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SMEs, Entrepreneurship and Local Development in the Marche Region, Italy

A REVIEW BY THE LOCAL ECONOMIC AND EMPLOYMENT DEVELOPMENT (LEED) PROGRAMME OF THE ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD)

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EXECUTIVE SUMMARY

The Marche region is one of the most industrialised regions in Italy and is considered a region of excellence, not only for its economic performance, but also for its cultural, natural and social richness. Marche belongs to what has come to be called the "Third Italy": a model of development based on small and medium-sized enterprises (SMEs) located in industrial districts. Its economy is driven by the performance of a myriad of SMEs, which have been characterised by a high level of creativity and innovation in the past.

Despite sound economic framework conditions, the Marche's industrial policy makers and stakeholders recognise the need for an important planning exercise, with the aim of implementing policies to strengthen the Marche region's entrepreneurship and small business performance and move towards an economic structure which, on one hand, recognises and builds on the strong manufacturing tradition of the region but, on the other, is able to compete in the modern globalised arena with a renovated, dynamic, technology-based and green-oriented industrial system.

In this very challenging period, characterised by a general economic downturn in most OECD member countries due to the global financial and economic crises, the regional authorities decided to look at future economic opportunities and policy priorities by collaborating with the Local Economic and Employment Development (LEED) Programme of the Organisation for Economic Co-operation and Development (OECD) on a Review of SMEs, Entrepreneurship and Local Development in the Marche region. This report sets out the findings of the review.

The aim of the report is to provide, from an international perspective, advice on how to strengthen and restructure the economy of the Marche region through the use of appropriate SME and entrepreneurship policies. It identifies major considerations for policy development in this field, assesses the current challenges and opportunities for the Marche and advances recommendations to improve policy and practice in the Marche region. Annex I translates these recommendations into an action plan, setting out more precisely what needs to be done, how it can be achieved and who can put it into action. Annex II also collects and describes international 'learning model' programmes with the aim of helping to illustrate how other places have addressed similar challenges.

The focus of the review is on strengthening innovative entrepreneurship and SME innovation in the Marche region through an appropriate policy package that mixes direct policy support to new and small firms and entrepreneurs, and indirect policy support to improve the local entrepreneurship and SME business environment. There is also a focus on achieving a coherent policy framework through development of a common SME and entrepreneurship strategy for the region and an efficient policy delivery system which brings together all key stakeholders. The recommendations also seek to address the need to enhance the links amongst policy makers, the business community, universities and other stakeholders for policy learning and development.

Five main themes are reviewed in this report: i) human capital and the labour market; ii) entrepreneurship and start-ups; iii) enterprise development; iv) the contribution of research organisations to entrepreneurship and SME development; v) governance and environment.

This report is based on observations, discussions and recommendations collected through an OECD review process. The key steps of the methodology are briefly described below:

i. Local diagnostic report

A diagnostic report was prepared by a local expert to provide an analysis of the key facts of the Marche SME and entrepreneurship policy context and the policy landscape.

ii. Review panel visit

The OECD Secretariat led an international review panel in a one-week study visit to the Marche region from 1 to 6 November 2009. During the study visit, the expert team interviewed local and regional policy makers and other relevant actors in the entrepreneurship and SME local development system, to obtain information on their activities, the challenges faced and their views on other relevant issues. A wide range of issues were discussed with stakeholders, providing a variety of perspectives on the region and its SME and entrepreneurship policies.

iii. Final report

A final report has been prepared, drawing on the results of this peer review exercise and is organised as follows. *Chapter 1* sets out the local diagnostic report. It provides a picture of Marche's economic system and sets out some key challenges for further policy development. The key thematic areas, developed in the next *five chapters*, are i) human capital and the labour market; ii) entrepreneurship and start-ups; iii) enterprise development; iv) contribution of research organisations; v) governance and environment. Each subsequent chapter contains a description of general policy issues, an assessment of the current situation in the Marche region highlighting challenges and opportunities; and a set of policy recommendations. The *final chapter* provides key overarching conclusions. The *Annex* contains (i) a user-orientated *Action Plan*, which presents concrete policy proposals for future policy development in the Marche region. Each guideline explains what is the issue at stake, how to address it and which organisations and stakeholders should be involved in tackling it; (ii) a collection of 12 international *'learning model' programmes,* which present how other regions have reacted to challenges similar to those faced by the Marche region in order to inform the process of developing responses to the policy recommendations.

This summary sets out the review findings, covering the main challenges and opportunities for the Marche region in the area of SMEs, entrepreneurship and local development, followed by the main policy recommendations. Each chapter provides a deeper analysis and offers a set of detailed recommendations for each investigated area.

Challenges and opportunities

Strengths

The "Marche model"

One of the strengths of the region is the so-called "Marche model" of economic development. The local industry structure is dominated by small and medium-sized enterprises that have been located close to the workers, keeping small settlements alive and avoiding the disorder of over-rapid growth and congestion in the urban areas.

Social cohesion and the family business model

The Marche region is characterised by a high degree of social cohesion. The dense network of firms in the industrial sector has been associated with collaborative relationships among firms and well-established, localised supply chains, which has retained production in the region and promoted cooperative relationships between firms, the public sector, and trade and labour organisations. The model of mutual guarantee schemes for obtaining SME credit is an example of how these ties can be used for local development. The Marche region is also the region with the highest life expectancy in Europe and has high standards of quality of life.

Local entrepreneurial activity is mainly based on family-owned firms. Family capitalism is responding better than stock market capitalism to the financial crisis as families are compensating the weaknesses of the external financial system with their own savings. Therefore the economic evolution of the region is less volatile than in regions with a higher share of companies that are affiliated with large stock-based industrial groups.

High skills in advanced manufacturing

The ability to consistently design and innovate in concert with changes in process and product technology (including materials) has both required and resulted in a high level of manufacturing skills at many levels of the supply chain. As a consequence, manufacturers are able to adapt to changes in quality control standards (technical specifications) with incumbent workers. This responsiveness has allowed the region to stay a leader in quality control and certification as retailers and end users demand increasing sophistication.

A rich region with a high level of entrepreneurial activity

Marche is a region of entrepreneurs. It is estimated that 10% of the population is an entrepreneur, which is the highest density in Italy, or even in Europe[1]. The Marche region counts one active firm for every 10 inhabitants, which is an outstanding performance, compared to the figures of Italy (1 for every 15 inhabitants) and of Europe (1 for every 25 inhabitants). These entrepreneurs form the base of the prosperity of the region, contributing to explaining why the Marche region has a GDP per capita (EUR 25 150) slightly above the Italian average (EUR 25 031)[2].

[1] Report Industria e artigianato, 2008.
[2] Data ISTAT - Eurostat, 2005

An internationalised region

The region has a number of well-known brands (Scavolini, Church, etc.) and some of its companies are international market leaders in some subsectors (e.g. yachts). Exports account for 30% of the GDP of the Marche region, representing 3.5% of Italian exports. As the Marche represents 2.6% of Italian GDP, its export capacity is far beyond the Italian average. Marche is the second largest exporting region in Italy and has recently achieved an average yearly export growth of 8%.

A well-established university system

The region counts four universities on its territory and has a higher than average percentage of graduates among its population. One of the four universities, *Università Politecnica delle Marche*, has been assessed as one of the three strongest of the middle-sized technical universities in Italy, with strong competence, among other areas, in engineering. All four universities are seeking to engage in closer collaboration with industry, helping the local economy to become more innovative and internationally competitive.

Openness to learning

One of the strengths of Marche's governance is its openness to learning about best practice policies in a range of forums with other regions and international organisations. This is underlined by this review exercise to discuss perceived economic challenges with a responsible advisory body outside Italy, namely the OECD, which has a lengthy track-record in diagnosing local development challenges and proposing solutions. The involvement of international experts in policy discussion is a fundamental means of avoiding "group-think" and dedicating a deep attention to policy development.

Econo-environmental governance assets

The region benefits from a significant economic governance asset: the four technology centres, which have played a valuable role in the permanent upgrading of cluster members to meet new environmental standards of hygiene, toxicity, safety and so on. This model works well in relation to systems of networked family businesses and, to the extent that the further development of environmental content in processes and products occurs, technology centres have a key role to play also in the future.

Opportunities

Skill development (advanced process and product innovation)

There is a high level of sophistication in product inspecting, testing, and process certification within the industrial district technology centres. This know-how can be proactively diffused throughout the local firm network to up-skill small enterprises as global retailers demand more sophisticated certifications and advanced production processes (e.g. IKEA's green production standards). This skill development and training capacity is a significant competitive advantage for the region.

Tourism

The statistics show that tourists to Italy spend longer periods in the Marche region than in other regions (six days as compared to four days). The length of these visits indicates that there is significant demand in the tourism sector. This produces an opportunity to build an integrated

experiential (lifestyle) tourism model for the Marche rather than a site-based experience (ex. a wine trail model versus a museum model).

Entrepreneurial spirit

"Entrepreneurship is in our DNA" is the exemplification quote used by the local people in the Marche region to explain the vibrant spirit present in the region. The Marche region has the highest density of firms in Italy (1 enterprise per 10 persons) and, although the most recent start-up rate and the innovativeness of existing enterprises are not quite as high in relation to competitors, the existence of pre-existing entrepreneurial mind-sets and experiences lend themselves to cultivating a new culture of entrepreneurship in the region.

Geographic location at the crossroads of the Adriatic Corridor and the gateway to South and Eastern Europe

The Marche region benefits from a strategic geographic location at the crossroads of the Adriatic Corridor and the gateway to South and Eastern Europe. The perspective of the future enlargement of the European Union with Croatia and Former Yugoslav Republic of Macedonia opens up new export and investment opportunities.

Incipient university-industry collaboration.

There is nascent university-industry co-operation through a series of individual collaborations between individual university professors and firms. This offers a starting point for a more institutionalised and larger scale knowledge transfer, including greater mobility between SMEs and universities to add to the possibilities of upgrading SMEs in traditional sectors.

Related variety

The regional economy displays strong potential for new growth paths based on what evolutionary economists call "related variety." This means that many skills and innovations are transferable from industry to industry and into new hybrid activities because no activity is far away cognitively, geographically or structurally from existing main industries. Due to the dense geographic distribution of firms, enterprises in one industry may easily be influenced by innovations from neighbouring but distinct industries.

Some significant examples of research into new productive activities based on related variety (e.g. in domotics activities) show a way out of potential "lock-ins" in the four main cluster areas. The prospects for utilising "related variety" in the support of new sectors is also testified by the example of the new Marche marine cluster that combines electro-mechanical, furniture and leather expertise in a new market niche for the region.

Weaknesses

A "locked-in" economic development policy model focused on export-based manufacturing

The focus on an export-led development and traditional industries has led to a lack of attention to services and non-basic sectors (health, education, design, logistics, and business services) that nonetheless make important contributions to local real incomes and quality of life and are often becoming themselves important growth activities.

Relatively few hi-tech and innovative start-ups

University spin-off support is offered but has not been a great success so far. The University of Camerino and the Technical University of Marche have generated 26 spin-offs in the last 7 years. However, it is instructive to compare what has been achieved in these universities with the private sector, where one leading regional company alone has generated 80 spin-offs in 10 years. Italian law creates barriers to the business involvement of academic staff, which means that local commercialisation of research ideas is largely ignored.

Little regional marketing

The Marche region is hardly known outside Italy. One of the reasons might be the 'understatement' attitude of its population, which is characterised by being hard working but less interested in promotion. There are other reasons as well. As the initial wave of post-war entrepreneurs were mainly active in intermediate production, and hence in B2B sales, there was no major need for regional marketing. At the same time, consumer businesses, B2C, have developed their own brands without generally referring to their geographical origin as a trademark. This has impeded the development of a strong product marketing brand for the region.

Low foreign investment levels

The high density of entrepreneurs contrasts with the paucity of foreign direct investment, both into the Marche region and also by Marche companies abroad. Only 0.2% of inward foreign direct investments in Italy take place in the Marche region and only 0.1% of Italian foreign investments abroad are Marche initiated. This compares with an export share of 2.6% and a GDP share of 3.5% of the Italian economy. It suggests that the Marche region is still embedded in an old trading philosophy and has not integrated the new globalisation processes, which are more investment- than trade-oriented. The dearth of Marche companies abroad will have a negative impact on their competitiveness in the long run.

Dominance of basic skills in SMEs

Skill levels among SMEs and entrepreneurs are generally low. This is linked to a lack of capacity to absorb innovation, which is a general problem for SMEs. As a result the cognitive distance is often too large to achieving efficient knowledge transfers from universities, technology bodies and large firms.

Weak infrastructure

The region's geographical attributes (very hilly) have resulted in a poor transport infrastructure, which is an obstacle for attracting investors into the region, although it does not appear to be a significant impediment to business efficiency.

Multi-level governance arrangements lack synergy

Administrations and agencies on the national, regional, and sub-regional (provincial) levels are all working in SME and entrepreneurship policy and programme support and this is associated with some degree of overlapping as well as a fragmentation of public support services. The lack of a more proactive strategic framework for SME and entrepreneurship development also compromises the potential of local actors to work together to achieve the objectives of "greening" the economy and shifting to growing markets and sustainable business models.

Threats

Unemployment and under-employment due to progressive industrial restructuring accelerated by the global recession

The current unemployment rate appears to be artificially low. Redundancy funds and other policy interventions as well as family and social solidarity have masked some of the job losses that could be expected from the 30% contraction in export demand that has been experienced. The economic crisis has also conflated structural and cyclical weaknesses in the production sector thus making appropriate, incremental restructuring difficult to calibrate. Assuming that the current contraction in export demand (and the associated over supply of labour) is entirely cyclical (rather than partially structural) would be a mistake. The danger is that unemployment will rise in the long run if necessary restructuring is put back further.

Distributional inequalities (by occupation/industry, province, gender, age, and immigration status)

Inequalities in the labour market (in terms of access and opportunity) tend to lead to persistent inequalities in income. If these inequalities appear to be structural rather than random, they tend to threaten social cohesion. Structural inequalities are those that follow firm or work lines, occupational or industry boundaries or those that follow demographic lines, including gender, age, and immigration status. A consistent gap in access to work opportunities for women, immigrants or young people tends to erode cohesion. The absence of policies addressing well understood patterns of structural inequality across occupational or industry boundaries acts as a threat to local social cohesion, which has been an important feature of the success of the regional economy in the past.

High mortality rate of established enterprises as owners approach retirement

Most of the companies in the Marche region were established during the rebuilding phase of Italy, after the Second World War. The region is now experiencing a vigorous threat caused by ageing of the founders, requiring an active inter-generational succession phase. It is estimated that one-third of existing entrepreneurs will have to find a successor in the next five years[3] and the handover process may not always be easy.

Post-war business and management approach

Marche companies are mainly family-run and family-owned. Out of the 218 large companies, only 5 are not run by family managers. The so-called managerial revolution involving a separation between managers and shareholders is not strongly embedded in the Marche region. This might hinder the development and internationalisation of companies. Moreover, managerial competence is not by definition present within the family. Therefore, it is often suggested that the best way to maintain a sustainable development is by assuring that the initial pioneer-entrepreneur is succeeded by an external manager. The same applies to the board, where external independent board members can help develop the company as they are not obliged to find the right equilibrium between family interest and company interest. This has not been occurring to a sufficient extent in the Marche.

[3] Mussati, G. (2008) "Overview of Family Business Relevant Issues: country fiche Italy", Brisseld.

Loan culture

The traditional character of the region is also reflected in the financing of local companies. The pecking order theory suggests that the first choice for financing is retained earnings, followed by external debt. External equity is the last resort. This is evident in the Marche, where there is a a tendency to debt financing which implies a high risk of illiquidity and a reliance on commercial relations for financing. In the case of recession, reduced turnover or losses due to non-payment by customers, companies with high debt ratios are put in a risky position and could even face bankruptcy.

Policy recommendations

In response to the above-mentioned challenges, the following main policy recommendations are offered. They are developed and discussed in more detail in the report.

Box 1. Main policy recommendations

Human capital and the labour market

- Increase advanced manufacturing training and skill development to keep pace with technological changes in production processes and service sectors.
- Target female and migrant entrepreneurship to diversify the regional economy and increase women's labour market participation
- Integrate the agricultural and tourism industries to exploit entrepreneurship opportunities throughout the region, taking advantage of the natural scenic resources of Marche.

Entrepreneurship and new start-ups

- Cultivate an entrepreneurial culture amongst both labour market entrants and existing entrepreneurs by actively involving the school and university systems in awareness-raising and education campaigns.
- Address the issue of inter-generational firm transmission as an opportunity to upgrade local entrepreneurship.
- Look at start-ups and university- and corporate spinoffs as key drivers of growth-oriented entrepreneurship.
- Deploy an adequate business support infrastructure to sustain business creation and business development.

Enterprise development

- Introduce the "no wrong door" policy principle to help SMEs orientate themselves amongst the range of business services offered in the region.
- Further develop mutual credit guarantee schemes and launch love-money programmes to address the needs of micro and small businesses.
- Promote subordinated forms of capital and neutralise the fiscal advantage of bank financing to support financing in large companies.
- Foster equity finance by promoting networks amongst entrepreneurs and between entrepreneurs and

investors in such a way as to stimulate the emergence of an equity-seeking mindset and of a regional equity market.

Contribution of research organisations

- Take the leadership in fostering greater university-industry co-operation and inter-university collaboration to enhance the innovativeness and modernisation of the regional economy, building on the concept of "related variety".

- Develop educational programmes for entrepreneurs and SMEs to increase the absorptive capacity of local firms and thereby embed them more strongly in the local innovation system.

- Consider concentrating resources (financial and human) in the promotion of centres of excellence to attain the necessary critical mass to be innovative and competitive in a globalised knowledge-based economy.

Governance and environment

- Improve policy governance by endowing the regional development agency (SVIM) with more powers and by building consensus around a development strategy setting measurable goals.

- Prioritise econo-environmental issues by working with lead firms that show a potential for ecological modernisation, and by subsiding basic and precompetitive research in clean technologies.

- Pursue the econo-environmental strategy through the establishment of a transversal technology centre acting as the identifier of opportunities around cross-fertilising technologies, and the creation of an innovation fund for demand-side policies (e.g. public procurement for innovation and creation of "lead markets").

I. LOCAL DIAGNOSTIC ASSESSMENT

1. Introduction: a balanced development.

The Marche region, in central Italy, has a history and an economic evolution that symbolise a model of development called the "third Italy". This model is characterised by the presence of small and medium enterprises (SMEs), often run by a family and based on "districts" which have appeared, up to now, as forms of flexible non-Fordist industrialisation devoted to exporting their products (Storper 1989, in Carboni, 2005.).

The beginning of the Marche evolution lies in the phenomenon of share tenancy, a farming organisation that was common in central Italy in the past. The farmer was the tenant of the land, which was rented from the landholder. Although only the farmer worked the land and bore all the expenses, the crop was divided equally between the tenant and the landholder. There were even further unfair rules, which were accepted, although they outraged the dignity of the farmer and his family.

Afterwards, many share tenants abandoned the land and became entrepreneurs, in the industrial or trading sectors, first undergoing an intermediate phase called "metal–share tenancy". In this phase, especially young people started working in factories, though they still lived with their peasant family."The former share tenants who arrived in the towns worked better in the extra-farming sectors chosen by them" (Anselmi, 1987), and, in these activities, they showed to be responsible and enterprising.

According to a recent report by Censis,[4] the Marche model of widespread industrial development, based on the spontaneous presence of small businesses in the regional territory, showed a paradox: "the paradox of proliferation without welfare". The long period of proliferation of businesses, the widespread vitality, the chaotic growth of the molecular dimension, together with the absence of efficient mechanisms of rationalisation, did not manage to create levels of economic wealth and of social welfare comparable to those of the North East of Italy. Furthermore, these levels are not adequate and proportionate to the resources used (Censis, 2002).

However, it must also be pointed out that the widespread development of the Marche region has so far showed a high degree of social cohesion, avoiding the depopulation and degradation of rural areas that occurred in other parts of Italy. For instance, natural parks and reserves nearly cover 10% of the regional territory (Natura 2000). Furthermore, it has facilitated a good integration between the rural world and the urban system and, consequently, between peasant and non-peasant work, thus following a line of behaviour also emphasised by the European Community. [5]

4 . Censis (Centro Studi Investimenti Sociali) is an Italian socio-economic Research Institute, which studies the different sectors of the Italian society and gives consultancy.

5 . European Commission, *Green book about territorial cohesion: How to turn territorial diversity into a strength*, Brussels, 2008.

Marche's development model has also ensured and strengthened the population's quality of life. The number of reported crimes every 100 000 inhabitants is 3 547, whereas the national average is 4 708 (in 2006). Life expectancy is higher than the national average: for women, the percentage is 85.2 years (the national average is 79.5), while for men it is 81.1 (the national average is 78.6). The Italian newspaper "Il Sole-24 Ore" prepares an annual ranking about quality of life in the more than 100 Italian provinces and, unsurprisingly, Marche's provinces are generally among the top-10 positions.

2. Data and indicators

The Marche region extends over an area of 9 694 squared kilometres, in a strategic position in the Balkan-Mediterranean area. Hills cover 68.8% of its territory, while the remaining 31.2% is mountainous. The region has five provinces (Ancona, Pesaro-Urbino, Macerata, Ascoli Piceno and Fermo, recently created), 1 569 578 inhabitants and 239 Municipalities. Almost all these municipalities are very small: only 15 of them have more than 20 000 inhabitants, with a rate of urbanization (45%) lower than in other regions of Central Italy (64.4%), and lower than the national average (51.9%).

2.1. Main economic indicators

With regard to the main economic indicators, Regional GDP passed from EUR 30 528 million in 2000 to EUR 41 280 million in 2008. In 2007, GDP per capita at market prices was about EUR 26 166, much above the national average of 21 369 (Source: ISTAT 2007). According to data issued by ISTAT, the Marche region registered the highest GPD growth among the other regions, in the period 1998/2008 (+18.2%), against a regional average (for the other regions) of +12.8%.

On the other hand, Marche's per capita added value is lower than the national one and much lower than other Italian areas, such as Centre and Northern-East.

Table 1. Main indicators of economic development

	Marche	Centre	North-East	Italy
Per capita added value	98.4	111.1	117.7	100.0
Work output**	81.7	104.9	94.2	100.0
Employment rate	111.1	---	---	100.0
Per capita available income	101.6	108.6	115.2	100.0
Per capita consumptions	101.3	108.4	116.0	100.0

Source: processing based on ISTAT data (see www.ISTAT.it) in Favaretto-Zanfrei, 2007

This gap can be explained by the regional productive structure. In Marche there are small or very small businesses usually that are labour intensive rather than capital intensive (Formentini, 2004). Moreover, regional production is negatively affected by poor infrastructure, with the exception of road and rail networks, better than the national average but poorer than the average in Central Italy. As to social, cultural, leisure, healthcare and education facilities, the Marche is in line with the national and North-East average, whereas it is at a lower level than Central Italy.

** added value for workers employed in non-agricultural activities.

Table 2. Main indexes of territorial competitiveness in Marche and in Italian macro regions

	Marche	Centre	North-East	Italy
Index of the road network provisions **	108.1	97.3	109.2	100.0
Percentage point difference compared to 1991	*- 3.9*	*- 2.1*	*5.4*	*0.0*
Index of the rail network provisions**	106.5	133.4	107.8	100.0
Percentage point difference compared to 1991	*33.4*	*15.2*	*6.5*	*0.0*
Index of harbour provisions (and catchment areas)**	71.1	79.6	146.7	100.0
Percentage point difference compared to 1991	*- 51.2*	*- 8.5*	*- 9.7*	*0.0*
Index of airport provisions (and catchment areas)**	50.4	148.9	76.7	100.0
Percentage point difference compared to 1991	*- 4.9*	*- 1.2*	*- 1.0*	*0.0*
Index of energy, environment and network provisions **	83.1	94.9	132.8	100.0
Percentage point difference compared to 1991	*4.8*	*1.2*	*11.0*	*0.0*
Index of telephone and telematic systems and network provisions **	84.1	115.8	94.3	100.0
Percentage point difference compared to 1991	*- 2.2*	*4.2*	*- 10.5*	*0.0*
Index of banking provisions and various services **	97.0	111.6	115.0	100.0
Percentage point difference compared to 1991	*- 7.9*	*- 24.8*	*0.6*	*0.0*
General index of economic provisions **	85.8	111.7	111.8	100.0
Percentage point difference compared to 1991	*- 4.5*	*- 2.2*	*0.4*	*0.0*
General index of provisions (economic and social)**	88.6	118.4	107.0	100.0
Percentage point difference compared to 1991	*- 4.0*	*- 2.2*	*- 2.2*	*0.0*

Source: Istituto Tagliacarne (see. unioncamere.it/atlante), in Favaretto-Zanfrei, quote.

In respect of family welfare, Marche has higher values than the national average, both in terms of income and consumption, but lower than Central and North-East Italy.

Table 3. Family welfare and facilities (services)

Indicators	Marche	Centre	North-East	Italy
Facilities for education (Italy=100) - 2004	102.1	112.3	99.1	100.0
Percentage point difference compared to 1991	*- 10.1*	*1.5*	*- 3.0*	*0.0*
Facilities for health care (Italy=100) – 2004	92.2	113.1	97.1	100.0
Percentage point difference compared to 1991	*- 9.7*	*7.0*	*- 14.9*	*0.0*
Social facilities (Italy=100) – 2004	97.0	136.1	99.4	100.0
Percentage point difference compared to 1991	*- 3.4*	*- 1.7*	*- 9.0*	*0.0*

Source: Istituto Tagliacarne ,2004; (see. unioncamere.it/atlante) in Favaretto-Zanfrei, quote

** Italy index number = 100.

*** The Central Italy area does not include the Lazio region, where there is a metropolis like Rome.

Table 4. Family welfare and facilities (finances)

Indicators	Marche	Centre	North-East	Italy
Banks liability/ordinary clients' posts (every 100 000 inhabitants)	4.18	5.34	3.35	4.70
Number of protests/population (every 100 000 inhabitants)	2 789.4	3 688.5	1 391.9	2 833.4
Companies that declared bankruptcy/total number of companies (every 100,000 inhabitants)	0.19	0.30	0.16	0.21

Source: Bank of Italy, 2004 (see. unioncamere.it/atlante), in Favaretto-Zanfrei, quote.

Table 5. Family welfare and facilities (security)

Indicators	Marche	Centre	North-East	Italy
Number of reported crimes/population (every 100 000 inhabitants)	3 405	4 626	4 343	4 244
Reported property crimes (every 100 000 inhabitants)	2 277	4 200	2 797	3 709
Urban population with shelter problems (percentage)	1.9	9.0	2.6	8.6

Source : ISTAT, 2003 (see. unioncamere.it/atlante) in Favaretto-Zanfrei, quote.

On the other hand, Marche has a good bank liabilities-posts ratio, as well as a good proportion of protests to population. These data show, from an anthropologic point of view, how sober Marche inhabitants are and why Marche's entrepreneurs are reluctant to get overly indebted. Furthermore, Marche is the region with the highest number of productive businesses: there is one active business for every 10 inhabitants, which is much higher than the national average (1 for every 15) and the European one (1 for every 25) (Source: Infocamere – Medimpresa, 2007). The economy of this region is, thus, among the top 15 industrialised economies in the EU.

As for tourism, in 2008 the tourist arrivals decreased by 2.2% and tourist presences by 4.9% (a trend opposite to 2007), according to the data drawn up by the Marche region. On average, stays lasted 7.2 days. In general, the number of foreigners was below 14%, while at a national level in 2007 this percentage was 43.4%.

2.2. Business structure

At the end of 2007 in Marche there were 160 707 businesses (data provided by UnionCamere-Movimprese), with a growth of 0.8% in respect to 2006, when the percentage was, again, higher than in 2005 (+ 0.6%). This confirms a progressive, though moderate, growing trend, higher than the national average (only 0.3%). In most cases, these businesses are: individual concerns: 106 193 (66.1%); Partnerships: 30 390 (18.9%); Companies: 21 722 (13.5%); Others: 2 402 (1.5%).

According to other data, the number of registered businesses in 2008 was 178 536, more or less like in the previous year and with an increase by 4.2% compared to 2004 (Observatory of the regional labour market based on data issued by Movimprese). In the first two quarters of 2009, the number of registered businesses is, respectively, 177 276 and 177 734, with a small decrease compared to the previous year (-0.1% and –0.3%). However, there has also been a reduction in the difference between the number of registrations and that of bankruptcies.

Table 6. Percentage composition of businesses in Marche and in Italian macro regions

Businesses	**Marche**	**Centre**	**North-East**	**Italy**
Total active businesses (in thousands)ò *Weight of activity sectors, among which (expressed as percentage)*	156 823	944 959	1 077 294	5 061 859
• agriculture, hunting and forestry	23.4	16.8	20.6	19.0
• fishing, fish farming and relevant services	0.5	0.2	0.4	0.2
• mineral mining	0.1	0.1	0.1	0.1
• manufacturing activities	15.5	13.4	13.8	12.7
• production and distribution of electric energy, gas and water	0.1	0.0	0.1	0.1
• building activities	12.9	14.1	14.7	13.7
• trade and repair	24.5	28.8	22.9	27.9
• hotels and restaurants	4.1	5.1	5.6	4.9
• transports, storing and communications	3.6	4.1	4.2	3.8
• monetary and financial mediation	1.9	2.2	1.9	1.9
• estate agencies, renting, IT and research activities	8.0	9.0	10.8	9.8
• public administration and defence; obligatory social insurance	0.0	0.0	0.0	0.0
• education	0.2	0.3	0.3	0.3
• healthcare and other social services	0.3	0.4	0.3	0.4
• other public, social and personal services	4.5	4.8	4.1	4.4
• homeworks for families	0.0	0.0	0.0	0.0
• non-classified businesses	0.5	0.6	0.3	0.7

Source : processing of data issued by Infocamere – year 2004, in Favaretto-Zanfrei, quote.

As to sector distribution, the share of the primary sector and of manufacturing is higher than the national average. In particular, the impact of traditional manufacturing on the regional economy is still quite significant. Small and medium businesses play an important role in the regional economic system, with a significant number of handicraft businesses specialised in manufacturing activities (16 businesses every 1 000 inhabitants, against 11 in Italy). Both in terms of establishments and of number of workers, in Marche the percentage of manufacturing companies out of the total number of handicraft enterprises is higher than in the North-Centre and in Italy in general. As for establishments, Marche is only surpassed by Veneto, whereas it is only surpassed by Tuscany as far as the number of workers is concerned.

Table 7. The Marche economy compared to other Italian geographical areas

Businesses	**Marche**	**Centre**	**North-East**	**Italy**
Density of businesses out of 100 inhabitants (active businesses)	10.33	8.40	9.77	8.66
Active handicraft businesses/total active businesses (percentage)	32.5	30.3	32.3	28.7
Business classification based on size: (%)	54.5	58.7	54.4	58.6
• with 1 worker				
• with 2 workers	18.6	17.8	18.5	17.5
• between 3 and 5 workers	15.6	14.2	15.5	14.1
• between 6 and 9 workers	5.3	4.6	5.4	4.7
• between 10 and 15 workers	2.8	2.3	2.9	2.4

• between 16 and 19 workers	0.9	0.7	0.9	0.7
• between 20 and 49 workers	1.7	1.2	1.7	1.3
• between 50 and 99 workers	0.4	0.3	0.4	0.3
• between 100 and 199 workers	0.1	0.1	0.2	0.1
• between 200 and 249 workers	0.0	0.0	0.0	0.0
• between 250 and 499 workers	0.0	0.0	0.1	0.0
• between 500 and 999 workers	0.0	0.0	0.0	0.0
• more than 1 000 workers	0.0	0.0	0.0	0.0
Incidence Added Value Services (year 2004)	67.5	75.8	65.9	70.9
Handicraft A. V. /total A. V.	18.4	11.2	15.6	12.4

Source: ISTAT (2001). in Favaretto-Zanfrei, quote.

Moreover, according to data provided by Mediobanca-Unioncamere, from 1996 to 2005, the number of workers in medium-sized enterprises of the Marche (50-499 workers) increased by 36%. Only Puglia has a better result; all the other regions of Central Italy have a lower percentage than Marche's (Umbria, 26.8%; Emilia Romagna, 22.7%; Tuscany, 16.9%).

The birth/death rate of businesses in the Marche is more or less the same as in the rest of Italy: Registration rate in the Marche, 7.0 (in Italy, 7.1); Deregistration rate in the Marche 7.1 (Italy, 7.1); Net change rate in the Marche, - 0.1 (Italy, -0.1), with a sequence that has been following this trend since 2000:

Table 8. Comparison between Italy and Marche of trends in net change rate

	2000	2001	2002	2003	2004	2005	2006
Marche	1.8	2.3	1.8	1.8	1.9	2.0	1.6
Italy	2.5	2.6	2.1	2.0	2.2	1.9	1.4

This trend shows, though slightly, that an overall structural reorganisation is taking place. Secondary businesses leave the market, other businesses are merged and there are new types of entrepreneurship (Censis, 2006). This is a sign of the strong liveliness of in the enterprise system in the Marche, because these businesses are established by young people, aged between 30 and 40, and they are innovative in terms of business co-operation (for instance, in franchising), of products and services sold, of sales channels, and of the organizational system (Censis, 2006).

The liveliness of the Marche's businesses is also witnessed by the fact that in 2005 35.4% of these companies were led by a manager younger than 30 and in 2007, 37.7% of companies were led by a manager between 30 and 40.

However, this trend is less significant for women. In 2005, the percentage of women leading a business (16.9%) was lower than the national one (25%), thus confirming that the approach of women to business management is quite difficult. This is mainly due to a social model that rarely manages to identify a woman with an entrepreneurial activity, but it is also due to the fact that a certain number of women start a business after a period of inactivity or still try to find solutions to a critical period or to reconcile work and family commitments (Censis,2006).

2.3. Export and internationalisation

As for the **exports** of Marche, in 2008 exports at current prices were down by 14.5%, but this figure can be reduced to 9.6% if we do not take into consideration some particular intra-group transactions in the chemical sector. While exports towards EU countries and the United States decreased (especially towards the United Kingdom, also because of the exchange rate between euro and pound) exports towards Asian markets increased by 10.6% (even if this is less than in 2007). This trend is above the Italian average in some of the most important countries with emerging economies: Brazil, India, China and Turkey. On the other hand, on the Russian market, the exports of Marche have increased by 10.6% per year, on average, to 17.2% at a national level, in a context of significant growth for that country (Source: Bank of Italy).

The "active internationalisation" in the Marche is also witnessed by the fact that between 2000 and 2006, if, on the one hand, exports towards some Western countries (included Germany) had a contraction, on the other hand those towards Eastern European countries (such as Romania, Ukraine, Croatia, Bulgaria, Hungary and Russia) significantly increased. As stated by CENSIS in 2006, in order to keep and implement this positive trend, it is necessary to strengthen every service, from logistics to professional tertiary sector, and to increasingly involve small businesses in the internationalisation process. This can be done by creating specific instruments aimed at fostering cooperation among businesses and between businesses and Universities, under the leadership of the regional development agency SVIM.

In general, between 2002 and 2007, the rate of exports positively varied by an average of 8%, thus placing Marche in the second place in Italy for the annual growth rate in exports. In 2008, again, imports decreased by 9.3%, with a strong reduction in the chemical sector (-33.7%) and in the production of metal items (-23.5%).

The Marche businesses do not import much (16.8% of GDP, compared to 23.6% of Italy): thanks to this, they have a constantly active balance (EUR 5 094 million in 2007), against the national negative one in the same year (EUR 1 972 million). These data confirm that the business system of the Marche is strongly directed towards exports.

As to foreign direct investment, the participation of Marche firms to the capital of foreign businesses has increased, whereas there is a resistance to any form of control that foreign businesses could operate on regional firms. Between 2000 and 2005, the number of foreign businesses with a participation in Marche firms increased (from 373 to 436, with an increase by 16.9%), whereas the number of foreign firms controlling regional ones did not change much and is almost nil. The main consequences have been both an increase in people working abroad (+16.3% compared to the national average of + 4.8%) and an increase in turnover (25.6%, compared to the national average of 6.5%).

As to foreign businesses with a participation of Marche's enterprises, the distribution is as follows: European Union, 40.1%: 22.4%, 2001-2005 percentage change; Eastern Central Europe 28.0%: 15.1%, percentage change; other European countries, 4.1%: 28.6%, percentage change; Africa, 2.3%: 11.1%, percentage change; Northern America, 6.7%: 3.6%, percentage change; South Central America, 4.4%: 5.6%, percentage change; Middle East, 0.7%: 50.0, percentage change; Central Asia, 1.6%: 16.7%, percentage change; Eastern Asia, 11.5%: 8.7%, percentage change; Oceania, 0.7%: 200.0%, percentage change.

2.4. Employment and unemployment

In 2008, the total regional employment rate was 64.7%, nearly the same as in 2007 and above the national average (58.7%), but lower than in all the other North-Centre regions, with the exception of Liguria and Umbria. The highest percentage is in the province of Ancona, followed more or less at the same level by Pesaro-Urbino and Macerata, then by Ascoli Piceno (Source: ISTAT, 2008). According to the Report relating to the workforce drawn up by ISTAT in 2008, the number of workers resident in the region increased by 0.6% (0.8% in Italy), less than in the previous year (1.0%): this increase is the result of a decrease in male employment (-1.1%) and of an increase in female employment (2.9%), both in wage employment (0.3%) and in self-employment (1.6%).

However, in 2009, there still is a deep gap between male employment (72.3%) and female one (55.9%). This datum characterises all the sectors of activity, with the only exception of the service sector. This confirms a "feminisation" of the tertiary sector, in particular for some jobs (e.g.: school teachers, post offices, local public institutions, etc.). From 2000 to 2006, the employment rate of people older than 55 increased by nearly 3 percentage points. According to Eurostat data, this rate is nearly 35%, still far from the EU benchmark (50% within 2010). The same source also shows that from 2000 to 2006 there has been a decrease by 4% in youth employment rate (15-24 years old). From 2005, there has been an increase in the "gender" gap referring to employment rates (with a penalization for women).

A worrying signal is the fact that 19.3% of people looking for a job have a degree. Furthermore, the search for a new job really seems more difficult than looking for the first job: 70% of those who have been looking for a job for more than 12 months worked before, but then they lost their job.

The percentage of employees classified by sector of economic activity was, in 2007, 2% for agriculture, lower than the national average (4%); 39% for industry, higher than the national average (30%); 59% for the service sector, much lower than the national average (66%). These data are offbeat, if compared to what happened in Italy: the manufacturing industry has often been replaced by the service sector. In the Marche, on the other hand, there has been an increase in the production of foodstuff, in metal working, in mechanics, in the production of household appliances and in the footwear industry.

The definite growth of foreign population led to an increase in the workforce, with more than 700 000 workers in the last three months of 2008 (Source: Bank of Italy, *Regional economies*, 2009 – Marche).

For 2008, at a regional level, ISTAT estimates that the unemployment rate will be 4.3%, better than in 2004, but worse than in 2006.

Table 9. Unemployment rate in the Marche from 2004 to 2008

	Men			Women			Total		
	2004	**2006**	**2008**	**2004**	**2006**	**2008**	**2004**	**2006**	**2008**
Macerata	3.8	3.0	4,6	7.3	5.6	4.0	5.2	4.0	4.3
Pesaro-Urbino	3.0	3.2	2.8	7.7	4.2	7.5	5.0	3.7	4.8
Ancona	4.1	2.8	2.8	6.6	5.6	4.9	5.2	4.0	3.8
Ascoli Piceno	4.2	3.7	5.5	7.9	10.6	6.3	5.8	6.5	5.9
MARCHE	3.8	3.2	3.9	7.3	6.4	5.7	5.3	4.5	4.7

Source : ISTAT (2009)

In the last twenty years, the general unemployment rate in the Marche has followed a worrying trend, especially in the last few years. As a matter of fact, if, on the one hand, between 1993 and 2007 this rate decreased, even despite some critical moments, on the other hand, from 2008, and in particular in 2009 (II quarter), it strongly increased. The unemployment rate is now at 6.3% for men and slightly more for women (6.4%), whereas at the end of 2008 it was "only" at 4.7%. Similar data haven't been recorded since the 90s.

Table 10. Unemployment rate in the Marche from 1993 to 2009 (II quarter)

	1993	1995	1997	2001	2004	2006	2008	2009
MARCHE	6.4	6.8	7.0	4.6	5.3	4.5	4.7	6.3

Source : ISTAT (2009)

At the beginning of 2008, about 115 000 foreign-born immigrants lived in the Marche, 7.4% of the total population of the region, against 5.8% at a national level. For the same year, according to the workforce data contained in the ISTAT Report, foreigners employed in the Marche region formed, on average, 8.8% of the total workforce (7.3% was the national average), while in 2005 they represented 6.3% in Marche and 5.2% in Italy.

Throughout 2008 and as a result of the growth of the students' population, 34.2% of the immigrants living in Marche were less than 25 years old. According to the data gathered by the Italian Ministry of Education for the school year 2007-2008, almost 10 students out of 100 were foreign citizens, while the national average was 6.4%.

As far as income support measures are concerned, in 2008 short-time allowances were more than twice compared to 2007 (104.7%) and in the first three months of 2009 they increased fourfold compared to the same period of the previous year. In 2008, the increase was mainly due to extraordinary intervention measures taken (112.7%) for restructuring, re-organising or improving sectoral or territorial crises.

3. Businesses and number of workers

As for the **businesses and the number of workers** in key sectors, this is a brief description of the situation:

- *Leather, shoes, accessories*: 4 500 businesses/36 000 workers. In Italy, Marche is at the top in this sector: 90% of business workforce is located in the provinces of Macerata and Ascoli Piceno. The main markets for exports are the Russian Federation, Central-East European countries, Far East countries, EU countries (especially Germany) and North America, with a total value of more than EUR 2 billion in 2008.

- *Fashion*: 2 400 businesses/19 000 workers. This sector is distributed all over the region and has an export market mainly addressed to non-EU countries, especially the Russian Federation, then followed. The total value exceeded EUR 600 million in 2008.

- *Wood and furniture*: 3 000 businesses/27 000 workers. This sector is present mainly in the province of Pesaro-Urbino, although there are important businesses also in the other

provinces. It also includes technologically advanced production of machine tools for woodworking. The group is made up of kitchen producers, which drives the whole sector, with exports towards the Russian Federation especially, representing a value of EUR 722 million (2008).

- *Mechanics*: 1 900 businesses/72 000 workers. This is the most important sector of the regional economy and is specialised in different activities, concentrated in different areas. Shipbuilding in Ancona, Pesaro and Fano (with 425 businesses and 2 000 workers), household appliances and hoods in Fabriano, electronic equipment in the provinces of Macerata and Ascoli Piceno, agricultural machines in the Jesi area, woodworking machines in Pesaro, moulds in the Ancona-Jesi-Osimo area. The value of exports, mainly towards the EU, the US and the Russian Federation, was EUR 3 billion in 2008.

- *Agro-foodstuffs industry:* 2 700 businesses/15 000 workers. This industry is really varied and clearly connected with agricultural and fishing activities. The peculiar feature of this sector is the fact that 95% of these businesses are small (up to 15 workers), while those with more than 50 workers employ 24% of the sector's total workforce. Almost 70% of businesses are specialised in the production of bakery, pastry products and pasta. Marche created the collective brand *Qualità Marche* (Quality Marche) – QM – as an instrument to give more value to the whole regional foodstuffs system. Exports are geared towards a wide number of countries: EU countries, Saudi Arabia, Arab Emirates, Tunisia, Turkey, Japan and Canada, representing a value of EUR 192 million (2008).

- *Rubber and plastic:* around 500 businesses/9 000 workers. Recanati is an area specialised in the production of plastic material, household items and whirlpool showers, whereas the province of Pesaro-Urbino is a centre for the production of plastic kitchen components.

Finally, the area of Osimo and Recanati is clearing the way for "mono-cultural" activity. In fact, it is becoming a centre of different specialised productions (2 700 businesses and 23 000 workers): illuminating engineering, photovoltaic arrays, advanced telecommunications, music instruments, toys and giftware, electronic equipment and components, working of metals and of precious stones.

In conclusion, regional production is traditionally divided into about 30 productive clusters: Sassocorvaro (PU), Piandimeleto (PU), Sant'Angelo in Vado (PU), Urbania (PU), Pergola (PU), Pesaro (PU), Fossombrone (PU), Mondolfo (PU-An), Serra De Conti (An), Fabriano (An- Mc) Cingoli (Mc) Treia (Mc), Tolentino (Mc), Urbisaglia (Mc), Montegiorgio (Ap- Fm), Montefiore dell'Aso (Ap-Fm), Fermo (Fm) Montegranaro (Fm), Monte San Pietrangeli (Fm), Porto Sant'Elpidio (Fm), Civitanova Marche (Mc), Monte San Giusto (Macerata), Osimo (An), Recanati (Mc- An), Ostra (An), Mondolfo (PU, An).

4. Universities and the research and innovation systems

There are four universities in the Marche region:

- Polytechnic University of the Marche: Among the best applied-science universities in Italy, it counts approximately 14 000 students (28% of whom from the region), five faculties, and 18 departments. The university has carried forward over the last years an internationalisation process that interests all activities, from teaching to research. As a result, the Polytechnic University has signed agreements with other EU and extra-EU universities to strengthen academic relationships and favour the mobility of professors, students, and administrative personnel.

- University of Urbino "Carlo Bo": An example of Italian city-campus, it boasts 16 000 students (33% of whom are from the Marche), 10 faculties, 6 departments, 20 postgraduate courses, nearly 70 research institutes, 6 laboratories, and one technology transfer office.

- University of Camerino: it has over 8 000 students (17% from the Marche), 5 faculties, 12 departments, and 5 specialisation schools. The University actively promotes the international mobility of both academics and students.

- University of Macerata: Among the oldest of Europe, this university counts over 11 000 students (22% from the Marche), 7 faculties, 13 departments, 9 institutes, 4 schools of specialisation, and a Higher Studies Institute. As with other universities in the region, Macerata is also actively embedded in a network of international relationships with EU and non-EU universities.

At a regional level, the number of technical-scientific degrees among the 20-29 year-old students (out of 1 000 residents) is 12.8%, while the national average is 12% (source: ISTAT, 2006). Furthermore, the percentage of 20-24 year-old people with a high school leaving qualification is 80.6%, and also in this case it is above the national average (75.7%).

However, in spite of the high number of degrees in the Marche (after Liguria, Umbria, Lazio, Emilia Romagna and Lombardy for number of graduates resident in the region in the respect to the population), the regional economy manages to keep fewer graduates than the national average (83.1% against 85.9%) (Favaretto-Zanfrei, 2007).

An important role in the Marche's knowledge system is carried out by the technological research centres, which support businesses in the research and transfer of technology, applied to production. They, thus, foster innovation and internationalisation processes and supply services to businesses:

- *Cosmob*: technological transfer centre in the sector of wood furniture, whose seat is in the province of Pesaro Urbino;

- *Meccano*: technological transfer centre for the mechanic sector, in the province of Ancona;

- *Scam*: technological transfer centre for the shoemaking and leather sectors, in the province of Macerata;

- *Asteria*: technology transfer centres in the agro-foodstuffs industry, in the province of Ascoli Piceno

In addition to these four technology centres, other centres of relevance in the Marche region are the following:

- *Cta*: textile consortium for clothing businesses in the Marche. It supplies designing and training services;

- *Mit*: Marche Innovation Trading is a Consortium created by the four Marche Universities, by some of the centres mentioned above (Cosmob, Meccano, Scam and Cta) and by trade associations. It combines transactional innovation activities and training processes;

- *Tecno Marche*: a scientific and technological park supported both by public and by private funds (the latter are the majority, 56.43%). Its fields of research deal with "key enabling technologies", for manufacturing and innovative sectors.

- Finally, *Comit*, the Consortium of the University service centres of the Marche, coordinates the service centres of the four Centres present in Mit. It checks that every single project is coherent with the targets planned by the Region.

Also the role played by SVIM – Sviluppo Marche spa – (Development Marche spa) is significant. This Regional Development Agency was created by the regional law no. 17/99 and is entirely supported by the Region. SVIM is instrumental in implementing the wide range of regional development policies, including through bidding for EU and national funding.

All the regional research activities need a complex evaluation. A research has recently done this by using some indicators, even though it did not take into consideration the typical activities of small and medium businesses of the Marche (that is, designing and engineering) (Calabrese, Coccia, Rolfo, 2002). The EU *Community Research and Development Information Service* (Cordis) registered all the financed research projects carried out within the Framework programmes for research and innovation between 1995 and 2004. Furthermore, the national Research Registry Office has data about all the registered Centres. Thanks to all these data, it is possible to state that the Marche region does not carry out many research activities (the only exception is the province of Ancona), especially if compared to neighbouring regions (see Favaretto-Zanfrei, quote) and despite the fact that, in certain cases (such as the 5th Framework Programme for SME) Italy had the highest number of financed projects.

Furthermore, US Patent Office (USPTO) data show that the number of patents owned by businesses of the Marche, but whose inventors are not from this region, is really low. On the other hand, the number of patents by inventors from this region, but owned by external businesses, is high (Favaretto-Zanfrei, quote 170). Briefly, this shows that the Marche has competent human resources, but not enough businesses or organisations are capable of using them at best.

The number of trademarks registered by Marcher businesses is lower than the national average and highlights the fact that the regional production is largely oriented towards subcontracting. Although some *brands* of the Marche are well known worldwide, the businesses of this region often seem not to invest enough in order to be recognised on the market and to be more competitive.

Similarly, they undervalue the importance of certifications, in particular the environmental one (ISO 14001). Also the number of sites certified by regional manufacturing companies is very low (8.6%), against a national average of more than 14% (Unitary Document about Regional Planning).

As far as R&D funds are concerned, among industrialised countries Italy is the one that spends fewer resources on that (1.1% of GDP in 2006). At a regional level, the Marche passed from 0.42% of investments for R&D in 1995 to 0.57% of GDP in 2005 (Met[6] Report 2008, Marche). Furthermore, the funds coming from the private sector should be two thirds of total ones, but in 2005 they were only 40% (Met Report quoted, based on Eurostat data). Based on data from the Unitary Document about Regional Planning (July 2008), total expense for research (Public Administration, Universities, businesses) ranges between 1.5% and 2% of the national one, which means that the value of this expense is still too low, both in terms of GDP (2.6%) and of population (2.6%).

[6] Met: Monitoring Economy and Territory. It is a company that carries out researches and analyses economy, public policies, industrial policies, etc. (*Editor's note*)

As far as the propensity for innovation is concerned, the activities of regional small and medium enterprises mainly belong to the sectors of components, intermediate goods and specialist equipment. "They form an innovative system based on products that are not necessarily highly technological, but with a higher level of design and quality than competing products" (Met Report, quote, 52). Innovation seems to derive from "*learning by doing*" processes, rather than from the cooperation with the research system. This is also due to the fact that small and medium enterprises are dynamic and flexible and, thanks to their interconnections (e.g. with suppliers and final clients), they are also innovative, without any link with the research system and with Universities.

This combination between micro enterprises and micro innovation clearly limits the evolution of the system towards new and more advanced forms of innovation. This is also witnessed by 2006 Censis data, according to which the expense for Research and Development activities was half of the Italian average and the number of those working in this field, out of all the inhabitants, is much lower than the national one (1.8 out of 1 000 inhabitants, against a national average of 2.8%), than Central Italy (4.1) and the North-East (2.9). Furthermore, although the Marche is one of the regions with the highest rate of internationalisation, in its companies the use of new communication technologies is lower than the national average. In 2005, out of 100 companies with more than 10 workers, 86.1% (against a national average of 91.7%) had an Internet connection; 48.7% (the national average was 56.7%) had a broadband connection; 51.4% (against a national average of 54%) had a web site and only 26.2% (against a national average of 30.2%) had an *intranet* system and 8.6% (against 12.2% at a national level) had an *extranet* system. It must be also added that micro enterprises usually work within a district and this accentuates individualistic behaviours aiming at protecting the competitive value of information. A research carried out by Censis (2006) not only showed this, but also the informal cooperation and the resistance of regional companies to create a relationship with other actors like Universities and research centres.

5. The effects of the economic crisis

Although the industrialisation process that has invested the Marche region since the 60s has not caused significant rifts in its territory (as it happened in other regions), and although the Marche has always reacted positively to all the critical periods, it is clear that the present crisis is absolutely new and more worrying than past ones.

The constant acceleration of globalisation over the last few years has changed the international competitive system and has accentuated the interconnection between production and the quick evolution of contexts. Consequently, the competition itself is more and more linked to the capacity of interpreting global changes and to handle them in a larger, not local, dimension. The rapid changes of international and national competitive scenarios have also invested the Marche region, challenging its social and economic model of development.

Even the simple data provided by the cyclical survey of the III quarter 2009 (carried out by Confindustria Marche, with the cooperation of Banca Marche) are significant. Between July and September 2009, the industrial production decreased by 9.7% compared to the same period of the last year (with a national average of -17.0% during July and August). Also the trading activity of regional industry decreased, with -11.2% of sales compared to the same quarter of 2008.

During the three months July-September 2009, the employment rate decreased by nearly 1.35%. The number of working hours paid by the "Cassa integrazione" (a special body that pays the wages of workers laid off temporarily) passed from 1.7 million in the 3rd quarter 2008 to 6.7 million in the 3rd quarter 2009 (+285%). This increase involved both extraordinary aids (from 1.2 million to 2.7 million

of authorised hours, with an increase by 118%) and ordinary ones (from 0.5 million to 4 million hours, + 683%).[7]

As far as the single economic sectors are concerned, in the 3rd quarter of 2009, compared to the same period of 2008, there was a decrease in the sectors of: non metalliferous minerals, both in terms of production (-14.6%) and in terms of sales (-13.2%); mechanics, whose production decreased by 9.6% and whose sales declined by 15.6%. This caused negative results both on the internal and foreign markets: the turnover dropped respectively by 6.2% and 18.2%. Also the sectors of metal products, machines, electric and electronic devices had a drop in production and sales.

In the textile industry, the decrease was by 19.3% (for production) and by 19.4% (for sales). In the shoemaking sector, the situation is similar: production dropped by 13.1% and sales by 13.6%, always compared to the same period of 2008, both on internal (-10.0%) and on foreign markets (-18.9%), despite an increase in sales prices. However, also the price of rough materials increased, both in Italy and abroad. For the wood and furniture sectors, production dropped by 7.9% (whereas, at a national level, the drop was by -24.5% for the wood sector and -21.3% for the furniture one), and sales by 8.9%, both at the national and foreign levels. Finally, production and sales in the rubber and plastic sectors decreased by 8.9% (this result is, however, better than the national one for the months of July and August 2009). As for the foodstuff industry, on the contrary, the surveys carried out by Confindustria Marche show that the industrial production increased by nearly 3.1%, compared not only to the 3rd quarter of last year, but also to the national value (for July and August 2009), that is –1.1%.

As to Marche's exports, in 2000 their percentage was 2.89% of the national total amount. This increased in 2007 (3.42%) and then came back to 2.91% in 2008. In the first semester of 2009, this percentage had a further drop to 2.76% (Marche Region, Report to 2010 Forward Budget).

More generally, as for the effects of the present crisis on the economic system, the National Confederation of handicraft and SME of the Marche (CNA) provided important data during its recent regional meeting (October 2009). According to these data, in this period of crisis, 353 businesses collapsed, with nearly 1 000 jobs lost, both in key sectors of the Marche model (mechanics: -111; clothing: -89; furniture: -85; shoes: -65) and in more traditional sectors, like the building industry (-128) and trade (-34). Marche's association of chambers of commerce (Marche Unioncamere) also documented the fact that in the first six months of 2009, the number of regional active businesses decreased by 1 114 units, especially in agriculture (-533), in the manufacturing sector (-290), in the trade sector (-219) and in the building industry (-171) (Lucantoni, 2009).

6. Regional policies

Regional policies point to two different, though interconnected, directions: the political and financial policies of the region that address the most difficult and problematic aspects of the crisis and the political and financial strategies to foster a development "beyond the crisis". Most of these measures are funded either through direct regional funding or through EU funding coming from the European Regional Development Fund (ERDF).

[7] "Extraordinary Cassa Integrazione" is paid in the case of business re-organisation, conversion or restructuring, as well as when a firm goes bankrupt or is faced with a legal trial. "Ordinary Cassa Integrazione" is paid in case of temporary market situations or temporary events for which neither the employer nor the workers are responsible.

In order to limit the effects of the financial and economic crisis, the region has developed policies to support the businesses that have suffered credit rationing and to help workers who have lost or are likely to lose their jobs.

For the first aspect, a Second Degree Guarantee Fund of more than EUR 9 million has been created, thanks to which the region has been able to allocate about EUR 200 million for companies that employ, all together, more than 13 000 workers. For the second aspect, EUR 3 million have been used to support job security agreements. This sum corresponds to one quarter of the total working hours that should have been paid. It is calculated on the basis of the reduced working hours and it is equally divided between companies and workers (as integration for the salary they did not get). Up to now, 26 companies have used these contributions, for a total of 1 635 workers, 705 of whom thus managed to keep their job although they were redundant.

In short, the Marche shows solidarity with firms and labour. This is also confirmed by the fact that the regional Council signed together with the entrepreneur confederation and unions at the end of 2009, the "Memorandum of understanding for the protection of work, for social cohesion and for the support of development". This memorandum contains a large number of policies in favour of businesses and workers (e.g. incentives for permanent contracts to young graduates and for the stabilization of temporary contracts). It also provides for some projects involving other working categories (for example, school teachers under short-term contracts) and social policies, such as a grant to support families with an unemployed worker (resident in the region); a one-off benefit to support the University studies of their children; the exemption from paying some specialist health services.

Especially against the economic crisis, and also to give a new emphasis to economic activities, the Marche Region created the Anti-crisis Fund that, in 2010, includes EUR 15.5 million of allocations, covered with regional resources and set aside for: SME's activities (5 million); families with dismissed workers or with workers on unemployment benefits (1 million); integration of social policies (2.5 million); support to employment (2.5 million). Furthermore, it started other active labour market measures, with EUR 2 million for: training vouchers and incentives for open-ended contracts; work experience grants and aids for those businesses that do open-ended and temporary contracts; incentives to manufacturing businesses also for part-time contracts; projects for networks of businesses; etc.

This is a really balanced model of public effort, which combines job protection with social policies, as well as financial measures with policies to keep social cohesion. These efforts aim at developing the region under a human aspect, protecting and strengthening the social and economic features of its territory, but at the same time looking at the future, towards innovation.

As a matter of fact, the Marche is the first Italian region to have recently approved a call for tender for firms in the fashion industry, to get grants to realise innovative projects. The overall amount that the region will spend is EUR 4.5 million, with a 30% of the total earmarked for SMEs. The purpose is to renew and strengthen the presence of these local fashion businesses in international markets. The Marche region is aware that it is necessary to ground the competitiveness on the quality and innovation of the products and of the production process. This is why it will allocate this grant not only for marketing and/or publicity expenses, or for the updating of websites for online sales, but also for consulting services on style and design, for the creation of a quality label system, and for the use of modern anti-counterfeiting technologies.

As for the measures to limit the effects of the current crisis on businesses and employment, a significant (especially if we look at the situation of the national industrial system and at the quantity of

taxes to be paid) decision has been taken in the draft of the 2010 regional budget law: reducing the tax called Irap (i.e. regional tax on firms) to those companies that invest in new job positions. This reduction is made possible by suspending the regional increase and bringing it back to the value established by the national law, that is to say dropping it from 4.3% to 3.9%.

As showed before, a weakness of the economic system, in particular in the Marche, is the scarce interest in the field of "research and development". As a result, the Region has started to activate the research, development and innovation instruments planned by the EU, also thanks to the resources coming from the regional unique Fund and from Cipe[8]. In the period 2008/2009, incentives for more than EUR 16 million were granted to 1 059 companies, which leveraged investments worth EUR 350 million. In particular, an important role was played by: financial support to those firms that carried out research projects and/or experimental development projects, in cooperation with Universities and centres for innovation and transfer of technologies (73 financed businesses, 42 of which are SME, for a total allocation of EUR 15.56 million in grants); support for start-ups and academic spin-offs that commercialise university knowledge (12 financed projects and EUR 4.5 million allocated).

In conclusion, from 2005 to date, 4 439 projects have been presented in the Marche for the activities of research, development and transfer of innovation and technologies. 2 948 of them were financed, with a total of EUR 143 million of allocated grants and EUR 670 million spent for investments.

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[8] Cipe is the Italian Interministerial Committee for Economic Planning

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II. HUMAN CAPITAL AND THE LABOUR MARKET

1. Introduction

There are two significant and unusual characteristics of the regional economy in the Marche. First, the region retains a well-established set of industrial districts characterised by closely-linked, small firm networks producing primarily specialised end products for export markets. These advanced manufacturing firm networks constitute a significant portion of the employment demand for the region.

Second, Marche retains a distributed demographic profile across small towns rather than highly urbanised in a single central city. In most cases, advanced manufacturing networks occur in regions with a high level of urbanisation.

These unusual underlying demographic and economic characteristics require a labour market policy which prioritises small firm development and entrepreneurship with an understanding of the scale of the region and cognisant of the need to address questions of both labour supply and labour demand.

2. Policy issues

The major policy issue facing the Marche region is the need for a strategy which retains the existing entrepreneurship and SME development model while retooling that model for 1) a volatile global economy and 2) a more diverse and skilled local labour market.

This policy task requires a creative and flexible set of strategies which cross the traditional boundaries between regional and rural development, innovation policy, industrial targeting, labour market policies (including skill development and gender integration), and entrepreneurship. This chapter concentrates on human capital and the labour market and specific policies and strategies directed at increasing employment, labour force participation, and promoting social and economic cohesion within the regional economy.

2.1 Gender and labour force participation

At the same time Marche has developed a globally competitive and regionally integrated production system, it has not yet fully integrated women into the formal labour market (see Table 1). The local diagnostic chapter documents that Marche has begun increasingly to organise and implement strategies to address the gender disparities in the labour market. These strategies primarily focus on mechanisms for increasing the supply of women in the labour market through work-life balance programs and child-care policies. While these policies are important, the Marche region has some distinctive economic characteristics which must be taken into account in order to shape effective labour force participation policies.

Table 11. Marche labour market by gender, 2008

	Marche		Italy	
	Male	**Female**	**Male**	**Female**
Activity rate (15-64)	76.8	58.5	74.4	50.7
Employment rate (15-64)	74.7	54.8	70.7	46.6
Unemployment rate	3.9	5.7	5.5	8.5

Source: Extracted from the "2008 Marche Region Market Labour Annual Report", delivered by the "Osservatorio Regionale Mercato del Lavoro"

While Marche exceeds the national rate of female labour force participation by eight percentage points, the region continues to lag the target of 60% participation by 2010 set by the Lisbon Strategy. This lag in integrating women into the formal labour market produces several negative outcomes for the region including a reduction in overall labour market productivity, a loss of potential household earnings, and an under-pricing of women's skills as a consequence of the bifurcated labour market (reflected in the disparities in the unemployment and employment rates). In effect, there are different demand curves operating for male and female employees.

It is well-documented that gender disparities are a persistent problem in formal labour markets and that socio-cultural factors play a significant role in limiting women's opportunities in and access to paid employment. However, in Marche there are two economic factors which produce additional policy challenges: i) The dominance of the manufacturing sector in the regional economy; ii) The dominance of SMEs in the ownership and operations model for firms.

That gender disparities in the Marche labour market appear to be, at least in part, a consequence of structural economic conditions, is an opportunity for regional policy. It is exceedingly difficult for labour market policies to effectively address socio-cultural barriers. It is far more effective to use direct policy incentives to influence structural economic conditions.

2.1.1 Barriers to women in manufacturing employment

Historically, manufacturing has not been a sector in which women are integrated quickly or in large numbers. Typically, women are integrated into the manufacturing workforce through "end of the line" tasks like packaging and handling and small-scale precision tasks like inspection. Observation in Marche confirmed this trend in the region. These occupational categories are often limited in number, relatively lower-paying, and poorly integrated into the career ladders within large firms or across firm networks. Thus, women find themselves in the lower-ranks (by status and pay) of the internal workforce with little chance of advancement.

Evidence from the diagnostic assessment, reported in Tables 2 and 3 below, indicates the extent to which the regional economy is dominated by employment in the industrial sector. Of the approximately 650 000 workers in Marche (2007), roughly 38% are employed in industry. By way of comparison, the US retains less than 11% of employment in manufacturing industries. While US women hold almost 50% of the nation's jobs, their presence in manufacturing sectors rarely exceeds 3%. It is also is highly concentrated in labour-intensive export-oriented sectors (ex. textiles). When women enter the paid labour market, they tend to enter through non-manufacturing sectors particularly

public administration, professional and business services, and retail. These sectors require both higher education and specific training in business management.

Table 12. Regional and provincial employment by sector: Industry

	Employed (Industry)				Change '04-'07		Change '06-'07	
	2004	2005	2006	2007	abs.	%	abs.	%
Marche	249 813	251 399	253 383	256 941	7 128	2.85	3.558	1.40
Nord-est	1 729 037	1 763 769	1 782 592	1 811 644	82 607	4.78	29 052	1.63
Centro	1 223 564	1 221 944	1 229 592	1 271 249	47 685	3.90	41 657	3.39
Italia	6 868 337	6 940 135	6 926 594	7 003 404	135 067	1.97	76 810	1.11

Source: Data extracted from the "2008 Marche Region Market Labour Annual Report", delivered by the "Osservatorio Regionale Mercato del Lavoro"

Table 13. Regional and provincial employment by sector: Agriculture

	Employed (Industry)				Change '04-'07		Change '06-'07	
	2004	2005	2006	2007	abs.	%	abs.	%
Marche	23 117	22 123	17 188	13 268	-9 849	-42.61	-3 920	-22.81
Nord-est	219 352	200 404	200 735	188 617	-30 735	-14.01	-12 118	-6.04
Centro	133 281	126 863	142 349	121 738	-11 543	-8.66	-20 611	-14.48
Italia	990 178	947 262	981 606	923 592	-66 586	-6.72	-58 014	-5.91

Source: Data extracted from the "2008 Marche Region Market Labour Annual Report", delivered by the "Osservatorio Regionale Mercato del Lavoro"

2.1.2 Barriers to women's SME development

The recognition of the structural reasons for the disparity does not obviate the need for policies to rectify the negative outcomes. In addition to the effect of manufacturing on the gender distribution in the workforce, the dominance of self-employment and small businesses in the Marche region also influences the female labour market participation rate.

Evidence from the Local diagnostic assessment (chapter I.) indicates that while a third of the working men in Marche are self-employed, 80% of women worked as subordinates in 2007. Further, the percentage of self-employed women is decreasing over time (from 28% in 1993 to 19% in 2007).

The SME and entrepreneurship model has been a cornerstone of the region's economic stability and success. However, the rate of women's participation in this ownership structure is both lower than their male counterparts and declining. Because of the dominance of the SME model of firm structure and consequently employment, policies to integrate women into the formal labour market have the dual challenge of plotting pathways into business ownership as well as labour force participation. To achieve the levels of female labour force participation targeted by the Lisbon Strategy, the Region will

require a strategy that takes into account its specific local context. Consistently, Marche stands out from other Italian regions and other European regions for its high density of SMEs. Again, this localised variation on firm structure indicates a need for labour market strategies that focus on professional business skills including entrepreneurship training and supports in order to increase female labour force participation more broadly. The fact that only 19% of women report being self-employed as compared to almost 30% of men highlights the importance of firm development for women's employment.

Table 14. Gender and ownership occupational structure

Type of workers	1993		1997		2002		2007	
	M	F	M	F	M	F	M	F
Subordinate	242 848	147 884	239 224	155 161	249 335	187 974	267 510	220 970
Self-employed	112 240	58 651	107 820	54 789	106 293	57 652	113 817	51 300
% Subordinate	68.4	**71.6**	68.9	73.9	70.1	76.5	70.1	**81.1**
% Self-employed	31.6	**28.4**	31.1	26.1	29.9	23.5	29.9	**18.9**
Fluctuations 1993-1997 (1993 value=100)								
Subordinate	100.0	100.0	98.5	104.9	102.7	127.1	110.2	149.4
Self-employed	100.0	100.0	96.1	93.4	94.7	98.3	101.4	97.9

Source: Data extracted from the "2008 Marche Region Market Labour Annual Report", delivered by the "Osservatorio Regionale Mercato del Lavoro"

2.2 Immigration and immigrant entrepreneurship

Data from the Local diagnostic assessment (chapter I) indicates that immigrants account for 7.4% of the Marche population (2008), slightly higher than the national level of almost 6%. Immigrants are an increasing proportion of the Marche workforce at almost 9% (a 2.5% increase between 2005 and 2008). The absolute number of immigrants in Marche more than doubled between 2002 and 2007. While more than a third of the immigrants come from Central and Eastern Europe, there are significant population from other European Union countries (23%), Africa (22%), and America (6%) and Asia (14%).

Immigrants also make up a significant portion of Marche's student population at 10% of enrolment. Further, more than a third of the immigrants in Marche are less than 25 years old. The presence of young, educated immigrants is another resource for the Marche regional economy. Given the aging demographics and the challenge of developing new businesses, the immigrant entrepreneurship model may be a policy opportunity for Marche. A number of OECD member regions have found that university education is a productive way to integrate highly-skilled immigrants into the regional labour market.

In particular, recent studies of entrepreneurship in the US have found that immigrant entrepreneurs contribute significantly to high-technology development in the US economy (and at levels disproportionately higher than their overall presence in the labour market). Most of these entrepreneurs emerge from the US universities where they are educated and then stay in the US to

establish firms. A significant presence of foreign students in universities can add science and engineering capacity to the regional labour market if those immigrants remain after graduation from university and start firms locally. Highly-educated immigrants also upgrade the technical skill level in the local labour market. For example, recent research indicates that foreign-born inventors contribute to more than a quarter of US global patent applications. Many of the major high-technology firms in the US have been co-founded by foreign-born entrepreneurs (examples include Google, eBay, Yahoo, and Intel).[9]

2.3 Skills and succession

Marche firms retain a skilled manufacturing workforce which has successfully adopted a number of recent process innovations including 1) just-in-time production and logistics management, 2) sophisticated environmental standards and testing, 3) an extensive set of international quality and certification standards, and 4) high-quality innovations in materials and coatings. This impressive record of process innovation is evidence of a skilled incumbent workforce. It is also evidence of a need for ongoing high-level training.

However, leaders in the Marche region consistently point to the problem of succession in SME ownership and entrepreneurial culture. More than 22% of the Marche population is over 65 years old. There are over 175 older people (65 +) for every 100 young people (15 and younger) in the current population. The succession and aging issues increases the importance of integrating women and immigrants into the paid labour force (sections 2.1 and 2.2 above).

Because the demographic transition underway results in the exit of both seasoned entrepreneurs and skilled workers from the labour market, this succession issue necessarily extends to the skilled labour force as a whole (and not a single demographic segment of economic sector). Recent data indicates that Marche had more business de-registrations than new business registrations in 2007, falling below the annual national business registration rate of 7.1% (a decline that predates the global economic crisis). The succession issue underscores the need for training and entrepreneurship education.

An established set of entrepreneurs, embedded in social networks dominated by community and family ties which have grown (over time) into business connections, require minimal assistance from the public sector to develop. However, as this cohort of entrepreneurs (and employers) "age out" of the production system, their dense relationships will not be immediately replicated by new and emerging entrepreneurs. To maintain the existing level of embeddedness of the current firm network, the Marche region will need to manage succession as an entrepreneurship education and training issue.

For the Marche region, the skills training challenge is particularly complex and requires a multi-faceted and tailored approach which addresses new workers and incumbent workers in manufacturing as well as entrepreneurship and professional services in agriculture, tourism, and business administration (including ICT) for women, immigrants, and young people. There are over 50 000 university students in the region. More than 8 000 university students graduate every year and potentially enter the Marche regional labour market. Managing this differently-skilled and more diverse labour market is the core challenge for the Marche region.

9. See Kaufmann Foundation studies on immigrant entrepreneurship and universities: http://www.kauffman.org/SeeAlso.aspx?id=Immigration

3. Assessment of the region

3.1 Strengths

Social cohesion

A set of dense firm networks in the industrial sector leads to a collaborative relationship between firms and well-established, localised supply chains. This firm network retains production in the region (rather than seeing it outsourced to other regions or countries) and promotes cooperative relationships between firms, the public sector, and trade and labour organisations. This vertical integration provides work and employment opportunities within the region at a variety of skill levels with opportunities for up-skilling and promotion within the existing production network. This employment system produces a regional economy with both a low poverty rate and a low unemployment rate. The established industrial capacity in several advanced manufacturing, export-oriented sectors has brought capital into the region and supported a high standard of living and a high degree of social cohesion. Although the provinces experience some inequality (largely due to challenges experienced by the agricultural sector and limited rural development opportunities) those inequalities are rather minimal by international standards.

Design and craft

In addition to production capacity, the region has retained and expanded its capacity to design specialised luxury goods for niche markets. The industrial districts have also used that design quality to produce less-expensive lines of similar goods for less affluent client bases in fashion, furniture, leisure water craft, and appliances. This ability to profit from niche production of high-value goods and the mass production of lower value, similar goods, is dependent on the design skills of local entrepreneurs and craft workers.

High skills in advanced manufacturing

The ability to design and innovate with consistency in concert with changes in process and product technology (including materials) has both required and resulted in a high level of manufacturing skills at many levels of the supply chain. As a consequence, manufacturers are able to adapt to changes in quality control standards (technical specifications) with incumbent workers. This responsiveness has allowed the region to stay a leader in quality control and certification as retailers and end markets demand increasing sophistication.

3.2 Weaknesses

Sectoral homogeneity leading to rigid skill base

To give an example, there is extensive capacity present in the industrial district centres in training for inspecting and testing services related to quality control in the production process. However, there is limited capacity in training for medical and health laboratory applications despite the fact that these are overlapping skill sets. Both sets of skills require similar occupational and technical training although industry applications vary.

A "locked-in" economic development policy model focused on export based manufacturing

The focus on an export-led development and basic industries has led to a lack of attention to services and non-basic sectors (health, education, finance, design, logistics, and business services).

This is also due to the vertically-integrated nature of the large firms in the region. As large firms outsource more previously-internalised services, demand will increase for suppliers (and workers) in the non-basic sector of the regional economy. The region does not currently have the skill capacity to meet this demand.

A weakening agricultural base

It is well understood that the erosion of the agricultural sector produces labour over-supply (particularly in entry-level and lower skill occupations) as people leave rural areas to find work in the service and manufacturing industries in more urbanised areas. This process of migration expands overall labour supply and leads to unemployment (if there is insufficient demand), a decline in wages in the occupations with over-supply of labour, and usually produces or exacerbates spatial inequalities as well.

The erosion of agricultural employment opportunities may lead to migration to urban areas (with service sector jobs) and/or increasing income inequality between agriculture-dominated and manufacturing-dominated provinces. Inequality is a persistent threat to social cohesion.

Below-target female labour force participation rate

An increased female labour force participation rate that gets closer to the Lisbon target will lead to improved productivity for the regional economy. Evidence indicates that 81% of employed women work for someone else whereas only 70% of men are employed as subordinates (2007). This disparity points to a gap in women's firm development and a need for policies to target employment through that path.

3.3 Opportunities

Female entrepreneurship and SME development

The regional government should look at women's entrepreneurship from the twofold perspective of increasing women's labour market participation and diversifying regional entrepreneurship. The manufacturing bias of the regional economy penalises women's employment, which is traditionally stronger in services. Targeting women's entrepreneurship will contribute to enhance women's employment rate, which has failed to rise over the last years, and also strengthen the landscape of regional entrepreneurship.

Agricultural innovation and entrepreneurship

Given the dominance of the SME model and the de-concentrated population distribution, Marche requires a functional agricultural development model to maintain employment levels across provinces.

Skill development (advanced process and product innovation)

Within the industrial district centres, there is a high level of sophistication in product inspecting, testing, and process certification. This is coupled with a well-developed global supply chain. This expertise is particularly evident in the furniture and wood products industrial district centre (COSMOB). This expertise can be proactively diffused throughout the local firm network to up-skill small enterprises as global retailers demand more sophisticated certifications and advanced production processes (e.g. IKEA's green production standards). This skill and training capacity is a significant competitive advantage for the region.

Tourism

Tourists to Italy spend longer periods in Marche than other regions (six days as compared to four days). The length of these visits indicates that there is significant demand in this sector. This produces an opportunity to build an integrated experiential (lifestyle) tourism model for Marche rather than a site-based experience (ex. a trail model versus a museum model). The wine trail learning model in the annex provides one example of a distributed, lifestyle tourism plan.

3.4 Threats

Unemployment and under-employment due to progressive industrial restructuring and accelerated by the global recession

The current unemployment rate is artificially low. Redundancy funds and other policy interventions have masked some of the job loss that could be expected from a 30% contraction in export demand. The economic crisis has also conflated structural and cyclical weaknesses in the production sector thus making appropriate, incremental restructuring difficult to calibrate. Assuming that the current concentration in export demand (and the associated over supply of labour) is entirely cyclical (rather than partially structural) would be a mistake.

Distributional inequalities (by occupation/industry, province, gender, age, and immigration status)

Inequalities in the labour market (in terms of access and opportunity) tend to lead to persistent inequalities in income. If these inequalities appear structural rather than random, they tend to threaten social cohesion. Structural inequalities are those that follow along firm or work lines: occupational or industry boundaries or those that follow along demographic lines: gender, age, immigration status. A consistent lack of access to work opportunities for women, immigrants or young people tends to erode cohesion. A lack of policies that seem to address these challenges can also be a threat. Similarly, the absence of policies to address well understood patterns of structural inequality across occupational or industry boundaries tends to be a threat.

4. Policy recommendations

The Marche region has a strong industrial base and a relatively skilled workforce. However, the region faces three key challenges:

1. Labour demand is likely to decrease in the industrial sector.

2. There is an ongoing need to integrate more women and minorities into the regional economy.

3. There is a need to provide alternative opportunities to a declining agricultural economy.

Policy recommendations for the Marche focus on strategies which address both labour supply (skills, training, and education) and labour demand (entrepreneurship, innovation, and business development) across sectors and across the region. The learning models proposed in the Annex highlight successful models used in other regions for addressing these recommendations.

4.1. Increase advanced manufacturing training and skill development to keep pace with technological changes in production processes and service sectors.

Regional training capacity is underutilised in Marche due to the rigidity of the industrial districts systems. However, as the barriers to cross-sectoral cooperation are relaxed or eliminated it should become evident that the resources and capacities exist within the underlying system. The Wisconsin Regional Training Partnership approach is characterised by cooperation between labour unions and employers, high standards for wages and production quality, and tailored, flexible, and responsive workforce training for new and incumbent employees (see Appendix on learning models for details). WRTP provides four types of services to member firms: consulting, training, staffing, and retention. This model is ideal for the Marche region for two reasons. First, it builds on the strong existing firm networks and stakeholder partnerships in the region. The WRTP model fits on top of the existing industrial district framework operating in Marche and extends the capacity of the industrial district centres to provide tailored, flexible, and responsive training for new and incumbent workers. Second, the WRTP model is explicitly organised to respond to the recruitment and training needs of SMEs who are under pressure as large firms subcontract and outsource previously vertically-integrated functions. The shift of increasingly large portions of the production process to SMEs often stresses their modest training resources. The WRTP model helps alleviate some of that pressure on SMEs and allows them to be more responsive to their customers.

The training system within the industrial district centres should be integrated across applied technologies rather than production sectors. Thus technology-training could be nested in a distributed network system while the industry-specific skill-base of the regional labour market could be expanded through the highly-territorialised services and supports for the industrial districts. In other words, the industrial district model can shift to adapt skill development to new technologies and new applications of existing technologies without the limitations of industry-specific boundaries (current limitations by end products or existing supply-chains).

The collaborative use of the industrial district centres to include instruction on production processes and technologies across sectors would expand the use of existing resources into new skill areas: measuring and controlling devices and testing equipment services; business services including engineering and design and research, logistics and distribution services, and health and lab services (overlapping instructional and resource requirements with inspecting and testing services). In this way, the skill training system moves from rigid industry-specific training to cross-sectoral occupational training using the existing delivery model (see Learning Model 2 for example of implementation in another case).

4.2. Target female and migrant entrepreneurship to diversify the regional economy and increase women's labour market participation

Look at SME development and entrepreneurship through a broad lens. Expand the business models and financing mechanisms available for start-up firms (for example, co-ops; partnerships; microenterprises) in order to expand participation by under-represented groups. Women, minorities and migrants are not only groups which face barriers to entrepreneurship; they also could contribute directly to the diversification of the region economy through a focus on various services, including tourism.

For example, *Women's Initiative* in California targets "high-potential, lower-income women" through training courses and on-going support services. The program focuses on entrepreneurship training (business management) through technical assistance and financial services. This model is appropriate for the Marche region because it builds on the existing entrepreneurial culture of the

region and expands it to reach female entrepreneurs. It also focuses on diversification in the regional economy and moves away from the manufacturing-based, sector-specific employment model associated with persistent gender discrimination. Finally, this strategy builds entrepreneurial capabilities, particularly professional management and financial skills, across the population.

During the OECD mission, it was noted that as many as half of the newly registered firms are minority/migrant owned, which underlines this point. Such entrepreneurial activity may be primarily in the trade sector but the sector generates employment, income, wealth and contributes to GDP growth. There is, therefore, scope to compensate for Italy's ageing population structure and harness the entrepreneurial potential of minorities and migrants by stimulate value-adding start-ups that diversify the local economy further.

4.3. Integrate the agricultural and tourism industries to build entrepreneurship and sustainability throughout the region.

The rural economy needs more attention. A development model that prioritises rural sustainability and work opportunities is critical for long-run social cohesion. The Learning Model, *The Finger Lakes Wine Trail* proposes one model that has been successful in North America. Marche should, in particular, avoid short-term policy solutions which create long-term erosion in social cohesion. There are a broad array of labour market flexibility policies which fall into this category including the erosion of firm attachment and the promotion of temporary employment practices. It is critical to implement labour market expansion policies carefully and to be creative and consistent. Both employers and employees should be able to predict what the role of policy will be going forward. In addition, it is crucial to understand occupational segregation as an outcome and a process. Policy goals should be strategic and incremental for engaging these processes. This wine trail model is particularly relevant to Marche because it relies on a distributed network of small scale wine and food producers across a picturesque rural landscape that is nevertheless, geographically compact. Tourists stay in Marche an average of 6.2 days compared to the Italian average of 3.9 days. The wine trail provides a way to distribute the tourist revenue more evenly across the region while simultaneously stimulating the direct consumer market for Marche's specialised agricultural products.

III. ENTREPRENEURSHIP AND START-UPS

1. Introduction

This chapter's specific focus is the connected issues of entrepreneurship and start-ups. It starts with a brief general policy analysis on the importance of entrepreneurship. The second part of the report covers the current situation in the Marche Region, concentrating on the challenges and opportunities that it faces. The third part of the chapter highlights a series of policy recommendations concentrating on the following themes: the need to cultivate a culture of entrepreneurship, the need to improve intergenerational firm transmission, the need to stimulate start-ups and spin-offs; and the need to develop business development infrastructure. Learning models corroborating the recommendations are provided in the annex of the report.

2. Policy issues

Entrepreneurship and start-ups have been hot policy topics for the last decade or so. This section concentrates on the reasons why the development of a culture of entrepreneurship has become important and the reasons for the increasing policy emphasis being placed on regional entrepreneurship. It goes on to address the importance of effective firm transmission in countries, such as Italy, which have a long tradition of family owned enterprises. Finally, it concludes with a brief analysis of the role played by women and minority/migrant communities in relation to entrepreneurship and start-ups.

2.1 Importance of a culture of entrepreneurship

It is now widely recognised that entrepreneurship plays a key role in relation to economic development, including local development, and that entrepreneurs themselves are key agents of change in market economies. It has also become evident that entrepreneurship can take many guises: it appears in small and medium-sized enterprises (SMEs), as well as large ones; in both the formal and informal economy; in legal and illegal activities; in innovative as well as traditional firms; in high and low-risk undertaking; in all sectors and sub-sectors of the economy, etc. (OECD, 2001, p.35).

The consequence of the above is that, in recent years, governments have placed a great deal of policy emphasis on the development of a "culture" of entrepreneurship, which is considered to be crucial to creating robust yet flexible economies that are capable of coping with the challenges and vagaries of globalisation. However, there is no common definition of what a culture of entrepreneurship means and entails. In the European context, the European Commission (EC) has sought to define this in a Green Paper as: "… *the mindset and process to create and develop economic activity by blending risk taking, creativity and/or innovation with sound management, within a new or an existing organisation."* (EC, 2003).

Moreover, the EC has committed itself to stimulating entrepreneurship across all EU nations and regions, as a major driver of innovation, competitiveness and growth. This is being promoted and supported through a variety of strategies, policies, programmes and funding regimes, principally the

structural and cohesion funds, focusing on improving the entrepreneurial environment for start-ups and SMEs.

2.2 Importance of entrepreneurial regions

The EC Green Paper (2003, see quotation above), clearly links entrepreneurship with certain types of behaviour, such as a willingness to engage in risk-taking, as well as a desire to achieve independence and self-fulfilment at the level of the entrepreneur. At the level of local, regional, national and super-national economies, the EC highlights the importance of entrepreneurship:

- It contributes to job creation and growth: increasingly new and small firms are the major providers of new jobs; entrepreneurship can foster social and economic cohesion in underdeveloped regions; it can stimulate economic activity and integrate unemployed or disadvantaged people into work, etc.

- It is crucial to competitiveness: it results in increased efficiency and innovation in firms (organisation, processes, products, services and markets); it enhances the competitiveness of an economy as a whole and offers consumers greater choice and better value for money.

- It unlocks individual potential: in addition to motivations such as money and status, individuals who become entrepreneurs often achieve self-fulfilment (attain independence, meet challenges, etc.).

- It is in the wider society's interest: entrepreneurs are the key drivers of the market economy and their achievements deliver wealth, employment, wider choice for consumers, etc.

Consequently, increasing the rate of enterprise creation has become an almost indispensable policy priority for governments in accelerating development, in both advanced and lagging localities:

"For a variety of reasons, promoting entrepreneurship enjoys support from governments at both ends of the political spectrum. Pro-entrepreneurship policies have been embraced as a means of increasing economic growth and diversity, ensuring competitive markets, helping the unemployed to generate additional jobs for themselves and others (rather than share existing work), countering poverty and welfare dependency, encouraging labour market flexibility, and drawing individuals out of informal economic activity. In short, an enterprise imperative has been charged with addressing a broad array of economic and social aspirations." (OECD, 2003, pp.9-10)

Given the wide policy agenda that can be addressed by developing a culture of entrepreneurship, what attracts central government also increasingly draws the attention of regional and local authorities. National, regional and local policy makers are increasingly united in recognising that economic growth is correlated with a favourable entrepreneurial environment and increasingly perceive the stimulation of a culture of entrepreneurship as a major politically-driven task. There is a corresponding tendency for policy transfer across national and sub-national economies, though clearly there are no standard solutions: each nation, city, municipality or region must work out its own policy mix for optimising a culture of entrepreneurship in its locality, based on its own historical, cultural, social, economic and political heritage (OECD, 2009, p. 29).

2.3 Family businesses: inter-generational issues

Small firms constitute the backbone of most economies; in EU countries SMEs account for over 99% of enterprises and this is no different in Italy. However, in the case of Italy and the Marche

region, a large proportion of such companies, such as in the manufacturing and tourism sector, are "family businesses" or firms owned by family members. Family firms account for 93% of the all enterprises and 98% of the workforce in manufacturing companies with fewer than 50 employees in Italy. Over two-thirds of firms are totally owned by families with a stake. Whole non-family shareholders exist, typically relatives or friends, but foreign and/or financial partners are largely absent. The share of family equity is negatively related to company size and age and such firms typically open-up equity either to generate growth or to reduce ownership fragmentation, which takes place as generations pass (Mussati, 2008, p.7).

Moreover, Italian SMEs have a number of characteristics (Dubbini and Iacobucci, 2004, p.9) which influence their development:

- The founder's skills, competences, values, and cultures are significant to the firm's evolution.
- The founder often embodies the technical know-how of the firm.
- The founder's decisions are strongly influenced by social and cultural factors.
- Personal relationships and paternal attitudes play a key role in firm strategies and policies.

Other reports point out that SMEs and family entrepreneurs are averse to encouraging entrepreneurship among the managers, to the detriment of the company. Dubbini and Iaccobucci (2004) argue that:

"… the paternal style of management is incompatible with a high level of entrepreneurship with employees. Since entrepreneurship requires a wide range of autonomy, responsibility and non-hierarchical means of control, the family founder of the firm may fear the risk of suffering destabilisation of the centralised and self-oriented organisational model, and, therefore, be against it. This has implications for interest and support of the acquisition of entrepreneurial competences and strategic skills."

Analysis of succession issues in Italian firms, including the Marche region, leads to the conclusion that:

"…the inherited management within a family negatively affects the firm's performance, and this decrease in performance is concentrated among the good-performing companies, that is, founder-run companies which outperform sectoral average profitability before succession… The findings of this study suggest that family firms are not necessarily more profitable than others, at least after the founder steps down, and therefore, they underscore the importance of conducting an analysis of the ownership and governance of firms in a variety of institutional settings." (Cucculelli and Micucci, 2007, p.18)

2.4 Minorities and entrepreneurship

A further theme, of relevance to regional entrepreneurship in the Marche region, is the role and policy relevance of women, minorities and migrants. For example, EC's "Supporting Entrepreneurial Diversity in Europe" (2008) stresses that although there is no clear definition of ethnic minority entrepreneurship and data are hard to come by, migrants and ethnic minorities represent a considerable pool of entrepreneurship. The available information does:

"… demonstrate quite clearly that the migrant population in Europe is growing and that migrants tend to come from more and more distant countries. There is also a clear indication that entrepreneurship and self-employment in ethnic communities are higher than the national averages [the ratio of non-nationals to nationals in Italy is relatively low (3.6) compared with, for example, 5.3 in the UK, 9.8 in Germany and 5.3 in the EU27]. Thus there is probably not a big unused entrepreneurial potential among migrants and ethnic minorities. However, it might well be the case that the various restrictions that these businesses face hamper their growth and prevent them from realising their full potential … the statistical averages hide large differences between the ethnic communities. In the United Kingdom the self-employment ratio is relatively higher for people from India or Pakistan but below average for people from the Caribbean. In Germany self-employment is higher than average for Italians and Greeks but lower for the biggest non-German ethnic group, the Turks." (EC, 2008, p.8).

The EC study (2008) illustrates a number of common characteristics for minorities and migrants:

- They are mainly micro businesses with no or very few employees; they are also small in comparison with indigenous businesses as regards turnover and profit.

- They are typically managed by the owner, usually a man; female ethnic entrepreneurship is quite rare.

- Such entrepreneurs often start in markets with low entry barriers (e.g. restaurants) and low skill requirements; they act in a competitive environment where price is the main parameter.

- Different ethnic groups have proclivities for certain economic sectors: Italians and Greeks in Germany are likely to engage in the food sector, especially restaurants, just as South Asians in the United Kingdom. Turks in Germany often engage in retail trade and African-Caribbeans in the UK often work in the construction sector.

- In Europe migrant and ethnic minority businesses are predominantly an urban phenomenon. The typical migrant business is located in areas with ethnic clusters and usually in relatively poor areas.

- They often operate in captured ethnic markets or fringe markets, resulting in low growth and difficulties to find successful growth-oriented "break out strategies", however, the limitations resulting from a predominantly co-ethnic clientele appear to be of decreasing importance.

- There is still a relatively strong reliance on ethnic resources such as co-ethnic employees and family members.

- They rely less on formal help and support providers than the average business; they prefer informal networks for obtaining information and assistance.

- They are more burdened by certain administrative and bureaucratic regulations than other firms.

- Some migrant and ethnic minority businesses lack business skills.

An important part of the entrepreneurship process relates to female entrepreneurship, which is sometimes included in the term "minority entrepreneurship". The chapter of the report on "human capital and labour market" highlights the role played by women in the Marche regional economy,

based on female participation rates, stressing that their participation rate in terms of self-employment is not only lower than the male equivalent, but also decreasing over time.

There are many reasons why women become entrepreneurs, such as gender discrimination and bias, and many barriers and obstacles that they must overcome, such as obtaining capital financing and establishing a network of contacts. Nevertheless, there has been a continuous increase of female entrepreneurs in recent decades (see various Global Entrepreneurship Monitor (GEM) surveys), demonstrating that women can overturn the disadvantages and succeed in the entrepreneurial world, though they may need policy and financial support in fulfilling their aspirations. For society to prosper, it is necessary to increase the level of entrepreneurial activity among both men and women.

3. Assessment of the region

The preceding section set the general policy context in terms of entrepreneurship and start-ups. This leads to an analysis of the specific situation in the Marche Region of Italy. We start with a general background of the enterprise situation in the region before proceeding with a profile of regional entrepreneurship. This section also highlights briefly the main institutions responsible for entrepreneurship matters, prior to presenting a snapshot SWOT of the region (Table 15).

3.1 Economic background of the Marche region

Seen with a historical perspective, the Marche region has been one of the least developed in Italy, resulting in high levels of emigration from the area. However, following World War II, the region underwent a rapid process of industrialisation based primarily on small businesses concentrated in traditional industrial districts. The region has reaped the benefits of this development process, transforming itself into an area with high income levels and standards of living, combined with a high degree of social cohesion; crime and unemployment rates are, for instance, lower than the national average.

One of the main reasons identified to explain this particular development path in the Marche region, sometimes called the "third Italy" path (see the local diagnostic Chapter in this report), is a blending of creativity and entrepreneurial skill, often provided by the "share-croppers" (*métayer* or *mezzadro*) who transformed themselves into craftsmen and subsequently into small businessmen. Consequently, development in Marche region has been driven by small, family businesses distributed throughout its provinces. These small businesses proliferated rapidly, though not always efficiently since they were limited, among other factors, by their relatively small scale. Nevertheless, as a result, a large number of SMEs were created in the 27 industrial districts of the region, primarily in four sectors:

- Mechanics in the province of Ancona, in which the main engineering companies are also to be found including ship building, petrochemicals and paper, as well as consumer durables. About 1 900 companies are active employing some 72 000 people;

- Footwear and fashion in an area straddling the provinces of Macerata and Ascoli Piceno. About 4 500 firms employ 36 000 people in footwear and 2 400 firms employ 19 000 in fashion;

- Wood and furniture in the Pesaro area and Fabriano area: approximately 3 000 firms employ 27 000 people;

- Agri-industry: about 2 700 firms employ 15 000 people (Marches Region, 2007).

The above are not the only sectors of activity in the region. For example, Osimo and Recanati are becoming a centre of specialised production, such as illuminating engineering, photovoltaic arrays, advanced telecommunications, musical instruments, toys and giftware, electronic equipment and components, working of metals and of precious stones, etc., covering 2 700 businesses and employing some 23 000 workers. Others sectors of strength in the region include aerospace, automobiles, domotics, rubber and plastics, leather and accessories, etc.

Nevertheless, the model of development of the Marche region is still relatively based on a geographical and sectoral sense. In general, Italian enterprises, such as the family businesses concentrated in the north of the country, are exposed to higher levels of competition than ever before, due mainly to the challenges presented by market globalisation. They have been restructuring in response to a variety of factors such as the national structural and fiscal problems, low flexibility of the labour market, lack of competitiveness of product and services markets, an unbalanced specialisation in traditional sectors, inadequate investment in human capital, as well as R&D (see Mussati, 2008, p.8). The competitive pressure from emerging countries is increasing, a trend which has become accentuated as a result of the current financial crisis and global recession.

3.2 Entrepreneurial profile

In 2008 the Marche Region had 1.5 million residents, which amounted to 2.6% of Italy's population. The period 2002-2007 also witnessed a 111% increase in the number of foreign residents (amounting to 115 229 in 2007) in the region, a process which was spread to all provinces. The majority of these originate from Central and Eastern Europe (35%), the EU (23%), followed by Africa (22%), with the balance being made up of Asia (12%) and America (6%) (Marche Region, 2008).

The previous chapter on "human capital and the labour market" stresses the fact that migrants also make up a 10% of Marche's student population, that a third of these are less than 25 years old, and concludes that the presence of young, educated immigrants is a resource for the future development of the Marche regional economy.

In terms of the economy, the Gross Domestic Product (GDP) per capita has risen steadily from EUR 20 898 in 2000 to 26 166 in 2007, as compared with EUR 25 862 in Italy as a whole; the unemployment rate in 2007 was low (4.2%) compared with the national figure of 6.1% in 2007.

There were 160 707 registered enterprises, the majority of which (66.1%) were individual concerns, the balance being partnerships (18.9%) and companies (13.5%). The distribution of employees by sectoral activity are as follows: 59% in services (Vs 66% in Italy); 39% in manufacturing (Vs 30%) and 2% in agriculture (Vs 4%), reinforcing a disproportionate emphasis on the manufacturing sector. Not surprisingly, the percentage of employees in the high tech manufacturing sector in the region was 11.2% compared with 10.7% Italy in 2006.

One of the most impressive and most frequently quoted statistics connected with the region is the density of enterprises per sector. According to the 2007 data, there were 103.5 enterprises per 1 000 people in the region, as compared with 86.8 in the whole of Italy; the Marche has the highest density of firms in Italy: they are small but numerous (Marche Region, Industria e Artigianato, 2008). Carboni argues that the welfare of the Marche region: *"… derives from a continuous progress, made up of at least three social virtues: entrepreneurial dynamism, ethic of work and public spirit"* (2005). Whilst undoubtedly true, there are grounds to argue that the region is not nearly as entrepreneurially dynamic as it has been in the past.

A key factor in entrepreneurial terms is the number of new businesses created. According to the 2007 data, the registration rate (7.0) in the Marche region was fractionally below that of Italy as a whole (7.1). The number of enterprises that deregistered was pretty much the same for Marche (-7.1), resulting in a small negative net change rate (-0.1), albeit in line with Italy as a whole (-0.1) (Marche in Figures, 2008). In other words, the propensity of the population to set-up or close a business is now no different from the Italian average; in 2007 there were fewer new businesses compared with those that closed.

Births and death rates are only part of the story as far as entrepreneurship is concerned. Other issues are also of relevance such as the attitude of society / region towards running a business and attitudes towards risk-taking in society and the risk perceived in setting-up one's own business. In the absence of data on these issues, the assumption is that due to its high density of businesses, the Marche region is likely to display a higher than average *potential* for entrepreneurial behaviour.

However, the preponderance of family owned enterprises, once a major competitive strength of the region, may be part of the reason why the region's reputation for entrepreneurial dynamism is more connected with the past, rather than present. We have previously discussed some of the features of family businesses, including in Italy (see section 2.3). Survey research by the Foundation Aristide Merloni concludes that:

"The high average age of the sample (approximately 37 years) and the fact that the management remains largely tied to the direct involvement of the founder results in the risk of firms being anchored too closely to the factors of competitive advantage on which its initial success was based. A progressive trend of apparent inaction emerges from the observed firm behaviours, which tends to offset the positive effect of the organisational routines that entrepreneurs have been able to build over time." (author's translation, 2009, p.4)

A recent study highlighted a number of features about family businesses in Italy, which has direct relevance to the Marche region:

"First, in Italy family assets are more concentrated in family business equity, making ownership "rigid" (i.e. it is more difficult to liquidate present and future owners that should not be interested in keeping stock)... Second, boards of directors tend to be much less open to outsiders. During the process of succession, however, outside directors may be helpful in a number of ways … Third, in Italy, key decision-making teams are also less open to outsiders. Qualified outside managers can have a positive impact on the succession process... Finally, Italians anticipate succession issues not much. This point may be critical for the future of the enterprise... Most of the 3 500 private companies [in the sample] were created as the country rebuilt itself after the Second World War. With their founders now ageing, it is estimated that one third of them will have to find a successor in the next five years… However, the handover is not going smoothly. Most of the time if the founder of the family business is successful it means he is a strong man with a very elevated ego. Then there is the issue of whether the heirs are capable." (Mussati, 2008, p.11)

The effects of global and financial crises, the industrial re-organisation brought about by notably intensifying levels of competition in the last decade, the heavy dependence of family businesses, many of which are about to undergo a generational transition, combined with the relatively low firm birth rate lead to the conclusion that the Marche region needs to rediscover the importance of developing a culture of entrepreneurship, despite the impressive statistics relating to firm density, high standards of living standards, high degree of social cohesion, etc. Failure to do so, particularly at a time when other countries, regions, cities, municipalities are making rapid strides in this direction, could lead to the claim that the region is resting on its laurels, rather than striving to compete with the rest of the world.

3.3 Policies and institutions

The main institution responsible for the policies and programmes targeted at entrepreneurship and start-ups is the Marche regional government. Discussions with the regional authorities during the OECD mission underlined a set of key points from the point of view of entrepreneurship and start-ups:

- Unlike almost every other region in the EU (and indeed non-EU transition economies) the concepts of "entrepreneurship," the development of a "culture of entrepreneurship" or indeed "start-ups" (as opposed to "spin-offs") were conspicuous for their absence in the policy dialogue held with stakeholders such as the region; districts; professional associations; trade unions, etc. The exception to the rule was the academic community, which stresses the importance of a culture of entrepreneurship.

- Secondly, the region does not appear to have either an entrepreneurship or a start-up focus. This is reinforced by the fact that the professionals that participated in the discussions had no "entrepreneurship or start-up" titles or affiliations within their organisational structures, unlike many of the leading competitive regions in EU and OECD countries.

- The March region's activities focus on the attainment of five priorities which are deemed to be most relevant in so far as competitiveness and innovation are concerned: namely, innovation, research, energy, access to credit, and internationalisation. Other departments are also responsible for provision of support to workers.

- It is worth noting that certain policy priorities no longer exist because of the perception that the goals have been attained. These include, for example, development of quality systems, sustainable environment and supporting start-ups. Since the region has a high density of firms, it is concluded there is no need for support from the region.

Consequently, the funds, programmes and projects in support of entrepreneurship, culture of entrepreneurship, start-ups and even spin-offs are largely limited to the following:

- Women entrepreneurs: active labour market measures designed to assist unemployed women to re-enter the labour market.

- Rural development: support to assist rural / remote areas to diversify their local economy.

- Spin-offs: support to engineering and/or technology students in the Technical University of Marche and University of Camerino.

To conclude, the information available suggests that there is no great focus on entrepreneurship in the region. Such policies, programmes and funds are neither extensive nor prioritised by the region, as compared to issues such as research, innovation and internationalisation.

3.4 Key challenges

The Marche region has pursued a very successful model of economic and enterprise development which has generated massive progress in the region since the Second World War. However, three critical trends are operating concurrently, which amount to a significant challenge for the region and its future economic well-being:

- Firstly, in the face of globalisation and the increasing competitiveness of emerging markets, the Marche model has shown weaknesses for the last decade or so, such as scale constraints (small businesses with an average of five employees), lack of co-operation and networking (sharecropping background, extreme sectoral and regional identification), lack of innovation (few new start-ups), undercapitalisation (emphasis on credit as opposed to other forms of finance) lack of support environment (roads, space, BDS services, finance, etc.) which the region has sought to compensate for through mechanisms which have been successful to varying degrees, such as 27 clusters that have been developed, four Technology Transfer Centres, five Internationalisation Agencies, branding of the region, Made in Italy, etc.

- Secondly, the current financial and economic crises is beginning to take an increasing toll on the region, albeit with a time lag due of the comprehensive set of anti-crisis measures introduced by the national, regional, district and local governments. Nevertheless, there is wide consensus that the region that will emerge from the current crises will be very different and that it will need to reinvent itself.

- Thirdly, the generation of Marche entrepreneurs, which contributed directly to dramatic wave of business activity, employment creation and wealth generation is approaching retirement or has already left the labour market. Given the significant levels of family businesses in the region, this brings with it threats as well as opportunities, depending on how (or if) firm transmission is planned and executed.

Consequently, it is possible to conclude that the process of globalisation combined with the financial and economic crises are systematically demonstrating that neither the traditional Marche model nor the evolving new Marche model being supported by the region will be sufficient in the future. The small businesses are struggling, well-known medium enterprises are closing down and even successful and innovative enterprises are experiencing significant reductions in turnover.

However, local discussions lead to the conclusion that the situation is critical in the case of the family businesses and other small firms. It is not only that turnover has collapsed and access to finance has become more restrictive, leading to liquidity problems, go-slows, etc. The unemployment rate has increased sharply in the region, albeit from a low level by Italian standards. The highly diverse nature of the region hides major geographical variations. Ascoli Piceno, a rural province that traditionally imported its entrepreneurs and relied on high volume, low cost production is already experiencing very high levels of unemployment: *"Were focused on high volumes and low price and exported to South Eastern Asia. Because of globalisation, the situation has changed dramatically. We have lost 20 000 jobs in five years in a population of 200 000; we lost 3 450 jobs in the last four months [June-September 2009] alone. The official unemployment rate is now 10%."* (District Official) This trend entails dramatic social-economic costs and consequences for the region, especially one that prides itself on its high degree of social cohesion.

At the same time, in common with other economies, access to credit has tightened in the last couple of years, thus restricting firms' ability to wait out the crisis by borrowing in the short term. The consequence is dire for many firms. The short-term response has been to react with anti-crisis support measures designed to maintain working capital, stimulate productive investment, and avoid layoffs. However, the consensus of opinion among the public officials, professional associations and entrepreneurs, is that the real effect of the recession is yet to be felt by the region. The expectation is that the rate of firm deaths and unemployment will rise dramatically. There will be differential spatial consequences, with some districts and sectors suffering much more dramatically than others, with large and medium enterprises expected to experience fewer difficulties than the small and micro ones.

Finally, at the level of society, women, minorities and migrants are expected to experience the full effects of the crises disproportionately compared with other groups.

Various chapters in this report draw attention to a numbers of issues, such as the diverse economy, the existence of numerous clusters, and the relatively low unemployment rate. At the same time, the legacy of the past sectoral and spatial focus is still strong, which partly explains the relatively low level of innovative / high tech start-ups and indeed relatively low levels of innovation. The region is not branded well at present and appears to lack an articulated vision of the future. Nevertheless, despite the obvious threats, such as rising firm closures, unemployment and general de-industrialisation, the region displays significant opportunities, such as the relatively young population structure, entrepreneurial spirit, diverse human capital, various universities, strategic geographical location, potential for service sector development, not least tourism, etc.

The table below provides a snapshot SWOT for the domain of entrepreneurship in the Marche region.

Table 15. Entrepreneurship SWOT

Strengths	***Weaknesses***
• High business density (one active firm for every 10 inhabitants vs. 1:15 in Italy and 1:25 in the EU) • One of top 15 to 25 industrialised regions in the EU. • Highly diverse economy, with 27 industrial clusters • 4 universities • Unemployment rate lower than Italian & EU average • Relatively few firm closures and layoffs (at present) • Life expectancy of 80, the highest in Italy	• Legacy of sector-based economic development model • Dominance of sectors influenced by globalisation • Dependence on firms created 30-40 years ago • Predominance of family firms • Relatively few hi-tech / innovative start-ups • Relatively low level of innovation by existing firms • Relatively unknown location for external investments • Weak business support infrastructure, e.g. business development services (BDS). • Lack of support for inter-generational business succession and/or transmission
Opportunities	***Threats***
• Strong entrepreneurial spirit • Diversity of skills and knowledge of human capital • Higher than average percentage of graduates • High level of migrants in tertiary education • Geographic location at crossroad of the Adriatic Corridor and gateway to South and Eastern Europe • 37% active population (25-50 year olds); among the youngest in Italy • Service sector potential, e.g. tourism	• Competitiveness of emerging economies • Possibility of de-industrialisation taking root • Continuing reduction in exports and in profitability • High mortality rate of established enterprises as owners approach retirement • High rate of unemployment, youth unemployment and long-term unemployment due to recession and loss of competitiveness

4. Policy recommendations

The preceding analysis illustrated that the Marche region has developed rapidly, generated a very high density of enterprises and delivered high incomes and quality of life for its residents while, at the same time, engendering a high degree of social coherence. However, recent trends suggest that the current development model has been faltering in the light of globalisation and intensifying levels of

competition from emerging economies, worsened by the global recession. A new model is required which is based, at least in part (see other chapters in this report for further suggestions), on the necessity for a greater focus on local entrepreneurship and start-ups. The question is what the region could do to reinvent itself in the light of its challenges; this section presents a set of recommendations for adjustments to current programmes, policies and strategies in order to further stimulate entrepreneurship and start-ups in the Marche region.

4.1 Cultivate an entrepreneurial culture amongst both labour market entrants and existing entrepreneurs

During the OECD mission, numerous interviewees stressed the very high ratio of businesses to population in the region. The following quotation: *"Entrepreneurship is in our DNA!"* succinctly illustrates the extent to which people in the region assume that a high "density of enterprises" automatically equates with a "culture of entrepreneurship". However, quantity is not the same as quality and the propensity to be a businessman is not necessarily the same as being entrepreneurial. The emphasis was been on "stock" of enterprises, but there is an equally important part to entrepreneurship and enterprise development, namely "flow", and the region's rate of new firm births is no-longer impressive. The lack of entrepreneurs (as opposed to businessmen and craftsmen) was lamented during the discussions with the OECD. The knowledge and skill-set of the first generation of entrepreneurs and the needs of the knowledge economy are different. Cross-fertilisation of traditional strengths with new skills and know-how (such as Domotics) and innovative new start-ups are rarely created, despite the diversity of know-how, skill and sectoral knowledge. A new generation of entrepreneurs, equipped for the modern era, is required.

Other regions have been developing a culture of entrepreneurship (which is not necessarily sector specific) as a way of generating new ideas and flow into the stock of businesses. Much of the attention has focused on the teachers as well as the pupils in schools; the link between business and VET system; and the higher education system.

Our first recommendation is the necessity for the region to review the extent to which the Marche educational system (schools, colleges and universities) and the educational curriculum enables aspects of entrepreneurship to be developed from an early age and the degree to which this extends to the highest levels of tertiary education. We recognise that the Marche region has limited autonomy in the field of education. Nevertheless, rather than radical changes such as reforming the curricula, it is perfectly feasible for the region to play an important role, such as in introducing awareness raising campaigns, implementing entrepreneurial competitions at all levels of the education system, encouraging teachers to play a proactive teaching role, etc. These elements are all issues which the Marche region can influence. After all entrepreneurship education can be a way to: *"Legitimise entrepreneurship and develop an entrepreneurial culture with the purpose of fostering economic growth; develop and stimulate entrepreneurial skills; and prepare pupils and students for a more dynamic and challenging labour market"* (Postigo, Iaccobucci and Tamborini, 2004, p.259).

However, a focus on entrepreneurship should not be restricted to future labour market entrants. The second recommendation is related to the need for the region to promote the establishment of dedicated (re)training programmes for existing business people focusing on new business models and approaches, combining elements of local skills and strengths for innovation and generally equipping those already in the labour market with new business concepts, tools and techniques for the modern era. Dedicated (re)training programmes could be established using existing institutions, such as university faculties, research centres, training centres, etc., rather than establishing new ones. This recommendation is designed to counteract the fact that, although there is a high density of businesses,

these tend to be traditional businesses, rather than technology / knowledge-based ones, an issue which is closely connected with the issue of innovation analysed in another chapter of the report.

To conclude, the Marche region may have a high density of enterprises, however, it also has a relatively low rate of start-ups and the existing firms are not particularly innovative. High firm density does not automatically translate into entrepreneurship, though the existence of the pre-existing mind-set and experiences do lend themselves to cultivating a new culture of entrepreneurship in the region, with a knowledge and skill set compatible with the requirements of the knowledge/digital economy. There is a "missing link" in the Marche region, which is connected with the need to renew the culture of entrepreneurship in the region, focusing on all levels of the education system: primary schools, secondary schools, Vocational Education Training (VET) establishments, colleges and universities. This is a long-term process to generate a culture of entrepreneurship which could be supported by the region. The BEPART programme, for example (see Learning Model Annex), explains how a number of regions have sought to become "entrepreneurial" regions, which the Marches could learn from.

4.2 Address the inter-generational firm transmission in such a way as to upgrade regional entrepreneurship

The knowledge economy places a premium on a genre of entrepreneur which is different from the type that flourished following the Second World War. Previously, such entrepreneurs were highly sectorally and spatially specific; they were highly specialised craftsmen focusing on price and gradual increases in quality. Over time, they have exploited niches, increasingly zeroing-in on the upper end of the quality spectrum. Recently, they have become converts to the necessity for co-operation and networking to overcome the scale disadvantages, such as in relation to R&D, marketing, etc. The digital and knowledge economy call for an increasingly educated, flexible and innovative type of entrepreneur. However, the very success of the small, family-owned type of business, has often worked against the emergence of the latter type of entrepreneur, either in the family ranks or the ranks of the employees (see section 2.3).

Moreover, that particular generation of entrepreneurs has or is about to retire shortly. Given the region's dependence on family businesses, this represents a huge threat, as well as a great potentially opportunity. This is not simply an issue of inter-generational firm transmission; it offers an opportunity to review of current firm strategies, products and services and allows scope to re-orientate firms for long-term sustainability and profitability. However, there are numerous transmission options facing those founders-owners: close the firm; sell it; transfer it to member of the family; transfer to non-family members; attract domestic/international investors; establish joint ventures; etc. The benefits and costs to the founder and the Marche region will vary, according to the option chosen.

This is another missing link in the region's palette of support; there is a need to contribute to the effective transmission from the first generation of Marche entrepreneurs to the next one, whether to family members or others. Previous experience suggests that this will be far from a smooth process, nevertheless, whilst the problem is recognised in the region, very little has been done to facilitate the process of inter generational transmission. Our recommendation is that the region should assist the target firms to make the most appropriate decision, hopefully one which will be to the long term benefit of the region. There is a need for an intensive and open debate about this issue.

In Germany, approximately 70 000 family businesses confront the issue of succession per annum. German policy intervention rests on the assumption that early preparation for succession is essential to ensure sustainability since successful transmission requires managing complex tasks and circumnavigating major challenges. The conclusion was that it was essential for the Government, in cooperation with regional and business partners, to assist in this process, resulting in, for example, the

establishment of the Nexxt web site, which is a platform for action focused entirely on the subject of the succession of firms (see Learning Models in the Appendix). This platform could facilitate interested sellers and buyers of enterprises in meeting lawyers, tax advisers, representatives of development banks and the community, who can provide them with all the necessary information on business transfer at a single point. In addition to representing an important support structure, a similar platform would also raise awareness in the region about the importance of the business transmission issue.

4.3 Look at start-ups and spin-offs as drivers of growth-oriented entrepreneurship

Since the assumption in the region is that a high density of firms equates with a high degree of entrepreneurship, it is not entirely surprising that the issue of start-ups has been largely removed from the policy debate, as well as the system of financial support. The Marche region's focus in this respect is almost entirely restricted to supporting university student spin-offs, albeit with hitherto underwhelming results. Camerino University has supported 6 spin-offs in two years and Technical University of Marche has supported 22 in 7 years: based on the information available, few of these appear to have been commercially successful.

At the same time, it is obvious that there is a manufacturing or industrial bias to the region's activities and very little policy attention currently focuses on spin-offs involving both academia and private enterprises. Moreover, there is an obvious gap not only in general services such as tourism, but also in specialist professional services needed to assist private sector firms to emerge and grow. These services, often termed Business Development Services (BDS) include business consultancies, market research agencies, advertising, PR, legal, quality management, etc. The proliferation of publicly-funded agencies is partly designed to counteract this gap created by market failure. However, at the same time, there is a dearth of enterprises in the region capable of paying for specialised, professional services that enable them to become more efficient, productive, expand market share, etc.; public subsidies for the Technology Transfer Centres, Internationalisation Centres, etc. may crowd-out the private BDS market. The region could consider using the public subsidies system to encourage BDS provision by the private sector.

Spin-off support is focused on students but has not been a great success so far if one compares what has been achieved in the two relevant universities with for example, the private sector; a leading company in the region alone has generated, for instance, 80 spin-offs within 10 years. Italian law creates barriers to involvement of academic staff: the professorial patent system means that effectively the greatest spin-off potential (commercialisation of academics' ideas, patents etc.), is largely ignored. So, unlike for example, Britain and USA, there is a lack of emphasis on commercialisation of inventions and ideas by the academic staff itself. Whilst acknowledging the current legal limitations, there is great potential for more innovative, fast growth spin-offs, supported by the region. The region should facilitate this process, combined with the provision of i) risk capital and ii) business support services iii) establishment of safeguards to ensure that academics teach/undertake research, yet gain the necessary incentives to participate in successful spin-offs in future.

The TOP-programme at the University of Twente (see the description in the learning model annex) is just one of the numerous examples of the mechanisms for supporting university entrepreneurship. Through Learning Examples such as this one, the Marche region could intensify spin-off and start-up support to increase the dynamism of the local economy and to diversify it. The current focus is too limited since engineering students are only part of the equation. Other potential entrepreneurs include academics themselves, as well as those not necessarily affiliated to the university, but with business ideas which have links and synergies with the research activities performed in the universities

4.4 Deploy an adequate business support infrastructure to sustain business creation and business development

The region presents a Regional Development Agency (SVIM), four Technology Transfer Centres (TTCs) and five Internationalisation Centres. However, unlike most other competing regions, the Marche neither has an obvious policy nor a strategy for the development of key infrastructure connected with the development of start-ups, spin-offs and early growth enterprises. There are a number of important issues that lead to the development of an explicit policy and strategy for the development of business support infrastructure in the region:

- TTCs and Internationalisation Centres: the region needs to review whether it needs so many institutions (with significant overhead costs) and whether the end-clients would be better served through fewer but better resourced institutions.

- The region needs to review its strategy in relation to the clusters: whilst it is impressive to support 27 clusters (referred to in the region also as industrial/productive districts), it may be necessary to evaluate whether this continues to make sense in the light of globalisation for the future competitiveness of the region. A case in point is the new yacht/ship building cluster. Whilst this appears to offer a great deal of potential for cross-over and synergies in relation to issue such as mechanics, wood and furniture, leather etc., this also appears to be a cluster which is exposed to mounting levels of competition from within Italy, let alone lower cost environments, even in Europe, such as Croatia.

- Business centres / industrial and free zones: during the mission, the OECD team did not come across a network of business centres designed to address the information and support needs of start-ups and early growth enterprises. The Region needs to have a strategy in relation to this issue. The same applies to industrial and free zones.

- Science and technology parks: given its strong emphasis on issues such as innovation, technology transfer, R&D, etc., the Marche region would normally be expected to have a clear position in relation to this important area, but we failed to identify such a document. The existence of a clear strategy, backed by a feasibility study, would maximise impact and sustainability.

- There is a "missing link" in the Marche region, which needs to be tackled by focusing on all levels of the education system: primary schools, secondary schools, Vocational Education Training (VET) establishments, colleges and universities with the stated aim of renewing the culture of entrepreneurship in the region. The transformation into an "entrepreneurial region" is a long-term process and the BEPART case study in the Appendix of this report offers a number of examples of regions which used different policy instruments to pursue this process of generating a vibrant culture of entrepreneurship. These include: entrepreneurship education where facilitators and teachers can make use of adequate training programmes; universities developing and embracing their own concepts of entrepreneurship and becoming cooperative; open-minded partners, which will act as a catalyst for entrepreneurship.

- The Marche Region needs to rediscover the importance of facilitating start-ups generally, as well as spin-offs specifically. The perfect example being student spin-offs where there is a need to develop a more sophisticated and comprehensive policy approach, perhaps along the

lines of the TOP-programme (see the Appendix) though customised to the specificities of Italy and the Marche region.

- The establishment of the enterprises and the technical support for product commercialisation and support for the first year or two of operations (e.g. Technology Centres, Science Parks, etc.) need to be considered as an integrated package, combined with issues such as access to finance (grants, loans, venture capital, etc.). Moreover, this policy needs to cover potential entrepreneurs, academics and students that may not been in a direct communication with each other but whose ideas and competencies could be to the benefit of all parties. Lastly, the experience of spinoffs from large companies in the region illustrates that there is great potential in the Marche to develop support structures to assist spin-offs led by the private sector.

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IV. ENTERPRISE DEVELOPMENT

1. Introduction

Networking, mezzanine financing, private investors and open innovation are crucial for a region whose welfare is based on industrial development and family-run businesses. Moreover, one of the main characteristics of an entrepreneurial area is the presence of a hybrid variety of financial instruments. Besides the classical bank financing and the correlated guarantee policy, other forms of financing are not well established in the Marche region. Therefore, special attention should be given to the development of new financial instruments in the region.

Before analysing the challenges and opportunities of the Marche region, it is worth discussing areas of SME policy which are relevant for the Marche region. This examination of the region will lead to concrete policy recommendations and some learning models useful for Marche's policy.

2. Policy issues

2.1 SME policy and economic crisis

Due to the economic crisis, most of the OECD regions are experiencing a challenging economic downturn. Unemployment has risen and SMEs are encountering liquidity problems and underutilised production capacity. The globalisation process in a time of recession highlights the competitive disadvantage that European SMEs are facing with high labour costs and a market in a phase of contraction.

In this context, the Marche region is confronted with industrial difficulties. The manufacturing industry is the most important industry in the Marche region. This industry was established in the region in the sixties due to logistic considerations and Marche pioneering entrepreneurs. Since then, the legal and global economic environment is much more challenging and the entrepreneurial culture is less vibrant. While some large enterprises leaved the region and moved their production units, subcontractors, mostly SMEs, had to choose to remain and to re-orientate their activities.

Public authorities, in an attempt to retain as many sectors and firms as possible, set up a range of different incentives. As part of a broader SME policy, these incentives aim to stimulate SMEs to grow and to invest in the region. The starting point of such a SME-policy is the neo-classical approach, i.e. that imperfections or negative externalities in the market place should be reduced. The goal of the SME policy is hence to strengthen the existing base of enterprises by ensuring they can compete in the global marketplace and that they are not disadvantaged because of their small size relative to large firms. The different types of incentives in the SME area can be summarised as follows:

Table 16. Different types of incentives in SME policy

Type of incentive	Type of problem	Size of resources	Example of Objectives

Administrative burden	Too high compliance costs	Relatively small	Reduce burden by x %
Financial efforts	Lack of capital at reasonable terms and conditions	Significant resources Few grants	Set up guarantee schemes
Counselling and information	Lack of competence high cost	Many providers	Create transparency
R&D	Little technology transfer	Significant resources	Facilitate research and innovation
Export	Low degree of internationalisation	Relatively small resources	Better use of export potential
Special programs	Too little female or endogenous entrepreneurship	Relatively small	More women entrepreneurs

Source: R. Aernoudt, European Enterprise policy, Intersentia, Antwerp – New York, 2003.

2.2 SME policy needs an entrepreneurial context

Entrepreneurship policy is more ambitious than SME policy as it tries to include the whole population and focuses rather on the creation of a mindset than on the creation of enterprises. Entrepreneurship policy tries to create an entrepreneurial society where being or becoming an entrepreneur is considered as a normal option in life rather than an anomaly.

We can schematically try to compare both approaches:

Table 17. Comparison between SME policy and entrepreneurship policy

	SME policy	Entrepreneurship policy
Basic assumption	Market imperfection	Entrepreneurial gap
Objective	Help SMEs to overcome higher compliance and investment costs as compared to large concerns	Encourage people to set up a business or to think entrepreneurially
Target group	Mainly existing firms	Individuals, entrepreneurs
Specific criteria	Picking winners: high growth sectors	Particular segments possible: women, ethnic groups, youth, etc.
Levers	Financial (investment subsidies, financing, R&D, export, etc.)	Mainly non-financial support
Focus on	Business environment	Entrepreneurial culture

The emerging interest in entrepreneurship policy often leads to the false conclusion that SME policy is no longer important A doctoral researcher who analysed fifty years of SME policy concluded that there was absolutely no need for a specific SME policy[10]. The focus on and the shift towards entrepreneurship policy should complement SME policy, particularly in environment issues and financing issues rather than direct support and subsidy measures.

[10] J. Lambrecht, 70 years SME policy in Belgium, EHSAL, 1998.

A close inspection of the table shows indeed that the choice is not between SME policy and entrepreneurship policy but rather that they can be complementary as neither the focus nor the target group are the same. Indeed, entrepreneurship policy focuses on the entrepreneur, whilst SME policy focuses on the enterprise. SME policy focuses on subsidies while entrepreneurship policy focuses on behaviour such as allowing co-ownership. This latter is translated in financial instruments such as business angels or formal venture capital. At the same time SME policy and entrepreneurship policy are complementary: SME policy cannot be effective in the absence of an entrepreneurial society. And an entrepreneurial society has to be materialised in the creation of new companies and the full use of the growth potential of existing companies.

2.3 Not all the money is the same

The traditional pecking order theory suggests that the most popular financing method is earnings retention, followed by external debt. External equity is generally the last resort.

To achieve a successful and profitable business development, entrepreneurs should ensure that the right type of financing is used, by matching the financial method to the real risk involved. For a start-up, with no income and a product still in development, debt finance is not the best source of external finance. The bank is simply the wrong option in this case because debt finance is usually secured on assets. The longer or the more uncertain the period is, the higher the collateral required. Moreover, the riskier the project, the higher the anticipated rewards need to be to attract investors.

The first generation of Marche entrepreneurs were ambitious and open minded about future trends and developments. These behavioural characteristics might be a factor in convincing venture capitalists to invest in their project. Most researchers suggest that venture capital backing is an important factor in growth. Especially fast growing companies, the so-called gazelles, are at a certain stage of development faced with financial requirements that might exceed their internal financing capabilities. Seeking external participation is hence an important element in their strategy. However, the majority of European entrepreneurs often prefer - as is the case with a lot of Marche SMEs - to remain “the boss of a small company” rather than the “manager/shareholder of a big company”. For an entrepreneur who is essentially concerned and satisfied only with generating a consistent income stream for himself, the venture capital market will be less appropriate than the banks and/or other funders. This begs the question of whether a company prefers growth versus ownership independence, with most Marche’s SMEs opting for the latter.

2.4 SME Support

Different policy measures at local, regional, national and European levels were established to assist SMEs. These measures were influenced by sectoral lobbying to some degree and policy was oriented towards a sectoral approach that mainly focused on four industries (wood and furniture; leather and shoes; mechanics; and agri-food). Therefore the SME policy framework suffered from a lack of a clear structure.

During the meeting with the interview partners it was clearly stated that only few small businesses appear willing to accept support. Different reasons were identified for the low take-up of lots of measures: i) support provider does not understand the owner’s business; ii) accepting external support is often perceived as threatening the personal autonomy: iii) measures ignore the heterogeneity of small firms or the specific characters of localities; iv) the entrepreneur perceives the application procedure as too burdensome.

An analysis of the SME policy in the United Kingdom concluded that the widespread received political wisdom about the benefits of small business support is in need of close questioning. Indeed, the policies and the infrastructure to deliver support to SMEs are expensive while small business owners themselves appear resolutely unwilling to engage with the support infrastructure. An analysis of the Belgian SME policy comes to similar conclusions. An in-depth historical study shows that the last 70 years of Belgian SME policy has not served the country's SMEs. The biggest shortcoming is the positive discrimination of SMEs in order to create equal opportunities for all enterprises because this has led to discrimination among the SMEs themselves within a given sector. Another disadvantage is the difficulty in evaluating the local impact of SME policy.

Recent analysis showed that efficient SME policy should be horizontally focused as innovation, the main determinant of growth, is interdisciplinary issue. SME policy should ensure that it doesn't hinder inter-sectoral collaboration and intra-sectoral discrimination and allow a good value for public money.

3. Assessment of the region

This section provides a SWOT analysis of the Marche region with regard to business development. It sets the background for the application of the theoretical knowledge of SMEs and entrepreneurship.

3.1 Strengths

A rich region with a high level of entrepreneurial activity

Marche is one of the top 25 industrialised regions in Europe. It is a region of entrepreneurs. It is estimated that 10% of the population (exactly 103 of 1 000 inhabitants) is an entrepreneur, which is the highest density in Italy; or even in Europe[11]. These entrepreneurs form the base of the prosperity of the regions and explain why the Marche region has a GDP per capita (25 150 euro) slightly above the Italian average (25 031 euro)[12]. In the handicraft sector, the ratio is 33 out of 1 000 inhabitants putting Marche in the second place, after Emilia-Romagna, as a handicraft region. This parameter further shows the importance of entrepreneurial activity for the region.

The entrepreneurial activity is mainly based on family-owned firms. Family capitalism is responding better than stock-market capitalism to the financial crisis as families are compensating the weaknesses of capitalism with their own savings. Therefore the economic evolution of the region is less volatile than in regions where most companies belong to industrial groups or are rather venture capital based.

A few strong export products

The region has a number of internationally-known products (e.g. Scavolini kitchens, Church shoes, etc.) and is market leader in some subsectors (e.g. yacht manufacturing). As a result, export makes up 30% of Marche's GDP or 3.5% of overall Italian exports. Because Marche represents 2.6% of the Italian GDP, its export capacity is above the Italian average. With an average yearly export growth of 8%, Marche is the second biggest exporter among the Italian regions. The trade balance of Marche region is positive.

[11] Reporte Industria e artigianato, 2008.
[12] Data ISTAT - Eurostat, 2005

Strong local ties

The relatively small scale of the region and partially the Italian mentality characterised by strong family connections and social behaviour, means that there are strong links amongst the habitants and entrepreneurs. The existence of Mutual Guarantee schemes is an example of how these ties can be used to support local development.

3.2 Weaknesses

Weak regional marketing

Outside Italy, the name Marche is hardly known and regional marketing is quite absent, which has several underlying reasons. As the initial entrepreneurs were mainly active in the intermediate production, and hence in business-to-business (B2B) activities, there was no accurate need for regional marketing. The consumer businesses (B2C) developed their own brands, in the absence of a regional marketing referring to the origin as a trademark. Some famous brands such as "Church" are never linked with the region and should a survey be realised amongst costumers, probably most of them would guess that this product, known for its sustainability, is "made in UK". Hence today these brands have no commercial interest to link their product with the region and the region misses a big opportunity of promoting itself as a land of high quality production.

Foreign investments and delocalisation danger

The high density of entrepreneurs contrasts with the limited inward and outward Foreign Direct Investment (FDI) that characterise Marche, though foreign investments have recently targeted the Marche, including in technologically advanced sectors such as the solar panel industry. The weak regional marketing could be one of the factors explaining this absence. Only 0.2% of the foreign investments in Italy take place in the Marche region and only 0.1% of the Italian foreign investments abroad are initiated by Marche's companies. These figures should be compared to the export figures where Marche represents 3.5% of the Italian economy and with the share of Marche in Italians GDP, which is 2.6%. These figures suggest that on average the Marche region is still embedded in the ancient trade philosophy and has not fully integrated the globalisation process, which is more investment- than trade-oriented. The dearth of Marche companies abroad has a negative impact on their competitiveness in the long run. Indeed, studies show that large companies which invest abroad strengthen their competitiveness also in the home region, while companies not investing abroad actually reduce their competitiveness[13]. Of course, this increases the danger of delocalisation implying difficulties for subcontractors and service companies. The region's geographical characteristics have also resulted in a poor road infrastructure, which somehow discourages the attraction of foreign investment.

3.3 Opportunities

Italian decentralisation law

Due to internal political considerations, Italy is implementing a decentralisation law which gives more fiscal autonomy to the regions. IMF research states that for a country to profit from devolution, it must be accompanied by mechanisms that allow local governments to raise their own taxes and that set incentives to be fiscally responsible. For Marche, this could offer a unique opportunity to substitute

[13] See for instance B. Tindemans & Streemeersch, investment abroad and competitiveness, Flanders business School, 2003.

the non-efficient and non significant subsidies with incentives for Marche's companies to invest abroad and to attract new foreign investors. These subsidies can even give an opportunity to avoid undercapitalisation of the Marches' firms and hence increase their intrinsic competitiveness.

Marche central position in an enlarged single market

The Marche region was geographically on the periphery of the industrial heartland of Europe. Now with the enlargement of the EU to the East and with new members in perspective such as Croatia, the new geographical and economic heart of Europe is much closer to the Marche region. The new and future member states of the single market opens up new export and investment opportunities for the region.

Crisis as catalyst for fiscal reform

The crisis gives a unique opportunity for Marche to take structural measures and to change its "closed" mentality. One of the problems of Marche is that it is a relatively rich region and the population could become complacent about the local economy. Hence the region does not try to exploit its development capacity. The tourism sector, as one of the most underexploited regional potential, can illustrate this thesis. The crisis offers a unique opportunity to further exploit the regional opportunities.

3.4 Threats

Post-war business & management approach

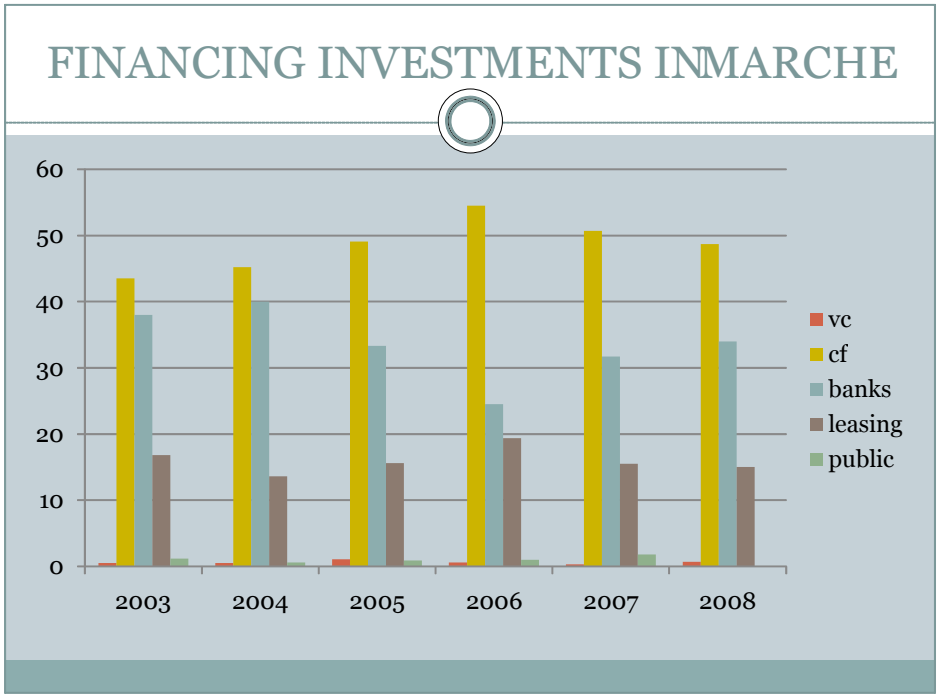
Marche companies are mainly family-run and family-owned. Out of the 218 big companies, only 5 are not run by family managers. Therefore there is no separation between family and business and each family has to find a balance between family and business life. The so-called managerial revolution whereby managers are different than the shareholders did not apparently reach the Marche region. This is not a problem as such but it might hinder the development and internationalisation of companies. Moreover, managerial competence is not by definition present within the family. Therefore it is often suggested that the best way to maintain a sustainable development is by assuring that the initial pioneer-entrepreneur is succeeded by an external manager. This bottom line also counts for the board where external independent members are needed in order to develop the company as they don't have to find the right equilibrium between family interests and company interests.

Loan culture

The traditional character of the region is not only obvious when looking to management but also in the financing of local companies. The traditional pecking order theory suggests that the financing source of choice is earnings retention, followed by external debt, and then external equity. The pecking order theory is often referred to as the "big boss syndrome". Entrepreneurs prefer being their own boss and therefore, besides avoiding external managers, they avoid as much as possible external financing.

The figure below, based on data of Confindustria, demonstrates clearly this behaviour. We can assume that therefore a lot of growth opportunities are not exploited. Moreover the systematic appeal to bank financing, both in the long and in the short run, leads to a systemic undercapitalisation of the company and can provoke liquidity problems.

Figure 1. Financing investments in Marche



Source: Confindustria Report, 2008

As can be seen from the figure, financing through cash flow (cf) is by far the most important source of financing, followed by bank financing. Public funds are insignificant as well and one might wonder if they have any additional impact on investment decisions. Leasing is losing market share, as is the case in most European countries.

The most important conclusion is that venture capital is almost completely absent as a financing source. Besides the unwillingness to lose total control, companies try to avoid venture capital because of fiscal discrimination whereby interest on credits are deductible which is not the case with returnss on venture capital. This creates a further tendency to debt financing leading to a weaker financial structure. This implies a high risk of illiquidity and a reliance on commercial relations for financing. In case of recession, reduced turnover or losses due to non-payment of customers, put the companies in a risky position and could even lead to bankruptcies. One way of coping with this problem is attracting venture capital-funds by a public co-investment scheme investing the same amount as the private venture capital company and without any supplementary due diligence. The private venture capital decision automatically triggers the public money. This reduces the funds to be invested by the private venture capital and has a positive levy on the returns on the invested private money. The principle of automaticity is crucial for the success and avoids red tape as much as the danger of public interference.

Looking to small companies (handicraft segment)[14], the Marche companies have the highest bank debts in absolute amounts (EUR 60 000 against an Italian average of EUR 40 000) and the banking financing represents twice as much of the total balance sheet than the Italian average (9% bank financing over total financing against an Italian average of 4,3%). Therefore starting up a business is often difficult due to lack of finance. Many individuals could help their relatives to start a business by

[14] Figures based on Report Industria e Artigianato, 2008.

lending some money. However, the European mentality implies that only few people are prepared to do so, given the high risk of a start-up.

Due to systemic undercapitalisation, different business representative associations have complained during the review process about the difficulty of having access to finance, putting the blame on the Basel II Agreement. The latter differentiates access to credit in relation to the risk profile, but it does not automatically imply that access to finance is tougher. Solid enterprises, having a high share of their own funds over total assets, will in the context of Basel II be confronted with easier access to credits and will need fewer guarantees to obtain their credit. However, the undercapitalised Marche firms are confronted with credit restrictions as the solvability of a company is an important criterion in determining its risk profile. Undercapitalisation leads to difficult access to finance, confronting entrepreneurs with more guarantee requirements and hindering t their future expansion projects. Therefore the region should rather look at innovative ways of dealing with this systematic undercapitalization. One possible solution would be to introduce a fiscal treatment allowing deduction of fictive interests on one's own capital. Being such fiscal deduction only applicable to debts, it would stimulate entrepreneurs to privilege debt financing over self-financing or venture capital funds. In order to neutralise this discrimination of fiscal treatment, equity financing (i.e. one's own money, venture capital, earning retentions) should lead to fiscal advantages similar to debt financing. This would give an incentive to entrepreneurs to put their own savings and hence would lead to a better solvency and enhance the competitiveness of the Marches' enterprises. Moreover, it can be an important factor to attract foreign direct investors. This approach is explained in detail in the learning model of The Spanish Business Angel Academy in the Appendix.

To summarise, the loan culture hinders growth, implies undercapitalisation and causes a competitive disadvantage for companies depending less on debts. The undercapitalisation is a major reason why the region does not fully exploit its development potential. The unwillingness of entrepreneurs to open up their capital leads to systemic insolvency creating a high risk profile for bank lending. SME organisations should look at both the demand and supply sides of business financing and explore ways of enhancing the competitiveness of Marche's enterprises by increasing the solvency ratio and decreasing the dependency on bank loans.

Multilevel governance is lacking synergy

Different agencies are working in the same field without always avoiding overlapping. This leads to the fragmentation of public support services and the creation of a new province could possibly increase problems of synergy in business support policies.

4. Policy recommendations

The Marche region has been characterised in the past by a sector-based approach to business development, the legacy of which is epitomised by the four technology centres in wood furniture, mechanics, leather/shoemaking, and food processing. Today, only 6% of the regional budget (EUR 1.5 out of 25 million) is specifically devoted to sector strategies as matching funds to national government programmes for the promotion of Italy's industrial districts. This is a step in the right direction, as innovation is today a broad concept that spans the borders of industries, fields of training, academic disciplines, and institutions. This is why it is important to promote clouds rather than clusters, which implies that collaboration should not be limited to an area or to a subsector, as economic benefits are more likely to come the confrontation between different actors of different subsectors. This interdisciplinary approach will be positive for the collaboration amongst sectors needed for future innovation and will be conducive to the emergence of new niches, as more closely discussed in the chapter on governance and environment.

Box 2. Trenton in Canada works closure and transition

In April 2007 Greenbriar Corporation announced the closure of Trenton Works Limited, in Trenton, Nova Scotia, Canada. Trenton Works factory has been located in the area since the 1870's. Trenton Works was famous for its design and manufacturing of quality products, and the company produced more than 63,500 railway cars. The plant occupies 17 acres of heated floor space with four main buildings on 160 acres of land. Trenton Works has produced virtually every type of railway freight car with peak production output of 50 cars per week. In late 2005, approximately 400 of the 1100 workers were laid off; in October 2006, an additional 350 workers were laid off. At the time of the closure announcement, 328 workers remained to fill orders until May 2007.

A steering committee was established in 2006 to explore diversification of the products made by Trenton Works. This steering committee was comprised of representatives from the PRDC, the office of Peter MacKay, Member of Parliament, management of Trenton Works, United Steelworkers Union, Nova Scotia Business Inc., the Office of Economic Development, Atlantic Canada Opportunities Agency (ACOA) and other government partners. When the closure was announced, the Department of Education and Service Canada were added to the steering committee. Efforts have been made by both Service Canada and Department of Education to provide employees with the information and services they require to meet their short and long term needs. Services included employment insurance, career exploration, re-training, job searching skills, career counselling, financial planning, and high school completion. In April, Career Connections in New Glasgow and the Nova Scotia Community College – Pictou Campus joined the transition team.

Members of the steering committee have co-operated to explore various options and develop business plans for possible product diversification. In addition, an information session led by the Skill Development Coordinator, Department of Education and the Executive Director, PRDC was held at the work site in April. The objective was to outline the Worker Transition Needs Assessment and secure volunteers to participate in the individual, hour long interviews. The point of the needs assessment was to identify educational, informational and other requirements of laid-off workers. Questions were designed to have the respondents contemplate about the skills they possess and the skills they need to obtain future employment. The questions also addressed the kind of education and resources they would like to see provided at the Transition Centre. The purpose of the Trenton Works Worker Transition Needs Assessment is to determine the current information, skills and learning needs of the workforce and to document information that will assist planning for the success of future activities associated with the transition effort.

Source : OECD (2008) "Integrating employment, skills and economic development", OECD, Paris

Policy recommendations for SME development mainly concern the area of business financing and are split in four groups: i) those transversal that would help any firm, regardless of size and growth prospects; ii) those for very small, often self-employed, firms; iii) those addressing the needs of large companies playing a major employment role in the region; iv) those for firms that are small or young, but have a growth potential. The last three types of firms are called mice, elephants, and gazelles, following the terminology coined by David Birch.[15]

4.1. Apply the "no wrong door" concept and promote regional branding

In order to cope with the lack of synergy at the level of public services, some different public organisations should be merged such as the different provincial export services. Where this is not possible, the principle of "no wrong door" should be introduced. This means that through accurate information and by creating a "one stop shop", enterprises will lose less time avoiding going to business support or information services that are not relevant for their problems. This administrative simplification progress should be measurable and evaluated regularly.

[15] Birch, D. (1979) *"The Job Generation Process"*

Besides, many firms, especially those that do not have yet an international presence, could benefit from a "Made in Marche" brand, which would protect the quality of local products by ensuring the traceability of the production process. For instance, the Marche region, partly based on creativity industry, could promote itself as Marche DC, *Marche district of creativity*.

4.2. Mice: Further develop mutual guarantee programmes and launch love-money schemes.

Mice are small companies that are important for employment considerations, but have limited growth potential. The major obstacle for these companies consists in red tape, which has a higher marginal cost for small firms as compared to large companies, and lack of finance, which is limited for small firms by information asymmetries and moral hazard problems.

One important aspect would be to further develop the existing mutual guarantee schemes and also launch a round table between banks and the artisan industry in order to create a better mutual understanding. Similarly, a love-money scheme similar to the "Dutch Aunt Agaathe" programme (see annex on learning models) would be interesting for the Marche region as it is consistent with the desire of local entrepreneurs to remain the company's owner. A similar scheme would facilitate access to credit as mezzanine finance is considered as "own capital" that allows to leverage debts and guarantees, which creates a healthy balance structure from the point of view of the bankers.

4.3. Elephants and subcontractors: promote subordinated capital and neutralise the fiscal advantage of bank financing.

These are large local employers which are struggling to remain competitive. For those enterprises, innovation, outsourcing, and foreign investments are crucial for survival as gross salary levels are relatively too high to compete on equal terms with low-wage countries. For these companies, it is not a subsidy issue but rather a regulatory and fiscal issue that might retain them from leaving the region. A retention policy is not only important for large companies, but clearly also for their subcontractors. A possible complication is that policies towards "elephants" are not exclusively in the remit of the regional government, but also concern the central government.

The financial aspects of these large companies need to be tackled on both the demand and supply sides. Subordinated capital and other mezzanine instruments allow having external non-banking finance, but without losing ownership of the company (paragraph 3.2). Measures that neutralise the fiscal advantage of bank financing are also an option (see the learning model on The Belgian Notional Interest scheme), as are investment readiness programmes that prepare entrepreneurs for equity investments by building the capacities necessary to receive equity finance.

4.4. Gazelles: stimulate an equity-seeking mindset by fostering networking between investors and entrepreneurs

These are companies with an important growth potential. Statistics show that 5% of the companies, i.e. the gazelles, count for 80% of the new jobs created. Often companies with a growth potential don't use this potential as they prefer remaining relatively small and becoming what economists call "lifestyle" companies. Especially in rich regions, such like Marche, the existence of "lifestyle" companies is an unused regional growth opportunity. Improved access to finance will stimulate the expansion of these companies.

In this sense, it will be useful to support networking between entrepreneurs and potential investors through, for instance, the launch of a Business Angel Academy. The Marche region has many wealthy (ex-) businessmen and businesswomen, who are though rather reluctant to invest in new

enterprises. To mitigate this mismatch, the Marche region could develop a business angel academy, modelled after the Spanish Business Angel Academy discussed in the learning model annex. This academy could be used to provide business angels and potential entrepreneurs with the necessary information and interaction opportunities for making their investment decisions, improve their knowledge of the investment process, and thereby reduce the risks associated with the investment. A similar academy could also become one of the major ways of coping with the lack of financing that hinders the development and transmission of enterprises and will lead to the development of an equity-seeking mindset. The so-called "equity culture" amongst entrepreneurs can be generated by the education system and the public bodies with which the entrepreneur engages in the first place when looking for help in establishing a business.

Another option would be to attract private international venture capital companies focused on high growth businesses by setting up automatic co-investment schemes whereby the private sector investment automatically triggers the public investment.

V. CONTRIBUTION OF RESEARCH ORGANISATIONS

1. Introduction

The Marche is one of the regions of the "Third Italy", i.e. Central and North-Eastern Italy with an industrial structure of SMEs localised in industrial districts. In addition to the dominance of SMEs, these districts were characterized by sectoral specialization (often in traditional industries), the whole value chain being located in a spatially limited area. Industrial districts were often a fusion between community and economy, reflecting a strong local embeddedness of firms, and the presence of social capital enabling and promoting a close cooperation amongst firms (suppliers, subcontractors and client firms) as well as between firms and local authorities, often in informal networks. These characteristics have, especially in the centre-north regions of Tuscany, Emilia-Romagna and Veneto, more or less disappeared due to the globalization process. This means that the traditional industrial districts as we knew them from the 1970s and 80s are restructured into 'ordinary' regional clusters as the value chain has been delocalized. In particular, labour intensive and polluting production phases have been outsourced primarily to East-European countries (e.g. Romania and Albania); multinational companies have entered the districts and bought up local firms; foreign entrepreneurs and labour from East-Europe, Asia and Africa have immigrated; and, finally, a group formation process has taken place among the Italian SMEs to obtain scale advantages and so be able to compete in the globalizing knowledge economy.

In contrast to centre-north regions, this restructuring process has not advanced as far in the Marche. As a result, the Marche districts do still carry most of the characteristics of the traditional industrial districts and, thus, demonstrates potentially problematic lock-in tendencies. This implies that the globalization process has not so far had the same impact and consequences in the Marche as in Italy's northern industrial districts. On the one hand, this means that the performance of the local industry has in general not been as good as in centre-north regions. On the other hand, though, social cohesion is stronger in Marche (see also the first chapter of the report).

However, the lack of economic restructuring and adaptation to the globalization forces has made the region more vulnerable and exposed it to the contemporary financial and economic crises in the world economy. This has, among other things, resulted in a rapid increase in the level of unemployment from a normal situation of almost full employment to more than 7% today. This implies that the regional economy has to speed up its restructuring process to become less dependent on its specialization in traditional industries and more knowledge intensive and innovative. This means that the role of research organizations and the collaboration between universities and industries must become a key area of concern in the future economic policy of the region. Due to the dominance of the industrial structure of SMEs in general, and specifically in traditional sectors, this represents a huge challenge because SMEs normally do not have a sufficient level of absorptive capacity to identify their needs for R&D based knowledge as well as to collaborate with universities and other research organizations. Industry-university relationships are the main focus of the chapter, which moreover will look into the role that the Marche region can play in the governance of inter-university

cooperation as well as at how a platform-oriented approach transcending "locked-in" specialized sectors and districts can be enabled by research inputs from the universities.

2. Policy issues

2.1. A typology of regional innovation policy

How does a relevant policy framework for promoting an upgrading of SMEs diversifying a specialized regional economy look like? Research carried out in the SMEPOL project - SME policy and the regional dimension of innovation (Asheim et al. 2003) - demonstrated the need for a more system-oriented and pro-active innovation-based regional policy. In the project, SME innovation policy tools were classified in two dimensions, resulting in a four-quadrant table (Figure 1). The figure distinguishes between two main aims of support tools. Some tools aim at giving firms access to resources that they lack to carry out innovation projects, i.e. to increase the innovation capacity of firms by making the necessary resource inputs available. They include financial support for product development; help to contact relevant knowledge organisations; assistance in solving specific technological problems, where the absorptive capacity of the firm is critical; etc. The other type of instruments has a larger focus on learning, trying to change behavioural aspects, such as the innovation strategy, management, mentality or the level of awareness in firms, where the skill levels of the workforce are a major determining factor of the outcome.

An appropriate way to design and implement an instrument aimed at assigning lacking resources to firms (following an evolutionary approach to policy) is, thus, to do it according to a learning-to-innovate framework. In line with this perspective the objective of policy instruments is not solely to provide scarce resources (such as financial assistance) to innovating firms per se, but also to promote learning about R&D and innovation and the acquisition of new routines within firms. In this frame, highly skilled people and adequate skill provision in the regions are critical resources in order to increase the absorptive capacity. Lack of demand is often a bottleneck for financial incentives to innovation activity, i.e. firms initially do not see the need to innovate, or alternatively, they do not have the capability to articulate their need for innovation. Some policy instruments should, therefore, also attempt to enhance demand for initial innovation activity of firms (i.e. Apply a learning perspective), and, thus, must include an explicit behavioural aspect with an ultimate policy target of promoting the innovation activity of enterprises.

The other dimension includes the target group of instruments. Some tools focus on innovation and learning within firms, to lower the innovation barriers of firms, such as lack of capital or technological competence. Other instruments to a larger extent have regional production and innovation systems as their target group, aiming at achieving externalities or synergies from complementarities within the regions. The barriers may for example be lack of user-producer interaction or lack of relevant competence in the regional knowledge organisations to support innovation projects.

Table 18. Regional innovation policy: A typology

	Support: Financial and technical	Behavioural change: Learning to innovate
Firm-focused	Financial support Brokers	Mobility schemes
System-focused	Technology Centres	Regional Innovation Systems

Source: Regional innovation policy: A typology (Asheim et al., 2003)

Some of the elements in this regional innovation policy framework are already in place in the Marche region. Even if representatives from SME organizations several times mentioned lack of credit as a major problem, Marche has a mutual guarantee system (i.e. first level of guarantee) which seems quite well adapted to the typical needs of SMEs. Improvement of the credit system is also one of five areas that are designated by the Region Marche for supporting the competitiveness of the regional economy. The Region aims at consolidating the system to achieve a critical mass for it to be accepted by banks and so reduce transaction costs. The largest of these mutual guarantee systems are now accepted by most banks in the region. Another strategy applied by the regional government is the establishment of a regional fund which provides a second level of guarantees. This lowers the cost of loans. Region Marche is also looking at the second level of guarantee to provide a zero fee guarantee for SMEs.

Marche operates a mobility scheme called "young technologists", where the region pays SMEs the full salary for the first two years when they recruited a university candidate. Also universities contributed to this scheme.

The pride of the industrial districts of the Third Italy is their technology centres, which in the literature on industrial districts normally are called "centres of real services". This institution has played a key role in the development of the Italian industrial districts since the 1980s. They are called centres of "real" services, as they do not provide financial support but supplies all kind of technical services which the SMEs are too small to carry out internally themselves. In Marche all major industrial sectors have their technology centres: *Meccano* for electro mechanics, *Cosmob* for wood and furniture, *SCAM* for shoemaking and *Asteria* for fish and agriculture as well as for environmental technologies and renewable energies. Taking a closer look at *Meccano*, which is a none-profit organisation, established in 1988, its aim is to sustain and promote "technological, productive, commercial and managerial development of the electro mechanic enterprise in Marche". Among the services offered to the enterprises the following could be mentioned: i) Transfer of advanced technologies (CAD and CAM); ii) Research and development services for technological innovation and product development; iii) Activities for the improvement of the qualitative standards of regional production; iv) Specialist training; v) Technological internationalization for the promotion of the regional mechanical sector.

Thus, the policy framework for supporting SMEs is quite well developed in the Marche region. What is obviously lacking is an explicit regional innovation system (RIS) policy. This has the advantage of being a system-oriented and pro-active approach, which would assist Marche's traditional SMEs in diversifying their activities, thereby moving further the region away from its past sector-based policy approach.

2.2. Towards a Marche regional innovation system

Research organizations constitute the key node in the knowledge exploration subsystem of regional innovation systems (RIS), which constitutes a strategic instrument in the implementation of regional innovation policies. RIS is most commonly defined as consisting of two subsystems and their reciprocal interaction, as well as of relationships to non-regional agencies and organizations. These two subsystems are: i) the *knowledge exploration and diffusing* subsystem, which consists of universities, public and private research institutes, corporate R&D divisions, technology transfer organizations, etc.; ii) the *knowledge exploitation* subsystem, which encompasses regional clusters of industries interacting with the knowledge exploration subsystem.

However, in addition to this narrow definition, a RIS can be defined in a broader way. A broadly defined RIS includes the wider setting of organisations and institutions affecting and supporting learning and innovation in a region, where all types of research organisations (including technology centres) are included. This type of system is less systemic than the narrowly defined types of innovation systems. Firms mainly base their innovation activity on interactive, localised learning processes stimulated by geographical, social and cultural/institutional proximities, without much direct contact with knowledge exploring organisations but mostly benefiting from them through their training of skilled people (Asheim and Gertler, 2005).

The challenges of promoting innovation and economic development in regions such as Marche are many, and regional innovation strategies have to take into account the specificities of the regional industrial structure (the knowledge exploiting subsector) as well as those of universities, polytechnics, public and private R&D institutes, technological transfer agencies, etc. (the knowledge exploring subsector) to fine tune regional innovation policy. This implies that focusing only on policies promoting R&D intensive industries would not be sufficient to achieve the necessary economic development *in* and *of* the region (i.e. economic growth and competitiveness as well as social cohesion), as long as the region is dominated by SMEs in traditional sectors with only 0.57% of regional GDP allocated to R&D in 2005. This does not mean that strengthening R&D with respect to the traditional sectors as well as emerging industries should not been seen at an important task, but this cannot be the only policy measure of the regional innovation agenda.

To establish a proper framework for formulating a fine-tuned regional innovation policy, a distributed knowledge base perspective should be introduced, together with the idea that different modes of innovation co-exist in regional economies. I make the distinction between analytical (science-based), synthetic (engineering-based) and symbolic (arts-based) knowledge bases (Asheim et al., 2007). These are ideal types, and normally two or three knowledge bases co-exist in the production of goods and services.

There are two main reasons of using this typology. Firstly, knowledge creation and innovation can take place in all kind of industries but is done in different ways, needs different kinds of knowledge and skilled people and requires different kinds of innovation support. Secondly, no type of knowledge should a priory be given priority with regard to being the superior with regard to economic growth and job creation (as is done using a linear view of innovation, which gives priority to high-tech industries). Here Porter's (1990) position of partly recommending that a region should continue to build on industries where it has always been best in the past, as well as his view of basing competitive advantage on the uniqueness of products and services (which could be founded on analytical, synthetic or symbolic knowledge), should be the starting point to formulate regional policies for competitiveness and innovativeness.

This view is also reflected in the research of Lorenz and Lundvall Lorenz (2006), which identifies at least two main modes of innovation, the DUI (Doing, Using, and Interacting) mode of innovation and the STI (Science, Technology, and Innovation) mode of innovation. The STI mode of innovation is mostly associated with the analytical knowledge base, but also partly with applied engineering research carried out at applied-science universities. On the other hand, the DUI mode of innovation is based on synthetic and symbolic knowledge; it is experience-based with a much larger tacit component than in analytical, research-based knowledge; and it is mainly carried out inside companies by highly skilled workers from technical universities and polytechnics. In the Marche region it is the synthetic knowledge base that is dominating within a DUI mode of innovation, where the upgrading of the workforce skill levels and the modernisation of work organization are both important to strengthen the innovative potential of firms. There should also be broad use of symbolic knowledge (e.g. design) in the traditional industries such as shoes and textile as part of an upgrading process.

Research has shown that combining the two modes of innovation (DUI and STI), and consequently different knowledge bases, increase the economic performance of firms. This means that firms that have almost exclusively relied on one of the modes would benefit from integrating the other one (Lorenz and Lundvall, 2006). Other research confirms this by showing that firms that source knowledge on a broad base and not one-sidedly through collaboration with either R&D institutes or non-R&D based sources of innovation turn out to be the most innovative (Laursen and Salter, 2006).

To achieve such a combination of modes of innovation, the cognitive distance amongst actors in the RIS has to be reduced and the absorptive capacity in firms and at the system level has to be increased. In the case of the Marche region, the most important challenge would be to link non-R&D firms with R&D institutes and universities. This requires well functioning technological transfer organizations, as well as mobility schemes where the hiring of university-trained candidates in non-R&D firms is partly subsidized by the public sector to increase the absorptive capacity of SMEs. Such policy measures represent important components in improving the RIS connectivity, and indeed already exist in the Marche region, where especially the technology centres have a strategic role to play.

2.3. A related-variety approach and its policy instruments

The potential benefits of combining the two modes of innovation make it important to reflect upon which types of R&D efforts would be most beneficial to support. Clearly this points towards R&D which could directly be used to upgrade the more traditional and non-R&D based industry. However, such R&D should not only be focusing on the existing technological trajectory, but should also have an eye on how to transcend the dominating trajectory to avoid path dependency leading to negative look-in situations. However, it would be even more interesting to apply a related variety perspective on how to combine R&D intensive and less intensive sectors. Generic technologies such as ICT, biotech and nanotech stand out as being of special importance to achieve a related variety based combination of the modes of innovation. Examples of this would be within “green biotech”, where the production of functional food requires collaboration between R&D intensive biotech firms in science parks with traditional dairy firms, or in “white biotech” where biotech input is used to upgrade and diversify products and processes in traditional metal and chemical industries.

As to “technology entrepreneurship”, i.e. the creation of new firms exploiting university knowledge, it is of strategic importance that the knowledge created is unique and of international excellence, and that a critical mass of research exists. In addition, a successful technology entrepreneurship policy requires competent technology transfer offices, science parks with incubators that keep good links with university departments, research centres and R&D institutes; as well as a regional entrepreneurial culture. Experience has shown that if R&D resources are too evenly spread

out, the positive impact disappears. Moreover, it is also important to keep in mind that not all relevant knowledge can be provided within a region, and that relevant knowledge can also be obtained by linking regional industry with universities and R&D institutes abroad. Experiences from Sweden show that only a few regions that have high quality research universities, international competitive industries as well as a pro-active regional government can support international competitive industries. This also goes for the Marche region and should be remembered when pursuing a strategy of science and technology parks.

Concerning the knowledge-exploration subsystem of the Marche RIS, special strength can be found in the engineering faculty of the Università Politecnica delle Marche (UPM) in Ancona, which has 14 000 students (for the university as a whole) and is ranked between the 2nd and 3rd best medium-sized technical university in Italy, as well as in the science faculty of the University of Camerino, which totals 9 000 students. These two universities are the most relevant for collaboration with industry, as the other two universities in Marche specialises in arts and social science. Both universities are explicitly dedicated to the "third mission" (i.e. active collaboration with industry), and UPM deliberately changed its name in 2003 from Università di Ancona to advertise its function as a technical university. Since then, UPM has aimed at supporting regional industry by attracting and educating the best people (Talents), providing excellence in applied research (Technology), and serving the needs of people and firms in the region (Territory). In doing so, they have somehow modified the TTT strategy of Richard Florida (2002) by substituting "tolerance" with "territory" (which we shall return to in the final recommendations).

UPM through its engineering faculty has contributed significantly to a shift from traditional, low-tech industries, to medium-tech mechanical industries (mechanics). UPM describes the changes taking place in the innovation model as a change from "innovation without research", which corresponds to the DUI mode of innovation presented above, to "R&D-based activities" corresponding to the applied, synthetic knowledge base part of the STI mode of innovation. During the last three years UPM has carried out an average of about 100 projects per year classified as "industrial research" with an annual budget of more than 5 million Euros. UPM has opened branches in the main districts areas of the region, e.g. in Pesaro (furniture and machinery), Fabriano (household appliances), and Fermo (footwear). UPM has also agreements with industry associations for other types of research and education activities, amongst which the organisation of more than 1 000 internships per year and a co-financed PhD program launched in 2004 where UPM and firms share the costs. The PhD students spend approximately half their time at the university and half in the R&D department of firms. Up to now more than 100 programs have been financed. The university has also in 2004 established a technology transfer office to foster technology transfer activities promoting spin-offs and patenting. The University of Camerino is also dedicated to its third mission and has, as a result, several cooperation contracts with local companies.

However, there is a general problem concerning the size of local companies. The average amount per project that UPM had with local industry was EUR 50 000, which reflects the small size of firms in the region. The closest cooperation between the university system and industry is with larger firms in the region, which co-operated with UPM and several other non-local Italian universities (Pisa, Catholic university of Milan, etc.). R&D cooperation with SMEs is more limited, as SMEs need more consultancy assistance than R&D work. UPM tries to overcome this by cooperating with SME associations, as well as through larger firms to get in touch with the SMEs that are part of the value chain.

The cooperation initiatives that UPM and the University of Camerino have with larger firms in the region have resulted in some potentially very promising projects such as the development of domotics and sustainability. These developments are examples of applying the principle of "related

variety" in an attempt to diversify, which is to start from the traditional industrial strongholds of the region and to promote new competitiveness by combining existing competencies in new ways and/or with new technologies. Thus, this represents an example of the construction of new regional advantage in the Marche region, which is of key importance for its continued ability to generate growth and cohesion (Asheim et al., 2006).

In addition to the relatively low level of cooperation between university and industry, another shortcoming in the March region is the lack of cooperation among universities. Cooperation around the development of domotics typically takes place between larger local firms and individual professors at UPM and Camerino. What is lacking is a longer-term, institutional cooperation amongst universities. Thus, instead of market failure, the rationale for policy intervention is to address system failures by reducing the interaction or connectivity deficits which lies at the core of the regional innovation systems approach (Asheim et al., 2006).

To achieve this, the regional government could take a more pro-active role, which will also require a platform-oriented regional policy (Asheim et al., 2003; Asheim et al., 2006). The platform approach to regional innovation policy as a generic approach is not only applicable for high-tech industries, but can also be applied for industries drawing on different knowledge bases traditionally associated with medium and low-tech, manufacturing as well as service industries. One example of this with clear relevance to the Marche region would be using a platform strategy to upgrade tourism combining natural scenery with gastronomy, cultural events and historical heritage. This would be a strategy for securing employment in a range of manufacturing industries and services with highly differentiated educational and skills requirements and gender profiles, and thus can help reduce social inequality and promote regional cohesion in addition to regional competitiveness.

As a result of the growing complexity and diversity of knowledge creation and innovation processes, firms need to acquire new external knowledge to supplement their internal, core knowledge base(s). This implies that a shift is taking place from firm or district internal knowledge base(s) to trans-sectoral and trans-local distributed knowledge networks (Smith, 2000). Such knowledge flows can take place between industries with different degrees of R&D intensity and different knowledge base characteristics. An example of this is when food and beverages firms (predominantly drawing on a synthetic knowledge base with a very low R&D intensity) produce functional food based on inputs from biotech firms (high tech firms predominantly drawing on an analytical knowledge base). This shows that distributed knowledge networks often transcend industries, sectors and the common taxonomies of high or low tech. This example provides a good illustration of how knowledge spillovers happen in distributed knowledge networks among firms with complementary knowledge bases and competences (i.e. related variety). It also demonstrates that major innovations are more likely to occur when knowledge spills over between related industries. This is especially facilitated where the knowledge spillovers take place between industries involving generic technologies (such as IT, biotech and nanotech) (Frenken et al., 2007). This emphasizes the potential importance of related variety within and between traditional sectors, combining the strength of the specialization of localization economies and the diversity of urbanization economies.

The possibility of designing "one-size-fits-all" regional policies is no longer valid (Tödtling and Trippl, 2005). Copying of best practices is almost impossible when it comes to intangible regional assets that are the results of long histories in particular regional contexts. Therefore, platform policies have to be inspired by endogenous capabilities and capacities, as embodied in related variety (Asheim et al., 2006). However, pursuing such region-specific policy is not to say that regional policy should rely on the region itself. Network linkages in general and non-local linkages in particular, are often found crucial for learning and innovation, in order to avoid cognitive lock-ins. For firms, being connected may be as important, or even more so, than simply being co-located (Giuliani and Bell,

2005). This has further implications for regional innovation policies aimed at constructing regional advantage.

3. Assessment of the region

Based on the previous section, the main strengths and weaknesses of the innovation system of the Marche can be summarised as follows:

3.1 Strengths

- UPM is ranked as one of the top three amongst middle-sized technical universities in Italy, with a strong competence base in engineering (i.e. Synthetic knowledge base). The renaming of the university from *Università di Ancona* to *Università Politecnica delle Marche* also signifies the strong dedication to play a more important role for the development of the regional economy by a closer and more proactive collaboration with the local industry. This opens up an important potential for the upgrading, restructuring, and modernisation of the local industry.

- UPM and the University of Camerino already co-operate with some larger firms in the Marche region. These two universities are the most relevant for collaboration with local industry, as the other two universities specialise in humanity and social sciences. All the three learning models in Annex II demonstrate what can be achieved through a systemic and long-term co-operation on an institutional level between university and all types of industry. Therefore, the nascent industry-university collaboration has the potential to develop in a systemic and long term institutional cooperation and become an important driver of economic growth and development. This would require a tailored policy to increase the absorptive capacity of SMEs and thereby generate their capability to cooperate with universities.

3.2 Weaknesses

- Skill levels among SMEs and entrepreneurs are generally low. The lack of absorptive capacity is a general problem for SMEs, which makes the cognitive distance too large to achieve an efficient cooperation with universities.

- Lack of industry-university collaboration. Mainly due to the industrial structure of the Marche region with the dominance of SMEs in traditional sectors, the collaboration between industry and university is at too low a level.

3.3 Opportunities

- University cooperation with SMEs through larger firms in supply chains, associations and tech centres is used as a strategy of technology transfer. The two leading universities mentioned this as ways to get access to SMEs. Strengthening the mobility scheme program would add to the possibilities of upgrading the SMEs in traditional sectors through cooperation with universities. Also dedicated bachelor and master programs to increase the competence levels of SMEs, as shown in the learning model concerning Vestfold University and Gjovik University (see Annex), can be very instrumental in promoting their innovativeness and competitiveness.

- Some examples of research into new areas based on related variety (domotics, sustainability (Leaf project)) show a way out of potential "lock-ins". These examples are very promising and point a way forward for restructuring the regional economy. However, an ambition should be to promote an institutional based cooperation between industry and university, and not only rely on individual cooperation between individual university professors and firms. Examples of such cooperation based on related variety are presented in the abovementioned learning model.

3.4 Threats

- There is a lack of regional strategic leadership with respect to industry-university cooperation. The regional government should take a more proactive role in promoting such cooperation.

- Strong "lock-in" tendencies are present in the specialized industrial districts which are lagging behind in restructuring their model of production compared to, for instance, Veneto and Emilie-Romagna. Thus, there is a need for SME-relevant competence building and research and development.

4. Policy recommendations

4.1 Take the leadership in fostering stronger industry-university relationships

There is a need for strategic decisions and leadership by the regional government with respect to university-industry as well as inter-university cooperation. In the annex on learning models, examples are presented which demonstrate the strategic role that a proactive leadership by the regional government can have when organised on the Triple-Helix model (learning model 1). A Triple-Helix approach is highly relevant for Marche as the region has all resources in place (relatively strong research universities, international competitive industries in need of upgrading, and a regional government which in 2011 will get large additional economic resources due to the introduction of more federalism in the Italian governance system). Problems to be overcome are the lack of cooperation as a system, which will require strategic leadership by the Marche regional government.

In this respect, the regional government should look at larger firms as strategic actors in a process of economic renewal that builds on the concept of related variety. Strong linkages to universities are important to enhance the STI mode of innovation (Science-Technology- Innovation). The development of domotics and of sustainable technologies represents good examples of such a strategy. A weakness of the Marche region is the lack of collaboration between industry and universities. This represents both a problem and a challenge from the point of view of the need of the local industry to break out of its sectoral and cognitive lock-in and be able to upgrade and diversify. In such a process good learning models is of strategic importance. The Triple-Helix cooperation in the Scania region of Sweden and the role of Zhejiang University in the Hangzhou region are cases in point. These examples are taken from very different environments with respect to size, development level and governance tradition and can thus be seen as evidence of a more general applicability of this model.

4.2. Promote educational programs to increase the absorptive capacity of SMEs

The regional government should develop educational programs for entrepreneurs and SMEs in order to increase the absorptive capacity of small firms and support a DUI mode of innovation (Doing-Using-Interacting). The DUI mode of innovation is the mode of innovation applied in the SMEs in traditional sectors. Raising the competence levels of entrepreneurs and workforce in the SMEs would

partly make it easier to connect with R&D milieus to achieve a combination of the DUI and STI modes of innovation. In addition, this would partly make the DUI mode of innovation more efficient through promoting developmental learning in the existing work organisations. Cooperation between university and industry can either start on the basis of requests from the local industry for dedicated educational programs and research cooperation to increase the absorptive capacity of the industry, or on the basis of a strong R&D milieu at the creating potentially useful knowledge, which it would like to see commercialised. The case study in the Appendix of Gjövik university collage in the county of Oppland north of Oslo represents a good practice for both cases, while Vestfold University college, south of Oslo, only for the first one.

4.3 Consider concentrating resources to achieve excellence

Concentration of resources (financial, human capital and spatially) is important to achieve critical mass necessary to be innovative and competitive in a globalising knowledge economy based on a STI mode of innovation. This is especially the case with respect to emerging knowledge-based industries, i.e. technology entrepreneurship. A perfect example is the *Triple Helix cooperation in Scania, Sweden* as discussed in the appendix, where institutional cooperation has generated the necessary critical mass required to be competitive in the global knowledge economy. This includes a new initiative by Lund University to promote cooperation between the 5 universities and university colleges in the Southern Sweden by coordinating not only education programmes, but also "third-mission" activities in the region. However, such a spatial concentration strategy should be complemented with the optimization of the DUI mode of innovation promoted through a regional innovation system broadly defined. The DUI model is directly relevant for traditional SMEs as it helps them increase their absorptive capacity, which in turn would enable them to link up better with research organisations. This strategy for spatial concentration at the initial stages of the development of a knowledge economy complements earlier suggestions of the report about ensuring equal distribution of economic development across the region (chapter 2). Peripheral areas could focus on developing non-knowledge service orientated economic activities that do not require critical mass of resources. The tourism sector was highlighted as an example with the case study on wine trails.

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VI. GOVERNANCE AND ENVIRONMENT

1. Introduction

This chapter is concerned with two distinct but inter-connected aspects of contemporary good practice in regional policy. The first, overarching, issue concerns *governance*. Governance is a modern concept that is distinguished from *government* because it is supportive of the principle that the maximum feasible openness and inclusiveness should be involved in societal policy advice and policy-formation. Government retains legitimate authority to implement agreed policy while inputs from the wider society, especially its representative groups, NGOs, interest bodies and civic associations are welcomed into the policy-formation process. This is especially important in regard to regional governance, and not only because Latin "regio" means "to govern." The regional level is usually the nearest economic governance mechanism to economic communities whereas the city or municipal level is usually most influential in regard to consumption, especially of public services. This is a generalisation as we understand that Marche, like other Italian regions, manages disbursement of health expenditure, a major consumption category in modern society. But, by and large, municipalities do not have much industrial or innovation policy responsibility. Discussed below in this section is the looming implementation of a greater "federalist" constitution which, we gather, not only implies greater regional policy autonomy but substantial increases in regional financial resources for "donor" or "surplus" regions like Marche.

The second theme of this chapter concerns *environment*, a field of policy that evolved from the 1970s with anti-pollution concerns, concern about development sprawl, and degradation of environments more generally. Later, in the 1980s and 1990s the terminology of *sustainable development* emerged and was even more globally influential. This concept referred not simply to the environmental clean-up mentality but to a philosophy that a given generation of the world's inhabitants had, normatively, a responsibility not to over-use resources of any kind and to leave adequate, preferably improved, resource-utilisation conditions for generations to follow. More recently still, this rather broad norm has been challenged by a harder scientific judgement that *sustainability* is not enough. This is because of two crucial transitions that science demonstrates currently face the world. The first concerns the energy source that fuels contemporary mobility and associated economic growth, namely oil. This is widely understood to be running out, albeit the timescale for the drying-up of oil wells is a matter of dispute. Nevertheless, as price determines the rate of extraction, it is widely agreed that the rising price trend for oil is likely to continue, especially with the industrialisation of large countries like China and India, and replacements – alternative or renewable energy preferably – will have to be increasingly deployed. This, of course has begun but only in a relatively small way because oil price rises stimulate expensive exploitation of oil in difficult conditions, at sea, in the Arctic or as tar sands in Canada. But a high oil price also stimulates energy innovation and this has upstream implications for all economic actors. The second and more powerful reason for innovation in renewable energy, clean technology and recycling is that consumption of fossil fuels like oil, gas and coal creates greenhouse gases that stimulate global warming. This, if continued, will make the planet uninhabitable. Hence the imperative, but also the opportunity, for

economic growth from the transition to a non-fossil fuel or post-hydrocarbon economy. Regional economic governance has increasingly to factor this in to its future policy calculations.

2. Policy issues

2.1 Advances in regional governance

Advanced regional governance increasingly recognises three key things. First, it envisions for itself a *proactive* policy disposition. This means it less and less views itself as mainly an instrument for implementing national or – in a European context – supranational policy. This does not mean such functions are ignored, rather they are woven into a more responsible and responsive, customised model of policy development in economic governance more generally. Thus regional economic governance can be catalytic, for example in connecting eco-innovation opportunities to regional economic assets and needs. Instead of copying "best practice" learning models from elsewhere it seeks policy innovations suitable to conditions and opportunities relevant in its specific territory.

Second, this means advanced regions take *leadership* in economic governance. In the governance context described above knowledge, authority and actions are more dispersed than hitherto. Accordingly, they must be integrated by means of an envisioning process that is inclusive and transparent. Nevertheless, this process has to be led, and that increasingly is seen as the key role of advanced regional governments or their agencies. This applies even if substantial resources for action come from levels above that of the region itself. Pro-activity, leadership and vision, within reason, are scarcely likely to provoke disrespect in a global economic environment that values competitiveness, initiative and entrepreneurial instincts.

Finally, advanced regional economic governance increasingly acts proactively and with leadership to facilitate opportunities for firms to exploit *related variety*. That is, it is recognised that traditional vertical, hierarchical and sector or even cluster-based policy and practice no longer assists regional competitiveness as it once did. Now, as in science, it is recognised that innovation occurs increasingly at the interfaces or borders between traditional disciplines (see also chapter on the contribution of research organisations). Eco-innovation is a very clear illustration of this combination of knowledge spillovers from different sciences and industries operating in a more transverse, platform-like manner. In conclusion, modern economic governance faces complexity and deals with it proactively through catalytic leadership to identify productive regional (and extra-regional) synergies.

2.2 Marche Region and federalism

The Italian State is expected to implement its policy of increased Federalism towards its regions in the foreseeable future. This is contingent on the continued disposition against traditional inter-regional resource transfers managed through the State historically by such agencies as *Cassa per il Mezzogiorno* and more recently through inter-regional arrangements. Marche region is not a recipient region of transfers through the State meant to equalise regional equity and equilibrium, rather it is a donor region, contributing a EUR 2 million surplus in 2008 to the State. It is conceivable that this or a substantial portion of it would remain in Marche under the Federalism legislation. Whatever the advantages that might accrue to Marche region from the "repatriation" of such a sum and any additional allocations negotiated as part of the Federalist settlement imply clearly more fiscal and, accordingly, policy autonomy for Marche and other economically healthy regions specifically. The modernisation of the regional governance mechanism in line with the preceding discussion is thus an even greater imperative. Currently, the regional administration is in a fog regarding likely future budgets under Federalism and a firm grip on the design of alternative future visions is badly needed. Economic governance is crucially important in Marche given the difficulties caused by the current

(2008-9) global financial crisis and an enhanced role for the regional development agency *Sviluppo in Marche* (SVIM) can be envisaged. Such a beefed-up agency is certainly needed in the transition period and key interlocutors representing SVIM indicated receptivity and appetite for such an enhancement of responsibilities.

2.3 Environmental governance: increasing in importance

A key reason for this is that it is recognised verbally but not strategically or in policy terms by SVIM and other regional actors that the financial crisis has found Marche firms in some financial difficulty. They are widely seen to be in need of assistance in the transition from their post-war specialisation in light or luxury consumer goods to a production alignment more clearly captured in the idea of a Green Economy. This is not to say that Green Economy was perceived as either a panacea or a "one club" policy possibility. Rather it was enunciated at the level of discourse, which itself was articulated within and outside the regional administration, and had thus become a relatively uncontroversial regional aspiration. However, beneath the surface there was only limited evidence that its implications were fully understood or actually being acted upon in any meaningful way. As will be seen, this does not mean that Marche region has been dilatory in conforming to past environmental standards, especially at firm level and assisted by the appropriate Technology Centres. This had been a minimum requirement of the previous decades for Marche firms to qualify as environmentally-sound suppliers to industry or to the final market. Rather this apparently efficient and effective reaction to changed rules of earlier times was not clearly perceived to now itself be a set of policy responses requiring new vision under transition conditions. Some notable exceptions exist, but they are far from being the rule yet.

Hence, a beefed-up Marche economic governance mechanism focused upon SVIM could, with enhanced resources and exercising more autonomy from often-constrained expectations from multi-level funding bodies such as the State or European Union (EU), perform a crucial function in guiding the transition of the Marche region towards a greener if not a Green Economy. At present however basic economic survival concerns outweigh environmental ones in the dominant discourse of the regional administration and its clients in the regional economy. Therefore there is a pressing case for SVIM specifically and the region more broadly to start a discourse exercise in understanding and reaching consensus on pathways to eco-modernisation of substantial parts of the processes and output of manufacturing in the Marche economy and in recognising the parlously weak nature of private business support services in the region in general and in environmental services in particular. That there is an economic bonus to be earned from judicious engagement with the opportunities of eco-innovation and the Green Economy is by no means widely understood in Marche region despite the rhetoric. However, on past practice, the institutional structure if not the discourse formulation and implementation mechanisms, are not totally adequate to the task of assisting Marche's thousands of small, family businesses to modernise in the face of environmental challenges.

3. Assessment of the region

3.1 Challenges

Overcoming the firm and financial crisis through "related variety"

As of late 2009 it was striking that the common perception of policy and representative economic actors with respect to the Marche regional economy was that it had been deeply, possibly fatally, affected by the global financial crisis. Many small firms had gone to the wall; even larger firms in the agro-food industry had been bankrupted. Globalisation had, in any case made trading conditions for Marche firms considerably more difficult, not least because most were in traditional industries like

footwear and leather, textiles, furniture and food. Only the substantial electro-mechanical industry, boasting such globally-recognised names as *Indesit* and *Ariston* white goods production were at least somewhat future-oriented in their business planning. In this respect, the engagement of the economic governance and innovation system elements responsible for the new *Domotics* (domestic robotics) industry is commendable. This connects to the "green domotics" model flagged-up in the example of the LEAF green construction initiative outlined above. Here is an exemplar of the innovative potential of the region when "related variety" is harnessed in a somewhat transversal manner, exploiting for potentially substantial market opportunity the existing assets of the regional economy. This is clearly an important direction for future and enhanced SVIM and regional support. But it requires a more proactive stance from Marche region. Clearly, businesses left to their own devices may be best suited to identify short-term gains from specific market niches. But to see a whole landscape of opportunity requires a more collective perspective than that of the individual firm. Thus another exemplar of modernity in industrial application of knowledge spillovers from related variety of industry is observable in the rise of a Nautical Cluster combining the talents of the domotics, furniture and leather industries. However, launching a luxury yacht cluster in a highly crowded market the key consumers in which have scaled back consumption seems heroic to say the least. Nevertheless, these illustrations show the challenges of change can be met and continuous learning from outcomes monitored and fed back into the overall regional economic governance process.

Focusing developmental power: role of SVIM

The key economic development stimulator agency is SVIM. This is a small agency with a very able and active staff. However, it was made clear that SVIM scarcely makes strategy but is rather guided by the Laws passed by the regional government. These give "rules of the game" for different policy areas and SVIM forms its sense of priorities and activities according to its interpretation of these. Hence, for example, most of the time of the thirty staff of SVIM is spent on the arduous task of writing and, it must be said, successfully tendering bids for EU Structural and Framework Funds. The efficiency of Marche Region in disbursing such funds is revealed in the fact that in 2009 it was easily the first region in actually ensuring allocation of funds to recipient organisations and partners. Such funds as these form the largest part of the SVIM budget. In 2008 this was reflected in a global budget for projects of all kinds, numbering 150 approved, of EUR 35 million. The annual budget of the organisation, by contrast, was of the order of EUR 3-5 million. When the administration costs are taken into account of building networks, writing proposals and managing network partnerships of the kind typical of EU and many other projects nowadays the work of SVIM is simply Herculean. Seeking such funding is guided by five fields of activity: Innovation; Research; Energy; Credit Access; and Internationalisation. However, this focus had occasioned closure of the "Localisation of Companies" and "Sustainable Environment" functions leaving Environment embedded – usefully – but secondarily in the Innovation function. Energy, meanwhile, is conceived as "energy-saving" of the kind routinely backed by EU policy with the same aim. Despite this SVIM hoped to contribute to Marche's Regional Energy Plan the idea of a small cluster of local renewable energy businesses, supported by SVIM-accessed incentives. SVIM has excellent capabilities and can enhance these but it is forced to operate within the policy frameworks of funding bodies. It shows appetite for pro-activity but is currently inclined to have to be reactive to externally-managed funding inducements.

Economic and environmental strategies

Continuing with this theme it is clear that the need for strategy is overwhelming. The Regional Energy Plan will, when produced, prove a useful forerunner to a more pervasive strategic consciousness within both SVIM and the region. But as noted, this is presently noticeable largely by its absence. What tends to happen in accomplished development policy settings is that an envisioning process leads to identification of gaps between reality and aspiration. This then suggests courses of

action such that aspiration may more nearly be achieved. In contemporary times this is often enhanced by breaking down vertical boundaries between economic, innovation and energy policies, for instance. Having a cross-cutting approach to three such inter-related policy areas inevitably requires bringing together actors of importance to each from the respective industries. Accordingly economic and environmental overlaps can be identified and further gaps exposed. In this way the economic opportunities from environmental initiatives can be identified. Currently, in Marche region there continues to be separation among these areas. This is testified to by the existence of a biomass power plant at the *Asteria* agro-food technology centre in Ascoli Piceno, which has little pedagogic or heuristic value. It simply burns vegetable oil to be sold to the grid. This kind of facility needs better integration in an overarching econo-environmental strategy. But, of course, other demonstration projects and partners need to be developed (see exemplars in the Learning Models Annex)

3.2 Assets

Econo-environmental governance assets

Mention of the biomass boiler facility at Ascoli Piceno draws attention to a significant asset in the Marche Model of economic governance. Historically as the clusters in agro-food, electro-mechanical, leather/footwear, and furniture evolved in the post-war years they were subsequently accompanied by their respective Technology Centres. These have played a valuable role in permanent upgrading of cluster members as new standards of hygiene, toxicity, safety and so forth have been introduced. Thus most firms needing, for example, ISO 14 000 environmental certification to be members of relevant supply chains have achieved that standard with assistance. This model works well in relation to systems of networked family businesses and, to the extent the further development of environmental content in processes and products occurs, the Technology Centre idea has a key role to play. However, this function has, as we have seen, been downgraded in SVIM. It is probably time for a re-think about that in light of the multiple crises facing Marche firms concerning finance, globalisation and, now, climate change.

Fragmented jurisdictions but strong networks

This is an instance of a broader characteristic which was learned during the OECD mission to the Marche region. There is a widespread perception that although specific "economic communities" may be well-networked both to other firms as well as relevant economic governance actors, there is much fragmentation in the institutional and industrial set-ups. This means there is a weakening fragmentation in spatial development governance. It causes delays in building much-needed road improvements, for example. In the government sphere, it is clearly a cumbersome process to get solutions to widely-perceived problems with Marche's infrastructure. The general secretary of ANCI the Italian Municipalities organisation spoke of Marche's 390 municipalities, 150 of which have under 5 000 inhabitants as needing attention. Provinces are relatively important actors too but without much responsibility for industrial development, rather territorial planning, which may hinder it. Communes then interface with Provinces on planning while industry, energy and sustainability are matters for the region. Municipalities also depend on the Region not the Province for EU Structural Funds. Clearly this structure is not unique to Italy but, as in other countries, requires sophisticated co-ordination. In some, like Denmark, this has resulted in reforms, which consolidate communes and establish regions with new co-ordinating and economic governance powers. The Marche region enjoys a lengthy experience of the latter without the efficiencies of the former. This may help explain why ANCI's expectation of improvements to Marche's struggling infrastructure was of the order of ten years, especially with respect to better integration of the Mountain Areas of the region. As the State is also a key player here, funding 80%-90% of road costs, it can be seen how complex decision-making for

economic governance can be. In other words, even SVIM thought poor road networks were a product of less than optimum institutional networks in Marche.

Technology centres: from ecological modernisation to eco-innovation

To develop both the positive and negative dimensions of the foregoing discussion, the Technology Centres are, individually, indispensable to the effective functioning of the clusters but might benefit from better networking among them. However, they are locked-in to an outdated "ecological modernisation" paradigm that is no longer sufficient in face of multiple crises of the kind discussed. "Ecological modernisation" is a combination of "clean-up" and standardisation or certification mentalities associated with the 1980s and 1990s. Nowadays, as we have seen, these are accepted as normal good practice while taking opportunity from eco-innovations that produce clean technologies and burn renewable energies is seen as far more important. Similarly "sustainable development" that still allows for a certain amount of toxic production and resource exploitation is no longer enough. Sustainable use of fossil fuels still pumps tons of greenhouse gases into the atmosphere. Hence a reconsideration of the continuing reactivity of the Centres is in order in a process which should see them both more connected but also more proactively seeking to help eco-innovators and others worthy of consideration. The good work of the past can be built upon. Nowadays that will be assisted by appropriate training and research links to regional and national universities. Once again the Region and a bolstered, better-resourced SVIM could show vision and leadership in pursuit of this aim.

3.3 Visions

Transition model envisioned

Good regional econo-environmental governance nowadays involves recognition that much of which has been outlined above requires an approach called Transition Governance and indeed, where it is found, the region responsible will warrant the title of *Transition Region.* Such a designation would mean that the region had achieved its aims, or moved a long way to their achievement, to be clean in production and green in consumption. In other words, it will, to all intents and purposes, have moved beyond the utilisation of self-generated emissions from fossil fuels. This recognises that Transition Regions take many years to fulfil their aims and must continue connections to supra-regional forces that are important to regional life. Thus one would expect regions to remain somewhat reliant on national energy sources, perhaps generated with less desirable fossil, or even nuclear fuels, delivered through the grid. However, as described in the learning models in the Annex, it is possible even to counter this by adopting a Regional Energy Policy to support construction of district heating and cooling schemes fuelled by renewable energy sources such as biomass and biogas from farm waste, geothermal energy, marine wind power and so on. If simultaneously tutoring occurs such that Marche firms may adapt both to producing components, systems and services to fit such industry or, more broadly, enable say, the furniture, leather or electro-mechanical industries to be users of Clean-tech processes above and beyond "ecological modernisation" standards, so much the better. To be Italy's first Transition Region, a lighthouse pointing the way to a cleaner, safer future for all citizens is a vision that many will undoubtedly find attractive. Of course, it may be politically disputatious and industry may prefer the imagined profits from luxury production of nautical equipment, in which case, so be it. But the costs of neglecting a proactive strategy of "greening" products and production, including yacht-building, have also to be taken into account in policy terms.

Renewal of clusters in the face of three crises (business succession, financial, globalisation)

There is a widespread perception in Marche that the clusters that have served the region well for decades are in need of renewal. There are three main reasons for this.

Firstly, the family firms that underpin the production networks are at a crucial evolutionary stage that may be characterised as the "problem of succession" (see chapter III of the report for a closer analysis of this problem). However, in detail, it is a widely-observed phenomenon that as a generation of small business founders reaches the stage of retirement it creates a crisis for the regional economy in which they are located. This problem has been analysed for other Italian regions whose succession planning crisis began in the 1990s. This showed that many family firms were established by entrepreneurs with a previous history in agriculture, where succession is often organic – one family member self-selects or is selected to take over management of the farm and all its assets. In manufacturing, on the other hand, the enterprise may be less independent, the negative side of networks, reputation may have to be built anew, and business, for example, as a dependent supplier may be more precarious. Hence, the successor family member may not be forthcoming as readily as in agriculture. This may be emphasised where the next generation, benefiting from more widely available higher education, or personal resources that allow expensive foreign study, either seeks a different, professional career or goes to business school but learns skills more appropriate to employment in a large corporation than a district firm. Finally, research on family business shows that possibly only 50% of owners contemplate succession planning and that of that 50% only some 10% do anything about it. Such statistics apply where services to advise on succession planning or manage disposals or terminations of businesses are abundant. In Marche, where the services sector was reported by local experts to be somewhat underdeveloped, it may be anticipated that the proportion of family businesses opting for succession planning is lower than average.

Secondly, the global financial crisis of 2008-9 seems to have had a more profound effect on Marche firms than previous downturns. This is almost certainly because of the fact that it was principally a crisis of the banks and specifically a crisis which froze credit, especially to small family businesses. Here is revealed, perhaps for the first time, a further negative aspect of the Marche model. It was clearly built on the assumption that small, regular amounts of credit would be available through high trust, reputational links among small firms and regional or local banks. While that assumption prevailed the system could function in a flexible but specialised way within the distinctive clusters. But when even local banks, knowing their creditors for decades, experienced something akin to a collective nervous breakdown in late 2008, credit dried up, firms started to go to the wall and pressure on the regional government to respond with the traditional system of credit guarantees, which in any case was never enough, became irresistible. However the crisis revealed weaknesses in the model that have caused even its strongest proponents to help renew the financial dimension of the Marche model (see the chapter on SME development for a closer view on the modernisation of business financing in the Marche).

Thirdly, these two crises overlaid a more secular, long-term crisis regarding the survival of Marche's thousands of small family businesses in an era of globalisation. Three things may briefly be considered here.

- Enlargement of the European Union with the entry of the accession countries in 2004 dealt a significant blow to Marche's core traditional industries, particularly agro-food. Somewhat rapidly, member-states such as Poland were able to undercut Marche prices without any obvious negative effects upon quality, particularly in dairy and cereal production.

- China became adept at producing Italian-style fashion items in footwear and clothing thus undercutting Italian export markets in general, and Marche manufacturing supply to the likes of D&G and Prada in equal measure.

- While other regions of Italy, notably Veneto and Emilia-Romagna, the first of which being perceived as a kind of role model by Marche intermediaries had begun out-sourcing and off-shoring production from their industrial districts to Asia, Turkey and Eastern Europe as early as the 1990s, this had been less pronounced in Marche (see also the previous chapter of the report). There, by contrast, as in the other two cases also, an influx of immigrants entered the labour market but, unlike, for example, in Tuscany or the Emilia, bringing few complementary skills that could in themselves help refresh the districts.

Accordingly Marche firms find themselves faced with three interacting crises: succession, financial, and globalisation crises. The way forward is unclear, except that the financial crisis will be overcome eventually. However, succession and globalisation seem more intractable. While Marche region assists in short-term financial crisis-management, the larger picture is by no means fully addressed. The answer here lies in boosting services for succession planning, utilising opportunities for consolidation of micro-firms into at least groups of inter-linked businesses led by professional managers, and re-orienting industry to higher quality as well as greener, also more creative market opportunities. Pleasingly, indication of the emergence of creative industry, especially in animated films and other contents was demonstrated to the OECD mission members.

Towards a green economy

Mention has been made of a possible future for Marche as a "Green Economy", which was also proposed but without elaboration by SVIM, the trade union representatives, and in the *Loccioni* Company, progenitors of the LEAF project. The last-named deserves attention because it can perform a "lighthouse" function for large parts of Marche industry, notably the electro-mechanical, agro-food and furniture industries. *Loccioni* is a medium-sized firm employing 295 and with an annual turnover of EUR 50 million. Of this 4% goes on R&D, 7% on training and the firm holds 11 patents. The firm is mainly involved in aspects of ICT-based quality control and testing, with interests also in automation, integrated ICT solutions and energy management. The LEAF (Life Energy and Future) initiative is based on the concept that a secure future world is built upon the concept of a sustainable world inter-connecting economy and environment. To this end, *Loccioni* is developing Italy's first eco-sustainable community. A primary school powered by photovoltaic has been constructed. The community is fuelled by local hydro-electricity and buildings are equipped with condensing boilers, home automation and integrated lighting. The signature architects *Herzog & De Meuron* have designed the new research and innovation laboratory on-site. An experimental carbon-neutral domestic building "LEAF House" has also been constructed for demonstration purposes. It embodies solar panels, efficient lighting, building automation and hydrogen fuel cells surplus energy storage. CO2 avoided by LEAF house alone and the related eco-developments is some 85 tons per year.

This is an initiative of great future importance to the Marche region economy since it offers substantial new markets for very many local firms in adaptation of existing buildings and development of new investments utilising the highest Clean-tech standards. It is widely anticipated that world markets for such designs will grow fast following the end of the global financial and economic crises. The role of Marche government, SVIM and the NGOs is clear, namely to evolve a strategy to optimise the lead for a cleaner regional future for the region and beyond.

2.4 Opportunities

Open learning (OECD)

One of the strengths of Marche region governance is its openness to discuss its perceived economic issues with a responsible advisory body outside Italy, namely the OECD that has a lengthy track-record in diagnosing and proposing treatment of regional developmental interruption and arrest. The involvement of international experts is a fundamental means of avoiding "group-think" and ensuring the regional economy, entrepreneurship and governance platform are considered in a dedicated way. This openness to learning is by no means characteristic of a majority of regional administrations. Many believe they know best, or that solutions that work are "not invented here" or that, generally, they would prefer not to advertise any perceived troubles associated with their region and its economic governance. The learning advantages that Marche builds upon in this exercise are threefold.

First, the region receives expert feedback on its analysis of where any problems or key challenges lie. We have seen in the preceding discussion that the Marche model, as suspected, has been subjected to serious fiscal stress for the first time, a factor which has highlighted other, more structural weaknesses that need to be discussed and addressed. Second, Marche region benefits from a process that, with the assistance of outside experts and the coming together of regional representative bodies leads to the formation of a consensus on the priorities for the future. Thus, it is clear and widely understood that Marche faces transition, probably to a future of some consolidation of existing firms but a more active and professional entrepreneurship regarding new industrial and service sector opportunities. Most interlocutors engaged in the OECD mission enabled the international expert team to conclude that evolution from the inherited status quo was needed and preferable to either a fatalistic hoping something would turn up, or a major re-direction of priorities. Finally, such coming together has cemented the perception that new times demand new responsibilities and strengthened functions for economic governance bodies in Marche region. Hitherto, Marche has benefited from the stable and manageable evolution of its industrial specificity and accomplishments. This also applies to its regional institutions that are perceived to have played an invaluable responsive mode of interaction with economic actors. But now is the time for vision and leadership and since the region currently experiences many of the difficulties associated with "market failure" there is justification in an enhanced role from economic governance to meet the new needs.

Related variety

A further key asset of the region, as has been outlined, is that its economy displays strong elements of what evolutionary regional economists call "related variety" (see also the chapter of the report on research organisations). This means that many skills and innovations are transferable from industry to industry because none is so far away cognitively, geographically or structurally from each other main industry. In discussing above the relational "proximity" of Marche industry with the banks as having, in times of serious financial crisis, some detrimental or negative connotations should not blind us to the great advantage such proximity has for the good functioning of the Marche system in more stable times. Local and regional banks or branches develop an intimate understanding of the needs and opportunities in the industries with which they have over decades become so familiar.

Equally, firms in one industry may easily be able to apply innovations from neighbouring but distinct regional industries. For example, *Loccioni* assesses the number of sensors for different systems, intrusion detection monitoring and remote testing and control in LEAF house at over 1 000. This indicates how pervasive sensors as a general technology platform are for innumerable industrial applications.

Industrial outputs from one industry, agro-food has supplied inputs to other industries such as leather and footwear and products of the electro-mechanical sector have supplied process technologies to, among others, the agro-food industry. Furniture utilises wood, or for the most part particle board imported from China but earlier used local mountain resource supply. This echoes an important issue arising in the mission, namely the question of scale. This was brought home forcefully in the visit to the *Asteria* agro-food Technology Centre in Ascoli Piceno. It was noted above that one of *Asteria*'s assets is a bio-fuels power station. Presumably, such an installation could have small-scale demonstration purposes for Marche farmers and other consumers. However, with the feedstock currently utilised in this small facility it was pointed out that over two-thirds of Marche's agricultural land would have to be planted with sunflowers for the regional power supply to experience a significant contribution. However, it is hard to imagine many bio-fuels burners directly burning sunflower oil elsewhere in the world. This is not least because of the food-fuel conflict that raised prices of food so sharply after the Bush administration heavily subsidised bio-ethanol from maize in the United States, let alone the enormous land requirements to do so. However, other mostly waste-burning second generation bio-fuels plants function successfully at local scale by transforming waste, including animal waste, into biogas. As is shown in the learning models annex, single farmers have become local importers of slurry, for which they are paid, which is then transformed into biogas before burning to supply power to the farm and local community, with the surplus sold to the grid. Thus a single farmer can keep farming while diversifying into localised energy supply. Such diversification opportunities could be explored for possible application individually or collectively in Marche. Finally, the prospects for utilising 'related variety' in the creation of new sectors is testified to by the already outlined example of the new Marche Nautical Cluster that combines electro-mechanical, furniture and leather expertise in a new market niche.

Box 3. The marine cluster project in the Marche Region

The marine cluster project was launched by the Marche region in October 2004. In 2006 further amendments were introduced by the Marche regional council and in 2008 a strong systemic action between the various clusters and networks of enterprises to support the development of the sea cluster was launched.

The goal was to identify a new highly-specialised productive manufacturing system in shipbuilding and pleasure craft (marine cluster) and allow enterprises in this sector to access a series of advantages like State and European funding, training support measures, access to finance and incentives for infrastructural intervention.

With the establishment of this cluster in the region, local policy makers intend to promote a system of goods and services related to navigation, that is shipbuilding, pleasure craft, accessories and infrastructure linked to the area of tourism and commerce and horizontally connected to the other main regional sectors like wood-furniture, textile-clothing manufacture, mechanics and electronics with the aim to further integrate the different production systems. The interesting dynamic of this cluster is that it utilises the existing skill sets and entrepreneurial strengths from the diverse sectors in the Marche region. It coalesces them into an effective manufacturing productive system in both shipbuilding and in the building of pleasure craft. Innovation in the marine cluster is driven by the interaction between previously demarcated industries, a powerful example of the concept of related variety.

The "ingredients" that have contributed to the development of the sea cluster are the following:

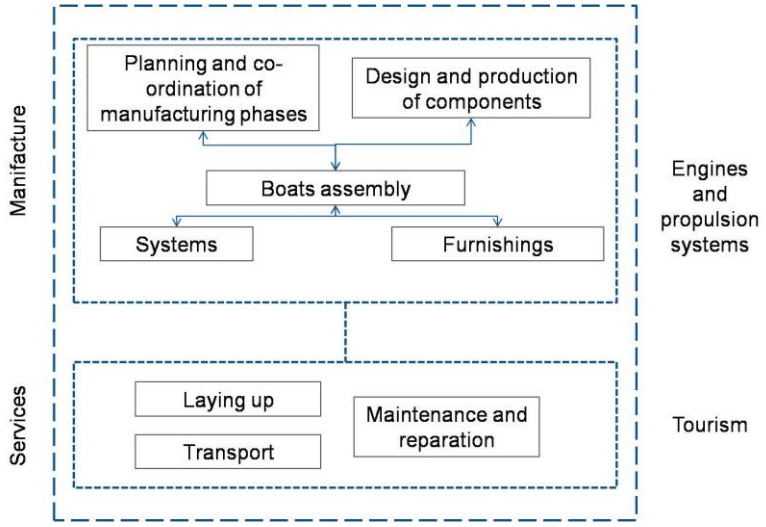
- The historical presence of still active merchant marine activities in Ancona
- The presence of a traditional vocation to marine manufacturing in San Benedetto del Tronto
- The presence of firms that have been able to innovate in the field of construction materials in Fano

- The presence of a well developed port structure

- The availability of flexible and eclectic micro-enterprises.

The nautical sector, particularly the pleasure craft sector, is characterised on one side by activities connected to the manufacture of yachts and on the other side, by the production of related services.

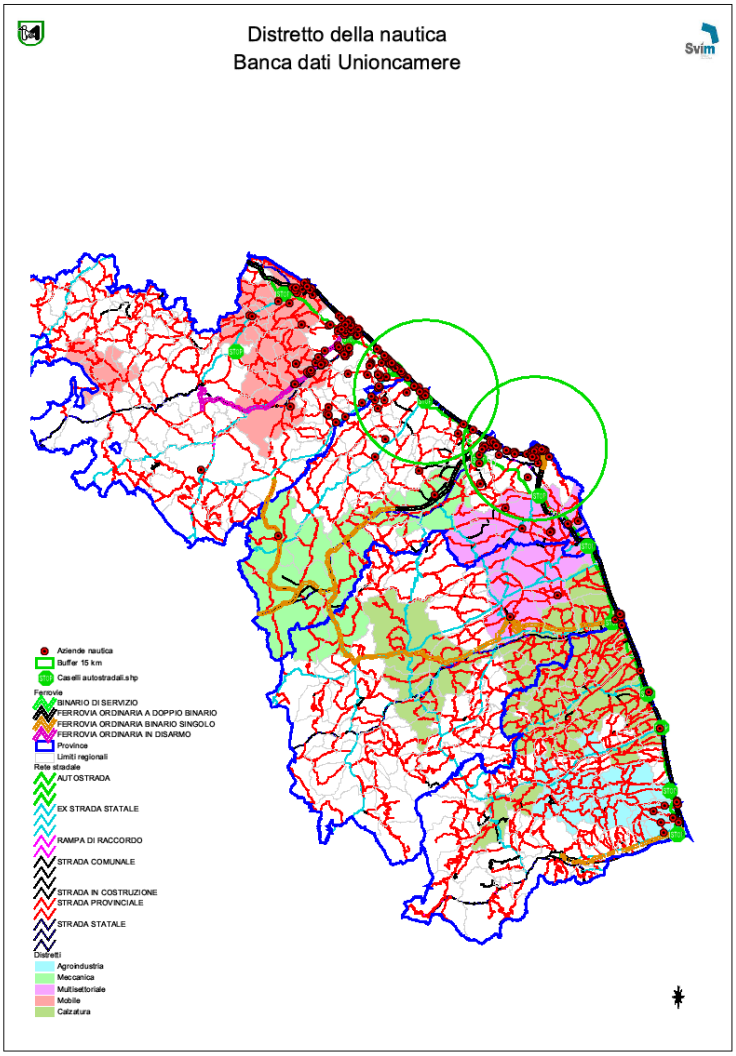
The Marche marine cluster can be schematised as following:



Source: *Attuazione DGR n. 806/2008 Realizzazione di una fote azione sistemica tra diverse aree distrettuali, filiere produttive reti d'impresa: il "distreto del mare marchigiano". Bozza di lavoro*

The regional nautical sector's value chain involves a diverse range of suppliers. Several leading companies from other regional economic sectors are creating more and more synergies with the shipbuilding and pleasure craft sector. The Group *Poltrona Frau*, for example, diversified its activities toward the nautical sector such as the agreement with *Ferretti Group* for a set of innovative and research based products, tailor-made for the interior decoration of a series of yacht called Pershing. *Mobilificio Meneghini* (furniture factory) created a proper brand "Meneghini Yacht Line" for the realisation of luxury yacht kitchens.

The cluster has its main productive centres in the municipalities of Fano, Pesaro, Senigallia and Ancona. The map shows the distribution of shipbuilding companies in the Marche region compared to the five traditional districts highlighted in colour.



Source: Attuazione DGR n. 806/2008 Realizzazione di una fote azione sistemica tra diverse aree distrettuali, filiere produttive reti d'impresa: il "distreto del mare marchigiano". Bozza di lavoro

The governance of the cluster is guaranteed by two different bodies: i) the Project Directing Committee (*Comitato direttivo di Progetto "Distretto del Mare"*), and ii) the Executive Technical Committee (*Comitato Tecnico Esecutivo "Distretto del Mare"*).The two committees include representatives from local public institutions and the private sector (firms, entrepreneurs associations, unions, research centres, etc.).

The Directing Committee provides strategic orientations for the definition of the cluster's industrial policies (firm incentives policies, infrastructural policies, social policies, training etc.).The Executive Technical Committee, on the basis of the decisions made by the Directing Committee, defines a strategic long term plan to set up a broad integrated system of specialised industrial and handicraft activities in the fields of shipbuilding, pleasure craft and accessories to develop synergies with the tourist and local business sectors.

The creation of the "marine cluster" has developed along the following main lines:

- Identification and acknowledgment of a productive system of goods and services linked to navigation, to create a broader and more mature network of firms capable of upgrading their management competences to stimulate processes of innovation (through know-how transfer), training and

internationalisation and to enhance the overall regional offer.

- Development of industrial activities and services linked to the production and maintenance of pleasure craft and merchant ships by supporting the productive structure in adapting to new market needs, the development of skills and human capital, and by encouraging an entrepreneurial culture.

- Implementation of initiatives to strengthen and upgrade navigation infrastructure and logistic in the region.

- Promotion, in collaboration with Universities, training centres and the regional education system of the creation of high skilled workers in the fields of: i) innovation, design and building of pleasure craft, yachts and merchant ships; ii) crews to be employed on large yachts; iii) a network of services linked to marinas; iv) a tourist network linked to navigation.

- Stimulation of cooperation among the key territorial actors (Universities, innovation centres etc.) to favour the creation of a scientific and technologic pole for study and research on materials, productive processes and on-board instruments to the sector and constantly improve the quality and market competitiveness of marine navigation products.

- Promotion, with Universities and centres for research and certification, of study and research on new materials, safety in the working environment, environmental impact, health and quality of life, and innovative mobility and logistics management systems for medium-sized and large yachts, and the shipbuilding in general.

Delibera giunta regionale 2006, Il settore della nautica da diporto nella provinciale di Pesaro e Urbino (pag. 11)

Transversal and eco-innovation

This leads conveniently into the last discussion of opportunities, which refers to the prospective for further horizontal interaction among existing and imagined Marche clusters. As noted, the desirability of further transversal knowledge transfer for innovation and facilitation of policy was identified by the trade unions, and co-operative movement representatives amongst others. This is a clear field in which the regional administration in general and SVIM in particular could take a leadership role armed with the vision of Marche not as a series of disconnected industrial districts or clusters but as a platform of integrated and innovative industry. To take on this function would imply three key things. First, the region, especially SVIM, would become catalytic to regional innovation because it would be the sole agent with the necessary legitimacy to invoke meaningful conversations about transversal innovation prospects at both general and detailed levels. The Technology Centres would also be a key resource in the further examination of transverse innovation prospects with individual groups of firms or value chains. Second, SVIM would need to develop a methodology suited to the character of Marche industry and economy culture so that unnecessary interest advancement through knowledge appropriation occurred. Important here would be introducing "rules of the game" to help often highly individualistic family business owners allay fears of confidentiality of intellectual property being infringed. Third the region and its agents would need to be able to secure the support of the financial actors for this new venture. As noted, everything is seen as working vertically in Marche. This presumably includes the banks, without which regional renewal will be stillborn. As an earnest of this intention, Marche region would be well-advised to establish at least one new institution, a *Transversal technology Centre*, which would perform assessments, testing and trialling, even prototyping of candidate innovations. The model presented by *Loccioni* of the LEAF initiative shows that related variety can be integrated within one firm. The challenge for SVIM, the region and the new, integrated Technology Centre will be to show it can be achieved for the region. This would allow for possibly new clusters, following the model of the Nautical Cluster, or

reinvigoration of established clusters by knowledge transfer and product and process cross-fertilization.

4. Policy recommendations

4.1 Improve governance through a new role for the RDA (SVIM) and by building consensus on a strategy setting measurable goals

The main recommendation is that the region and, particularly SVIM, should receive enhanced powers to show leadership in the future development of the Marche regional economy, given weaknesses revealed by market failure caused by the 2008-9 global financial crisis. This means that rather than mainly relying on a variety of Marche Region Laws and external funding, mainly from EU, both of which reinforce a reactive disposition by SVIM, a more *proactive* mentality towards the tasks in hand could usefully be adopted.

Marche presents a rather fragmented governance structure with many actors involved in a complex picture of institutional responsibility and influence. Such governance tends also to be rather "vertical" in the economic dimension. Due to this complexity, the region's needs, notably infrastructural, appear not to be swiftly resolved. This institutional formulation requires that the importance of "joined-up governance" is recognised inside the regional administration as appropriate while extending the notion eventually to a well-networked governance structure externally. This is the case of the Wales Sustainable Development Strategy (see the Appendix on learning models) where NGOs and other actors are indirectly involved through advisory bodies and lobbying.

This should start a process of institutional consensus-building towards a coherent, reasonably far-sighted, and well-informed strategy that clarifies commitments and resources. This strategy should contain measurable targets and foresee an annual assessment about the achievement of objectives against those targets. Capability to change targets if warranted and/or change personnel if agreed targets continue to be missed or only partially fulfilled should be written into this process. A considerable need for political leadership is needed for this to happen. In the North Jutland case study, see the Appendix, local communities of up to 50 000 people responded to the political leadership shown and made a significant effort to use only renewable energy.

4.2 Prioritise econo-environmental issues in the agenda of the regional government

One way widely perceived approach - from the Obama administration to the Chinese People's Republic – to revitalising manufacturing activity, is to adopt at the centre of regional policy a focus on econo-environmental issues and opportunities. A key part of this strategy should be to assist lead-firms or groups of firms to examine the extent to which they can build on the region's good past record in "ecological modernisation" by becoming Italy's greenest region both in consumption and production of sustainable goods and services.

This would further imply a catalytic role of the regional government in subsidising pre-competitive exploration and examination of such activity. Resources from the EU, the national and regional levels require mobilisation to achieve this. For example, in the initial stages of developing a green economy, renewable energy experimentation and production could be subsidised by consumer grants to enable firms to produce and sell new products like wind turbines to individual consumers, notably farmers. This policy instrument was used in the *North Jutland Clean Technologies Support* case study (see Annex on learning models).

4.3 Pursue the econo-environmental strategy through the establishment of a transversal technology centre and of an innovation fund for demand-side policies.

A major plank in Marche's platform policy to stimulate econo-environmental activity must be met in the new Transversal Technology Centre, which must be appropriately established and capable of seeking suitable research and development funds. This function of the whole Transversal Technology Centre will act as a lighthouse and initial identifier of feasible cross-functional innovation opportunities in the econo-environmental sphere.

An innovation fund that satisfies regional and global innovation users through implementing concepts like "lead markets", "demand-driven innovation" and "public procurement" would be advantageous to Marche region. It could follow the same *modi operandi* as the *VaxtFonden* initiative described in the *North Jutland Clean Technologies Support* case study, and is also currently advocated by EU now that supply-side thinking has been tarnished by the global financial crisis.

4.4 Policy implications for the Marche Region

In the annex section on learning models, some exemplars are offered that may be of assistance in enabling Marche to move ahead in policy development terms. There are three key messages of relevance to Marche arising from the policy content of the exemplars. First, each exemplar has a clear strategic focus. This means that an envisioning process has been conducted, consensus on forward actions has been achieved and action lines with key stakeholders in leadership roles identified to ensure implementation of actions. Interestingly, as is to be seen in the activities of the private company *Loccioni* which was visited by the International Panel, an initiative that integrates many of the skills of Marche's engineering expertise in a way that enhances "green innovation" is already in place. This may play the part of a "regional role model" to other March firms, with the assistance of SVIM and the regional administration.

Second, it may be clearly seen that the strategy receives impetus from a shared vision – in these cases the vision encompasses strategy to improve the reduction in harmful greenhouse gas emissions in both production and consumption in the region. It also means identifying opportunities for "green economic" activity that could be of value to firms in the Marche economy. This process is reinforced by designing roadmaps that indicate which ministries or functions need to be integrated within the regional government as well as ensuring external stakeholders are involved, as appropriate, in the broader governance process. Important industries and their representatives like construction, energy, manufacturing recycling and agro-food are especially important. But equally so are public bodies, for example in healthcare, education and public administration that are among the greatest consumers of fossil fuels, not least to heat and cool their buildings and fuel their vehicle fleets.

Finally, it will be noticed that "transversality" is a common feature in the exemplars, whether transversality of the "joined-up governance" variety or a *methodology* for enabling Marche industrial districts to engage in discussions among themselves but animated by SVIM to assess the extent to which cross-fertilization offers economic development opportunities. Where this is a common vision, bringing together the aspirations of business and the wider community, this can be a relatively affordable but also powerful economic development tool. It is recommended that with the triple crisis having a profound effect on Marche region's traditional industries and widespread recognition of the need for change, the region would give a strong lead. Here, another, locally-grown and successful policy instrument, namely the Technology Centre, dedicated to enterprise and innovation support in specific industries, could be refreshed by forming a new one with transversal innovation responsibilities towards each of Marche's main, traditional industries in pursuit of a contemporary economic necessity which is also an opportunity. That is to support transversal innovation in evolving

a Green Economy in Marche region. If a green economy is not a widely-desired vision for Marche's future, then other, more acceptable ones, such as a vision of Marche as a strong Healthcare economy, or Creative economy could be prioritised. Elements of both these alternatives already exist embryonically in the region and can usefully be supported and promoted by the regional agencies.

VII. CONCLUSIONS

The Marche has undergone a remarkable process of growth over the last half a century, moving from the agricultural economy it was in the aftermath of World War II to one of Italy's most industrialised regions. Industrial development, mainly based on family-owned SMEs, has guaranteed for the last 30-40 years high levels of economic welfare and social cohesion. Regional GDP has grown over the last decade by 18.2%, as against 12.8% at the national level; the employment rate is well above the national average (64.7% vs. 58.7%); entrepreneurial dynamism measured as regional business density stands at 103.5 enterprises per 1 000 people, as against 86.8 at the national level. Importantly, this economic development has not taken place at the expense of social cohesion or quality of life, and Marche is amongst the most favoured regions in Italy's rankings of life expectancy, security, access to green space, etc.

One of the main features of the Marche's economic development over the last half a century has been its strong reliance on industrial districts in traditional manufacturing. This has led the Marche to become one of the regions with the strongest manufacturing base in Europe, both in terms of value-added and employment. Indeed, traditional sectors such as mechanics, wood/furniture and footwear still play an important role in the regional economy. The recent economic crisis, however, has highlighted and possibly exacerbated some of the problems associated with a development model that still significantly relies on traditional manufacturing in an increasingly globalised and knowledge-based world economy. The production and exports of mechanics, textile, and footwear, all strong sectors in the region, have plummeted, and jobs have been shed as a result. The unemployment has swiftly risen from 4.7% (2008) to 6.3% (2009), and so has the number of working hours paid by the special compensation board for temporary layoffs (from 1.7 million to 6.8 million, +258%, over the same period).

Beyond the statistical evidence of the impact of the crisis on the Marche economy, this review has identified a number of other issues that could disrupt the model of development that the Marche region has hitherto followed. One of the challenges is to move out of traditional manufacturing subcontract activities into niche sectors and higher value added and branded production. In doing so, rather than invest in cutting-edge sectors where there is no locally-available knowledge base, the Marche should try to build on areas where it already has strong competencies but that offer niches of higher added value and lower competition thanks to a greater innovative component. In addition to the need to support innovative entrepreneurship and SME diversification generally, there is strong potential to achieve this by exploiting related variety activities. The recent development of domotics and the marine cluster are two examples of related variety growth in which the Marche is already actively engaged. The domotics project (i.e. ambient-assisted living), for example, is worth EUR 50 million and has been supported by EU and state funding. It focuses on the development of new technological solutions for improving the mobility of disabled and old people, registering dangerous events at home, installing a connection with assistance services at a distance, and monitoring energy consumption. Further hybrid fields with growth potential in Marche include "green biotech" and "white biotech". The former requires the collaboration of biotech and dairy firms to produce functional food, while in the latter biotech inputs are used mainly to enhance metal and chemical products.

A related-variety (or platform-oriented) policy approach requires a systemic view of the innovation process in which the government interacts with the other actors of the innovation system, namely firms, universities, business representative associations, technology transfer agencies, etc. In this view, knowledge flows are at least as important as direct R&D investments for the upgrading of

local SMEs, as the latter often lack the resources to invest large sums in long-term projects of product development. As discussed in the body of the report, solid industry-university relationships are therefore the key to thriving entrepreneurship and innovation activity. The regional government has a leading role to play in this respect in increasing the capacity of SMEs to absorb innovation through greater innovation skills and investments and in setting incentives for university research staff to work more intensively with local industry. In the same vein, university and corporate spinoffs, and technology entrepreneurship more generally, should also be supported to improve the Marche's performance in the commercialisation of academic research.

Another major challenge is the need to move towards a greener economy, a theme that has often appeared in the regional political discourse. The Marche is a region that has long prioritised environmental protection (*e.g.* natural parks and reserves cover as much as 10% of the territory and EUR 20 million were earmarked for the last regional rural plan). It is not surprising, therefore, that concepts such as green growth and green jobs have quickly taken root in the regional political discourse. The stated intentions, however, need to be acted upon more convincingly than has been the case until now. In particular, the focus has hitherto been largely on "ecological modernisation" based on reactive compliance with international environmental standards, and only to a much more limited extent on pro-active "eco-innovation". In the coming years, a more proactive approach is needed, of which a formal regional energy policy can be a component. This will not only meet local environmental objectives but also provide a way to build a major growth industry locally. Support of precompetitive research in the field of renewable energies, consumer grants for the use of clean technologies, and back-up of lead firms investing in R&D for eco-innovations are all important parts of this strategy. The regional legislation that already supports the market for the production of green energy equipment (wind turbines, photovoltaic arrays, tools processing bio-fuels, etc.) should be integrated in such a strategy, as should the role that the regional government can play as a "large buyer" through "public procurement for innovation" and the creation of "lead markets". This public intervention is justified by the fact that individual firms are often unable to identify or invest in totally new product or services markets, as the latter are inherently unpredictable in terms of demand trends and regulatory evolution. Incentives, not necessarily of monetary nature, need to be set by the public sector to back the emergence of these new markets.

In this context, the four regional technology centres should be tasked with the modernisation of the four traditionally strong sectors of Marche by assisting firms in these sectors to introduce new technologies. One of the important new functions of these technology centres should be to bridge the gap between universities and firms, with a view to commercialising university research and increasing business R&D investments. This is the model of technology centres in Scotland and Taiwan, but not in the Marche, where the four centres have mainly stuck to assisting local small firms in complying with environmental standards and other forms of process upgrading.

Linked to the modernisation of traditional sectors is also the issue of inter-generational business succession, another of the recurring themes in the report. The older generation of Marche's entrepreneurs has just retired or is about to retire, and without business succession assistance a new generation may not be forthcoming or may not have the operational skills (largely "hands-on" technical knowledge) that the first generation of entrepreneurs had. In addition, the business start-up rate is not as high as it used to be, and needs to be raised if the Marche is to remain the most entrepreneurial region of Italy. All of this combines to a threat to the regional economy, which could be faced with a number of enterprises closing operations and shedding jobs as they did not plan ahead of time the succession of business ownership, and with a rate of business creation not as impressive as before. An important entrepreneurship and SME development strategy should be developed to meet the challenge.

However important business density has been and still is for the local economy, this should not be the only concern of regional policymakers. Considering that the evidence shows that innovative firms are responsible for a disproportionate share of job and income creation, knowledge-intensive enterprises, including university spinoffs, should also be the target of a wider entrepreneurship strategy that look beyond mere business density. As well as technology spin-offs, there is great potential for the development of "digital content" businesses, such as on-demand videos and videogames, for which there is already a small initial base of companies in the region.

A comprehensive entrepreneurship strategy for the region should also be inclusive of female and migrant entrepreneurship, both of which would contribute to the diversification of the regional economy. Women's entrepreneurship, in particular, would also strengthen the participation of women in the labour market, which still lags behind the Lisbon objectives. Culture and tourism services are two areas where women's employment is traditionally strong and where greater entrepreneurship would contribute to the diversification of the local economy. Investment in tourism could additionally improve the integration of inland rural areas to the rest of the Marche's economy, which is mainly developed along the coastline. The Marche region has a wide museum heritage that is still undervalued and could be intertwined with other tourism resources such as scenic landscapes, sightseeing places, vineyards, cookery sites, etc, to develop a tourism model that also includes the promotion of the local agro-food industry.

To conclude, the Marche continues to be a wealthy and cohesive region that is nevertheless faced with a number of challenges that jeopardise the level of welfare attained over the last half century. Globalisation challenges the sustainability of the traditional industrial district model that has long been the lynchpin of the local economy. The Marche has not experienced the same degree of delocalisation of manufacturing as other Italian regions such as Veneto and Emilia-Romagna, but the challenge is real. Entrepreneurship and small business diversification is the critical imperative for renewing the economic model for the future. Policy needs to act at the structural level (entrepreneurship policies, industry-university relationships, business financing, skill development etc.), and this report, including the action plan that follows, highlights some of the possible options available to the Marche region.

ANNEX I: ACTION PLAN

This section presents an action plan for the Marche region in the fields of entrepreneurship and SME development. It aims to offer hands-on policy options, in some cases explaning and in other complementing the learning models (see annex II), to Marche's policy makers. The Action Plan stems from the main policy recommendations of the report, which are recalled below.

Box 4. Main policy recommendations

Human capital and the labour market

- Increase advanced manufacturing training and skill development to keep pace with technological changes in production processes and service sectors.
- Target female and migrant entrepreneurship to diversify the regional economy and increase women's labour market participation
- Integrate the agricultural and tourism industries to exploit entrepreneurship opportunities throughout the region, taking advantage of the natural scenic resources of Marche.

Entrepreneurship and new start-ups

- Cultivate an entrepreneurial culture amongst both labour market entrants and existing entrepreneurs by actively involving the school and university systems in awareness-raising and education campaigns.
- Address the issue of inter-generational firm transmission as an opportunity to upgrade local entrepreneurship.
- Look at start-ups and university- and corporate spinoffs as key drivers of growth-oriented entrepreneurship.
- Deploy an adequate business support infrastructure to sustain business creation and business development.

Enterprise development

- Introduce the "no wrong door" policy principle to help SMEs orientate themselves amongst the range of business services offered in the region.
- Further develop mutual credit guarantee schemes and launch love-money programmes to address the needs of micro and small businesses.
- Promote subordinated forms of capital and neutralise the fiscal advantage of bank financing to support financing in large companies.

- Foster equity finance by promoting networks amongst entrepreneurs and between entrepreneurs and investors in such a way as to stimulate the emergence of an equity-seeking mindset and of a regional equity market.

Contribution of research organisations

- Take the leadership in fostering greater university-industry co-operation and inter-university collaboration to enhance the innovativeness and modernisation of the regional economy, building on the concept of "related variety".

- Develop educational programmes for entrepreneurs and SMEs to increase the absorptive capacity of local firms and thereby embed them more strongly in the local innovation system.

- Consider concentrating resources (financial and human) in the promotion of centres of excellence to attain the necessary critical mass to be innovative and competitive in a globalised knowledge-based economy.

Governance and environment

- Improve policy governance by endowing the regional development agency (SVIM) with more powers and by building consensus around a development strategy setting measurable goals.

- Prioritise econo-environmental issues by working with lead firms that show a potential for ecological modernisation, and by subsiding basic and precompetitive research in clean technologies.

- Pursue the econo-environmental strategy through the establishment of a transversal technology centre acting as the identifier of opportunities around cross-fertilising technologies, and the creation of an innovation fund for demand-side policies (e.g. public procurement for innovation and creation of "lead markets").

HUMAN CAPITAL AND LABOUR MARKET

Advanced manufacturing skills development

What

The Marche region is at a turning point where the recent crisis has exposed structural problems of its economy like the impossibility to face competition from emerging countries in traditional manufacturing sectors. Indeed, Marche has been less fast than other industrial-district regions such as Veneto and Emilia-Romagna in delocalising low added-value stages of production as a reaction to globalisation. Nevertheless, the region has recently started to move towards higher value-added market niches that build on existing strong manufacturing competences; domotics, which combines the traditions of furniture and mechanics, is a case in point. The regional government needs to provide continued support to this change by ***equipping workers in the region with an adequate set of skills to make a smooth transition towards new manufacturing sectors with higher growth potential***. This

will also be consistent with the view expressed by many policymakers that the region should not forget or neglect its manufacturing past, but rather builds on it its future competitive advantage.

How

The regional government can envisage two targets: i) labour market entrants, primarily students; ii) people active in the labour market, both employed and unemployed.

Marche, like other regions in Italy, has a tradition of vocational high-schools preparing young students for employment in local industries. More recently, vocational schools have lost part of their attractiveness towards new students, who have increasingly opted for more generalist high-schools that prepare for university education. ***The regional government needs to enhance the attractiveness of vocational schools by updating and aligning their curricula with the industry evolution of the region***. If need be, ***additional schools should be set up to match the skills needs of the manufacturing sectors of the future,*** looking for collaboration from the main regional firms, business representative organisations, and unions in assembling a relevant curriculum. Such a strategy will also enhance the possibility for younger generations to continue working and living in the region, thus possibly reducing the migration of young workers toward the services sector poles of the country, notably Rome and Milan.

In the transition towards new manufacturing sectors, people already active in the labour market will also need to upgrade their skills. In this task, the regional government will have to work closely with the major trade unions and business representative organisations, ***launching tripartite agreements that set public incentives for training in SMEs but that leave the decision about training contents to a joint decision between unions and business associations***. The Wisconsin Regional Training Partnership in the learning model annex provides an example of a similar strategy.

Who

The regional government through its vocational schools will need collaboration from unions, business associations, and main manufacturing firms of the region.

Women's entrepreneurship

What

The strong manufacturing base of Marche's economy has historically penalised the labour market participation of women, who tend to find a job more easily in the services sector and who in manufacturing have traditionally been relegated to low-skilled functions in assembly lines. In addition, statistics from Marche tell us that one/third of men currently at work is self-employed, whilst only 20% of working women are self-employed (from 28% fifteen years ago). As a result, not only is women's self-employment lower than men's, but it is also on the decline. Tackling this decline has the promise to achieve a twofold goal: i) ***approach women's labour market participation towards the Lisbon objectives***; ii) ***diversify the regional economy from its still strong manufacturing base***.

How

It can be argued that women will need a type of support very akin to men's to start up a business. Technical information, training in business management, coaching and advice from experts and entrepreneurs, and finance are all common needs of entrepreneurs. Nevertheless, it is equally true that ***most of these aspects can be tweaked to better address the needs of women***, for instance taking into

consideration the sectors where women tend to start a business (e.g. services vs. manufacturing), making sure that the delivery of the initiative is scheduled in a women-friendly time arrangement, or ensuring that childcare facilities are provided for participating women.

Sometimes, women's entrepreneurship programmes have targeted the social sector, where women are considered to have a comparative advantage. In these cases women's entrepreneurship has become synonymous with social entrepreneurship, and the target has often been women disadvantaged because of their income, levels of skills, past abuses, etc. In this case, women's entrepreneurship schemes have not only an economic objective but also a social goal, which means their success would be measured not only based on the extent to which they contribute to the creation of successful businesses, but also and mostly based on whether the target group has successfully re-integrated the labour market.

As with migrant and minority entrepreneurship (see below), it would be important to leave ***channels open towards mainstream business development services*** for those women-owned firms that show a growth potential that goes beyond the bespoke support services.

Who

The regional government would take the leadership in collaboration with the provincial labour offices, BDS providers, chambers of commerce, and women's community organisations.

Migrant and minority entrepreneurship

What

The number of migrants in the Marche more than doubled between 2002 and 2007 and today immigrants account for 7.4% of the overall population and for nearly 9% of the regional labour force. In addition to working as employees in manufacturing or agriculture, many immigrants also undertake an entrepreneurial career. Ethnic minority businesses are however traditionally very small, operate in sectors with low entry barriers where competition is fierce and price-based, and cater for highly segmented markets. There is therefore scope to ***harness the entrepreneurial potential of minorities and migrants by stimulating value-adding start-ups*** that diversify the local economy.

How

Marche needs to design strategies that lift migrant entrepreneurship from its current marginalisation and channel it towards mainstream entrepreneurship. This can happen, for instance, by translating information about regional business services in the languages of the main ethnic minorities in the region or by hiring cultural intermediaries who help migrants approach more confidently BDS organisations and public support institutions.

More generally, a ***two-stage approach can be envisaged***. Firstly, the region needs to co-operate with community-based organisations (CBOs) that are trusted by ethnic minority communities. CBOs represent an invaluable platform for awareness-raising campaigns and first business advice for ethnic minority businesses. Secondly, when such businesses have proven sustainable and with a growth potential, mainstream BDS organisations have the competencies and extra-community networks to offer more professional advice. Consequently, the business support offered to ethnic-minority firms by grass-roots organisations and mainstream BDS providers are complementary rather than competitive. Recognising this complementarity allows for a targeted approach to ethnic enterprises, while preserving an open gateway for them to mainstream business services and markets.

Who

The regional government may want to look for collaboration from community based organisations in this policy field. Similarly, public and private BDS organisations need to be involved so that they can better understand how to address the needs of minority entrepreneurs.

Entrepreneurship promotion in culture and tourism

What

Tourists stay in the Marche region an average of 6.2 days compared to the Italian average of 3.9 days. However, tourism has been so far concentrated nearly exclusively on the coast, where infrastructures are more developed and greater private investments have been done. ***Internal areas of the region should be better integrated into tourism development***, firstly by improving infrastructures between inner areas and the coast.

How

First of all, ***local affiliations among firms making cultural products and/or working in tourism should be promoted***. Distribution has always been an issue with regard to cultural and creative industries and traditional distribution channels such as art exhibitions and competitions have proven insufficient in the past. Aggregations of producers through consortia, co-operatives and the like can help them access more standardised distribution channels. This means that these firms should not focus only on production, but they should also develop marketing strategies, with the region being in a position to help on the last task.

Secondly, ***the creation of cultural districts among nearby localities with a cultural heritage to promote can also be envisioned***. This could help small municipalities to garner marketing efforts in the joint promotion of an entire territory characterised by affinity and contiguity, rather than to advertise individually small towns that would hardly make a breach in national and international tourism markets. Cultural districts can be promoted, for instance, through the creation of trails connecting the different district localities, as exemplified by the *Finger Lakes Wine Trail* discussed as one of the learning models of the report.

Thirdly, the ***digitalisation of museums and its integration with other tourism resources***, especially those located in rural areas is also a valid option because it would rest on the existing incipient base of local enterprises in the digital contents and media industries and it would go towards a more inclusive and participative model of tourism development able to promote the "Marche brand" in the world.

Who

The regional government should work with municipalities in the internal areas, especially those with valuable cultural heritage, to promote the abovementioned activities.

ENTREPRENEURSHIP AND START-UPS

Entrepreneurial culture

What

Marche has the reputation of being one of the most entrepreneurial regions in Italy, with business density (i.e. number of firms per 1,000 people) often cited to corroborate this view. However, the effects of the global and financial crises, the industrial re-organisation brought about by intensifying levels of competition in the last decade, and the heavy dependence on family businesses (many of which are about to undergo a generational transition), point to the need for Marche to rediscover the importance of nurturing the entrepreneurial culture of the region.

Marche's performance in terms of new business registration is no longer higher than the national average, with a business birth-rate at 7% very similar to the Italian average. Most importantly, business density is not necessarily synonymous with entrepreneurship *tout court*. There are aspects of entrepreneurship such as technology-based entrepreneurship and high-growth firms that are not captured by a simple indicator of business creation.

Supporting an ***entrepreneurial culture is of utmost important because it will have an overarching impact on all possible variants of entrepreneurship*** (from technology-based to female entrepreneurship); and this is in turn a major driver of innovation, competitiveness and growth. Needless to say, culture is the element on which it is most difficult to impact in the short-term and results, when measurable, should be assessed in the medium- and long-run.

How

The development of programmes targeting entrepreneurship culture should closely involve the education system, especially the secondary and tertiary levels. At the secondary level, the regional government could launch ***information awareness campaigns*** and ***company simulation programmes*** in the guise of the EU-funded Student Mini Company (SMC) Programme. The latter has an interesting operational aspect as students are exposed to the practice of business management from the start-up to the liquidation phase throughout one school year. Students elect officers, sell stocks, produce and market products and services, conduct shareholders' meetings and keep records. As a result, they get a grasp of how the real business world works.

At the tertiary level, the regional government could work in co-operation with the four universities in the region to promote both ***entrepreneurial education***, which could apply to all forms of education, and ***entrepreneurship education***, which is specifically concerned with new venture creation and innovation. When setting university entrepreneurship courses, the regional government and universities should bear in mind that ***learning methods based on the flow of experiences, experiments, ideas and realisation are central to the pedagogy of entrepreneurship***. As a result, real entrepreneurs should be allowed to be part of the teaching body to make courses more practice-oriented. Finally, two types of entrepreneurship education models exist: the ***magnet model*** where a single entity facilitates entrepreneurship classes for all departments and the ***radiant model*** where individual departments develop their own efforts. Whilst both models are valid, entrepreneurship and business creation are not limited to any specific field of study and therefore entrepreneurship education should be mainstreamed through the widest possible range of degrees.

Entrepreneurship education should not be restrained to future labour market entrants only. The region should indeed also target current business owners and, given the importance of inter-generational business transmission in the region, family members and other people affiliated with an existing business through training and retraining programmes focusing on new business methods and management tools. The regional management school ISTAO seems the best suited partner to achieve this objective, but also other training institutions could possibly serve the purpose.

Who

The regional government in partnership with regional secondary schools, the four regional universities, management schools like ISTAO and other training institutions.

Inter-generational business succession

What

Family businesses have been the cornerstone of Marche's growth during the second half of the last century, but today a whole generation of successful entrepreneurs is about to retire or is already retiring. This poses a challenge to the Marche region that goes beyond private business succession because of the negative consequences massive business closures could have on employment. ***Business succession is therefore a threat for the region, but it could also be an opportunity to review the current strategies of firms and re-orientate them towards longer-term sustainability and profitability***. There are numerous transmission options facing founders and owners: close the firm, sell it, transfer it to a family member or to a non-family member, attract domestic or international investors, establish joint ventures, etc. The benefits and costs to the founder and to the Marche region will vary according to the chosen option.

How

Intervening in what is essentially an issue of private business succession is not easy for the public sector, which explains why the Marche region has not done yet very much to facilitate the process of inter-generational transmission although politicians and policymakers are aware of the problem. Nevertheless, given the scope of the problem, it is important that the Region takes some action and possibly harnesses the potential opportunities from this situation. What the Marche could do is firstly to provide ***information and guidance on the various transmission options by subsidising consulting and advisory services in legal, tax, and financial affairs specifically dealing with succession issues***. The experience of the "Nexxt Programme" in Germany (see the learning model annex) is significant in this respect, with the website of this scheme becoming a one-stop shop for all information about business succession and a meeting point for people who want to sell or buy a business. Another possibility, especially when succession takes place within the family (which is often the case in the Marche), is that new ***business owners without any past formal training in business management are targeted through bespoke courses*** offered by regional universities or management schools.

Who

In this field, the regional government would need to work in close collaboration both with private BDS providers and with universities and management schools in the region.

Technology-based entrepreneurship

What

A greater focus on technology-based and innovative entrepreneurship would help the Marche region to move away from concentration on mere business creation and stimulate the growth and competitiveness of the region. So far, however, ***university spinoff policies and technology transfer programmes have not been at the top of the regional government's agenda***, as shown by the underperforming results of university spinoffs in the Marche. Meanwhile, in the last 10 years, some private companies have generated up to 80 spinouts. These figures point to a need for change; i.e. ***engage more with faculty and with local high-tech companies to generate more sustainable spinoffs***.

How

At the university level, there appears clear that the target of the few spinoff programmes in place has been students and that this has brought about underwhelming results. The Marche government has an important role to play in making universities, especially the more technology-oriented (Camerino and Polytechnic University of Marche), willing to co-operate more intensively with the business sector and thereby to contribute to productivity growth through technology transfer.

Spin-off policies remain important but the scope should be scaled up. The Marche region can set incentives for academics to be involved more actively in spinoff programmes, both as advisors of student-owned companies and as real partners in the start-ups. Depending on the extent to which the region has control on higher education policies, teaching requirements could be partly relaxed for those professors who directly participate in a company that exploits a university technology or who engage with industry in a different way (e.g. through collaborative research). Likewise, an active orientation towards the commercial exploitation of university knowledge should be considered more than is now to the ends of academic career progress. In other words, ***the scope of the regional universities should be rethought in order to encompass the so-called "third mission" of universities***, which is the contribution to regional development of which entrepreneurship and innovation are key components. This calls for a ***revision of the incentive structure*** where, as seen, ***incentives are not necessarily of monetary nature but can involve professional requirements and career prospects***.

The TOP Programme of the University of Twente in the Netherlands, described as one of the learning models in this report, provides an example for supporting university entrepreneurship through a broader scope than Marche's current one. Indeed, the University of Twente supports new firms not only by its students or professors, but also by external people who want to commercialise university technologies or who have business ideas somehow related to university research activities. And this is done through a broad range of support services.

The report has also shed light on the possible ***contribution of corporate spinouts to regional growth***. In this case, the challenge is to make the small firms that spin out of the parent company progressively more independent by developing commercial relationships with third parties. ***Business development services (BDS) on marketing, advertising, legal affairs, internationalisation, etc. are key*** to the development of any new business, but all the more so for a firm set out by a former employee who may have the technical knowledge to manufacture a product but not the business expertise to bring it to markets. Rather than setting up its own BDS agency, ***the Region could consider using the public subsidies system to encourage BDS provision by the private sector***, which would have fewer market distorting effects.

Who

The regional government should work on this in partnership with university professors, especially in applied-science faculties, and with lead companies in the region, as well as with private BDS providers.

ENTERPRISE DEVELOPMENT

Mezzanine business financing

What

Firms in the Marche region appear overly reliant on retained earnings and bank loans to finance investments. Indeed, to facilitate access to debt finance, the regional government and local business associations have deployed a system of credit guarantee schemes widely available to firms. Whilst access to credit is key to SME development, ***a business financing approach only based on debt finance can lead to systemic undercapitalisation of firms and cause liquidity and solvency problems in the long term***.

In addition, venture capital is almost totally lacking in the region for a number of reasons: i) entrepreneurs are reluctant to relinquish control on business decisions; ii) despite the large presence of former wealthy entrepreneurs, there is not an investment culture geared towards venture capital; iii) companies may also try to avoid venture capital because of fiscal discrimination by which interests on credit are deductible whereas returns on equity are not.

How

The Marche region can diversify the sources of business financing by promoting so-called mezzanine tools. This is a ***hybrid of debt and equity financing*** that is typically used to fuel the expansion of existing companies and is basically debt capital which though gives the lender the rights to convert it to an ownership or equity interest in the company if the loan is defaulted. Its provision can be subordinated to the borrower obtaining debt finance by senior lenders such as banks, which is why mezzanine tools are sometimes defined as "subordinated capital". However, ***this hybrid instrument can also be levered to receive bank loans*** because banks consider it as capital stock rather than debt and thereby it positively affects the firm's solvency ratio. The advantage for the borrower, i.e. the business owner, is that he keeps control of business management. The advantage for the lender is that interest rates are normally higher than banks' rates and that he can receive fiscal incentives from the public sector to invest his /her money in an external business. However, the lender shares the risks of the venture with the entrepreneur.

The government can support mezzanine financing either by giving fiscal incentives to lenders to invest capital in external firms, by covering part of the losses in case of bankruptcy/liquidation or still by providing a combination of stimuli and risk coverage. It is therefore important that the regional government has some degree of control on tax policies, something which is expected to increase with the introduction of fiscal federalism in Italy in the near future. As is clear by the Dutch

programme "Aunt Agaathe" (see the learning model), the cost of a similar policy will partly depend on its success, which makes it very ***important that the programme is coupled with business training and coaching to minimise bankruptcy risks***.

Who

In this domain, the regional government would need to work with banks to let them accept mezzanine financing as a form of capital rather than debt. In turn, this will help firms to have access to loans. Wealthy people and potential investors need to be informed about this investment opportunity through information and awareness-raising campaigns. Similarly, the creation of networks of mezzanine investors can also be facilitated by the government.

Investment readiness programmes

What

If mezzanine financing tries to provide a hybrid form of capital to ease the match between lenders and borrowers, investment readiness programmes aim to tackle investors' complaint that investments are not done due to the lack of sound business proposals. These schemes therefore try to ***augment the supply of equity capital by improving the quality of investment proposals***.

How

Key features of investment readiness programmes normally include ***interactive workshops based on role-play exercises*** and delivered by experienced industry experts (e.g. lawyers, accountants, business angels, etc.), ***bespoke consulting services*** at advantageous rates (due to the public subsidy factor) and ***investment-readiness diagnostic tools*** enabling firms to understand strengths and weaknesses, whether they operate in a growing sector, whether their products or services are innovative and whether they are actually willing to relinquish equities. ***Participants in investment readiness schemes are generally asked to pay an annual fee*** and sometimes need to demonstrate that their business has the potential to grow beyond a certain threshold per year. ***The public sector, in turn, can cover the operational costs of the scheme and partly subsidise the costs of the BDS providers involved in the delivery of the programme***. Public agencies can also be an active component of the scheme.

Who

The regional government would need to use its own investment and development agencies but also private BDS providers to deliver a similar programme. Moreover, ***it would need to select firms that have a growth potential through objective and quantitative criteria publicly set beforehand***. Ex-post selection based on more subjective assessments, either done entirely by the public sector or in partnership with the private sector, would easily be plagued by a set of classic problems such as asymmetric information, principle-agent dilemmas, and presence of vested interests on the part of private BDS organisations.

Local business angel networks

What

Business angels are wealthy people, often former entrepreneurs, who are not only willing to invest small sums of equity into new enterprises, but also to give management advice to the invested firm. As a result, the presence of more business angels is ***meant to improve the supply side of the equity capital market***, which is much undeveloped in the Marche region. Often, ***business angels also act as a vehicle for the entrepreneurs to potential clients, service providers or other senior lending or equity institution***s. An advantage of business angels as against venture capital is that the former tend to exert a lower level of control on the invested enterprise and to allow more time for the investment to bring benefits. In contrast to venture capital funds, business angels invest more locally so that they can follow more closely the investment done. These features make business angels a powerful instrument of local economic development.

How

Public intervention is justified by information barriers in the equity capital market. Business angels may be reluctant to publicise their intention to invest, whereas entrepreneurs may be unwilling to reveal innovative ideas or lose control on management decisions. ***Local authorities can lower these barriers by encouraging the establishment of business angel networks***. The objective of the Marche region should be to recruit high net worth individuals with relevant business experience and an interest in supporting, mentoring, and investing in early-stage growth-oriented companies. Potential angels are often initially reluctant to get involved because of poor knowledge of what being an "angel" implies and lack of relationships with existing investors. As a result, especially at the beginning, it is important to offer the option of being just a "knowledge angel", who only passes his/her expertise without necessarily making a monetary investment, to pull together more potential business angels. ***Marketing campaigns*** can also be helpful in increasing awareness about this type of activity. Finally, given that there are operational costs to maintain networks of business angels, local authorities may consider partly ***subsidising administration costs to give an incentive for business angels to keep operations going***. For the relatively small amount of money required to run an angel network, the public sector can expect to achieve a very high level of leverage on the finance raised.

In addition to fostering the emergence of networks of business angels, another policy option is to ***train business angels to better assess investment opportunities***. The "Spanish Business Angel Academy" described in one of the report's learning models gives an example of this approach. The rationale behind is that wealthy people and potential investors may lack an adequate understanding of the investment process and be unable to bargain acceptable investment conditions with the entrepreneur. Investor education can therefore become a key factor in making well-off people active investors in the local economy. An additional advantage of setting up a business angel academy is that it has an obvious implicit network component which makes the creation of a formal business angel network less compelling.

Who

In the case of the business angel academy, the regional government will need to search for the active involvement of local management schools, whereas to build a network of business angels it will have to liaise and carry out a work of persuasion with local wealthy individuals about investing in the local economy.

Marche brand worldwide

What

SMEs do not only face financing barriers to their development, but ***the lack of branding has often been mentioned during the review as a major obstacle to enterprise growth***. This is the legacy of many regional SMEs working mainly as subcontractors for the lead firms in the local industrial districts, and not being able to re-adjust by becoming final producers with a market brand. Indeed, even Marche's most famous brands are not known to be from Marche (e.g. Todd's and Church shoes), which is quite a paradox. Actions by the regional government in the direction of promoting the "Marche brand" worldwide would therefore be welcome.

How

The promotion of the "Marche brand" involves different aspects and areas. The promotion of culture and tourism (see previous point about entrepreneurship promotion through culture and tourism) clearly requires ***territorial marketing in international tourism fairs*** and ***the creation and/or strengthening of a regional body specifically devoted to this***. As mentioned, the Region should strive to promote a participative model of tourism that does not only focus on the coast but is also inclusive of internal rural areas.

Firms that are final market producers also need continued support in their internationalisation programmes through typical measures like export credits, export insurances, legal consulting, participation in international trade fairs, local workshops with international buyers, etc. At the same time, it is important for the regional government to ***look beyond export promotion and support more incisively foreign direct investments (FDI)***, especially considering the impact of inward FDI not only on job creation but also on knowledge flowing to the local economy. In this respect, the Region needs to promote abroad its skilled human capital, the university system, the quality of life and the lifestyle of the Marche, etc. It would also be important that FDI policies do not stop at the stage of attraction, but try to embed multinational companies in the local economy by developing linkages and supply relationships with local enterprises. This work would have to be coupled with the improvement of road and rail infrastructures, which has come up as another major constraint to the further development of the region and which is still an important factor in MNE's location decisions.

Who

The regional government should work in partnership with national bodies responsible of tourism promotion and attraction of foreign investments. This is especially true for FDI policies, as evidence suggests that MNE's location decisions are firstly driven by national rather than regional factors (e.g. market size, corporate tax rate, infrastructure quality, availability of natural resources, etc). Most of the services oriented towards business internationalisation should be provided by professional BDS organisations, with the public sector primarily setting incentives and lowering information barriers for their use.

CONTRIBUTION OF RESEARCH ORGANISATIONS

Industry-university collaborative research

What

When Marche's firms have innovated in the past, they have done so mainly through learning by doing and with limited support from universities and other research organisations. Innovation has therefore been incremental rather than radical. ***There is today scope for combining this previous mode of innovation (Doing-Using-Interacting) with another more based on science that sees a greater involvement of universities (Science-Technology-Innovation)***. Science-based innovations have, indeed, a greater multiplier effect and thereby a bigger impact on regional productivity. However, given the involved externalities, public intervention is required to support the development of networks incorporating higher education institutions and firms. In doing so, the tacit nature of much knowledge transfer should be recognised.

How

Collaborative research programmes are set up to help knowledge flows between academic research and company R&D staff by offering shared space and facilities and an institutional arrangement to work together. They have a limited duration of time (e.g. around 5 years), tend to focus on precompetitive research (i.e. research that goes up to the level of a prototype) of interest to both academia and industry, and normally take the form of a concrete centre where academic and industrial researchers come to work together. Partnerships are selected through a call for tender and selection criteria include the scientific and industrial R&D quality of the proponents (university and R&D labs), as well as the projected contribution of the partnership to regional competitiveness. In considering implementation, policymakers need to ensure that they have some leverage over universities, which may involve attractive funding, research perspectives or career incentives. The establishment of similar partnerships would therefore partly be a question of adjusting the incentive structure of the regional university system. For instance, participation in these programmes could entail a reduction in the teaching requirements of professors or could be used as a criterion for academic career progress. These schemes have also an important university spinoff potential thanks to exposure of academics to industry-relevant research.

Who

The regional government should work in close collaboration with universities, particularly applied-science faculties, and knowledge-intensive firms to set out a similar initiative.

Absorptive capacity of local small firms

What

Technology development and economic diversification are a challenge in Marche because the overwhelming majority of local small firms do not have a sufficient level of absorptive capacity to understand R&D needs and establish relationships with universities or other research organisations. As a result, the demand for technology needs to be boosted by enlarging the number of firms able to benefit from co-operation with the university system and other research organisations.

How

The absorptive capacity of SMEs can be strengthened in a number of ways, including through ***workforce skills development, innovation purchasing initiatives, university-industry labour mobility***, etc.

A simple tool to implement would be, for instance, ***innovation vouchers***, which have been adopted by a number of other regions in OECD countries (e.g. Ireland, West Midlands, the Netherlands, Andalusia, etc.). Innovation vouchers are small-scale lump sums (e.g. between EUR 5 000-10 000) that firms receive to solve minor problems or scope out possible solutions for more significant technological questions. Innovation vouchers are therefore intended as a pump-priming funding through which initial industry-university relationships can be established. One of the keys for the success of a similar initiative is simplicity. In light of the small contribution vouchers give, the administration of the scheme should be kept as simple as possible. Limited evaluation evidence suggests that output additionality for this measure is high, i.e. a large share of firms that are granted vouchers would not have undertaken the project without public support. However, the impact on longer-term SME-university collaboration is more limited. On their own, therefore, innovation vouchers appear too small a tool to change the embedded attitude of SMEs towards research organisations. As such, they are useful instruments but need be integrated into a wider innovation strategy in which voucher recipients can refer to other policies for further stages of business innovation.

A more costly and longer-term approach is to partly ***subsidise the hire of graduates and postgraduates by local firms.*** If the first initiative has the goal of boosting the short-term innovativeness of small enterprises, this approach intends to reinforce endogenously the skills of local SMEs. At the operational level, it is important that wage subsidisation is only partial and possibly progressive over a predefined period of time (normally, three years). While one of the potential criticalities is that jobs are destroyed when the subsidy is discontinued, the cost-sharing arrangement between the private and public sector and the relatively long duration of the programme have a greater potential to embed innovative skills (i.e. the recruited staff) in the local SMEs. In addition to this, the measure can be tweaked in a way that privilege some sectors and technologies, in line with the importance of channelling R&D resources towards the strategic objectives of the region.

Who

The Marche region should design these programmes and deliver them through its public agencies. It is indeed decisive that the regional government shows leadership not only in the design but also in the implementation of these programmes. This will allow a dedicated approach to programme management and allows for effective cross-referrals among the different programmes and components of Marche's "innovation strategy".

Moreover, in the case of vouchers, the brokering role of the Region is crucial. There is a need both to minimise the application burden on firms and to provide cost-effective matching to appropriate academic expertise. As a result, too much an arm's length approach by the delivery agency may lead to difficulties for firms in finding appropriate academic partners and for knowledge providers in responding to a relatively high volume of uncoordinated enquiries. Developing an enhanced brokerage service is crucial to the effectiveness and popularity of the programme by enabling firms to more quickly identify possible partners and reducing the workload on knowledge providers.

GOVERNANCE AND ENVIRONMENT

Innovation strategy leading to economic diversification

What

The recent economic crisis has cast light on the weaknesses of a regional economy that continues to rely too much on traditional manufacturing. In this context, industry-university collaborations are key not only to the strictest domain of technology-based entrepreneurship, but also to the overall competitiveness of the region. Basic and applied research, and industrial innovation, will be instrumental in moving the regional economy towards higher value-added market niches and stages of the production process.

This process of economic diversification should build on those industries in which the region has been best in the past (i.e. related variety), rather than on cutting-edge sectors for which there may not be a sufficient local knowledge base. The promotion by the regional government of domotics and the nautical cluster goes in this direction, as they both exploit Marche's past expertise in manufacturing industries such as mechanics and furniture.

Marche should also try to promote cross-fertilising technologies that have widespread industry applications. Indeed, major innovations occur when knowledge spills over between related industries and this is more likely to happen when generic technologies (e.g. ICT, biotechnologies, nanotechnologies, etc.) are involved. ***Knowledge spillovers occur not only among high-tech industries but also between advanced and traditional industries***, which makes knowledge spillovers all the more important for the development of Marche. An example mentioned in the report is functional food, which calls for collaboration between research-intensive biotech firms and traditional diary companies.

How

The Marche region is already actively engaged in the promotion of new market niches that build on its manufacturing tradition (e.g. domotics) and this report strongly encourages the regional government to go further in this process of industrial modernisation.

With regard to cross-fertilising technologies, a diagnosis of the regional economy and of the regional university system would help understand which sectors have a growth potential and in which university fields there are good competencies so as to identify potential synergies between the two**.** ***Regional funding for R&D***, which is always very limited, ***should be channelled in line with the results of the diagnostic analysis, which could lead to the emergence of centres of excellence with adequate funding***. The "Bayern Technology Platform" described in one of the learning models provides an example of this approach. In addition, the Marche region will obviously need to beef-up its innovation strategy by strengthening the absorptive capacity of local small firms and by spurring industry-university collaborations through some of the policy instruments mentioned above (e.g. training, labour mobility, co-operative research programmes, technology transfer offices, etc.). In this context, existing technology centres could assist firms in Marche's four traditional clusters to adopt new technologies, thus giving a concrete contribution to the industrial modernisation of the region.

Who

The diagnosis of Marche's economy and university system should be assigned to an external university or consulting company able to detect the strengths and weaknesses of the regional innovation system independently. The innovation strategy should then be designed by the regional government through a consensus-building process that involves local stakeholders such as universities, technology intermediary organisations, business associations, unions, etc. Nevertheless, it would be important that the strategy be inspired and informed mainly by the diagnostic exercise without overly giving in to existing vested interests. Concentration of limited R&D resources is, indeed, crucial to the effectiveness of an innovation strategy.

Green growth

What

There is ***increasing awareness in the region that green technologies can contribute to the future growth of the region,*** and this is present in the political discourse at different levels, to the point where the goal of creating 25 000 green jobs has been set. In particular, clean technologies are reckoned to have the potential to assist the industrial modernisation of the region, for instance by enhancing energy saving and sustainable production. However, ***this political awareness has been acted upon only to a limited extent so far***. To be sure, Marche firms have been able to comply with international environmental standards in the past also thanks to the support of the regional technology centres, but this reactive approach needs to be replaced with a more proactive slant in which the region identifies pathways to eco-modernisation. Whilst this was signalled as a priority, economic concerns currently outweigh environmental ones mainly due to the crisis that has not spared Marche.

How

The set-up of a ***regional energy strategy*** can help Marche go in the direction of a greener economy. As suggested in chapter VI, for instance, the regional government can support the construction of city heating and cooling schemes fuelled by renewable energy sources (e.g. biomass and biogas from farm waste, geothermal energy, marine wind power, etc.). At the same time, Marche's firms (e.g. in the mechanics sector) can be supported and tutored to produce services and components for this industry, whereas other sectors could be incentivised to become users of clean sources of energy. Part of the strategy would be, more specifically, to ***assist lead firms or group of firms in introducing eco-innovations***; ***provide consumer grants for the use of eco-innovations and clean technologies***; ***subsidise basic and precompetitive research in renewable energies*** both at the university level and through the promotion of industry-university collaborative projects. A similar strategy should have measurable targets and a periodic assessment of the results achieved. The case of Thisted (Denmark), in the learning model section, provides an example of a staged approach to the introduction of clean technologies.

SVIM would have an important role in the strategy. At the moment, SVIM has five areas of activity (innovation; research; energy; credit access; internationalisation), with energy mainly intended as energy-saving and environment-related work falling under the pillar of innovation. It would be helpful if the agency would set "environment" as one of its explicit field of work which would include not only energy-saving, but also renewable energies, clean production, sustainable consumption, etc. This would help SVIM rationalise its activity, gain expertise in this key area of work, and convey a strong message, together with the formal environmental/energy strategy, to regional stakeholders about the "new" importance of green growth in the region.

Existing technology centres would also need to be integrated in this strategy. Some of them are already involved in the production of renewable energies; for instance, *Asteria* has a biomass power plant that burns vegetable oil that is then sold to the national grid. However this is a small isolated case, whereas technology centres could become much more instrumental in the shift towards a green economy by assisting firms in traditional sectors, which are often among the most polluting (e.g. leather and textile, both significant in the region), to use clean technologies and sources of energy and adopt sustainable systems of production. The creation of an ***additional technology centre with a cross-industry function focused on energy and environment could also be helpful***, though it would have overhead costs to be taken in consideration.

Who

The goal of greener production should be mainstreamed in the activity of all development instruments of the regional government, from SVIM to the four technology centres, which should therefore become operational arms of this strategy. At the political level, consensus on the strategy needs to be built up by involving the relevant stakeholders of the region (entrepreneur confederations, unions, universities, etc.).

Public procurement to drive innovation

What

There has recently been an increasing emphasis on the role of demand-side policies, mainly public procurement, in stimulating innovation. The theory behind is that the ability to produce innovation is widespread and flexible, but requires a market opportunity, *i.e.* a demand for a new product or service. In some cases, this demand can come from the public sector, which often acts as a large purchaser through its procurement offices.

Public procurement is certainly an attractive policy option in a time of budget cuts, as it reduces the costs of innovation policy versus supply-side initiatives. Nevertheless, there are a number of barriers that need to be addressed. Firstly, public procurement is generally driven by cost-saving or at most cost-efficiency criteria, which are not always consistent with the goal of promoting the purchase of innovative products and services. Secondly, public procurement is practically executed by staff that are unfamiliar with innovation in its manifold dimensions, and who would therefore require training and assistance in the move towards innovation-driven public procurement. Thirdly, public officials are generally risk-averse, as compliance with rules is often more important than the achievement of the objective in the public sector. These factors suggest ***that while public procurement does have an important innovative potential, the latter can be fully unfolded only through changes in regulations and training of civil servants***.

How

It is possible to envisage ***two different types of changes in public procurement regulations***: one that favours access by young and small firms and another that looks at innovation promotion more directly. Currently, public procurement regulations tend to discourage tenders from new and small firms. In particular, contract bundling, driven by efforts to reduce the work of civil administration, can set a bias against applications from SMEs. Similarly, inadequate access to relevant information about forthcoming contracts and burdensome documentation are common obstacles to the involvement of small firms in public procurement. As a result, it would be important to intervene on these aspects ***to ensure that SMEs have equal access to public procurement opportunities***. E-procurement can be one of the solutions to the extent to which it facilitates access to information.

Public procurement can also support innovation more directly in different ways. Firstly, the innovativeness of products or services purchased can be an important criterion in the tender. Secondly, the tender can incorporate demand for new technologies (e.g. use of bio-fuels for the heating system of public buildings). ***Thirdly, public procurement can set objectives*** (e.g. reduction in energy consumption)***, putting the emphasis on the outcome rather than the process***. Of the three approaches, the first is probably the most difficult to implement because procurement is not done directly by ministries and agencies responsible for innovation but by central procurement offices that are most concerned with efficient purchasing. The other two lines are, on the other hand, more common among local authorities. In the context of Marche, the "transversal centre" mentioned in the chapter on "governance and environment" could act as the "lead user" of innovations, signalling acceptance to other users in the region.

Whatever the line followed, the ***training and guidance of civil servants will be crucial*** to ensuring a successful transition towards an innovation-oriented public procurement. In addition, incentives may have to be set up that change inertia and risk-averse attitudes of public procurement officials.

Who

The regional government will be the main actor of this change under the leadership of its legal office.

ANNEX II: LEARNING MODELS

HUMAN CAPITAL AND THE LABOUR MARKET

1. Female entrepreneurship and labour market participation: Women's Initiative for Self-Employment, San Francisco, California, USA

a) Description of the approach

Women's Initiative is a non-profit organisation serving the Bay Area region of California including Silicon Valley, San Francisco, Oakland, and adjacent counties. *Women's Initiative* trains women to be entrepreneurs and run small businesses. The advantage of this program is that it empowers women to create their own jobs. By encouraging women to be entrepreneurs rather than employees, the program helps women sidestep the challenge of gender discrimination in hiring and firing. The average participant is 41 years old. Almost 30% of women in the program are single mothers and 45% are non-native English speakers (migrants or immigrants).

The program is not sector specific. The technical assistance includes an eleven week training course (offered in multiple locations throughout the region) and financial services resources including 1) small business loans (ranging from 1,000 USD to 25,000 USD) and 2) asset building opportunities like Individual Development Accounts (matched savings accounts).

b) Results of the approach

Women's Initiative, founded in 1988 in the San Francisco Bay Area, has shown significant gains for the regional economy and for the individual women participating in the program. Participants in the program have started over 1600 businesses and report a doubling of their income within the first two years of business start-up (on average). Economic impact studies have shown that for every dollar invested in the program, 30 USD are generated for the local economy.

c) Reasons for success

Women's Initiative has been successful over its 20 year history because it emphasises micro-entrepreneurship based on the skills, interests, and capacities of the women in the program. The program succeeds by providing women with four critical elements.

First, the program provides women with the knowledge needed---the **technical information**---to start a business through the training course. Second, the program provides women with access to the **modest capital** (small business loans) that they require for the start-up. Third, the program provides women with a community of support, an **entrepreneurial cohort**, with whom to collaborate and commiserate. And finally, the program provides women with the **confidence to take risks** armed with the knowledge, resources, and community support to start a new enterprise. Specific training on

how to develop a business plan, manage taxation, follow regulations, and navigate cash flow challenges provided specific guidance that demystifies the process of business development.

d) Obstacles faced and response taken

There are two major challenges for this program. The first is limited **funding**. The program relies on competitive grants, donations, and volunteers. The second challenge is how to **manage the successes and the failures** of participants. The response to this challenge is to focus on empowerment as well as business development and recognise the value of the incremental progress of the individual (towards independence, employment, and self-sufficiency) not just the end goal of a profitable small business. In other words, the program sees social services goals as concurrent with its business development goals. Given the background of some participants in the program (poverty, abuse, low-skills), the program sees active and consistent participation in the labour market as a success for some participants rather than viewing the absence of a business outcome as a failure.

e) Considerations for adoption in Marche region

While *Women's Initiative* is an independent non-profit, the Marche region could adopt the model at the regional scale (Regione Marche). The Regione Marche has the current capacity to provide two of the four elements of the program (micro-entrepreneurship technical expertise and microloans). The implementation challenge for Marche is in developing the community of support and building confidence. The stakeholders involved in the project are critical to that process. The provincial labour boards and women's advocacy groups would be important stakeholders.

The professional public administration staff with the Regione Marche have the expertise to provide the technical instruction and ongoing support services. The influx of labour market assistance funds would be more than adequate to design and implement the program. A staff of small business trainers, located throughout the region and working closely with the women in the program (entrepreneurship case workers), would be an essential element of successful implementation.

f) Further information

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2. Transforming industrial districts in the knowledge economy: The Wisconsin Regional Training Partnership (WRTP), Milwaukee, Wisconsin, USA

a) Description of the approach

The Wisconsin Regional Training Partnership has become the standard against which industrial training and retraining programs are measured.

The model has recently been adapted and expanded to meet new economy conditions in three ways. First, the focus on manufacturing industries has been expanded and training extended to the health care and logistics industries. While the training remains sectoral, it is not limited to traditional

industries. Second, the WRTP has adopted a "Centers of Excellence" model paralleling the sector-focused models established throughout the US and Canada. Finally, the WRTP, as a labour market intermediary that offers training and placement services, now provides additionally support services in transportation and remedial skills.

The WRTP is a member-based non-profit organisation operating as a workforce development intermediary in the greater Milwaukee region (an older industrial region). The WRTP is essentially a community-based labour market intermediary focused on skills and training and job placement. The WRTP was originally founded in the early 1990s by labour unions and employers in response to industrial restructuring and layoffs in the traditional manufacturing industries (the production specialisation of the region). Currently, 150 firms (80 manufacturers) belong to the WRTP.

b) Results of the approach

The WRTP approach results in benefits for firms, workers, and the regional economy. After training of their incumbent workforce, firms experience reductions in set-up times, reductions in lead times, and significant reductions in scrap. Firms also report increases in on-time delivery rates (in some cases 30-40% increases) and increases in orders and overall productivity. Workers increase their own productivity, notably through significant improvements in comprehension skills (reading and math). Workers are also retained, receive wage increases, and new employees are added as firms increase their productivity. Results for the regional economy include decreases in layoffs and maintenance of income levels and production networks.

c) Reasons for success

The key to the program's success is its firm, community, and union partnerships and its ability to train and place workers at any stage of a career or any rung on the career ladder for a variety of industries. The program also succeeds because it provides benefits to multiple stakeholders. Firms experience lower costs and increased productivity (including quality). Workers gain job security and portable skills (job mobility) as well as higher wages. Labour unions gain greater credibility with the community and their members through participation.

d) Obstacles faced and response taken

There have been both micro and macro-level challenges for the WTRP. First, the general decline of manufacturing in the region and in advanced industrialised economies has been a persistent challenge. The WTRP has embraced a "race to the top" model which emphasises productivity and quality. In this way, the partnership promotes high quality, high wage employment rather than international "race to the bottom" competition that erodes wages and quality of life. Second, the WRTP has been challenged by inconsistent funding from public sector sources (at all scales). The WRTP has sought private foundation funding to continue its work when public funds are scarce.

e) Considerations for adoption in Marche region

For Regione Marche, the adoption of this model would be relatively straight-forward given the existing industrial districts structure. The major challenge would be locating the training within the industrial district centres and expanding skills training to service industries. A focus on occupations and technologies rather than rigid industry boundaries would expand the scope of existing programs. The WRTP model, funded through the expected European Social Fund resources, could operate out of the industrial district centres (the WRTP has recently moved its own operations into a "centre of excellence" framework). The provincial labour councils would be important stakeholders, especially

for new and unemployed workers. The labour unions and firm networks are important stakeholders for incumbent worker training. In general, Regione Marche is very well positioned to extend its current industrial districts model to a WRTP model for worker training and retention.

f) Further information

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3. Entrepreneurship through agricultural innovation and rural development*: The Finger Lakes Wine Trail, New York State, USA*

a) Description of the approach

The wine trail model builds on the existing assets of the region with an integrated approach to rural employment through tourism, rural development, and small business development. While the wine trail model in the Finger Lakes is a particularly good fit for the Marche region, this model has also been successfully implemented in California and Oregon in the US, British Columbia and Ontario in Canada, and several other New World wine regions.

Unlike the wine tourism approach in Europe, characterised by organisations representing networks of cities (for example RECEVIN and Civitas del Vino and the European Council of Wine Regions), the New World model integrates an explicit rural development approach. This strategy leverages wine tourism into a broader, regional effort to sustain small-scale agricultural operations and increase processing capacity (and increase value-added production).

The strategy requires the presence of 1) existing agricultural capacity---particularly in value-added food products (wine and complementary products), 2) the presence of an agricultural research or innovation institute, and 3) an historic, small town landscape appropriate for bed and breakfasts, small restaurants, and wineries. The strategy preserves the rural landscape while providing an economically viable and environmentally sustainable business opportunity for rural entrepreneurs.

b) Results of the approach

Although New York has been producing wine since 1829 and has the second largest production of grapes and wine in the US (after California), its does not have a significant presence internationally. This limits exports substantially. However, since the wine trial approach began in the mid-1970s, the number of wineries in New York has grown from 9 in 1976 to 212 in 2006. More recent numbers indicate that the Finger Lakes Region alone boasted 107 wineries in 2009 (although some of those are wine tasting and retailing rather than wine producing businesses). Most of these new wineries produce less than 10,000 cases annually. One million people visit the wine trail every year. Around 70% of wine sales for the regional wineries are directly to consumers visiting the wineries. In addition to **creating a market** for small scale producers, the wine trail has **stabilised agricultural land values**, increased **revenue for complementary tourism-related sectors** (restaurants, hotels, taxi and travel

services, etc…). **Employment** in the wine and grape industry alone is estimated at 36,000. The impact of the industry on the state is estimated at six billion USD.

c) Reasons for success

The Finger Lakes Wine Trail has been successful because of the integrated approach to tourism, rural development, and agricultural production over a thirty year period.

d) Obstacles faced and response taken

Public funding has been a consistent issue for the program. However, the integrated approach allows the program to appeal to multiple streams of public sector investment (rural development, tourism, economic development, historic presentation, internationalisation).

Also, the program has faced problem related to **regional branding** and the relative anonymity of the Finger Lakes Wine Region. To overcome this branding problem, the Finger Lakes Wine Region adopted the slogan: "Uncork New York" thus focusing on the more well-known state rather than the more obscure region in tourism and marketing material. Over time, the region has developed greater prominence incrementally.

e) Considerations for adoption in Marche region

The rural development group of the Regione Marche would be an appropriate lead for this program along with the internationalisation group. Collaboration with the provinces and the particularly the agriculture industrial district centre would also be essential. In most of the successful wine trails, an agricultural research centre plays a central role in technology transfer for the small agricultural producers to maintain showroom level production processes. The Marche region has all of the underlying elements required for this program model.

f) Further information

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4. Supporting business transmission: Nexxt Initiative and Chambers of Commerce

a) Description of the approach

"Nexxt" is a joint initiative of the German Federal Ministry of Economics and Technology and representatives the business sector, financial institutions and professions, whose aim is to create a favourable climate for entrepreneurial generational firm transfer. The Internet portal "Nexxt" provides not only information and advice, it is also the central meeting point for all entrepreneurs who want to pass-on or take-over firms. The Nexxt makes an important contribution in strengthening the culture of entrepreneurship in Germany because it provides comprehensive support in relation to the following issues:

- Partners (government, business, finance, consulting, regional partners, etc.).
- Databases: of firms, buy/sell templates for searches, consultants/professionals.
- Key topics: transfer considerations, acquisition, financing, communication, law, taxes, company checks, transmission types, shutting companies, succession FAQs.
- Examples and case studies: practical experiences illustrating different facets of transmission.
- Transmission support: newsletters, contact points, brochures, guides, portals, online tools, links, etc.
- Calendar of events (training, seminars, workshops, etc).

b) Rationale for the policy intervention

The rationale, consistent with EC policy in this area, is recognition that there are 2.1 million companies with annual sales of over euro 50 000 per annum, 94.5% of which are family businesses. Approximately 70 000 family businesses confront the issue of succession per annum. The policy intervention rests on the assumption that early preparation for succession is essential to ensure sustainability since successful transmission requires managing complex tasks and circumnavigating major challenges. Based on the above rationale, the conclusion was that it was essential for the Government, in cooperation with regional and business partners, to assist in this process.

c) Why the approach is relevant to the Marche region

The issue of inter-generational firm transfer and transmission is critical to the future of the region due to similar firm and founder demographics. There is a need to develop the sources of information, training and support measures to ensure that the challenge of transmission is handled in the best interest of the Marche region.

d) Reasons for the success or failure of the approach

In the context of the regional partners, typically the Chamber of Commerce network (Industrie und Handelskammer, IHK) provides a one-stop-shop service for entrepreneurs looking to transfer or

acquire a business. An example of such support is provided by the Erfurt IHK, which has established a one-stop-shop for entrepreneurs in the transmission phase.

e) The obstacles faced in implementation and the quality of the response taken

A key issue is raising awareness among owners of the issue and the existence of the support service. This also applies to potential buyers of existing enterprises. An awareness raising campaign, combined with proactive support by regional business partners can ensure that the target enterprises become aware and use the service, thus increasing the likelihood that target firms will survive and prosper.

f) Considerations for successful adoption in the Marche region

The Marche region needs to establish the issue of firm transmission as a policy priority and set aside the resources necessary to ensure more effective firm transmission in the future.

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5. Cultivating entrepreneurial regions: Baltic Entrepreneurship Partners (BEPART)

a) Description of the approach

BEPART is an international network partnership involving 12 institutions from different regions of the Baltic Sea Area. The lead partner is the University of Rostock (Hanseatic Institute for Entrepreneurship and Regional Development - HIE-RO) and it focuses on entrepreneurship promotion and education, especially at and by universities, which are seen as having a large potential for future regional development. The value of BEPART is the contribution to more successful stimulation of entrepreneurship, which supports wealth generation and competitiveness, since entrepreneurship is a driving force of social, technological and economic development. BEPART partners are universities, a science park and a Regional Development Agency. The aim is to generate more efficiency of entrepreneurship promotion and the development of a creative and responsible entrepreneurship culture in the participating regions.

b) Rationale for the policy intervention

The basic rationale of BEPART is that, broadly, three types of economic region can be distinguished:

- Regions with low and/or decreasing entrepreneurial competence: identified through outward migration of creative talent, weak entrepreneurial networks, few start-ups, limited innovations, etc.

- Regions with stagnating innovation competence: identified through a constant number of talents compared with competing regions of mediocre start-up activities, average innovation levels with established networks and a balance of innovative and imitative performers.

- Regions with high and/or growing entrepreneurial innovation competence: these "entrepreneurial" regions are distinguish through growing attraction for entrepreneurial personalities, growing and competitive entrepreneurial networks, high start-ups, many innovations and a general entrepreneurial spirit.

The critical policy task is to create the necessary conditions to transform regions into "entrepreneurial" regions (Braun, G. and Diensberg, C. (2007) "Cultivating Entrepreneurial Regions – Cases and Studies from the Network Project 'Baltic Entrepreneurship Partners (BEPART)", Rostock Contributions to Regional Science, Vol. 19.)

c) Why the approach is relevant to the Marche region

The Marche region may have a high density of enterprises, however, it also has a relatively low rate of start-ups and the existing firms are not particularly innovative. High firm density does not automatically translate into entrepreneurship, though the existence of the pre-existing mind-set and experiences do lend themselves to cultivating a new culture of entrepreneurship in the region, with a knowledge and skill set compatible with the requirements of the knowledge/digital economy.

d) Reasons for the success or failure of the approach

The essence of BEPART, and thus the success or otherwise of the approach, boils down to the following 10 propositions (Braun and Diensberg, 2007):

- A broad concept of entrepreneurship is a better basis for effective entrepreneurship promotion than a narrow one.

- A region can grow in entrepreneurship if the values, structures and activities for entrepreneurship are widely appreciated and supported.

- An entrepreneurial region calls for the integration of the entrepreneurial focus into many other policy fields beyond the promotion of high-tech innovation and start-ups.

- A starting point for establishing entrepreneurial regions is the development of learning, education and culture of entrepreneurship.

- Entrepreneurship education should be based on the concept of personal growth.

- Methods in entrepreneurship education need to support initiative and creativity, the acquisition of structured experience within learning, and provide laboratory conditions.

- The development of curricula for entrepreneurship goes beyond business studies.

- In order to build regional systems for entrepreneurship and innovation there is a need to develop new modes of triple helix interaction between university – business – government.

e) The obstacles faced in implementation and the quality of the response taken

- It is essential for the approach to cultivate entrepreneurial regions to be linked to the regional development strategy. Failure to do so weakens policy implementation.

- Local universities offer great potential for regional entrepreneurship generation.

- Education and specialised support-institutions are the main actors to implement effective, sustainable support for potential and existing entrepreneurs. Every region has such support institutions but it is essential for their activities to be co-ordinated.

- In countries such as example Denmark and Finland, regional policies for entrepreneurship promotion are complemented by national initiatives and programmes, thereby generating synergies.

- It is necessary to develop proactive modes of cooperation between businesses/entrepreneurs, public administration/ politicians and science/ universities (i.e. "triple-helix-cooperation").

f) Considerations for successful adoption in the Marche region

The preceding discussion covered this issue; the critical considerations from the Marche region's perspective include: integrating the entrepreneurship culture in the regional development strategy (including sufficient funding and policy support), ensuring close involvement of the educational system (primary, secondary and tertiary), ensuring close co-operation with science/engineering Faculties and close triple-helix-cooperation (businesses, public sector and academia).

g) Contact details and website for further information

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6. Assisting start-ups and spin-offs: The TOP-programme (University of Twente)

a) Description of the approach

The Temporary Entrepreneurial Positions (TOP-programme) is the Twente region's flagship programme for entrepreneurship promotion. The University of Twente started the TOP-programme in 1984 to help graduates, university personnel and people from business life to start their own company. The total number of spin-offs has doubled in the region with the help of the TOP-programme: 320 businesses have been created, 75% of which are still active.

Potential entrepreneurs must fulfil the following criteria:

- Have a knowledge-intensive or technology-oriented idea/company that can be linked to the fields of expertise of University of Twente.
- Be available for a minimum of 40 hours a week.
- Develop a business plan that meets the qualifying requirements.

The potential entrepreneur makes contact with one of the TOP-programme coordinators. A check is made whether the business idea fits within the TOP-programme, including the linkage of the idea/company with the expertise of the university. They then proceed to a concrete business plan discussed with the TOP coordinator and thereafter with the TOP-Committee, which determines whether the potential entrepreneur is accepted. The TOP-Committee also evaluates the progress made by the entrepreneur.

b) Rationale for the policy intervention

Dutch universities have three tasks: education, research and service to the community, the latter includes knowledge and technology transfer. The process of knowledge and technology transfer should bridge the gap between basic research (the core activity), applied research (tailor-made for industry) and society. Although this works well with large firms, in practice it is difficult to achieve with SMEs. The TOP-programme is a bridging project set-up to start knowledge-based companies with the assistance of the University of Twente. There is a need to intensify spin-off and start-up support in the Marche region, partly to increase the dynamism of the local economy and to diversify it. The current focus is too limited since engineering students are only part of the equation. Other potential entrepreneurs include academics themselves, as well as those not necessarily affiliated to the university, but with business ideas which have links and synergies with the research activities performed in the universities.

c) Why the approach is relevant to the Marche region

The issue of start-ups has a low policy priority in the Marche region; the focus is almost exclusively on supporting university student spin-offs, albeit with underwhelming results at both the University of Camerino and Technical University of Mache. Whilst Italian law creates barriers to involvement of academic staff (the professorial patent system undermines the potential for commercialisation of academics' ideas, patents etc.), there is nevertheless great potential for generating more innovative, fast growth spin-offs, supported by the region. Review of the TOP-

programme would enable ideas to be developed and customised to the specificities of Italian law and peculiarities of the Marche region and its four universities.

d) Reasons for the success or failure of the approach

TOP-programme is tailor-made to specific needs since no two entrepreneurs are alike and each business idea has its own requirements. The success of the approach is based on three aspects:

- *Support for the recognition of opportunities:* the focal point is the potential entrepreneur. The idea for a company often emerges during the period at the university and the potential entrepreneur wants the support of the university to bring it to fruition. The idea is transformed into a business plan which includes the specific financial and co-operation needs.

- *Support during the preparation of the exploitation of opportunities:* the entrepreneur gains access to a number of support facilities, not least:

  - *Physical space:* work space with office facilities, laboratory facilities, etc.

  - *Scientific support*: every entrepreneur is linked to a scientific staff member who acts as a mentor and uses his/her network to facilitate access to other companies, etc.

  - *Social environment:* the work space is in the immediate proximity of a scientific department at the university. This is important for the entrepreneur; knowledge and experience are transmitted via informal contacts and participation in academic activities.

  - *Marketing advice:* the starting entrepreneur must sell a product and/or service and learns from experienced entrepreneurs with knowledge of the sector and/or market. The TOP-committee acts as a reference source for identifying such a person.

  - *Personal loan:* participants get access to an interest-free loan EUR 20 000 which provides a minimum income during the first year of the firm. The loan must be repaid..

  - *Network meetings:* On a monthly basis all TOP-participants are invited to meet for a certain topic. The topic is important, as is the fact that they can share experiences.

- *Support during the exploitation phase:* the TOP-programme is limited to one year but not every company will succeed within such a short period of time. The University of Twente has various other indirect instruments to support the entrepreneur in the next phase, such as:

  - Technology Circle Twente.

  - Kennispark Twente.

  - Business Technology Centre.

  - Business and Science Park Enschede.

  - TSM Business School.

  - Netherlands Institute for Knowledge Intensive Entrepreneurship.

– InnoFonds, a regional venture capital fund for young starting firms, etc.

e) The obstacles faced in implementation and the quality of the response taken

A key issue is to ensure that the whole of the university benefits from initiatives such as the TOP-programme. Because it has been active over 25 years, it is well known and all departments of the University of Twente have had TOP-programme start-ups. These vary from educational technology (e.g. e-learning), high-tech companies producing (e.g. intelligent sensors and lasers) to consultancy firms (e.g. specialising in subsidy advice). The TOP-programme has developed a broad basis within the university and maintains close links with former TOP-entrepreneurs to assist the new ones. Information on the TOP-programme was derived in part from G. Blaauw, A. Groen, G. Hospers, P. Kirwan and P. van der Sijde (2007) "Economic Development and Entrepreneurship Promotion in the Region of Twente"

f) Contact details and website for further information

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ENTERPRISE DEVELOPMENT

7. The Dutch Aunt Agaathe loan

a) Description of the approach

Small enterprises rarely need venture capital or business angels. Often a limited amount is enough to start or continue their business. In Europe, it is estimated that 60% of the businesses can start with less than 50 000 euros. However, financing from banks can be difficult due to the absence of rigorous guarantees and the starting companies don't have a proven track record yet. The alternative of getting grants, if they are available, is often complex and bureaucratic.

In the United States, 45% of all businesses start without bank financing, grants or equity financing. They are mainly financed by so-called informal investors having a relation with the founder. The target group is micro-companies that are destined to stay tiny (mice) but also small

companies that grow to become superstars (gazelles). For instance, according to an analysis of the Inc500 "America's fastest growing private companies", 16% started with less than $1 000, 42%with $10 000 or less and 58% with $20 000 or less. It is very unlikely that companies starting with $20 000 or less received seed money from business angels or venture capitalists. One third of the same 500 companies raised start-up capital "by tapping assets of family and friends."

The scheme, initially set up in the Netherlands, aims to stimulate people to provide loans to start-up enterprises. If people invest in start-ups using the initiative, the providers get fiscal advantages and there is a risk sharing.

Table 19. The Aunt Agaathe loan

Type of loan	Subordinated
Target group	Start-up and young companies
Amount	Between 2500 and 60 000 euro
Interest	To be agreed between both partners; maximum the legally interest
Formalities	One page to be signed by investee and investor and to be added in fiscal declaration; no red tape
Advantages for investee	• Easy and cheap money • Quasi capital: easier access to bank finance • Founder remains 100% owner of his business; no loss of control
Advantage for investor:	Fiscal advantage: the interest per year on the principle
Risk sharing	In case of loss (bankruptcy, liquidation) 1/3 paid by government
Main motivation of investor	Helping a relative at low risk

To summarise, the big advantage of money invested by relatives in the businesses is that the founder remains the 'big boss of a small company'. He owns 100% of the shares. Moreover, the money invested in the company, is invested as quasi capital. This is a kind of financing whereby the investment is not considered as debts, neither as own funds but somewhere between both. Often this way of financing is called mezzanine referring to the level between the ground floor and first floor.

b) Results of the approach

On the budgetary impact, no data is available as no specific budget has to be foreseen as an expense. Following the Dutch authorities and based in similar experiments in other countries, the default ratio is very low given the affective relation between the investee and the investor. In the assumption that 50 000 loans are concluded with an average amount of 50 000 euro and a fiscal incentive of 2% on the invested amount, the total budgetary cost is half a million euro a year. Taking account that this allows the creation or development of 50 000 companies, the scheme is therefore very good value for public money.

c) Reasons for success

The system is very simple:

- Limited red tape: one page to be filled out and available as intelligent document
- No previous agreement needed from one or another authority
- No public announcement of the companies that benefits from the system

Moreover, the rules are objective and easy. Everyone can easily calculate the yearly fiscal advantage and the loss given default.

d) Obstacles faced and responses taken

The biggest obstacle is that it is difficult to estimate accurately the public cost of the operation as the full cost depends on its success and on the default. Therefore the scheme should be combined by better coaching of new entrepreneurs in order to minimise bankruptcies.

e) Considerations for adoption in Marche region

The conditions for the system to be successful, can be summarised as follows:

- Region characterised with strong family or affective ties
- A lot of potential entrepreneurs
- A prevailing loan culture

At first sight all conditions are fulfilled for such a scheme to be successful in a region like Marche. Moreover such a scheme will increase the own funds level of starting companies as the subordinated loans as, from the Basle II point of view, considered quasi capital. Therefore the capital input through the scheme will facilitate access to bank finance.

f) Further Information

Unfortunately almost all information on this scheme is in the Dutch language. See official web of the Dutch fiscal services:

http://www.belastingdienst.nl/zakelijk/ondernemen_ondernemerworden/ondernemen_ondernemerworden-16.html.

8. The Belgian Notional Interest Scheme

a) Description of the approach

For the elephants, this learning model will show how through fiscal measures, companies could ameliorate their balance structure and hence their competitiveness through a notional interest scheme, as the one which is applicable in Belgium.

Based on a protocol from the European commission, Belgium introduced the notional interest concept. "Notional" interest deduction is a unique tax measure in international law intended to reinforce Belgium as an attractive location for local and international investors. This deduction narrows the discrimination between funding with equity and funding with loans, as currently, interest paid is deductible for the borrowing company while dividends paid are not.

The notional interest deduction is applicable since assessment year 2007 (income of 2006). The deduction equals a percentage (based on the return on a 10-year state bond – 4.473% for assessment year 2010) of the equity (including retained earnings), determined according to Belgian accounting law. Participations in other companies and real estate used by directors have to be deducted from the equity. The unused deduction is transferable for seven years.

Together with the repeal of the 0.5% registration duty on capital contribution since 1 January 2006, this measure benefits small- to medium-sized enterprises (SMEs) and larger companies (national and international) by encouraging the strengthening of their equity.

Table 20. Notional interest deduction

What?	Deductible amount that equals the fictitious interest cost on the adjusted equity capital including earning retentions
Impact on taxes	Reduce taxable base when making investments from their own resources.
Eligibility	All companies that are subject to Belgian corporate income tax, or non-resident corporate income tax
Amount reduction	Fictitious interest cost times the adjusted equity capital
Equity capital	Capital, Share premiums, Revaluation gains Reserves, Carry-forward of profits or losses, Capital investment subsidies
Adjusted equity capital	Interest rates for 10-year Belgian government bonds (4.473% in 2009)
Impact on balance sheet	Protects the capital of companies, so they can be stronger and more independent
Impact on FDI	Major tool for attracting foreign investments

How does the Notional Interest Deduction work?

Let's take a company with profit before taxes of 50 000 Euro and a high solvency of over 80%. The Belgian company tax, amongst the highest in Europe, is 33.99%. Due to the notional interest rate the effective tax burden will be much higher, depending on the equity.

Table 21. Balance sheet of the Company

Assets		**Liabilities**	
Receivable	1 200	Equity	1 000
		Debts	200
Total assets	1 200	Total liabilities	1 200

Table 22. Impact of Notional Interest: example

	Prior to notional interest	**Under Notional interest regime**
Profit before taxes	50	50
Notional interest	-	44.73
Tax base	50	5.27
Taxes (33.99%)	17	1.8
Effective tax rate	33.99%	3.58%

In the example at Table 13 the tax saving is substantial reducing the effective tax from 33,99% to 3.58%. The saving depends of course on the level of the own funds in comparison to the profits.An empirical analysis based on the data of the fiscal year 2008, showed that the average effective rate to the 500 biggest companies is Belgium was 13%, or 20%-point below the nominal rate.

In order to make it easy for companies, a simulator has been installed allowing companies at any time to calculate the impact of the notional interest deduction on their business[16].

b) Results of the approach

In 2008, 4 out of every 10 Belgian firms benefits from the scheme. Half of the over six billion worth of interest deduction went to SMEs, 37% to big companies and the remaining to the banking sector. The measure is now a major factor in attracting foreign investments. The success of the measure meant that the cost was three times higher than initially budgeted. This is one of the inconvenient of the measure, as in contradiction to subsidies it does not work with closed envelopes. This means that the total cost of the operation can only be known at the end of the fiscal year when all companies have entered their fiscal declaration. It is estimated that for the year 2010, the total fictive interest reduction would increase to 10 billion euro[17]. At a tax rate of 33,99% this implies a non-revenue of around 3 million euro.

c) Reasons for success

- easy access: no previous demand needed
- entrepreneurs can in this way way less taxes just by increasing the capital of their companies
- accountants have all had information sessions about the new scheme
- administratively no action has to be taken. It is sufficient to increase the capital

d) Obstacles faced and responses taken

The biggest obstacle for the implementation is to obtain a political agreement. Some might claim that such an operation is a substantial reduction of taxes for people having a lot of money.

The response to that is that we should push those people to use their money for the benefit of the regional development instead of doing private placement (often in offshore countries). By injecting their money in enterprises they take a high risk that is partly rewarded by the notional interest.

Moreover the notional interest will provoke that less dividends are paid to the shareholders as dividends paid out reduce the level of own funds and hence reduces the fiscal benefits.

e) Considerations for adoption in Marche region

On of the major obstacles for the development of the enterprises in Marche is their systemic undercapitalisation. The notional interest is therefore an ideal instrument to push entrepreneurs, ex-entrepreneurs and venture capitalist to inject new capital in the enterprises. This would

[16] The becefi calculator. See www.kefik.be
[17] Trends Top 5000, 10 December 2009.

ameliorate the financial dependency ratio and therefore this would make access to credits much easier. It is in my view one of the best ways to cope with the Basle II requirements.

Of course, this scheme can only be fully implemented if the Marche region has full fiscal autonomy on corporate taxes.

f) Further Information

Invest in Belgium

Web: http://invest.belgium.be

9. The Spanish Business Angel Academy

a) Description of the approach

For the gazelles looking for individuals able to finance and coach them in a risky challenge of setting up a new company, often technology based, but always with a great growth potential. For those companies a business angel academy seems a very good approach and the Barcelona experience can lead the way.

Estimates in the UK and the US suggest that business angels fund an annual amount of two to five times more money to entrepreneurial firms than the venture capital industry. If one looks to the number of enterprises, it is estimated that business angels fund between 30 - 40 times the number of entrepreneurial firms financed by the formal venture capital industry.

Besides classical factors such as investors not seeing enough deals that meet their investment criteria and the poor quality of the investment proposals that they receive, the most important constraint to angels' ability to invest is that they are often unable to negotiate acceptable investment terms and conditions with entrepreneurs.

Business angel investment is indeed an activity marked by the increasing complexity of businesses and the environments in which they operate. An entrepreneur just on his own is more and more a rarity and new, high potential businesses require a broad range of capacities, hence such businesses are often initiated by a team of entrepreneurial individuals.

The lack of competency amongst investors might be relevant to the underdevelopment of the informal market. Investor education might be a factor inducing a person to move from potential to active investor. Considering angel investment as a specialised risky asset class in households' portfolios, educational policy measures could be targeted at the informal market in order to increase the propensity of individuals to invest.

It appears an important contributor to this knowledge gap is the lack of an adequate understanding of the investment process, such that business angels are impaired from taking advantage of opportunity investments as they arise. While entrepreneurs are often trained to elaborate and present their business plans to investors, by a business angel network, and are advised on what to expect from investors, there is no training for business angels.

The angel investment process requires the synchronisation of the different components, whose objective is to achieve overall success. From this point of view, the process implies the participation of entrepreneurs, advisers, intermediaries and angels, all with different characteristics and personalities. Hence, an important factor for success is the management of the investment process, whereby the entrepreneurial and interpersonal skills are elements as decisive as the provision of capital.

According to the above argument, business angels are (in addition to the financial capacity that they provide): individuals who have access to investment opportunities; are skilled in discerning the potential of those investment opportunities; and are eventually capable of managing the complete investment flow to exit. Hence, two resources important to a business angel's investment activity can be identified:

- networks, whether informal or formal, which provide the investor with investment
- opportunities or allow for the growth of co-investment operations; and skills that will provide the investor with the capacity to assess the risk of investment opportunities and manage the process.

b) Results of the approach

First experience with a business angel academy happened in Barcelona. Since, Business angels' academies were set up in Paris and in Louvain-La-Neuve.

Table 23. Barcelona Business Angels Academy

Organisation	IASE Business School
Content	Knowledge on valuation of a company, shareholders agreements, syndication, etc.
Target group	Virgin and active regional angels//entrepreneurs
Main source of their experience	Traditional sectors manufacturing textile financial services, construction and distribution
Potential interest for investments	In the sectors they know best, where they have been working in; a certain suspicion of high-tech ventures.
Motivation	Interest rates for 10-year Belgian government bonds (4.473% in 2009)
Impact on balance sheet	• returns on investment • personal challenge to invest in the region • social responsibility of coaching
Impact on FDI	Major tool for attracting foreign investments

The two types of business angels, active business angel who take an eager interest in the company, and passive angels, who take a more apathetic approach, were both evaluated by the Barcelona Business Angel Academy and it was found that both types of business angels felt the need to improve their investment skills. The survey carried out amongst participants at the Barcelona business Angel Academy provides strong support for the proposition that there are potentially different training modules for active and passive investors.

c) Reasons for success

Virgin business angels are affected by the lack of knowledge in the first and decisive stages of investment: the recognition and evaluation of opportunities. Therefore, they are hampered in carrying the process further. Active angels primarily value training in the area of new business valuation. Indeed, it is reasonable to think that virgin angels have not been able to overcome the initial difficulties of the investment process, the identification of opportunities, while active angels recognise their main difficulties once they are involved in the investment.

Despite time constraints, angels value continuous education and are willing to follow more structured and longer programmes than the majority of those available in the market. The programme offered at the Business Angel Academy provides an entry route for virgin angels. There is a significant learning curve associated with appraising and managing investment opportunities, and angel syndication provides a means for virgin angels to gain experience while taking fewer risks than if investing alone. As a consequence of some important characteristics - namely, the long academic period, frequent working sessions with rotating small groups, and required regular attendance - the programme promoted the creation of a very cohesive group. Eventually participants discussed joint participation in several investment opportunities. The key success factors of such an academy are above all the quality of the participants and the motivation of the organising body. A small subsidy of around 50 000 Euros a year is sufficient to start the academy. A well-run academy should be self-supporting after three years

d) Obstacles faced and responses

There should be open leading business school that takes up the program stating clear targets and developing a realistic methodology.

The business school should have sufficient notoriety and be backed by local players, such as the chamber of commerce, in order to motivate potential business angels to take part of the program.

The most used argument for not doing so is lack of time. The answer to that is that the participation to the academy will allow to win a lot of time in future negotiations.

e) Considerations for adoption in the Marche region

The design of a business school capability to upgrade entrepreneurial skills has to be implemented recognising the difficulties of narrowing down the profile of investors, their individuality and their tendency to operate beyond official programmes. The academy should enable investors to increase their activity, given the flow of deals emerging through the business angel network. It should not only mobilise virgin angels and increase the activity of the existing angels, but should be a tool for promoting syndication. Especially when a significant degree of financing is needed, and in the absence of a mature venture capital market in Marche, a greater level of syndication is a must in order to cope with the equity gap problem and enable the investee to survive until the company is ready for traditional bank financing.

f) Further Information

IESE Business School of the University of Navarra is in *Barcelona* and Madrid.

Web: *www.iese.edu/.../BusinessAngels/Angels/IESEBusinessAngelsnetwork.asp* -

CONTRIBUTION OF RESEARCH ORGANISATIONS

10. Triple-Helix Co-operation in Scania, Sweden

a) Description of the approach

The Triple-Helix cooperation in Scania is one of the best examples internationally demonstrating that the Triple-Helix approach can be more than just a metaphor and be highly operative in promoting regional development through a close relationship between university, industry and regional government. While also other Swedish regions have strong research universities and international competitive industry, what is rather unique with Scania is the proactive regional government. The structural background for this the region's status as a county with relative autonomous regional governance power. The reason for achieving such a position, which implies taking over responsibility of tasks such as planning and investment in infrastructure, the hospital sector and regional policy from the national agencies in the regions, was a merger of the two original counties in Scania, Malmöhus and Kristianstad län, in the early 1990s. This relative self government position has given the county more windows of opportunity than is normally the case of regions in the Nordic countries..

b) Results of the approach

As already indicated there have been very positive results of the merger. Here only three examples will be mentioned: the Interreg project initiated by Lund and Copenhagen universities to establish the Medicon Valley Academy/Alliance, which was strongly supported by Region Scania. This has resulted in Medicon Vallay today being among the 3-4 largest biotech regions in Europe when it comes to products in the pipeline, and, thus, it ranks high in the hierarchy of global bioregions. The second example is being part of one of the three first VINNVÄXT winners. VINNVÄXT is a VINNOVA policy initiative of building regional innovation system with a ten year support to promote global competitive industries. The VINNVÄXT initiative in Scania is focused on food (functional food, convenient food, international marketing of food), which all are areas where Lund University has a strong research base. The initiative is called 'Food Innovation at Interfaces. The VINNVÄXT programme requires that such initiatives have to be constructed around a triple helix involving active participation from industry/the business community, research organisations and public administration. The third example is an effort of promoting wireless communications and internet based services in Scania and the neighbouring county of Blekinge called "Mobile Heights". Two of VINNOVA's Industry Excellence Centres constitute the base for this effort, which is based at Lund's university technological institute, but is also strongly supported by key industrial partners, such as Sony Ericsson, and Region Scania. The national Swedish Governmental Agency for Innovation System, VINNOVA, is involved by funding the two Industry Excellence Centres over a ten years period.

c) Reasons for success

A successful Triple Helix cooperation requires the presence of strong and able partners, i.e. a good university, competitive industry and a proactive regional government. Scania has all these actors present in its regional innovation system. Lund university is the largest university in the Nordic countries and among the stronger in Europe, and the region has a number of international competitive industrial sectors, e.g. IT (Sony Ericsson), biotech (Medicon Valley) and the emerging food sector, which traditionally has been very large and strong in Scania, but which was in urgent need of restructuring and upgrading when the VINNVÄXT initiative was taken. However, as already said above, the proactive attitude of Region Scania has been a very important element of the success. In

addition the social, spatial and institutional proximity that the regional level offers is very important in the formation of such collaboration.

d) Obstacles faced and response taken

The main obstacles have to do with concrete governance challenges, especially in the VINNVÄXT programme when it became operational. However, in the process of collaboration for applying for national and international funding the cooperation seems to function very well. There is many statements about how important and well-functioning the cooperation between the Triple Helix partners in Scania is.

e) Contact details and website for further information

- General presentation of the Scania Region:

Coenen, L. and Moodysson, J. (2009): Putting Constructed Regional Advantage into Swedish Practice. *European Planning Studies*.

Benneworth, P., L. Coenen, J. Moodysson, B. Asheim (2009): Exploring the Multiple Roles of Lund University in Strengthening the Scania Regional Innovation System. *European Planning Studies*, 17, 11, 1645-1664.

- Presentation of Medicon Valley:

Asheim, B., Coenen, L. and J. Moodysson (2008), "Medicon Valley", in Potter, J, and Miranda, G. (eds.), *Clusters, Innovation and Entrepreneurship*, OECD, Paris, pp. 131-154.

Presentation of VINNVÄXT in general (in addition to the specific presentation of the VINNVÄXT project in Scania found in the above references): www.vinnova.se

Asheim, B. (2008): Regional Environment for Innovation and Entrepreneurship, in Potter, J, and Miranda, G. (eds.), *Entrepreneurship and Local Innovation Systems in Cantabria, Spain*. OECD, Paris, pp. 177-180.

Presentation of "Mobile Heights": http://www.vinnova.se/Verksamhet/Informations--och kommunikationsteknik/Starka-forsknings--och-innovationsmiljoer/Mobile-Heights/

11. Dedicating education and research to the needs of local industry: Vestfold University College and Gjovik University College, Norway

a) Description of the approach

Norway has a very decentralised landscape of HEIs. In addition to its 7 universities and a business school at the same academic level, every county has its regional university collage with an applied research organisation. The original idea of these regional collages was to offer education and research dedicated to the needs of industry and public administration in the region. A rationale for this is that the Norwegian industrial structure is dominated by SMEs, which better could be served by local educational institutions.

Cooperation between university and industry can either start on the basis of requests from the local industry of dedicated educational programs and research cooperation to increase the absorptive capacity and competencies of the industry, or on the basis of a strong R&D milieu at the regional collage creating potentially useful knowledge, which it would like to see exploited in the form of new innovations by local industry, either existing or newly emerging firms. The case studies of Gjövik university collage and Vestfold university collage are detailed reflecting their good experience in developing industry-university cooperation.

In the Gjövik region both the military and the national telephone company (today called Telenor) had activities working on information security. In 2002 the first Nordic Master program in information security was established and in 2008 this was followed by the establishment of a PhD program. In 2003 this R&D milieu got the status as an ARENA program, which is an innovation support program financed by Norwegian Research Council and Innovation Norway. In 2008 a cluster initiative called "Security Valley" was launched to promote the commercialisation of the knowledge created by the R&D milieu and the knowledge park in Gjövik. Thus cluster initiative represented a regeneration of an earlier cluster initiative, which had stagnated.

The second example from this region is the bachelor degree in technology design which is a new form of educational model where 31 firms take part in the development of the program. This program is directed to a regional cluster of light metal and engineering firms located in the proximity of Gjövik. This is an old regional cluster previously based on some large company, which now has totally restructured by going through a diversification process which primarily was driven by SMEs. A master program in mechanical engineering is now under preparation as well as research cooperation which will also include the Norwegian Science and Technology university in Trondheim as well as other regional university collages.

One of these university collages is the Vestfold university collage which offers a dedicated master program in microsystem technology aimed for the local industry. This is a regional cluster with a combination of larger system firms within this technology and local subcontractors and suppliers.

b) Results of the approach

The master program at Vestfold university collage has supplied very relevant educated people for the local industry, both large and SMEs, and the formation of the master program has also implied an establishment of a R&D milieu, which has been very valuable for the upgrading of local suppliers and subcontractors. This has secured a continuous competitiveness of these SMEs.

The bachelor program in technology design at Gjövik university collage has also provided the local industry with well educated people, which has strengthened their competitiveness. The R&D milieu in information technology at Gjövik can demonstrate quite impressive results. NISlab, which is the research and educational unit for innovation security has been established at the university collage, and is today a leading Nordic competence milieu within this area; an incubator for this area is established in the Gjövik knowledge park, and the cluster initiative Security Valley Network of firms which run innovation project within this area has been formed. Taken together this has created a strong research and innovation milieu within information security.

c) Reasons for success

The presence of entrepreneurial stakeholders either from the R&D milieu or from local industry has been of strategic importance for these success stories. In addition relevant national innovation

support program has been very important. The regional government has also been relatively proactive, as they strongly support the establishment of an inland university through cooperation between Gjövik university collage and two other university collages (one in the same county and one in the neighbouring county

d) Obstacles faced and response taken

The major obstacles for successful outcomes are either lack of entrepreneurial capacity in the region and lack of high and relevant competence at the R&D milieus. The main problem in the examples referred to above is primarily lack of entrepreneurship to exploit the new knowledge created at the information security milieu. The launching of the Security Valley Network is an attempt of improving of this shortage. The quality of the R&D milieu has been secured by a successful recruitment of foreign researchers and a building up of a strong international research network within this area of research.

12. Zhejiang University in its Regional Innovation System, China

a) Description of the approach

Zhejiang University is a top national university which was established in 1897. It is located in Hangzhou, where the Yangtze River Delta economic circle, China's most economically is developed region. During the development process of more than one century, Zhejiang University has made crucial contributions to national and regional development. Especially in recent years, oriented by the national strategy and regional demand, Zhejiang University takes proactive measures to server regional industrial structure adjustment and economic transformation and upgrading, and great progresses have been achieved.

b) Results of the approach

- Closely linked to regional demands implementing major projects for the transformation and upgrading of the regional economy

Zhejiang University implements key national projects and outputs to local regions, such as the "water pollution control and treatment", and "R&D of new drug", and other key national scientific and technological projects. Zhejiang University also strengthens the cooperation with the national leading enterprises, including the establishment of experiment and demonstration bases to speed up the process of scientific and technological research and promote the transfer of technological achievements. In cooperation with Hangzhou city Zhejiang University has built demonstration areas in Hangzhou, and launched 17 major projects. The university has also set up the Industrial Technology Research Institute for China's industrial economy to provide important scientific and technological support for the high-tech industry.

- Build the services platform of innovation for the strategic industries

Under the support from local government, Zhejiang University tries to build strategic alliances for industrial innovation and public innovation service platforms. For example, Zhejiang University has participated 15 regional innovation service platforms.

- Pay more attention to the transfer and industrialization of science and technological outputs.

Zhejiang University helped in industrializing many national key scientific and technological outputs in the local region contributing to promoting economic transformation and upgrading. For example, digital textile technology was developed by Zhejiang University and has been successful implemented in more than 5 000 enterprises, which has greatly promoted the technological progress of China's textile industry. Furthermore, industrial automation technology developed by Zhejiang University has been implemented in more than 5 000 large and medium enterprises which have made outstanding achievements in energy conservation. EPA has also received the first international automation standard in China's automation industry. Zhejiang University has launched more than 4 500 industrialization projects for more than 3,000 enterprises across the country. Referring to the mode of European Innovation Relay, Zhejiang University also builds international branch service networks for technology transfer. At present, Zhejiang University has established more 25 regional technology transfer agencies all over the country.

c) Reasons for success

- Providing large quantities of high-quality talents for regional development

Zhejiang University provides large quantities of high-quality talents according to the demand of regional development in recent years. Firstly, Zhejiang University does a lot of training and education programs for the local economic transformation and upgrading. More than 40 seminars were organized, and more than 6 000 managers were trained. Secondly, many innovation service teams have been organized, such as in the textile industry, and an innovation service team for digital textile technology and equipment has been set up since 2008, and more than 150 textile enterprises have been benefited from this service team in intelligent textiles, smart high-speed wide flocking machine and other advanced technology and equipment. Compared with equipments imported from Germany, France, and the United Kingdom, respectively 80 million, 16 million Yuan RMB and 1.5 Yuan million RMB were saved.

d) Obstacles faced and response taken

This clearly seems to be a success story due to the fact that all stakeholders involved, i.e. the Triple Helix constellation of university, industry and the city government, are very committed to the project. Hangzhou is located in the most developed and dynamic regions (the same region as also Shanghai is located), and it is the city-region with the highest frequency of private enterprise in China. This entrepreneurial tradition also explains why this cooperation has worked out so successfully.

GOVERNANCE AND ENVIRONMENT

13. North Jutland clean technologies support

a) Description of the Approach

In this case we see a region of Denmark that has grasped the opportunities offered by the Green Economy over a period of some thirty years. This began with the first experimental wind turbines, production of which began in the early 1970's. Utilising technical knowledge from related and

traditional regional industry such as manufacture of agricultural equipment and propeller-making for the shipbuilding industry, the Danes produced a superior, more innovative new technology solution to the problem of energy generation from wind turbines than the main competitor region, which was, at that time, California. The Californian model came from propeller-driven aircraft design while the Danes modelled theirs on the shapes of ploughs and ship's propellers. Learning to point three blade propellers downwind rather than two blades upwind – as typically occurred with Californian technology – proved the superior design. Now local business *Vestas* is the biggest in the world with a 40% global market share.

Box 5. Flexenergie knowledge-sharing network, DK

- Strategy to design and build 40-50 renewable Energy Local Power Stations
- 5 design projects – one in Thisted (Fig.2)
- Geothermal, wave, waste, biogas, biomass, engineering etc. firms
- Partners include Vatenfall, (Swedesh energy generator), Aalborg University., Exergi (local energy design consultancy), Velux-Arcon (local heating and cooling systems)
- Key markets: Emirates, Spain, Russia, East Europe
- Local power generation projects:
  - *Brønderslev* (Vatenfall's natural gas + biogas mix)
  - Jammerbugt (Geothermal + biogas energy mix)

Thisted (Fig 2.) (solar, wind and wave energy)

b) Rationale for the Intervention

The next steps were the evolution of specialised skills in related industries such as solar energy, biomass and biogas, wave and other marine energy, and geothermal energy. The Danish Ministry of Education instituted some new inter-disciplinary engineering degree courses in recognition of the different engineering knowledge mixes involved in transversal industries like renewable energy. There were also subsidies, often to consumers, to invest in renewable energies in these times. These consumer subsidies lasted thirty years but subsequent tax revenue from sales have more than paid the subsidy back to the Treasury.

c) Relevance of approach to Marche Region

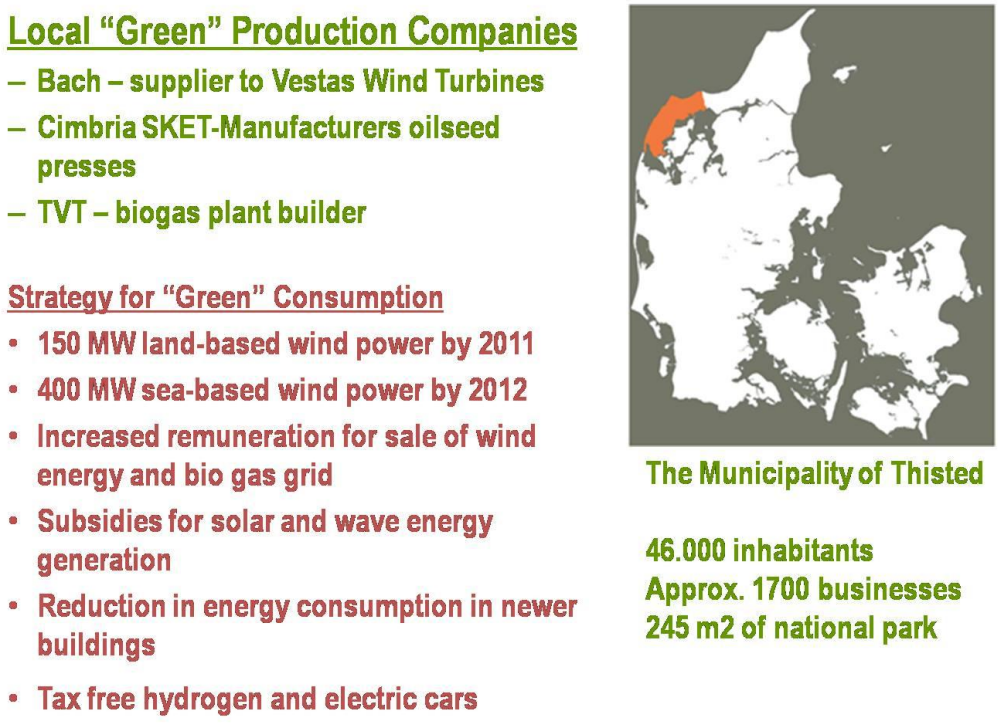
There are three reasons why this model is of relevance to Marche region. First, Denmark, particularly North Jutland, is a region dominated by SMEs that can often be found in clusters. Thus the wind turbine industry, though by now dominated by large local firms like *Vestas* or inward investors like *Siemens*, began as numerous geographically proximate SME districts. Second, subsequently, established firms like *Grundfos* and *Danfoss* both in engineering began experimenting with, then producing green engineering products. In *Grundfos*' case this also involved lobbying the EU to get tougher standards on the energy efficiency of products like industrial heating and cooling

pumps. Other specialist firms like *Velux* (windows) and *Logstor* (pipework) began to pay attention to the renewable energy sector and by the 2000s a network of firms with many complementarities had evolved. This network is now called *Flexenergie* and specialises in the manufacturing of district heating and cooling systems. These are produced for the local market and export markets. They burn combinations of biomass or biogas in combination solar, with wind, sea or geothermal power. Such flexibility is required because perhaps solar or wind energy is inadequate at particular periods and the customised package can compensate for this by bringing other energy forms online as required. Third, as shown in the next section, this was a mix of top-down responsiveness and bottom-up business initiative. The governance process, involving representation of industry needs to government and the EU, was largely industry-led but required government responsiveness regarding changes to regulations and standards (i.e. facilitating green production niches).

d) Reasons for success

Markets have expanded to the Middle East, India and China as well as southern and Eastern Europe. Recently a regional consortium won a Euro 4 million contract with the regionally-managed Danish *VaxtFonden* (User Driven Innovation Fund) initiative to conduct five advanced projects into renewable energy combinations (Box 3). Such networking and transition into green engineering is suited to Marche region and is already practised by *Loccioni*. The approach very much sprang from the firm side rather than government. Thus there was only moderate government support, mainly through consumer subsidies, which enabled, for example, farmers to invest in renewable energy in the form of early wind turbines. The opening of inter-disciplinary engineering training similarly followed rather than led the processes described above. Nowadays there is, since 2007, more regional influence following the establishment of Denmark's five regions. North Jutland region manages the "User-driven Innovation Fund" that allows *Flexenergie* to design next-generation renewable energy mixes for district heating and cooling schemes.

Figure 2. Thisted, Denmark



e) Obstacles faced and response taken

It is important to understand that this exemplar emphasises more the successful identification of the Green Economy by firms than the leading role of governance and policy in achieving the described outcome. But firms were hampered in their implementation of plans by regulatory, standards and financial constraints. Despite these difficulties, Thisted is North Jutland's second community after the island of Samsoe, to become wholly independent of fossil fuels in its energy use. It also has firms producing for renewable energy supply chains, so it is sustainable in production and consumption. As noted above farmers in some cases have diversified into energy production from biogas, the surplus energy from which they sell to the national electricity grid. Most of this initiative in Samsoe and Thisted has is at the initiative of the local Communal government.

f) Consideration for successful adoption in the Marche Region

Evidently, the achievements of the North Jutland renewable energy sector and, more recently still, the rise of wholly or largely sustainable communities, rest upon three things. First, a vision was formed by community leaders and entrepreneurs of the "Green Economy" and 'Green Community'. This is something Marche firm *Loccioni* has also done. Second, strategy was formulated at the firm and community level to pursue this vision. On important occasions this involved interacting with government to get better business conditions in support of green innovation. Third, much of the strategic niche management that allowed the industry to grow and the communities to be laboratories for renewable energy was because of a "golden thread" of policy that began in 1970, or possibly earlier, recognising the power and importance of demand-driven innovation from public bodies, in many cases, through public procurement, consumer subsidy and regulatory change.

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14. Wales Sustainable Development Strategy

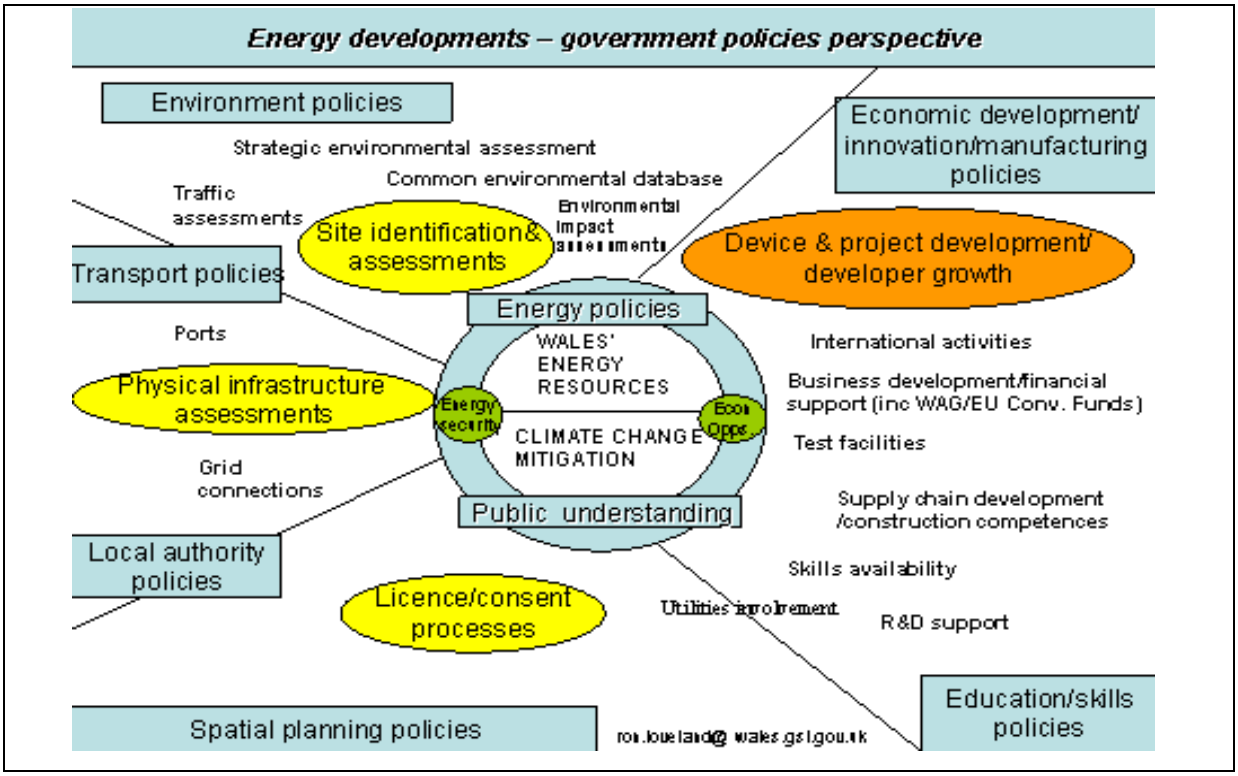
a) Description of the Approach

This case refers to a governmental rather than entirely governance setting, where for political reasons the government of Wales in 1999 adopted a sustainable development policy across all its government policy areas of responsibility. This draws attention to the importance of developing matrix management structures so that every policy department pays attention to this imperative in its policy deliberations. Here, in an issue based governmental setting, there will be, by definition, relatively low governance in the modern understanding of external advice, lobbying and pressure of various networked kinds. Hence, external networking and learning capabilities may be called upon less than envisioning, leadership and co-ordination internal to the administration

b) Rationale for the intervention

This may be a benefit in that various layers of "participation" are taken out but ability to leverage "consensus" and social capital are also weakened. Such a model looks rather like the real case presented graphically in Fig. 3. It is important to notice that this is fundamentally a government rather than a governance model. The task of achieving "joined-up government" is one of the great challenges of contemporary administrations that have ballooned in scale and responsibilities (Fig. 3).

Figure 3. Green policy joined-up government model



c) Relevance to Marche region

Accordingly, as the lines on the diagram in Fig. 3 indicate, it is the inter-connections through inter-departmental committee structures and task forces that seek to ensure that policy coherence is manifest at all times. It would be a mistake to believe that the aspiration is fulfilled at all times and with equal intensity since circumstances change and other priorities move up the policy agenda. However, in the absence of the same basic structure underlying all policy-making the overall policy effect would be diminished.

d) Reasons for success

The three main reasons for success were. First, in 1999 the Welsh government adopted the policy that every area of its responsibility must be based on the principles of sustainability. This was historic and may be the first instance of the adoption of such a pervasive policy principle throughout government. Second, this vision enabled the government to be perceived as a global but also local leader in interesting new policy thinking. This gained it support from its main functionaries and

stakeholders. Finally, the key policy areas of relevance to the sustainability agenda were largely under the control of the Welsh Assembly. Thus it was not necessary to call upon the powers or request legitimacy from the UK government. Actions in pursuit of sustainability in policies of many different kinds could be pursued unhindered – except by unforeseen and massive events, like the 2008-9 global financial crisis.

e) Obstacles faced

As noted, what is described above has happened during the global financial crisis where policy to subsidise continued employment of otherwise possibly redundant workers means less resources are available for sustainable development and renewable energy objectives. Nevertheless, these remain key objectives and initiatives to support research and investment in large scale renewable (biomass) energy facilities have been unaffected by the crisis.

f) Consideration for successful adoption in the Marche Region

This is one improvement that all regional administrations can, if they wish, adopt. This is because the actions affected are only those within the remit of the regional government. They do not directly extend to neighbouring regions or countries nor do they have implications upwards in the multi-level governance system except as they lead the latter in the form of a "Living Laboratory". This experimentation capability of regional governments strengthens the capabilities of the larger units above it as is testified to by the "laboratories of democracy" thesis often advanced to explain US accomplishment in innovative policy-making

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15. Bavaria Transverse Innovation Model

a) Description of the approach

Finally, the model that confronts the propositions of "platform leadership" most closely as these have evolved over the course of research is – from the point of view of policy, that concerning proactive platform governance. In this case (Fig. 3), the main governance capabilities are in force. Notice the vertical functions regarding "Changing Techno-economic Paradigm" and "Global Megatrends" which are under regular if not constant surveillance by the leadership team. Hence they have some inkling that transition is "in the air" and are ready to move in some direction but they cannot fully anticipate which way until it happens.

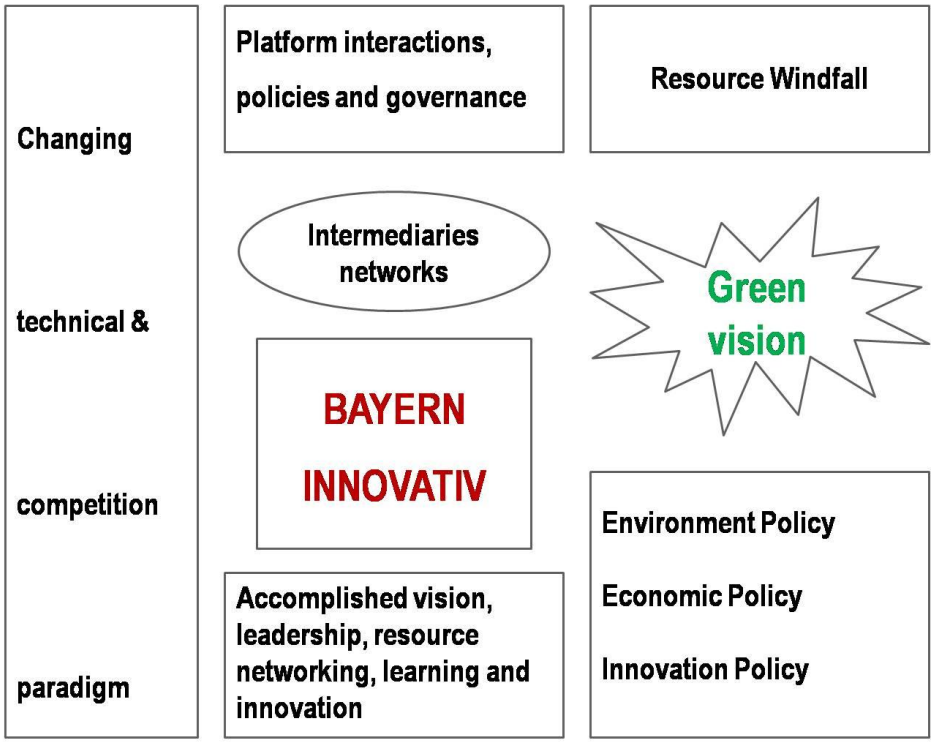
b) Rationale for the approach

Innovation is the fundamental rationale for this approach. Envisioning of the regional development agency role as a catalyst rather than a brake upon innovation by regional firms makes for strong leadership but also exceptional networking and learning skills. Promotion of innovation capability is accordingly high because actors are dis-satisfied with the status quo.

c) Relevance to Marche region

Networking and learning capabilities are good in this learning model. Both are strengths of the Marche economy culture and the approach is accordingly not difficult in terms of the absorptive capacity of Marche functionaries. This is further enhanced in the learning model context because it is an open governance not closed governmental system. Knowledge is distributed but accessible, including, as needed, technical knowledge from beyond the region to at least national level, possibly beyond even that. Social capital is historically strong and "leadership" is at the very least adequate though not overbearing in such a highly networked context (Fig. 3).

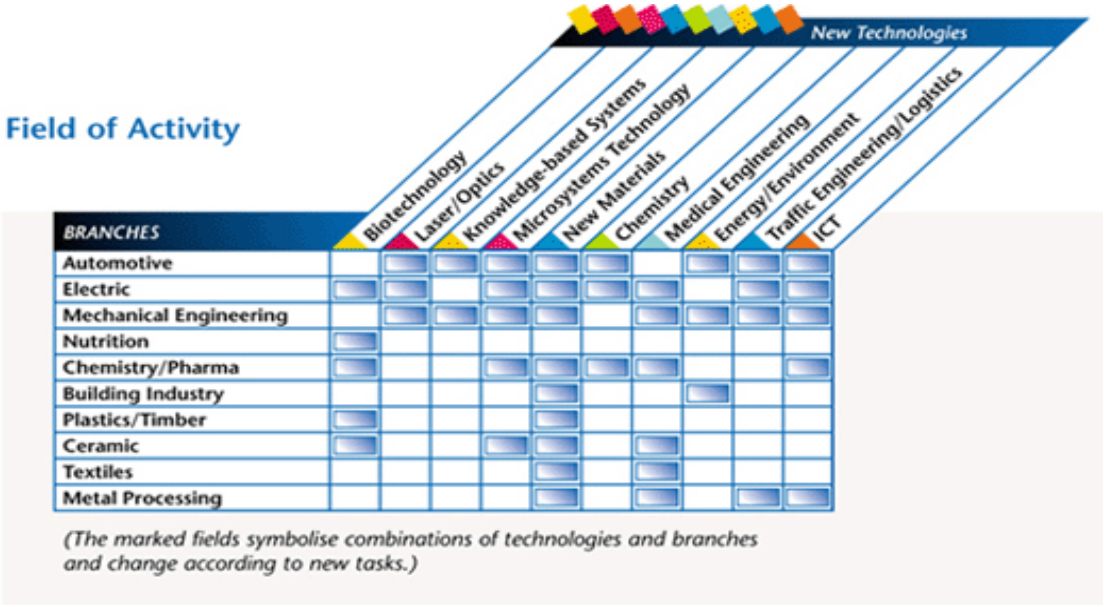
Figure 4. Proactive platform governance



d) Reasons for success

How does *Bayern Innovativ*'s proactive regional innovation policy work? Fig 4 gives an indication whereby matrix management of potential innovation opportunities at intersections between industries, some having been beneficiaries of earlier cluster programme investments, and technologies occur. These are points where conversations among distinct business sectors are facilitated. Accordingly, where these facilitate personal discussion between experts and customers, sustainable cooperation networks are developed.

Figure 5. Bayern Innovativ: Technology Platforms



Bayern Innovativ, www.bayern-innovativ.de 2009

More than 1 000 new co-operations are initiated annually - examples include:

- *Laser technology* adapted to beam nanoscale droplets onto microarrays for rapid bioanalysis
- *Mechatronic systems* for car engine management that have been transferred to bus steering systems
- *Portable fuel cells* that have been applied in automotive electronics
- *Plastic injection moulding* processes from button manufacturing which have been implemented in automotive plastic components
- *A logistics and transport* company that has secured a contract with one of the world´s largest Internet suppliers
- *A technical textile producer* won a contract in medical engineering

e) Obstacles faced

Hence, *Bayern Innovativ* initiates business-driven project co-operations across disciplines and branches, taking into account the latest results from the scientific community. Over the past decade the agency has forged new pathways and created a portfolio of cooperation platforms and networks that have generated an extended, sustainable network structure. Both the platforms and the networks are in demand at regional, national and international levels. However, three obstacles to success can be envisaged. First the system depends on firms in the region being innovative across numerous clusters. It is a system of "boot-strapping" to some extent where the region exploits its own past accomplishments. Second, it depends on high social capital and a co-operative mentality on the part of firms. If this is not present it is a major obstacle to implementation. Finally, it is a public-private

partnership and therefore not bound by the day-to-day rules and risk-averseness of the typical civil service. It is also for-profit and has ways of absorbing profit institutionally. If such rules are absent or perceived as illegitimate, it is impossible to make it function in that context.

f) Consideration for successful adoption in the Marche Region

This lies in the opposite of the points made in e) above. That is, this is a function for an enterprising regional development agency. It is easy to learn but labour-intensive to implement since expertise has to be bought beyond the policy expertise of the BI agents themselves. If the region is not especially innovative it probably requires major reflection and adaptation to be of relevance.

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ANNEX III: ABOUT THE REVIEW TEAM MEMBERS

Rudy Aernoudt has studied Economy and Philosophy at the University of Leuven and holds a masters in European economics from the College of Europe. After a career as corporate manager in the banking sector, he became principal administrator at the European Commission dealing with enterprise policy, in particular the financing of European enterprises. He was special adviser to the Belgian President of the Industry Council during the Belgian Presidency of the European Union before becoming Deputy Head of Cabinet to the Walloon Minister of economics dealing with research, entrepreneurship and financing. Afterwards he became director of Cabinet to the Federal minister of economics, energy, external trade and scientific policy. From 2004 onwards, he became chief of staff (director of cabinet) to the Flemish Vice-president and minister of economy, enterprises, science and international trade. As of September 1, 2006, he was promoted to Secretary General of the Department of Economics, Science and Innovation of the Flemish Government. Since April 2009, he is director general of One Laptop per child, an NGO and spin-off of MIT. He is also professor in European economics and corporate finance at the University College Ghent (Faculty of Business Administration), the University of Liège (Faculty of policy sciences), University of Nancy (DEA European economics) and University Brussels (HUB master program).

Bjørn Asheim has since 2001 the chair in economic geography at the Department of Social and Economic Geography, University of Lund, Sweden, and is co-founder and deputy director of CIRCLE (Centre for Innovation, Research and Competence in the Learning Economy), which is a multidisciplinary Centre of Excellence in innovation research at Lund University. CIRCLE's main funding come from the Swedish Agency for Innovation Systems (VINNOVA), the Swedish Research Council and Lund University, ranking as one of the largest centres of its kind in Europe. He is a Visiting Professor at the Department of Geography at the National University of Ireland at Maynooth for the period October 2007-October 2010. He was previously full professor in human geography at the Department of Sociology and Human Geography, University of Oslo (1993-99) and professor at the Centre for Technology, Innovation and Culture, University of Oslo (1999-2001). He is the representative of Lund University in DIME (Dynamics of Institutions and Markets in Europe), funded by the 6th FP of the EU. He was/is a member of the international advisory committee of two major Canadian research projects on "Clusters and regional development" (2001-2005) and on "The Social Dynamics of Economic Performance: Innovation and Creativity in City-Regions" (2006-2010), co-ordinated by professors Meric Gertler and David Wolfe, University of Toronto. He is also a member of the International Scientific Panel of the Centre for Knowledge, Innovation, Technology and Enterprise (KITE), Newcastle University. He was Editor of Economic Geography 2000-2006 and of Regional Studies 2003-05. He has served as an international expert for UNCTAD, OECD and EU/DG XVI and Research. Professor Asheim has been/is coordinator of EU/TSER project on "SME Policy and the Regional Dimension of Innovation" (1998-2000), and European Science Foundation ESF projects on "Technology, talent and tolerance" (2004-2006) and "Constructing Regional Advantage" (2007-2010).

Jennifer Clark is an assistant professor at the Georgia Institute of Technology's School of Public Policy. Her research focuses on regional economic development policy, agglomeration economies,

territorial innovation systems, and labour market restructuring and regulation. Dr. Clark's publications focus on inter- and intra-regional firm networks, particularly in the photonics industry, as well as variations in national and regional innovation, industrial, and labour market policies and their effects on regional development. Dr. Clark's work appears in journals such as *Regional Studies, the Journal of Planning Education and Research, the Journal of Technology Transfer, Geoforum, and Economic Geography*. Recently, Dr. Clark and Dr. Susan Christopherson won the 2009 Regional Studies Association Best Book Award for their book, Remaking Regional Economies: Power, Labour, and Firm Strategies in the Knowledge Economy. At Georgia Tech, Dr. Clark is affiliated with several research centres and programs including: the NSF Advance Program, the Technology Policy and Assessment Centre, the Science, Technology, and Innovation Program, and the Faculty in the Study of Human Resources. Dr. Clark received her Ph.D. from Cornell University, an MS from the University of Minnesota, and a BA from Wesleyan University.

Philip Cooke is University Research Professor in regional economic development (1991) and founding director (1993) of the Centre for Advanced Studies, University of Wales, Cardiff. He is also Adjunct Professor in Development Studies at Aalborg University, Denmark and LEREPS at the University of Toulouse, France. His research interests lie in studies of Green Innovation, Biotechnology, Regional Innovation Systems, and Knowledge Economies. In 2002 he released *"Knowledge Economies"*, published by Routledge. In 2004 *Regional Economies as Knowledge Laboratories'* co-edited with Andrea Piccaluga was published by Edward Elgar. In 2007 *Growth Cultures'* (Routledge) and *"Regional Knowledge Economies"* (Elgar) were published. Prof. Cooke is a UK government advisor on innovation, and advises national & regional governments, the EU, OECD, World Bank and UNIDO on regional innovation systems. In 2003 he was elected Academician of the UK Academy of Social Sciences. He has for long been a board member of the Canadian ISRN and Swedish CIND and CIRCLE research initiatives. In 2006 he was awarded an honorary PhD by the University of Lund, Sweden. In 2007 he was Member of the European Research Area (ERA) Review Committee of the European Union. In 2008 he was adviser to EU DG Region and OECD on regional innovation policy. In 2009 He is adviser on the Government of Turkey's Clustering Strategy, EU DGs Region, Enterprise and Research on "Post-crisis Innovation Policy", Finland's Ministry of Industry and Sweden's VINNOVA innovation agency on "New Models of Regional Innovation".

Marco Marchese is of Italian nationality and joined the OECD in 2007 to work on entrepreneurship policy and evaluation of local economic development approaches. At the OECD, he has participated in a number of local reviews about "entrepreneurship and SME development" (Marche, Italy; Andalusia, Spain; Veracruz, Mexico) and has recently co-authored two chapters of the publication "SMEs, Entrepreneurship and Innovation". Prior to joining the OECD, he worked for the ILO and UNIDO on business clusters and for the Italian Prime Minister's Office on the informal economy. He has been visiting scholar at MIT and holds a MSc in Development Economics from the University of Rome "Tor Vergata".

Ricardo Pinto gained his PhD from the London School of Economics (LSE), where he studied and subsequently worked at the Centre for Economic Performance (CEP). He has experience of working for university (LSE), local government (London Borough of Hackney), international organisations (OECD) and consultancy (GHK International, GEWOS, Pinto Consulting, etc.) He has 15 years of international consultancy experience based on assignments in approximately 25 countries in EU, Central, Eastern and South Eastern European, as well as African and Central Asian transition economies. Dr. Pinto has worked on various aspects of entrepreneurship and enterprise development. He has established an international consultancy (www.pintoconsulting.de) and has undertaken assignments on behalf of international organisations such as EC, DFID, UNDP, EBRD and OECD. His work typically focuses on private sector development (economic development, SME development,

start-ups, informal economy, competitiveness, innovation, etc.), regional development, public-private dialogue, etc. He has experience of policy analysis, as well as designing and implemented projects. Ricardo is a Certified Management Consultant (CMC) and a member of various bodies such as the OECD LEED Trento Centre "Scientific Advisory Group on Entrepreneurship"; Local Economy Editorial Board; and Management Consultants' Association 2000.

Jonathan Potter joined the OECD in 1997 to help develop its work on local economic and employment development. He is currently a Senior Economist responsible for OECD activities to strengthen local entrepreneurship and SME policies and to improve the evaluation of local development programmes. He has recently produced publications on "Clusters, Entrepreneurship and Innovation"; "An OECD Framework for the Evaluation of SME and Entrepreneurship Policies and Programmes"; "Entrepreneurship and Higher Education"; "Global Knowledge Flows and Economic Development", and "Making Local Strategies Work: Building the Evidence Base". He also manages OECD reviews on SMEs, Entrepreneurship and Local Development. Mr. Potter, a British national, is a founder of a leading British economic policy consultancy, Public and Corporate Economic Consultants, and a former senior consultant responsible for public policy evaluation in the PA Consulting Group. He holds a PhD from the University of Cambridge and is a visiting professor at Birkbeck, University of London.

Alessandra Proto is a Policy Analyst at the OECD LEED Trento Centre for Local Development based in Italy, where she has been working since its establishment in 2004. She manages activities related to entrepreneurship, innovation, SME development and tourism. She has contributed to the development of a number of OECD LEED projects, particularly with regard to the management of country reviews (Bulgaria, Croatia, Poland, Marche-Italy) and the organisation of conferences and capacity building seminars. Before joining the LEED Programme, Ms Proto worked for three years as consultant for the international division of a major Italian consulting company, Ambrosetti, where she supported Italian companies in their process of internationalisation. Alessandra Proto obtained her degree in economics and management of public administration and international institutions from the Bocconi University in Milan.