

## **Entrepreneurship, Local Development and the Green Region**

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**Abstract (approx. 100 words)**

The current financial crisis coupled with the pressure on the environment create the increasing need to deliver creative disruptions in the global economy if sustainable development is to be achieved. For this to happen, a regional environmental management system needs to be put together through the coordination of strategic local plans that may result in branding whole regions as "green". This would have significant benefits to the local enterprises, especially if put in place through an entrepreneurial development action plan that would create an "entrepreneurial ecology". This system would capture the sustainability potential offered by the dynamic interactions and innovation initiatives of market actors while reducing the exogenous energy and material flows of the economic system, and addressing efficiently the issue of sustainable consumption.

**1 Introduction**

Environmental issues play a very important role nowadays in all aspects of development policy. Although the Treaty of Rome did not provide the European Community with the possibility to deal with these issues, this was remedied by the Single European Act in 1986. Since then, action for environmental protection has been taken in the form of a new legal framework and the introduction of new development policies. This emphasis on environmental institutions was supported by the Maastricht Treaty (Art. 130), the 5<sup>th</sup> and 6<sup>th</sup> Environmental Action Programme, the "Earth Summit's Agenda 21", the Millennium Ecosystem Assessment.

More specifically, the 5<sup>th</sup> Action Programme was adopted in 1992 and lasted till the end of that decade. It introduced a group of actions aiming at the dissemination of information and the improvement of environmental education of EU citizens. The new framework shifted attention from an independent and partial analysis of several environmental elements (air, water, waste, etc.) towards the formation of an integrated and general management system of these elements, at the level of productive sector and spatial unit. It introduced the provision of what has been called *local conversion plans*, which referred to a *simultaneous* and *integrated* development of both the economy and the environment. It also established an interaction among local (economic and social) agents, i.e. private enterprises, local authorities and central government by adopting a more global view of the environmental problems.

The perception of sustainable development as introduced by the well-known *Brundtland Report* (WCED, 1987), has become the core concept in any discussion dealing with development issues. The relationship between *environmental quality* and *economic development* (Vliamos, 2006) created an ever increasing level of interest, as was shown in the *1992 UN Conference on Environment and Development* in Rio (The Earth Summit), and presented in the World Bank Report on the same topic.

This relationship is based on the argument that the quality of the environment has a direct impact on the achievements of the economy. Since the mid-1980s, this notion has always been present in any official document of the European Union providing arguments according to which a trend has emerged showing a mutual dependence between the two, while in the past there has been a tendency for environmental issues to inevitably create a conflict with economic interests, under the belief that an integrated environmental policy may help increase labour and welfare. The overall policy objective in the European Union became at that time

the achievement of an effective decoupling between economic growth and environmental pollution. In the ensuing years, European legislation has greatly influenced (and to a large extent replaced) national environmental policies. The Single European Act in 1987 stated that environmental protection measures should be a necessary ingredient in any economic policy. Today, however, the need to make markets work for environmental protection becomes apparent if the EU wants to meet the objectives it has set in its sustainable development strategy (Sarigiannis and Vliamos, in press). The current economic conundrum in Europe is characterized by economic deceleration and increasing unemployment. At the same time, environmental pressure from complex phenomena of global dimensions such as climate change is rising. Combining the rejuvenation of market development and efficiency with long-term environmental protection is, therefore, essential. Making markets work for the environment, however, requires taking into account both national as well as local and regional features, which determine how national, local and regional entrepreneurial systems internalize environmental information and how they are able to transform it into market signals and entrepreneurial processes. As technological and market innovation has to compete on a worldwide basis in today's global economy, such national, local and regional variations may play a critical role regarding the effectiveness of market mechanisms to contribute to sustainability objectives.

The aim of this paper is therefore to show the catalytic relationship between environmental quality goals and the opportunities offered to the entrepreneurial process in achieving these. The existence of this relationship leads to the establishment of a system, which makes environment more than an efficient input to the whole entrepreneurial process. It introduces the possibility of incorporating environmental targets as production objectives serviced by the entrepreneurial activity.

## **2 Methodology**

### **2.1 Sustainable entrepreneurship**

Entrepreneurship initiatives have always been regarded as one of the most important factors contributing to the economic development of a country. Further, it is widely accepted that these initiatives are influenced by, among other things, the level as well as the trend of the economic activity both worldwide and nationally. However, this bilateral relationship has been disturbed by the dramatic increase in people's interest in the profile of issues relating to the environment, such as *quality* and *sustainability*. This rise of "environmentalism" and "green" consciousness in the mid- to late 1980s around the world resulted in a reassessment of the role and value placed on entrepreneurial initiatives and relevant activities. Entrepreneurship development could no longer continue at the same rate without examining its major impacts on the environment. However, although it was never explicitly mentioned in the 1992 *UN Conference on Environment and Development*, entrepreneurship was treated as one of the activities, which have the potential to make a positive contribution to a healthier planet. Consequently, sustainability issues were established (Agenda 21) and the question became the application of these issues on entrepreneurship (sustainable entrepreneurship) at national, regional and local levels. As a direct result of this consensus, public authorities have started taking an initiating role in the implementation of sustainable entrepreneurs' practices. However, this implementation process becomes very difficult and hence challenging under conditions of far-from-perfect information flow because entrepreneurship lies in a variety of small, large and other heterogeneous businesses.

The basic strategy should aim at the achievement of a convergence in environmental,

entrepreneurial and other forms of economic policies, through the cooperation of the total number of the social and non-social agencies involved (e.g. administration, enterprises and citizens). In this way, both goals could be promoted: (a) the coordination of these agencies and (b) the change of attitudes and mentalities of the people. The unification and the interaction of economic policy and environmental quality is of tremendous importance in designing certain forms of policies, since nowadays quality of life has become an important factor determining the potential of spatial units to attract investment funds. Therefore, striking a dynamic equilibrium between the protection of the natural environment and the level of entrepreneurial activity is an important factor for the promotion of a local development policy. It follows that any strategy for local development should combine local civic society's interests with those of the economic agents (consumers, firms, organizations, etc.). This kind of policy has a severe impact in the shape of a new policy for the development and exploitation of the "*Land of Europe*".

## **2.2 Environmental improvement at a local level**

The *methodology* that has been proposed to achieve a *better environment and high entrepreneurial activity* could be the integrating factor, which will bring closer heterogeneous (or/and remote) regions. The general approach of this policy lies in building up a *strategic local plan*, which helps a comparative advantage to develop for the regions in question. This plan will be based on a *unified multidimensional environmental management procedure* and will include not only the locality but also the agents of the entrepreneurial activity, this being either private or social entrepreneurship. This strategic plan can be given the character of a *conversion plan*, the basic element of which is a *Regional Environmental Management System – REMS* (Vliamos, 2006).

The structure of REMS is based on the quality provided by every form of economic activity in the region, including environmental quality. Therefore, instead of using a new environmental control procedure accompanied by strict legislation as a counter motive and an additional cost element to the entrepreneurs, the authorities may consider applying REMS in order to convert *the environmental quality level* to an advantage. In this way and through the introduction of *the regional branding*, the spatial unit in question will become attractive to entrepreneurial activity and therefore it will gain the economic benefits accrued. The necessary condition for the creation, development and application of REMS is the close cooperation of citizens, firms, public organizations and other economic policy agents. This cooperation points to the use of local and regional natural and financial resources in combination with the initiatives taken by those who constitute the indigenous potential of the region, mainly the labour force. These initiatives will create and stimulate "social mobilization" and will improve the aspects of development, which make use of the existing market forces. In that way, new enterprises will be established locally and those who already exist will realise the benefits from participating in this process. Several factors will come together to help this procedure commence. One is information dissemination via vocational training. Another one is the support from the administration through the provision of consulting services and funds. In fact, there should be a concrete and integrated policy for the region, combining the achievement of environmental goals with the fulfilment of the aspirations of entrepreneurial agents.

The application of such REMS will help the region to acquire "a competitive edge" leading to a self-reinforced economic development process. The result from the application of such a system is the conversion of the region to a "*green region*" and some firms in the region can benefit from the adoption of this "*green label*". The message to the customers stemming from

the firms operating in the region is that the economic product is produced under strict environmental criteria applied through integrated legal and social procedures.

For this “*green label*” to be used and introduced to the market, the right institutions and regulations should exist, which will improve and foster the environmental liability of the enterprises. Additionally, it is a fact that nowadays there has been an ever-increasing recognition of “*green marketing*”, which lies behind the whole “existence” of the company and helps shifting customers’ attention from the product level to the company level.

Therefore, REMS is based on three main pillars:<sup>1</sup>

- Initiatives for social mobilization;
- Dissemination of information; and
- Supply of funds at the local level for the development of new ideas and technologies.

It has been argued (in particular, in the *Fifth Environmental Action Programme of the European Community, 1992*) that local agents who manage the environment may have an important role to play for the creation of these conditions. In that way, operating enterprises can look at the whole process as an input to their production function and participate enthusiastically, gaining therefore a remarkable share from the development benefits. This goal is achieved through the mechanisms of a social *self-development* process.

It is clear therefore, that *local development* should be based on the *quality of the environment* as well as the *quality of the product* at every stage of the production process, which of course, takes place locally. At the product level, emphasis must be given to the distribution network in relation to the whole product cycle (production, direct marketing and sale).

### **2.3 An integrated development plan and application strategies**

Entrepreneurial development, therefore, can be additionally achieved through the development of a local comparative advantage. This should be based on institutions and practices, which, in turn, regulate an integrated environmental management and dictate the upgrading of environmental quality through market-based processes. In that way, the link between the *company environmental management system* (as implemented nowadays across Europe through the Environmental Management and Accreditation System, EMAS) and the relative *regional/local one* becomes a necessity. The two ‘parts’ can no longer be estimated separately but in combination.

A potential application of this *conversion plan* is the development of a database for the creation of an *Environmental Quality Management Model (EQM)* for the spatial unit in question. The model can be based on a *Geographical Information System (GIS) Model* and can also be used as a database for environmental, social and economic data, using standard criteria with respect to their structure and application.

Finally, REMS must be used as an administrative instrument aiming at the application of a

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<sup>1</sup> These actions formulate what has been called “local development policy” (Vliamos, 1992). It is based on the idea of awakening the indigenous potential of a region by the supply of information, education in general and vocational training in particular, the introduction of new technology systems, etc. All these, complementing the supply of capital will lead to social animation, which in turn will help with the development of entrepreneurship in the Schumpeterian sense, i.e. development of activities leading to innovation and changes. This may result in externalities in human capital. For a thorough analysis of this and similar matters, see Yagi and Vliamos, 1997.

regional integrating plan, similar (or relevant) to the functioning of a corporate environmental administrative system.

The planning and management strategies referred to above can be initiated through an *Entrepreneurship Development Action Programme (EDAP)*, bearing similar principles and properties to REMS. EDAP aims at the same goals, meant to improve entrepreneurial activity and local business performance and to increase employment opportunities. However, a number of factors, such as macroeconomic forces over which there is little control, non-availability and/or non-reliability of data and the potential occurrence of a number of intangible outcomes extremely difficult to quantify, sets several methodological problems and limitations on the application procedure of an EDAP, thus making the assessment of these Programmes a very difficult task.

There are two potentially important factors to be included, for an EDAP to have an effective impact on local and regional development programmes:

1. *Cross-organizational cooperation*, within and between the public and private sectors. Successful EDAP forces participants to look beyond their immediate areas widen their perspectives and access expertise that would not otherwise have been readily available.
2. *Unlimited availability of resources*. In the opposite case, only the pressing issues could be addressed. However, due to the public sector financial restraints, funding has become a serious problem. This can be understood by the fact that there has been a constant need for structural reorganization with the application of continuous and innovative regeneration strategies. As pointed out above, in the present economic situation entrepreneurial behaviour patterns are beginning to display a “*general weariness*” tending to refocus aspirations and expectations. However, this refocus will demand resources, which in most of the cases are unavailable.

The possible solution to this conundrum could be seen as a three-prone process with the following objectives:

- enhancement of market process efficiency
- environmental innovation
  - o endogenous in the enterprise
  - o exogenous, integrating an improved network of interactions with relevant economic actors within the same spatial unit and beyond
- promotion of entrepreneurial ecology, whereby the interaction and linkages among possible business actors, administrations and the civic society (including consumer organisations and environmental NGOs) interact towards a Pareto efficient web that ensures the overall system viability over time.

### **3 Results and Discussion**

According to the classic Schumpeterian view, an entrepreneur is a person who is willing and able to convert a new idea or invention into a successful innovation (Schumpeter, 1942). Entrepreneurship employs what Schumpeter called “the gale of creative destruction” to replace in whole or in part inferior innovations across markets and industries, simultaneously creating new products including new business models. In this way, creative destruction (or disruption as it is often referred to) is largely responsible for the dynamism of industries and long-run economic growth. The supposition that entrepreneurship leads to economic growth is an interpretation of the residual in endogenous growth theory (Romer, 1986; Lucas, 1988). In the specific context of this paper and the context of an integrated entrepreneurship development action plan creative disruption can be interpreted as the capability of the

industrial and technological actors to break away from old and established practices and viewpoints with regard to their relation with the natural environment. This disruptive change can be expressed in creative terms by identifying the possibilities of optimising the material and energy flows (i.e. the ways in which a certain business interacts with the natural environment) into and out of each business in the area of interest aiming at generating an “*entrepreneurial ecology*”. In other words, creating an integrated live system of entrepreneurial relationships that fosters innovation, opens up new service opportunities addressed both towards the private market system (local, regional, national and multi-national actors) and the civic society, the consumers and regulatory authorities.

Entrepreneurial ecology operates thus at various levels: at the individual firm or process unit level, at the inter-firm, district, or market sector level and finally at the regional, national or global/international level. Different options for environmentally compatible action are available at each of these levels of market action:

- (a) Each individual firm may act by implementing design for environment practices in the development of its products and services, adapt pollution prevention techniques (in agreement, in Europe, with the Integrated Pollution Prevention and Control Legislation), promote the development of eco-efficient solutions to its unit operations and implement green accounting practices to make sure that environmental externalities are included in the overall balance sheet.
- (b) In the between-firm space, entrepreneurial ecology may be implemented practically through the creation of eco-industrial parks fostering a culture of industrial and entrepreneurial symbiosis, taking into account the life cycle of products and services and taking sector-based initiatives such as voluntary agreements for emissions reduction.
- (c) At a much wider geographical scale, at the regional, national or international/global scale entrepreneurial ecology initiatives can be structured to comprise the setting up of budget structures and cycling, optimisation of material and energy flows aiming at dematerialisation<sup>2</sup> and decarbonisation<sup>3</sup>.

The concept of entrepreneurial ecology introduced herein is an extension of the industrial ecology notion that has taken roots in the past few years, especially since the article by Frosch and Gallopoulos in the *Scientific American* (Frosch and Gallopoulos, 1989). The industrial analog of an ecosystem is an industrial park or some larger region, which captures and recycles all physical materials internally, consuming only energy from outside the system and producing only non-material services for sale to consumers (Ayres, 1989). The most influential prototype for such systems is the town of Kalundborg in Denmark. In this town waste heat from a power plant and an oil refinery has been used to heat greenhouses and other types of waste from larger industries have been successfully converted into useful products such as fertilizer for, building materials, etc. Another successful example is a proposal for using low-grade (high-ash content) anthracite coal to recover aluminum and cement outside Seoul City. This project, developed by the Korean Institute for Science and Technology, tackled two birds at a stone: relieved Seoul from the need to dispose of several million metric tons of coal ash each year and improved the external balance of South Korea in aluminum.

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<sup>2</sup> The concept of dematerialization introduced in the industrial ecology literature refers to the reduction of the material consumption in the industrial sector. In the context of this paper we refer to the equivalent reduction in material consumption in both the secondary and tertiary sectors of the economy.

<sup>3</sup> Decarbonisation is the equivalent reduction of the carbon footprint of economic activity, i.e. the reduction of the carbon dioxide and other greenhouse gas emissions (expressed in tons of carbon dioxide equivalents avoided per annum)

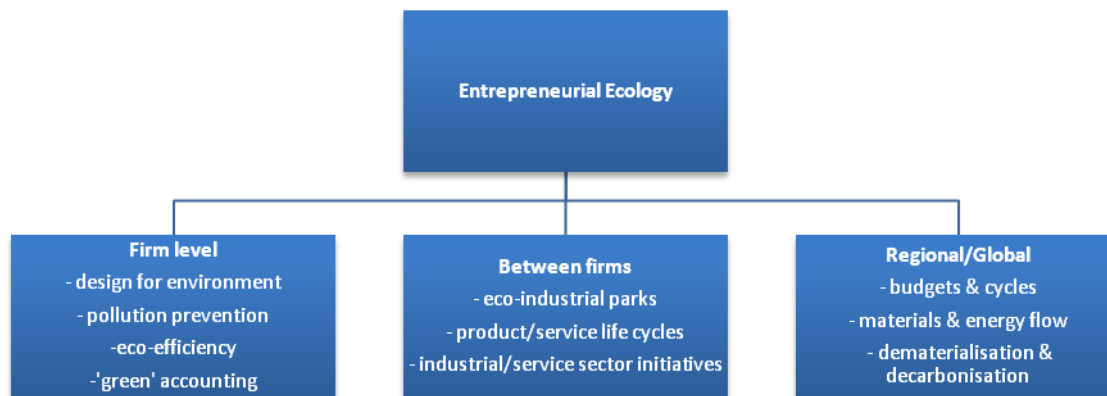


Figure 1: Elements of entrepreneurial ecology at different levels of economic activity

Industrial ecosystems, designed “from scratch” to imitate nature by utilizing the waste products of each component company as raw materials - or “food” - are an attractive idea. Process changes to take advantage of “returns-to-closure” (of the materials cycle) are very definitely not another version of “end-of-pipe” treatment of waste. It appears that there are several prerequisites for success (Ayres, 2009): first, a fairly large scale of operation is required. This means that at least one first tier “exporter” must be present to achieve the necessary scale. Second, at least one other major firm (or industrial sector) must be present locally to utilize the major waste of the exporter, after conversion to a useful form. Third, one or more specialized “satellite” firms will be required to convert the wastes of the first tier “exporter” into useful raw materials for the consumer, and to convert the latter's wastes into marketable commodities, secondary inputs to other local firms, or final wastes for disposal. A final condition, of great importance (and difficult to achieve in practice) is that a reliable mechanism be established to ensure close and long-term technical cooperation - i.e. information sharing - among the participating firms. The guarantor of this cooperation must be either the first tier “exporter” itself, a major bank, a major marketing organization, or a public agency. The detailed mechanisms by which it can be achieved in practice remain to be worked out.

In the entrepreneurial ecosystem envisaged herein, the industrial analog is extended to include all types of entrepreneurial activity, including provision of non-material services both locally and worldwide. Such a system could open up opportunities leading to sustainable innovation and minimization of the ecological footprint of entrepreneurial activity by internalizing waste energy and material flows and the emission of global pollutants, such as greenhouse gases. In this framework, the public sector comes to play a very important role by:

- (a) providing incentives for green entrepreneurship and innovation through a combination of fiscal and financial measures
- (b) facilitating/brokering technology transfer opportunities and voluntary agreements of market actors, while acting as safeguard against piggy bagging
- (c) Setting the rules about upholding environmental legislation and monitoring its effective implementation, while ensuring that all market actors operate on a level-playing field.

Our analysis shows that a key issue for promoting green entrepreneurship is the concept of *sustainable consumption*. This can be fostered/promoted by setting and implementing specific rules for green procurement in the public sector, as well as by providing fiscal incentives for promoting green procurement in the private sector.



Business approaches to sustainable consumption can be grouped into three broad categories:

- Innovation – business processes for the development of new and improved products, services and business are shifting to incorporate provisions for maximizing societal value and minimizing environmental cost
- Choice influencing – the use of marketing and awareness-raising campaigns to enable and encourage consumers to choose and use products more efficiently and sustainably
- Choice editing – the removal of “unsustainable” products and services from the market in partnership with other societal actors

Consumer attitudes and behaviours are the other key determinant of sustainable consumption patterns in modern economy. Consumers are increasingly concerned about environmental, social and economic issues, and increasingly willing to act on those concerns. However, consumer willingness often does not translate into sustainable consumer behaviour because of a variety of factors such as availability, affordability, convenience, product performance, conflicting priorities, scepticism and force of habit. Current consumer studies reveal that there remains a significant data gap in terms of understanding the dynamics of consumer behaviour, especially when it comes to identifying sustainable consumption patterns. This gap needs to be filled by joint work between academics and industrial actors, possibly co-financed by international institutions such as the OECD or the European Commission.

At the European level, the Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan (EC, 2008) introduces a number of initiatives that aim at promoting sustainable consumption patterns. The new policy approach integrates the potential of the different policy instruments, implementing them in a dynamic way. It comprises the following actions:

- The scope of the Directive on the Ecodesign of energy-using products is extended to cover all energy-related products. Minimum requirements are set for products with significant environmental impacts, focusing on key environmental aspects. To provide markets with information on best performing products, advanced benchmarks of environmental performance are also identified. Periodic reviews of minimum requirements and advanced benchmarks will take place to adapt them to technological change and provide businesses with a long-term perspective of future regulatory environment.
- Product labelling under the Energy Labelling Directive and Ecolabel Regulation will be further developed and, following a review of the Ecodesign Directive in 2012, complemented as appropriate by an Ecodesign Labelling Directive to provide consumers with information about the energy and/or environmental performance of products.
- The energy efficiency and environmental criteria under the above schemes will be used to establish a harmonised base for public procurement and incentives provided by the EU and its Member States. This would overcome the current fragmentation of stimuli and incentives in the Internal Market.
- A range of other actions to arrive at smarter consumption will also be undertaken. In particular, action will be implemented with retailers and producers of products to “green” their own activities and supply chains, as well as raising the awareness of consumers at large and increasing their proactive role.

As seen from the above, the current policy context in Europe is favourable to coordinated entrepreneurial activity leading towards more sustainable production and consumption patterns. The global financial crisis of the second half of the first decade of the 21<sup>st</sup> century

has promulgated in Europe, tackling the inefficiencies and structural discrepancies in the secondary and tertiary sectors as well as in the overall labour market among the European Union member states. This phenomenon, even though it puts under pressure the operation of the Common Market and, in particular, the European Monetary Union, provides indeed an opportunity for creative disruptions of the established status quo in the economic development in Europe. Work relations and their legal framework are being challenged; the social insurance system in many countries in Europe is being overhauled. Households are being put under increasing financial pressure and domestic consumption seems to follow relatively flailing patterns. Nevertheless, even in this conundrum public opinion maintains a high awareness of environmental pressure and of the adverse effects of the diminishing environmental quality. More and more civic society initiatives are being undertaken to provide bottom-up sustainable solutions to consumption and there is a growing tendency towards more sustainable production patterns (see the ever increasing market for organic produce worldwide as a prime example of such sustainable production in food-related agriculture and farming). The combined nexus of these forces (the need for dramatic change in the structure of the internal market in Europe and its social repercussions, and the move towards more environment-friendly solutions) opens up real opportunities for green entrepreneurial initiatives across the economy.

Such initiatives, if coordinated, could result in the entrepreneurial ecosystem outlined above bringing significant benefits to both the economic and resource efficiency of the local and regional economies and the economic growth of the European economies at the local and regional levels. The need for coordination calls for an important role for the public sector, not as active entrepreneur, but rather as a caretaker of the overall system, providing the necessary multipliers and unlocking entrepreneurial potential by streamlining rules and regulations while maintaining a view of the overall ecological footprint of the economic activity in the spatial unit of interest (region, country, continent).

#### **4 Conclusions**

Over the last twenty years the need to make markets work for the environment by internalizing environmental quality objectives in the economic product has been rising, with a corresponding rise in the policy impetus in response to enhanced public awareness and societal concern over the state of the environment both locally and globally. This offers a unique challenge and an opportunity to tackle all three dimensions of sustainability:

- The *economic* one by fostering growth,
- The *social* by addressing the rising unemployment and
- The *environmental* by maintaining high environmental quality standards and addressing effectively global issues such as climate change.

The paper discusses the advent of the sustainable enterprise as the outcome of different processes at the policy, societal and market levels. These processes aimed at converging environmental, entrepreneurial and other policies towards striking the right equilibrium between environmental protection and entrepreneurial activity, resulting in the effective decoupling of economic growth from degradation of environmental quality and ecosystem services.

Environmental improvement at the local level can be achieved through the implementation of strategic local plans comprising among others a Regional Environmental Management System. Following this concept, the notion of *green region* is introduced bringing thus an *environmental branding* to all participating local enterprises. In this way, a competitive

advantage can be obtained, pushing all local economic actors towards sustainable development. In practical terms this strategy can be part of an Entrepreneurship Development Action Program (EDAP) aiming at improving entrepreneurial activity and increasing employment opportunities in an environment-friendly manner.

For this to happen a wave of creating disruptions may provide the impetus of eco-innovation in products and services necessary for the creation of an entrepreneurial ecosystem that improves business performance and efficiency whilst minimizing the ecological footprint of the local/regional economy. The concept of an “*entrepreneurial ecology*” is thus introduced in order to capture the sustainability potential offered by the dynamic interactions and innovation initiatives of market actors while reducing the exogenous energy and material flows of the economic system. This self-organized assembly of entrepreneurial activities offers a realistic way out of the current socio-economic crisis by investing not in end-of-pipe technologies for environmental protection, but rather in systems level integration of environmental externalities into the entrepreneurial process.

The last point raised by this work is the concept of sustainable consumption, which is used as the ultimate integrator of all of the above environment-friendly initiatives into the final ecological impact of the economic product. Clearly, overhauling the industrial and service sector processes towards more environmentally conscious performance is not automatically translated into eco-efficient products and services. Consumers need to be aware of the existence of these and prefer them over the competition, assigning thus an effective market price on the ecological footprint of the respective entrepreneurial activity. Energy efficiency and other environmental labeling schemes, green public procurement, aggressive green marketing are some of the options available for promoting sustainable consumption patterns. However, serious gaps still exist in the datasets supporting consumer behavior analysis. This – the demand side of the economy is a key focal point for further research activities and active entrepreneurial action promoting sustainable development at the local, regional and global levels.

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