



Italy country report on SMEs needs- Incentives and barriers

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Note: **DRAFT VERSION**

In this report we analyzed the national situation with a specific focus on the three industrial sector identified as relevant for ACT CLEAN project: agrofood, wood furniture and buildings. A particular attention is given also to Emilia Romagna Region situation and initiatives, for its importance in agrofood sector and SMEs' districts and since it is part of ACT CLEAN Advisory Board and National Network. Besides the E. Romagna Region and its related technical and control bodies are very actives in clean technologies and in the promotion of ecoinnovation.

1. SMEs and the environment

Italy has a large economy and a population of 57 million inhabitants, concentrated on a relatively small territory, with strong regional disparities. High densities lead to strong environmental pressures.

In the last few years Italy has met a number of its domestic objectives and international commitments: emissions, separate waste collection, nature protection, agri-environmental progress.

Nonetheless, further efforts are needed to decrease waste generation from economic growth. Co-ordination among different administrations is not very well established, particularly at the technical level.

Small and medium-sized enterprises (SMEs) are an important part of the world economy but they are thought to be responsible for around 60% of all carbon dioxide emissions and 70% of all pollution. SMEs often have to face major problems with limited resources, limited knowledge, and limited technical capabilities to deal with their own negative environmental impact.

In Italy the central role of SMEs is particularly relevant. A comparison with the average size of European companies shows the peculiarity of the Italian system such that: there are an average of 3.9 employees in Italian businesses compared to an average of 6 employees per firm overall for the 15 EU member states; industrial enterprises with over 250 employees account for 19.7% of the total in Italy and 34% of the total for the EU.

Despite the application of methodologies as eco-efficiency, cleaner production, extended polluter responsibility, industrial ecology, Eco-label and Environmental Management Systems, there are still a lot of adverse environmental loads emitted by SMEs and research is required to evaluate the environmental burdens emitted into the atmosphere by SMEs.

Furthermore people cannot comply with laws or regulations if they do not understand what is required. The proliferation of laws or multiple amendments to improve them can lead to a loss of simplicity. Inaccessible and incomprehensible regulation particularly affects SMEs compliance rates. Many studies show that SMEs cannot keep up with the volume of regulations and regulatory guidance that is produced by many regulatory agencies.

Multi-tasking is typically intense for the leadership of an SME. This does mean authorities have a particular duty to inform SMEs of their legal duties where these duties are not obvious.

As SMEs can significantly impact the environment, the choice of adequate instruments for their regulation is important. Since SMEs may have limited management capacity, information provision and compliance promotion is an important starting point and can be supported by translation of legislation into management procedures, advising on how to comply, and making clear what exactly constitutes compliance. But also incentives for compliance should be provided.

SMEs exert, in Europe and Italy a strong activity, above all, in the building and agriculture sector.

1.1 Focused sectors and regions

In Italy, with specific reference to Emilia-Romagna Region, the relevance of the innovation and learning process is more and more perceived as a key resource also in those traditional activities like the rural or building, both as far as the competitiveness and sustainability are concerned of these economic sectors. Innovation is conceived not just as a theoretical theme but strongly linked with social processes such as the creation of networks, the strengthening of local identities, and the creation and dissemination of knowledge.

In Emilia-Romagna Region, the Italian region we have chosen to focus on more, primarily for the reasons specified in the following, innovation process has strong policy implications and influences the destination of public investments. Innovation within firms is viewed not just as a scientific and/or technical sequential process driven by experts. In rural innovation above all the following distinctions are emerging:

- Innovation in a rural context is crucial in terms of opportunities linked with traditional activities that thanks to technologies can be carried out in a more productive way.
- Innovation is also about the way governments act and interact with other sector players. Institutional innovation is thus a key issue in rural development. Innovative governance tools can be key drivers worth investing in for the development of rural areas.
- Investment in education and training is more important in rural areas. Rural development can be more effective by investing in the local ability to assimilate knowledge spillovers generated elsewhere than to actually produce that knowledge. In rural areas the diffusion of mature technologies, through an investment in human capital appear often very crucial.

The most important criteria we have followed for focusing on agriculture, building and furniture sectors are:

- These sectors are strongly representative of the traditional economy in Italy with specific evidence for the north-east regions.
- These sectors are significantly concerned by the EC Directives on environment and sustainable activities
- In particular for the furniture sector there is the need to qualify its products in the high segment of the market and to overcome the strong competitiveness coming from the eastern countries
- A very interesting element of these sectors is the permeation of the environmental dimension in investment and development decisions.

In Italy, the traditional sector companies respond to the recent economic crisis primarily with a greater use of: supply of high quality products, attention to the contents of product image, search for competitive costs depending on the specific target customer, optimization of production costs, logistics and distribution. But above all, about 40% of companies is trying to be particularly careful to make investments in products or technologies to achieve high energy savings and / or minimize the environmental impact.

This commitment on the different sides of the green economy is particularly strong in medium-sized eco-friendly enterprises: more than half of these subsets of firms are striving to develop or adopt technologies and organizational models .

There is now a wider awareness on the fact that it is necessary to seek a new balance between development and environment .

Furthermore the theme of clusters of innovation is perceived as a crucial theme regarding the ability of firms to transfer new ideas to the territory thanks to a social advantage.

About the competitive advantage "perceived by companies," the quality of human resources employed (58.5%) and a very efficient organisation (45.0%) appear to be the most important factors of the advantages identified by the firms in Emilia-Romagna, followed by the product customisation (about 27%) innovative services (24%) and adoption of modern technology and plants (about 23%).

The evolution of the regional system in terms of openness and effectiveness of R&D and innovation can also be observed through and the data on the percentage of firms acquired patents and licenses. Emilia-Romagna is well above national average (approximately 10.8% versus 6.6% in Italy), with patents and licenses acquired in the national context. 70% of which required for sustainable development.

Issues such as energy production with low environmental impact and renewable resources have become urgent and imperative. Production activities and services must be designed with a view to reducing their energy and environmental impact.

The structural changes that are affecting the regional economy of Emilia-Romagna are well represented by the growth, recorded over the last eight years, of exports of Emilia-Romagna (+26.6%).

Against a national average of initiatives to support R&D by 15.9% in the last two years, in Emilia-Romagna support for R&D accounts for 45.3% of total resources. The other regions where efforts to support the R&D is above the national average are: Trentino (32%), Toscana (23.8%) and Veneto (23.4%), Piemonte and Lombardia are only slightly higher than the national average, with values of 17.1 and 17.3%

The goal of internationalization support, compared to a national average of 4.3%, is one of the main aims in Lombardia (18.7%), in Emilia-Romagna (15.8%), Veneto (11 , 1%), Marche (8.4%) and Friuli-Venezia-Giulia, where there is a share of 52.3%.

1.3 BUILDING SECTOR

The construction industry is well known to be a driving sector in most of modern economies, both in terms of produced wealth and general employment.

The improving social, economic and environmental indicators of sustainable development are drawing attention to the construction industry, which is a globally emerging sector, and a highly active industry. The European Commission (2006) stated that 11.8 million operatives are directly employed in the sector and it is Europe's largest industrial employer, accounting for 7% of total employment and 28% of industrial employment in the EU-15. About 910 billion euros was invested in construction in 2003, representing 10% of the gross domestic product (GDP) of the EU-15. By contrast environmentally, this sector is responsible for high-energy consumption, solid waste generation, global greenhouse gas emissions, external and internal pollution, environmental damage and resource depletion.

More than 60% of all construction and demolition work in Europe is carried out by SMEs.

Within the building sector, market dynamics actively discouraging more environmentally proactive behaviour. The barriers to entry into the construction industry are almost non-existent, and the vast numbers of SMEs mean that to compete, profit margins are often very low. Owner-managers claimed that the enormous competitive pressure they

experienced invariably meant that cost and speed of build were the number one priorities whilst environmental management remained a peripheral concern.

In Italy, according to the national statistics (ISTAT 2005) the added value of the construction industry was 66 billion euros in the year 2004, representing a 5.2% contribution to the GDP. In the same year, the nominal annual growth of the sector was 5.0%, which corresponds to a 2.7% real growth. Positive are the employment statistics, as well. In fact, employment in the sector, accounting for a 8% share of total national employment, faced a overall growth by 30.4% in the period 1999-2005, while, in the same period, the general employment grew by 10.3% only. It is possible to state that the construction industry provides an overall economic benefit (direct and indirect) of at least 15% of the GDP.

However, if on one hand the construction sector represents a core contribution to the national economy, at the same time, it must be recognised that its environmental impacts are more and more perceived as topical. Depletion of non renewable resources, both with and without energy content, air pollution, land use and land degradation are typical examples.

On the side of negative environmental impacts, as far as Italy is concerned, according to the official figures supplied by the Ministry of Production Activities for the year 2004, use of energy for indoor civil purposes corresponds to 31% of national greenhouse emissions (ENEA 2005).

However, such statistics are limited to the use phase of buildings only, which roughly corresponds to the energetic-environmental burdens ascribable to the day-to-day running of building assets. Moreover, in the past and for too long, researchers, designers, public administrators and constructors paid a great interest on understanding energy use during the operational period of the home (use phase) only. With this approach, some important factors has been neglected for decades: the embodied energy and environmental interventions relevant to construction materials.

For these reasons, a growing number of operators are beginning to use Life Cycle Assessment (LCA) methodology as a tool for quantifying natural resources consumption and pollutant emissions. In fact, to really understand the overall environmental impacts of a building, the whole life cycle must be inventoried (material production, manufacturing, use, end-of-life).

Using such a Life Cycle approach, and making further reference to official statistics (ENEA 2005), if we include manufacturing of construction materials (cement, bricks, glass, ceramics, etc.) and building activities, the overall contribution of the construction sector (direct and embodied) rises up to 37% of the Italian final energy use in the year 2004.

On the side of air pollution, according to an estimation based on the above mentioned statistics for the year 2004, the contribution of construction activities (materials manufacturing and building construction phase) was, for instance, about 10% in terms of greenhouse emissions, the contribution of residential and service sectors (building use phase) being 30,5%, in the same period (ENEA 2005). Therefore, it is possible to estimate an overall contribution of the construction sector to the Italian share of global warming phenomenon by 40,5%.

Construction industry represents therefore both a resource and a threat to sustainability, and both these aspects must be well kept in mind. In any case, when dealing with the environmental sphere, as far as common buildings are concerned, in order to issue significant conclusions on subjects such as pollution and resource stocks depletion, the analysis must be carried out by considering all life cycle phases.

The building sector is one of the main protagonists in environmental problems because of the exploitation of non-renewable resources, the use of soil and the energy consumption during the whole life cycle of a building. The negative effects on the environment include both resource consumption and pollution; in the building sector, the latter factor causes the largest impact. In 2000, it was estimated that 45% of the energy produced in Europe was used in the building sector and 50% of air pollution was caused by this sector. The European *Energy Performance of Buildings Directive 2002/91/EC* (EPBD) has the aim of promoting the reduction of carbon dioxide emissions, according to the limits established in the Kyoto Protocol. In order to reach this target, the EPBD foresees a substantial contribution to the energy performance (EP) of buildings, and requires the Member States to provide regulations to comply. In particular, the following actions are considered: the adoption and the application of a methodology to calculate the energy performance of buildings (i.e. primary energy use for heating, air-conditioning, ventilation, hot water supply and lighting); the adoption of necessary measures to ensure that minimum energy performance requirements for buildings are set; the adoption of an energy performance certificate that includes reference values and recommendations for the improvement of the energy performance; the adoption of measures to establish a regular inspection of boilers and air-conditioning systems.

Italy transposed the EPBD through *Legislative Decree 2005/08/19 no. 192*: the latter contains integrations and modifications of the former. As regards the minimum energy performance requirements, *Legislative Decree 311/2006* provides a gradual implementation according to the type of building work. The same is provided for the application of the energy certification, which is scheduled according to the year of selling and to the building size. Italian regulations also introduce an energy qualification, which is preliminary to the energy certification and which reports some information about the building (typology, construction, etc.) and the value of the calculated energy performance indicator. This qualification also gives useful information on the solutions adopted to improve energy efficiency, comparing it with the minimum energy performance requirements fixed by law.

As regards the EP calculation methodology, Italian legislation specifies the elements that have to be considered and requires that the calculation methods must guarantee results that conform to the best technical rules, i.e. those defined by the standardisation bodies, such as the *European Committee for Standardization* (CEN).

Quantitative data on green building products in Italy do not yet exist. However the trend towards green building in Italy is certainly positive and more and more jurisdictions are including green building standards in their building regulations.

The debate around green building in Italy only started in the early 1990s, well after the concept had gained a foothold in other European countries, especially in Northern Europe. As a consequence, the building sector in Italy lags behind that of other countries, in the number of green building structures actually erected and in the availability of green building materials.

Looking at the whole of Italy, a recent study conducted on 250 cities and towns showed that 55% of the communities surveyed has already adopted building regulations aimed at increasing the construction of houses that are “green” and have low energy consumption and low environmental impact thanks to the use of certified environmentally friendly materials. A further 10% of cities and towns plans on doing the same and only 35% have not done anything with regard to sustainable building or has no plans for it in the future. In order to achieve the above mentioned objectives, different measures have been launched: an interesting challenge is posed by how to modify Italy’s existing buildings into green

structures. Green building is better applied to new construction, but many Italians live in apartment buildings erected in the 1960s and 1970s when, for example, correct insulation was certainly not a main concern of the builders.

Again, many different types of products can fall under “green building”, from construction material to furniture. Generally, the origin of most green materials and products used in Italy is domestic (Italian), although certain raw materials, such as wood, are mostly imported. Certain complex technical installations, such as photovoltaic panels and heat pumps, are also imported in sizeable quantities.

Finally good suggestions comes from the “Call CIP Eco-innovation Pilot and market replication projects. Overview on the selected projects 2008”: the proposals well covered all priority areas mentioned in the Call 2008: Material Recycling, Green Business and Smart Purchasing, Building and Construction and Food and Drink. The Call 2008 notably succeeded in covering the priority given on small and medium-sized enterprises. In total, 74% of all participants are SMEs.. The sectors with the largest proportion of SMEs is Green Business and Buildings (86% and 81% respectively), the least proportion of SMEs among the other participants is in the sector Food and Drink (68 %). This is very satisfying, especially as the Call did not exclude other organisations or large enterprises but mentioned SMEs as the major. Italy participated with 27 approved projects.

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1.4 AGRICULTURE SECTOR

The data about Italy/pollution/SMEs/agriculture are not always up to date and complete. Agriculture’s contribution to specific environmental impacts is sometimes difficult to isolate,

especially for areas such as soil and water quality, where the impact of other economic activities is important (e.g. forestry) or the “natural” state of the environment itself contributes to pollutant loadings.

Moreover in Italy monitoring and evaluation of agri-environmental trends is being improved but many gaps remain. Only a few Italian regions have established a monitoring strategy to track agri-environmental impacts and evaluate agri-environmental programmes. National and sub-national monitoring systems are poorly developed across a number of key agri-environmental concerns, including agriculture’s impact on soil and water quality, water use, biodiversity and landscape.

With farmers managing almost half of the EU's land area, the agricultural sector is a major source of pressure on Europe's environment. Over the past five decades, the European Union's Common Agricultural Policy (CAP) — accounting for around half of the EU budget — has encouraged the sector to become more and more intensive.

As a result, the agricultural sector is responsible for a large share of the pollution of surface waters and seas by nutrients, for the loss of biodiversity, and for pesticide residues in groundwater. Reforms and measures taken by the sector itself, have brought about some improvements, but more is needed to balance agricultural production, rural development, and the environment.

Even where improvements have been made, they are usually lower than in other sectors , for example, although agriculture now emits 10% less acidifying substances, other sectors have reduced emissions by up to 50%.

In spite of that all, great expectations are focusing on agricultural activities able, on the contrary, to reduce global pollution and environmental decline.. In recent decades there has been a shift from policies geared to increasing productivity of crops and the creation of markets, to policies re-oriented on the respect for the land and on the development of more sustainable agricultural practices.

This is particularly true in Italy where, in a context of substantial environmental "sufferings" (the biggest impacts are still strongly related to agriculture using nitrogen compounds and to the erosion of surface soils) the strongest development of organic farming in Europe has been witnessed.

Expenditure on agri-environmental programmes has risen substantially, accounting for 10% of total agricultural payments in 2002, of which over 80% were EU co-financed.

Around 90% of these payments were provided to farmers in central and northern Italy, and 10% in the South. About 90% of payments were provided for conversion to organic farming; adoption of integrated farming; and grassland management. Other measures aim to reduce erosion; limit water use; and enhance biodiversity conservation,.

Agriculture is also affected by EU-wide environmental policies.. The *Nitrates Directive* requires member states to designate as *Nitrate Vulnerable Zones* all areas of land where the corresponding surface water or groundwater contain more than 50mg nitrates per litre or where the corresponding freshwater bodies, estuaries, coastal and marine waters are found to be or risk being eutrophic. Member states must establish and implement mandatory measures for farmers located in these zones. The Directive on *Integrated Pollution Prevention and Control* requires member states to impose their own emission limits and other appropriate conditions in environmental permits, which are mandatory for potentially polluting plants of a given scale, including large-scale intensive poultry and pig operations. With regard to water quality, the *Drinking Water Directive* specifies limits for levels of nitrates, active ingredients of pesticides and residues from plant protection products, which member states are required to meet. The *Groundwater Directive* requires member states to take steps to prevent (limit) the introduction into groundwater of substances presenting a high risk of toxicity (low risk of toxicity, but potential harmful

effect). Concerning biodiversity and soils, the *Birds and Habitat Directives* requires member states to take steps to protect all rare, threatened or vulnerable plant and animal species of community interest, and all wild bird species. In the case of soil the EU has decided to adopt a *Thematic Strategy on Soil Protection* as part of its aim of protection and preservation of soils, including agricultural soils, which was adopted in 2006.

EU agriculture is also affected by a number of international environmental agreements. In most cases member countries sign and ratify these agreements and implement the necessary actions to comply with the agreements, unlike trade agreements, such as under the *World Trade Organisation*. Some international environmental agreements that affect agriculture are regional, other are global as the *United Nations Convention to Combat Desertification*; and the *Kyoto Protocol* to the United Nations Framework Convention on Climate Change.

European agriculture shows great diversities among the Member States. With regard to Italy a confirmation of this is the average size of firms.. Italy, with its 7.4 hectares of UAA/farm has a mesh among the smallest in the EU-27 (averaging at 11.9 hectares) and very small compared to major competitor countries, although showing a slight increase between 2000 and 2005. A very high percentage of companies (85.5%) has a farm size below 10 hectares, while, for comparison, Germany and France shares are 35.2% and 37%. On the contrary, only 2.2% of the reported companies has an average farm extension above 50 hectares. A bad consequence of this distribution is reflected in the degree of development and innovation of the whole system.

Concerning the composition of the production system, the food sector is very dispersed, so the so called "industrial districts" aggregations, typical of our national reality and a way for introduction of eco-sustainable techniques, are not so common. However there are indeed cases - driven by traditions or by the need to protect typical cultivar, breeding species or special food processing - in which the agro-food sector shapes itself as a "brand" industrial district. Typical examples are wine production, poultry production (Romagna), preservation of vegetables, production of cheese or mozzarella.

With over 75% of mountainous land and a high population density, pressure on land is intense.

Agriculture as the major land using activity accounted for 52% of land use in 2002-04, although the area farmed declined by nearly 14% between 1990-92 and 2002-04, the highest reduction among OECD countries. Farming contributes just over 2% of GDP, but nearly 5% of employment, although with marked regional differences, contributions rising in the South to over 4% of GDP and nearly 10% of employment

Horticultural crops; olive groves; and grapes account for nearly 45% of total agricultural value, compared to 11% for cereals and almost 35% for livestock.

While the total volume of agricultural production declined by 2% over the period 1990-92 to 2002-04, the trend in input use was more varied: pesticides rose by 8%; inorganic nitrogen fertilisers by 5%; and farm energy by 10%; although inorganic phosphorus fertiliser use declined by -26%. With the area farmed also declining by nearly 14% over this period, this suggests that the intensity of agricultural production has been increasing: both in terms of inputs used per unit volume of output; and per hectare.

Companies in operation, fell to 2.593 million, with a loss of 430mila units (-12.2%). The decrease of agricultural land surface is important in relation to environmental considerations. Beyond the not negligible amount of land reserved for new uses (housing, infrastructure, etc.), idling disposable areas can have important environmental impacts. The abandonment, in fact, can favour processes of revegetation, but can also lead,

through loss of organic matter, to spontaneous soil degradation and finally to erosion and desertification.

Soil degradation is a major and widespread environmental problem, but there are no data to assess trends. About 70% of all land is subject to risk of accelerated soil erosion (over 5 t/ha/year) and about 12% is prone to high risk (over 10 t/ha/year).

Despite the loss of agricultural area, consumption of fertilizers has increased significantly in Italy. The use of fertilizers, which - along with pesticides - contributes in a decisive manner to the development of modern agriculture, is one of the major environmental pressures generated by agricultural activities. Their accumulation in soils alters their chemical and physical properties and is a threat to water quality. In particular, nitrogen and phosphate fertilizers may be responsible for the contamination of surface water and groundwater and the eutrophication phenomena detectable in the lagoons and in coastal marine waters. In 2004 about 5.4 million tons of fertilizers were distributed in Italy for agriculture. The 54.8% of the fertilizer was in Northern Italy, 18.4% in the Center and the remaining 26.8% in the South.

These values (compared to the area for agricultural use) show that in 2004, for every hectare of land treated, an average of 248.7 kg of nutrients (172.3 when considering only chemical fertilizers) were used with a slight increase (0.6%) compared to the previous year. However there is a huge growth (+47.7%) when compared to year 2000 figures.

The quantity of fertilizers distributed in Italy in 2007 is 5.443.730 tons. Veneto, Lombardy and Emilia-Romagna are the regions where the larger fraction, 45% of the total, is distributed.

Rising levels of pesticides in groundwater could reflect delayed response times between application and detection. In a survey in Northern Italy in 1999-2000 the herbicide atrazine was present in all the groundwater sites surveyed, and in 30% of the sites was above the maximum admissible concentration, despite the ban on the sale of the herbicide since 1986. Around 2% of fruit and vegetable samples in 2003 had residual pesticides above national standards. There are signs, however, that the pressure on water pollution from pesticides could be easing with the adoption of specifically targeted pesticides and the expansion in organic production. Adoption of low dosage pesticides may reduce human and environmental risks.

Compared to 1997 the distribution of plant protection products has a contraction of 11%. In detail, in 2006 they were put on the market about 150 thousand tons.

In Italy the growth in the consumption of fertilizers are in contrast with the rise of companies that abandoned the methods of modern production in favour of more sustainable practices involving a less intensive use of soils and excluding the use of synthetic chemicals. In fact, agriculture in Italy shows two faces: the first geared to maximum exploitation with unavoidable depletion of the territory, the second looking at more sustainable agricultural practices.

Organic farming is based on production methods that exclude the use of synthetic fertilisers, plant protection products, herbicides and genetically modified organisms, thus generating positive effects on biodiversity.

Since 1990, the increase in organically farmed land has been encouraged by several European Community regulations. Between 1993 and 2000, there was continuous growth in organic farming, in terms of both utilized area and number of farms. The efficiency and productivity of organic soils have however obvious limitations, which force this type of agriculture to a secondary role. In Italy, the land already used and in the way of conversion to organic agriculture amounted to 1.150.253 hectares in 2007 (+0.18% compared to 2006, 70.674 hectares in 1994) and affecting 9% of national UAA.

Italy has a dominant position in Europe both in the number of organic farms and in the

amount of used surface. There is also a strong development in the area of organic livestock.

The activities related to agriculture plays a controversial role on the natural heritage. On the one hand, the agricultural areas suffer from the negative impact of other activities and other productive areas. On the other hand, are themselves causes of pollution, loss of stability of soils, loss of biodiversity, etc.

The massive human land use and the size of the production system lead to strong pressure on national water resources. In detail, both the diffuse pollution of fertilizer and plant protection, and that of industrial waste, affecting the quality of water resources. The system of rationalizing the use of water resources is hampered by the limited use of the practice of reuse of treated wastewater (DM 185/2003). Indeed, in Italy, the experiences in the field of reuse of waste water are more limited than in other countries, although there is a positive trend that sees increase in recent years the realization of projects.

On the positive side, Italy has become the European leader for the number of licenses for products with eco-label brand (31% of European total) .

One of the greatest environmental challenges for the international community is the reduction of greenhouse gases (GHGs). Indeed, the agreements reached in the Kyoto Protocol call for a reduction in GHGs by 6.5% compared to 1990 levels, to be achieved between 2008 and 2012.

Methane(NH₄) is one of the gases responsible for the greenhouse effect and climate change, resulting in a rise in the temperature of the earth's surface and the lower atmosphere, and causing disturbing repercussions for animal and plant life. Over 30% of methane emissions come from agriculture, especially livestock farming (mainly the raising of ruminants) and rice cultivation.

In Italy from 1994 to 2000, methane emissions dropped by 1.6%, from 720,000 to nearly 708,000 tonnes. This reduction occurred almost entirely in the North-East of Italy.

Agricultural practices cause nitrogen loss by volatilisation, in the form of ammonia (NH₃), which increases acid rainfall and eutrophication of soil and water systems. Around 90% of ammonia emissions in Europe come from agriculture. The main sources are: a) livestock effluents (based on breakdown, management and use); b) nitrogenous mineral fertilisers (according to fertiliser quality, pedo-climatic characteristics and the vegetative phase of the plant when fertiliser is applied).

Between 2002 and 2004, there was a gradual decrease in atmospheric ammonia emissions both nationally and regionally.

The accumulation of CO₂ in the atmosphere, may cause important changes in climate balance.

Reducing CO₂ emissions is one of the obligations established by the United Nations Framework Convention on Climate Change and the Kyoto Protocol.

From 1994 to 1998, CO₂ emissions increased on average by 2.6%. The highest emissions were in the North, especially Lombardy, Emilia Romagna (with over 1,000,000 tonnes per year) and Veneto (964,000 tonnes).

The amount of energy consumed depends not only on external factors like atmospheric conditions, but also on technologies used, the introduction of new agricultural practices, and policies that regulate input use. Emissions from tractor fuel combustion, are the main source of CO₂.

The rise in fuel combustion is largely explained by the 14% growth in the number of farm machines (tractors, combine harvesters) over the period 1990-92 to 2001-03, but also the requirement for field spreading of manure and the expansion in organic production

requiring more mechanical weeding.

By rationalising direct energy consumption, benefits may be gained both economically (greater efficiency) and environmentally, through better conservation of non-renewable resources, lower emissions of gases into the atmosphere, reduced risk to human health and less water pollution.

Nitrogen is one of the indispensable inputs in both plant and animal production, essential for growth and production. Nitrogen requirements vary according to type of crop and/or livestock, and their productive performance. For plant production, supplies of nitrogen can be both inorganic and organic (manure and refluents); for animals, it comes from plants and sub-products used as feed. In terms of nutritive content, the output of plant production is the input for animal production, and vice versa.

An excess of nitrogen may compromise the quality of surface and groundwater (through percolation and leaching) and air (through ammonia emissions that increase acid rainfall), as well affecting the equilibrium of aquatic ecosystems.

When available nitrogen exceeds the amount needed, the surplus is dispersed into the environment by leaching and volatilisation processes. Leaching of nitrogen causes water pollution, and together with large amounts of phosphorus causes water eutrophication. In 2000, leached nitrogen (11.40 kg/ha) was approximately one fourth of that in excess.

Mineral fertilisers useful for plant nutrition may cause soil degradation, pollution of water resources and problems of instability in aquatic ecosystems (eutrophication and loss of biodiversity). The use of mineral fertilisers is regulated by Legislative Decree 152/99, which acknowledges the European Directive 91/676/EEC, and Law 748/84 and subsequent changes.

The percentage of farms that adopt a fertilising plan is rising rapidly. Since 1998, it has increased by more than 40%, from 20% to 30% of farms.

The key agri-environmental problems facing Italy are soil erosion and water pollution. Other challenges include: improving energy use and water use efficiency; biodiversity and landscape conservation.

Adverse environmental impacts from agriculture persist. Some positive trends are emerging, but water pollution from agriculture remains a key issue as it generates the major share of nutrient pollution. There is some evidence to suggest that the risk of soil erosion persists across a major part of cultivated land.

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1.5 Wood furniture sector

The wood furniture sector counts in 2008 about 75.300 companies and about 408.500 employees which represent „Made in Italy“ everywhere.

Thanks of continuous innovation, quality of products and design, exports have increased to more than 10% in the last 5 years (13.438 millions of euro in 2008)¹. Last year sales reached 37.533 millions of euro.

In 2006 the wood furniture sector covered about 9% of the world market and about 12% of UE25: more than the double of average quotation of the Italian industry.

The sector in great majority by SMEs, organized in industrial sectors and by 300 more structured companies of medium size (it is the second manufacturing sector in Italy for numbers of companies and employees).

Veneto and Lombardia regions represent about 40% of the sector in terms of employees and about 50% in terms of exports. Friuli Venezia Giulia region has realized 16% of the total exports and has the 8% of employees. Other very important districts are located in Tuscany, Emilia Romagna and Marche regions.

1.6 Economic crisis and environment with specific reference to building sector

The impact of the crisis on greenhouse gas emissions will depend primarily on investment in different types of energy technologies. In the short term, the lower economic growth will lead to a decrease in emissions. The impact of the crisis in the long term is announced be negative, due mainly to a lag in keep pace with the latest low-carbon technologies. The crisis may delay investment in these technologies and determine the risk of investment in

¹ Cosmit/Federlegno Arredo

technologies that are incompatible with the objectives of mitigation in the long term, but more remunerative in the short term. These circumstances may ultimately settle medium to long-term emissions higher than those provided for in pre-crisis scenarios, particularly after the economic downturn energy consumption were to resume at a rapid pace, erasing the benefits of short-term.

The European Community, according to forecasts by the European Commission and Member States could achieve the goals set by the Kyoto Protocol (-8%) provided that the Member States to implement as soon as the policies and measures already planned. A crucial role in achieving the Kyoto targets is played by the energy sector, where emissions show an increase of almost 3% in the period 1990-2005.

On the way the pursuit of the Kyoto targets, some EU countries (15) are more virtuous than others. Others, such as Italy will maintain its commitments just as long to put in place policies and measures and to use the flexibility mechanisms of Kyoto (CDM and JI).

The projections on energy consumption and associated emissions of CO₂ confirm the centrality of accelerating technological innovation, without which it is actually impossible to achieve concrete results on the containment of emissions. The data also confirm that the largest and most feasible of these results depends on the efficiency. It should be noted that energy efficiency can be achieved with technologies available today.

According to studies conducted by ENEA, gains in energy efficiency can help improve the environmental impact of human activities without reducing living standards, and also provide a strong stimulus of technological progress for the country, by an impulse to the development of new technologies. The energy scenarios developed by ENEA for Italy show that especially in the short to medium term (2020) the possibility of substantial reductions in consumption of energy, and even more CO₂ emissions, is linked primarily to a massive use of more efficient technologies. Extensive use of more efficient technologies, obviously requires investment in the dissemination and development of innovative technologies: almost 50% of the reduction will be determined by the containment of energy consumption in end-use sectors, due primarily to acceleration in the replacement of technologies.

Among the various potential options is likely to be greater in the construction sector (more than 15 Mt of CO₂), the effective realization of this potential, however, is linked to the difficult correlation of many different decision makers, whose resistance to technological change are more difficult to overcome than those in a limited number of few large individual "emitters"(as in the case of large firms).

The means of accelerating technological change considered by ENEA (September 2007) have as common denominator the aim of promoting one or more technologies, taking into account their technical and economic feasibility.

For the residential sector, measures to improve energy efficiency proposals refer to two categories of intervention with respect to buildings and appliances. In the first case, the measures respond to the expectations brought by the energy certification of buildings (insulation of walls, heating and cooling efficiency). (Directive 2001/91/EC).

In the second case, the measures (household appliances and more efficient light sources) are based in the existing legislative framework and national labeling energy, regulated by Directive 92/75/EEC, which establishes the criteria for the indication of energy consumption, and the subsequent Directive 2005/32/EC (Energy Using Products - EUP).

The transition from 2016 to 2020 includes, in relation to the buildings, the continuation of the measures envisaged to improve the insulation of the walls, plus a further increase in the average efficiency of heating, mainly due the prevalence of central, to the detriment of the self.

According to the scenarios dell'ENEA 2020 interventions for improving energy efficiency in energy end-use can make a contribution to the mitigation of greenhouse gases by over 45%, higher than that predicted with the use of renewable energy technologies (22.4%). Other measures of mitigation of greenhouse gases affect the efficiency yet, in this case of electricity generating systems, which can lead to a reduction for more than 10%, and energy saving (effect of a more rational use of energy) resulting in a reduction in emissions of 11.6%.

ENEA has proposed, supported by ANCE, ABI, and Unioncamere Consip, an energy regeneration of public buildings, as well as producing positive effects in terms of energy efficiency, might be a stimulus to the economy of the country.

The analysis considers a sample made up of schools and offices, for about 15,000 units selected from those with the greatest potential for savings and those that require structural interventions. In relation to this sample were identified interventions that affect the building envelope (insulation walls and replacing fixtures, installation of shielding), plants producing heat and air conditioning (with replacement plants last generation), the use of sources renewable (via devices both active and passive) devices for efficient management of air conditioning and adjustable lighting in accordance with demand.

The total cost of these measures was estimated at 8.2 billion euros. From the point of view of energy efficiency, the interventions are expected to result in a reduction of 18% in terms of heat and 23% in terms of power (a total of 20% in terms of primary energy) of energy needs of all buildings surveyed. The total cost of the annual energy bill for the services of air conditioning and lighting is reduced, thus, for the total of buildings, from 1.79 billion to 1.37 billion €, resulting in a saving of €419 million per year that are 23% of the current bill.

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Fig. 1 - Geographical distribution of SMEs per macro-area

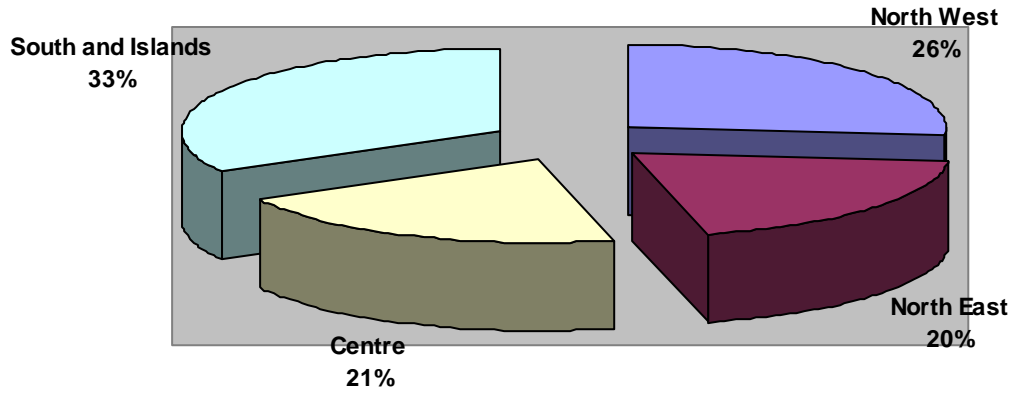
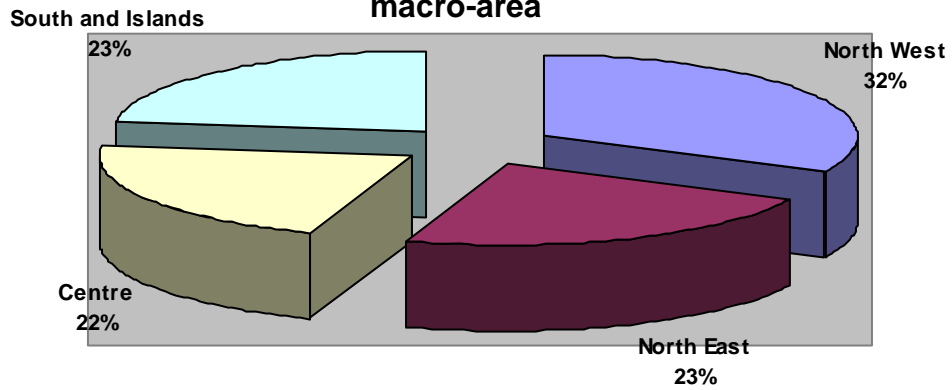


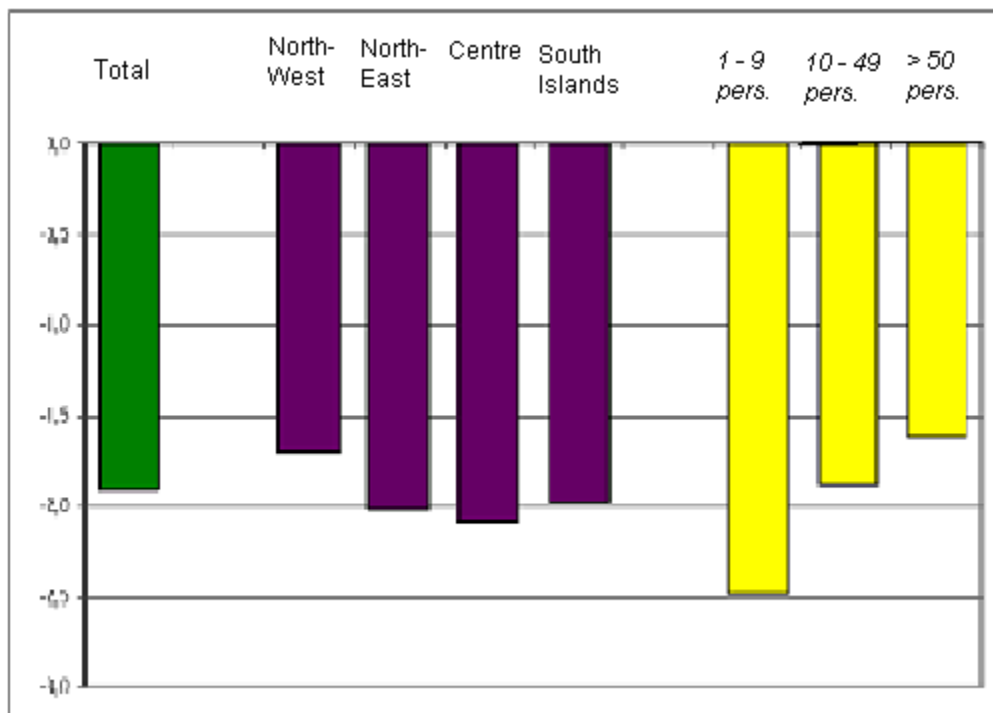
Fig. 2 - Geographical distribution of SMEs' added value per macro-area



Tab. 1

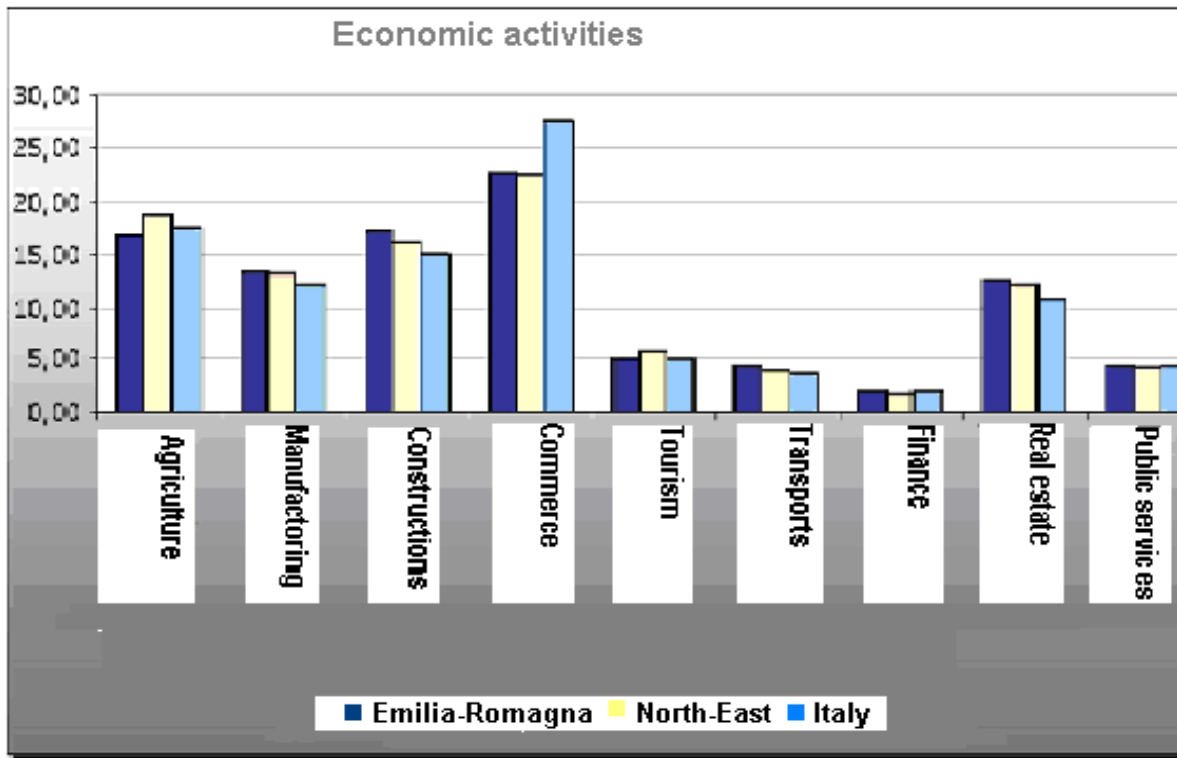
	Advantages against Italian competition			Advantages against international competition		
	Small (20-49 pers.)	Medium (50-499 pers.)	Total	Small (20-49 pers.)	Medium (50-499 pers.)	Total
Quality/design/reliability of production	52.0	46.2	51.1	44.4	44.0	44.3
Corporate image/brand	15.5	18.0	15.9	11.7	16.8	12.6
Flexibility/customization of products	10.4	10.4	10.4	7.1	9.0	7.3
Innovativeness and design ability	6.4	11.8	7.2	4.7	10.7	5.6
Pre/ post sale assistance	6.1	5.8	6.1	3.7	4.9	3.8
Quality of HR/ corporate expertise	3.1	3.6	3.2	1.1	2.5	1.3
Distribution channels/ sale network	2.7	1.9	2.6	2.3	1.6	2.1
Organisational model	1.8	1.4	1.7	1.6	1.2	1.6
Other	0.3	0.1	0.2	0.3	0.1	0.2
No advantages/ no competition perceived	1.5	0.9	1.4	23.4	9.2	21.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Fig. 3



Source: Unioncamere - Labour Ministry, Excelsior Information System

Fig. 4



2. SME needs

2.1 Technological/informational aspects

Italian Companies have a little propensity for technology innovation and work frequently in sectors having a low added value; today these sectors are progressively vulnerable to external competitiveness as well as to prices variations existing on international markets. (Rifici, 2008).

Market prices of products and goods generally reflect direct economic costs related to their production, and do not reflect indirect costs coming from their environmental impacts. This feature implies that a reduction in indirect prices (coming from the adoption of environmental technologies) does not affect the product final price; therefore this reduction does not create any immediate market benefit (both for producers and consumers), but it creates only a further cost for the producer. This imbalance, that disadvantages environmentally friendly technologies, is increased by government interventions: for example, benefits in favour of fossil fuels production and consumption do not increase the use of renewable energy (Brunori C., Morabito R., 2009). Moreover, the initial costs of innovative technologies discourage the investors, even if they lead to an economic advantage; this demotivation clearly increases when the transition towards environmental technologies requires new infrastructures (for example distribution grid for hydrogen vehicle). The lack of a sufficient venture capital (mainly for “start up” companies, i.e. new companies), generally prevents the enterprises from applying environmental technologies. Another economic barrier is the idea that the investments on environmentally friendly technologies could be dangerous, because these technologies often depend on the modifications of political priorities and they are not accounted as part of company’s business. Then, it is necessary to encourage the investments on the venture capital.

2.1.1 - Need for (increased) training/knowledge building of employees

One of the main barriers is the lack of internal knowledge. An effective solution to this problem could be a custom-tailored consulting in order to supply companies with the necessary knowledge which could allow them to manage directly environmental problems. A gradual approach could be used: in this way, the information could be taken in by the company’s staff as a first step, and later applied within production process.

The problems that should arise if companies should decide to insert environmentally friendly strategies on both process and product levels, are connected not only to the costs, but also to “performance” and “user friendliness”. “Performance” refers to technology efficiency, effectiveness, flexibility and its qualitative performance. “User friendliness” refers to the technology ease of introduction and use. Many technologies indeed are often rejected because they change the production routine, the work procedures or because they require new skills; the lack of skilled staff with an adequate training cannot face the implementation, the use as well as the maintenance of clean technologies.

SMEs need a well defined framework, with, as far as possible, pre-elaborated solutions to be adapted to their specific conditions (technological and training software platforms; tailored software solutions, etc.). This could be obtained with a gradual approach (step-by-step process, simplified tools, training support, etc.). supported through a strong role for associations and consultants already in contact with SMEs;

The insufficient information about the benefits that environmentally friendly technologies can bring within the whole life cycle affect all actors involved in both production and purchase of a product or service. The lack of available information or the availability of too complicated knowledge is a key factor for the adoption of an environmentally friendly technology or for the purchase of a specific product.

As every technologies, even clean technologies require research and development efforts in order to be really competitive; although, the support given to research sector is often insufficient or absent. Moreover, research on clean technologies is not often carried out by means of effective collaborations among universities, research centres and industries. This problem can lead to the development of inappropriate technologies because of lack of market knowledge. Finally, there are poor connections between funding programmes on behalf of research and innovation and demonstration/dissemination programmes, so it is very difficult to develop clean technologies and put them on the market (Brunori C., Morabito R., 2009).

It is often required to apply to external consultants to solve environmental problems but this will involve a poor internalization of both environmental knowledge and awareness. In this way, SMEs will always depend on external organizations which are able to manage such problems.

2.2 Need for more technological innovation within own investment activity

Some needs regarding technologies are transversal to all production sectors. This is due to collective requirements, e.g. the reduction of greenhouse gases emissions. Generally speaking, SMEs require technologies which are easy suitable to their production processes and that enable a direct management of the production process. Furthermore, SMEs strongly require technologies allowing an improvement of the products environmental performance. Regarding this improvement, it will be necessary to identify and then replace the obsolete equipment for production and distribution of energy. This goal can be achieved by means of economic incentives. As a rule, the EUP directive has introduced a remarkable pressure regarding methodologies to assess and improve the energetic performances of materials. SMEs needs: new technologies to improve the energetic performances of materials. Support SMEs in Eup compliance (simplified tools, methodologies and guidelines represent a huge need). Regarding this topic, methods for technology assessment such as valid ecoefficiency indicators are also required.

A further trouble slowing down R&S in SMEs happens in the field of intellectual property rights, due to the non introduction of an EU patent. This because favourable conditions for both innovation development and dissemination do not exist in UE yet. The patent system in Europe is expensive, broken up and, if compared to the one of USA and Japan, it discourages innovation. The difference in the patent costs, if compared to the one of these countries, is remarkable and is not decreasing at all. In view of the above, a prompt review of the patent market is required.

Moreover, different kinds of competition among companies could be considered. For example, companies could inform quickly their professional associations about any incidents that could occur within the factory. In this way the use of new technologies that could decrease the chance of these incidents could be promoted, as professional associations represent a communication tool for companies associated to them.

Although, needs regarding clean technologies are very different, depending on both production chain and the difference in products. For this reason, it is more useful to identify different manufacturing sectors and their needs. The short focus below regards the three sectors we analyzed previously (agrofood, wood furniture and buildings).

Branch	Technological needs
Wood Furniture	<ul style="list-style-type: none"> Technologies for reducing VOC emissions, especially formaldehyde; Solutions for the management of end of life of products and wood wastes; Availability of adhesives/glues with lower emissions of VOC; Tecnologie che consentano di integrare ed ottimizzare le funzioni di un oggetto/materiale
Agriculture	<ul style="list-style-type: none"> Technologies for nitrogen abatement in zootechnical wastewaters (liquid and solid manure) also on a multi firms scale and on consortium scale, by transferring N to other farms located in other regions; Logistic improvement; Technologies for using poultry manure and other organic wastes for energy production without causing high environmental impacts from emissions; Technologies for packaging and conservation: packaging reduction and optimization (also from a “sensorial” and “easy to use” point of view), product shelf life improvement, technologies for conservation processes. Higher diffusion of biodegradable packaging, nanotechnologies applications, intelligent packaging (time-temperature indicators, ..), active packaging (bioactive films, scavenger polymers).
Buildings	<ul style="list-style-type: none"> Methodologies to assess and improve the energy content of building materials (LCA and Life Cycle Costing – LCC);

- Tecnologie che consentano di integrare ed ottimizzare le funzioni di un oggetto/materiale.

2.3 Need for improved networking

The transnational networks for fast diffusion of innovation could be “horizontal” (districts, associations, etc.) and “vertical” (supply chain). These two networks are based on very different principles: a network formed by companies belonging to a certain productive chain does not comprise internal competitors, while an horizontal network does. For this reason it is more difficult to create the latter network: in fact, if entrepreneurs want to stay on the market, they must give up a part of their autonomy . A network creation means the setting up of a larger company. In this way, the enterprise could keep its dynamism on the one hand but could open itself to wider prospects on the other hand; moreover, the entrepreneur will have to follow specific rules. Although, the distrust is still prevailing.

In such a way, the network is not only a new customer for the entrepreneur, but also the main customer. The 1 million euros project arriving at the network and accounting for 100.000 euros on the company will have to be the main goal for the entrepreneur: if the company does not match up with it, he will loose only 100.000 euros, but create a damage for the whole project and the network. (Cicchelli, 2009).

The reply of the companies belonging to a certain district to this new competitive context is defensive: enterprises indeed aim only at decreasing work costs by means of productive outsourcing. In this way, the region relevance is decreasing. On the opposite, there are more positive development strategies, which do not give up the region, but start up from here. These strategies increase the value of social-economic context and foster both economy and local advantage of districts, boosting an increasing quality of products as well as the opening of new markets (Ministero dell'ambiente - Direzione generale Salvaguardia Ambientale, 2008).

Italian productive chain is formed by industrial districts having whole product chain. As these chains comprise hundreds of companies working thanks to vertical or horizontal associations, both the life cycle approach and the involvement of whole company systems on a sector/local level could be easier. In this way there will be innovative effects on the whole chain. This approach could improve the connections between companies and regions in order to develop research and ecoinnovation, using district peculiarities and replying to SMEs' skills on product innovation.

Enterprise networks are coordination patterns among companies, mainly addressed to those SMEs which want to increase their strength on the market without merging with other companies. A standard regulation has just been settled in Italy within Industria 2015 legislation. **Incentives decree and Development decree** have been thus proclaimed. Incentive decree has been turned into law n°33, 9 april 2009, and has introduced the network agreement issue in Italy. SMEs which decide to take part in a network, can create

technological and business partnerships with other companies belonging to the same productive chain. In this way they will achieve a stronger contractual force, administrative and funding facilitations for research and development. Development decree, i.e. law n°99, 23 July 2009 has introduced a set of modifications related to the company networks' operations. Some features regarding "network agreement" have been specified. It must highlight both strategic goals and common activities, which have to improve competitive and innovative abilities on the market. These decrees allow companies to make petitions and start administrative proceedings by means of a single collective proceeding, and make collective agreement with banks.

Moreover, Decree n°297/99 aims at promoting research funding from companies, with a focus on SMEs and technological districts: in this way, the connections between universities and research centres will be improved. The creation of networks for innovation has been promoted by a tax benefit, i.e. law n°296/2006 which has introduced the tax credit as a tool that can promote investments on pre-competitive research and development. If research and development costs are referred to agreement between universities and public research centres, this tax credit increases tax relief up to 40% of the total expenditure. In spite of these legislation improvements, this synergy and the support of public administration in development regional programs are still too weak.

- A testimonianza dell'importanza e del carattere innovativo di questa materia, si segnala la nascita presso Confindustria di una Agenzia specialmente dedicata e denominata **Reteimpresa**, con l'obiettivo di spingere le imprese verso questo processo di aggregazione e di accrescere facilitazioni e agevolazioni per le aziende che scelgono di adottare la strategia della rete. Inoltre si riporta che la REGIONE EMILIA ROMAGNA ha recentemente promosso un bando per sostenere contratti di rete tra imprese finalizzati alla collaborazione produttiva, progettazione, logistica e servizi connessi. (Bando Sviluppo delle Imprese – Delibera Reg. n. 141 del 01/02/10 Misura 2.1 azione B) "Progetti per reti di imprese"). I contributi sono rivolti al consolidamento e allo sviluppo di reti. Le spese ammissibili riguardano anche i costi per l'acquisto di hardware e software di nuova fabbricazione, costi per acquisizione di brevetti e diritti di licenza, costi per spese impiantistiche e opere civili, costi per consulenze amministrative riguardanti la compilazione e redazione della domanda di contributo e dei relativi allegati nonché della documentazione di rendicontazione, costi per la presentazione di una fideiussione bancaria, spese notarili e di registrazione, consulenze esterne specialistiche per la realizzazione dell'intervento, costi del personale dipendente delle p.m.i. impegnate nel progetto, costi per la formazione del personale dipendente impegnato nel progetto.

Incentives are targeted to consolidation and development of nets. Eligible costs are also for hardware and software purchases , brevetti and licences rights,

Another goal to support networks could be the establishment of a permanent forum, at international level, to promote and consolidate multilateral dialogue at political level, with the involvement of different stakeholders interested in the issues of innovation and technological transfer to SMEs. In this context of particular relevance is the enforcement of relations and cooperation between “north and south”.

We also evidence the need of guidelines for the application of integrated systems for quality, security and environment for companies networks.

2.4 SME's activity within the environmental technologies market

Usually manufacturers wait until there is a clear demand before developing or commercialising a technology, while buyers wait to see the product on the market before committing to purchasing. This is a circular problem, as the investment needed to commercialize innovations is significant and sources of funds for that investment can be difficult to obtain when the market is not well known. This is the so-called 'valley of death' where small innovative companies are no longer eligible for most public start-up support, but investments in products are still considered too risky by most private investors. (COWI Group, 2009).

Alcuni studi incaricati dalla Commissione Europea hanno dimostrato che generalmente le PMI non sono consapevoli delle ripercussioni ambientali delle loro attività. Nella maggior parte dei casi (tra il 75% e il 90%), esse ritengono addirittura che non ve ne siano visibilità,

The corporate are often not conscious that producing wastes and emissions is more expensive than disposing of them. Environmental costs are not evidently defined and systematically recorded and this often conducts to distorted calculations for improvement options. Adding the purchase value of **non-product output**, environmental costs increases the share of environmental costs in relation to other costs. The environmental protection is expensive, but rather to highlight the scope for savings potentials. We can consider that before waste and emissions occur, the materials concerned have been:

- Purchased (materials purchase value)
- Transported, handled and stocked (costs for stock management, handling and transport)
- Processed in various production steps (equipment depreciation, work time, auxiliary and operating materials, costs for finance, etc.)
- Collected as scrap, wastes, etc., sorted, transported, treated, transported, stocked, again transported and finally
- Disposed of (disposal fees).

Corporations, therefore, **pay three times for non-product output (NPO)**:

1. At the time of purchase of the materials;

2. During production;
3. During disposal. (Jasch, 2006)

2.6 Need for increasing own supply capacity

- Concessione di agevolazioni per l'internazionalizzazione delle imprese eco innovative e maggiore integrazione nel territorio degli sportelli per l'internazionalizzazione delle imprese (SPRINT);
- Accordi e costituzione di reti di imprese con aziende appartenenti ad altri paesi;
- Ricorrere a indagini di mercato e sfruttare nicchie/segmenti di mercato non ancora esplorati;
- Convogliare più portatori di interesse verso un prodotto attraverso valori comuni di cui non tengono conto i prodotti tradizionali;
- Campagne di informazione rivolte ai consumatori e sostenute dalle Pubbliche Amministrazioni;
- Iniziative come le giornate "porte aperte" per incrementare la fiducia dei consumatori nei confronti della propria impresa e per favorire la produzioni locali;
- Ottimizzare l'utilizzo delle materie prime per "produrre di più utilizzando meno" grazie all'utilizzo di strumenti che consentano la contabilizzazione degli sprechi;
- SMEs are focused on short time analysis, sono necessari metodi di pagamento non dilazionati nel tempo (sia per le P.A. che per altri stakeholders) per poter reinvestire in modo immediato in tutte le attività dell'impresa e non solo in quelle di base;
- Supportare e integrare nel territorio il trasferimento tecnologico e lo scambio delle migliori tecnologie.

2.7 Need for an increased demand/purchase policy

- Mercato di incentivazione che possa facilitare il ricorso alle fonti rinnovabili e disincentivare le fonti non rinnovabili. Un contributo ad una migliore allocazione delle risorse può essere fornito dalla tassazione dell'uso delle risorse naturali o di determinate attività con impatti negativi sull'ambiente e dalla detassazione di misure volte al miglioramento delle prestazioni ambientali delle aziende o di prodotti ad alto contenuto di innovazione ambientale;

- Occorre procedere all' identificazione e successivamente alla correzione delle carenze di mercato del sistema creditizio verso le PMI. Inoltre è necessario fornire un maggiore impulso ai mercati europei dei capitali di rischio. L'innovazione necessita di investitori pronti ad assumersi rischi e ad andare oltre le aspettative di profitto a breve termine;
- Gli imprenditori devono essere orientati e istruiti sui vantaggi e svantaggi delle varie forme creditizie e sui modi per presentare progetti di investimento a potenziali finanziatori;
- Dovrebbe essere promosso l'utilizzo di validi strumenti di benchmarking;
- More Diffusion of Green procurement practices, especially Green Public Procurement (availability of criteria, procedures, examples). GPP can be an important tool for promotion of green technologies/materials. Tuttavia Le PMI incontrano numerosi ostacoli nella partecipazione agli appalti verdi pubblici, perché non ne sono al corrente oppure perché sono scoraggiate dalle procedure. Inoltre capita che le autorità pubbliche preferiscano assegnare alcuni appalti a grandi imprese di comprovata esperienza piuttosto che a giovani società innovative. Sono quindi necessari intensi sforzi per ridurre gli ostacoli che ancora bloccano le PMI che intendono accedere agli appalti, per esempio alleggerendo i requisiti imposti dalle autorità contraenti nelle procedure di aggiudicazione;
- Policy could solve the problem cost-effectively by helping communicate future market needs to innovators, which could bring together public and private purchasers to indicate future demand.
- Maggiori aiuti alle start-up per cui la difficoltà di rimanere sul mercato è maggiore e l'attitudine agli investimenti è quindi minore. Specifici bandi di finanziamento per le start-up potrebbero incentivare il mercato dell'ecoinnovazione, formando fin da subito i giovani imprenditori e creando una catena di valore nei primi stadi di vita di una azienda;
- La disinformazione è cosa altrettanto dannosa anche quando interessa i consumatori, può portare a mancanza di accettazione delle tecnologie ambientali come metodo di produzione preferenziale nella realizzazione del prodotto finale. Occorre perciò rafforzare l'azione sul lato del consumatore. Maggiore coinvolgimento dei consumatori attraverso campagne di informazione per sviluppare una maggiore sensibilità ambientale, informando ad esempio sulle diverse tipologie di etichette ambientali;
- Incentivazione degli strumenti premiali per le PMI ecoinnovative;
- Policy should act to facilitate exchange between potential buyers and innovators, rather than directly procure innovations. This way, potential buyers, acting together, can set out what they need in terms of technical and cost specification and innovators can assess if they can meet those requirements. The buyer group must constitute a considerable market share to give the innovators confidence that there will be

sufficient demand. This can be done by 'bundling' public and private sector demand to produce a 'critical mass'. Innovators can be given additional incentives through bidding contests where the best bid benefits from public market support once on the market.

- There are various possible policy instruments to support market uptake, such as public testing of innovations, eco-labelling² and publicity campaigns, particularly if a prize has been awarded to the winner of the bidding contest. EU Green Public Procurement³ can strengthen market demand, whereby public institutions purchase environmental products, services or works. These should be matched to the circumstances.

- Negli ultimi anni le produzioni tipicamente italiane sono state interessate da una domanda poco dinamica e sono state esposte alle pressioni competitive provenienti dai produttori dislocati nei paesi emergenti. Tra l'altro, l'affermazione di questi produttori è in parte spiegata dall'intensificazione dei processi di delocalizzazione ed esternalizzazione produttiva nei paesi a basso costo del lavoro e dal ritardo nell'affermazione delle "Information and Communication Technology" (ICT), ambito nel quale il nostro sistema produttivo registra ancora qualche debolezza (Rifici, 2009).

- Garantire alle PMI, a fronte degli investimenti per l'implementazione di un SGA o di una tecnologia pulita, dei ritorni economici più o meno immediati, sottoforma di incentivi economici o amministrativi concessi dalla Pubblica Amministrazione;

- Arrivare alla costituzione di un quadro delle politiche nazionali di Produzione e Consumo Sostenibile (ad oggi solo bozze).

- Short internal rate of return for the investments DA ELIMINARE DA QUI...

- La grande maggioranza delle imprese chiede procedure più rapide e il 75% di quelle interrogate attende norme semplificate per partecipare ai progetti UE. Effettivamente, la complessità dei programmi di finanziamento comunitari si aggiunge alla pleora di regimi esistenti a livello nazionale e regionale e rende difficile l'accesso al relativo credito [COM(2009) 442 def.]. Le PMI tendono ad avere più difficoltà ad accedere ai finanziamenti non direttamente connessi alle attività di base delle aziende stesse rispetto ad aziende di dimensioni più ampie a causa della difficoltà di consultazione delle stesse informazioni.

Inoltre la competitività e le prestazioni internazionali del settore europeo dei capitali *di rischio*, elemento centrale del credito all'innovazione, sono progrediti solo lentamente. Le carenze strutturali del sistema creditizio europeo nel finanziamento delle fasi iniziali persistono (assenza di investitori privati, frammentazione del mercato e bassi profitti). La recessione economica rende ancor più difficile ottenere finanziamenti e dotarsi di meccanismi di disinvestimento [COM(2009)442def]. L'avversione al rischio fa sì che spesso investitori e banche evitino di finanziare aziende appena o da poco fondate, problema aggravato dal fatto che spesso gli imprenditori non conoscono le varie possibilità creditizie e la modalità per presentare dei progetti convincenti sia nei confronti delle banche che di potenziali investitori.

2.8 Need for better integration in regional/national/international value chain

- Certifications recognized internationally and evaluation structures homogeneous among Countries and regions.
- Italian Public Administrations generally have poor project building capacity. Moreover, they have difficulties to identify common goals and to create synergies among eco-innovation supporting measures in the different territories.
- A better co-ordination of the innovation supporting policies at EU, regional and local levels is needed as well as a governance system, based on subsidiarity, enabling the settlement of common targets, co-ordinating the initiatives and diffusing good practices among the member states.
- **Unclear rules** and/or technical specifications too much detailed can bring on market uncertainty and reduction of incentives. Non adequate norms very often can foster non-sustainable technologies instead of eco-compatible ones; in the same way the lack of norms can result on the non-adoption of tools and technologies aimed at environmental protection.
Moreover, **diverging national legislations** fragment the Single Market and reduce the market potential of eco-innovative technologies. This can represent a barrier for their diffusion and adoption. (Brunori C., Morabito R., 2009).
- The co-operation with third-countries should be strengthened, especially the exchange of best practice with USA.
- Integrated product policies should be applied to a high number of products and services to enhance their effectiveness, not to a minority.
- Because of the high variability in the existing situations (type of products, type of markets: sub-suppliers, public or private consumer, etc.) a solution "one size fits all" does not work, but tailored measures for horizontal and vertical sectors are necessary. This process must be driven by the Public Sector (e.g. Research, Agencies, Policy Makers) with the involvement of all the stakeholders for the definition of priorities and technical, managerial and financial tools such as sector analyses to develop guidelines, databases and case studies, demonstration projects, incentives, production of simplified methodologies and tools to be used directly by SMEs. Service centres, Employers' Associations and Public Administrations must be aware of the SMEs' needs and **take the initiative** of proposing tailored solutions for a right environmental management.

2.9 Need of ecoinnovation tools

- The SMEs need methodologies and tools for Ecodesign. Changes in the design approach are very important for ecoinnovation of products², but the available tools, often developed for large enterprises, are partial, not integrated to support the whole process and too complex for the direct use by SMEs;
- Methodologies and tools for a stronger inclusion of aspects related to products and the supply chains in the Environmental Management Systems (ISO 14001, EMAS) of an organization. Diffusion of Product Oriented Environmental Management Systems (POEMS);
- The recognizability of the “green” products by the market is strategic to increase SMEs’ interest. Labels could assure this recognizability but the present standardized types have strong limitations. For the **type I environmental labels**, the main problem is that in Italy there is not a national certification label able to exploit the products of several sectors and be competitive towards the principal industrialized countries which use internationally recognized labels. The only usable label in Italy (unless foreign labelling is adopted) is the *Ecolabel*. However, the limit of this product label is that it can be applied to a restricted number of products and it may rise various disputes at European level following the examination of the standards set for the label issue;
- SMEs needs of focus on continuous and verifiable improvement of the environmental performance of products’ life cycle, use simplified and low cost tools/methodologies and find available simplified certification/validation systems. The development of tools tailored to SMEs’ needs and specialized services supplied by associations or consultants are considered, also in the European policies, key points to overcome the existing barriers and for a broad diffusion of the eco-innovation process;
- Availability of sector specific Databases for Life Cycle Assessment (LCA) of products;
- Promotion of the environmental accountancy tools (underground environmental costs) as a daily use tool. Wider knowledge of the costs, wider probability of investment in environmental technologies/methods able to limit the indirect environmental costs;
- Supporting national/international frame and tools for Carbon footprint;
- In SMEs, technological and managerial innovation processes are not separable; this is valid also for the environmental aspects. As principal drivers for innovation are quality and costs, environmental innovation should take into account them too. SMES need methodologies that could be integrate of social, economic and environmental aspects;
- In SMEs, technological and managerial innovation processes are not separable; this is valid also for the environmental aspects. As principal drivers for innovation are quality and

² The term “product” includes also “services”.

costs, environmental innovation should take into account them too. SMES need methodologies that could be integrate of social, economic and environmental aspects. For example the PMI should adopt the **Environmental Management Accounting (EMA)**, this is an integral part of MA and not a parallel system, is management accounting (MA) with a focus on physical information (flow of energy, water, products and materials) as well as monetary information. Performing EMA means integrate and improve existing cost accounting systems (especially with regard to material, energy, and flow cost accounting) and using it for decision-making. It assure that all relevant and significant costs are considered when making business decisions and it can show hidden costs.

- Differently to “organic” and “quality label”, for which “the stamps” can be directly put on the external packaging of the product, the ISO 9001 (quality), ISO 14001 and EMAS labels, can be print on the parcel in a circumscribed and limited way, not to make the consumer believe that it is the product to be certified . A study commissioned by SINCERT to a panel of consumers has highlighted that while the DOC label is well-known by 67% of consumers (41% for DOP; 28% for DOCG; 20% for IGP), the meaning of ISO 9001 is known only by 7% of consumers (37% recognized it as a generic certification) and ISO 14001 is known only by 5% of consumers (Grazioli F., 2009)
- National and local administrations should regard the EMAS certification as a preferential requirement for awarding public funds. It is important to speed up the EMAS registration process, by reducing the committal proceedings time and by assisting SMEs that represent the most relevant potential for the EMAS development in our country.
- Concerning **type II labels**, it should be pointed out the poor regulation resulting in the diffusion of non meaningful Marks and the lack of third party checking with the consequent poor credibility of the declarations. **Type III labels** represent an innovative and useful tool mainly devoted to a “business to business” use. Their use is difficult because of their cost and the time needed for the LCA study and for the approval of the product category rules (PCR), in case of lack for that product.
- As far as the EMS are concerned, there are also **qualitative** problems because of the various member states and the various external auditors apply environmental management systems in different ways. This is mainly due to the subjective character of the definition of the limits of the concerned system and because of the use of non sufficiently accurate and detailed data. Moreover, during the periodical inspections, the auditor of an SGA should gather all the criticalities and verify the fulfilment of the targets set up in the environmental management system, even those hardly identifiable (due to the company dimension, the high number of processes or the high number of orders, ...) in the limited time and cost scheduled for the inspection. In Italy, a similar problem is represented by the rationalisation of controls after the registration by third bodies when standards established by norms are reached.
- Further problems concerning EMS regard legal and administrative issues. After checking the compliance with EMAS rules, a second control is also foreseen by the appointed bodies (provinces, regions, municipalities) so as to come to a useless double check with a great loss of time. Regarding companies’ administrative procedures, no relevant

change have been introduced and it is not seized the chance to highlight the certified companies. Moreover, the activity of public administrations is still insufficient as far as the awareness and information of consumers are concerned and this is the reason for the low acknowledgment of environmental labels and certifications on the market.

- For future improvements a key role is played by the relationship between universities and companies. Universities have to explore the scientific and technological opportunities, preferably in cooperation with the companies. More than 60% of the entrepreneurs think that education does not provide the skills requested by the companies [COM(2008)394def.]. For this reason, the social need arises to provide the students with basic competences but also with specific competences like natural sciences, management, technical subjects, informatics, foreign languages, and to allow them to be creative.
- An important aspect of the environmental innovation is the “attitude” which an environmental management system or a technology innovation is started with. For this reason, a real integration of environmental matters into the companies’ decisions can be realized only considering the environmental matters as a driving force behind the innovation.

Sector	Need of ecoinnovation tools
Wood Furniture	<ul style="list-style-type: none"> • Methodologies and tools for Ecodesign; • Diffusion of Green procurement practices, especially green public procurement (availability of criteria, procedures); • Communication/certification tools: environmental labels (i.e. carbon footprint, EU Ecolabel criteria for furniture have not yet been approved after several years of consultations) clear and scientifically based. In Italy a national environmental label for wood furniture is still not available. • Availability of sector specific DB for Life Cycle Assessment to apply LCA and eco design;
Agriculture	<ul style="list-style-type: none"> • Supporting methodologies and tools for LCA application (DB for fertilizers, pesticides, drugs, etc.);

- Supporting national frame for Carbon footprint;
 - EMS diffusion.
- Buildings**
- Methodologies and tools for Ecodesign;
 - Sector specific DB for LCA;
 - GPP as a tool for promotion of green technologies/materials;
 - Method for technology assessment: ecoefficiency indicators and integration of economic, environmental and social aspects;
 - Clear and efficient labeling and certification (National LEED systems, European Ecolabel, energy efficiency certification).

2.10 Technological needs factors (based on reported “CP highlights”) → improvement of own

SMEs are very vulnerable against increases of energy and raw materials costs, for this reasons they have to increase their efficiency and capacity to respond also to climate changes requirements and transform this problem into an opportunity.

Nevertheless only 29% of SMEs has introduces measures to save energy or raw material (with respect to 46% of big enterprises) and only 4% of them in UE has a complete system for energy efficiency, with respect to 19% of big companies [COM(2008) 394 def.].

Fundamental is to introduce government initiatives to help firms bring new environmental technologies to the market and to find a partner for the first application. Due to this Italy have to introduce an Environmental Technology Verification scheme (ETV).

Here we could describe the highlights we choose (each partner will propose 2/3 highlight in Bologna meeting) and the improvement on some environmental index...*to be done later*

Highlight	Energy consumption	Material efficiency	Waste
1				
2				
3				

2.11 SYNTHESIS OF SMES NEEDS ITALY

Since in the country report we choose a sector approach, some of the needs are specific for agriculture, wood furniture and buildings sector. Nevertheless many of the needs (especially towards tools) that we identified are common to many sectors.

SMEs NEEDS ON TECHNOLOGY HIGHLIGHTS

- Technologies for reducing VOC emissions, especially formaldehyde (WOOD FURNITURE);
- Solutions for the management of end of life of products and wood wastes (WOOD FURNITURE);
- Availability of adhesives/glues with lower emissions of VOC (WOOD FURNITURE);
- EuP needs: new technologies to improve the energetic performances of materials (WOOD FURNITURE, BUILDINGS).
- Technologies for nitrogen abatement in zootechnical wastewaters (liquid and solid manure) also on a multi firms scale and on consortium scale, by transferring N to other farms located in other regions (AGRICULTURE);
- Logistic improvement (AGRO FOOD);
- Technologies for using poultry manure and other organic wastes for energy production without causing high environmental impacts from emissions (AGRICULTURE);
- Technologies for packaging and conservation: packaging reduction and optimization (also from a “sensorial” and “easy to use” point of view), product shelf life improvement, technologies for conservation processes. Higher diffusion of biodegradable packaging, nanotechnologies applications, intelligent packaging (time-temperature indicators, ..), active packaging (bioactive films, scavenger polymers, ...) (AGRO FOOD).

SMES NEEDS ON TOOLS

- Methodologies and tools for Ecodesign. Changes in the design approach are very important for ecoinnovation of products³, but the available tools, often developed for large enterprises, are partial, not integrated to support the whole process and too complex for the direct use by SMEs;
- Diffusion of Green procurement practices, especially Green Public Procurement (availability of criteria, procedures, examples). GPP can be an important tool for promotion of green technologies/materials;

³ The term “product” includes also “services”.

- Communication/certification tools of the sustainability of products:
 - o Needs of environmental labels clear and scientifically based: carbon footprint, EU Ecolabel (the criteria for furniture have not yet been approved after several years of consultations), National LEED systems, energy efficiency certifications, national ecolabels, etc. In Italy a national environmental label is still not available. The recognizability of the “green” products by the market is strategic to increase SMEs’ interest. Labels could assure this but the present standardized types have strong limitations: needs of focus on continuous and verifiable improvement of the environmental performance of products’ life cycle, use of simplified and low cost tools/methodologies and availability of simplified certification/validation systems.
 - o needs of integration of social, economic and environmental aspects.
- Methodologies and tools for a stronger inclusions of aspects related to products and the supply chains in the Environmental Management Systems (ISO 14001, EMAS) of an organization. Diffusion of Product Oriented Environmental Management Systems (POEMS). Supporting tools for a wider diffusion of EMS in Agriculture;
- Availability of sector specific Databases for Life Cycle Assessment (LCA) of products and simplified tools for the application of LCA by SMEs;
- Supporting national/international frame and tools for Carbon footprint;
- EuP needs: methodologies to assess and improve the energetic performances of materials. Support SMEs in Eup compliance (simplified tools and methodologies, guidelines) (BUILDINGS);
- Methods for technology assessment: ecoefficiency indicators and integration of economic, environmental and social aspects.
- In SMEs, technological and managerial innovation processes are not separable; this is valid also for the environmental aspects. As principal drivers for innovation are quality and costs, environmental innovation should take into account them too.
- Accompanying Measures: experts’ support and friendly solutions. One of the main barriers is the lack of internal knowledge. SMEs need a well defined framework, with, as far as possible, pre-elaborated solutions to be adapted to their specific conditions (technological and training software platforms; tailored software solutions, etc.). This could be obtained with a gradual approach (step-by-step process, simplified tools, training support, etc.). There is a need of a strong role for associations and consultants already in contact with SMEs. The development of tools tailored to SMEs’ needs and specialized services supplied by associations or consultants are considered, also in the European policies, key points to overcome the existing barriers and for a broad diffusion of the eco-innovation process;
- Short internal rate of return for the investments, as SMEs are focused on short time analysis.

- Networking: “Horizontal” (districts, associations, etc.), “vertical” (supply chain) and transnational networks are means for fast diffusion of innovation.
- Accompanying measures: because of the high variability in the existing situations (type of products, type of markets: sub-suppliers, public or private consumer, etc.) a solution “one size fits all” does not work, but tailored measures for horizontal and vertical sectors are necessary. This process must be driven by Public Sector (e.g. Research, Agencies, Policy Makers) with the involvement of all the stakeholders for the definition of priorities and technical, managerial and financial tools such as sector analyses to develop guidelines, databases and success stories; demonstration projects; incentives; production of simplified methodologies and tools to be used directly by SMEs; involvement of consultants, services centers, associations to support SMEs.

EXAMPLE FOR THE AGRO FOOD SECTOR in ITALY

Starting from the analysis of the EU directives and with the help of the National Network and sector experts we identified the following needs.

NEEDS ON TECHNOLOGY HIGHLIGHTS

The following directives are of particular relevance:

- Nitrates Directive 91/2006/EEC: on reducing waters pollution caused or induced by nitrates from agricultural sources and preventing further such pollution.
- NECD Directive 2001/81/EC: its objective is to set national emission ceilings for pollutants causing acidification and eutrophication and for ozone precursors in order to provide fuller protection of the environment and human health against their adverse effects. Acknowledged by Decr. Leg. N. 171 on 21/05/2004
- Regulation (EC) N. 889/2008: concerning organic production and labelling of organic products
- Dir. IPPC (i.e.. Poultry breeding with more than 400000).

Related to these directives some of the needs identified are:

- **Technologies for nitrogen abatement in zootechnical wastewaters** (liquid and solid manure) also on a multi firms scale and on consortium scale (by transferring Nitrogen to other farms located in other regions);
- **Technologies for using poultry manure and other organic wastes for energy production** without causing high environmental impacts from emissions;
- **Technologies for the reduction of greenhouses gases.**

In the last decades the focus has switched from agriculture to food production and actually the barycentre of the product chain is commerce and distribution (the final part of the value chains). The organization of agrofood offer is presented as a system of relations between different actors which operates in the different phases of the supply chain.

The technological progress which characterizes agrofood system is not radical, it is a type of innovation which does not substantially change the fundamental characteristic of a product or change the eating habits of consumers. For this reason ecoinnovation should:

- add additional features to products, able to increase consumers consensus and to give consumers the expected answers to their exigencies;
- try to rationalize processes and improve information exchange through the supply chains.

In this framework, we have to consider that European agrofood industry has lost in the past years a considerable segment of the world market: ecoinnovation and ethical values can become discriminating factors which can allow SMEs to gain credibility and competitiveness on global market.

Regarding these aspects some of the needs identified are:

- **Logistic improvement;**
- **Technologies for packaging and conservation:**
 - o packaging reduction and optimization (also from a “sensorial” and “easy to use” point of view),
 - o product shelf life improvement,
 - o technologies for conservation processes,
 - o Higher diffusion of biodegradable packaging, nanotechnologies applications, intelligent packaging (time-temperature indicators, ..), active packaging (bioactive films, scavenger polymers, ...).

NEEDS ON TOOLS

- Diffusion of **Green procurement practices**, especially Green Public Procurement (availability of criteria, procedures, examples). GPP can be an important tool for promotion of green technologies/materials;
- **Communication/certification tools** of the sustainability of products:
 - o Needs of environmental labels clear and scientifically based: carbon footprint, “green” supply chains labels, national ecolabels, etc. In Italy a national environmental label is still not available. The recognizability of the “green” products by the market is strategic to increase SMEs’ interest. Labels could assure this but the present standardized types have strong limitations: needs of focus on continuous and verifiable improvement of the environmental performance of products’ life cycle, use of simplified and low cost tools/methodologies and availability of simplified certification/validation systems.
 - o needs of integration of social, economic and environmental aspects.

- Methodologies and tools for a stronger inclusions of aspects related to products and the supply chains in the **Environmental Management Systems** (ISO 14001, EMAS) of an organization. Diffusion of Product Oriented Environmental Management Systems (POEMS). Supporting tools for a wider diffusion of EMS in Agriculture;
- Availability of sector specific Databases for **Life Cycle Assessment** (LCA) of products and simplified tools for the application of LCA by SMEs;
- Supporting national/international frame and tools for **Carbon footprint** label;
- Methods for technology assessment: **ecoefficiency indicators** and integration of economic, environmental and social aspects.
- In SMEs, technological and managerial innovation are not separable processes; this is valid also for environmental aspects. As principal drivers for innovation are **quality and costs**, environmental innovation should take into account them too.
- **Accompanying Measures**: experts' support and friendly solutions. One of the main barriers is the lack of internal knowledge. SMEs need a well defined framework, with, as far as possible, pre-elaborated solutions to be adapted to their specific conditions (technological and training software platforms; tailored software solutions, etc.). This could be obtained with a gradual approach (step-by-step process, simplified tools, training support, etc.). There is a need of a strong role for associations and consultants already in contact with SMEs. The development of tools tailored to SMEs' needs and specialized services supplied by associations or consultants are considered, also in the European policies, key points to overcome the existing barriers and for a broad diffusion of the eco-innovation process;
- **Short internal rate of return of investments**, as SMEs are focused on short time analysis.
- **Networking**: "Horizontal" (districts, associations, etc.), "vertical" (supply chain) and transnational networks are means for fast diffusion of innovation.

TOPICS CHOSEN FOR TRANSNATIONAL INDUSTRY WORKSHOP (WP3) IN ITALY:

Reduction of N and green house gases emission. Production of energy from biomass in the zootechnical sector. Innovative packaging.

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3 Framework situation: barriers and incentives for access to and transfer of environmental technologies among SMEs

3.1. Relevant elements of legal framework

Generally speaking, a regulatory framework translates policy strategies into obligations that social actors, and in particular enterprises, must respect when operating in their respective ambits. In this sense, they ought to be considered not simply as constraints for economic activities but also as opportunities for developing new businesses. Regulations very often act as stimulation measures and must be carefully considered by enterprises when setting up their marketing and developing strategies. Financial incentives and R&D supporting measures at regional, national or European levels are frequently used by companies to adapt to new regulations.

We reported the main directives/regulations that are of particular importance at the moment for the three sectors analyzed in Italy, and that are relevant for ACT CLEAN applications. Some of them, such as the Reach Regulation, IPPC or Eup Directives are of course relevant for many other sectors.

3.1.1 European directives

Directives addressing wood and furniture sector

- VOC Directive 2004/42/EC (amending 1999/13/EC): on the limitation of emissions of volatile organic compounds due to the use of organic solvents. Example related activities: coating, laminating, impregnation, finishing, etc. Establish emission limit for VOCs in waste gases and maximum level for fugitive emission for solvent using operators
- IPPC Directive 96/61/EC: on industrial emissions (integrated pollution prevention and control). Example related activities: surface treatment of metals and plastics by electrolytic and chemical processes using solvents. Acknowledged by Decr. Leg. N.161 on 27/03/2006
- REACH REGULATION (EC) n. 1907/2006,
- EuP- energy related materials (es. wood windows frames)⁴

Directives addressing constructions

- Directive 2005/32/CE: on the eco-compatible design of products that consume energy and energy related materials and products (taps, windows, insulation materials, detergents, and construction products). Acknowledged by Decr. Leg. on 23/10/2007

⁴ Eup (energy using products) Dir 2005/32: possible extension to energy related products (taps, windows, insulation materials, detergents, and construction products) whose design influence energy consumption (with a greater focus on full lifecycle environmental impact and resource efficiency in the methodology, for setting eco design requirement for products). MEEup methodology: support to quantify indicators, best case, cost benefit analysis of ecodesign options, LCC and improvement potential in relation to BAT. On going process of setting minimum performance standards for energy using products

- EPDB Directive 2002/91/CE: on the improvement of the Energy performance of buildings, taking into account local climatic conditions and prescriptions concerning the internal climate. Acknowledged by Decr. Leg. on 19/08/2005
- REACH Directive 2006/121/CE (Regulation EC 1097/2006): it is a relevant for all the sectors and regulates the production, the distribution and the use of chemicals. Acknowledged by Decr. Leg. on 01/04/2008.

Directives addressing agriculture

- Nitrates Directive 91/2006/EEC: on reducing waters pollution caused or induced by nitrates from agricultural sources and preventing further such pollution.
- NECD Directive 2001/81/EC: its objective is to set national emission ceilings for pollutants causing acidification and eutrophication and for ozone precursors in order to provide fuller protection of the environment and human health against their adverse effects. Acknowledged by Decr. Leg. N. 171 on 21/05/2004
- Regulation (EC) N. 889/2008: concerning organic production and labelling of organic products
- Dir. IPPC (i.e.. Poultry breeding with more than 400000).

3.1.2 National framework

Wood and furniture sector

In addition to the general regulations concerning environment protection and the use of chemicals and dangerous products, specific legislation for the sector concerns:

- D.M. 10/10/2008 on the emission of formaldehyde from wooden boards and related products on living spaces

Construction sector

- The Financial Act 2008 (Law N. 244 of 24/12/2007) has extended until the end of 2010 the tax allowance of the 55% of expenses for the energy requalification of buildings such as insulation, replacement of windows and window frames, installation of solar panels and photo voltaic elements, replacements of heating systems with high efficiency boilers, etc.
- Regulation N. 28/E of 04/08/2006 extend until the end of 2010 the tax allowance of the 36% of expenses for renovation of buildings up to a maximum of 48.000 Euro for each building
- Decr. Leg. N. 311/2006 establish the obligation of energy certification of buildings with the assignation of an "energy class" (from A to G, similarly to household appliances). The certification is mandatory for sales since 01/01/2009.

Agrofood sector

Regulations concerning agriculture mostly fall under the competence of Regional Administrations. In addition to the acknowledgement of the European legislation, the following National regulations that have a relevant impact on the sectors:

- Decr. Leg. N. 152/2006 which establish the main requirements for composition, reuse and recoverableness of packages
- Law N. 205/2008: on “Urgent measures to foster competitiveness of agrofood sector”. The Law gives to SMEs a tax credit of 50% of investments for the promotion of the Italian agrofood system abroad.

3.1.3 Regional framework

As said before, regulation and legislation are tightly related to supporting measures and financial incentives. This is even truer at a regional level.

Although a relevant increase of regional resources (+78% in 2007 compared to 2006), in Emilia Romagna, during the period 2002 – 2007, there was a decreasing trend for overall innovation and R&D supporting measures in favour of SMEs from 190,2 to 103,9 MEuro. This was mainly due to the breakdown of the main national supporting schemes: the FAR (Facilities Fund for Research) passed from about 243 MEuro in 2006 to 85 in 2007, Law 488 for research from 85 to 25, and FIT (Fund for Technological Innovation) from about 100 to 30 MEuro.

Certainly, Emilia Romagna has been the region which invested more than the other on the technological content of products and on the SMEs internationalisation

Tab. 2 presents the distribution (%) among the various objectives of Emilia Romagna funding to SMEs from in the period 2002 – 2007.

Tab. 2

	Company crisis	Production rising	R&D	Credit access	Growth	Growth of local systems	Environm. services	Early stage	Internat
2002	0,0%	25,8%	44,6%	0,3%	5,4%	4,9%	1,4%	8,4%	9,2%
2003	0,0%	16,0%	57,3%	0,2%	3,0%	5,7%	0,0%	5,9%	11,9%
2004	0,0%	41,3%	23,7%	0,7%	6,9%	4,9%	0,0%	11,3%	11,1%
2005	0,0%	20,0%	50,4%	1,7%	8,2%	0,9%	0,1%	4,6%	14,0%
2006	0,0%	31,0%	50,0%	0,1%	3,2%	0,4%	1,0%	1,2%	13,1%
2007	0,0%	30,0%	41,0%	0,4%	2,9%	1,7%	1,0%	4,8%	18,3%

The most relevant regional regulation focused on the development of a specific economic sector, is the “Rural Development Programme 2007 – 2013”, approved on January 2007, which will rule the development of the agrofood sector in Emilia Romagna in the next years. The programme, which aim is to foster an environmentally sustainable development and the competitiveness of the agrofood sector, is funded for the 44% by FEASR (European Fund for Rural Development) and includes several axes concerning various topics such as

“Improvement of the competitiveness of the sector” or “Improvement of the quality of environment and of rural spaces” for a total of about 750 MEuro.

Concerning the building sector, Emilia Romagna has approved the regional regulation N. 1730 on 16/11/2007 establishing the requisites of Energy efficiency and Energy certification of buildings.

3.2 Administrative/political environment

In the table below we indicated the most important incentives (with the relative legislation) at European and national levels for firms on clean technologies and ecoinnovation issues.

Laws/Initiatives	Specific applications	Description	
European Programs	LIFE+ European Regional Development Fund (ERDF) 2007- 2013	Enterprises	Environmental aspects
	European Social Fund (ESF)	Regions/Enterpr ises	Support to the less developed regions in order to improve the labor market
	JEREMIE (part of the cohesion 's funds)	Enterprises	Improvement of the labor market and quality of the workplaces
	Competitiveness and Innovation Program (CIP)	UE countries/SMEs	Financing instruments for SMEs, with priority to environmental initiatives
	Seventh Framework Program (FP7)	SMEs	Investments in ecoinnovative activities
	Regional Operational Programs (ROP)	SMEs	Environmental activities
	National Operational Programs (NOP)		
	Interegional Operational Programs (IOP)		
	Operating		

Support to productive investments	programs of territorial cooperation		
	Law 488/92	Services, Building, Tourism and Commerce Industry, handicraft, agriculture, commerce, services, tourism	Contributions for new premises, widening, modernization, reconversion
	Law 215/92		women imprenditoriality
	Legislative Decree 446/98	SMEs	Facilities in terms of tax credits (also for EMS or Ecolabel)
	Legislative Decree 311/1998	Enterprises	Tax credit increased of 1.000.000 of Liras for who adopt EMS and audit scheme
	M.D. 15 June 2004	SMEs	Technological innovation
	Law 46/82 - Rotating funds for technological innovation	Enterprises	Technological innovation
	Law 10/91	Buildings	Contributions for the rational use of energy, energy saving and development of renewable sources
	Law 662/96 [integrated by Law 226/1997]		It favors the access of SMEs to financial institutions sources for immaterial investments (i.e.. technology transfer) and materials investments
	Circular of the Management Committee n. 548/09	Enterprises	Increment of the platform for the access to credit up to 1,5 million
Support in Research & Development investments and in technological innovation	Legislative Decree n. 279/99	Research	Support to scientific and technological research and for researcher's mobility
	Ministry Decree 8 august 2000, n.593	Enterprises	Financial incentives for the development and the realization of research projects
	Law 388/00 art. 103 e 106	Enterprises	Financial incentives for the development of innovative enterprises
	Legislative Decree		Financial incentives for photovoltaic energy

387/2003, art. 7

Law 326/2003 Enterprises

Law 311/2004

(Financial act

2005) art. 1, c.

222

SMEs

Law 296/2006

((Financial act

2007) art. 1, c.

280-283

Enterprises

M.D. 9 April

2009

SMEs

Industry 2015 Enterprises

Funds for the Enterprises
enterprise (especially
finance SMEs)

Fund for the

competitiveness

and the

development Enterprises

M.D. 18

December 2008

(renewable
decree)

Legislative

Decree 3 march

2009

Tax reductions for the R&D and digital technology investments

Investment funds for innovative SMEs located in southern Italy

Tax Credit for investments in research & development
Modifications of accessibility conditions to the Guarantee Fund

Aids for: R&D plans, technical feasibility studies, to the innovative enterprises; to SMEs for industrial property expenses; for innovation of processes and organization of services; for services of advice and support of innovation; the availability of high qualified personnel and for innovation poles.

This fund has the objective to facilitate the access to credit and to risk capital of enterprises, and includes:
- Law 311/2004 art. 1, c.222 "High Tech Fund" for the promotion of venture capital in innovative SMEs; Law 388/2000 art. 106 Concession of advance public financial resources; Law 350/2003 art. 4, c.106 National rotative fund for the participations in the risk capital; Law 662/1996 art. 100, c. 2, lett., special section of the guarantee fund on technological innovation.

This fund includes: - Law 289/2002 art. 60, c. 3, fund for less developed areas (FAS); Law 488/92, facilities for productive activities; Law 208/1998 Instruments for negotiated programming - Law 448/1998 art. 52 unique fund for incentives to enterprises.

Financial incentives the electric power production from renewable resources - as foreseen from "Financial law" of 2008.

Financing for the installation of devices for the abatement of particulate emissions of discharged gases.

the promotion of environmental certifications	Law 488/92 (already cited)	Services, Building, Tourism and Commerce	Financial incentives to promote the diffusion of Emas and ISO 14001 certifications
	Laws 341/95, 266/97, 449/97, 133/99	Enterprises	Incentives and tax reductions for the enterprises with EMAS certification
	Law 23 December 2000, n.388 art. 109 [modified by law 448/2001 art. 62	SMEs	Promotion of environmental management systems
	Legislative Decree 2230/2003	SMEs	Procedure for the concession of contributions for the improvement of the EMS, according to CIPE deliberation n. 63 of the 02/08/2002
Incentives for the creation of new enterprises	Financings (regional)	Enterprises	Financial incentives for Ecolabel and EMAS certifications
	Law 181/89		Relaunch of industrial areas
	Laws 488/92, 215/92		see above
	Law 388/00 art. 103 e 106	Enterprises	see above (incentives for the innovative enterprises)
Support to environmental protection	Legislative Decree 185/2000	Enterprises	Financial incentives to self-impreditoriality and self-employment
	Law 80/05, art. 6, comma 5	Enterprises	Support to the start-up of new impreditorial initiatives with elevated technological content
	Law 21 December 2000, n. 388 art. 6	Enterprises	Tax reduction for environmental investments
	Law 598/94	Enterprises	Incentives for technological innovation and environmental protection
of energy from renewable resources	Law 171/2002	Enterprises	Fund of 4.900.000 euro for environmental impact assessment applications and development of environmental certifications
	Exchange on place Energy account		Incentives for systems that produce up to 200kW of electric power from any source Facilitated tariffs for photovoltaic energy
	Dedicated		

withdrawal	All-inclusive tariff Green Certificates	Monetary incentives for small - average electric energy producing systems from renewable sources (excluded solar) differentiated for source. Duration of 15 years.
	White Certificates	Incentives for energy produced from renewable resources
	CIP 6	Delay for years 2008/2009/2010 of the fiscal deduction of 36% of expenses supported for building restructuring
Building	Law n. 244/2007 ((Financial act 2008) Buildings Legislative Decree 185/2008, art. 29 Building	Deduction of 55% for energetic requalification of existing buildings (eg. solar paddles, covering, windows frames)
	Regional Law 28/98 (Emilia Romagna) Agrofood	Promotion of services for the Agrofood system development. Financing of yearly research programs, national and regional, regarding biological agriculture and food safety (coherently with communication 2000/C 28/02 of the European commission).
Agrofood	Law 38/2003 M.D. 353 del 16/07/2003 Agrofood	Criteria and procedures for the management of the advanced research for the agricultural system
	Circular n. 42088 del 24/09/2004 Agrofood	Criteria and modalities of financing, for the research's activity and experimentation in agricultural field.
	Law 171/2008 (integrated by Law 205/2005) Agrofood	To the Agrofood's SMEs is recognized a tax credit in the measure of 50% of the value of the investments in directed activities, (in other Member States or thirds countries), to induce economic operators to buy a certain agricultural or agrofood product.



Legislative
Decree n.
102/2005 , art. 9 Agrofood

Integration of the product chain and valorization of the
agricultural and agro food products

3.3 Societal attitude towards environmental protection/"green economy"

To be completed

3.4 – Economic parameters – Market drivers

In this section market drivers are analyzed from the demand and offer point of view. Then a focus is made on the three industrial sector, agrofood, buildings and wood furniture which presents peculiarities and specificities.

Consumers

An offer of a product produced by a “green” firm has more chances to be preferred by some market segments, but it has to be at the same time competitive for other aspects. The rapid increase of energy costs and fiscal incentives have convinced more aware consumers to buy green product. Higher energy and natural resources prices, will increase market opportunities of products which offer efficiency and energy saving.

Consumers do not have the expertise or ability to verify green product’s environmental values, creating misperceptions and skepticism. The so called “verbal ecologism” does not translate significantly in green purchasing.

Consumers are buying green, but not necessary for environmental reasons, indeed a green product does not attract a large market segment if it does not offer other benefits. There are at least five desirable benefits commonly associated with green product:

- 1. efficiency and cost effectiveness**
- 2. health and safety**
- 3. performance**
- 4. symbolism and status**
- 5. convenience⁵.**

Recent researches have shown that green marketing is increasing particularly on the side of on line consumers (as example see the analysis of DoubleClick Performics)⁶. On line consumers are in fact more attracted in buying eco products, also because through social networks and blogs can easily obtain information on the truthfulness of the statements of producers. The research reveals that such users are ready to spend up to 5% more for firms that promote eco sustainability.

Producers

PMI are characterized by an high flexibility in production, great variability, adaptation to process and supplier chains and by a continuous and incremental innovation of products to

5 june 2006 issue of Environment. Volume 48, Number 5, pages 22—36. © Heldref Publications, 2006. by Jacquelyn A. Ottman, Edwin R. Stafford, and Cathy L. Hartman

⁶sustainableink.files.wordpress.com/2008/06/green-marketing-research-survey1.pdf

adapt them to client's exigencies. Because of their impacts on environment and on European GDP, they represent the optimal vector to introduce eco innovation in the market. Financial and administrative incentives, the introduction of eco innovative policies and a wider diffuse environmental sensibility are complementary supports to the growing of firms characterized by more sustainable technologies and systems.

Consumers looking for green products and enterprises do not represent anymore a market niche but an interesting segment to address specific campaigns. Many firms, more or less sincerely, are approaching green marketing and green advertising, who is becoming part of the firm philosophy through the involvement and the commitment of stakeholders.

Of course green production and marketing are not an easy pathway and several actions should be undertaken to build up a firm "image and message" credible and to be seriously committed in environmental safeguard. Certification which demonstrate respect of norms, appreciation from organizations and institutions at different level, have an important role to reinforce consumers confidence in the activity of the enterprises.

An interesting case o green marketing is the case of ENI Energy Company⁷ about energy saving, to inform through a web platform, and to make citizens aware of energy saving and environmental sustainability issues. The aim is "relational marketing": clients changes information in the logic of a social networks and the company' advantages are a constant updating of clients desires, the identification of the consumers segments directly interested to certain products and making faithful clients.

Green marketing is becoming more and more integrated with Corporate Social Responsibility. For this reasons also and since communication of companies towards consumers assumes a central role, it is fundamental to have a deep and scientifically based knowledge of production processes and environmental hot spots, in order not to give misleading or incorrect information.

A fundamental role in the development of a market of green products and services is the diffusion of green public procurement, which in Europe represents in average 19% of GDP, a considerable market segment, with high influence on private consumers too.

Green Marketing Guideposts
<p><u>Consumer Value Positioning</u></p> <ul style="list-style-type: none"> • Design environmental products to perform as well as (or better than) alternatives. • Promote and deliver the consumer- desired value of environmental products and target relevant consumer market segments (such as market health benefits among health-conscious consumers). • Broaden mainstream appeal by bundling (or adding) consumer-desired value into environmental products (such as fixed pricing for subscribers of renewable energy).
<p><u>Calibration of Consumer Knowledge</u></p> <ul style="list-style-type: none"> • Educate consumers with marketing messages that connect environmental product attributes with desired consumer value (for example, "pesticide-free produce is healthier"; "energy-efficiency saves money"; or "solar power is convenient").

⁷ http://www.eventi-eni.it/media/eni_online_sito_30percento.php

<ul style="list-style-type: none"> • Frame environmental product attributes as “solutions” for consumer needs(for example, “rechargeable batteries offer longer performance”). • Create engaging and educational Internet sites about environmental products’ desired consumer value.
<p>Credibility of Product Claims</p> <ul style="list-style-type: none"> • Employ environmental product and consumer benefit claims that are specific, meaningful, unpretentious and qualified (that is, compared with, comparable alternatives or likely usage scenarios). • Procure product endorsements or eco-certifications and educate consumers about the meaning behind those endorsements and eco-certifications. • Encourage consumer evangelism via consumers’ social and Internet communication networks with compelling ,interesting, and/or entertaining information about environmental.

AGROOFOOD

In the last decades the focus has switched from agriculture to food production and actually the barycentre of the product chain is commerce and distribution (the final part of the value chains). The organization of agrofood offer is presented as a system of relations between different actors which operates in the different phases of the supply chain.

The technological progress which characterizes agrofood system is not radical, it is a type of innovation which does not substantially change the fundamental characteristic of a product or change the eating habits of consumers. For this reason ecoinnovation should:

- add additional features to products, able to increase consumers consensus and to give consumers the expected answers to their exigencies;
- try to rationalize processes and improve information exchange through the supply chains.

In this framework, we have to consider that European agrofood industry has lost in the past years a considerable segment of the world market⁸: ecoinnovation and ethical values can become discriminating factors which can allow SMEs to gain credibility and competitiveness on global market.

AGROFOOD – PRODUCERS ‘S MARKET BUSINESS DRIVERS	
Products differentiation	Structure of food consumes is influenced by socio demographic, cultural and geographical variables: for SMEs is fundamental to differentiate production, especially for transformed products. The aim is to identify and communicate unique characteristics of a product, which differentiate it from competitors and stimulate innovation. Information and communication technologies allow SMEs to personalize products and services on the basis of clients

⁸ EC DG Enterprise Competitiveness study – 2007

	exigencies.
<p>European/national legislation on supply chain control and products traceability.</p> <p>Product chain competitiveness</p>	<p>Traditional production-oriented agricultural systems are gradually transforming in demand- driven systems, in which consumers demand becomes the central focus and controls all the stages of the supply chain. Certifications on products traceability give visibility and reliability to industrial processes and communicate confidence and responsibility to consumers.</p> <p>In an eco innovative product chain values are created and maintained all along the complex system of relations, activities and information of the product chains (shifting from enterprise competitiveness towards product chain competitiveness). This can be achieved thanks to common strategies among SMEs coming from: benchmarking, use of secure and reliable raw materials, presentation of products with a strong regional identity and relational and social marketing. Example of integration between two product chains is the Protocol between Unione Italiana Vini (association of wine producers) e Assovetro (association of glass production), to implement common policies and strategies to make more sustainable both product chains, optimising suppling conditions with a higher quality level of products.</p>
<p>Labels of Food Safety and quality</p> <p>Labels for Organic Food</p>	Labels, such as D.O.P, I.G.P., represent guarantee and value for consumers.
<p>Great organized retailers</p>	Influence of great organized retailers on agrofood net is predominant. SMEs have great difficulties to interact with great retailers, only the ones that are able to innovate and to develop a brand linked to a local product of quality, have had economical success ⁹ . Great retailers in general prefer brand with higher visibility and lower cost. The preferential criteria in the choice of products it is not the respect of environment and health with some exceptions (Coop products ¹⁰ for example are characterized by different labels, regarding OGM, labor conditions, health, environment).
<p>Environmental and Social labels and certification</p>	EMAS; ISO 14001, EPD, SA 8000, etc. even if less known by consumers with respect to other labels described above, can suitably complete the information about the quality of a product. An important role comes from the organizations which promote healthy and sustainable eating models (i.e.. Slowfood ¹¹ : food which respect taste, environment and social justice).

⁹ <http://www.federdistribuzione.it/>

¹⁰ <http://www.e-coop.it/>

¹¹ from "Manifesto della qualità alimentare" by Slowfood

Products transformations	Reducing products transformations leads to economic advantages and increases the possibilities to be part of the choices of aware consumers.
Incentives	Administrative and financial incentives at European, national and regional level and focalized on different aspects.
GAS - Solidarity Purchasing Groups (Gruppi di Acquisto Solidale)¹²	GAS are formed by consumers who cooperate in order to buy food and other commonly used goods directly from producers or from big retailers at a discounted rate. A solidarity purchasing group chooses the products and producers on the basis of respect for the environment and the solidarity between the members of the group, the traders and the producers. Specifically, these guidelines lead to the choice of local products (in order to minimize the environmental impact of the transport), fair-trade goods (in order to respect disadvantaged producers by promoting their human rights, in particular women's, children's and indigenous people's) and reusable or eco-compatible goods (to promote a sustainable lifestyle). In Italy, GAS groups are rapidly increasing, but still remaining a niche market.
Energy production from food wastes	Incentives for the production of energy from wastes of zootechnical and poultry farms (it is not possibile anymore to spill them on soils because of nitrate directive and related norms).

AGROFOOD - CONSUMER'S MARKET BUSINESS DRIVERS	
Efficiency, convenience and cost effectiveness	<ul style="list-style-type: none"> - Easily available products, for immediate consume (i.e. pre-cooked products). - packaging "tailored" for different types of consumers. - Non conventional technologies for food conservation which allow a higher time span of products (increasing demand of transformed food, with different quality requirements such as freshness, sensorial properties, adequate shelf life, specific nutritional and functional properties,)..
Health and safety	<ul style="list-style-type: none"> - Consumers are more informed and have a higher risk perception towards health and environmental issues. They pay much more attentions to the characteristics of products they buy; - Strong link between characteristics of food products consumed and human health; - Quality is determinant in consumers choices.

http://associazione.slowfood.it/associazione_ita/ita/filosofia.lasso

¹² <http://www.retegas.org/>

	<ul style="list-style-type: none"> - OGM: request of transparency by consumers and commitment of producers to reduce its use and give correct information to change the approach towards transgenic food. - Concerns over exposure to toxic chemicals, hormones, or drugs in everyday products have made health and safety important choice considerations, especially among vulnerable consumer, such as pregnant women, children and the elderly - Request of functional food (physiological function beside the nutritional function, such as Alixir of Barilla)
Performance	<ul style="list-style-type: none"> - Innovative packaging which guarantee better healthy-sanitary, nutritional and sensorial performances (protection and valorization of food production); - Use of natural substances instead of chemical additives; - For separate waste recovery, packaging made of mono material are preferable. - Diffusion of Eco and bio packaging for fresh products (without glue and made of lower impact materials).
Symbolism and status	<ul style="list-style-type: none"> - Identification of environmental labels; - Interest in typical production, also for the cultural value, traditions, ..; - Made in Italy and Mediterranean typical food but at the same time exotic food: research of food with a definite regional-geographic identity (both Italian or foreign); - Biological-organic food - Food made of cereals and coming from cultivations not common anymore (i.e. buck wheat)

WOOD FURNITURE

WOOD FURNITURE– PRODUCERS ‘S MARKET BUSINESS DRIVERS	
Green procurement and Green Public Procurement	<p>Fundamental market driver especially for some sector such as office and school furniture. But important also in private grants for furniture for hotels, banks or other private buildings, etc..</p> <p>In Italy it is active the <i>electronic market of public administration</i> (for purchasing lower than a defined amount at EU level). This has been an important market driver for “qualified supplier” with a lot of advantages for firms also in terms of costs and competitiveness. This is part of the “National Plan on GPP” of the Ministry of the Environment. At present environmental criteria to be included in public grants are under definition for different product groups, including furniture and building materials.</p>
Environmental labels	In Italy a national environmental label for wood furniture is still

	<p>missing. European ecolabel criteria are still under discussion after several years and other foreign national labels are not known in the Italian market. The only label which is having a significant diffusion is Forest Stewardship Council, FSC, (also because it is requested by GPP European criteria), and PEFC (Programme for the Endorsement of Forest Certification schemes) which concerns respectively wood and wood based materials and forests.</p> <p>Another label developed in Italy is ANAB, in particular for school and children's furniture and with many aspects related to health and security.</p>
Design	<p>Design of wood based materials (also made by recycled wood) and in general eco design in furniture is one of the most important market drivers, at international level, even if it is addressed to a market segment with medium-high economic income and cultural level (many examples have been presented recently to Milano Expo), but not exclusively (i.e. IKEA, where the commitment to the environment and design are strictly connected.)</p>
Green buildings	<p>Market is rapidly growing and has an impact on wood made building materials and also on wood furniture.</p>
Industrial Associations	<p>Associations of firms, such as Federlegno (industrial association of wood furniture producers), or Rilegno (for recycling of wood based materials), can have important roles in promoting clean technologies and ecoinnovation (information portals, projects, training courses..).</p>
<p>e-commerce</p> <p>MATREC (Material Recycling) database¹³</p>	<p>Matrec is a free database on ecodesign dedicated to recycled materials and their use in production and design. In 2008 the first Matrec centre has been opened in Evora, Portugal. In the portal you can find many information on ecodesign and related initiatives and two sections:</p> <ol style="list-style-type: none"> 1. <i>eco materials</i>: database continuously updated with materials realized from recovered materials pre and post consumptions; 2. <i>eco products</i>: national catalogs of products realized with recycled materials. SMEs can include their products into the database and at the same time be informed about materials, guide lines on ecodesign, packaging, national and international initiatives and have their own visibility.
WOOD FURNITURE - CONSUMER'S MARKET BUSINESS DRIVERS	
Efficiency, convenience and cost	<p>Polyvalent products, versatile and with a higher durability.</p>

¹³ <http://www.matrec.it/Site/index.html>

effectiveness	
Health and safety	<ul style="list-style-type: none"> - Use of materials with a very low VOC (or even none) content, especially formaldehyde; - Not use of toxic substances for varnishing: crucial aspects that guide purchasing for children furniture.
Performance	Wood requires stain or paint and periodic application of chemicals preservatives for maintenance. Composite material made from recycled one is marketed as the smarter alternative. Composite are attractive, durable and low maintenance.
Symbolism and status	<ul style="list-style-type: none"> - Design. - Brand and firm's image in promoting initiatives to protect the environment: i.e. Foppapedretti, Elettrolux, Valcucine. - Marketing of products which inspire to natural, traditionally made, to the essentiality of materials used.

BUILDINGS

BUILDINGS – PRODUCERS 'S MARKET BUSINESS DRIVERS	
Energy saving and certification	<ul style="list-style-type: none"> - Growing awareness of carbon dioxide emissions and global warming. - In Italy the energy certification is appeared recently. ACE (Attestation of Energy certification) communicates the building energy performances. In order to support the diffusion of energy certification, it's obligatory to obtain ACE certification to access to the national and local funding assigned for the energetic performance improvement. Consequently to obtain an attestation for a building designed according to efficient energy standards results less onerous.
Environmental label and certifications	LEEDS - " <i>Leadership in energy and environmental designs</i> ", is the american certification based on a rigorous system of evaluation and control from the design phase to the end of life. LEEDS is gradually becoming the standard for sustainable constructions. In Italy the LEED system is now constituting (LEED ITALIA), coordinating by „Società Consortile Distretto Tecnologico Trentino“. Some buildings are already certified with LEED by american certification bodies (i.e.ITCLab ¹⁴) but the LEED ITALIA will take in account all the specificities of our country related to climate, buildings industry

¹⁴ The centre of research and innovation of Italcementi in Milano realised by Richard Meier

	<p>and legislation.</p> <ul style="list-style-type: none"> - European Ecolabel criteria for buildings are under definition. Ecolabe criteria exist already for some groups of building materials, such as ceramic tiles, etc.
<p>Local and government tax and incentives for green buildings and renewable energy.</p>	<p>The growth of this market tends to accelerate; as more green projects are built and costs are reduced. Greater publicity for green buildings leads to more pressure on companies to specify green design for their next building project. For these and many other reasons, we have to expect the exponential growth of the green building market.</p>
<p>Bioclimate Architecture and green buildings</p>	<p>Bioclimatic Architecture and “natural” buildings are more and more widespread. Bioclimatic Architecture is the design of buildings taking into consideration the local climate, using the natural resources available (sun, wind, vegetation) to achieve thermal comfort in buildings by reducing the consumption of energy.</p> <p>Natural building focus on the use of natural materials that are available locally.</p> <p>An important demand comes from offices, schools and houses built outside the cities.</p>
<p>National certification</p>	<p>On the national level, some private companies release a certification for building materials and buildings :</p> <ol style="list-style-type: none"> 1) ITACA (institute for the contract innovation and transparency and for the environmental compatibility) created a first protocol for the energetic and environmental evaluation of buildings, along with a software for the simplified calculation. 2) ANAB (National association for the bio-ecological architecture) developed a standard of sustainability for building products. This label is controlled by the ICEA (Institute of Etical and Environmental Certification). ANAB developed also a system called SB100 which allows to calculate the performances of existing, recovered or new buildings. 3) Casaclima is a method for energy building certification. It supports professionals to evaluate the building they’re designing, establishing the energy class in which it will be inserted.
<p>e-procurement</p>	<p>e-procurement (Electronic Procurement) points out to technologies, procedures, operations and organizational modalities that allow business to business (B2B), business to consumer (B2C) or business to government (B2G), to purchase good and services through web sites, thanks to possibilities offered by internet and e-commerce development.</p>

BUILDINGS - CONSUMER'S MARKET BUSINESS DRIVERS	
Efficiency, convenience and cost effectiveness	<ul style="list-style-type: none"> - Energy savings and a longer life cycle, make buildings and buildings materials more convenient and economical over time. - The payback from reduced monthly heating and air conditioning bills overtakes the higher upfront cost of building green in only a few years. - Reduced total costs thanks to European, National or regional incentives. - Knowing the costs and the engineering details for ecoinnovative technological systems would help an engineering firm convince owners to move forward with these systems. - A better use of renewable energies can allow economic advantages. - Growing evidence of benefits of green building in the public sector determines a growing demand in private buildings.
Health and safety	<ul style="list-style-type: none"> - The construction industry is becoming increasingly green as government and industry demand buildings that are "high performance" and "healthy" for occupants (i.e. offices and schools). Indoor air quality is a growing concern. Fumes from paints, carpets, furniture, and other décor in poor ventilated "sick buildings" have been linked to sickness. Consequently, many manufacturers have launched green products to reduce indoor air pollution. - Allergies and medical issues are a large part of the green push, not just environmental concerns.
Performance	<ul style="list-style-type: none"> - Some products have to respond to different efficiency criteria and performances: windows for example, have to control multiple functions i.e. light, heat, noise, - Technologies for water and energy savings.
Symbolism and status	<ul style="list-style-type: none"> - Architects have a fundamental role in integrating environmental aspects in to the design process, and can propose innovative solutions and convince clients to adopt them. Besides architects can intercept demand from the portion of consumers who look for credible information and may include environmental aspects in their purchasing behavior. - Building owners can use eco-design to differentiate their buildings from ones constructed with traditional principles. - More green homes on the marketplace, leading to growing demand for them. - Public people acquiring green homes induces emulation into population.

5. Training and education environment and industry specific factors

In this section the main national and regional instruments in support to eco-innovation in the three considered industrial sectors are described. The document does not want to be exhaustive, the purpose is to introduce some functional tools that will be able to act as example for other industrial fields and territories with greater difficulties. In fact particular attention is given to Emilia - Romagna region, as model of excellence in the support of eco innovation policies.

The following types of support and services at national level have been identified:

1. *Passive information and advising tools*
2. *Active/direct support and training*
3. *Networks and industrial districts*
4. *Incentives*

In reality one initiative rarely fits into just one category, and many of the more sophisticated approaches include many activities; providing of information and raising of awareness are always common to all of them.

5.1 PASSIVE INFORMATION AND ADVISING TOOLS:

The type of support and services offered is generally determined by what aspects the initiative intends to improve. If the intention is to simply provide information to SMEs about legislative requirements relative to specific industrial sectors, then a well targeted and communicative website may answer to the purpose. Most of the initiatives analysed in this research, include an information tool, normally a website or a phone-line, providing information on environmental legislation and environmental management instruments (especially relatively to waste and energy). Many Italian statutory environment agencies and business associations (eg. Federalimentare, Federlegno¹⁵) produce online or printed guides to legislation and EMS implementation. There are also examples of specialised information events (i.e. Legacoop Agroalimentare¹⁶) about news and initiatives on environmental issues. Moreover various typology of databases can be found: on the best available technologies¹⁷ and on the types of financings and incentives available for firms.

The problem sometimes is represented by the usability of such data, often a sector consultation is not possible and to gain the necessary information can take a lot of time, which represents a barrier especially for SMEs.

These approaches have proven useful for the dissemination of information to a wide audience, when they are targeted to one region or to a specific industrial sector. The local context and characteristics of the target audience are very important aspects to take in considerations when providing information and databases.

¹⁵ <http://www.federalimentare.it/>; <http://www.federlegno.it/tool/home.php>

¹⁶ <http://www.legacoopagroalimentare.coop/>

¹⁷ <http://www.tecnologiepulite.it/>

A regional approach guarantees a greater support because SMEs are more involved and more operative (inserted in an organization integrated in the territory) and information can be focus also on the peculiar requirements of the region. However such approach must also be coordinate on a national level and generally that passive information and advice is often provided in combination with other forms of support. This kind of support in Italy is generally given by:

- Industrial Associations (“Legnolegno” for windows frames, “ Federchimica” for the chemistry industry, etc.);
- Service centres associations (sector specific, and often related to an industrial district, such as “Centro Ceramico” for Ceramic Tiles, “Cosmob” for wood furniture products, etc.)
- CNA (*National Confederation of Crafts and Small and Medium-Sized Enterprises*) regional centres;
- Chambers of Commerce;
- Regional specific competent bodies: for example in Emilia Romagna:
 - o ARPA: (Regional Agency for Environmental Prevention in Emilia-Romagna) is an environmental control technical support body to the Regional, District and Local Authorities.
 - o “ERVET” (“in house” society) of Emilia-Romagna Region which operates as agency for the development of the territory and support of the Region activities;
 - o ASTER: (Science Technology Business) is the Consortium among the Emilia-Romagna Regional Government, Universities, National Research Centres located in the region- (ENEA, CNR, INFM)-and the Entrepreneurial Associations of the region. It aims at supporting the economic growth of the regional productive system through the promotion of industrial research/technology development and the improvement of high quality skilled professionals and career development in technology transfer field. A special service “FIRST” is dedicated to financial incentives on research and innovation.

Taking about Emilia-Romagna region, an interesting case is the web-portal of the region “ERMES”¹⁸, which proposes guides for different issues. There is a possible navigation path articulated in 14 channels (environment and nature, enterprises, policies, information, etc...). Within the portal, thematic platforms like ErmesEnvironment, ErmesEnergy, ErmesFirms, ErmesAgriculture are present. These offer information, services, news opportunity of financings, the online development of administrative practices, databases, etc..

There is also a regional desk for internationalization of enterprises and a web portal for purchasing of goods and services by Public Administration bodies (Intercent-ER). In this latest portal some procedures of green public procurement have been activated (in particular for school furniture). “Shop window of sustainability” is another initiative of Emilia Romagna: promotion of companies who have introduced significant innovations to improve sustainability and of economic sectors characterized by the best performances in terms of innovation and good practices diffusion.

¹⁸ <http://www.regione.emilia-romagna.it/>

5.2. ACTIVE/DIRECT SUPPORT AND TRAINING

If the intention is to increase the number of SMEs adopting environmental management systems and other sustainability tools and cleaner technologies, a more direct contact and tailored support is necessary.

The support has to be tailored to specific exigencies of SMEs and in response to explicit demands or needs identified among SMEs (i.e. assessments of regulatory compliances, strengths, weaknesses and opportunities of sustainability tools, recommendations to achieve the compliance with norms and improving environmental performance, training, support on how to obtain financial incentives, etc..)

Some examples at national level are:

- Ministry of the Environment and Territory and Sea Defence, Ministry of Economical Development and Ministry of policies for agriculture, food and forest: The national ETAP point is in the Ministry of the Environment. Their Web portals contain a lot of information, especially related to financial incentives for innovation and environmental certifications (databases).
- ISPRA: the Ecolabel and Ecoaudit Committee is part of this institution and all information about financial and administrative benefits regarding these certifications are available.
- Chambers of Commerce: constitute a central node of enterprise's associations nets. They support and assist enterprises for what concerns environmental issues (in particular EMS) and technology transfer.
- CNA (National Confederation of Crafts and Small and Medium-Sized Enterprises): a specific field of activity concerns innovation and promotion of cleaner production.
- Industrial Category associations: advising for the access to the publics financings (regional, national, communitarian) and for applied search and technological innovation. They elaborate and coordinate business plans of research & development, they organize seminars and training courses and promote the dissemination of best practices. They supply SMEs benchmarking tools and case studies.
- ENEA: support on energy certification and incentives, training (also online training) on many ecoinnovation themes; technology transfer, tools development and applications.
- CNRS and Universities: research and development of technologies and tools.
- National/regional web portals on Ecoinnovation and Clean Production. Some examples:
 - o www.tecnologiepulite.it: database on clean technologies, information on good practices, networks etc..developed by ERVET.
 - o www.ecosmes.net developed by ENEA during the EU eLCA project. This portal contains, training courses, information and tools for the implementation of ecoinnovation in SMEs.
- Sector specific Bodies (we reported only the ones that can give a contribution for ACT CLEAN):
- Buildings:
 - o Green Building Council Italia (reference for the U.S LEEDS system) for the promotion of sustainable buildings in all the phases of the process.

- Società Consortile Distretto Tecnologico Trentino: service centers for companies in Trentino Region;
- ITACA: institute for innovation and transparency in grants, promotion of good practices in services and public works for urban quality and sustainability.
- EDILPORTALE: database and norms on building materials.
- ANCE: National Association Building constructors
- ANAB: national association green Architecture.
- *Wood Furniture Sector*
 - Federlegno Arredo
 - Cosmob: service centre for Marche furniture district
 - Distretto Mobile Pordenone: service centre for Pordenone furniture district
 - FSC Italy: reference for the FSC label in Italy
 - PEFC Italy: reference for PEFC label
 - Legnolegno: associations of windows frame producers.
- *Agrofood:*
 - EFSA: European Authority for Food Safety and Health
 - Federalimentare: Italian Federation of food industry
 - Coldiretti: national organization on agriculture
 - Confagricoltura: General confederation of Agriculture
 - C.R.A: Council of research and experimentation in agriculture
 - CENTURIA (centre of tecnologica innovation of Emilia Romagna Region):

5.3 NETWORKS AND INDUSTRIAL DISTRICTS

Industrial districts are very important in Italy and they play a fundamental role also in the dissemination of cleaner production practices.

The networks approaches have become widespread over the last decade. With this come benefits such as the emerging of ideas, the sharing of knowledge and know how, benchmarking and increase of competitiveness. Networks can be very important for SMEs to balance their lack of internal resources and competencies: some networks for example offer SMEs the possibility to save costs in terms of consultancy services and administrative workload for their EMS. Moreover, networks can be used to disseminate information, knowledge and to ensure greater engagement, increasing the chances of a long-term impact of actions. Within a Network, SMEs are in contact with other companies that share their problems and interests, not only in relation to environment issues but also in other areas, with a general positive impact for the sustainability of the supply chains. A network may also be useful as a starting point for understanding the needs of SMEs and to further develop a program of actions. A type of network often mentioned in relation to innovation and competitiveness are the 'clusters'. Clusters can be defined as concentrations of competing, collaborating or interdependent companies and institutions which are connected by a system of market and non-market links.

Some examples of national networks related to ACT CLEAN topics are:

- ETAP points

- National Rural Net
- EMS ad Ecolabel Net
- Cartesio NET (for the sustainable management of clusters or industrial homogenous areas)
- Federation of Italian Districts
- INSME – International Net for SMEs
- EMAS club (Emilia Romagna net)
- Network of sustainable development (chambers of commerce of Lombardia region).

5.4 INCENTIVES

Different kinds of incentives play an important role to motivate SMEs to work with environmental compliance and improve the management of such problematics. Please see the section “Financial Aspects” of this report for details on national/regional financial incentives. There is also another type of incentives that are regulated by specific norms and concern mainly the simplification of administrative procedures and controls for companies who have for EMS certification. Other incentives are more related to the promotion and visibility of companies who have committed themselves with cleaner production. These initiatives encourage SMEs to produce products and services with a higher environmental standard, and focus on strengthening their competitive positions on the market.

6 - SWOT Analysis : Ecoinnovation and SMEs

Strengths	Weaknesses
<ul style="list-style-type: none"> • Increase of competitiveness: way to differentiate products and services from those of competitors. • Higher quality of products and services, cleaner processes and more transparent procedures. • Innovative products and services, improvement of the product life cycle and durability. • The voluntary instruments are propaedeutic to the respect of the laws and the reduction of the risk. They supply the competences in order to correctly react in reasonable times as a result of the manifestation of critical events. • Adoption of sustainability methodologies and procedures (such as Life Cycle assessment of Environmental Management Systems) increases environmental awareness inside the company, that produces greater participation to the realization of the enterprise's objectives and creates more competences for the use of an efficient "green" and "conversational" marketing . • The implementation of ecoinnovation, improving for example waste management and energy savings can lead to cost savings. • The application of sustainability tools can facilitate the participation in public and private grants, when principle of green procurement are applied. • the adoption of environmental certification/labels improve brand image and public consensus of the firm activity. • Possibility to integrate environmental social and economic aspects in the improvement of products and services and to promote a market of more sustainable consumptions. 	<ul style="list-style-type: none"> • Lack of skill, experience, confidence and time. • Less access to the channels of distribution than the competitors, this can make them small player. • Limited budget. • All the staff need training (problems of maintaining the cost of this staff). • For the use of some tools, like LCA and ecodesign: lack of data, and the insufficient quality of those contained in the databases; • Usually the instruments for improving an EMS or for the adoption or environmental labels aren't managed directly from the enterprise: lack of environmental managerial abilities.. • Great part of firms who have implemented environmental instruments, has not known fully how to increase the value of the result achieved , using the previewed opportunities of communication provided by such tools. • The aspects related to environmental quality of products are not always understood and managed correctly by the marketing office, nearly always oriented to minor the cost. • Sometimes the enterprises entrust in environmental certification some expectations that cannot be fulfilled and they are not more disposed to invest in absence of adequate economic returns. • The smallest companies do not succeed to draw effectives inner benefits from the application of the EMS or other product certification and their demand is made almost exclusively for external imposition of the customers. • Difficulty of access to the appropriate information. • Lack of control of the external life-cycle stages of the product life cycle. • Lack of understanding of the benefits introduced from clean technologies and ecoinnovation tools. • The final price of the product can be less competitive. • Persistence of the isolation of some areas and lacked contact with the information nets. • Insufficient spread of the self-assessment practice. • Branding and awareness campaigns can improve the image of the initiatives and give competitive advantages to businesses. However, while this often works well in a particular region/area it can sometimes be difficult and costly to carry out on a broader scale.

Opportunities	Threats
<ul style="list-style-type: none"> • Smaller international trade barriers. • Green market in continuous expansion. • Increase of legislation and supporting incentives for the adoption of clean technologies and ecoinnovation. • Global market crises: more investments in research and eco innovation to increase competitiveness; • New attractive segments of market (i.e.: Internet). • End-users respond with interest to new ideas. • Increment of the confidence (fast increase of the investments in the environmental market) that the market can offer products that assure quality and environmental respect, with meaningful effects in terms of competitive differential. • Greater interest in Green Public Procurement and public procurement; • Increase availability of “e-procurement” (purchases in internet). • Increasing market for products which conjugate design and recycling, as well for the products that give less problems in disposal or recovery. • Increasing attention towards the Clusters of companies that favour the diffusion of environmental best practices. • Increase of the conscious consumers, not only on environmental issues but also on social aspects. • Greater possibilities of synergy with the existing nets of information on the territory and cooperation with the nets of the other Member States. • Great global attention on themes such as global warming, water and energy savings, recycling of wastes, on which the application of ecoinnovation tools can bring great benefits. • Programs and enforcement tools (portals, guidelines, databases, etc..) which offer SMEs support to achieve standards, certifications and declarations of different kinds can generate business opportunities for SMEs. • Increase of the availability of best practice and technological solutions that can produce energy, water and raw materials savings, increasing of the opportunities of technological transfer and abatement of costs. • Increasing demand of transparent and sustainable product chains and for higher quality of national/regional products. 	<ul style="list-style-type: none"> • Market of green products and services still not very developed; • Global market crises: less investments in research and eco innovation; • Incentives and supporting legislation for ecoinnovation and clean technologies not always reach SMEs or it is not associated to real economic funds. • Lack of a national label of environmental quality products and services; • Inflation of the terms green, environment, sustainable, often without a scientific basis; • Vulnerability to reactive attack by major competitors; • Tendency to the decrease of the cost and the value of the credited certifications. • To stay competitive SMEs need to respond to the different pressures, demands and expectations on the company from suppliers, buyers and other actors in the supply chain. In terms of environmental management, such influences can affect the openness of SMEs towards environmental compliance and performance initiatives. • The certification/communication tools are not always very clear and visible and procedures are long and cost-time consuming. • Problems associated with public funding. These are often short-term and not very much flexible. This can restrict the ability to take a longer term perspective in developing its services and approaches, and can hinder job security and therefore staff retention. These problems can be compounded if multiple sources of public funding are used. • It exists a “gap” between the development of models more and more refined and the concrete possibilities of application from the operating ones in the within of the daily management of own truths. • The difference of the procedures and the times of performance limits the portability of good praxis. • Complexity of the interinstitutional and interterritorial relations, consequent necessity of strong coordination. • Absence of harmony within the procedures of certification between the various EU regions and countries, between several auditor, and between Organisms of Certification. • Difficulty in the international finding of a partner for projects, technologies application, etc..

7 Conclusion

To be accepted by SMEs ecoinnovation needs to be in agreement with the characteristics of their economic model, in particular with: their knowledge of production and management, their relationship with innovation and the environment, and the known barriers and drivers for the introduction of environmental management tools.

The relationship between SMEs and innovation/environment has some peculiarities:

- As shown by studies and surveys, innovation, particularly in SMEs, is seldom motivated by environmental reasons. Therefore, environmental issues should be promoted together with other aspects from the beginning.
- At present, environmental aspects are perceived by SMEs as constraints and costs, but most of these costs are unknown and hidden. SMEs are also obliged to manage a massive quantity of environmental data to respect licensing and operation rules.
- So far, sustainable production and consumption and environmental management tools have not generally been known by the SMEs and, in any case, they have not been perceived as an opportunity, with the exception of a few sectors like food industry where there is a direct impact on consumers and the presence of product regulations.

In addition to the above mentioned aspects, particular barriers should be taken into account in defining specific ecoinnovation measures for SMEs:

- costs;
- lack of internal knowledge;
- inability to influence life cycle steps outside the firm;
- unavailability of many data of life cycle outside the firm.

The following **critical issues** should be addressed in any intervention to promote environmental innovation in SMEs.

1 Adequacy: Some of the tools proposed for ecoinnovation (such as environmental labels: EPD or Ecolabel) are in contrast with the characteristics described above (too long procedures; non easy adaptation to small changes in the product/process).

2 Applicability: Attention should be paid to the difference between “scope” and “applicability” or “suitability” of measures for SMEs, if these measures are not adapted to their culture, management system and characteristics.

3. Integration: in SME technological and managerial innovation processes are not separable; this is valid also for the environmental aspects. Principal drivers for innovation are quality and costs, and therefore environmental issues should include them.

4. Accompanying Measures: Experts support and Friendly solutions. One of the main barriers is the lack of internal knowledge. SMEs need a well defined framework, with, as far as possible, pre-elaborated solutions to be adapted to their specific conditions (technological and

formative software platforms; HW&SW solutions developed “before” entering the productive process by providing pre-manufactured tools). This could be obtained with a gradual approach (a step-by-step way, simplified tools, training support, etc.). There is a need of a strong role for Associations and Consultants already in contact with SMEs.

5.Short internal rate of return for the investments: SMEs are focused on short time analysis.

6.Networking: An opportunity of SMEs’ system is the “epidemic” effects (general effects caused by touching one_point) that can be started with the right trigger and above a threshold. Horizontal (districts,_associations, etc) and Vertical (supply chain) networks are a means for the fast diffusion of_innovation.

Priority issues:

A specific route for SMEs needs to be identified, with a portfolio of policies and tools, including the typical ecoinnovation instruments. Three key points could be considered:

1) Rules and regulations:

Because environment is not a priority for SMEs, voluntary instruments alone are not sufficient: specific regulations and Command & Control tools adapted to SMEs can be discussed with the stakeholders and policy makers to foster ecoinnovation. SMEs are at present already obliged to meet a number of environmental rules on processes and products (authorizations, workers’ health, emissions, waste, etc). Ecoinnovation tools should be introduced as an opportunity to simplify and better manage all the environmental aspects. Great attention should be paid to the possible integration with the existing regulations (IPPC, Health & Safety, ...)

2) Accompanying measures (support of mediators and facilitators at horizontal and vertical levels):

Because of the high variability in the existing situation (type of products, type of markets: subsuppliers public or private consumer, etc) a solution “one size fits all” does not work, but tailored

measures for horizontal (districts and local aggregations) and vertical sectors (supply chains, clusters) are necessary. This process must be driven by Public Sector (Research, Agencies, Policy

Makers,...) with the involvement of all the stakeholders for the definition of priorities and technical, managerial and financial tools:

- sector analyses to develop guidelines, databases and success stories, with the participation of stakeholders;
- demonstration projects, incentives, etc.;
- production of simplified methodologies and “pre-manufactured” tools: to be used directly by SMEs. This is more easily obtained with a specialization for different sectors.

- involvement of consultants, services centres, Associations to support SMEs, also by tools as specific web site, etc.

3) Recognizability by the market:

The recognizability by the market of “green” products is a strategic issue to increase SMEs’ interest.

Labels could assure the recognizability by the market (individual and collective consumers), but the

present standardised types have strong limitations. The right solution should allow gradual access to more standardized systems, with these requirements:

- simplified and low cost tool/methodology of evaluation, in particular following a life cycle approach;
- focus on continuous and verifiable improvement of environmental performance of products’ life cycle;
- recognizability by the market but with simplified certification/validation system also with some limits on duration.

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