplace, but is also closely connected to AREA Science Park as if were an internal department of AREA Science Park.

The Elettra synchrotron is a multidisciplinary centre of excellence specialised in the production of light and radiation used for the study of matter and materials.

The Centre for Molecular Biomedicine (CBM) coordinates the Technological District in Molecular Biomedicine for the Friuli Venezia Giulia Region, underpinning the 'smart health' cluster under the regional smart specialization strategy.

Approximately 80 companies are present in the Park. The majority of the companies are SMEs, working predominantly in the physics, materials, alimentation, life sciences and ICT sectors. However, several large national companies have also located a research centre within the Park. For a full list of AREA companies consult: http://en.areasciencepark.it/park/our-companies/

In total eight research institutes, involving national institutes and universities, have laboratories in AREA Science Park and contribute to the interdisciplinary research capacities of the Park. The full list includes:

- 1. CBM Consorzio per il Centro di Biomedicina Molecolare S.c.ar.l.
- CNR Consiglio Nazionale delle Ricerche: (Istituto Officina dei Materiali; <u>Istituto</u> di Cristallografia Unità di Trieste; Istituto di Struttura della Materia; Istituto di Scienze Marine)
- 3. Consorzio Interuniversitario per le Biotecnologie
- 4. Elettra Sincrotrone Trieste
- 5. FIF Fondazione Italiana Fegato Onlus
- 6. Fondazione Istituto Tecnico Superiore per le Nuove Tecnologie della Vita Alessandro Volta
- 7. ICGEB International Centre for Genetic Engineering and Biotechnology
- 8. INFN Istituto Nazionale di Fisica Nucleare Sezione di Trieste.



Implementation

4. INPUTS

The total surface of AREA Science Park is approximately 55 hectares. The Park includes more than 90,000 square metres of laboratories, offices and service areas, distributed across three sites: the Padriciano and Basovizza campuses in the hills overlooking Trieste, and TechnoAREA in Gorizia. AREA employs more than 120 staff directly, providing a wider range of services and support to the international and national companies resident in the Park. Services provided by AREA include:

- supply, maintenance and upgrading of state-of-art research facilities and world-class infrastructures;
- communication networks;
- ancillary services (surveillance, cleaning, transport, mail);
- energy services, infrastructures technical management and maintenance;
- congress and training facilities;
- restaurant and cafeteria;
- banking services;
- guest house and nursery services for children.

Innovation Factory provides a full range of incubation and acceleration services to link research to the commercial world. These services include:

- promotion of innovation, valorisation of research results and technology transfer;
- promotion of investment in technology-oriented business;
- research and business planning, validation of business ideas, business intelligence;
- partnering and networking; and
- technical, legal and marketing assistance.

Private companies in the Park employ research, technical and support staff of around 2,500 persons. These personnel are distributed across the four main technology and business sectors of AREA Science Park:

- Life Sciences and Biomedicine;
- Physics, Material and Nanotechnologies,
- ▶ Electronics, Information and Communication; and
- Environment and Energy.

Researchers in companies and in the universities provide research training, experimental and other research results, and the creativity and insight that leads to new ideas for commercializing research.

AREA Science Park has partnered with the Institute of Materials of the Italian National Research Council (IOM-CNR) and Elettra to create a project called Open Lab, which provides a large-scale research infrastructure resource for the use of industry. Open Lab is modelled on similar facilities in other countries and seeks to attract national and international companies to use state-of-the-art research facilities in key areas such as imaging, structural analysis and chemical characterisation. Open Lab thus serves the manufacturing industry to develop new products and processes with advanced technologies and innovative materials.

AREA Science Park receives an annual budget of between €7-8 million from MIUR, which includes the salaries of the 120 staff working for the Park. It earns income of €6-7 million per year from renting space and providing services to companies. It earns a further €6-7 million per year from participation in international, European, national and regional research project funding programmes. AREA has been a beneficiary participant in many Horizon 2020 projects for example.

5. ACTIVITIES

AREA Science Park is an ecosystem with four lines of activity:

Campus: development and management of the Science and Technology Park;

Business Creation: pre-incubation, incubation, and acceleration for the creation and development of high-tech startups;

Innovation: national and international projects to promote innovation and high-tech research (exploitation of research and technology transfer), advanced training, and co-ordination of the regional public research bodies; and

High Technology: development of services and public-private partnerships to enable companies to exploit the existing expertise and instrumentation in public laboratories.

AREA Science Park coordinates a regional science parks network that includes three smaller science parks in three other regional cities, to supply innovation services drawn from universities and public laboratories to industry.

With a view to improving the growth of companies, AREA Science Park also offers advanced training for multiple target groups (young people, innovators and entrepreneurs, businesses, research organizations, etc.). The first major line of training is to provide entrepreneurship training to meet the demand from companies, academics and individuals. This training is essential for the owners of start-ups and the developers of new products seeking to enter the market. The second major line of training is supplied to the companies resident in the Park, principally for essential technical skills such as statistics or emerging areas such as data visualization. This training is organized vertically through individual companies with specific technical needs, or can be offered horizontally for areas of broad interest. **Innovation Factory** has developed a structured methodology and set of activities for supporting the birth and growth of new innovative businesses (Figure 1).

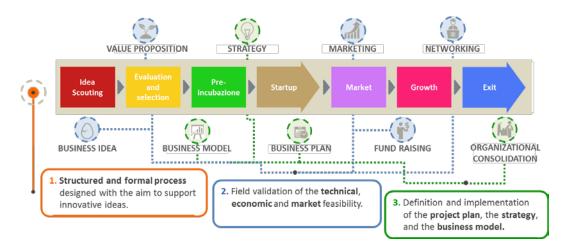


Figure 1: Innovation Factory Methodology – A proven model for supporting entrepreneurship (Source: Innovation Factory)

Researchers, often academics, will come to Innovation Factory with an idea, inspiration or some results. Usually they have no idea about what steps could be taken to develop these assets.

Innovation Factory matches researchers or their group with a business development team, in order to try to understand if there is any chance to develop a full product, or if a market exists. They pass through a minimum viable product stage, with further enhancement of the team if there is an opportunity to create a company. Management, financial, legal and marketing skills are available in the business development team.

Innovation Factory oversees the basic work to assess the product, understand the technology, find a market and develop a strategy for reaching customers. Then a company is established and Innovation Factory takes a small equity stake, although the company needs to be able to survive without this investment.

Innovation Factory usually stays in the company for a maximum of three years to reach a position of stability in the market, generate some cash flow, and build all those metrics that are necessary for a serious investor, be that a 'business angel' or a venture capitalist. At this scaling-up point Innovation Factory exits the company, having simplified the company's access to finance.

Innovation Factory tries to provide the fullest service possible to the largest number of cases, which is very different to a venture capital company. However, it also remains very important to select ideas that have at least some potential to have an impact on the market. On other occasions, there may be another way to support the idea. In some cases, the process never reaches the establishment of a company – instead patents and licensing is the outcome.

AREA is also currently running several pilot programmes, which are designed to develop new activities or strategies:

- ▶ The creation of an industrial hub focused on recycling of electronic waste with recovery of rare earth and strategic materials within the Trieste Port;
- "Innovation in rural development" activities in both Western Balkan countries (as technical assistance) and in Italy with a pilot initiative together with the Local Action Group Carso-Kras (FVG Region) with the elaboration of an innovative Local Development Plan;
- Design, on behalf of the Regional Council, of the Regional Digital Innovation Hub, following the Industry 4.0 guidelines.

6. OUTPUTS

- Approximately 60 patents have been filed by businesses and laboratories based in the AREA Science Park in the preceding three years.
- ▶ More than 1,600 project ideas have been evaluated by Innovation Factory.
- ▶ 281 entrepreneurial ideas have been assessed by the Innovation Factory valorization process.
- ▶ 50 start-up companies have been created.
- ▶ 20 start-up companies have been co-founded by Innovation Factory. These are:

✓ AMPED Srl ✓ MODEFINANCE Srl	✓ FOREVER IDENTITY Inc.
✓ G&LIFE Spa	✓ THE JONATHAN PROJECT Srl
✓ SBS SrI	✓ UELCOM Srl
✓ BILIMETRIX Srl	✓ INNERTOURS Srl
✓ SERVERNET Srl	✓ SOLETHEN Srl
✓ GENIUSCHOICE SrI	✓ WAWAY Srl
✓ BY Srl	✓ CERVELLOTIK Srl
	✓ CLICCA ENERGIA SrI
	✓ M2 TEST srl
	✓ CONNECTED LIFE Srl
	✓ JOB4U Srl
	✓ APP&MAP Srl

▶ €5.2 million have been invested by venture capital firms to date.

- 865 participants took part in training at AREA in 2016.
- ▶ 5,971 hours of training were provided to external companies in 2016.
- ▶ 57 scholarships were given for work experience or research training for students in 2016.
- ▶ 188 companies were involved in technology transfer processes in 2016.
- ▶ 371 consulting and technical service interventions to develop innovation in companies were undertaken 2016.
- ▶ 110 patent searches were conducted for businesses, the research community or individual inventors in 2016.

7. IMPACTS

AREA Science Park and Innovation Factory have contributed significantly to the continued development and intensification of the entrepreneurial culture surrounding science and innovation in Friuli Venezia Giulia, including through the smart specialisation and science and innovation system strategies of the region.

AREA Science Park has had an impact on all actors in the regional research and innovation system by acting as a magnet for investment. Government investment in the Park has had the desired impact of bringing high technology companies to the region. As the Park is generating income surplus to its government support it is able to continue to invest in supporting start-up companies that impact directly on the commercial environment. This operating surplus thus enables the building up of capacity through continued investment over time.

The Park has had a significant impact on the University sector, as by enhancing the attractiveness of the location for study it has acted as a magnet for students and for skilled academics, including those returning from working or studying abroad. AREA has also impacted positively on Universities by collaborating in the development of intellectual property emerging from the academic community. Most university spin offs go through Innovation Factory methodology and Innovation Factory works together with university technology transfer offices, which are often quite small in scale. The Innovation Factory methodology has also successfully transferred technologies that are having a positive impact in society.

The impact of AREA on the region was also felt during the crisis, where the Park context helped to protect companies and support them to remain competitive. This resilience in the context of the financial crisis also creates an important benefit in terms of continuity and confidence.

The case of G&Life SpA

One example involves a university hospital Professor who wished to pair his genetic analysis skills together with individuals' preferences for the tastes of certain foods.

The innovative idea was to construct diets that were attractive to individuals but also tailored to their health, not just to lose weight but to enhance their wellbeing overall.

Innovation Factory teamed with Professor to put together a business plan, found the necessary entrepreneurial people and a key person to run the company. This team created the first prototype and did the first 30 tests with people in order to see if the idea for the product would work in the real world. At the same time, other medical expertise was sourced in order to understand if the science was valid. Once the technical and scientific elements had been validated the market side was validated through internal research.

After 18 months, Innovation Factory established the company and filed the patents and accomplished the many other regulatory requirements. Six months later Innovation Factory sold its stake in the technology to investor companies and after another year a VC fund entered the company. Innovation Factory thus partnered the researcher from the initial university research all the way to the market.

Other examples of Companies that followed similar process were:

- modeFinance Srl, the first fintech Rating Agency in Europe,
- Bilimetrix Srl, a research and development biomedical company with the envision to submit to the international market "Bilistick," the only in vitro Point of Care (POC) system for early diagnosis of hyperbilirubinemia.
- ▶ *M2Test* Srl , a startup that develops a unique and revolutionary approach to improving the diagnosis of fracture risk.





8. SUPPORTING MECHANISMS

AREA Science Park is a public research organisation of the Italian Ministry of Research (MIUR).

In August 2016, an agreement for the enhancement of the Science and Innovation System of the Friuli Venezia Giulia region (SiS FVG) was signed by the Italian Ministry for Foreign Affairs and International Cooperation (MAECI), the Ministry of Education, Universities and Research (MIUR) and the Autonomous Region of Friuli Venezia Giulia. AREA Science Park is a key stakeholder in the agreement and member of the SiS FVG strategy.

The new agreement makes AREA responsible for the coordination of the activities of research centres in the region. This role is envisaged initially as gaining greater clarity about what research is being done across the region. This is in order to both enhance awareness among research organisations and to create the potential for synergies and coordinated efforts to emerge.

9. BARRIERS AND DRIVERS

The driver of technology transfer and new company formation is the production of frontier scientific knowledge. Technological innovation emerging from AREA Science Park is based on a strategy of providing research infrastructure of the highest quality.

The absorptive capacity and focus on innovation of companies in the Friuli Venezia Giulia region has been rising steadily. However, there is always room for improved capabilities within small and medium enterprises (SMEs), which the professional training available at AREA Science Park and the accelerator services provided by Innovation Factory are designed to support and develop.

10. FUTURE CHALLENGES

A challenge that has been identified is to start from a 'pre-innovation' stage in working with groups of researchers from universities and other public research centres that are working in the Park. The idea is to try to work with people from research world who have good technologies and help them to understand that their work could evolve into new product. These researchers know absolutely nothing about doing business — but they can be trained to think about the potential of their research and their findings, and to be confident to bring these into the light when they believe they have something that could be interesting beyond the laboratory.

Another challenge identified relates to the complexities involved in integrating the strategic level, and the overall interests of large numbers of stakeholder companies and research institutes, with the micro-level and often quite specific needs of individual organisations. The initial issue that will need to be confronted in seeking to address this challenge is to develop an appropriate process and methodology for approaching it.

11. CONTEXT

The Friuli Venezia Giulia region is characterised by a relatively high level of research and technological excellence and cooperative networks of SMEs. Companies recognise the need to absorb new technologies and processes and to innovate from the outcomes of research. There is a receptive climate for the transfer of expertise, skills and processes to improve competitiveness. Broad-based support exists for the development of permanent technological infrastructure, designed to enhance cooperation between universities, research institutes and businesses, including to facilitate and embed technical change in SMEs. The further advancement of the regional smart smart specialization strategy including alignment with the SiS FVG, increases the centrality of AREA Science Park and Innovation Strategy and the importance of their respective and interrelated roles

12. KEY SUCCESS FACTORS

A key success factor for Innovation Factory is to put talented people with business know-how and experience in place as part of an extended team with the researcher or group who have the results or idea.

A second key success factor is to prepare the ground extremely thoroughly before starting to interact with venture capital (VC) companies. Relationships with venture capitalists or other investors rely on trust and must be built up over time. The most crucial element is that the first collaboration with them sets the basis for the development of trust. This is achieved by ensuring that as much of the information and criteria the VC will want to know has been validated beforehand. The objective should be for the VC to say 'you already did our homework for us'. This helps to convince the VC that the interaction is not 'just a sales pitch', and enhances the possibility of the start-up accessing new capital.





13. MONITORING AND EVALUATION

AREA Science Park has an integrated system of planning, performance review and <u>reporting</u> that operates on a rolling triennium basis. The system includes indicators of organisation performance (e.g. space occupied, start-ups created), prevention of corruption (e.g. monitoring processes, risk assessments), and transparency (e.g. statutory reporting, offer publication).

14. TRANSFERABILITY

The Innovation Factory model is transferable to other similar contexts in which there is a need for incubation and acceleration of a steady stream of research results. In particular, the incorporation of Innovation Factory as a wholly owned company of the AREA Science Park enables Innovation Factory to participate in all the steps required to take scientific innovations all the way to the market.

15. AWARDS AND RECOGNITION

Innovation Factory has been recognised by its registration as a Certified Incubator. Italian Law 221/2012 introduced the concept of a 'Certified Incubator', organisations providing targeted incubation and acceleration services designed to support the creation or development of innovative start-ups. Certified Incubators must have adequate buildings and equipment, a technical and management structure of recognised competence, and be engaged in collaborative relationships with universities, research centres, public institutions and financial partners. Certified incubators must also have sufficient experience in supporting innovative start-ups.

AREA Science Park is the regional partner of the new *European Innovation Centre Network*, is a member or partner in the AIRI-Italian Association for Industrial Research, APRE—Agency for European Research Promotion, APSTI-Italian Association of Science and Technology Parks, AS-SOBIOTEC-Italian Association for Biotech Development, EBN-European Business Network, IASP-International Association of Science Parks, TII-European Association of Technology Innovation Information Organizations.

16. LINKS

AREA Science Park website: http://www.areasciencepark.it/

Innovation Factory website: http://if.areasciencepark.it/

Ellettra website: http://www.elettra.eu/

Centre for Molecular Biomedicine website: https://www.cbm.fvg.it/

Institute of Material website: https://www.iom.cnr.it/

17. CONTACT PERSONS



Fabrizio Rovatti,
Coordinator of Innovation Centre and
Managing Director of Innovation Factory
fabrizio.rovatti@areasciencepark.it



Maurizio Caradonna,
Business Development Manager, Innovation Factory
maurizio.caradonna@areasciencepark.it