Dramatically Innovative: Science and Technology Parks as Urban Regenerators in Italian Cities
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Introduction

Since the 1990s Italian local governments seemed something to be bewitched by research and innovation. Big, medium or even small sized cities have proposals for new spaces for innovation and research centers. The fact is considered as the strategy to valorise local identity and enhance regional competition. When one considers that there are several empty urban areas that need redevelopment, and cities are losing their industrial functions and symbols, such a suggestion appears reasonable. In the context of the globalisation of R&D activities, many urban economies have attempted to create places for research and innovation – Science and Technology Parks – in the hope of embedding these activities. These Parks may thus be seen as managing to survive and eventually achieve success ‘against the odds’ (Gower and Harris 1994). In fact Castells and Hall (1994) list as the three motivations for the establishment of science and technology parks re-industrialisation, regional development, and the need of synergies among firms and universities. While experiences in other industrialised countries or in different time have had great ambitions, science parks are seen in Italy in recent years as an urban regeneration strategy, that provide technology transfer from universities to companies. As far as ownership and foundation are concerned, Italy represents a unique case because the Science Parks are an initiative of local municipalities (Apsti 2008).

International literature on the actual performance of science parks is not unanimous. Someone argues that science parks are not major sources of technology development and technology transfer. They found many science parks to be primarily a form of prestigious real estate with few productive synergies generated. It is argued that exaggerated expectations often legitimate brown field transformations, and huge real estate developments. This paper examines the myth of research and innovation in three Italian cities with less than 150,000 inhabitants. Over the 1990s, in Novara, Marghera, and Ascoli heavy industries moved out of the urban structures. At present industrial restructuring is leading the cities to a knowledge-based economy, represented by three science parks. NovaraSviluppo in Novara and VEGA in Marghera fit into this model. However the cities’ effort to innovate is mainly paid back in large-scale and market oriented urban projects. In city management, a costly initial demolition and land decontamination need investments. So far local governments support property-based initiatives to encourage urban regeneration, in which science parks act as catalysts for change (Westhead and Batstone 1998).

This study draws upon aggregate surveys made by specialized association and original case studies. Criteria used to define science parks are first presented. The objectives of science parks in Italy are discussed and forms of science parks are then summarised. Combining theory and empirical evidence, a number of assessments is then derived and verified in the selected locations. It is found that the three cases are not the same in terms of the synergy among local institutions, university and industry. The findings indicate that the scope is achieved only by top-tier urban agglomerations able to face structural urban matter. When the general aim is not reasonably clear, as in Ascoli, then all initial goals impasse but the transformation appears as real estate business, focused in the market more than in innovation. The final section presents conclusions and some policy implications, for science parks to be more than a form of glorified property development.

1. Is Science and Technology Park a Tool for Urban Regeneration? Definition and Classification.

For more than a quarter of a century, some of the largest cities in Italy, as well as in Europe, have been losing employment, manufacture functions and industrial symbol because large corporations have displaced plants in cheaper areas and countries. Industrial plants and employees neighbourhoods have been left to decay. The city lack density of functions within built-up areas, and research and information economy have appeared a potential market to infuse purchasing power into city economies, and main into real estate market to maintain a substantial stock of fixed capital. Indeed it has been recognised that “much of the success of science parks is derived from meeting this demand in the right location at the right time”
Moreover Castells and Hall (1994) number three aims in the establishment of science and technology parks: reindustrialisation, regional development, and the creation of synergies among firms and local space.

It is reasonable to suggest, on the basis of above definitions, that technology development, urban renewal, and simply promotion of technology transfer from universities to companies are key factors for the development of science and technology parks. Hence innovation and excellence are the mainstream of regeneration strategy. Indeed there is a distinct possibility that innovation is sometimes reduced to "the ability to deliver new value to a customer", as an IASP member (IASP 2008) said: "while most of us have traditionally associated innovation with technology advance, [...] innovation can be as simple as a new way of doing things or a new way to create customer satisfaction". This understanding of innovation is diffused among cities that deal with the physical heritage of industrial delocalization. Science and technology parks encourage to have faith in a functionally dense city; they intend to formalise a space for technology dissemination and to embed tangible and intangible knowledge in the place. It is perhaps unreasonable to suggest that their success is merely fortuitous.

Actually international literature on the actual performance of science parks is not unanimous. Someone argues that science parks are not major sources of technology development and technology transfer. They found many consolidated science parks to be primarily a form of prestigious real estate with few productive synergies generated (Massey et al. 1992). Others found that university – industry links were often less than that anticipated (Quintas et al 1992). Indeed it would appear that the performance of science park has been enhanced over time as the members number of the International Association of Science and Technology Parks (IASP 2008) has grown to 349 in 71 countries (they were 260 in 60 countries in 2002). These parks are mainly located in Europe (60 per cent) and an increasing percentage in Asia Pacific (14 per cent). In the USA, universities encouraged the birth of "spin-off" companies that then enter in the free market to become independent firms; these were the first science and technology parks. In Northern Europe and UK the science and technology parks are within university campuses. In Germany parks are created by large industrial groups, while in France they are a public (national) initiative. As far as industrialised countries are concerned, Italy is a unique case because the science parks are a local municipalities' initiative.

The concept of science park is that of an organisation managed by specialised professionals, whose main aim is to promote the culture of innovation and increase the competitiveness of its associated businesses and knowledge-based institutions (its "community"). To enable these goals to be met, a science and technology park stimulates the flow of knowledge and technology amongst universities, R&D institutions, companies and markets; it facilitates the creation and growth of innovation-based companies and generate knowledge-based jobs through incubation and spin-off processes; and it creates new business opportunities to mature companies (IASP 2008). Science and technology parks provide other value-added services to cities, as they usually pursue the construction of attractive spaces for the emerging knowledge workers together with high quality regional marketing services.

The issue of science and technology parks ownership and governance in general is something complex enough as not to be encompassed by the dichotomy “public/private” (IASP 2008). Public ownership, governments and different levels of Public Administrations (national, regional, local), are still the main engine behind science and technology park; in fact, 40 % of science and technology parks members of IASP are owned exclusively by such public bodies. The components of a science and technology park are usually business incubation units as the main building blocks in the 88 % of cases; technology centres or R&D units (in 83 % of the Parks); and space for companies in all parks. It interesting that the 26 % of science and technology parks include residential areas or urban facilities.

Having a transformative impact on the urban built environment, it has to be consider also the real estate components of science and technology park (Jones 1996). To support this viewpoint, it has been noted that areas with a new and "clean" image, which projects a modern image of the products of the firms, have above-average shares of knowledge-based employment. So far, science parks are distinct from other forms of industrial development, they are more than just another form of property development (there are high level of public-sector involvement), and surely a growth sector in the next couple of decades.
2. The spaces of Research and Innovation: Three Science and Technology Parks in Italy

Science and technology park developments may vary by their form and location within the urban environment. They may be grouped in one of the three forms such as concentrated site within the city, regenerating suburban setting, and park-like sites. The latter constitutes the largest form of science and technology park and a greenfield is normally provided. In Italy the largest historical example “Area”, the Science Park in Trieste which has twenty years of experience, and Envipark in Turin are examples of “parkland”. The second type of park instead is usually established by converting an already built and sometime derelict land. NovaraSviluppo in Novara and Vega in Marghera fit into this kind of model and have developed thanks to a synergy between local authorities, as well as the most important local institutions, together with important companies and regional Universities.

Both of them are in progress: in the final appearance there are distinctive education and culture facilities, residential facilities, and business institutions. NovaraSviluppo is a Foundation that was established to preserve former research institutes, incubate new innovative companies and enhance the synergy between universities and companies. In the beginning it was a concentrated science and technology park, but difficult changes in the productive landscape surrounding it have been leading the public oriented Foundation to a Park, with top research resources, specialized universities’ research centers and blossoming innovative start-up firms that are re-animating a declining urban compound and fostering local industry. Vega, in Marghera-Venice, is surely classified in the second group of Parks. It is a massive and single urban regeneration project, with space for several and differentiated activities; different clusters identify four major development interests (nano and biotechnology; itc; green technology; heritage protection technology). The past industrial development and pollution qualified the Park as specialized in environment remediation and heritage preservation. Both parks produce innovation, measured with patents, but – and most important in the present urban balance – they are valorising and qualifying the city, also attracting new real estate interests.

Ascoli instead is not yet a Park, but a decaying industrial plants with few employees and a multinational ownership. They started a project to have such kind of space for innovation, with not so clear ideas about the content. Production was less important at a first glance than the uses and re-uses of space, the public functions and also employment. The process stopped immediately after the first official presentation because of radical divergences among municipality and province.

3. Novara Sviluppo and S. Agabio Science and Technology Park, Novara

The background of innovation in Novara

Novara (100.910 inhabitants) is the second city of Piedmont, in the middle of a large flatland and scarcely inhabited agriculture area. The city is located on the way from Milan to Turin; that fact was first a disadvantage, because of a development path dominated by two central places, and so far agriculture has maintained an important role beside heavy industry (food processing, chemical laboratories and metal production) and few services. S. Agabio neighbourhood, an area enclosed by the railway tracks and an artificial canal, was the first place for industrialisation in Novara. Since the xix century until present, the Italian chemistry sector has to do with this place (Fauser, Donegani and the Nobel prize Natta had been working here), despite the confuse sector development.

Recent infrastructure expansion is transforming Novara into a key element where both roads and railways from west to east (Turin and Milan) intersect the main way from the Mediterranean sea to Switzerland and central Europe (Genoa/Switzerland). The two European networks, n. 5 Barcelona – Kiev and n. 24 Genoa – Rotterdam, also meet in Novara. In fact Novara is just 20 kilometres far from Malpensa2000 hub, in Milan. The main freight village of western Italy (CIM, 840.000 square metres of co-modal yard) is few kilometres on the east of S. Agabio. While Novara was discovering a new European dimension, during the 1990s the city economy encountered some critical changes: both public and private enterprises (Efim, Eni, Montedison) and several smes bankrupted. Largest public and private groups were reducing their industrial research centers, but Novara was looking for a new way as pole of services excellence.

However S. Agabio was underutilised. The largely unused railways tracks isolate the place, even if it is nearby the city downtown. Thus a complex urban regeneration project started, to support a Science and Technology Park (that occupies the former ISME-Institute for light metal research, related with public enterprises EFIM and ENI) and to regenerate the urban fringe with housing, services and infrastructure.
The wants to keep the consolidated knowledge of some top centers in industrial physics and chemistry, with several spin off firms (more than 200 enterprises, 6600 employees, 500 researchers in private centers and 2000 in university centers), have a symbol in the structure of former IML, designed by Renzo Piano. In 1986 Alumix Company (Efim Corporation), leader in aluminium production, opened a prestigious research center in Novara, the place of an existing research center on light metal. Renzo Piano was asked to design a building that might be a flagship of the company: the façade is made of modular panels (1,20 m wide), designed to valorise the aluminium quality, and so the technical systems for offices, laboratories and interior design. After few years, the public company Alumix was sold to a private multinational (Alcoa) and the research center in Novara was gradually abandoned as a contemporary industrial archaeology.

The Space for Innovation: S. Agabio Today

As previously said, S. Agabio is a large industrial area with some unutilised buildings and old housing blocks for workers. IML and the historical Donegani Institute (1200 Italian and 6000 international patents since 1938), are tangible and intangible spaces for knowledge, research and innovation. So far, the idea of a Science and Technology Park comes to preserve former spaces of innovation and excellence. First a Foundation named NovaraSviluppo was instituted with the participation of local administrations (municipality and province), associations and private actors. These great hopes could not sufficiently fuel the transformation, so that a wider urban renewal strategy is at present supporting the new needs of the Park with a mechanism to mobilise real estate resources and enhance the innovation functions in a medium term view (10-20 years). New buildings will be business incubators and university expansion.

The science and technology park in S. Agabio compound is composed by three areas:

R1, for research centers and university: 3.500 m² with firms and centers that occupies the former IML (Fondazione Novara Sviluppo, Ticinum Lab, Proge-Farm, Etno Italy, Mbt Molecular Biotechnology, Chemessentia Research And Technology, Mybatech, Innova Custom High Technology, Deatec- Department of Materials Science) and the new Department of Pharmacy & Food Chemistry of Eastern Piedmont University (5.220 m²);

R2, the Donegani Institute that is now part of Eni Technologies (research corporate of eni) and focuses on green chemistry, polymers improvement, industrial chemistry catalysts, energy saving technology, oil and solar power. It comprehends research centers and several spin off enterprises (Polimeri Europa – Eni, Novamont, Isagro Ricerche, Novara Technology, Sü Chemie Catalyst, Donegani Anticorrosione, memc- Electronic Materials);

R3, Further Development area (a 75.000 m² deck between the existing areas, the biotechnology research center, more spin off enterprises). S. Agabio is one of the most important Science and Technology Parks in Italy, for green technologies, pharmacy, biotechnology and new materials. R1 and R2 counts 500 researchers in private companies and research centers, and more than 200 faculty. In the Novara hinterland more than 200 chemistry companies (with 6000 employees) co-operate with the Park.

The Science and Technology Park, managed by local public institution, the university and participated by private enterprises, has been trying since the beginning to combine existent know-how – in continuity with the past – and new trends; regional excellences and services for traditional local enterprises. It combines public university, private enterprises, test centers and services (meeting hall, exhibition rooms, canteens, specialized library and top ic resources); private and public actors seem to cooperate despite the process was slowed down for 5 years the main effort was to slow the decay.

The Process

In 1996, the municipality applied for a national urban renewal program (Pru) and it was funded a project for the industry regeneration and housing rehabilitation in S. Agabio compound. After several years of uncertainty about the future of IML, the multinational Alcoa (the new private owner) firstly forced the local governments to support a top specialized laboratory, then completely abandoned the research center because of scarce productive interests. In 1999 the Novara province bough the buildings. A second urban project of national relevance was funded (Prusst). In the year 2000 the national Ministry of Industry, the national Ministry of Research and Development, the Municipality and the Province of Novara, Enichem and Federchimica (public/private sector enterprises) signed an agreement to save the
center. After light refurbishment, before the end of 2001, NovaraSviluppo Foundation (named legal owner for a 30 years term thanks to the Novara province) had its head office and could lease all other spaces of former Alumix-Alcoa (offices, laboratories and workshops). The support by the national ministries was not so dynamic, if few years later, in 2003, again the research center was closed. The local governments had urgent need to support the Foundation (the rent fees paid by the Institute was initially the main resources); they improved the initial goal toward a science and technology park, supported by university (specialized departments of pharmacy and new materials science), and services for other local firms.

The process has been stopped by several impasses, as left and right wings, alternatively leading the municipality and the province of Novara, had different ideas about the Park and the regeneration project. Even if a science and technology park is supposed to be independent by the political stream, the directors board is directly nominated by the provincial government. Given the difficult political context, the continuity was found in the efforts to enhance the relations among University, applied research, innovative enterprises and general services. Thus the Foundation (voice of the province) is managing the specialized and high tech research activities within the Park, but also services for mature SMEs funded by European Social Fund and European Regional Development Fund, and a comprehensive marketing strategy. At the same time the urban strategy is mainly managed within the local municipality.

In 2005 the new railway station of Novara opened and part of the railway yard was no longer in use (40,000 square metres). In 2006 was adopted a detailed plan to connect these area to the main city and to have new real estate development; it was also activated a company to manage the urban transformation (Società di trasformazione urbana, public leaded, but market oriented; supervised by Ernst&Young and ipsi Spa). The strategy is discussed among municipality, provincial and regional government and the private land owners.

Evaluation in the Urban Frame

Considering the total surface of S. Agabio renewal, only a small part belongs to the Municipality (34,881 square metres) and to other public bodies (46,070 m²); the main area is owned by three railway company (336,538 square metres) and private owners (336,538 square metres). The dimension is relevant compared to the city. The renewal costs cannot be afforded by the local government (the region will pay a small part), thus the benefits gained with the new uses and new buildings – only few evidences of the past industry are preserved, the urban pattern is similar but more dense – will be partly re-invested in the place (equalisation of projected returns). The warning from this experience is that the city alone cannot manage an innovative center; furthermore, the private support is often more valuable as real estate investments than other. When local institutions faced either national (the two ministries) or international (Alcoa multinational company) actors, they faced obscure behaviour and decreasing interest. The local public governments were initially unenthusiastic, and forced to pursue a dominant role. When the Foundation has been operating, it could work with narrow minded objectives supported by rent fees. When it was necessary to enlarge the view, real estate investment arrived. It could be said that for the urban balance the land rents are more important than a patent, but there are in the end more innovative functions in a multiplied spectrum. The presence of new functions and expanding users (as university) has legitimated new investments in the area, to improve the urban quality.

The process of transformation of the existing applied research center (with a not so clear definition of private but public) is slow, because of the difficult management of public value and private needs. On the one hand, the base research work is considered public supported but for private needs. On the other hand local strategies are funded mainly through land development.

This experience has been leading the local administration to catalyse all the development efforts into a defined place before it was completely cancelled by economic transformation. Particularly the public control of the transformation strategy arrange structures, while private supported the organised contents. It is positively surprising that in this way also unwanted and unplanned changes might be managed: for example the turn-over in the use of the spaces in the beginning was fast than expected, but none of them last empty for a long time.

4. Vega Park, Marghera-Venice

The background of innovation in Marghera-Venice Vega, The Venice Gateway for Science and Technology can be considered as the symbol of the regeneration of about 2,000 hectares industrial area of Marghera.
The place is unique: Marghera was one of the largest industrial area in Europe (more than 3,000 hectares and about 33,000 employees in 1965, including 22,000 in heavy industry), it still is an important industrial harbour and it is located in front of the charming Venice waterfront. For these reasons major transports infrastructures concentrate in the area (Venice international airport, the industrial harbour, Mestre railway station and expressway).

Marghera (30,000 inhabitants in 2006) and Mestre had developed since 1920s as the inland industrial development of Venice and the main industrial towns of eastern Italy, including a power plant, and an important industrial harbour built on former wetland and lagoons. Bombed in the Second World War, it was suddenly rebuilt and joined the economic boom in the 1950s-1960s: steel and iron industry, chemistry and pharmacy, plastic production, other petrochemical industry, and shipyards have had mass-production plants here. Main Italian private and public enterprises (Fincantieri, Montedison, Eni, Agip, etc), as well as multinationals have been located here. After several decades of concerns about the environmental protection of Venice fragile environment and the citizens health safety (and class actions), a strong industrial restructuring started in the 1990s. Several plants completely closed, others have been converted to less polluting activities and some are still producing. Marghera is looking for a more sustainable development, a better environmental quality and any different identity but the inland dormitory of Venice. Former workers and local citizens have been part of the transformation, because of a tradition of civic participation and politicisation inherited by labour unionism. In 1998 Marghera entered in the top 14 national sites of high potential environmental risk, thus catalysing national and European funds for land clearance and socio-economic restructuring. In 2002 the employees total 13,000, 5,000 in the heavy industry. At present land remediation covers more than 150 hectares, large corporations have almost disappeared but several new firms blossom and some concerns about the preservation of workers and past industry heritage (Favaretto 2004).

Vega is the first effective transformation into bridged activities among universities, research centers and production (nano and biotechnology, green technologies, environmental protection, ICT and digital media). The regeneration proposes a high-tech town within an ideal urban environment instead of the enclosed factories compounds, with spaces for culture, entertainment, studios for music and cinema, cultural institutions, advanced training facilities, a science museum and congress centers. The development of Vega is divided into four adjacent areas covering a total area of 35 hectares (the investments in first three areas total about 200 million Euro). The future Venice international airport Gateway, by F. O. Gehry, might complete the emerging innovative ideas incubator with hotels, another conference center, a commercial gallery and the transportation hub.

The Space for Innovation: Vega-Venice Gateway Today

Vega 1, the first area completed and operating, is 12 hectares; the transformation was partly funded by EU funds (9 hectares) while the buildings for administrative, commercial and production activities (35,000 square metres) has been completed thanks to the private investment of Nova Marghera real estate. Vega 1 counts over 200 companies in 10 modern buildings (70,000 square metres), 15 research laboratories, 3 university centers, a congress center, green areas and parking facilities. More than 2,000 employees (mainly specialized) work there. It is managed by a non-profit consortium made of 34 members, including the Municipality and the Province of Venice, the regional Agency of Innovation and Development, Eni corporation (one of the former owners) and the University of Venice. The new urban compound is provided with a private road system, and elevated pathways within the buildings for cyclists and pedestrians. The Business District is complete with the Music City Mall (11.600 square metres), that proposes a landmark and a pulsating culture production place, with retail, entertainment and leisure facilities. It is foreseen as the possibility for Venice to compete with other international cities and attract international companies headquarters.

The structure of the park seems a facilitator of business activities; companies can find here a fully equipped place to stay, support and advice in different fields, opportunities for partnership and synergies on common projects and assistance in special funding. At present land remediation is completed and construction is ongoing in Vega 2 and 4.

Vega 2 is the expansion of the Science and Technology Park, and extends for about 9 hectares to the lagoon, viewing Venice’s historic centre. Vega 2 counts 70,000 square metres of innovative and green technology buildings (energy saving, solar power equipped, technically integrated) to accommodate high-technology enterprises, laboratories, training facilities, and other services. The area is connected by water and by land to Venice and the San Giuliano Park, which is expected as one of the
largest urban parks in Europe. Vega2 will be the Vega waterfront, with a 6 hectare park and the Digital Media Lab incubator (10,000 m²), dedicated to the start-up projects of the digital media sector, which represents a new backbone of Veneto Region economic development (42,000 companies). Other residence, hotel, conference centres, exposition halls, restaurants, bars and other services complete the plan.

Vega3 occupies 11 hectares with a capacity floor of 30,000 square metres and will be the final part of the vega project. Immobiliare Veneziana (property: 97% Municipality of Venice; 3% Asm) is developing projects for innovative social housing, urban services, and the renovation of old industrial buildings.

Vega4 covers roughly 5.9 hectares former used as a coal store; Docks Venezia srl. is developing the area with new buildings, an existing research centre renovation (34,300 square metres), and green areas.

The Process

The idea to have a Science and Technology Park in Venice inland, and located in Marghera industrial area, dates back to the 1990s. At the time the heavy industry sector had been triggered off by a general crisis in Europe. An industry based on a modern concept of development and services was needed to convert the area, and foster links with university and research centres and local environment. A feasibility study was carried out in 1993 by Consorzio Venezia Ricerche with the support of EU experts and the cooperation of local financial and social organisations. In the same year, Vega was established as a limited company run as a non-profit organization, with 34 partners, including the two universities of Venice, banks and private companies. Over 60% of company stocks are public owned (mainly Municipality of Venice). The core of Vega was defined as Venice’s gateway to innovation and research with three main objectives: developing activities that generate innovation; transferring new technology in order to promote regional entrepreneurship; generating employment opportunities for qualified people. When the European Union listed the area in “objective 2” funding, the Park immediately had important investments to start first three phases; the symbol of the regeneration of the industrial zone of Porto Marghera cost about 40 million Euro, divided in the four phases of Vega1 completion:

1993-1995: the first phase cost 5 million Euro, 50% funded by EU (renaval program) and involved 1.5 hectares with total 4,250 square metres of floor surface. The founding partners include the Municipality and the Province of Venice, the Regional Agency for Innovation, Venice’s Chamber of Commerce, as well as privates such as Enichem and local industrial and artisan associations. A renewed 1930s building was the first vega’s building, and called Gateway to Innovation. It houses service companies and research laboratories.

1994-1996: the second phase cost 17 million Euro, 70% funded by EU efrd, and finished in 1999. The area of 4 hectares hosts 9,600 square metres of floor surface. The works started with a massive land clearance and remediation. Buildings renewal and new constructions defined Pegasus, Anthers and Pleiads buildings, which house specialised firms in Information Technology, training and research. Anthers industrial archaeology warehouse is a centre for fairs and exhibitions.

1997-1999: the third phase cost 17 million euro, 70% funded by EU efrd. The area of 1.7 hectares has 9,100 square metres of floor surface. New building for specialized firms was finished, open spaces were improved, and Vega IT system was upgraded. The project included the restoration of the Hammon cooling tower, another fine example of industrial archaeology that dominates the Park.

2000-2004: the fourth phase cost 50 million Euro, funded by national government and private investor Nova Marghera srl. The area is again 4 hectares, but the floor ratio is higher (totally 40,200 square metres of floor surface). The huge public substantial investment was the driving force for the private sector investments, particularly in adjacent areas. Guaraldo, a Treviso-based construction company and the main private investor, set up the company “Nova Marghera srl” with vega to promote, carry out and manage the development of this project. The first 5,200 m², which belong to vega, are completed and house company headquarters.

To maintain the promised full renewal of such a big area, the Park needs blossoming enterprises environment. The marketing of headquarters offices and laboratories at the entrance of Venice is thus inexhausted. At present vega houses more than one hundred highly specialised enterprises, two universities centres of excellence and research, professional structures and public institutions. The 34% of the companies inside the Park are vega start-up firms. The settling is disciplined by a three-year
supply contract for equipped areas and buildings from 50mq up, with the possibility of withdrawal after one year. To join Vega Park, applicant company portfolio is examined and approved by the Park Board, that judges the potential integration of the company to others and values its specialisation in comparison with Vega ones. The Park may thus focus in 4 main fields:

Biotechnology and Nanotechnology, mainly with training and technology dissemination for industrial, agriculture and food processing production.

ICT, applied Information&Communication Technology solutions in industry and service. The innovation activity is evaluated on number of patents.

The peculiar vega-beneCulturali, that clusters enterprises, laboratories, and research facilities providing technologies and services for archaeology, restoration, conservation, and use of cultural heritage. Some of the processes introduced in the remediation of the Vega area developed into patents made up by Consorzio Venezia Ricerche (related to University).

vega-environment that clusters enterprises, laboratories, and research facilities providing environmental technologies for land remediation and redevelopment. Some enterprises of the cluster have developed patents of innovative technologies for soil and ground water treatments. It also implements energy sustainability, as in Hydrogen Park, to test the use of zero emissions hydrogen in an area with a high industrial concentration (it is part of the industrial process).

Evaluation in the Urban Frame

Vega is an acknowledged and certified model in Europe of environmental remediation in former industrial areas. Despite the main effort to enhance a new concept of industrial development and advanced services, the first important Park’s achievement has been the environmental and urban regeneration of a large area, providing infrastructure that attracted firms and other activities, partially innovative. The appearance of new buildings is usually severely technological; but it should be considered that in ten years Vega managed a huge transformation; nice details and some high scientific and technological content might be a future implementation. Thus it is interesting and probably innovative that the expertise developed in the site remediation is now part of Park’s technological contents: in Vega-Environment cluster scientific and technological knowledge are products of the renewal project.

Furthermore, the Park and the process are a kind of attraction, either for specialized or generic interests (as often happens in Europe). High school and University students are welcome closer to science and technology within the Park and some of the specialized laboratories accept students for the bachelor degree. Guided tours within the area of Porto Marghera and places of an ancient industrial era are organised to discover these places, perceived as important milestone of Venice mainland identity.

5. A Possible Future for sgl Carbon Area, in Ascoli

The background of a potential innovation in Ascoli Ascoli is a small city (51,600 inhabitants) in the hills of central Italy; far away main national transports infrastructure, over centuries it has been a remote place. The city has a well preserved ancient roman urban scheme, as well as several medieval buildings, made with a characteristic local stone. Given the economic underdevelopment, in the beginning of xix century an industrial plant for pyrites processing localised in Ascoli, and since then determined hopes and risks in the development of the city: first it was a job resource, later an environmental risk, and finally a possibility for a different future.

At the time of employment peak, more than 1,000 people worked in the 27 hectares of sice-Società Italiana Carboni Elettrici (the owner since 1920) and later Electrocarbonium Spa (the owner from 1949 to 1992). Few other Italian and multinational corporations brought to Ascoli recent industrialization, even if the bulk of local economy is mainly made up of SMEs. In the 1920s the main plant was located out of the urban edge, on a natural hill in front of the roman ruins of city walls, but later urban expansion has enclosed the factory within the contemporary suburbs. So far, in 1972, a master plan proposal suggested the displacement of the large plant; the municipality immediately stopped the plan, and in 1980 conceded a 25 years lease to Elettrocarbonium (until latest 2004). The city accepted that, because this industry was considered necessary. However, the local consensus to the plant has been decreasing as far as citizens realised the pollution risk of black lead electrodes production from coal tar (the most recent main production) and concerned about their environmental security.
The principal polluting remains of these production are toxic gas, polluted waters, remain sludge and coal-tar. Since the 1980s, the regional Agency for environmental protection (ARPA) has started detailed analysis on and off-site, finding polluted ground in about 6 hectares and not controlled waste disposals were discovered on-site. A difficult opposition between the firm and the city has started: on one side production and workers, and on the other a healthy urban environment. In 1984 the local Agency for health protection (USL) defined the area as risky one, because of Polycyclic aromatic hydrocarbons (PAHs) emissions. The international context was changing and the employees decreased to less than 300 in 1990s. In 1992 the plant was acquired by Carbon Group, Great Lakes Carbon GmbH (Germany). The Carbon Group has more than 30 production sites in Europe, North America, and Asia (two in Italy; both of them were former plants of the Italian Elettrocarbonium since 1920s) and it is one of the world’s leading manufacturers of carbon-based products.

In 1993 two industrial ovens were sequestrated and environmental associations brought a legal action against the enterprise, accused of 12 manslaughter of former employees and scarce job-health protection. When the multinational started a delocalisation strategy, the citizens concerns created a high potential conflict. In 1998, after several accidents in the plant and further environmental surveys and evidences in the city, trade unions and environment protection associations agreed on a formal document against the firm. Local media were not neutral, the local politics disagree even within similar political wings, but light industry and research were expected to substitute the traditional production. At the same time the municipality was preparing the new urban master-plan, that foresees in the area a light industry development, Science and Technology Park, an exhibition area. General suggestions that need more detailed decision to start an urban regeneration process.

Finally, on January 2006 the Province of Ascoli in charged a group of professionals (manager of Idis-Bagnoli Science City) and faculty experts (University of Ferrara, University of Camerino, Polytechnic of Marche Region) to elaborate a regeneration project for the area of Carbon. The idea was to introduce there environmental technologies and research, enhancing urban design and implementing the quality of the site, including a large land remediation.

The Space of Science and Technology Park Hypothesis

The industrial site regeneration is here only a hypothesis, thus it is general thesis functional to know the potentiality of knowledge-based components in a small city like Ascoli, scarcely connected, perceived by the inhabitants as too slowly developed, and without a local research background. The owner of the site was involved in the first steps of the project, but it is a multinational not so interested in the condition of the place and after the complete delocalisation no longer it would deal with land remediation.

Conflict among the local actors and scarce information about real decisions and risks are at present the higher difficulty that faces further development. The plant is present in the daily local economy and it is so relevant (about 25 hectares, at least 10 hectares probably need land rehabilitation) that probably the whole province can be considered as a stakeholder of a regeneration project, for the impact on the real estate and job markets. Furthermore, there are employees working in part of the plant and they ask extraordinary social welfare. Anyhow, the urban regeneration is expected as a great opportunity for a compound of about 45 hectares, distribute as follow:

- 25 hectares owned by Carbon (17 hectares of productive buildings);
- 4 hectares of former Carburo (productive plants);
- 5 hectares of existing river woods;
- 1.5 hectares of other private owners (no use);
- 1.5 hectares of existing shopping mall;
- 1.5 hectares of existing sport facilities.

The Process

In the view of the firm, the actual impasse and decline is a low cost activity, while the production has already been displaced to more attractive locations and land clearance would be expensive. Province, Municipality, Marche Region, the Regional Agency for Environmental Protection, Carisap Bank and the citizens, they all want land remediation, without any certainty of the future uses. As in other cases, the potential add value is a form of continuity in the use of the area, to valorise the local identity in a new productive framework. Also the consensus should be considered as a resource, before the worst visible decline of the area. Thus the consultants proposed in January
2007 a general framework: first to develop a local know-how in the environmental remediation in cooperation with specialized Departments of local university, then to set that as future activities in the site, together with energy saving facilities. The land remediation has been introduced as a phasing work, tailored on the final users of different parts of the site. These steps, differentiated for different areas, influences the re-development and the possibility of potential real estate development. The establishment of a science and technology park and a green core (a wood along the river) are foreseen as the necessary new catalysts of redevelopment. Hence it was encouraged a formal project agreement among the firm, the Municipality and the Province, in order to define the land remediation cost and phasing, and the timing of the transformation, including potential property-based real estate development. This point draws into question dimensions of the area compared to the existing city, and it is potentially a factor which could deeply disturb the local market.

The method “planning for real” helped the local authorities and citizens to visualise the urban effects of alternative proposals. The first matter is that land remediation costs to be sustainable need a high construction capacity in the area, so that real estate developers can fuel innovative investments developing housing (about 100,000 m²) and commercial buildings (retail, services, restaurants and hotel, about 50,000 m²). The park idea works as an incentive, that occupies a minimum percentage of the general project, about 6,500 square metres in existing buildings and 4000 square metres in new buildings (8.1 % of the total area). Totally, the project can develop green areas and a riverside park occupying 45-58 % of the total area; housing and mixed uses 20-45 %.

The identified costs of about 80 millions of euro might be partly funded by the regional government (12 millions of euro) but real estate “support” was officially not plainly accepted by local governments, viewing that as private valorisation of a contrasting memory and public cost of industry (Frassoldati 2007). At present the discussion has stopped, waiting for investors, while municipality and province cannot find any kind of responsible agreement on the Park (that they realise cannot be a local one) and the firm is loosing interest in the transformation.

Over last few months several art events have been organised to rediscover the identity and the heritage of the former industrial site, opening a temporary exhibition hall.

Evaluation in the Urban Frame

Ascoli is on the way to reintroduce industry leftovers in the urban pattern as new integrated services, housing and production. Unfortunately recent conflict and crossed accusations within the social bodies are weakening the opportunities. It is normal – especially in smaller places that development ideas and also real estate development generate either unreasonable expectations or scepticism and oppositions; hence it is important to enhance participation of citizens and enterprises responsibility in the urban rehabilitation. In any case it is important to evaluate the real possibilities of science and technology parks in areas that have never self-generated innovation and also scarce visible potentiality to compete for any firms localisation as long as smartly innovative.

6. Conclusion

As the preceding discourse has illustrated, recent science parks in Italy are manifestos of urban renewal but certain characteristic distinguish them. Arguably, one of the most outstanding of these distinguishing characteristics is that science parks may, and indeed do, concentrate and catalyse public and private regeneration efforts into a precise area and with a clear scope. Local governments alone cannot afford the renewal costs, thus the public sets a framework to private property-based business and this pay back projected returns in the form of equalised investments on the site, like in NovaraSviluppo and the rehabilitation of S. Agabio. In a sense, urban management values land rents more than patents.

By providing small units with flexible lease terms, science parks effectively support firms start-up. Clearly parks might do more in clustering together similar firms, to pursue a real synergy among firms. As a consequence, science and technology parks intrinsically avoid to act as a merely market oriented business, providing no more than full-equipped grounds for firms’ localisation. Hence “the precept of science parks as a vehicle for industrial and economic growth may thus be seen to preclude the perception of them as just another form of property development” (Gower and Harris 1994). This also means that a fundamental public role of tutoring is expected by park director boards. Referred to this, for example, Vega’s main effort to enhance a new concept of industry in Marghera has as first important achievement the environmental regeneration of its land, and the expertise in site remediation as main
As an effect of resources concentration and economic growth precepts, local authorities typically encourage and welcome proposals for science parks; they perform a prestige function, and thus firms accept to pay a "rental premium" to be there, increasing their reputation (Castells, 1998). With few exceptions, that may work with SMEs (and mainly new one) but it is not the case of multinational companies. In the three examined cities it is found that multinationals had left large – tangible and intangible – vacant spaces. It is also found that adequate institutional thickness, trust, and cooperation apply only to parks projects that are integrated and embedded with communities background. When these are not effective, as in Ascoli, it is reasonable to doubt the real possibilities of science and technology parks. It is not an answer for policy makers, but parks are not magic wands for areas that never had self-generated innovation and also have scarce visible potentiality to compete for any firms localisation as long as smartly innovative.

Furthermore, environmental remains and buildings of the past industrial time certainly influence and direct tangible renewal. This is actually part of urban development history, as well as uneven investments, public costs, private benefits and the trouble management of their combination. Hence, to conclude, real estate investments should be considered components of science and technology park, as far as it is true that urban development – quoting J. Jacobs (1984) will continue to be far more influenced by local and regional institutions and groups than directly by abstracted innovation.

Bibliographical References

Web Resources
Fondazione NovaraSviluppo http://www.novarasviluppo.it (accessed March, 2008)
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