

Manifattura: The Master Plan for a Green Technology Cluster

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ABSTRACT

Manifattura *Green Innovation Factory* is a major project that will transform a former tobacco production plant located in Rovereto Italy into a business and research cluster for green building, renewable energy, and environmental technology. The project also aims to become a low carbon and highly energy efficiency district, fostering accountability to climate change issues by establishing clear carbon reduction targets and transparent carbon measuring mechanisms and by promoting sustainable lifestyles. The key benefit for companies who locate in the new Manifattura is the potential to establish a powerful presence in northern Italy in a unique environment destined to become an architectural and cultural landmark.

Keywords: cleantech cluster, master plan, low carbon district, sustainable development

1 INTRODUCTION

Manifattura *Green Innovation Factory* is a multimillion-dollar project that will transform a former tobacco production plant into a business and research cluster for green building, renewable energy, and environmental technology. At the time of writing, a new master plan for the 85,000 square meter area located in Rovereto, Italy, was nearing completion. The master plan takes into consideration the renovation of historic industrial buildings from the mid 1800s as well as the construction of new facilities for offices and light industrial production. The overall goal is to retrofit the existing landmark buildings and build new facilities as models of eco-sustainability.

In strong contrast to the self-contained structures and processes of the existing industrial age buildings, the master plan proposes a new model of work-life with common meeting spaces and shared facilities that serve multiple companies and diverse kinds of employees.

The renewed Manifattura will host a mix of use that includes office space, laboratories and production facilities. When complete, the cluster will accommodate around 1200 professionals, researchers, educators, technicians and students. The cluster is designed to help small and medium sized companies by creating the organizational synergies and business leverage necessary to grow and thrive in the green economy.

The area will also provide spaces for public use (meeting rooms, recreation, shops, cafes, walking paths, etc.), giving access to a part of the city that has been off-limits for more than 150 years.



Figure 1. Manifattura tobacco plant circa 1920. Photo from the archives of the Rovereto Public Library.

2 DEVELOPING THE MASTER PLAN

Manifattura Domani Srl, the company set up by the autonomous Province of Trento to manage the project, has hired renowned consulting firms to create the master plan. Work on the master plan began in October 2009 and will be completed in May 2010. Workshops on the goals for the master plan identified 12 priorities:

- Low carbon
- Sustainable user behavior
- Buildings: heritage and sustainability
- New technologies
- Landmark quality
- Building and site flexibility
- Spaces for sharing
- Landscape
- Urbanity
- Innovation, research and development, manufacturing
- Attractiveness
- Sustainable transportation

Below we offer a preview of the results.

2.1 Economics

Kanso S.r.l. was tasked with speeding up the start of Project Manifattura by defining and selecting the companies that will take part in the first phase of the

cluster. They developed and presented an offer that tenants could compare with other market offerings. In addition, Kanso prepared a project business plan that took into consideration sustainability issues.

A key research finding indicates that green manufacturing is an expanding market segment in southern Europe. An important conclusion is that Project Manifattura can help the local construction industry to innovate and expand not just locally but throughout Italy and the south of the continent. It can do this by integrating with and building on existing initiatives. The prime example is Habitech, a consortium of Trentino area companies, which promotes energy efficient design and construction. In addition, the Green Building Council Italy is developing a LEED certification program for Italy. Together with Project Manifattura, a strong core team is coalescing around green innovation.

2.2 Sustainability

ARUP Italia S.r.l. was asked to define the environmental sustainability characteristics and energy efficiency targets that the master plan needs to meet.

The sustainable elements of the plan will be introduced in phases. Here are some examples:

- Historic buildings will be renovated to meet C or B

energy efficiency standards.

- New construction will make onsite use of demolition materials.
- New buildings will be built from materials with low environmental impact.
- A trigeneration plant will produce clean energy from local biofuels.

Manifattura will work to reduce the carbon footprint of activities in several ways:

- Sharing a fleet of electric vehicles for local business trips.
- Encouraging employees to commute by bicycle by providing showers and changing rooms.
- Providing a shuttle van to the nearby train station.
- Incentivizing employee car pools.

2.3 Architecture

Kengo Kuma & Associates in partnership with Carlorattiassociati was asked to define the architectural characteristics and preliminary plans that make up the master plan.

The plan proposes development in two zones. Starting in late 2010, the zone containing historic buildings will undergo renovation along with the integration of new structures for laboratories and exposition areas. The



Figure 2. Proposal for urban and natural landscape. Architectural rendering by Carloratti Associati.

existing warehouse zone, on the other hand, will be demolished to become a green space that opens up to existing bike paths along the adjacent Leno River and nearby Adige River. Over time, new production facilities will rise in place the park, but the use of green roofs will provide conceptual continuity as well as public access.

The buildings will offer office spaces up to 200 square meters, while production facilities will range from 500 to 2000 square meters.

The goal is to provide access to public areas using bridges and pathways, while offering access to specific areas to authorized personnel only.

3 BUSINESS AND RESEARCH CLUSTER

The core concept of Manifattura is to create a green innovation cluster that brings together wide range of uses: from production, professional services, and research to testing, training, and higher education. A common theme to companies who partake in Manifattura will be integrating quality of life into the green economy experience.

Production will focus on light manufacturing of products while professional services will focus on designing and implementing green technologies such as low impact construction, materials recycling and use of natural materials.

To push toward innovation and facilitate technology transfer, research centers and projects will have access to testing laboratories and shared spaces with companies. Finally, training facilities will be available to speed uptake of knowledge and prepare the way for the professions of the future.

The cluster is focused on becoming the *green enterprise gateway* to business opportunities in Europe, particularly in the south.

4 STRATEGY FOR SYNERGY AND GROWTH

The overriding idea of Project Manifattura is to provide a space for sharing services and infrastructure that might otherwise be unobtainable for a small company or group. Furthermore, the environment will stimulate collaboration and coordination, allowing labor to be pooled. In turn, collaboration will create knowledge spill-over and informal knowledge transfer.

Key benefits for companies who locate in the new Manifattura include:

- The potential to establish a powerful presence in Italy and Europe in a unique environment that will distinguish itself as architectural and cultural landmark.
- The opportunity to participate in a cluster that promotes excellence in green technology.
- The possibility to create branch offices from which to exploit opportunities in northern Italy and across southern European markets.

- Access to advanced skills and established research centers on site and in the area.
- Shared facilities for communication, conferences, training, laboratories, exhibition space, and more.

The cluster will respond to the needs and realities of businesses by integrating supply chains and by providing educational opportunities.



Figure 3. View of green roofed buildings. *Architectural rendering by Carloratti Associati.*

5 NETWORK OF SUPPORT

The companies and groups that locate in Manifattura will be part of that public system of incentives and financing. At 1.4% of GDP, local support for innovation is well above the national average of 1.1%. Furthermore, Trentino has advanced knowhow in materials engineering and construction, renewable energy, ICT, and nano and micro technologies.

The autonomous Province of Trento is an excellent place to do business due to efficient public management, public support for enterprise, and superior environmental sustainability.

As an autonomous province, Trentino is able to provide the legislative and financial instruments to foster research and innovation. For example, companies based in Trentino can obtain contributions for industrial research projects for up to €3 million which can cover 45–80% of authorized expenses.

As regards research, the provincial government directly finances a number of research groups such as Fondazione Bruno Kessler which concentrates on ICT and Fondazione Edmund Mach which specializes in agriculture and genetics. The University of Trento is one of Italy's best universities, with growing programs that offer doctoral degrees and research post-docs.

6 CONCLUSION

The clean technology sector has received worldwide attention as a result of the economic crisis and recent petroleum price spikes. Trentino is poised to capture that momentum and achieve strong economic growth in cleantech.

In this sense, Manifattura Green Innovation Factory represents a new milestone in shaping of the local economy. The construction of the Manifattura tobacco factory in 1854 introduced a century of economic innovation and social change. The fabric of the economy is once again undergoing dramatic shifts and the new Manifattura is guiding the community toward a new paradigm. Even as they harnesses the latest tools, Manifattura and the city of Rovereto are holding on to the best aspects of their architectural, and economic, and social heritage.

The newly completed master plan provides a roadmap for developing an iconic cluster for greentech innovation that will implement the same technologies it is destined to promote. Companies can benefit by joining the cluster and using that heritage as an *international springboard* for green innovation in green building, renewable energy and environmental technology.

For more information, visit www.manifactor.it or send an e-mail to info@manifactor.it. For a Google Map of the Manifattura site, search on Piazza Manifattura 1, Rovereto, Italy.