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The growth of Tech Lane Ghent Science Park a story of matching opportunities 2 specific cases of how to finance accelerators by private partners combined with EU Structural Funds and local and EU R&D H2020 subsidies.

Plenary Session 5
" New funding schemes for AOI/STP ecosystems "

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Executive summary (max. 150 words)

The paper focusses on 2 specific cases of multitenant accelerator buildings, in ICT and cleantech, integrating different functions like academic research, business incubators, tech hall demonstrator facilities, attracting also corporate R&D centers.

The planning and financing have been organized in a different way, combining both private and public opportunities and financing. The cases illustrate how a EU ERDF subsidy was important in leveraging other resources, making the realization of the + 10 MEUR building projects possible.

Both projects contribute to the further growth of Tech Lane Ghent Science Park as an important European innovation hub.

1. Short history of Tech Lane Ghent Science Park

The development of the area, situated in the southern part of Ghent (Belgium), started in 1971 as a university campus with the construction of research buildings for the faculty of Engineering of Ghent University.

The university decided In 1986 to develop the western half of the area as a science park for attracting company R&D activities working together with academic research groups.

Since then, the area developed as a successful integrated university campus & science park with 10 university labs, 8 research institutes, 11 international corporate R&D centers and more than 60 high-tech growth enterprises, covering an integrated campus of 52 ha/200.000 m2 GFA, housing more than 3,500 high-tech professionals.

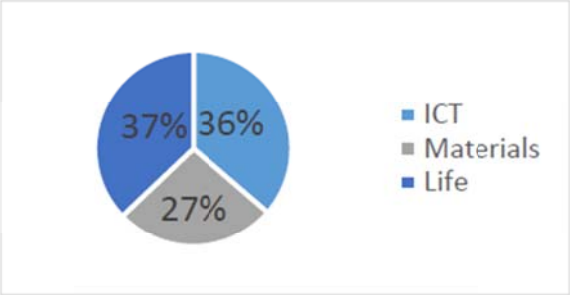

Fig. 1: number of FTE's in 2016 per cluster

As more and more companies were asking to integrate their R&D facilities with university infrastructure stimulating sharing the equipment and R&D collaboration, the former strict spatial division between university campus and industrial science park area was no longer feasible. A new urban spatial implementation plan integrating both functions into one area was submitted for governmental approval.

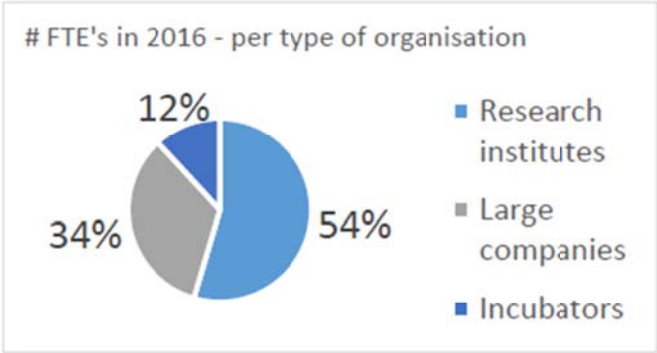

Fig. 2: number of FTE's in 2016 per type of organization

2. Science Park focus areas.

The numerous testing, piloting, incubation and acceleration facilities provide flexible laboratory and office space, as well as easy access to R&D infrastructure.

The Science Park has become the natural habitat for the location of 'deep tech' high tech startups, i.a. spin-offs from Ghent University and the Flemish research organizations such as VIB (life sciences), IMEC (nano electronics) and OCAS (materials) all having research facilities on the science park.

Every year, the Science Park welcomes more than 10 new high-tech start-ups.

Focus areas are:

- Life Sciences (plant biotechnology, antibody therapeutics, inflammation research)
- Materials (metallurgy, structural engineering, composites, large structure materials characterization and testing)
- ICT/ Chip Technology (wireless technologies, photonics, data analytics, Internet of Things, chip hardware technology and design)

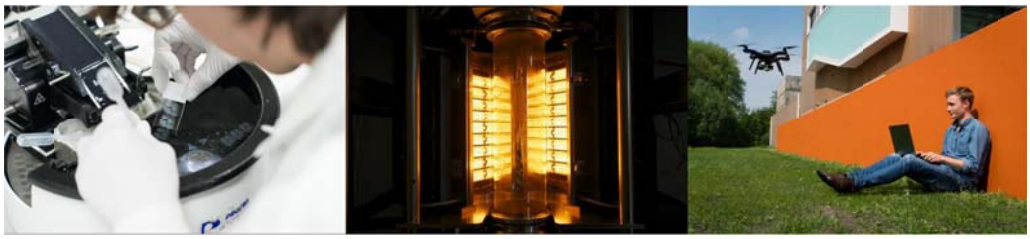

Fig. 3: the 3 focus areas

3. Engines of growth

The growth of the Science Park was mainly fueled by spin- offs being bought by multinational corporations, deciding to further invest in the local talent base, providing also expanded R&D facilities and a new building.

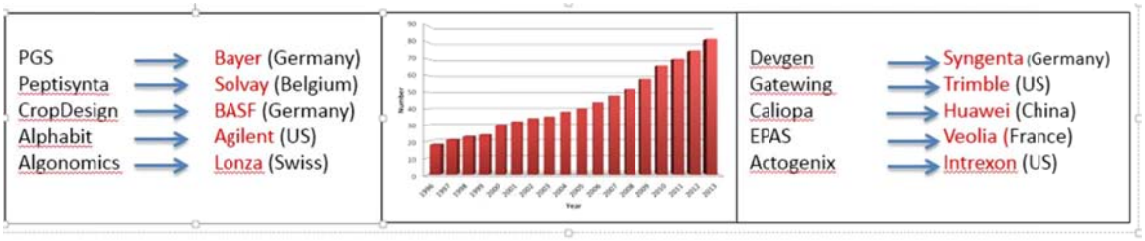

Fig. 4.: spin offs exited to multinational R& D corporations

However, as high tech growth companies and multinational companies are more & more inclined to favor the flexible leasing of R&D space instead of investing in own fixed buildings, private real estate developers got interested in the financing of larger multi-tenant buildings.

The negotiation with local authorities is being finalized allowing Tech Lane Ghent Science Park to expand with 250.000 m2 GFA, more than doubling the current capacity. A large part of it will be developed

4. Growth ambition needing innovative financing approaches

It is our ambition to double the current GFA capacity towards 400.000 m2 GFA in a period over 15 years from now:

- 100.000 m2 to be realized on a greenfield area close to the current campus.
- 100.000 m2 to be realized on the existing campus.

As Ghent is a densely populated area, the concentration of several functions in multi-tenant/ multi-purpose tower buildings are key for further growth and a condition for further expansion imposed by spatial planning authorities, making the Science Park more an integral part of the urban city scene.

This makes, however, the planning and financing of new facilities a real challenge since the incremental step-by-step industrial area approach of constructing adjacent small one or two floor buildings, later on expanding with new groundfloor modules when the need arises, no longer possible.

This paper will further focus on 2 specific cases in 2 different areas:

- The AA tower: an 13 floor office building focusing on ICT research (13.000 m2 GFA)
- The Capture building: an mixed tech hall/wet laboratory/office building for clean tech (6.000 m^2 GFA)

Both projects are:

- Multitenant/multipurpose buildings
- constructed as high-rise buildings
- multifunctional, integrate company R&D activity with academic, demonstrator, living lab and/or incubator activity

The AA Tower is realized and fully operational. The Capture building is in the design phase.

The organization, planning & financing was a challenge. The two cases are an illustration of how an intelligent combination of private and public opportunities made it happen.

5. Case 1 : AA tower

A. Challenges & opportunities

1. A university ICT building
   It all started with the university looking for a location for a new research building, dedicated towards ICT research & teaching in the area's of telecom, wireless communication and data analytics.

   As the land was available and as the campus already was housing engineering faculty research groups in the field of materials, the decision was made in 2011 to construct a 13 floor building with ICT lab facilities for 500 researchers.

2. TPVision decision to relocate its R&D.
   In 2014, the company TPVision, then jointly owned by Philips and the Taiwanese company TPV, one of the leading Asian display manufacturers, decided to group all European innovation activities, spread around 3 locations in Europe on one location.

   Several cities competed, i.a. Ghent, Eindhoven and Amsterdam. The main 3 criteria for location criteria were:

   - availability of nearby local talent, mainly in mechanical engineering, EMC issues and Linux/Android programming expertise, since the European Innovation Centre was to become responsible for the development of the top Philips TV series.
   - plug in into the local tech scene, as it was the intention to outsource a large part of the TV apps development towards other companies, i.a. young startups with expertise in f.i. android based media applications, interactive gaming & security issues.
   - speed of realizing the new European center (construction of new building, moving the expensive test equipment), since the European Innovation center had to be operational in 1,5 years time.

3. Need for ICT accelerator facilities
   There was a need for extra housing facilities for ICT startups & scale-ups, since all incubators on the park are completely full. Icubes, the software incubator facility of IMEC, the Flemish strategic research organization in the field of ICT got interested to open up a second premise on 2 floors in the tower.

4. What to do with unique heavy mechanical testing equipment

   What to do with the unique testing equipment for the mechanical and EMC testing of the TV sets (a unique 3D shaker, a fire testing chamber, 4 large climate rooms, 2 brand new EMC test chambers large enough to test the largest TV sets.)

   Especially the 3D shaker and the fire testing chamber posed some problems. The Integrating this kind of infrastructure in the AA tower housing would double the cost of foundation, housing a fire testing chamber is not allowed in a multifloor building.

- Relocation of the University center for polymers and materials technologies.
  The university was desperately seeking a solution to relocate the center for polymers and materials technologies, specialized in testing mechanical properties of polymer components, production of polymer based product and 3D printing.

- Decision of Sirris to relocate its steel casting activity.
  At first, there was some disappointment when Sirris, a semi-public sectorial materials research institute, decided to relocate its casting research division to another part of Belgium, and informed Ghent University it wanted to leave the research building.

  Soon, we realized there were opportunities here for the University and also for TPVision.

- Questions
  How can we convince TPVision to move to Ghent into a new building, large enough to host also an incubator facility, and to be realized within 1,5 years?

  How can we convince the University board to speed up the renovation of an old building, suitable for materials testing

- Solution:
  Twofold:

  Together with local authorities (responsible for the necessary building permits) we

  submitted a proposal for a new ICT accelerator building of 13.000 m^2, the AA tower, to be constructed as an office building, next to the planned UGent ICT building.

  In parallel we made a plan renovating the old materials Sirris building, suitable as a mechanical/EMC materials testing centre for TPVIsion and also housing the UGent Polymer materials technologies group.

On the financing part:

- The 13 floor AA tower could be financed by private real estate as

  TPVision was willing to sign a long term lease contract

  Out of the 13 floors, 8 (6 for TPvision and 2 for Icubes) could be rented (or leased), reducing the real estate financing risk.

- Renovation of the Materials testing centre:

  5. TPVIsion was willing to renovate the part of the building that they could rent for installing their testing equipment

  6. UGent submitted an ERDF proposal for the renovation of the rest of the building. As TPVision was giving, at certain conditions, free access for prototyping and pré-compliance testing to Ghent University.

The Ghent proposal scored well on all 3 main TPVision location criteria:

- the UGent ICT research building guarantees the inflow of well-educated Master & Phd graduates

- Ghent is known for its vibrating ICT startup and scale up scene, the venue of ICubes and availability of an extra 5.000 accelerator space, dedicated to ICT scale-ups provided the possibility to create an ICT innovation hub on the science park in the same building.

- A local property developer has been convinced to take to outstanding risk, and, together with the local authorities, he drafted a workplan to design, permit, construct and fully equip the building within 13 months.

In Taiwan, the TPVision headquarters decided to move to Ghent.

After a contract was signed between the property developer, TPVision and Ghent University, it was up to the property developer to start the construction of the AA tower.

As Ghent University was owner of the Sirrris building, Ghent University took care of renovating the building.

An ERDF project proposal was drafted creating an open innovation materials test centre focusing on design, fast prototyping and pré-compliance testing of polymer components, abbreviated as P3lab. For the pré-compliance testing, Ghent university was given access to the TPVision testing facilities and expertise.

As this subsidy was provided by the last ERDF call, just before the ending of the 2008 – 2014 ERDF programme, a very strict time schedule was enforced. This obliged the university to speed up internal processes, avoiding the risk to lose the subsidy, to the very satisfaction of involved researchers, teachers and companies.

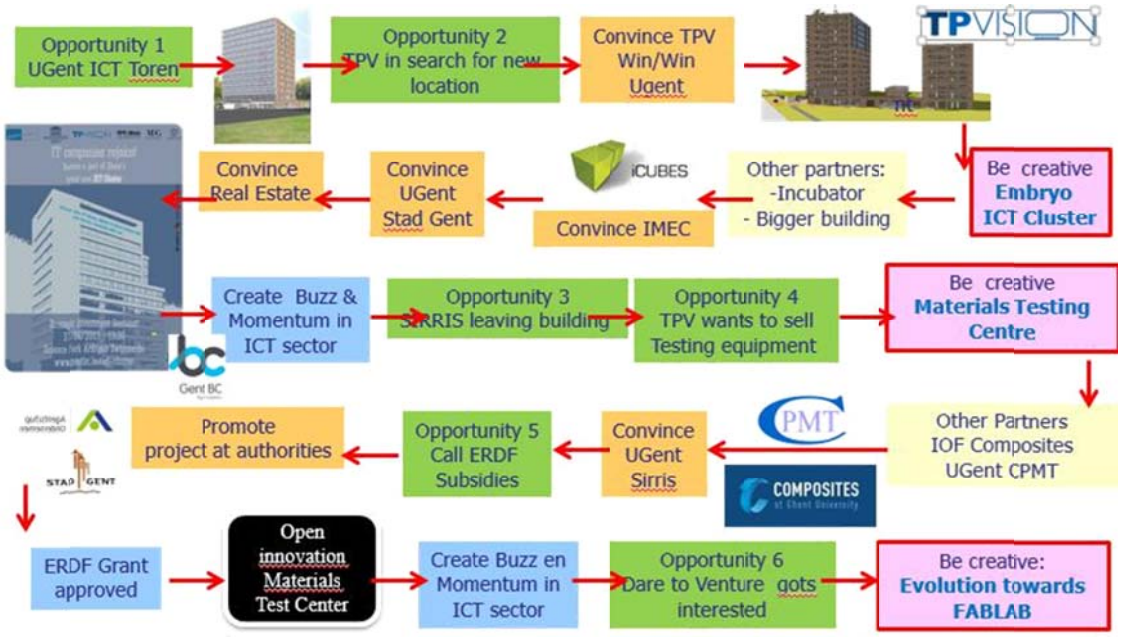

Fig. 5 : The AA tower, the triple helix applied.

Unfortunately, TPVision had to restructure and close down its materials testing centre, due to the current crisis in the mass consumer electronics business, especially in Europe;

But, right now, P3lab is, as a fablab heavily used by students, researchers and startups, for fast prototyping and testing very innovative components and products. Schumpeter at its best.

7. Case 2 : Capture project

- Challenges & opportunities

1. Capture as resource recovery accelerator

In 2015, professors from 8 different research groups from 3 different faculties (engineering, bio-engineering and science), with an average age of less than 40 years, came to the conclusion that they all had been doing interesting research in very complementary but adjacent fields of resource recovery (recovering valuable resources from waste & side streams like CO2, plastic waste, industrial waste waters and mine tailings)

One research lab was involved in bio-electro chemistry, another one in thermochemical reaction engineering, one professor was a physical chemist developing membranes for capturing particles in waste waters, a lab was more specialized in the mathematical modelling of bioprocesses.

Their ambition is not only to integrate their research activities into one research institute, but also

to collocate their researchers and R&D equipment into one building, stimulating cross disciplinary co-operation, and also

to stimulate upscaling & innovation activities in close co-operation with companies and startups by i.a. providing access to living labs and test infrastructures.

3. Faculty of bio-engineering desperately needing extra lab space

Half of the Capture research groups were being housed in different, remote counters of a very old building in centre of the city of Ghent, in laboratories and spaces not exactly up to the most recent laboratory standards. As the faculty was growing, extra space was needed;

The central university building department has been looking for solutions since some years.

3. Need for expansion of the Ghent University Science Park

As the companies from life science and materials cluster were becoming very successful on the science park, the University was also looking already for a greenfield opportunity creating a second science park, preferably nearby the existing one, in the southern part of Ghent

6. City Council's interest in a commercial industrial area

Some commercial partners, owning an interesting piece of land, submitted a plan for city approval to the construct a new industrial area. The city council's vision of this area was to position this industrial area as an enlargement of the Ghent University science park, as this area is very close by the existing science park. The long term vision of a science park, focusing on high tech added value jobs provided by carefully selected R&D companies in certain focused areas, does, however, not fit with the more short term ambition of the private real estate land owners, wanting to sell to the highest bidding partners.

Few R&D or real estate companies are willing to take the risk to be the very first project on an greenfield area. Being the first entails the risk to stay the only project on the park for quite some years. It was the vision of the city administration and also of the university, that got interested in the area, that a pilot project like a new research institute building or incubator facility could speed up the arrival of R&D companies, stimulate the growth of a cluster, and attract more companies.

B. Questions

5. How to convince the university administration in financing a total new research and accelerator building on a greenfield area?
6. How to convince the public authorities in buying out the land of the private real estate partners at a reasonable price so that the land can be developed as a science park of area of innovation with a long term vision following the cluster concept?

C. The solution

Essential in convincing both the university central administration as well the city council was the submission of a large ERDF project proposal of 13 MEUR, enough to finance a 6.000 m2 building housing a tech hall for upscaling demonstrators, 3 mixed laboratory& office floors for 100 Capture researchers and two floors enabling the growth of clean tech startup companies.

An accelerator concept, stimulating the validation of research findings in semi-industrial environment, fostering the creation and growth of startups and collaborative research with corporate R&D.

The ERDF project allowed a 40% subsidy from EU matched with a grant from the Flemish and provincial government, matched with a investment from a private incubator, interested in becoming the first incubator facility on the new science park;

The university administration agreed on the project and building of the new facility, as their contribution in the building project was limited to 1,5 million EUR, solving to a large extend the housing problem of the bio-engineering faculty.

As Capture was willing to serve as pilot project on the new science park, the city government had enough arguments to convince other public authorities to set up a new public company buying the land from private real estate.

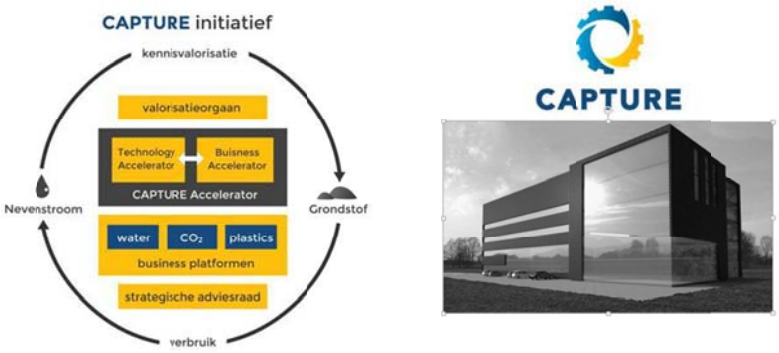

Fig. 6: The Capture accelerator

8. Lessons learned

As a conclusion from analyzing these cases, the following experiences can be summed up as “lessons learned”

1. Science Park management integrated into a university tech transfer environment: a good environment for combining public and private opportunities in setting up innovation accelerator instruments.
2. Matching opportunities requires sometimes prompt action.
   Certain project ideas can sit and wait until the right opportunitycomes by. For instance, the idea and need of a fablab for fast prototyping existed for quite some time.

   Other opportunities, like TPVision deciding to group all European innovation ideas into one location, have to be taken up as they pass by.

   And luckily, we had an ERDF call being open for submission of project proposals to find the right financial leverage to combine everything.

3. Never waste a good crisis

   The science park is continuously confronted with companies or research organizations being restructured, relocated of even closed down.

   This can have a profound impact on personal careers and lives. Nevertheless, harsh decisions relocating research groups or even closing down the whole subsidiary can create a momentum

   where unique talent, expensive R&D equipment or rare lab space becomes available at favorable conditions creating opportunities for research, new ventures, or companies coming to the park. In this way, the science park ecosystem is constantly moving, being diversified and renewed, making the Ghent innovation hub more future proof.

4. Subsidies can indeed leverage the set-up of non-obvious ideas and initiatives, convincing city governments, university administrations or corporate R&D centres to cofinance initiatives strengthening area's of innovation.
5. Get good lawyers

   The European state aid policy prohibits, in general, public funding to companies as it is considered to distort the principle of free market competition. Quoting the Article 107 of EU Treaty literally : "any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favoring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal common market"

   Combining public and private financing in setting up accelerator instruments in area's of innovation in the EU is subject to the European state aid competition law regulation as set out in the Framework for State aid for research, development and innovation, and the recently renewed "General Block Exemption Regulation" or GBER (1). The GBER sets out areas in which specific State aid is declared compatible with the internal market, and therefore exempted from the Commission notification requirement for State aid.

   Whether or not the state aid regulation is to be applied depends on the type of activity, economic or non-economic, and does not depend on the legal status, whether it is organized under public or private law.

   Innovation accelerators typically combine economic and non-economic activities. Both illustrated cases have undergone a thorough review of law firms specialized in state aid law, before being submitted as an ERDF project proposal.

6. Tightly time schedules can support the momentum making things happen
   Project funding is subject to sometimes absurd payment schedules and tightly reporting deadlines. Nevertheless, these deadlines can motivate organizations like a large company of university to streamline of speed up certain decision making processes, keeping, or even enhancing the momentum that is needed to motivate larger groups of people involved in larger projects.

   In other words, the strict deadlines like the 3 year project period of a ERDF project financing a large R&D infrastructure and building can make sure that everybody involved prioritizes the specific project, making the project happen.