INDUSTRIAL SYMBIOSIS AND PRODUCTIVE AREAS

Extended abstract

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Background

Green economy is becoming an important sector in many developed economies and it can be considered a perspective for the characterization of the economical systems of emerging areas and of those economies looking for their place in the context of economic globalization. There are many definitions of green economy, one of the most comprehensive is provided by UNEP, the UN agency that deals with environment, "UNEP defines green economy as One That results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities"(UNEP, 2011). In the in-depth report carried out by UNEP there is also a realistic estimate of the costs associated with the large-scale implementation of green economy. In the estimation of the international agency, the sectors and investments needed to convert the world economy are the following: a total of 2% of GDP per year, equal to a total amount of $1.300 billion. In a more analytical way, in the different sectors, the estimation are the following: agriculture (108 bn), construction (134 bn); renewable sources (360 bn), fishing (110 bn), forests (15 bn), industrial (75 bn), tourism (135 bn), mobility (190 bn), waste (110 mld) water sector (€ 110 bn).

The guiding principles of green economy in the study accomplished by UNEP are summarized as below: sustainable development, equity, quality of life, respect of the limits, inclusion, responsibility, resilience, efficiency, solidarity between generations. All these principles are also values, which will closely link economic action and social impact of the strategies and policies adopted by policy makers and governments. The economic sectors where the impact of green economy may be decisive, according to Tim Jackson, are listed below: building renovation, technologies based on renewable sources, redesign of the networks of public utilities, infrastructures for public transport, public areas (pedestrian zones, green spaces, libraries, etc.), safeguarding and development of the ecosystem (Jackson, 2011). According to data jointly provided by ILO (International Labour Office, Geneva) and UNEP, an ecological conversion could create up to 60 million new jobs in the world. Data compiled by the EU suggest that, in Europe, a 17% reduction in the consumption of resources would lead to an increase in GDP of 3.3% and an increase in employees between 1.4 and 2.8 million people. The relevance of these estimates is indubitable, especially in the current economic crisis which produces continuous loss of jobs in traditional industrial sectors.

The close relationship between economy, employment and social progress is the basis of the strategic policies of the European Union in Europe2020. Not by chance the keywords of the policies in the coming years will be sustainability, inclusiveness and intelligence. From an operational point of view, this means betting on a society based on the respect for the environment, innovation and new technologies, on equal opportunities for the different segments of citizens Europe is composed of. Also in Italy, now aware of the challenge represented by green economy, we have tried to translate the opportunities and potential into concrete projects that can be realistically pursued. The "Roadmap for the green economy" presented each year at Ecomondo (www.ecomondo.com) shows many productive areas to invest in: eco-innovation, eco-efficiency, recycling and renewability of materials, efficiency and energy conservation, development of renewable energy sources, environmental protection and enhancement of ecosystem services, development of eco-agricultural sectors, development of sustainable mobility. With the green economy, ecology and economy go hand in hand with each other.

Objectives and methods

An attempt to apply the principles of green economy in the relevant sectors of European economies has been achieved through the development of eco-industrial parks and through the promotion of projects based on the
principles of territorial marketing and, more specifically, on green marketing aimed at promoting the local development. The characteristics of eco-industrial parks can be summarized as below: planning of exchanges of resources between the businesses settled in the industrial park, integrated system for the minimization of the use of energy and raw material in the industrial park, integrated system for the minimization of waste material, construction of environmentally, socially and economically sustainable relationships between the businesses settled in area, integration among all the activities in the area and among those and the environment.

The conditions conducive the development of eco-industrial parks are the following (Franco, 2005):

- economical feasibility: the implementation of an eco-industrial park is subject to the possibility it offers to achieve a reduction of costs and an increase in the margins of incomes;
- public policy: public policy can encourage the creation of industrial ecosystems;
- organizational relationships: the presence of collaborative exchanges between companies and procedures encouraging participation facilitates the implementation of eco-industrial parks.

Organizational and conceptual models are gradually emerging and they distinguish different types of eco-industrial parks. Indeed, we can identify some main types: industrial symbiotic system, aggregation of only industrial assets and activities with relations of exchange of waste-resources and integrated management systems for resources; mixed system, aggregation of not only industrial assets but also agricultural, residential and service ones, where the aggregation is based on the recovery and the re-use of resources; virtual symbiotic system, network with the exchange of resources between industrial activities not distributed in the territory.

The development of ecoindustrial parks may also represent an original path with an high impact to the theory of Gunter Pauli dealing with Blue Economy. The conceptual proposal of G. Pauli is intended to reproduce in industrial processes the same mechanisms that operate in ecosystems and in the cycles of transformation of energy and natural resources. This principle is defined by G. Pauli biomimicry, in order to emphasize the strict adherence of industrial processes to ecological processes. Closing cycles of the reuse of resources will reset the impacts on the surrounding environment, will increase the energy and environmental efficiency, it will encourage the research and development of new and improved technologies based on knowledge and innovation processes. Finally, there will be positive effects on economy, on jobs, on new businesses. Ultimately it sets in motion a truly virtuous circle able to generate development, knowledge, innovation and wealth on a large scale, especially in those areas of the world that are in search of new projects that can guarantee increased prosperity and quality of life for population (Pauli, 2010).

Today, however, to be active in the green economy and to promote new development models based on sustainability also means ability to make territorial marketing and ability to make green marketing of local production systems, taking into account that we are in a context of strong global competition between different areas of the world. The periodic survey carried out by the strategic consulting firm Ernst & Young's highlights the distinctive factors of competitiveness of our continent. The key levers in Europe should be, according to these analysis, the green and digital economy, a fair level of taxation, city attractions through the development of infrastructure and industrial parks, the presence of qualified human resources and with high levels of skills. These are the factors that can ensure development, competitiveness and ability to attract new businesses.

Other areas of the world can count on low cost of raw materials or low wages. Europe must instead enhance the knowledge and the ability to implement productive activities in a sustainable way. Europe should clearly communicate these values, and distinctive elements making green marketing of territory and of European regions. Making green marketing according to John Grant is to act simultaneously on three levels at least (Grant, 2007):

- the business and markets, where you can start by simply promoting products and green consumption and then generate, over time, a real new demand for green goods and services and finally get to develop real new concepts and entirely innovative areas of green business;
- social identities and brand, where the basis is the credibility of trading partners and it is essential to apply, progressively, the techniques and rules of social media using tools of online marketing such as community of interests and promoting the tribe brands. All these devices appeal to the strong identification of potential consumers and to the connective role of new media;
- product and habits, moving from a simple clarification of the indirect benefits of sustainable consumption, one gradually comes to change the habits of consumption, and finally even to affect the lifestyles and behavior of people. This means to act on the core values, that guide consumer choices addressing towards sustainability.

By this way, the green marketing develops a very wide range of potential, both traditional and innovative ones. The traditional ones are related to products and services such as the followings: improving environmental quality and meeting the consumer needs; know how and actions to operate in the green market; managerial and commercial plans to minimize the environmental impact of productive activities; matching of green demand and green offer; research and development of competences for the promotion of green products and green services; planning of actions to maximize the opportunities of green market and to allow the reaching of environmental goals.

The new areas of activity are related to the close relationship between local development, marketing and promotion of the territory, investment in sustainable productive areas with new and advanced services for businesses (Kotler et al., 1993).
Case studies

How to spread sustainable practices in the Mediterranean productive areas enhancing at the same time the attractiveness of territories by developing strategies for green marketing? These are, very briefly, the objectives of the project MER (Governing Innovative Marketing and Industrial Areas), a project developed within the European Programme MED. This programme aims at stimulating the interregional cooperation between European countries in the Mediterranean area: France, Italy, Spain, Greece, Portugal, Slovenia, Malta, Cyprus. The thematic areas covered by the programme are some of the most important for the economic and social development of the Mediterranean countries: renewable energy, innovation and technology transfer, sustainable mobility, cultural and environmental heritage are some of the main issues experimentation and cooperation initiatives are increasingly occurring. In this context, the project MER is based on the principle that the green promotion of territories and industrial areas is a key value to invest on. MER project will work to make green marketing a tool for integrated governance of industrial areas, contributing to improve the competitiveness and attractiveness of the Med area according to Europe 2020 targets for a sustainable growth.

All the countries participating in the MED Programme take part to the MER project through the following organizations: Province of Bologna (lead partner of the project), Enea (national research body for energy and environment), Informest (Institution for the development of international cooperation of the Regions Friuli Venezia Giulia and Veneto), University of Algarve (Portugal), MIEMA (Malta Intelligent Energy Management Agency), EVMP (Valencian Federation of Municipalities and Provinces, Spain), CEEI Valencia Business and Innovation Centre (Spain), UIRS Urban Planning Institute of the Republic of Slovenia, Anatoliki Development Agency (Greece), Chambers of Commerce of Nice (France).

The keyword of this project is capitalization, considered as the key be able to generate positive impacts in organizations and geographical territories of the countries participating in the project. The capitalization is in fact a multidimensional and complex process that involves several variables.

To capitalize means to extend the impact of innovation to a wider area; to integrate services and create new opportunities and innovation kits with added value and able to enforce the competitiveness of businesses and productive areas; to increase the efficiency of marketing and promotional action accomplished within local territorial systems. Only to act in an integrated and systemic way on all these variables produces tangible and measurable effects on the scope and the strength of the impact of projects on the local economy and the quality of services provided to businesses.

Expected results and discussion

The expected results of this project are numerous and they affect very significant and diversified issues and areas of intervention, as we can see from the following table:

<table>
<thead>
<tr>
<th>Outputs for capitalization</th>
<th>Aims of MER capitalization</th>
<th>Type of activities</th>
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</thead>
<tbody>
<tr>
<td>Green marketing: handbook, integrated guidelines, gmk plans, etc</td>
<td>To provide a tool kit for green marketing for clusters and IAs on a greater scale</td>
<td>Networking Replication campaign Local action plans</td>
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<tr>
<td>Web based training platform</td>
<td>Use and diffusion of web based training platform for training activities</td>
<td>Accomplishing of a training package after training need analysis</td>
</tr>
<tr>
<td>Marketing tools</td>
<td>To provide more effective guidelines and tools for green marketing</td>
<td>Benchmarking analysis and identification of best practice Design of guidelines</td>
</tr>
<tr>
<td>Report on scenario assessment and public participation process</td>
<td>To include environment into territorial marketing strategies and to assess local governance, stakeholders engagement and decision processes</td>
<td>Promotion of tools for the assessment of Territorial scenarios Development of guidelines and training tools</td>
</tr>
<tr>
<td>Multipolar Technopolis Interface Structure</td>
<td>Enlarged and enforced territorial/sectorial structure technology hubs</td>
<td>Promotion of the activities and the mission of technopolis; networking</td>
</tr>
<tr>
<td>Resource center allowing searching and sharing information and services on innovation and creativity</td>
<td>Promotion of Knowledge economy and enhance the cooperation between public bodies, economic actors and organizations for new territorial development policies</td>
<td>Networking activities Replication campaign Multi-level diffusion</td>
</tr>
<tr>
<td>Help Desk network</td>
<td>Qualification of the European MED area as a context conducive to innovation</td>
<td>Tools and policy recommendation to support the diffusion of regional help desk</td>
</tr>
<tr>
<td>Brownfield manager For regeneration processes</td>
<td>To define professional competences and expertise suitable to become drivers of sustainable development</td>
<td>Networking activities Stakeholders involvement</td>
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On the one hand the project is expected to develop a series of information and analysis activities necessary to identify situations and local contexts that are inevitably very heterogeneous. The laws, the promoting policies and the governance of the structures that deal with supporting the production plants are in fact the result of choices and organizational arrangements that are very different among the countries bordering on the Mediterranean. These actions involve plans and programs which are strongly influenced by the territorial relationships with the economical world, with businesses and they are the result of the history that led to this type of interaction. On the other hand, after these essential study activities, the project aims to identify innovative tools for supporting business, which may represent the actual economic factors for enhancing the economical appeal of a production area. For this reason, special attention is paid to the tools and the plans of operational marketing, web platforms for the deployment of innovative services, to the training and development of skills to promote technologically advanced services in support of business networks.

Within MER there will be the arrangement of both tools to encourage the awareness of good practices developed in the different countries of the Mediterranean addressed to the partners of the project and tools for the network of stakeholders that can be involved in the development of marketing actions and in the design of actions for the governance of production areas. Wide space will be reserved to study visits open to entrepreneurs and experts (or actors belonging to specific areas crucial to the local economy), to the realization of integrated guidelines to develop services and actions for the management of productive areas; to training packages for operators and for economic and institutional actors involved in local development. The project, in its final part, also intends to produce documents commitment for the cooperation for green marketing underwritten by entrepreneurs, local authorities, business associations, research centers and universities. The aim is to clarify and make explicit the commitment of economic actors to act jointly. All these efforts are aimed at developing with determination local marketing strategies and to promote green economy in the European regions participating in this important European initiative.

Concluding remarks

The green marketing applied to productive areas is a still largely unexplored theme. While there are many experiences in the field of marketing for green products and services, there are few proposals for green marketing targeted to whole areas. Anyway the local development and competitiveness of the European countries in the coming years, will depend more and more on the capacity of these areas to offer innovative services to businesses. The European regions of the Mediterranean area can effectively intercept the demand for high quality of life and high environmental quality, that are becoming increasingly important social themes, and they can use these common needs to effectively promote their industrial areas. As in the past there were forms of green supply chain in production, today it is essential to focus on optimizing tangible and intangible exchanges between companies, by applying industrial symbiosis at the national level.

The principles of biomimicry and closing cycles of resource use in the productive areas, may represent factors of innovation, efficiency and can minimize waste and adverse impacts on the environment. Close the circle as nature does can become economically, as well as ecologically, convenient.

Keywords: green marketing, industrial areas, management

References