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1. EXECUTIVE SUMMARY

Globalization and increased competition are putting new types of pressure on companies and, by extension, on the regions that depend on their success. Flexibility, the ability to immediately adapt to market developments, and proactivism in creating future markets, are the earmarks of this new era. The relative importance of (physical) resource endowment as drivers of regional growth is decreasing as these factors are now almost ubiquitously available. However, "**soft" production factors**, that is, **those related to personal bounded knowledge, are becoming more important.** This is reflected in the endogenous growth theory, which regards to **human capital and knowledge as driving factors of economic growth in industrialized countries.**

All these "soft" production factors can be generically grouped in what is known "Intangible Assets". There is increasing interest, from the academic, policy and corporate environment on the **impact of Intangible Assets (IA) on economic processes.** These assets can be defined as "non-material factors that contribute to enterprise performance in the production of goods or the provision of services, or that are expected to generate future economic benefits to the entities or individuals that control their deployment" (Eustace 2000: 31)[1]. IA contribute to production and productivity both within the firm (through human and organizational capital, intellectual assets, brand name, etc.) and outside it (through local externalities, the legal and institutional framework, the education system, property rights protection, social capital, among others).

In this IAREG project**, we have analyzed the role of these intangible assets on regional economic growth**. We have focused on some of them, taking special attention to the more relevant ones, to the assets for which it is possible to have more reliable quantitative statistical information, and finally, to the assets where the consortium has more expertise. Consequently, we have outlined this Report in four big factors: **knowledge capital, human capital, social capital and entrepreneurship capital.** Additionally to the main characteristics of each of these IA (related with their measurement and their effects on regional economic growth), we have also analyzed the ensemble **effects of these IA over the location of firms.**

The IAREG project **fits within the EU 2020 Strategy**. One of its main objectives is to create value by basing growth on knowledge, through the improvement of education and training in general, to increase productivity. Secondly, it is also aimed at empowering people in inclusive societies, advancing the flexicurity agenda to ensure it is better understood in terms not only of flexibility from employees but also of employers. Third, in the strategy it is considered that Europe needs a new industrial policy emphasizing innovation capacity, skills and fostering entrepreneurship. All in all, we observe how the EU 2020 Strategy is taking full consideration of a wide array of intangible assets, such as the ones we focus in the IAREG project.

2. SUMMARY DESCRIPTION OF PROJECT CONTEXT AND OBJECTIVES

2.1 General Objective

IAREG project aims at analysing **the role played by IA** in the generation of innovation and productivity and growth at a theoretical and especially at an empirical level. In addition to the analysis of the actors generating these IA, the project also considers the linkages among them and the **geographical dimension** in which these processes take place. This has been done in order to give **scientific support to policy activities** in relation to IA and to **identify best practices** for regional innovation systems.

[1] Needles to say, there is no consensus on the definition of intangible assets. The one quoted here is considered to be a useful working definition. An interesting extension, for our purposes here, of such a working definition for intangible assets is also reported in Gu and Lev, 2001 (cited in Kaufmann and Schneider, 2004) "Intangible assets are defined by their major drivers: R&D, advertising, IT and human resource practices".

2.2. Specific objectives

- To develop **new indicators** for improving the measuring of the IA considered having the most influence in the generation of economic development.
- To **understand the role that IA play in the processes of innovation and knowledge** accumulation at the **regional level**, which are at the core of uneven territorial development.
- **Identify the mechanisms underlying knowledge diffusion and the role of IA** in this process, in order to better understand **the impact on regional growth.**
- To **analyse the role** that **knowledge, human, social and entrepreneurship capital** have on regional economic growth and productivity.
- **To examine how IA and their interaction** define the environment that **affect the localization choice** of the firms.
- **To measure the role of externalities in the generation of IA** and in determining local economic performances in Europe and **in the diffusion of knowledge**
- To extract **policy guidelines** for public administrations practitioners in order to support them in the future design and implementation of regional innovation strategies
- To **diffuse the project results to policy makers** at European, national and regional level, to promote the efficiency of future policies for the support of innovation activities and regional economic development

2.3 Operative objectives

- To have a **detailed modelisation of the impact of Intangible Assets** in regional, national and European economic growth. In that sense, we have done several working papers where we present the research done, using all kind of methodological approaches (descriptive, econometric and qualitative analysis)[2].
- To **develop a public database with new indicators for Intangible Assets** for the correct measuring and monitoring of their influence in economic growth. In that sense, IAREG has constructed a Open Source Database with statistical information about some of the indicators and variables used in this project[3].
- To provide decision makers with **policy recommendations** in order to support them in the future design and implementation of regional, national and European innovation strategies. Specifically, **best practices** and **scientific support to policy activities** have been provided. In that sense, IAREG has published several Policy Brief documents[4], 5 policy-deliverables[5] and a Final Policy Guide[6], all of them available at the IAREG web page (www.iareg.org).

2.4 Questions to be answered

Related with **Knowledge Capital**, IAREG has tried to identify the key contextual elements and suggestions to support policy makers in governing knowledge accumulation and enhancing its impact. Also we have tried to identify the mechanisms underlying knowledge diffusion and the role of IA in this process, in order to better understand the impact on regional growth**.** We did so by answering, in turn, the following questions:

- What type of evidence is available and what should be available for policy makers to evaluate the impact of knowledge accumulation?
- How does knowledge accumulation occur within firms (including multinationals) and how does that impact on economic performance?
- What is the role of Universities in regional, national and global knowledge accumulation

[2] See Annex 1 and see http://www.iareg.org/index.php?id=91
[3] See www.iareg.org . This database will be open to the general audience in january 2011.
[4] See http://www.iareg.org/index.php?id=107
[5] See http://www.iareg.org/index.php?id=75 (deliverables 1.4, 2.4, 3.4, 4.4, 5.5)
[6] It will be published in http://www.iareg.org/index.php?id=84. (See deliverable 6.4.)

processes?
- To what extent knowledge diffusion is conditioned by spatial proximity?
- What is the impact of knowledge accumulation and diffusion on economic performance?
- What is the role played by various types of IA in the knowledge diffusion process, specially the role played by networks of interpersonal relationship and by knowledge management practices?

Another two Intangible Assets considered in IAREG project are the **Human and Social Capital**. We have analyzed the influence of both on economic growth not only directly but also including the interactions among both of them, as well as the impact of quality of work and overeducation. The questions considered are:

- Are development policies focused on the improvement of educational levels effective for stimulating economic growth and productivity? Should we expect different results from these policies according to the development of the area as well as the existing stock of human capital?
- Which are the regional consequences of educational mismatch as well as the impact of human capital mobility?
- Is quality of work an important issue to explain productivity?
- Which are the mobility patterns of star scientists in Europe, their motives and impact on regional knowledge spillover?
- Which is the magnitude of regional wage gaps and their relationship with human capital endowments?
- Does social capital have an influence on the existing endowment of human capital?
- Does social capital affect regional growth? In a homogeneous profile?

The last Intangible Assets analyzed in IAREG is the **entrepreneurship capital**. We provide evidence for the relationship between the existence of knowledge externalities and entrepreneurship capital and the corresponding influence on regional productivity. We can summarize the analysis answering the following questions:

- If governments want to develop the entrepreneurship of an area, which are the issues that should be strengthen?
- Since knowledge diffusion is an important determinant for productivity growth, can entrepreneurship be an incentive for it?
- Which are the connections between Entrepreneurship capital and Knowledge spillovers? Which are the location decisions of start-ups across German regions relative to incumbents in the same industry?
- Do there exist relationships between a region's age structure and its entrepreneurial activity?
- Which is the relationship between an individual identity and his/her intuition to be an entrepreneur?

And finally, the questions that have been answered related with **simultaneous effects of various types of IA and regional economic performance** are the following:

- Do the policies designed to improve IA "endowments", at different geographic level, contribute to the reduction of economic disparities in EU regions? And how can we calculate their effects (which variables are to be considered and which evaluation models)?
- What are the priorities in developing the different types of IA (human capital, knowledge, social and entrepreneurial capital)?
- How can we measure the different types of IA and the effects of their interactions?
- Which are the effects of IA on regional total factor productivity?
- Which is the role of IA at firm level?
- How can we integrate the geography of technological change into growth explanation?
- Which are the firms location choices in an integrated Europe and the role of local spillovers in determining regional economic performance?

3. A DESCRIPTION OF THE MAIN S&T RESULTS/FOREGROUNDS

3.1. Knowledge Capital

3.1.1. Rationale behind the topic

IAREG has identified the key contextual elements and suggestions to support policy makers in governing the whole innovative process and enhancing its economic impact. It has done so by analysing the whole spectrum of innovative activity, from the early stages of knowledge generation and accumulation to its diffusion, and answering two sets of questions. The first one, dealing with **knowledge accumulation,** addresses, among others, the following issues:

How does innovation and knowledge accumulation occur within firms and how does it impact on economic performance?
What is the role of Universities in regional, national and global knowledge accumulation processes?

The second set of questions addresses the way **knowledge diffuses over space** and how this diffusion impacts on economic performances. In particular:

To what extent knowledge diffusion is conditioned by spatial proximity?
What is the impact of knowledge accumulation and diffusion on economic performance?

To answer these questions, having reliable measures of how the innovation process occurs, of the actors that take part in it and the mechanisms that are in place, is of paramount importance. To this purpose **IAREG has highlighted the weaknesses of traditional measures and suggested new ones** (quantitative and qualitative) able to grasp both the ongoing transformations of the relationship between science and technology, and the systemic and interactive nature of innovation processes. The theoretical review showed that traditional indicators do not account for the dynamic, structural and connectivity features of innovation processes and therefore are mostly inadequate to capture its spatial dimension. The inventory indicates large inconsistencies across regions in the EU, as for the majority of indicators regional data are not provided or provided unevenly. A special concern regards the Community Innovation Survey, a key milestone for the study of innovation, for which guidelines on regionalisation are still not established. We pointed out that **the systemic nature of regional IA demands indicators that grasp two kinds of capabilities: network capabilities (i.e. connectivity), both intra- and inter-regional, and organizational capabilities, as well as their dynamics.**

These indicators have been applied to the study of linkages and **relationships between firms and between firms and Universities**, highlighting the mechanisms through which those actors contribute to the processes of knowledge accumulation, generation and diffusion. Original approaches have also been developed to assess the spatial nature of such processes and their impact on economic performances.

3.1.2. Selected Indicators of Knowledge Capital

The indicators introduced below, only a fraction of those developed by IAREG, provide an overview of the different key aspects and actors in the process of knowledge creation, accumulation and distribution. We suggest that **not only firm level indicators should be considered but also interaction indicators,** which are able to account for potential knowledge flows and agents' position within innovative networks.

The indicators presented below, have been selected not because they are more informative than the others, but because, due to their quantitative nature, they can be more easily and immediately described. The limitations included introduce a policy **recommendation oriented to increase the efforts for increasing the databases available and to generalise and homogenise them at all EU regional levels**. Indicators under the groups A, B and C are "Firm and university level indicators" whereas those in D, E and F are "Interaction indicators".

A. Technological competences and capabilities in firms

Source: UK Regionalised Community Innovation Survey 2002-2004 (CIS4).

Indicators:
Firms with Capabilities: Firms that have introduced a new or significantly improved product and/or process in the period considered.
Firms with Competences: Firms that have invested in innovative inputs but have not achieved any innovative output in the period considered.
Technologically Inactive Firms: Firms that have neither declared innovative output nor investment in innovative inputs in the period considered.

Main limitations: The regionalised CIS is available only in a limited set of countries.

B. Firms' learning modes

Source: Work Research Center (Tampere) Finnish Organizational Innovation Survey.

Indicators:
Firms using STI-learning (based on production and use of codified knowledge): those firms learning mostly through employees R&D activities and R&D activities in the establishment, and using universities and research institutes as information sources.
Firms using DUI-learning (based on doing, learning, interacting): those firms mostly learning through parallel development teams, total quality management, employees' suggestion programs, semi-autonomous work teams, job enrichment, reduction in layers of management, evaluation of customers' needs.
***ACE-learning (based on anticipation, comparative benchmarking and evaluation)*:** those firms learning mainly through technological foresight, external competitive benchmarking, regular project evaluation, application of knowledge map, employees' participation in vision creation.

Main limitations: The indicators have been used only in a single project in Finland. The survey included only low-tech and medium-tech firms and the number of participants was limited.

C. Academic Entrepreneurship

Source: RUW Stratified Survey of Academics in top 201 European Research Universities (2009).

Indicators:
Entrepreneurial engagement of universities: Respondents expressed their (dis)agreement on a 1-5 Likert Scale on 12 statements on academic research commercialisation, which include the following:
My university, in addition to its basic functions of teaching and research, should be actively and directly involved in assisting the economic development of my nation and region.
My university should provide start-up assistance for and take equity positions in technology-based firms that grow out of university-based research.
My university should be actively involved in the commercialization of university-based academic research.
Knowledge creation in universities is best measured by scholarly, peer-reviewed publications.
The increasing emphasis within many universities for commercializing university research threatens the integrity of basic, scholarly research.
Responses were item-benchmarked to those generated by comparable U.S. university academics to detect relative entrepreneurship efforts among academics in EU universities.
Impact on the governance of university entrepreneurship: Respondents were asked to rate on 1-3 Likert Scale the effects on entrepreneurship policies exerted by different actors. Namely: University academics¸ University Leaders, National Ministries of Higher Education, Business and Industry Leaders, and Regional Officials.

Commercialization efforts of academics by discipline: Respondents were asked if between 2004 and 2009 commercialisation efforts were undertaken in the following disciplines:
1. Basic Sciences (Physics and Biology),
2. Applied Sciences (Computer Science and Chemical Engineering)
3. Social Sciences (Economics and History)

Main limitations:
The principal difficulty with these indicators is that they depend upon a large-scale survey, which is relatively expensive to conduct, raises complex sampling problems, is subject to sub-optimal response rates (possible positive bias favouring commercialisation) and unlikely to be accepted by respondents on a continuing basis. However, a DIME working group[7] is preparing a model survey for adoption by cooperating member states, which should help resolve the problems of conducting European-wide surveys. The experience of this effort and its results have been reported to the DIME group.

D. R&D collaboration networks

Source: ANRT (French National Association for Research & Technology) database on R&D collaborations in Telecommunication and Microelectronics in the 6th Framework Programme.

Indicators:
Intra-region vs. inter-region knowledge creation: ratio of local/regional cooperation links to national/European/global cooperation links***.***
Position of the firm within the European R&D network: number of direct and indirect partners of the firm.
Composition of the network: proportion of firms and research centres in the network.

Main limitations: These indicators could be extended to other data bases (including other FPs, co-invention data bases, co-authorship databases). However, it requires in each case to cope with serious problems of identification of the different agents (name matching) as well as with problems of location of each agent (the address being often incompleted of bias toward headquarter). This relies on a meticulous work that prevents a fast generalization.

E. Networks of international publications

Source: The University of Pécs (UP) Library and the ScienceDirect and EBSCOhost publication databases.

Indicators:
Size of international co-publication Network: the numbers of UP scientists and their immediate research partners and the number of coauthors of the immediate international research partners.
Size of the Network of Academic Unit "i"**:** $(\text{Network members})_i/(\text{Network members})_{tot}$
Concentration of the Network of Academic Unit "i": $(\text{average number of international coauthors of immediate UP coauthors})_i$ /$(\text{average number of international coauthors of immediate UP coauthors})_{tot}$
Integratedness of the Network of Academic Unit "i": $[(\text{Average number of linkages on a paper})/(\text{average number of linkages among coauthors on a paper})]_i/[(\text{Average number of linkages on a paper})/(\text{average number of linkages among coauthors on a paper})]_{tot}$

Main limitations: The data refer only to one year of publications. Having more years would perhaps alter the results. At the same time the data are not able to account for the scientific quality of publication partners. Although this would not change the results with respect to the network structure, it may impact on the overall quality of network connections.

[7] Dynamics of Institutions and Markets in Europe (DIME) is a network of excellence of social scientists in Europe, working on the economic and social consequences of increasing globalization and the rise of the knowledge economy. DIME is sponsored by the 6th Framework Programme of the European Union.

F. Patent citations as indicator of knowledge flows

Source: OECD REGPAT database.

Indicators:

Number of patent citations made by region i and sector s
Number of patent citations received by region i and sector s
Number of patent citations from region i to region j
Number of patent citations from sector s to sector t

Main limitations: Patents are a partial indicator of technological activity and conversely patent citations are partial indicators of knowledge flows. It is nevertheless important that such indicators are available at a much disaggregated level both for regions and sectors. Moreover, they are available for quite a long time (1980-2000).
Furthermore, we should remember that most patent citations within the EU are not made by inventors, but only by external experts. Nonetheless, when aggregate citations are used as a proxy of knowledge interactions among regions rather than an indicator of inventors' face-to-face contacts this issue becomes less compelling.
All these caveats suggest certain prudence in the use of patent citations as a paper trail of knowledge flows.

3.1.3. Geographical Coverage

The indicators above have mostly been developed on exclusive databases of IAREG partners and therefore cover only selected European regions, as shown in table 1. Nonetheless, to encourage and facilitate their wider diffusion, we evaluate how easily they could be extended to others areas.

Table 1: Geographical coverage of the selected indicators

Indicator	**Period**	**Geographical Coverage**	**Potential for geographical extension**
Technological Competences and Capabilities of firms	2002-2004	UK UK regions, NUTS1 level	The indicators could be extended to all countries where the CIS is representative at the regional level
Firms' Learning Modes	2007	Finland Finnish city-regions & other type of regions	Similar indicators can in principle be constructed in firm surveys in other European countries. However each available business survey should be assessed in this respect.
Academic Entrepreneurship	2008-2009	1798 respondents, 201 universities, 19 European Countries	As noted above, work is underway by DIME members to prepare a model survey template, based loosely on the CIS, to collect key data over time.
R&D Collaboration Networks	2002-2006	EU regions, NUTS3 level (only telecommunication and microelectronics)	All the EU regions involved in the 6th FP are already covered. Extensions here should be on the sector side, by including all the FP priority themes and, an on the temporal side, by considering other FPs.
Networks of International Publications	2000	University of Pecs	Research could be extended to several regions with several universities applying the same network measures and empirical research methodology.
Patent citations	1980-2000	EU regions, NUTS2 level (22 ISIC sectors)	The indicators can be easily reported at the provincial level for most countries (NUTS 3 level)

3.1.4. Results

How does knowledge accumulation occur within firms and how does it impact on economic performance?

IAREG has highlighted the crucial role of research partnership for knowledge accumulation, identifying how different types of collaborations enhance innovation at different stages. It has shown that **whilst collaborations with competitors are most commonly undertaken at early stages of the development projects, those with buyers and suppliers are more likely to result in the introduction of new products and processes.** At the same it has been highlighted that, regardless of the industry, **the most innovative firms**, i.e. those more able to absorb knowledge, are **more likely to participate in collaborative networks**.

IAREG has also analysed the role of Multinational Enterprises (MNE) for local knowledge accumulation. It has highlighted that **MNEs offer the opportunities for regional firms and research institutions to benefit and contribute to global networks**.

Another important aspect that has been explored, is that of organisational innovation, an issue still largely unexplored both at the theoretical and empirical level. IAREG has shown that those **firms whose structure enables learning by *Doing, Using and Interacting*,** by relying, among other things, on parallel development teams, semi-autonomous work teams and reduced management layers, **are more likely to introduce new products to the market.**

Whilst these mechanisms are likely to operate across European countries, policy makers should be aware of industry and spatial specificities.

What is the role of Universities in regional, national and global knowledge accumulation processes?

Universities can heavily influence regional, national and global knowledge accumulation processes. For instance, when collaborating with multinational enterprises, they may affect simultaneously the three levels. Despite that, this channel is still not fully exploited, partly due to communication challenges between the two types of institutions.

IAREG has highlighted interesting results on the **local impact of Universities**: whilst it has been found that top ranked departments are significantly associated with partnerships involving spatially close industry partners, it has also emerge **geographical proximity, is not per se' the main driver of collaboration choices**. These are found to depend largely on firms', networks' and universities' specific characteristics. Among other things, the cultural tradition of academic institution has been shown to influence the ability to collaborate with industry and commercialise research.

Networks characteristics have emerged as crucial in determining academic knowledge transfer: the better the access to international networks, the higher the patenting activity, hence the knowledge transfer to industry. This implies that the set of tools of knowledge based economic development should include not only R&D promotion but also clever ways of supporting academic research networking.

To conclude, although the EU lags behind the US in the ability to commercialise research, IAREG has found that the EU and U.S. academics have quite similar views of what is considered reasonable with regard to the relationship between public and private science.

To what extent does knowledge diffusion arise between agents and how does it impact on economic performances?

IAREG has confirmed that knowledge flows impact on productivity. **Firms' productivity does not only depend on internal features, but also on the knowledge flows available in their regional environment**. Therefore, promoting public and private research activity does not only

directly increase the production of knowledge, it also fosters indirectly the creation of subsequent knowledge, thanks to positive spillovers (knowledge spillover effects), improving the global efficiency of the economy.

Moreover, based on EU patent citations, IAREG has shown that **these knowledge flows are spatially bounded.** There is however **a lot of heterogeneity among regional flows and such differences can be related both to diverse geographical, institutional and industrial** settings. Knowledge flows also depend on the **size of the regional economies of origin and destinatio**n (measured by GDP per capita and R&D investments), supporting the idea that **knowledge flows require an absorptive capacity.** Thus, whilst larger places may be able to benefit from knowledge flows due to the agglomeration forces at work, lagging regions may need some help to reach a critical absorptive capacity allowing them to tie down the flows of knowledge produced in the leading ones.

Thirdly, spatial knowledge **spillovers are far from systematic and proximity does not, as such, ensures their existence.** On the one hand, cross-border links for instance have shown to be impeded by institutional, cultural or political factors. On the other, specific mechanisms of knowledge diffusion are at work. **Interpersonal relationships, based on face to face contact and labour mobility, play a crucial role on the local diffusion of knowledge.** In addition, when they occur, **knowledge spillovers are not purely local**, one-dimensional phenomena. They appear to be simultaneously local and global and to emanate from a variety of sources. **Social proximity and the integration within local and global scientific networks is therefore a key determinant of knowledge diffusion**. It is therefore important to favour local interactions and at the same time, to connect the local innovation system to international levels.

Finally, IAREG results on knowledge generation, accumulation and diffusion highlight the great **diversity of the local and sectoral context.** Universal policy recommendations to foster knowledge-based local development can thus hardly be drawn. The definition of **regional policies should be adapted to each regional context**. This requires a good understanding of the local characteristics and point to the need for local monitoring tools. Best practices are therefore specific to each context. IAREG claims for an **easier access to data**, a more systematic collection of this data and an improvement and a diffusion of the indicators in order to adapt them to local needs.

3.2 Human Capital

3.2.1. Rationale behind the topic

Human capital accumulation is a cornerstone in models of endogenous growth. Some authors have treated human capital as an input to the production process like any other factors. Its accumulation leads to increased capital deepening and a period of accelerated growth (Mankiw, Romer and Weil, 1992). Others like Aghion and Howitt (1992) have emphasized the critical role for the discovery and adaption of new ideas and innovations. According to that view, human capital is essential to transform ideas and innovations into new processes and products.

3.2.2. New indicators and limitations

Because human capital is a multidimensional phenomenon, suitable proxies are not easy to find. Many researchers have focused on educational attainment, since this information is readily available. Typical measures include the years of schooling or the percentage of the labour force with secondary or tertiary education or rates of enrollment. However, these variables approximate only particular elements and neglect other aspects of human capital resources, like training on the job, specific knowledge or the previous working experience. To overcome these deficits, we give a step forward and construct new composite indicators. They transform various aspects of human capital into a unique measure. As different aggregation methods can blur the results, a sensitivity analysis is required to examine the robustness of the aggregate. In addition, a labour income based measure is presented to assess the skill component of the earnings potential in a region. Because of data availability, the latter analysis is carried out at the level of German NUTS1 regions. The analysis shows a significant impact of

construction techniques on the quality of indicators. While composite indicators and labour income measures point to the same direction of impact, their correlation is not overwhelmingly high.

3.2.3. Methodology, geographical coverage and Results

After the analysis of human capital, a first main objective is to analyze the **influence of human capital on economic growth.** Specifically, in a first step it is aimed to analyse the **existence of spatial variations in regional returns to human capital**, studying to what extent development policies based on stimulating the accumulation of education differ in effectiveness according to issues such as the degree of development of the area as well as the already existing stock of human capital. Among the main results obtained when applying a regression analysis to the Spanish regional case, we found that it is socially justifiable to dedicate resources to the financing of the accumulation of human capital given that it results in increases in productivity and, consequently, in greater economic growth. At regional level, however, our results confirm that the magnitude of the effect of human capital is far from homogenous across economies, even in the case of regions within a country. Relating this effect to the level of development attained by each regional economy as well as the existing endowment of human capital, a trend is observed for the economies with the lowest levels of productivity to benefit most from the accumulation of this factor. Similarly, the negative relationship of the return with the existing stock of human capital suggests that no conflict was caused when using the stimulus for investment in education in the less developed regions as a development policy measure, given that the objectives of efficiency and equity are simultaneously met. Thus, such heterogeneity in the aggregate return and social profitability of human capital should be considered when supporting and financing education as a tool for development policy. At sectorial level, IAREG has obtained that high levels of human capital have strong and substantial effects on the growth rate of value added at the sectoral level in manufacturing, as more skilled and educated workers and regions endowed with larger shares of skilled workers show a faster process of GDP convergence to the most advanced regions due to the reduction in the cost of absorbing technology spillovers.

Finally, also for the Spanish case, we obtain that when human capital matters, **quality in work is a key issue in explaining productivity**. On the contrary, in low human capital sectors productivity has to be achieved at the expense of low levels of quality in work. The results commented are obtained for the Spanish regions in recent decades. The situation in the Spanish regions could be paradigmatic since there has been a spectacular increase in educational attainment which coincided with a virtually uninterrupted process in which the regions have opened up and exposed themselves to competition, leading to the subsequent modernisation of production and institutional structures. This is to a certain extent the situation of some of the Eastern countries that have recently entered the European Union. The results could be therefore used when designing policies for this kind of countries.

A second main objective related to human capital is to analyse which are the regional consequences of educational mismatch as well as the impact of human capital mobility. Initially, we study the effect of overeducation on regional economic growth in the European Union. In this respect, we would also like to highlight that the use of microeconomic data to construct homogeneous regional indicators of educational mismatch represents a step forward with respect to the traditional indicators of human capital, but in this area too much work has still to be done. The results obtained in a regression analysis for several European countries permit us to conclude that **overeducated workers represent an opportunity to take advantage from the generation of more qualified jobs.**

Thirdly, we follow an analysis of mobility patterns of star scientists in Europe, their mobility motives and impacts on (regional) intangible assets as so-called knowledge spillover agents. We observe how Europe suffers from a net loss of star scientists. The highly negative migration balance with the US cannot be compensated by the in-migration of highly skilled especially from Central and Eastern Europe and Asia. Motives for the mobility of star scientists are not limited to direct financial benefits. The research environment, e.g. funding opportunities, material and personnel equipment, is at least of similar importance as revealed by returned German star scientists. Personal factors are often decisive to activate a latent interest to return to the home

country. Additionally, the impact of star scientists on intangible assets, i.e. scientific and industrial network capital, human capital, entrepreneurial capital, appears on different spatial levels. **The analysis of the qualitative data on the impact of star scientists on regional intangible assets does not support the expectation that their activities are predominantly regionally embedded.** Very few activities like collaborative research funded by the German Research Foundation or the formation of start-up companies are highly localised. Most industrial collaborations and the long-term impact on human capital development are more likely to affect intangible assets on the national scale.

Finally, we follow the idea that regional differences in human capital endowments are supposed to contribute to wage gaps across regions; but there can also be the case that regions differ in the returns to workers' human capital. By applying a novel decomposition method that takes into consideration the effects on the entire distribution of wages, the contribution of the endowments and returns to human capital to regional wage gaps is measured and discussed. Evidence from a comprehensive wage survey for the Spanish regions confirmed the existence of differences not only on average regional wages but also on other important features of the wage distribution. We prove that regional heterogeneity in the returns to human capital (lower in the less developed regions) was the major responsible of wage disparities across regions. **Had workers' human capital in the less developed regions been paid as in the most advanced regions, the bulk of the differences observed in the wage distributions would have vanished.**

3.3 Social capital

3.3.1 Rationale behind the topic

In the course of economic development, the relative importance of traditional growth factors (e.g. physical and natural capital) usually decreases due to decreasing marginal productivity and would be replaced with more intangible resources. Among the latter, human capital is most widely recognized and discussed in the literature. However, individuals and their human capital do not exist in isolation – instead, the value of the abilities and **skills of individuals depend on the social and institutional context** within which they are embedded. Social capital can be understood as a specific characteristic of society's social environment that facilitates people's cooperation. More specifically, social capital consists of different types of networks, norms and trust, being thus embodied in shared values and relationships. Regarding the economic value of social capital as an intangible asset, it is expected to benefit both individual and regional/national welfare through promoting information exchange, reducing transaction costs and hence leading to higher productivity and income levels.

3.3.2 New indicators and limitations

Empirical research on social capital inevitably confronts the **measurement problems** related to the data sources, selection of the indicators, and aggregation. For European comparisons, mostly the publicly available European Values Survey (EVS) and European Social Survey (ESS) databases are used. The main limitation of these data-sources (besides usual shortcomings of cross-national face-to face surveys) is the **lack of longer time series and limited coverage of new EU member states**. As an alternative, more exhaustive national data are collected in some (but only few) European countries, e.g. in Spain and Italy.

Another limitation of social capital measurement relates to construction of appropriate social capital indexes. As social capital is a multidimensional concept, using a set of relevant composite indicators describing different social capital dimensions is preferred instead of highly aggregated single constructs. In the present research, **new composite indicators of social capital dimensions were constructe**d on the basis of both ESS and EVS data, using principal component analysis. These indicators could be divided between two broader dimensions of social capital. The first, **structural dimension** includes indicators that describe formal participation in voluntary organizations, informal socializing with friends and colleagues, social ties with family members and participation in political actions. The second, **cognitive dimension** includes indicators of generalized trust towards unknown others, institutional trust, acceptance of social norms, and interest in political matters. Further, as separate analysis of old

and new EU member states gave similar components of social capital in both country groups, it could be suggested that these indicators are robust and thus suitable for cross-national research. However, correlation analysis revealed that theoretically expected strong relationship between different components of social capital cannot be taken for granted – instead, the correlations of social capital components vary by databases, samples and aggregation levels. This result confirms the suggestion that **different components of social capital could both complement as well as substitute each other**. Substitutability is especially important in situations where the evolvement of some types of social capital is restricted or limited due to the social order or development level of the society. Also, as different social capital components could have dissimilar effect on alternative development objectives, it follows that the selection of the concrete indicators and measurement methods depends on the context and purpose of the particular study.

3.3.3 Methodology, geographical coverage and Results

Social capital strongly drives regional convergence. In fact, social capital is a crucial factor in the creation and diffusion of knowledge, both **directly and by improving the effectiveness of other technological inputs**, including R&D efforts and human capital. The social externality embodied in human relationships facilitates the creation, acquisition and diffusion of useful knowledge.

The positive effect of social capital on regional productivity, growth and development is expected to appear directly – through different channels – as well as in interaction with other types of capital, especially human capital. The most general results of our research indicate that social capital components like political engagement, institutional and generalized trust, socializing with friends, acceptance of social norms and helping attitudes are most powerful predictors of economic growth in EU countries. However, the **direct growth effect of social capital was rather small as compared to other growth factors,** indicating that the ongoing convergence process in EU dominates over other effects. Regarding the cross-effects of human and social capital on economic development, the results are somewhat different at national and regional levels. **At national level, human capital works together with institutional trust and political activity, while at regional level the joint effect of human and social capital is related to formal and informal networks, social norms and institutional trust.** It can be generalized that human capital mostly works in conjunction with structural aspects of social capital, while the effect of cognitive aspects of social capital is rather minor.

An important influence channel from higher social capital to better economic performance goes through innovation. Our analysis results suggest the existence of both direct and indirect impact of social capital on regional innovation outcomes. More specifically, **the influence of human capital and R&D efforts on innovation increases with growing levels of social capital**. Also, **the influence of social capital varies with the level of development of each region.** Within high-income regions, the direct impact of social capital on innovation outcomes was strong, while the complementary effect both with human capital and R&D efforts was large and significant. However, this was not the case for low-income regions, where the direct impact was smaller than that for high-income regions, whilst complementarities between inputs were almost negligible.

This does not mean that we need to increase education in less developed countries, as we have mentioned before. In fact, **in countries where social infrastructure and institutional quality is lacking, investing in education obtains a sort of double dividend**: first, it generates important positive returns in technology adoption; second, in the longer term it also helps to improve the local institutions and therefore further improves economic performance.

Just like the presence of social capital could foster economic growth and development, **the lack of it could be a serious impediment for development**. There are several regions in the EU where the convergence process has led some areas to a remarkably unfavorable steady-state. Our research results enable to suggest that the disappointing results obtained in some areas – even after implementing several and richly financed public policies – are partly due to the lower-quality local institutions. This failure of local institutions could be associated to the scarcity of

social capital, which tends to be persistent because of the existence of mechanisms of intergenerational transmission of values and norms that change very slowly in time.

In summary, our results suggest that **social capital benefits economic growth and innovations both directly and in conjunction with human capital. However, economic effects of social capital seem to depend on the average income level and institutional development of a particular region or country**.

3.4 Entrepreneurship capital

3.4.1. Rationale behind the topic

As we have mentioned in previous sections, there are some intangible factors that affect economic development. Some of them are related with human capital and knowledge, as driving factor of economic growth in industrialized countries.

Regional knowledge production is certainly one influence on regional development and growth, but it is no guarantee of it. New ideas are valued differently by different economic agents, including the decision-making hierarchies of incumbent firms and hence entrepreneurial opportunities are not always fully exploited by incumbents. Along this line, the "**knowledge spillover theory of entrepreneurship" introduces regional entrepreneurship capital (REC) as intangible asset that is complementary to knowledge capital and describes the efficiency in the recognition and exploitation of entrepreneurial opportunities**. In particular, REC is defined as the entrepreneurial orientation of all individuals in a region, i.e., their basic willingness to engage in entrepreneurial activities and start new businesses. Across regions, it thus measures the disparities in the exploitation of entrepreneurial opportunity which then **provides an explanation for differences in regional economic growth.**

3.4.2. New indicators and limitations

Regional entrepreneurship capital is a **multidimensional** construct. We define it as the *entrepreneurial orientation* of all individuals in a region, e.g. the personality characteristics conducive to entrepreneurial behavior. Broader definitions of REC do also comprise the *individuals' abilities* that may affect their decision to start new ventures (e.g. skills and network building abilities), and all other regional factors influencing this decision (availability of resources, like venture capital, and regulatory environment). In order to measure REC one would need datasets which provide such information. This would allow us, for instance, to compute regional averages of individual entrepreneurial orientation. **Such data do not exist yet but should be collected in the future.** Hence, we have to rely on *indirect* (outcome) indicators, such as the self-employment rate and the number of startups per region. But even these indirect indicators are not available throughout all European countries at the regional level (NUTS 2). Therefore, the geographical coverage of our analyses is strongly restricted by data availability.

3.4.3. Methodology and results

Against this background, the IAREG project has done research about two major topics. First, it analyses the connection between **Entrepreneurship Capital and Knowledge Spillovers.** This section's goal is to provide evidence for the relationship between entrepreneurship capital and the existence of knowledge externalities. Along this line, the first piece of research aims at separating knowledge externalities from other regional location factors, among others natural advantages that might influence new entrant's location decision. To do so, we perform a micro-geographic analysis for Germany and compare the actual distribution of entrants' location to a distribution based merely on natural advantage. The results suggest that **incumbent firms of the same industry act as location factor for entrepreneurs.** This finding is in line with the knowledge spillover theory into entrepreneurship, i.e. the idea that new entrants commercialize regional knowledge spillovers.

Taking a closer look at regional knowledge spillovers, we then test the hypothesis that an individual's decision to start a business is influenced by her age *and* by the age distribution in

the region where she lives. We analyze these effects on an aggregate level where we test the influence of changes in the age distribution on startup activity in West German regions. We regard Germany to be an interesting case study as demographic change is especially pronounced and advanced. **We find an inverse u-shaped relationship between the regional age structure and startup activity in a region**. Moreover, our findings suggest that **the age-specific likelihood of becoming an entrepreneur changes with the size of the age cohort**, pointing to the existence of age-specific peer effects. This finding contributes to the literature on the connection between age and entrepreneurship and the literature on older entrepreneurs.

In a third working paper, we switch to the individual perspective and analyze the non-pecuniary motivation to become an entrepreneur. **We argue that an entrepreneurial identity results from an individual's socialization**. This could be parental influence but, as argued in this paper, also school peer influence. Based on PISA 2006 data in which students report their entrepreneurial intentions at the age of 15, we find that **having an entrepreneurial peer group has a positive effect on an individual's entrepreneurial intentions.** The strength of the peer effect in a country is moderated by prevailing values, namely, individualism. The results suggest that **regional entrepreneurship capital can be created within the region**. However, doing so might require more than entrepreneurship courses at universities because **entrepreneurial intentions are predetermined earlier on by the school system and environment**.

One important factor that might explain observed differences in REC is the availability of venture capital. Since the US demonstrated over the past decades that they managed to rejuvenate its industry through this type of financing significantly, a forth working paper takes a closer look at the development of venture capital financing in the US over the time period 1995-2008 and analyzes the structural changes emerging from reallocation of financial resources over time. One key finding is a fairly steady concentration process of US venture capital financing in two key destinations, Silicon Valley and New England. Second, after the burst of the new economy bubble start-up financing lost in importance whereas financing of expansions in later stage financing increased. These findings provide the basis for comparisons between the VC market in the US as benchmark and the developing market for VC in countries of the European Union.

The second section related with entrepreneurship focuses on the nexus between **Entrepreneurship Capital and Regional Productivity** and analyzes the relation between productivity, knowledge and entrepreneurship capital on the regional level across Member States of the European Union. We compute regional measures of total factor productivity, regional endowment with knowledge capital and entrepreneurship capital and perform an analysis on the NUTS 2 level. Our results suggest **a positive relationship between productivity and entrepreneurship capital, entrepreneurial activity, i.e. the rate of self-employment, and entrepreneurial attitude, and knowledge and productivity**.

3.5 Intangible Assets and regional performance

3.5.1. Introduction and rationale behind this topic

In this section we summarise the **main findings of IAREG project related to the simultaneous effects of various types of Intangible Assets on regional economic performance**. For space constraint we are not reviewing here all the papers which focus on a single intangible factor (human capital, social capital, technology, entrepreneurship) since they have been already examined in the previous sections of this report. In this brief summary we concentrate only on five papers which analyse, within different methodological approaches and territorial coverage, the concurrent influence of various types of IA on the performance of the EU regions.

3.5.2. Methodology, geographical coverage and results

The paper "Assessing agglomeration economies in a spatial framework with endogenous regressors" refers to the NUTS3 regions of Great Britain and examines the effects of IA (knowledge, human capital, and entrepreneurial culture) on regional total factor productivity (TFP). In addition, the role of agglomeration economies, understood as the concentration of

production and employment, is assessed. The results emphasize that agglomeration economies matter in explaining differences in economic performance across regions although their importance in quantitative terms and their extension, are somewhat constrained when IA are included in the estimations. Specifically, educational human capital has a significant and positive impact on productivity (in the extended model the coefficient is equal to 0.17 and is statistically robust) while knowledge inputs –that is, R&D and high-tech manufacturing employment- positively affect outcomes as well (coefficients are, respectively, equals to 0.05 and 0.07). The entrepreneurship capital of a region has also a significant and positive effect on productivity. On the other hand, the occupational human capital indicator does not have a significant impact on productivity, although this situation could be partially explained due to social and institutional factors, and to labour market segmentations within high performing regions, since people in those regions may demand low-productivity services to be located inside. Knowledge outputs, that is to say, applied patents according to their inventor region of residence, are not significant either. In short, **agglomeration economies still matter, although their impact (in quantitative terms) and their scope (in terms of distances) are estimated to be lower and shorter respectively when intangible assets are included in the model since these factors play a crucial role in determining regional performances**.

Similar results are found in the paper "Total factor productivity, intangible assets and spatial dependence in the European regions" which examines the effects of IA (human, social and technological capital) on the TFP levels of 199 European regions belonging to the EU15 plus Norway and Switzerland over the period 2004-2006. The results for the TFP spatial lag model, estimated by 2SLS to control for endogeneity, show that **all the intangible assets exhibit positive and significant coefficients**: 0.14 for social capital, 0.16 for human capital and 0.07 for technological capital, thus confirming the crucial role played by this kind of productive factors. It turns out that a **large part of TFP differences across the European regions are explained by the disparities in the endowments of such assets**. The issue of spatial dependence among regions has been extensively examined through means of spatial lag models. The coefficients of the spatially lagged variable appear always positive and strongly significant confirming the existence of external spillovers from other regions. More specifically, the **spatial spillovers seem to generate their strongest impacts in the range 0-300 km** which represents roughly the lower deciles of the distances among the European regions considered. This result confirms previous evidence on the fact that **spatial spillovers are somehow bounded in space and that knowledge diffusion is more effective among closer regions**. In general the outcome of the paper indicates the importance of policy strategies which aim at increasing the level of knowledge and social capital as stressed by the Lisbon agenda.

The same methodological framework and territorial coverage is employed in the paper "They arrive with new information. Tourism flows and production efficiency in the European regions" where IA are included as control variables in an estimated equation where the level of regional efficiency (measured by TFP) is explained by tourism flows. The idea is that **tourists represent external consumers which arrive directly to the destination region and therefore local firms can extract relevant information on consumer preferences enhancing the efficiency of the entire region**. The fact that tourists represent an important channel conveying new ideas which enhance the destination region performance is already part of the policy-makers understanding in Europe (European Commission, 6th Regional Cohesion Report, 2009) but this is the first time that this idea is empirically tested for a large and homogeneous set of European regions. The econometric results show the positive impact of tourism flows on regional efficiency levels together with the positive role played by intangible assets, infrastructures and spatial spillovers. The most interesting result is that tourism flows have an estimated impact of 0.09, which is 60% higher than the impact associated with technology, thus confirming the important role played by tourist-transmitted information in determining total factor productivity in the European local economies. All intangible assets display a positive and significant effect on total factor productivity: 0.19 for human capital, 0.13 for social capital and 0.05 for technological capital.

A more general macro approach is used in the paper "Geographic Macro and Regional Model for EU Policy Impact Analysis of Intangible Assets on Growth" which estimates the impacts on GDP of FP6 EU R&D contributions and intangible assets in the Euro-zone over the period of

2003-2007 within a Geographic Macro and Regional (GMR) model. The GMR-system integrates three sub-models: the total factor productivity (TFP) block, the spatial computable general equilibrium (SCGE) block and the MACRO block. The level of analysis (as throughout the two regional sub models) is NUTS-2 for 144 European regions. The function of the first sub-model is to generate initial TFP changes as a result of policy interventions. In this block, by estimating the TFP equation, **authors analyse how intangibles and their interaction influence the regional productivity**. The considered intangibles are: human capital, social capital and accumulated technological knowledge. The resulting regional level changes in quantities and prices of inputs and outputs as well as further modifications in TFP are simulated in the SCGE block. The SCGE model is thus responsible for estimating the effects of geography (including agglomeration forces and factor migration). Dynamic effects of interventions on labor and capital are simulated in the MACRO block. The three model blocks are interconnected and run subsequently. We cannot expect large impacts from EU R&D contributions which account only for about 4 percent of regional R&D expenditures on average. More than 60 percent of the funds are won by regions belonging to areas characterized by the highest level of agglomeration; thus, it would not be a surprise if the largest impacts are found in these regions. In the long run, there is accordance with what is expected from temporally positive TFP shocks: they increase GDP levels but not the GDP growth rate. The simulation clearly indicates that **not every region is equally well-prepared for R&D-based development policies**. **The impact on GDP in the Euro-zone is about 10 percent higher when the policy mix of FP6 and regional quality distribution of R&D is extended by human capital development**. For what concerns **social capital, similar to the findings of the previous scenario the impact on GDP in the Euro-zone is about 10 percent higher when the policy mix of FP6 and regional quality distribution of R&D is extended by social capital development**.

Finally, the role of IA at firm level is examined in the paper "Intangible capital and firms productivity". This paper evaluates the role of firms internal intangible capital and regional external intangible assets (human, technological and social capital) on firms productivity within a Cobb Douglas production function model for a large panel of European companies belonging to 116 regions of six countries (UK, FR, IT, SP, NL, SWE) over the period 2002-2006. The first important result is that **all countries considered show a clear tendency to increase the share of intangibles over tangibles, confirming the growing role of knowledge capital in the competitive behaviour of the firms.** On average the ratio raises from 34% in 2002 to 42% in 2006. The econometric analysis employs different estimation methods: instrumental variables (IV), Olley and Pakes (OP) and Levisohn and Petrin (LP) methodologies. The main findings are that both firms internal and regional intangible factors contribute positively to the production process. More specifically, human capital exhibits an estimated elasticity between 0.19-0.33 signaling that the availability in the local economy of highly educated labour forces represents an advantage for firms performance and for their innovative activities. The effect of regional endowments of technological capital on firms' productivity is positive and significant in all estimations with an elasticity of roughly 0.07. Social capital seems to have a lower impact, estimated in around 0.02; these results are probably due to the weakness of the proxy for social capital. Public capital turns out to be highly significant in all the regression models with an estimated elasticity of around 0.05. Firms' internal intangible capital turns out to be highly significant in the aggregate estimates and also considering each country alone. The estimated elasticity exhibits its lowest value for Spain and France (0.023 and 0.03), Sweden follows with an impact estimated in 0.04, while Italy and the Netherlands have both higher values (0.05) and UK exhibits the highest value (0.09).

All in all, a general conclusion that can be drown by these research lines is a support to the hypothesis of the key and concurrent role played by intangible assets in explaining firms behaviour and the economic growth path at the regional level in Europe. The estimated impacts of the IA considered (human capital, social capital, technological capital, entrepreneurship capital, knowledge capital) varies given the heterogeneity in the methodology, time period, territorial coverage and statistical measures employed in the various studies. This fact implies that the **local economic environment should be carefully taken into account when designing and implementing economic policy because the specific regional features strongly influences firms localisation choice and consequently the economic performance of territories**. However, all the empirical analyses show the **capability of intangible assets to foster regional productivity and to create a virtuous framework for**

competitiveness. Moreover, it has been remarked the **role of spatial knowledge flows and the linkage between social capital and the innovation transmission mechanism**. This analysis is useful to understand what has happened in Europe in the past decades, but it also represents a contribution to identify specific European policies within the framework of the Lisbon Agenda.

Policy

Based on all the research done in the IAREG project, some policy implications and recommendations can be suggested. Although in the Final IAREG Policy Guide (2010) we deeply explain them, we consider interesting to summarize here some of them.

- A first question we have answered is **How can knowledge be generated within the ERA?**

As we have seen before, one first agent that can generate knowledge are Universities. However, in few occasions the research carried out by Universities is commercialised. Hence, University policies should **try to stimulate the commercialization efforts of academics**. In that sense, they should:
(a) aim toward **engagement with local industries**;
(b) to develop policies **to support commercialisation** (facility in English is closely related to chances that academics commercialise);
(c) Universities should consider **rewarding engagement with non-university organizations** (appears to stimulate commercialization, perhaps due to network effects of multiple contacts);
(d) Universities and Research public agencies should adopt policies to promote **collaborative research projects** between academics and industry (and funds should be provided in a less bureaucratic manner).

Another agent relevant for the generation of knowledge are multinationals (MNEs). It is therefore of vital importance for policymakers to strengthen cooperations between multinationals and the regional economic environment, including universities. Thus, regional governance boards should be established and existing boards professionalised if needed. To exploit their benefits, the boards have to be easily visible for potential participants. In order to increase their role, it will be useful to:
(a) Improve **channels of communication** of MNEs with other regional actors (awareness of local R&D / knowledge transfer initiatives);
(b) Do public support of **temporary institutional moves** from academia to industry (feed-back);
(c) Create **regional partnering organizations** (as for example what has been done in the pharmaceutical industry);
(d) Increase the scope of early-stage face-to-face interaction through **Publicly funded research consortia**

- A second question anwered in the IAREG project is **How can Europe promote human capital in order to impact on innovation and economic growth?**

In any case, **IAREG supports to apply policies stimulating** accumulation of human and social capital, due to the positive effects presented in the empirical results. If not there will be underinvestment in human capital. Our recommendations are:
(a) The **national level** should be the major policy level for higher education and research policy, due to the national peculiarities of university systems;
(b) It is necessary to Give more autonomy to **universities** to enable them to internally strengthen certain strategic fields;
(c) The **Regional governments** should complement initiatives to strengthen research fields identified by the respective universities;
(d) Governments should try to increase the **Trust on public institutions** and on people's perception of it (Social capital), as this fosters the effect of human capital; and
(e) Reinforce quality in work in industries with an intensive use of human capital, because this **implies productivity gains.**
(f) **Flexicurity** arises as a good opportunity to embrace the welfare state together with productivity gains in regions with low endowments in human capital.

However, it is also required to transfer new knowledge into marketable innovations. Thus, the creation of an entrepreneurial culture is a central aim in the EU innovation policy. Classes to train entrepreneurial spirit should be offered, if possible, in close cooperation with relevant actors. For example, universities should establish contacts with venture capital firms, law experts for business formation, business angels, and government funding agencies to actively transfer knowledge on how entrepreneurship works. The formation of a business angel community would be helpful to support the novices. The decision to become an entrepreneur should be facilitated by developing the market for diversified sources of financing, such as venture capital and private equity, as banks might not be effective if innovative products and technologies are involved.

- A third question is **How to increase knowledge flows within the EU?** We suggest different strategies:

(a) **Continuing the current actions in favour of the innovative activities and their diffusion,** through supporting local academic research and publications**, s**upporting patenting by the local firms and universities, facilitating access by local firms to the information contained in local, national and international patents, transferring the results of public research to SMEs in an understandable form

(b) **Promoting science-industry knowledge flows.** In that sense, first, it is necessary to address "Education for entrepreneurship" not only to students, but also researchers. Second, to do financial, technical and informational support to diverse and complementary forms of interaction, from simple transfer to complete cooperation (Informal and formal relationships)

(c) **Supporting access for businesses (mainly SME's) to the latest methods of knowledge management:** seminars and financing specialized technical consultants**.**

(d) **Helping lagging areas to reach a critical mass allowing them to benefit from knowledge flows within and across the region.** We suggest to focus primarily on the medium size regions that need an initial help to access to global knowledge flows, instead of devoting too much attention to the largest areas (already agglomeration forces)

(e) We have observed than spatial proximity is not sufficient for knowledge to flow: Knowledge flows may arise at a distance and conversely, knowledge does not always flow locally. In that sense, we suggest to **increase interpersonal relationships,** because they play a crucial role (face to face contacts and labour mobility), and also to stress the s**ocial proximity and the integration within local and global scientific networks**

(f) **Policy tools should be specific to the local context.** The definition of regional policies adapted to each regional context requires a good understanding of the local characteristics. No general recommendations can be done. However, trans-national policy learning is also important to identify best practices

- Finally, although intangible assets affect differently economic growth depending on the regional characteristics of the territory, after the analysis of the effects of IA on growth, we suggest the next **policies:**

Trade policies:

(a) Dismantle residual trade barriers, especially between countries with strong income differences, to have relevant welfare gains

(b) Support the peripheral territories to avoid regional inequalities deriving from a deeper European integration

Financial Market policies:

(a) Promote financial markets with diversified sources of financing, such as Venture Capital and Private Equity,

(b) Support greater efficiency in the stock markets since they perform a key role in the evaluation of the introduction and successful exploitation of technological innovations

(c) Promote a more liquid market for corporate control to facilitate the transfer of firms' control and to make entrepreneurs less subject to idiosyncratic risk

Labour market policies:

(a) Promote education of the workforce (i.e. training programs) and facilitate the matching of newly/more educated workers to firms in more productive sectors to favour a virtuous structural change towards more dynamic sectors of the economy

(b) Provide safety nets for those industries more directly hit by the process of euro adoption and facilitate the transition of low-skilled workers into jobs with a higher human capital content
(c) Sustain attraction of more educated workers from abroad so that their competences can be used by local firms in the technology adoption mechanism

Industrial policies:

(a) Promote **financial incentives and fiscal policies** designed to stimulate the firms accumulation of internal IA (software, R&D, patents, economic competencies and employee training)
(b) Improve infrastructures and allow differentiated fiscal regimes among richer and poorer regions in order to **attract firms in the poor region** and favour spatial dispersion of industrial activities
(c) Promote the **localization of enterprises** (through fiscal and financial incentives, public infrastructures) in places **where agglomeration economies** are taking place to improve innovation output and support the emergence of industrial districts
(d) Promote **tourist flows** since they convey new ideas and information to the destination regions enhancing their efficiency levels
(e) Improve **local transportation system** to reduce the length of business and commuting journeys and to boost labour productivity

Accumulation of IA

(a) Stimulate and support the accumulation and improvement of all Intangible Assets (human capital, technological capital, social capital and institutions, entrepreneurial) in the system since their complementary action enhances the economic performance at the firm and regional levels. This policy will also create beneficial effects to neighbouring regions due to the presence of spatial spillovers
(b) Impose, through centrally designed national policies, adequate standards in the provision of public good at the local level to facilitate collective learning and relational development
(c) Provide incentives to invest in R&D (also through FP programmes) and facilitate the creation of externalities especially for small firms, for instance, sharing the costs of R&D among several SMEs
(d) Invest more resources on education; more specifically: in lagging economies invest in lower levels of education to favour imitation, for more advanced economies invest in tertiary education linked to own-innovation
(e) Support the higher education in business schools to stimulate the accumulation of entrepreneurial capital

4. POTENTIAL IMPACT AND THE MAIN DISSEMINATION ACTIVITIES AND EXPLOITATION OF RESULTS

4.1 Potential Impact

The main policy conclusions are collected in deliverables 1.4, 2.4, 3.4, 4.4, 5.4 and 6.4. All the material is downloadable through the IAREG webpage (www.iareg.org)

- **European level**

The Europe 2020 Strategy has similar key words as IAREG. This means that the analysis of our main conclusions can help in the development of that Strategy.

Homogeneous databases at the regional level for most EU countries are difficult to find for most intangible assets. Homogeneity is indispensable in order to get comparable analysis. It is also important for getting more observations so as to get more consistent results in econometric analysis. It is therefore necessary to make more data available to allow for more detailed research. The analysis on the impact of intangible assets would certainly benefit from higher data quality.

Strong effort is indispensable to fill the gaps in the existing databases. Therefore strong progress is to be made in the system and procedures to improve the quality of data on

Intangible Assets. More specifically, a direct involvement by Eurostat is required in order to provide an homogenised data base on intangible assets which is essential to control for the achievements of the Lisbon agenda. It could also be interesting to develop a specific project to create a homogeneous database of IA at a regional European level. Specifically,

• The sources of data related to intangible assets are heterogeneous and still poorly coordinated and this is true at both geographical and sectorial level. Better and more homogeneous procedures are needed to collect data in the European countries, in particular in the candidate countries and in the countries recently included.

• Further, a better definition of regions, and in general of administrative boundaries related to statistical units, are suggested. For some country the existing definition is not useful to identify uniform regional areas in terms of economic, administrative and social elements. This is particularly true for certain variable such as, for example, the "self employment" used to proxy the entrepreneurship capital, but available with a depth sectoral disaggregation only at a national level. The geographical disaggregation is too low when we need select specific sector of activity.

The insufficient provision of suitable indicators to measure knowledge hampers the activity of researchers, practitioners and policy makers weakening any decision making process. **A higher degree of coordination between EU institutions** (e.g. Commission, Eurostat) **and national ones** (particularly national institutes of statistics and other statistical systems) is needed in order to:

• increase/extend the release of micro-data for policy and research, which, beyond the well known problems created by data confidentiality issues, is neither homogenously regulated at the EU level, nor always subject to transparent mechanisms of access;
• develop a benchmarking for policy learning across the EU, at national, regional and local level with respect to knowledge creation, accumulation and diffusion.

As for European R&D network, the imposed criteria on the multinationality of the FP projects is not sufficient to avoid their spatial concentrations. Indeed, in both the FP6 and FP7, there is evidence of a core-periphery structure emerging both at the European and sub-national level. This bares important consequences for regional development and cohesion policies.

As for human capital, it is necessary to **increase the attractiveness of the European Research Area by providing additional institutional funding for excellent research initiatives and for outstanding researchers from abroad**, e.g. by a European research chair scheme which could be integrated within other research initiatives funded by the EU or national governments. Several interviewed star scientists mentioned that the recent research funding by the EU is too bureaucratic and that this is a serious disincentive to submit proposals.

Substitution of good jobs for bad jobs is probably behind some productivity gains, and most probably using new immigrants as cheap workforce is also related with that. **Flexicurity arises as a good opportunity to embrace the state of well being together with productivity gains**.

Several actions could enhance knowledge flows. As is important to **favor local interactions and at the same time to connect the local innovation system to international levels,** it is important to promoting a regional "learning economy". This includes physical infrastructures, equipment and human resources for the education system, but also education and training policy, developing ways to learn, stimulating "a culture to learn" (for example rewards depending on learning and creative efforts). Developing communication infrastructures in all their forms, would also participate to this connectivity of regions. In addition, access for local businesses to international programs should be supported, for instance by developing advisory activities for SMEs in order to allow them to join the European cooperative structures. In addition, favoring integration of bordering regions (identifying and building cross-border RIS by reducing administrative boundaries and creating inter-regional linkages). **Retaining a significant proportion of the 75% of Europe's mobile academics within the ERA to reap the benefits of knowledge flows within Europe.**

Improving the impact of knowledge flows on productivity does not only rely on designing local scientific and technologic poles of excellence in order to benefit from agglomeration economies. It should be associated with specific actions towards lagging regions. Helping lagging areas to reach a critical mass will allow them to benefit from knowledge flows within and across the region. **In particular, policy makers should focus primarily on the medium size regions that need an initial help to access to global knowledge flows, instead of devoting too much attention to the largest areas that already benefit from agglomeration forces to build their own dynamics.**

Due to the great diversity of regional and sectoral context, general recommendations can hardly be drawn. The definition of regional policies adapted to each regional context requires a good understanding of the local characteristics and Trans-National Policy learning is also important to identify best practices. To this aim, there is a crutial need for monitoring tools. An easier access to data and a more systematic collection of this data is required, as well as an improvement and a diffusion of the indicators in order to adapt them to the local needs. This requires to organize the interactions between data producers, policy makers, and researchers specialized on these topics. A European structure should be set up to provide **a specific place:**
• **where data would be centralized and homogenized,**
• **where relevant indicators could be discussed and made available,**
• **and information could be diffused, both to the scientific community and to the policy makers.**

 Strong progress need to be made in both system and procedures to improve the quality of data on Intangible Assets, with a direct involvement of Eurostat in order to provide a broad and updated database on IA. This is necessary in order to assess their impact on the economy and to evaluate the implemented policy measures.
• Eurostat should coordinate the creation of a multidimensional database on IA with homogenised data for all European countries
• Data should be available with a sub-national disaggregation and also with a sectoral specification given the high heterogeneity among regions and sectors.
• Accurate procedures should be indicated for the regular collection of data in the European countries, in particular in the new accession and candidate countries.

 Dismantle residual trade barriers, especially between countries with strong income differences, to have relevant welfare gains.

 Support the peripheral territories to avoid regional inequalities deriving from a deeper European integration, so long as these peripheral regions are not able to compensate their disadvantaged geography with greater competitiveness.

 Promote financial markets with diversified sources of financing, such as Venture Capital and Private Equity, because banks alone are not able to supply the capital required for investing in new technologies.

 Support greater efficiency in the stock markets since they perform a key role in the evaluation of the introduction and successful exploitation of technological innovations which, in turn, positively affects total factor productivity.

 Promote a more liquid market for corporate control to facilitate the transfer of firms' control and to make entrepreneurs less subject to idiosyncratic risk.

 Stimulate and support the accumulation and improvement of all Intangible Assets (human capital, technological capital, social capital and institutions, entrepreneurial) in the system since their complementary action enhances economic performance at the firm and regional levels. This policy will also create beneficial effects to neighbouring regions due to the presence of spatial spillovers.

 Provide incentives to invest in R&D (also through FP programmes) and facilitate the creation of externalities especially for small firms, for instance, sharing the costs of R&D among several SMEs.

- **National level**

Increasing national educational levels is important, but not sufficient for fostering economic development. In addition, **the quality of human capital should be addressed** in order to improve the ability of an economy to absorb technological advance. In addition, **higher political activity and the quality of governance** should be thus supported/improved.

Labour markets at the national level display specificities that drive **this level as the best chance to develop flexicurity policies**, by establishing national objectives for adaptation and change in the area of employment, productivity, flexibility and security. **A national dialogue is needed** with representatives of employers, workers, government and other parties, in order to reformulate a series of policy approaches or negotiating a package of measures, what would lead to the adoption of national integrated flexicurity strategies.

Improvement on geographical labour mobility will reduce overeducation and this will imply better matches in the labour market that will allow exploiting the potentialities of investment on education.

The national level (instead of regional) should be the major policy level for higher education and research policy due to the national peculiarities of university systems and the predominantly national scope of impacts from university research.

An enhancement of excellence in research depends to a critical degree on the amount of funding provided by public sources. Additional funding should be flanked by institutional reforms within universities, e.g. greater autonomy, institutional strategies, and greater flexibility in terms of remuneration and equipment. **Opportunities for young scientists should be increased to work independently and with possibility to achieve a tenured position at early stages of the careers**.

National research agencies which are providing funding for research projects based on academic excellence and scientific potential of applications should be strengthened. The funds should be provided in a less bureaucratic manner.

Differences in returns to human capital are supposed to be behind migration of skilled workers across countries but, particularly, between regions within countries. This should be taken into account when promoting development of lagging regions and when assessing the effect of educational policies on the productive structure of the regional economies.

 Promote education of the workforce (i.e. training programs) and facilitate the matching of newly/more educated workers to firms in more productive sectors to favour a virtuous structural change towards more dynamic sectors of the economy.

 Provide safety nets for those industries more directly hit by the process of euro adoption and facilitate the transition of low-skilled workers into jobs with a higher human capital content.

 Sustain attraction of more educated workers from abroad so that their competences can be used by local firms in the technology adoption mechanism.

 Promote financial incentives and fiscal policies designed to stimulate the firms accumulation of internal intangible capital stocks, like software, R&D expenditure, patents, economic competencies and employee training.

 Improve infrastructures and allow differentiated fiscal regimes among richer and poorer regions in order to attract firms in the poor region and favour spatial dispersion of industrial activities.

 Promote the location of enterprises (through fiscal and financial incentives, public infrastructures) in places where agglomeration economies are taking place to improve innovation output and support the emergence of industrial districts with a favourable external environment.

 Promote tourist flows since they convey new ideas and information to the destination regions enhancing their efficiency levels.

 Invest more resources on education; more specifically: in lagging economies invest in lower levels of education to favour imitation, for more advanced economies invest in tertiary education linked to own-innovation.

 Impose adequate standards in the provision of public good at the local level, through centrally designed national policies, to facilitate collective learning and relational development.

 Support higher education in business schools to stimulate the accumulation of entrepreneurial capital.

- **Regional level**

Since the economic performance differs substantially even across the regions within the same country, a one size fits all approach cannot be the optimal strategy. Instead, policy measures should rely on the comparative advantages of the respective regions. Hence, the implementation of regional policies requires a deep understanding of the local characteristics, which should rely upon a detailed analysis of the regional strengths, weaknesses, opportunities and threats. This means that the actual measures to be implemented in each region can only be identified through a deep understanding of the local technological and socio-economic dynamics.

Regional policies should be also aware of the presence of external effects due to spatial spillovers. Besides their effect on the development in a particular region, measures to stimulate the investment in intangible assets will also affect the performance in other regions. Therefore, policies in neighbouring regions have to be coordinated.

With relation to the measurement of knowledge and innovation it is necessary to:
• **improve the regional availability of traditional STI indicators** (especially CIS), to ensure geographical comparability at the sub-national and sectoral level, possibly allowing also dynamic analysis;
• allow the measurement of new indicators on STI and IA at the regional level (such as those introduced in the report), **launching new surveys or revising existing ones** to account for the key features of spatial knowledge accumulation;
• provide a complete and constantly updated overview on overall regional data production within the EU, as information, particularly on specific national sources, is still rather difficult to be ascertained;

Regional policy makers should be aware of the fact that improving workers' human capital in their region will improve productivity and income per capita but maybe not as much as that kind of investment in some other regions. They should then be concerned about the factors that provoke such differences. And they should take into account that **improving the endowment of human capital is not likely to affect workers with the lowest earnings, as in this case differences has basically to do with lower returns to human capital.**

 To strengthen human capital (the skills of the local labour force), policy makers should devise: (a) Initiatives targeting long-term decreasing supply of scientific skills essential (regional talent management, strategic skills foresight); (b) Collaborative talent retention initiatives (industry & policy makers); (c) Programs to attract & bind international students

 To strengthen **organizational capital** (i.e. the regional ability to organise knowledge creation), policy makers should: (a) Promote cross-industry knowledge exchange & UIL through new mechanisms (e.g. innovation incubators, project houses etc.); (b) Strengthen public/private patent exploitation offices; (c) Increase availability & quality of venture capital (especially financing for early stage commercialization)

 To strengthen **network capital** (i.e. the regional ability to collaborate for knowledge creation) policy makers should: (a) Improve channels of communication of MNEs with other regional actors (awareness of local R&D/knowledge transfer initiatives); (b) Support temporary institutional moves from academia to industry; (c) Create regional partnering organizations (see pharmaceutical industry); (d) Increase scope of early-stage face-to-face interaction in publicly funded research consortia

 With respect to overeducation, the results indicate that even in the case that qualified workers do not find a suitable job, they are still more productive at the aggregate level than the unqualified ones. This implies that, there is the case for public investment in education. However, **in a context of high geographical mobility, regions will not directly benefit from their "over-investment" in the education of their population.**

 Related to quality of work, where substitution of good jobs for bad jobs is likely to happen, **comprehensive lifelong learning strategies are necessary** even before the crisis arrives. It would ensure continual adaptability and employability of workers, particularly the most vulnerable.

 With respect to social capital, low levels of social norms, civic participation, and formal and informal networks seem to hinder regional development – both separately and jointly with human capital – indicating the **importance of developing effective civil society**.

 Regional governments should complement initiatives to strengthen research fields identified by the respective universities or the national government if these activities have a high regional impact, e.g. scientific fields which are well integrated with the regional industry by direct collaborations and via the labour market, as well as promotion of start-up activities. However, these initiatives should be implemented in a very selective way and only in highly promising fields. The regional level should not have the main responsibility for higher education and research policy and funding due to the predominantly national scope of knowledge spillovers from university research.

The scope for research interactions varies greatly among regions and in some contexts is potentially huge. However, to achieve such potential, private and public resources have to be devoted to identifying and facilitating the most effective linkages for each region.

 Improve local transportation system to reduce the length of business and commuting journeys and to boost labour productivity by means of increasing returns derived from transportation cost savings, sharing inputs and knowledge spillovers.

- **Institutional level**

Our analysis showed that the effect of human capital on economic development is stronger in societies with higher level of institutional trust – it is therefore **important to pay special attention to the trustworthiness of public institutions (and people's perception of it).**

In order to improve R&D collaboration performance, policy instruments might include, for instance, interdisciplinary events (workshops, programs of lectures, expert discussions, company presentations, research procurement etc) that allow actors to identify partners for cooperation. Publicly funded research consortia that increase the scope of early-stage face-to-face contacts and public-private partnerships to improve the utilization of the regional core competencies or support knowledge-sharing between academics and businesses can contribute to the process of knowledge creation. Public or private patent exploitation offices at

universities or research institutes should be established to increase the use of intellectual property in a more systematic way.

In order to stimulate incentives to commercialize the new knowledge, more autonomy should be given to universities to strengthen strategic fields. Universities should develop their own strategies. More responsibility should be given to administrators to implement these strategies in an appropriate way. The involvement of business leaders to train the university staff may increase the chances of commercialization of academic knowledge in the future. Thus, university officials should engage local industry leaders and governmental officials in the design and management of university commercialization policies.

To attract star scientists, more autonomy should be given to universities in order to enable them to internally strengthen certain strategic fields. Additional funding is needed to provide a competitive research environment and remuneration for these strategic fields and the attraction of star scientists from abroad. Universities themselves have to develop unique institutional strategies and universities administrators should be given the power to implement these strategies properly. An important role can also be played by funding agencies: The German Research Foundation has established excellent funding schemes to promote the regional scientific integration of star scientists within collaborative research centers and by promoting independent research groups. This kind of funding should be further promoted since it is based on academic excellence and is not too bureaucratic.

To inform policy decisions on the processes of knowledge accumulation within firms the following findings are identified as crucial:

• Increasing resources for innovation is not an effective strategy unless the actual presence and strength of collaborative linkages within the system are identified. The attention of policy makers should be on the relation between networking and technological capabilities.

• R&D networks, although internationally in scope, may still uphold the geographical concentration both at the European level and at the sub-national level, baring important consequences on EU regional and cohesion policy.

• The support for firms' organisational innovation can be pursued through micro level initiatives such as creating awareness of the benefits of organizational renewal, providing training on organizational change and activities to support learning processes, but not through "best practice" approaches.

The following findings are deemed relevant for policies regarding the role of Universities in knowledge accumulation:

• Research quality and geographical proximity bare an important impact on the intensity of university-industry collaborations. However, such an influence varies greatly between basic-science and engineering-related scientific fields. The research indicates that a complex set of overlapping factors – most of them embedded in the industrial and scientific structure of regional systems – underlie the relevance of geographical proximity and the actual potential for localised knowledge spillovers.

• The quality of international network connections matters remarkably for academic entrepreneurship. As a consequence the set of tools of knowledge based economic development should include not only R&D promotion but also clever ways of supporting academic research networking.

• European professors generally show similar views to the US ones with regard to public vs. private science. However the professors that favour academic commercialization the most are those who, through their career, have gone beyond traditional core academic responsibilities interacting with firms, government and the wider public.

• A higher entrepreneurial orientation could be fostered through the introduction of mentoring programs for researchers who are not much experienced in commercialisation activities. Especially the opportunities in non-scientific disciplines should be promoted as they are often not well developed. In general the incentives for researchers to be engaged in commercialisation can be improved by a reduction of teaching requirements

• From the perspective of the academic staff, start ups by universities should be better supported. This could be achieved, for example, by providing management assistance and ongoing support from universities with respect to research and business contacts. Supportive departmental structures are crucial for the success of these policies.

4.2 Dissemination undertaken

 As a result of all the research done in the IAREG project, we have obtained 60 working papers (see http://www.iareg.org/index.php?id=91) and 4 technical progress reports. Also, derived from them, we have extracted useful policy implications which are presented in 5 Policy Reports (see http://www.iareg.org/index.php?id=75) and 13 Policy Briefs (see point 5.8 and http://www.iareg.org/index.php?id=107). Their main conclusions have also been summarized in a Final Policy Report and in the Scientific Executive Summary.

 Papers from WP1 to WP5 are in process of disseminating and are being presented at conferences and submitted to scientific journals. All the material is downloadable through the webpage that is updated periodically. At the moment, we have already published 15 articles in top international journals, additional 16 articles have already been accepted, and we have been presented our research in 142 Conferences.

 In addition, 5 E-Newsletter have been prepared and sent to provide periodic information on the project. This way, the main results of the project have been circulating to universities, research centers and other policy organisations. It also informed of the main events organised by the consortium.

The first IAREG meeting celebrated in the **DG Regio** building in Brussels allowed to increase the relationship with the interested policy-makers in our research.

The second IAREG meeting celebrated in Barcelona, at the University of Barcelona, allowed being in contact with the **Spanish Presidency of the EU**, inviting a high representative of the Education and Universities Ministry.

The presentation of our research and policy results in the Conference **Europe 2020 Strategy "Innovation insights from European research in socio-economic sciences**", celebrated the 1st of June 2010. Previously, in January 2010, also we presented a first draft of it in the Preparatory Meeting of this Europe 2020 Strategy.

The presentation of results on effect of Human Capital on Regional Growth in the **Hispano-French Seminar on Innovation, with the support of European Funds 2009**, Sevilla 2009

The IAREG Final Conference celebrated in the Committee of the regions, Brussels. The conference aimed to disseminate the scientific results from the project to the academia, research institutes, firms, policy makers and other stakeholders for supporting further research and evidence-based policy making. There was a big audience and an interesting discussion among all the particiapnts.

2 special issues in Regional Studies (in process) and in Papers in Regional Science have been done. In addition, now we are disseminating our IAREG research in Workshops and Conference and publishing our results in international journals (see point 5.7)

Additionally, a Special IAREG Session in the 50th European Regional Science Association (ERSA) Conference was developed in Sweden in august 2010. This is the main European Congress related with regional aspects. This dissemination was specially relevant, due to the geographical/regional emphasis done in our project related with the Intangible Assets.

In order to make easier the dissemination of the main IAREG results, we are now translating the Scientific Executive Summary and the Final Policy Guide to German, Italian, French and Spanish. These new documents will be delivered to national, regional and local authorities.

Other relevant issues related with the dissemination of the IAREG results, will be related with the periodic e-newsletters. We have made 5 and they have been distributed among the general mailing list of IAREG (where you can find policy makers, social stakeholders, research institutes, universities, press from all the countries involved in the consortium).

SCOOP project. With the objective to disseminate the IAREG project, a journalist from the SCOOP project made an article about some of the IAREG results, stressing the database problem related with the Intangible Assets.

 Finally, in month 12, 24 and 30 the results of the IAREG Project has been disseminated to European, national and regional administrations and clusters and local company associations

 In any case, the web page are the more relevant tool that includes all the information related with the IAREG project. www.iareg.org

5. RELEVANT CONTACT DETAILS

5.1 Coordinator

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5.2 Logo of the Project

5.3 IAREG Web page

The IAREG website was lunched the 22nd April 2008. For furhher information, please visit: www.iareg.org

5.4 IAREG partners

The consortium is composed by 12 universities and research institutes with a broad European countries coverage and complementary expertise in the field of Intangible Assets and regional development research.

Universitat de Barcelona. Regional Quantitative Analysis Group (AQR). Spain. **Coordinator: Jordi Suriñach**	**The Centre for North and South Economic Research (CRENoS). Italy.** **Team Leader: Raffaele Paci**	**Economic research centre of the University of Saint-Etienne (CREUSET). France** **Team Leader: Corinne Autant-Bernard**
German Institute for Economic Research (DIW). Germany **Team Leader: Christian Dreger**	**Center for Research in Economic Policy, University of Pécs (GKK). Hungary** **Team Leader: Attila Varga**	**Max Planck Institute of Economics (MPIoE). Germany** **Team Leader: Stephan Heblich**
Unit for Science, Technology and Innovation Studies: University of Tampere (UTA). Finland **Team Leader: Gerd Schienstock**	**Institute of Regional and Environmental Economy (WU-WIEN). Austria** **Team Leader: Edward Bergman**	**Univeristy of Tartu (UTARTU). Estonia** **Team Leader: Maaja Vadi**
Institute for Economic and Cultural Geography, Leibniz University of Hannover (LUH). Germany **Team Leader: Javier Revilla Diez**	**Spanish Council for Scientific Research. Institute of Innovation and Knowledge Management CSIC-INGENIO. Spain** **Team Leader: Pablo d'Este,**	**The London School of Economics and Political Science (LSE). UK** **Team Leader: Simona Iammarino**

5.5 IAREG Flayer

Partners

The consortium is composed by 13 universities and research institutes with a broad European countries coverage and complementary expertise in the field of Intangible Assets and regional development research.

UB-AQR www.pcb.ub.es/aqr
CREMoS www.cremos.it
CREUSET portail.univ-st-etienne.fr
DIW www.diw.de
GKK www.ktk.pte.hu
MPIoE www.econ.mpg.de
UTA www.uta.fi/tasti
WU-WIEN www.wu-wien.ac.at/ru/w
SPRU www.sussex.ac.uk/spru
UTARTU www.ut.ee
LUH www.wigeo.uni-hannover.de
CSIC-INGENIO www.ingenio.upv.es
LSE www.lse.ac.uk

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European Commission
DG RESEARCH

IAREG
intangible assets & regional economic growth

Creativity and Innovation

What is IAREG?

Intangible Assets and Regional Economic Growth is a project financed by the European Union under the Seventh Framework Programme for Research and Technological Development in the 'Socio-economic sciences and the humanities' area (FP7-SSH-2007-1. 216813). Its total budget is 1.350.000 Euro.

Objective

The objective of the IAREG Project is to analyze the role played by intangible assets (IA) in the generation of innovation, competitiveness and consequently economic growth and increases in productivity at regional level with a special emphasis on the geographical space in which such processes occur.

- To develop new indicators for improving the measuring of the IA considered having the most influence in the generation of economic development.
- To analyze how IA and their interaction define the environment affecting firms' location.
- To measure the role of regional externalities in the generation of IA and in determining local economic performances in Europe and in the diffusion of knowledge.

Research programme

The IAREG Project is organized in eight Work-packages, six of them being technical as follows:

Work-package	Objectives
WP1 KNOWLEDGE ACCUMULATION PROCESSES AND REGIONAL GROWTH	Achieve an integrated analytical framework of competitive strategies and collaborative linkages among firms and different organizations.
WP2 HUMAN AND SOCIAL CAPITAL AND REGIONAL PRODUCTIVITY	Analyze the influence of human and social capital on economic growth not only directly but also including the interactions among both of them.
WP3 ENTREPRENEURSHIP CAPITAL AND REGIONAL COMPETITIVENESS	Provide evidence on the impact of entrepreneurship capital on regional competitiveness and economic growth.
WP4 KNOWLEDGE FLOWS AND REGIONAL PRODUCTIVITY	Understand why the IA analyzed in the first block (WP1, 2 and 3) impact on firm and regional growth.
WP5 IA, FIRMS LOCATION AND REGIONAL COMPETITIVENESS	Estimate the role of the different types of IA in determining local economic performances in Europe.
WP6 POLICY DESIGN TO STIMULATE IA AND ECONOMIC GROWTH	Collection of policy conclusions according to conclusions extracted from WP1 to WP5.

Advisory Committee

The members of the Advisory Committee are representatives from public organisms and institutions. The Advisory Committee has two main objectives. First, to focus the research undertaken by the IAREG project towards the kind of issues that public administrations are interested in. Second, to monitor the policy recommendations extracted from each of the work-packages, as well as, to validate the final policy recommendations guide.

The collaboration between the Partners and the Advisory Committee is, then, crucial to ensure that policy recommendations are disseminated and implemented the best way possible.

IAREG Added Value

IAREG contributes:

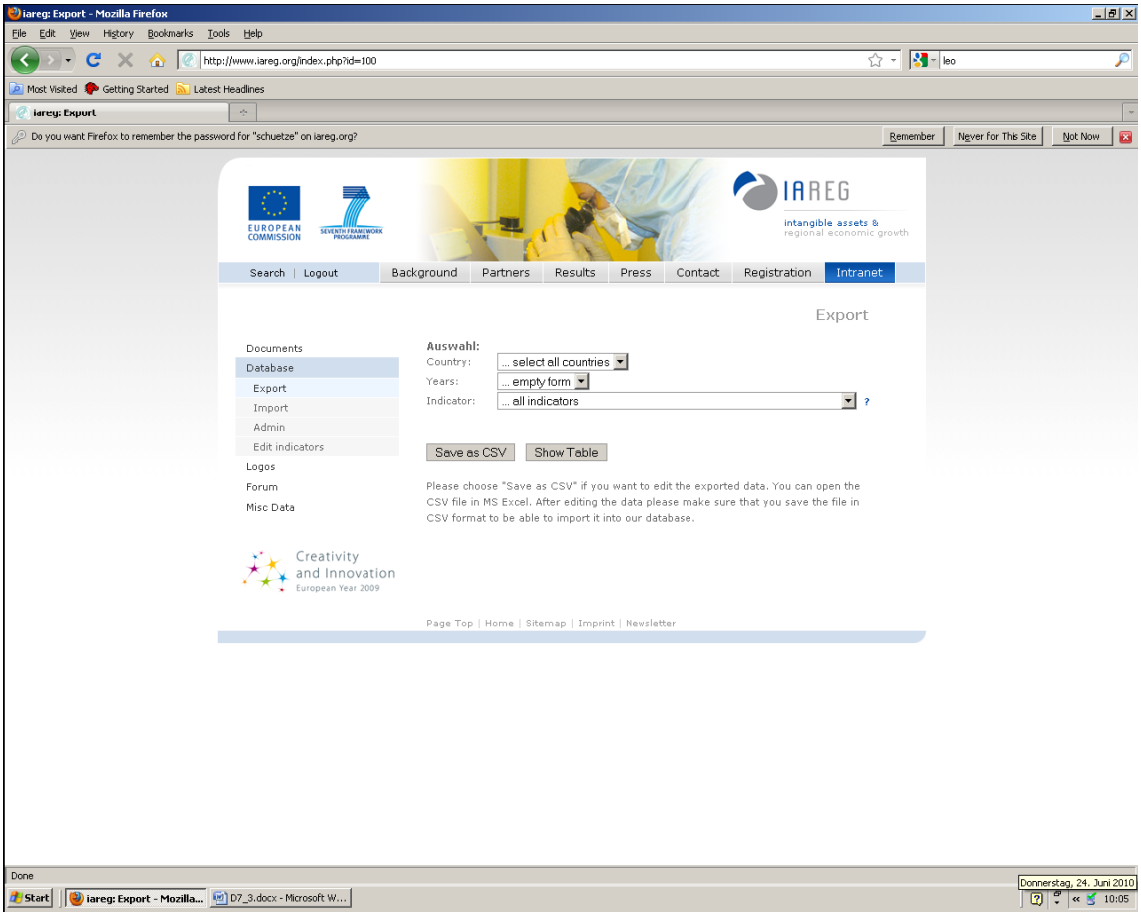
- To provide decision makers with policy recommendations in order to support them in the future design and implementation of regional innovation strategies
  To increase the theoretical and empirical knowledge about IA and regional economic growth

To whom IAREG may concern

- Policy makers at local, regional, national and European level
- Universities throughout Europe and beyond
- Research institutions, academies of the sciences, learned societies
- Statistical institutes

5.6 Open Source database

The high interest of Intangible Assets at European level has encouraged project partners to think of possibilities for a continuous public use of data that is generated partly, but not exclusively through the IAREG work packages. Consequently, one part of *Intangible Assets and Regional Economic Growth* lies in the provision of a simple, yet effective open sourced database that is both publicly accessible and extendable. Located within the IAREG website, this database includes new indicators for Intangible Assets and monitoring indicators for measuring the impact in economic growth. The database will further grow, primarily with the research and conclusions extracted from each work package, but also through the contributions of interested third parties, as the integration of additional data is ensured even once the IAREG project and the financial support from the European Commission is finished. Thereby, the database enables other interested researchers and stakeholders to continuously access this data and use it for future research studies. These features meet the overall intention of the IAREG consortium to continuously broadcast the results to all the interested actors in order to get them involved and achieve broader dissemination and implementation of the results to stimulate research on intangible assets across the EU.



5.7 IAREG Outputs

OUTPUT Intangible Assets and Regional Economic Growth IAREG Project				
SSH – 2007. SOCIOECONOMIC SCIENCES AND HUMANITIES. FP7 Collaborative Research Project.				
AQR				
Papers				
Title	**Authors**	**Journal 1**	**Year**	**Status**
Does human capital stimulate investments in physical capital? Evidence from a cost system framework.	López-Bazo, E; Moreno, R	Economic Modelling, 25, 1295-1305	2008	Published
Does social capital reinforce technological inputs in the creation of knowledge? Evidence from the Spanish regions	Miguélez, E; Moreno, R.; Artís, M.	Regional Studies	2009	Accepted
Evidence on the role of ownership structure on firms' innovative performance	Ortega-Argilés, R.; Moreno, R.	Investigaciones Regionales, 15, 231-250	2009	Accepted
Regional Heterogeneity in Wage Distributions: Evidence from Spain	Motellón, E; López-Bazo, E; El-Attar, M	Journal of Regional Science	2009	Accepted
Human Capital and Regional Wage Gaps (1)	López-Bazo, E; Motellón, E	Regional Studies (IAREG Special Issue)	2009	Revise and Resubmit
Human Capital Composition and Economic Growth at the Regional Level	Manca, F.	Regional Studies (IAREG Special Issue)	2009	Submitted
Regional economic growth and human capital: the role of overeducation	Ramos, R; Surinach, J: Artís, M.	Regional Studies (IAREG Special Issues)	2009	Submitted
An alternative measure of the aggregate effect of education	López-Bazo, E; Moreno, R	Regional Studies	2009	Revise and Resubmit
Assessing agglomeration economies in a spatial framework with endogenous regressors	Artis, M; Miguélez, E; Moreno, R	Regional Science and Urban Economics	2009	Submitted
Quality of work and productivity	Royuela, V; Suriñach, J.	Annals of Regional Science	2009	Submitted
The role of intangible assets in the regional economic growth	Suriñach, J; Moreno, R.	Investigaciones Regionales	2010	Submitted
Human capital spillovers and regional economic growth in Spain	Ramos, R.; Suriñach, J.; Artís, M.	Papers in Regional Science 89(2), pp. 435-447	2010	Published
Working Papers				
Title	**Authors**	**IAREG WP**	**Year**	
Regional variability in the impact of human capital on regional growth	López-Bazo,E.; Moreno, R.	WP IAREG 2/03	2008	
Quality of work and productivity	Royuela, V; Suriñach, J.	WP IAREG 2/05	2008	

Regional economic growth and human capital: the role of overeducation	Ramos, R.; Suriñach, J.; Artís, M.	WP IAREG 2/06	2008	
Regional Heterogeneity in Wage Distributions: Evidence from Spain	Motellón, E; López-Bazo, E; El-Attar, M	WP IAREG 2/08	2008	
Regional variability in the impact of human capital on regional growth	López-Bazo,E.; Moreno, R.	IREA WP 2008/17	2008	
Quality of work and productivity	Royuela, V; Suriñach, J.	IREA WP 2009/01	2008	
Regional economic growth and human capital: the role of overeducation	Ramos, R.; Suriñach, J.; Artís, M.	IREA WP 2009/04	2008	
Regional Heterogeneity in Wage Distributions: Evidence from Spain	Motellón, E; López-Bazo, E; El-Attar, M	IREA WP 2009/03	2008	
Human capital spillovers and regional economic growth in Spain	Ramos, R.; Suriñach, J.; Artís, M	WP IAREG 2/09	2009	
Does social capital reinforce technological inputs in the creation of knowledge? Evidence from the Spanish regions	Miguélez, E; Moreno, R.; Artís, M.	WP IAREG 5/10	2009	
Decomposing differences in total factor productivity across firm size. The role of innovation and human capital.	Castany L., López-Bazo E., Moreno R.	WP IAREG 5/11	2009	
Human Capital Composition and Economic Growth at the Regional Level	Manca, F.	WP IAREG 5/13	2009	
Assessing agglomeration economies in a spatial framework with endogenous regressors	Artis, M; Miguélez, E; Moreno, R	WP IAREG 5/19	2009	
Regional economic growth and human capital: the role of overeducation	Ramos, R.; Suriñach, J.; Artís, M.	IZA DP 4453	2009	
Human capital spillovers and regional economic growth in Spain	Ramos, R.; Suriñach, J.; Artís, M	IREA WP 2009/25	2009	
Human capital spillovers and regional economic growth in Spain	Ramos, R.; Suriñach, J.; Artís, M	IZA DP 4579	2009	
Does social capital reinforce technological inputs in the creation of knowledge? Evidence from the Spanish regions	Miguélez, E; Moreno, R.; Artís, M.	IREA WP2008/13	2009	
Decomposing differences in total factor productivity across firm size. The role of innovation and human capital.	Castany L., López-Bazo E., Moreno R.	IREA WP 2007/05	2009	
Human Capital Composition and Economic Growth at the Regional Level	Manca, F.	IREA WP 2009/13	2009	
Assessing agglomeration economies in a spatial framework with endogenous regressors	Artis, M; Miguélez, E; Moreno, R	IREA WP 2009/27	2009	
Human Capital and Regional Wage Gaps	López-Bazo, E; Motellón, E	IREA WP 2009/24	2009	

Dissemination

Title	Authors	Conference	Year	Place
Assessing agglomeration economies in a spatial framework with endogenous	Artis, M; Miguélez, E; Moreno, R	III Spatial Econometrics Conference	2009	Barcelona

regressors		European Economy Association Conference	2009	Barcelona
Does social capital reinforce technological inputs in the creation of knowledge? Evidence for the Spanish regions	Miguélez, E; Moreno, R.; Artís, M.	48th European Regional Science Association Congress	2008	Liverpool (UK)
		XI Encuentros de Economía Aplicada	2008	Salamanca (Spain)
Evidence on the role of ownership structure on firms' innovative performance	Ortega-Argilés, R.; Moreno, R.	XREAP Simposio sobre Dinámica Empresarial e Innovación: La incidencia del espacio	2008	Barcelona (Spain
Does human capital stimulate investments in physical capital? Evidence from a cost system framework.	López-Bazo, E; Moreno, R	Seminar in Univerity of Valencia	2008	Valencia (Spain)
Human Capital and Regional Wage Gaps (1)	López-Bazo, E; Motellón, E	XI Encuentro de Economía Aplicada	2008	Salamanca
		XXXIII Simposio de Análisis Económico	2008	Zaragoza
		55th Annual North American Meetings of the Regional Science Association International	2009	New York
		VIII Jornadas de Economía Laboral	2009	Zaragoza
		X ECOMOD Conference	2010	Istanbul (Turkey)
		Seminar in Sabanci University	2010	Istanbul (Turkey)
Regional Heterogeneity in Wage Distributions: Evidence from Spain	Motellón, E; López-Bazo, E; El-Attar, M	Conference on Spatial Economics and Trade	2008	Glasgow
		55th Annual North American Meetings of the Regional Science Association International	2009	New York
		FEDEA Seminar	2008	Madrid
		Seminar in Universitat Rovira i Virgili, Dpt d'Economia i Empresa	2009	Reus
IAREG Project. Results on the effect of Human Capital on Regional Growth	López-Bazo, E (3)	Seminario Hispano-Francés sobre la Innovación con el Apoyo de los Fondos Europeos	2009	Sevilla
Regional economic growth and human capital: the role of overeducation	Ramos, R.; Suriñach, J.; Artís, M.	XII Encuentro de Economía Aplicada	2009	Madrid (Spain)
		First IAREG Progress Meeting	2009	Brussels
Human capital spillovers and regional economic growth in Spain	Ramos, R.; Suriñach, J.; Artís, M	World Conference of Spatial Econometrics	2009	Barcelona (Spain)
Human Capital Composition and Economic Growth at the Regional Level	Manca, F.	II World Congress of the Spatial Econometrics Association	2008	New York (U.S.A)
		55th North American Research Council Conference	2008	New York (U.S.A)
		XIV Spring Meeting of Young Economists	2009	Istanbul, (Turkey)
		XXXV Reunion de Estudios Regionales	2009	Valencia (Spain)
		XIV International Society for New Institutional Economics	2009	Berkeley (U.S.A)
Appropriate IPRs, Human capital composition and Economic Growth		XI Conference on International Economics	2009	Barcelona

Quality of work and productivity	Royuela, V; Suriñach, J.	55th Annual North American Meetings of the Regional Science Association International	2009	New York
Quality in work and aggregate productivity.	Royuela, V; Suriñach, J.	XII Encuentro de Economía Aplicada	2009	Madrid (Spain)
Calidad del empleo y satisfacción laboral	Royuela, V; Suriñach, J.	III Congreso Nacional Mercado de trabajo y relaciones laborales	2010	Palencia (Spain)
Decomposing differences in total factor productivity across firm size. The role of innovation and human capital.	Castany L., López-Bazo E., Moreno R	COINVEST Conference on Intangible Investments at Macro and Micro Levels and Their Role in Innovation, Competitiveness and Growth	2010	Lisbon
INTANGIBLE ASSETS AND REGIONAL ECONOMIC GROWTH	Moreno, R.	EU-2020 strategy - Insights from European research in socio-economic sciences	2010	Brussels
Main scientific results of IAREG Project	Suriñach,	IAREG Final Conference	2010	Brussels
Dissemination IAREG Internal meetings and Workshops				
Title	Authors	Conference	Year	Place
Regional variability in the impact of human capital on regional growth	López-Bazo,E.; Moreno, R.	FIRST IAREG PROGRESS MEETING	2009	Brussels
Regional variability in the returns to HK	López-Bazo,E.; Moreno , R.	"Human and social capital and regional productivity" Workshop	2008	Barcelona
Quality in work and productivity	Royuela, V; Suriñach, J.	FIRST IAREG PROGRESS MEETING	2009	Brussels
Quality of work and productivity	Royuela, V; Suriñach, J.	"Human and social capital and regional productivity" Workshop	2008	Barcelona
Regional economic growth and human capital: the role of overeducation	Ramos,R.; Suriñach,J.; Artís, M.	FIRST IAREG PROGRESS MEETING	2009	Brussels
Regional heterogeneity in wage distributions. Evidence from Spain	Motellón, E.; López-Bazo, E.; El-Attar, M	FIRST IAREG PROGRESS MEETING	2009	Brussels
Do innovation and human capital explain the productivity gap between small and large firms?	Castany L., López-Bazo E., Moreno R	"Knowledge flows, intangible assets and regional performance" Workshop	2009	Cagliari
Assessing agglomeration economies in a spatial framework with endogenous regressors	Artis M., Miguélez E., Moreno R.	"Knowledge flows, intangible assets and regional performance" Workshop	2009	Cagliari
Human Capital Composition and Economic Growth at the Regional Level	Manca, F.	"Knowledge flows, intangible assets and regional performance" Workshop	2009	Cagliari
Effects of educational human capital on regional wages	Motellón, E.; López-Bazo, E.;	"Human and social capital and regional productivity" Workshop	2008	Barcelona
Human capital mobility	Ramos,R.; Suriñach,J.; Artís, M.	"Human and social capital and regional productivity" Workshop	2008	Barcelona
CRENOS				
Papers				
Title	**Authors**	**Journal 1**	**Year**	**Status**

What determines entrepreneurial clusters	Schivardi F., Guiso L.	Journal of the European Economic Association	2009	Forthcoming
The euro and firm restructuring	Schivardi f., Bugamelli M., Zizza R.	Europe and the Euro, (eds) A. Alesina and F. Giavazzi, University of Chicago Press	2009	Published
Knowledge flows across the European regions	Paci R., Usai S.	Annals of Regional Science	2009	Published
Productivity and Firm Selection: Quantifying the New Gains from Trade	Corcos G., Del Gatto M., Mion G., Ottaviano G.	Economic Journal	2009	Resubmitted
Measuring productivity	Del Gatto M., Di Liberto A., Petraglia C.	Journal of Economic Surveys	2010	Published
International TFP dynamics and human capital stocks: a panel data analysis, 1960-2003	Di Liberto A., Pigliaru F., Chelucci P.	The Review of Income and Wealth	2010	Published
Total Factor Productivity, Intangible Assets and Spatial Dependence in the European Regions	Dettori B., Marrocu E., Paci R.	Regional Studies (IAREG Special Issue)	2009	Resubmitted
Schooling, Production Structure and Growth: An Empirical Analysis on Italian Regions	Sulis G., Hirsch C.	Rivista Italiana degli Economisti, SIE - Societa' Italiana degli Economisti (I), vol. 14(3)	2009	Published
Persistent regional gaps and the role of social capital: Hints from the Italian Mezzogiorno's case –	Pigliaru F.	QA Rivista dell'Associazione Rossi-Doria, pp. 113-13	2009	Published
The generation and exploitation of technological change: market value and total factor productivity	Antonelli, C., Colombelli, A.	The Journal of Technology Transfer	2010	Accepted
They arrive with new information Tourism flows and production efficiency in the European regions	Marrocu M., Paci R.	Tourism Management	2010	Accepted
Intangible capital and firms productivity	Marrocu E., Paci R., Pontis M.	Industrial and Corporate Change	2010	Submitted
Working Papers				
Title	**Authors**	**IAREG WP**	**Year**	
Measuring productivity	Del Gatto M., Di Liberto A., Petraglia C.	WP IAREG 5/01	2009	
Intangible assets in the European regions Data homogenization and descriptive analysis	Foddi M., Paci R.	WP IAREG 5/02	2009	
Total Factor Productivity, Intangible Assets and Spatial Dependence in the European Regions	Dettori B., Marrocu E., Paci R.	WP IAREG 5/03	2009	
Persistent regional gaps and the role of social capital: Hints from the Italian Mezzogiorno's case –	Pigliaru F.	WP IAREG 5/04	2009	
The euro and firm restructuring	Schivardi f., Bugamelli M., Zizza R.	WP IAREG 5/05	2009	
What determines entrepreneurial clusters	Schivardi F., Guiso L.	WP IAREG 5/06	2009	
Does Idiosyncratic Business Risk Matter?	Schivardi F., Michelacci C.	WP IAREG 5/07	2009	
Does Idiosyncratic Business Risk Matter?	Schivardi F., Michelacci C.	CEPR WP 6910	2009	
The generation and exploitation of technological change: market value and total factor productivity	Antonelli C., Colombelli A.	WP IAREG 5/08	2009	

Intangible capital and firms productivity	Marrocu E., Paci R., Pontis M.	WP IAREG 5/12	2009	
Productivity and Firm Selection: Quantifying the New Gains from Trade	Corcos G., Del Gatto M., Mion G., Ottaviano G.	WP IAREG 5/14	2009	
Is Agglomeration really good for Growth? Global Efficiency and Interregional Equity	Cerina F., Mureddu F.	WP IAREG 5/15	2009	
Missing trade where is it?	Pinna A.	WP IAREG 5/16	2009	
International TFP dynamics and human capital stocks: a panel data analysis, 1960-2003	Di Liberto A., Pigliaru F., Chelucci P.	WP IAREG 5/17	2009	
Schooling, Production Structure and Growth: An Empirical Analysis on Italian Regions	Sulis G., Hirsch C.	WP IAREG 5/18	2009	
They arrive with new information Tourism flows and production efficiency in the European regions	Marrocu M., Paci R.	WP IAREG 5/21	2009	
Knowledge flows across the European regions	Paci R., Usai S.	WP IAREG 4/10	2009	
Dissemination				
Title	**Authors**	**Conference**	**Year**	**Place**
Schooling, Production Structure and Growth: An Empirical Analysis on Italian Regions	Sulis G., Hirsch C.	6th International Conference Developments in Economic Theory and Policy	2009	Bilbao
		3rd World Congress of the Spatial Econometrics Association	2009	Barcelona
Total factor productivity, intangible assets and spatial dependence in the European regions	Dettori B., Marrocu E., Paci R.	48th ERSA Congress, University of Liverpool	2008	
		Seminar CRENoS-Deca	2009	Cagliari
		Third World Conference of Spatial Econometrics	2009	Cagliari
		DIME Workshop on "Technology, Skills and Geography", SPRU	2009	University of Sussex
		50th Riunione Scientifica Annuale della Società Italiana degli Economisti	2009	Rome
		56° Northern American Regional Science Association	2009	San Francisco
Market value and total factor productivity	Antonelli C., Colombelli A	AFSE 2009 tematic meeting	2009	Sophia Antipolis
		Seminar CRENoS-Deca	2009	Cagliari
The euro and firm restructuring	Schivardi f., Bugamelli M., Zizza R.	NBER Conference on Europe and the Euro,	2008	Milan
		External adjustment: the macroeconomic and microeconomic dimensions", Directorate-General for Economic and Financial Affairs (DG ECFIN)	2009	Brussels
Does Idiosyncratic Business Risk Matter?	Schivardi F., Michelacci C.	seminar at the University of Naples, Sassari, Cagliari, Venice, EIEF and at the CREI-CEPR conference on Finance	2008-2009	Naples, Sassari, Cagliari, Venice
Knowledge flows across the European regions	Paci R., Usai S.	~~Knowledge flows across European Regions",~~	~~2008~~	~~Istanbul, Turkey~~

		IEA Conference		
		Knowledge flows across European Regions 34° EARIE	2007	Valencia
		Knowledge flows across European Regions ERSA 2007	2007	Paris
		CRENoS Workshop	2009	Cagliari
What determines entrepreneurial clusters	Schivardi F., Guiso L.	Entry, Entrepreneurship and Financial Development, World Bank	2005	Whasington D.C.
		Understanding Productivity Differences Across Sectors, Firms and Countries	2004	Alghero
Market value and total factor productivity	Antonelli C., Colombelli A	AFSE 2009 tematic meeting	2009	Sophia Antipolis
		Seminar CRENoS-Deca	2009	Cagliari
Intangible capital and firms productivity	Marrocu E., Paci R., Pontis M.	56° Northern American Regional Science Association	2009	San Francisco
		50 European Regional Science Association Congress	2010	Jonkopping (SE)
		25° Congress European Economic Association	2010	Glasgow
		37° Congress European Association Research in Industrial Economics	2010	Istanbul
		51° Congress Italian Economic Association	2010	Catania
Is Agglomeration really good for Growth? Global Efficiency, Interregional Equity and Uneven Growth	Cerina F., Mureddu F.	Italian Trade Study Group	2009	Cagliari
		Italian Society of Economists	2009	Rome
		Northern American Regional Science Association	2009	San Francisco
		Conference “Dynamics, Economic Growth, and International Trade, DEGIT – XV”	2010	Frankfurt am Main
		Conference of the Regional Science Association International (British and Irish Section)	2010	Glasgow
		AnConference of the Regional Science Association International (Germa Section)	2010	Hannover
		European Parliament Conference "The Economic Crisis and the Process of European Integration"	2010	Brussels
		Annual Conference of the Scottish Economic Society	2010	Perth
Missing trade where is it?	Pinna A.	European trade study group conference	2009	Rome
International TFP dynamics and human capital stocks: a panel data analysis, 1960-2003	Di Liberto A., Pigliaru F., Chelucci P.	15th International Conference on Panel Data	2009	Bonn
		“The Dynamics of knowledge and innovation in knowledge-intensive industries” BRICK	2009	Torino

		Conference,		
		“Financial markets, firm internationalization and competitiveness” Conference	2009	Rome
		22th Annual Congress of the European Economic Association	2009	Budapest
		CRENoS Workshop "Innovation and Growth: Local and global perspectives”	2009	Cagliari
They arrive with new information Tourism flows and production efficiency in the European regions	Marrocu M., Paci R.	2° IATE Conference	2009	Chiang Mai
		50 European Regional Science Association Congress	2010	Jonkopping (SE)
Productivity and Firm Selection: Quantifying the New Gains from Trade	Corcos G., Del Gatto M., Mion G., Ottaviano G.	GTAP 10th Annual Conference on Global Economic Analysis, Purdue Univ.	2007	West Lafayette, Indiana
		Roundtable on “Trade and the Turmoil”, European Central Bank	2009	Frankfurt
		DIME-ISGEP 2010 Workshop on Firm Selection and Country Competitiveness, Univ of Nice	2010	Nice
		European Trade Study Group (ETSG)	2009	Rome
		Jornadas de Economia Industrial (JEI), Univ of Vigo;	2009	Vigo
		Annual workshop on Trade and Productivity - CRENoS	2008	Cagliari
Dissemination IAREG Internal meetings and Workshops				
Title	Authors	Conference	Year	Place
International TFP dynamics and income convergence: a panel data analysis	Di Liberto, A.; Pigliaru, F.; Chelucci, P.	"Human and social capital and regional productivity" Workshop	2008	Barcelona
The effects of public capital on the productivity of Italian regions	Paci, R.; Marrocu, E.	"Human and social capital and regional productivity" Workshop	2008	Barcelona
The Effect of Family Income on Schooling Outcomes of Children: Results from IV Estimates	Sulis, G.; Gratziu, S.	"Human and social capital and regional productivity" Workshop	2008	Barcelona
Total Factor Productivity, Intangible Assets and Spatial Dependence in the European Regions	Dettori B., Marrocu E., Paci R	"Knowledge flows, intangible assets and regional performance" Workshop	2009	Cagliari
The role of social capital on regional EU productivity	Di Liberto A., Pigliaru F	"Knowledge flows, intangible assets and regional performance" Workshop	2009	Cagliari
Is Agglomeration really good for Growth? Global Efficiency, Interregional Equity and Uneven Growth	Cerina F., Mureddu F	"Knowledge flows, intangible assets and regional performance" Workshop	2009	Cagliari
They arrive with new information Tourism flows and production efficiency in the European regions	Marrocu M., Paci R.	“2nd progress meeting Iareg”	2010	Barcelona
Total Factor Productivity, Intangible Assets and Spatial Dependence in the European Regions	Dettori B., Marrocu E., Paci R.	“2nd progress meeting Iareg”	2010	Barcelona

CREUSET				
Papers				
Title	**Authors**	**Journal 1**	**Year**	**Status**
Productivity Changes and Intangible Assets: Evidences from French Plants	Corinne Autant-Bernard, Jean-Pascal Guironnet and Nadine Massard	International Journal of Production Economics	2009	Submitted
Quantifying knowledge spillovers	Corinne Autant-Bernard and James LeSage	Journal of Regional Science	2009	Forthcoming
Knowledge Diffusion:Challenges to Innovation Policies within the European Regions	Corinne Autant-Bernard, Muriel Fadairo and Nadine Massard	Research Policy	2010	Submitted
Innovation et Espace - Des externalités aux réseaux	Corinne Autant-Bernard, Pascal Billand, Nadine Massard	Revue d'Economie Industrielle	2009	Published
Working Papers				
Title	**Authors**	**IAREG WP**	**Year**	
R&D collaboration networks and spatial diffusion of knowledge. A comparison between Telecommunication and Microelectronics	Corinne Autant-Bernard, Pascal Billand,David Frachisse, Nadine Massard	IAREG WP 1/2b	2009	
Underlying mechanisms of knowledge diffusion	Autant-Bernard C., , Massard N.	IAREG WP4/07	2009	
Productivity Changes and Intangible Assets: Evidences from French Plants	Corinne Autant-Bernard, Jean-Pascal Guironnet and Nadine Massard	IAREG WP4/05	2009	
Knowledge Diffusion:Challenges to Innovation Policies within the European Regions	Corinne Autant-Bernard, Muriel Fadairo and Nadine Massard	IAREG WP4/09	2010	
Dissemination				
Title	**Authors**	**Conference**	**Year**	**Place**
Productivity Changes and Intangible Assets: Evidences from French Plants	Corinne Autant-Bernard, Jean-Pascal Guironnet and Nadine Massard	"Knowledge flows, intangible assets and regional performance" Workshop	2009	Cagliari
		3ème Journées Economie et Espace	2009	Dijon
		DIME	2009	Brighton
R&D collaboration networks and spatial diffusion of knowledge	Corinne Autant-Bernard, Pascal Billand, David Frachisse, Nadine Massard	IAREG Workshop	2009	Vienna
Defining and measuring cultural diversity for innovation analysis purpose	Fabrice Périac	ESSID	2009	Barcelona
Quantifying knowledge spillovers	Corinne Autant-Bernard and James LeSage	CORE Seminar	2009	Louvain-La-Neuve
		Spatial Econometric Association Conference	2009	Barcelona
Dissemination IAREG Internal meetings and Workshops				

Title	Authors	Conference	Year	Place
Productivity Changes and Intangible Assets: Evidences from French Plants	Autant-Bernard C., Guironnet J-P., Massard N.	"Knowledge flows, intangible assets and regional performance" Workshop	2009	Cagliari
DIW				
Title	**Authors**	**Journal 1**	**Year**	**Status**
Regional measures of human capital in the European Union	Dreger, Erber, Glocker	Journal of Human Capital	2009	Submitted
Regional Patterns of Venture Capital Financing in the US	Georg Erber	Regional Studies (IAREG Special Issue)	2009	Submitted
Working Papers				
Title	**Authors**	**IAREG WP**	**Year**	
Regional measures of human capital in the European Union	Dreger, Erber, Glocker	WP IAREG 2/01	2009	
Regional Patterns of Venture Capital Financing in the US	Georg Erber	WP IAREG 3/04	2008	
Dissemination				
Title	**Authors**	**Conference**	**Year**	**Place**
Regional measures of human capital in the European Union	Dreger, Erber, Glocker	European Regional Economic Forum (EREF)	2009	Nova Gorica, Slovenia
		European Regional Science Association	2010	Jonköpping, Sweden
Final IAREG Policy Guide	Dreger,C	IAREG Final Conference	2010	Brussels
Dissemination IAREG Internal meetings and Workshops				
Title	Authors	Conference	Year	Place
Regional measures of human capital in the European Union	Dreger, C.; Erber, G.; Glocker, D	FIRST IAREG PROGRESS MEETING	2009	Brussels
Regional Patterns of Venture Capital Financing in the US	Erber, G.	FIRST IAREG PROGRESS MEETING	2009	Brussels
GKK				
Papers				
Title	**Authors**	**Journal 1**	**Year**	**Status**
Integrating geography in models of policy impact assessment: Why and how?	Varga A	Science Regionali, Vol. 8, No 1, 107-115	2009	Published
Academic knowledge transfers and the structure of international research networks	Varga A., Parag A	Universities, Knowledge Transfer and Regional Development, Edward Elgar, 138-159	2009	Published
Egyetemi tudástranszfer és a nemetközi kutatási hálózatok szerkezete	Varga A., Parag A	Közgazdasági Szemle április, 343-358	2009	Publsihed
Az egyetemi vállalkozó – legenda vagy valóság az európai regionális fejlődés elősegítésére?	Erdős K., Varga A	Közgazdasági Szemle 2010 május, 457-472	2010	Published
Working Papers				
Title	**Authors**	**IAREG WP**	**Year**	
The academic entrepreneur: Myth or reality for increased regional growth in Europe?	Erdős K., Varga A	KRTI Working Paper series	2009	Pécs
		Culture of Business - Capital of Culture. International confrence in Pécs	2010	Pécs
		DRUID Working paper series	2010	Coppenhagen

		RSA Annual Conference	2010	Pécs
		ERSA Conference 2010	2010	Jönköping
Academic Knowledge Transfers and the Structure of International Research Networks	Varga A., Parag A	WP IAREG 1/3d	2009	
The academic entrepreneur: Myth or reality for increased regional growth in Europe?	Erdős K., Varga A	WP IAREG 1/3g	2009	
Geographic Macro and Regional Model for EU Policy Impact Analysis of Intangible Assets on Growth	Varga A., Járosi P., Sebestyén T.	WP IAREG 5/20	2009	
Agglomeration and network effects in regional R&D productivity	Varga A., Pontikakis D., Chorafakis G.	WP IAREG 5/22	2010	
Dissemination				
Title	**Authors**	**Conference**	**Year**	**Place**
Agglomeration and network effects in regional R&D productivity	Varga A., Pontikakis D., Chorafakis G.	ERSA	2009	Lodz
		RSA	2009	Leuven
		ESSID Summer School, Barcelona	2009	Barcelona
		METU TEKPOL, Ankara plenary presentation	2009	Ankara
		DG Regio workshop on Cohesion Policy	2009	Brussels
		Hungarian Academy of Sciences Center for Regional Studies, Győr	2009	Győr
		II. Conference of the Hungarian Society for Economics, Budapest	2008	Budapest
		RSAI, New York	2008	New York
		EC-JRC-IPTS Seville invited seminar, Seville	2008	Seville
Academic knowledge transfers and the structure of international research networks	Varga A, Parag A	DRUID 25th Celebration Conference Coppenhagen	2008	Coppenhagen
		Knowledge in space and time. 1st DIME Conference, Strasbourg	2008	Strasbourg
		The autonomous University of Madrid, Spain	2008	Madrid
		ESSID interntional summers school, Barcelona	2009	Barcelona
Innovation through spin-offs in Hungary	Erdős K., Varga A	3rd Central European Conference in Regional Science, Kosice	2009	Kosice
Innovation through spin-offs in the Hungarian biotechnology sector	Erdős K., Varga A	Cooperation and participation in technoscience in the Socialist and the Post-Socialist space workshop, Graz	2009	Graz
Academic Entrepreneurship: The Role of Institutions	Erdős K., Varga A	ERSA Conference 2009	2009	Lodz
The academic entrepreneur: Myth or reality for increased regional growth in Europe?	Erdős K., Varga A	Culture of Business - Capital of Culture. International confrence in Pécs	2009	Pécs
		RSA Annual Conference	2009	Pécs

		ERSA Conference 2010	2010	Jönköping
Dissemination IAREG Internal meetings and Workshops				
Title	Authors	Conference	Year	Place
Regional innovation policy analysis with a Spatial Computable General Equilibrium model	Varga A., Járosi P., Sebestyén F	"Knowledge flows, intangible assets and regional performance" Workshop	2009	Cagliari
Dissemination to policiymakers				
Economic modeling to assist regional policymaking - workshop at the Faculty of Business and Economics, University of Pécs, 2010, June 11	http://www.krti.ktk.pte.hu/index.php?p=contents&cid=63		2010	Pécs
MPIOE				
Papers				
Title	**Authors**	**Journal 1**	**Year**	**Status**
The Impact of Regional Age Structure on Entrepreneurship	Werner Bönte, Oliver Falck, Stephan Heblich	Economic Geography	2009	Accepted
The Apple Doesn't Fall Far From the Tree: Location of Start-Ups Relative to Incumbents	Oliver Falck, Michael Fritsch, Stephan Heblich	Target Journal: Annals of Regional Science	2009	
Identity and Entrepreneurship	Oliver Falck, Stephan Heblich, Elke Luedemann	Small Business Economics	2009	Accepted
Regional Regimes and Local Entrepreneurship	David Audretsch, Oliver Falck, Maryann Feldman, Stephan Heblich	Regional Studies	2009	Accepted
Entrepreneurship Capital, Knowledge Spillovers and Regional Productivity: Some Empirical Evidence from European Regions	Werner Boente, Monika Jarosch, Stephan Heblich	Regional Studies (IAREG Special Issue)	2009	Revise and Resubmit
Working Papers				
Title	**Authors**	**IAREG WP**	**Year**	
Concept and Measurement of Regional Entrepreneurship Capital	Bönte, W.; Heblich,S.; Jarosch, M.	IAREG WP 3/01	2008	
The Impact of Regional Age Structure on Entrepreneurship	Werner Bönte, Oliver Falck, Stephan Heblich	IAREG WP 3/02	2008	
The Apple Doesn't Fall Far From the Tree: Location of Start-Ups Relative to Incumbents	Oliver Falck, Michael Fritsch, Stephan Heblich	IAREG WP 3/03	2008	
Entrepreneurship Capital and Regional Productivity: Some Empirical Evidence from European Regions	Boente, W.; Heblich, S.; Jarosch, M.	IAREG WP 3/05	2008	
Identity and Entrepreneurship	Oliver Falck, Stephan Heblich, Elke Luedemann	IAREG WP 3/06	2008	
Dissemination				

Title	Authors	Conference	Year	Place
The Impact of Regional Age Structure on Entrepreneurship	Werner Bönte, Oliver Falck, Stephan Heblich	ERSA	2008	Liverpool, UK
Regional Regimes and Local Entrepreneurship	David Audretsch, Oliver Falck, Maryann Feldman, Stephan Heblich	NARSC	2008	Brooklyn, USA
Identity and Entrepreneurship	Oliver Falck, Stephan Heblich, Elke Luedemann	EMAEE	2009	Jena, Germany
The Apple Doesn't Fall Far From the Tree: Location of Start-Ups Relative to Incumbents	Oliver Falck, Michael Fritsch, Stephan Heblich	DIME Workshop	2009	Jena, Germany
Dissemination IAREG Internal meetings and Workshops				
Title	Authors	Conference	Year	Place
Concept and Measurement of Regional Entrepreneurship Capital	Bönte, W.; Heblich,S.; Jarosch, M.	FIRST IAREG PROGRESS MEETING	2009	Brussels
The Impact of Regional Age Structure on Entrepreneurship	Boente, W.; Falck, O.; Heblich, S.	FIRST IAREG PROGRESS MEETING	2009	Brussels
The Apple Doesn't Fall Far From the Tree: Location of Start-ups Relative to Incumbents	Falck,O.; Fritsch, M.; Heblich, S.	FIRST IAREG PROGRESS MEETING	2009	Brussels
Entrepreneurship Capital and Regional Productivity: Some Empirical Evidence from European Regions	Boente, W.; Heblich, S.; Jarosch, M.	FIRST IAREG PROGRESS MEETING	2009	Brussels
Identity and Entrepreneurship	Falck, O.; Heblich, S.; Lüdemann, E.	FIRST IAREG PROGRESS MEETING	2009	Brussels
UTA				
Papers				
Title	**Authors**	**Journal 1**	**Year**	**Status**
Knowledge management in practice. Findings from a Finnish Firm survey	Schienstock, G.	Journal Intelligent Information Management	2009	Submitted
Working Papers				
Title	**Authors**	**IAREG WP**	**Year**	
Organizational Capabilities: Some reflections on the Concept	Schienstock, G.	IAREG WP 1/2c	2009	
Organizational innovations and new management practices: Their diffusion and influence on firms' performance. Results from a Finnish firm survey	Schienstock, G.; Rantanen, E.; Tyni, P.	IAREG WP 1/2d	2009	
Knowledge Management Practices in Low-tech and Medium-tech Industries. Findings from a Finnish Business Survey	Schienstock, G.	IAREG WP 4/04	2009	
Dissemination				
Title	**Authors**	**Conference**	**Year**	**Place**

Dissemination IAREG Internal meetings and Workshops				
Title	Authors	Conference	Year	Place
“Organizational innovations and new knowledge management practices: Their diffusion and influence on firms' performance.	Schienstock, G.; Rantanen, E.; Tyni, P.	FIRST IAREG PROGRESS MEETING	2009	Brussels
Organizational innovations and new knowledge management practices: Their diffusion and influence on firms’ performance. Results from a Finnish firm survey	Schienstock, G.; Rantanen, E.; Tyni, P.	"Knowledge flows, intangible assets and regional performance" Workshop	2009	Cagliari
WU-WIEN				
Papers				
Network central: regional positioning for innovative advantage	Bergman, E., Maier, G.	Annals of Regional Science	2009	Accepted
How Similar are EU and U.S. Views of Academic Entrepreneurship? Further Explorations	Bergman, E; Goldstein, H	Uddevalla Symposium Research Reports	2009	Accepted
Developing Cross-Border Regional Innovation Systems: Key Factors and Challenges	Trippl, M.	Tijdschrift voor Economische en Sociale Geografie	2010	Accepted
University Policy and Regional Development: Technology Transfer Offices as Facilitators and Generators of University-industry Linkages	Reiner, C.	Berichte zur Deutschen Landeskunde	2010	Accepted
Knowledge Flows That Link European Universities and Firms: A Review	Bergman, E	Papers in Regional Science	2009	Accepted
Title	**Authors**	**IAREG WP**	**Year**	
Marshall's Dilemma: Intangible Assets and European Universities	Bergman, E	RUW Working Paper	2009	In revision
CENTROPE: Case Laboratory for Cross-Border Regional Innovation Systems	Trippl, M, Bergman, E.	RUW Working Paper	2009	In preparation
Directed Patent Citations Across Central European Borders: 1984-2004	Ondos, S., Bergman, E.	RUW Working Paper	2009	In revision
Academic Mobility in Europe's Best Universities	Bergman, E.	RUW Working Paper	2009	In preparation
Commercialization in European Universities: Views and Actions of Academics	Bergman, E.	RUW Working Paper	2009	In preparation
Turning barriers into potentials: Policy options for cross-border innovation spaces	Trippl, M. and Lundquist, K	RUW Working Paper	2010	In revision

Cross-border innovation spaces: A conceptual analysis and empirical comparison of the Oresund region and the Centrope area	Trippl, M. and Lundquist, K.	RUW Working Paper	2010	In revision
Distance, proximity and path dependence in cross-border innovation spaces. A conceptual analysis.	Lundquist, K. and Trippl, M.	RUW Working Paper (*Regional Studies*, in review)	2010	Submitted
Selling the ivory tower and regional development: Technology transfer offices as mediators of university-industry linkages	Reiner, C.	Working Papers in Management and Economics	2010	In revision
Knowledge Diffusion in European Regions	Bergman, E., Usai, S.	IAREG Report Deliverable 4.1	2090	In revision
Cluster-university-linkages: The role of Technology Transfer Offices	Reiner, C	RUW Working Paper	2009	In revision
Marshall's Dilemma: Intangible Assets and European Universities	Bergman, E	IAREG WP 1/3e	2009	Completed
Knowledge diffusion in European regions	Bergman, E ; Usai, S	IAREG WP 4/08	2009	Completed
Hirschman Faculties: Brain Circulation and ERA Knowledge Flows of European University Academics	Bergman, E	IAREG WP 4/02	2009	Completed
Towards cross-border innovation spaces	Lundquist, K; Trippl, M,	IAREG WP 4/01	2009	Completed
Profile of Australian University Academics	Schneider, R ; Bergman, E.	RUW Working Paper	2009	Completed
Profile of EU University Academics	Schneider, R ; Bergman, E.	IAREG WP 4/03	2009	Completed

Title	**Authors**	**Conference**	**Year**	**Place**
How Similar are EU and U.S. Views of Academic Entrepreneurship? A Report of Preliminary Explorations	Bergman, E; Goldstein, H	Uddevalla Symposium,	2009	Bari
Marshall's Dilemma: Commercialization of European Research	Bergman, E.	50th Anniversary European Congress of the Regional Science Association International	2010	Jonköping
Marshall's Dilemma and Commercialization of European Research	Bergman, E.	49th Southern Regional Science Association Meeting	2010	Washington
Marshall's Dilemma: Intangible Assets and European Universities	Bergman, E.	II DIME Workshop: Universities on a third mission: External engagement and entrepreneurship by academic researchers	2010	Bologna
Comparing U.S. and European Attitudes Towards Academic Entrepreneurship: Individual, Disciplinary, Institutional, and Regional Factors	Goldstein, H; Bergman, E	North American Regional Science Meetings	2009	San Francisco
Marshall's Dilemma: Intangible Assets and European Universities	Bergman, E.	Colloquium-University of Illinois, Urbana-Champaign	2008	Urbana
Marshall's Dilemma: Intangible Assets and Austrian Universities	Bergman, E.	Seminar-Austrian Ministry of Science and Research	2009	Vienna

Knowledge Flows In Cross-Border Regional Innovation Systems: Case of Centrope	Trippl, M.	European Regional Science Meetings	2009	Lodz
Regional variations in scientific disciplines - Phd-Thesis outline based on IAREG survey data	Schneider, R	Prime-Enid	2009	Amsterdam
Cluster-university linkages: The role of Technology Transfer Offices	Reiner, C	Deutscher Geographentag 2009	2009	Vienna
Dissemination IAREG Internal meetings and Workshops				
Title	Authors	Conference	Year	Place
Marshall's Dilemma: Intangible Assets in European Universities	Bergman E	FIRST IAREG PROGRESS MEETING	2009	Brussels
Hirschman Faculties: Brain Circulation and ERA Knowledge Flows of European Academics	Bergman, E.	Invited seminar, St. Etienne (GATE Lyon Saint-Etienne - CNRS - Universités de Lyon Institut d'Administration des Entreprises - Université Jean Monnet)		
Hirschman Faculties: Brain Circulation and ERA Knowledge Flows of European Academics	Bergman, E.	IAREG Meeting, CRENOS, University of Cagliari	2009	Cagliari
RIS Region: Micro-view of cross-border flows	Bergman E	"Knowledge flows, intangible assets and regional performance" Workshop	2009	Cagliari
CENTROPE: Case Laboratory for Cross-Border Regional Innovation Systems	Bergman, E; Trippl, M.	"Knowledge flows, intangible assets and regional performance" Workshop	2009	Cagliari

LSE-UoS				
Papers				
Title	**Authors**	**Journal 1**	**Year**	**Status**
The spatial profile of university-business research partnerships	D'Este, P; Iammarino, S.	Papers in Regional Science	2010	Published
Technological capabilities and patterns of cooperation of UK firms: A regional investigation	Iammarino S., Piva M., Vivarelli M., von Tunzelmann N.	Regional Studies	2009	Revised and Resubmitted
Intangible Assets and MNEs' locational strategies for innovation – or: why the regional matters. Empirical Insights from Germany and the UK	Kramer J.P.; Revilla Diez J.; Marinelli E.; Iammarino S.	Jahrbuch für Regionalwissenschaft (Review of Regional Research)	2010	Published
Intangible Assets, Multinational Enterprises and Regional Systems of Innovation	Kramer J.P.; Marinelli E.; Iammarino S.; Revilla Diez J.	Technovation	2010	Submitted
Multinational enterprises, sources of innovation and cluster dynamics	Iammarino S., McCann P.	Chapter in Iammarino S. and McCann P. (2010), Multinationals and Economic Geography. Location, Technology, and	2010	Submitted

		Innovation, Princeton University Press		
The Relationship between Multinational Firms and Innovative Clusters	Iammarino S. and McCann P	R. Boschma and R. Martin (eds), The Handbook of Evolutionary Economic Geography, Chap. 8, Edward Elgar, Cheltenham UK and Northampton (MA) USA.	2010	Submitted
'The Sources of Innovation' and Chapter Five - 'The Dynamics of Spatial Agglomerations'	Iammarino S. and McCann P.	Chapter Four in Multinationals and Economic Geography. Location, Technology, and Innovation, Princeton University Press,	2010	Submitted
Working Papers				
Title	**Authors**	**IAREG WP**	**Year**	
Technological capabilities and patterns of cooperation of UK firms: A regional investigation	Iammarino S., Piva M., Vivarelli M., von Tunzelmann N.	WP IAREG 1/2a	2009	
The spatial profile of university-business research Partnerships	D'Este, P; Iammarino, S.	WP IAREG 1/3a	2009	
Intangible Assets, Multinational Enterprises and Regional Innovation in Europe	Kramer J.P., Revilla Diez J., Marinelli J., Iammarino J.	WP IAREG 1/3b	2009	
Sources of innovation and the role of multinationals in cluster dynamics"	Iammarino S., McCann P.	WP IAREG 1/3f	2009	
ICT and labour productivity: evidence for the Italian regions	Iammarino S., Jona-Lasinio C.	WP IAREG 4/06	2009	
Dissemination				
Title	**Authors**	**Conference**	**Year**	**Place**
Technological capabilities and patterns of cooperation of UK firms: A regional investigation	Iammarino S., Piva M., Vivarelli M., von Tunzelmann N.	Invited Seminar at Yokohama National University	2009	Yokohama (Japan)
		Invited seminar at the ToKyo Insitute of Technology	2009	Tokyo
The spatial profile of university-business research	D'Este, P; Iammarino, S.	Invited Seminar at INGENIO< Universidad Politecnica de Valencia	2009	Valencia
Intangible Assets, Multinational Enterprises and Regional Innovation in Europe	Kramer J.P., Revilla Diez J., Marinelli J., Iammarino S.	Various international conferences (see also LUH)	2009	
Intangible Assets, Multinational Enterprises and Regional Systems of Innovation	Kramer J.P.; Marinelli E.; Iammarino S.; Revilla Diez J.	JM-CETRO summer school 2010 - Oldenburg University - Jean Monnet centre for Europeanisation and Transnational Regulations	2010	Germany
ICT and labour productivity: evidence for the Italian regions	Iammarino S., Jona-Lasinio C.	GARNET Conference	2009	Rome
		CAED/COST Conference	2010	London
Multinational enterprises, sources of innovation and cluster dynamics	Iammarino S., McCann P.	"Evolutionary Economic Geography" DIME Workshop	2008	Utrecht
		Invited Seminar at INGENIO	2008	Valencia

Dissemination IAREG Internal meetings and Workshops				
Title	Authors	Conference	Year	Place
Technological capabilities and patterns of cooperation of UK firms: A regional investigation	Iammarino S., Piva M., Vivarelli M., von Tunzelmann N.	FIRST IAREG PROGRESS MEETING	2009	Brussels
The spatial profile of university-business research	D'Este, P; Iammarino, S.	IAREG Workshop and Invited Lecture	2009	Vienna
ICT and labour productivity: evidence for the Italian regions	Iammarino S., Jona-Lasinio C.	"Knowledge flows, intangible assets and regional performance" Workshop	2009	Cagliari
UTARU				
Papers				
Title	**Authors**	**Journal 1**	**Year**	**Status**
How Does Culture Contribute to Innovation? Evidence from European Countries.	Kaasa, A.; Vadi, M.	Economics of Innovation and New Technology, x - x.	2009	Accepted
Human Capital and Social Capital as Interacting Factors of Economic Development	Kaasa, A.., Parts, E.	Chapter (3) of the book "Economic Growth and Structural Features of Transition by Pelgrave	2010	Accepted
Human Capital and Social capital as Factors of Economic Development: Evidence from Europe at the Regional Level	Kaasa, A.; Parts, E.	Regional Studies (IAREG Special Issue)	2009	Submitted
Social capital, its determinants and relations with economic growth: comparison of the Western European and Central and Eastern European countries	Parts, E.	PhD dissertation No. 28, University of Tartu, Faculty of Economics and Business Administration	2009	
Working Papers				
Title	**Authors**	**IAREG WP**	**Year**	
One Small State, Two Regions: Are There Differences in Commercialisation of University Research	Vadi, M. ;Mets, T ; Haldma, T	WP IAREG 1/3c	2009	
Indicators of social capital in the European Union	Parts, E.	WP IAREG 2/02	2008	
Human Capital and Social Capital as Interacting Factors of Economic Development	Kaasa, A.., Parts, E.	WP IAREG 2/04	2008	
Dissemination				
Title	**Authors**	**Conference**	**Year**	**Place**
HOW DOES THE CULTURE CONTRIBUTE TO THE INNOVATION?EVIDENCE FROM THE EUROPEAN COUNTRIES	Kaasa, A.; Vadi, M.	10th bi-annual conference of European Association of Comparative Economic Studies (EACES)	2008	Moscow, Russia
Human Capital and Social Capital as Interacting Factors of Economic Development	Kaasa, A.., Parts, E.	10th bi-annual conference of European Association of Comparative Economic Studies (EACES)	2008	Moscow, Russia

Dissemination IAREG Internal meetings and Workshops				
Title	Authors	Conference	Year	Place
Indicators of social capital in the European Union	Parts, E.	FIRST IAREG PROGRESS MEETING	2009	Brussels
Human Capital and Social Capital as Interacting Factors of Economic Development: Evidence from Europe	Kaasa, A.; Parts, E.	FIRST IAREG PROGRESS MEETING	2009	Brussels
Social capital	Parts, E.	"Human and social capital and regional productivity" Workshop	2008	Barcelona
LUH				
Papers				
Title	**Authors**	**Journal 1**	**Year**	**Status**
The impact of academic mobility on intangible asset creation: empirical evidence from German star scientists	Schiller, D; Revilla Diez, J	Regional Studies (IAREG Special Issue)	2009	Submitted
Patterns of cooperation and technological capabilities of UK firms: A regional investigation	Iammarino S.; Piva, M; Kramer J.P.; Vivarelli, M. ; von Tunzelmann N.;	Regional Studies (IAREG Special Issue)	2009	Submitted
Catching the local buzz by embedding? Empirical insights on the regional embeddedness of Multinational Enterprises in Europe	Kramer J.P.; Revilla Diez J	Regional Studies	2009	Resubmitted
The Impact of Academic Mobility on the Creation of Localized Intangible Assets	Schiller, D; Revilla Diez, J	Regional Studies	2009	Resubmitted
Intangible Assets and MNEs' locational strategies for innovation – or: why the regional matters. Empirical Insights from Germany and the UK	Kramer J.P.; Revilla Diez J.; Marinelli E.; Iammarino S.	Jahrbuch für Regionalwissenschaft (Review of Regional Research)	2009	Accepted
Intangible Assets, Multinational Enterprises and Regional Systems of Innovation	Kramer J.P.; Revilla Diez J.; Marinelli E.; Iammarino S.	Technovation	2010	Submitted
Regional Embeddedness of Mobile Knowledge Spillover Agents: Empirical Evidence from German Star Scientists	Schiller, D; Revilla Diez, J	Papers in Regional Science 89(2): 275-294	2010	Published
Working Papers				
Title	**Authors**	**IAREG WP**	**Year**	
Mobile star scientists as regional knowledge spillover agents	Schiller, D; Revilla Diez, J	IAREG WP 2/07	2008	
Intangible Assets, Multinational Enterprises and Regional Innovation in Europe	Kramer J.P.; Revilla Diez J.; Marinelli E.; Iammarino S.	IAREG WP 1/3b	2009	
Dissemination				
Title	**Authors**	**Conference**	**Year**	**Place**
Mobile star scientists as regional knowledge spillover agents	Schiller, D	Triple Helix VII	2009	Glasgow

Intangible Assets and MNEs' locational strategies for innovation – or: why the regional matters. Empirical Insights from Germany and the UK	Kramer J.P.; Revilla Diez J.; Marinelli E.; Iammarino S.	12th Uddevalla Symposium "The Geography of Innovation and Entrepreneurship"	2009	Bari
Intangible Assets and MNEs' locational strategies for innovation – or: why the regional matters. Empirical Insights from Germany and the UK	Kramer J.P.; Revilla Diez J.; Marinelli E.; Iammarino S.	International Summer-Conference in Regional Science (ERSA/RSAI German Speaking Section)	2009	Lübeck
Intangible Assets and MNEs' Locational Strategies for Innovation: Empirical Insights on Open Innovation in Regional Innovation Systems from Germany and the UK	Kramer J.P.; Revilla Diez J.; Marinelli E.; Iammarino S.	Organizing for Internal and External Knowledge Creation and Innovation: The Role of Resources; Center for Strategic Management and Globalization,Copenhagen Business School	2009	Copenhagen
Embedded Multinationals? Intangible Assets, Multinational Enterprises and Regional Innovation in Europe: Conceptual Thoughts and Empirical Insights from Germany and the UK	Kramer J.P.; Revilla Diez J.; Marinelli E.; Iammarino S.	Annual Meeting of the German Industrial Geography Research Group	2009	Frankfurt
Catching the local buzz by embedding? Empirical insights on the regional embeddedness of Multinational Enterprises in Europe	Kramer J.P.	Annual Meeting of the American Association of Geographers (AAG)	2010	Washington D.C.
Catching the local buzz by embedding? Empirical insights on the regional embeddedness of Multinational Enterprises in Europe	Kramer J.P.	Seminar on Regional Innovation, Department of Geography, University of California at Berkeley	2010	Berkeley, CA
Global players in local games? New findings on the regional embeddedness of Multinational Enterprises in Europe	Kramer J.P.	Guest presenation at Joanneum Research, Technology and Regional Policy Unit	2010	Vienna
Dissemination IAREG Internal meetings and Workshops				
Title	Authors	Conference	Year	Place
Knowledge spillover agents – review of literature and research methods	Schiller, D.;	"Human and social capital and regional productivity" Workshop	2008	Barcelona
Mobile star scientists as regional knowledge spillover agents	Schiller, D.; Revilla, J.	FIRST IAREG PROGRESS MEETING	2009	Brussels

5.8 IAREG Policy Brief

IAREG produced so-called "Policy Briefs" that highlight policy-relevant results from the respective deliverables. Each Policy brief clarifies the objectives of the respective research and its scientific methodology, before it summarizes the newly generated knowledge, as well as key messages for policy makers, businesses, trade unions and civil society actors.

Policy brief: Knowledge diffusion. Underlying mechanisms and impact on productivity - General implications and region-specific strategies

Policy brief: Report on traditional and new indicators of Science, Technology and Innovation (STI) and knowledge accumulation PDF

Policy brief: Report on quantitative and qualitative insights on firms' innovation strategies PDF

Policy brief: Report on the role of university and its linkages in the creation of intangible assets and the role of multinationals PDF

Policy brief: Report on organizational innovations and new knowledge management practices: their diffusion and influence on firms' performance PDF

Policy brief: Report on regional measures for human capital in the European Union PDF

Policy brief: Mobile star scientists as knowledge spillover agents PDF

Policy brief: Report on the role of human capital: General impact on economic performance at the regional level PDF

Policy brief: Report on the role of human capital: The link with social capital and the quality of work PDF

Policy brief: The role of regional and sectoral externalities in determining local economic performances PDF

Policy brief: Report on the role of intangible capital on firms productivity PDF

Policy brief: Is Agglomeration really good for growth? Global efficiency and interregional equity PDF

5.9 IAREG Final Conference

The IAREG Final Conferene (6th July 2010, Committee of the Regions, Brussels) aimed to disseminate the scientific results from the project to the academia, research institutes, firms, policy makers and other stakeholders for supporting further research and evidence-based policy making.

The scientific results of the project addressed were presented in the first part of the Final Conference. The main part of the Final Conference devoted to presenting and discussing the policy implications with a policy-maker oriented perspective. The conference provided an opportunity to discuss the new knowledge which was created during the project and what still remains for future research. In particular, the users (Commission officers) and the audience gave the opportunity to express their needs on knowledge in this important policy area.

5.10 IAREG Deliverables

Working Package 1: Knowledge accumulation processes and regional growth

- Report on new measures and indicators able to capture the relative contribution of S&T to the increasingly interactive nature of innovation processes – Deliverable 1.1.

- Report on quantitative and qualitative insights on firms' innovation strategies (competition vs cooperation) based on primary and secondary data, and case-studies - Deliverable 1.2:

    - IAREG WP1/2a: Technological capabilities and patterns of cooperation of UK firms: A regional investigation
    - IAREG WP1/2b: R&D collaboration networks and spatial diffusion of knowledge. A comparison between Telecommunication and Microelectronics
    - IAREG WP1/2c: Organizational Capabilities: Some reflections on the Concept
    - IAREG WP1/2d: Organizational innovations and new management practices: Their diffusion and influence on firms' performance. Results from a Finnish firm survey

- Report on the role of university and its linkages in the creation of intangible assets and the role of multinationals - Deliverable 1.3:

    - IAREG WP1/3a: The spatial profile of university-business research Partnerships
    - IAREG WP1/3b: Intangible Assets, Multinational Enterprises and Regional Innovation in Europe
    - IAREG WP1/3c: One Small State, Two Regions: Are There Differences in Commercialisation of University Research
    - IAREG WP1/3d: Academic Knowledge Transfers and the Structure of International Research Networks
    - IAREG WP1/3e: Marshall's Dilemma: Intangible Assets and European Universities
    - IAREG WP1/03f: Sources of innovation and the role of multinationals in cluster dynamics
    - IAREG WP1/03g: The Academic Entrepreneur: Myth or Reality for Increased Regional Growth in Europe?

Working Package 2: Human and social capital and regional productivity

- Report on the new indicators for human and social – Deliverable 2.1:
    - IAREG WP2/01: Regional measures of human capital in the European Union
    - IAREG WP2/02: Indicators of social capital in the European Union

- Conclusions' report on the spatial variations of the returns to human capital according to the regional characteristics and on the interaction with social capital and the quality of work – Deliverable 2.2:
    - IAREG WP2/03: Regional variability in the impact of human capital on regional growth
    - IAREG WP2/04: Human Capital and Social Capital as Interacting Factors of Economic Development: Evidence from Europe
    - IAREG WP2/05: Quality in work and productivity

- Conclusion's report on the relationship between educational mismatch and mobility as determinants of regional economic growth – Deliverable 2.3
    - IAREG WP2/06: Regional economic growth and human capital: the role of overeducation
    - IAREG WP2/07: Mobile star scientists as regional knowledge spillover agents

- IAREG WP2/08: Regional heterogeneity in wage distributions. Evidence from Spain

Other Working papers WP2:

- *IAREG WP 2/09:Human capital spillovers and regional economic growth in Spain*

Working Package 3: Entrepreneurship capital and regional competitiveness

- Measures of Regional Entrepreneurship Capital – Deliverable 3.1
  - IAREG WP3/01: Concept and Measurement of Regional Entrepreneurship Capital

- Report on Venture Capital and Entrepreneurship in Europe and US – Deliverable 3.2:
  - IAREG WP3/04: Regional Patterns of Venture Capital Financing in the US

- Report on Entrepreneurship Capital, Knowledge Spillovers and Regional Productivity – Deliverable 3.3
  - IAREG WP3/02: The Impact of Regional Age Structure on Entrepreneurship
  - IAREG WP3/03:The Apple Doesn't Fall Far From the Tree: Location of Start-ups Relative to Incumbents
  - IAREG WP3/05: Entrepreneurship Capital and Regional Productivity: Some Empirical Evidence from European Regions
  - IAREG WP3/06: Identity and Entrepreneurship

Working Package 4: Knowledge flows and regional productivity

- Report on knowledge diffusion in European regions – Deliverable 4.1:
  - IAREG WP4/08 Knowledge diffusion in European regions
  - IAREG WP4/02 Hirschman Faculties: Brain Circulation and ERA Knowledge Flows of European University Academics

- Report on the underlying mechanisms of knowledge diffusion. Deliverable 4.2a and 4.2b:
  - IAREG WP4/07: Underlying mechanisms of knowledge diffusion"
  - IAREG WP4/04 Knowledge Management Practices in Low-tech and Medium-tech Industries. Findings from a Finnish Business Survey"
  - IAREG WP4/05. Productivity Changes and Intangible Assets: Evidences from French Plants"

- Report on the impact of ICT geographical concentration on regional. Deliverable 4.3:
  - IAREG WP4/06 ICT and labour productivity: evidence for the Italian regions"

Other Working papers WP4:

- *IAREG WP4/01 Towards cross-border innovation spaces*
- *IAREG WP4/03 Profile of EU University Academics.*
- *IAREG WP 4/09"Knowledge diffusion and innovation policies within the European regions: Challenges based on recent empirical evidence*
- *IAREG WP4/10 Knowledge flows across European regions.*

Working Package 5: IA, firms location and regional competitiveness

- Homogenised IA Database and econometric analysis for geographic data considering the problems related to large multidimensional datasets and variables' dependency - Deliverable 5.1

- IAREG WP5/01: Measuring productivity
- IAREG WP5/02: Intangible assets in the European regions

- Report on the role of regional and sectoral externalities in determining local economic performances with the econometric model showing the spatial dynamics of different economic sectors- Deliverable 5.2
  - IAREG WP5/03: Total factor productivity, intangible assets and spatial dependence in the European regions
  - IAREG WP 5/04: Persistent regional gaps and the role of social capital: Hints from the Italian Mezzogiorno's case
  - IAREG WP 5/05: The euro and firm restructuring
  - IAREG WP 5/06: What determines entrepreneurial clusters
  - IAREG WP 5/07: Does Idiosyncratic Business Risk Matter?
  - IAREG WP 5/08: Market value and total factor Productivity
  - IAREG WP 5/09:Total factor productivity, intangible assets and spatial dependence in the European regions
  - IAREG WP 5/10 Does social capital reinforce technological inputs in the creation of knowledge? Evidence from the Spanish regions
  - IAREG WP 5/11: Decomposing differences in total factor productivity across firm size. The role of innovation and human capital.
  - IAREG WP 5/12: Intangible capital and firms productivity
  - IAREG WP 5/13: Human Capital Composition and Economic Growth at the Regional Level
  - IAREG WP 5/14: Productivity and Firm Selection: Quantifying the "New" Gains from Trade.
  - IAREG WP 5/15: Is Agglomeration really good for Growth? Global Efficiency and Interregional Equity
  - IAREG WP 5/16: Missing Trade. Where is it?
  - IAREG WP 5/17: International TFP dynamics and human capital stocks: a panel data analysis, 1960-2003
  - IAREG WP 5/18: Schooling, Production Structure and Growth: An Empirical Analysis on Italian Regions
  - IAREG WP 05/19: Assessing agglomeration economies in a spatial framework with endogenous regressors

- An integrated knowledge production and SCGE model developed for policy analysis impact – Deliverable 5.3
  - IAREG 05/20: Geographic Macro and Regional Model for EU Policy Impact Analysis of Intangible Assets on Growth

Other Working papers WP5:
- IAREG WP5/21: They arrive with new information. Tourism flows and production efficiency in the European regions
- IAREG WP5/22: Agglomeration and network effects in regional R&D productivity

Working Package 6: Policy design to stimulate IA and economic growth

- Report on design of regional innovation systems - Deliverable 6.3
  - IAREG WP6/01: The Design of Regional Innovation Systems" by Christian Dreger and Georg Erber

Policy Conclusions

- Report on scientific support to policy activities in relation to the impact of knowledge accumulation processes on economic growth Deliverable 1.4:

- Report on scientific support for policy activities in relation with the effect of human and social capital on economic growth and productivity. Deliverable 2.4

- Report scientific support to policy activities with respect to the impact of entrepreneurship capital. Deliverable 3.4

- Report on scientific support to policy activities related to the impact of knowledge flows on regional productivity – Deliverable 4.4

- Report on scientific results for policy activities on the relationship between IA, firm location and regional competitiveness – Deliverable 5.4

- Guidelines for policymakers and practitioners on the IA that influence on regional growth - Deliverable 6.4

5.11 IAREG Institution List

Name of the Institution	Name of the Contact Person	Affiliation of the contact person
AQR		
Ajuntament de Manresa	Pere Massegú i Bruguera	Cap de Servei de Desenvolpumanet
Ajuntament de Sant Cugat	Carlos Vivas	Director àmbit economia i planificació estratègica
Ajuntament de Sant Cugat	Jordi Joly	Tinent alcalde d'economia i organització
Ajuntament de Terrassa	Xavier Muñoz i Torrent	Cap de l'Observatori Econòmic i Social i de la Sostenibilitat de Terrassa
Ajuntament Mataró	Jordi Arderiu	
Barcelona Chamber of Commerce	Xavier Ricart	Director de l'Àrea de Desenvolupament Empresarial
Barcelona Chamber of Commerce	Joan Ramon Rovira Homs	Cap d'Estudis Econòmics
Barcelona Chamber of Commerce	Xavier Carbonell	Director Gerent
Barcelona City Council	Miquel Mateu i Ballesté	Director de Serveis de Promoció de l'Activitat Econòmica Interior
Barcelona City Council	Javier Asensio	Cap del Gabinet Tècnic de Programació
Barcelona City Council	Àngels Santigosa i Copete	Directora d'Estudis d'Activitats Econòmiques i Ocupació
Barcelona Deputation	Encarna Perán Moral	Cap de la Secció Tècnica. Oficina Tècnica d'Estratègies per al Desenvolupament Local
Barcelona Meeting Point	Enrique Lacalle	President
Caixa Catalunya	Xavier Segura Porta	Cap Direcció Estudis
Caixa de Pensions. La Caixa	Joan Elias	Servei Estudis
Caixa de Pensions. La Caixa	Núria Vendrell	
CECOT	David Garrofé	Secretario General
CECOT	Antonio Abad Pous	President
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Departament d'Innovació, Universitats i Empresa	Enric Eloy	Secretari General
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Girona Deputation	Narcís Casassa i Font	Vicepresident
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Gobierno de la República Dominicana. Secretaria de Estado, Planificación y Desarrollo	Magdalena Lizardo	
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LocalRet Consortium	Jordi López Benasat	
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Ministry of Innovation, Universities and Enterprise.	Daniel Jordà i Martínez	Cap del gabinet Tècnic
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SME DG Ministery of Industry	Estela Gallego Valdueza	Directora General de Política de la Pequeña y Mediana Empresa.
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Universitat de Barcelona. Consell Social	Joaquim Coello Brufau	President
National Statistics Institute	Jaume Garcia Villar	President
National Statistics Institute	Àlex Costa	
Statistical Institute of Catalonia	Anna Ventura i Estalella	Director
Minister of Science and Innovation.	Cristina Garmendia	
Secretario de Estado de Universidades	Màrius Rubiralta	
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Presidenza della Regione Autonoma della Sardegna - Servizio Aff.internazionali	Dott.ssa Anna Maria Catte	Director
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Sardegna Ricerche	Dott. Giulio Murgia	General director
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Ministry of Economic Development	On. Claudio Scajola	Minister
Ministry of University and Research	On. Mariastella Gelmini	Minister
Italian Association of Science and Technology Parks	Dott. Alessandro Giari	President
ICE (national institute for commerce for foreign trade)	Dott. Umberto Vattani	President
ICE (national institute for commerce for foreign trade)	Dott. Massimo Mamberti	General director
ICE (national institute for commerce for foreign trade)	Dott.ssa Giorgia Giovannetti	Scientific director
ARTI- Regional Agency for Innovation and Tecnologies	Prof. Gianfranco Viesti	President

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University of Bologna , Department of Economics, Bologna, Italy	Prof. Gianluca Fiorentini	Director
University of Insubria , Varese, Italy	Prof. Renzo Dionigi	Rector
Instituto Di Studi E Analisi Economica, Roma	Prof. Alberto Majocchi	President
Prometeia, Bologna	Angelo Tantazzi	President
CRS4	Dott.Paolo Zanella	President
CRS4	Dott.Franco Meloni	Vice-President

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CREUSET		
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Bundesministerium für Wirtschaft und Technologie	Wolfgang Arnold
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GKK		
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Hungarian Innovation Association (Magyar Innovacios Szovetseg)	Dr. Gabor Szabo	President

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Federal Ministry of Economics and Technology	Jörg Kleuver	Oberregierungsrat, Bundesministerium für Wirtschaft und Technologie, Referat Grundsatzfragen und int. Angelegenheiten der informationsgesellsch.
Federal Ministry of Education and Research	MinDirig'in Petra Steiner-Hoffmann	Referat 11, Referatsleiterin Innovationsstrategien
LEG Thüringen (State Development Corporation Thuringia)	Dr. Bertram Harendt	Bereichsleiter Technologie.
Ministry of Economics, Labor, and Infrastructure, Thuringia	Referat 32: Herr Dirlam (Regionale Strukturpolitik). Referat 51: Herr Dr. Ehrhardt 97 510 (Grundsatzfragen Forschung,Technologie, Innovation)	
Inforadio MDR	Harald Müller	Redakteur
Inforadio RBB / Berlin-Brandenburg	Ute Holzhey, Karl-Heinz Schneider-Bodenbender	Redaktion Wirtschaft
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Deutschlandfunk		Wirtschaftsredaktion
Die Welt		
Tagesspiegel	Leitung Wirtschaft: Moritz Döbler-629; Leitung Wissenschaft: Dr.Wewetzer 030-26009-489	

Berliner Zeitung	Beate Foertsch (Wirtschaftssekretariat); Lilo Berg (Chefin Wissenschaftsredaktion)	
Frankfurter Allgemeine Zeitung	Dr. Werner Mussler	Wirtschaftsredaktion Wissenschaftsredaktion
Financial Times Deutschland	Georg Dahm, Ressort Forschung und Entwicklung	
Handelsblatt	Hans Schürmann	
Sueddeutsche Zeitung	Wissenschaft:Alena Rudolph -408; Wirtschaft:Sissy Gawlik -797	
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Culture and Society Research Unit. Academy of Finland	Ms Pirjo Hiidenmaa	Director
The Finnish Work Environment Fund	Ms Riitta-Liisa Lappeteläinen	Director
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DIUS Department for Innovation, Universities & Skills	Ray Lambert	
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One North East	Chris Pywell	Head of Strategic Economic Change

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Wirtschaftsförderung Dortmund (Economic Development Agency of Dortmund)	Dr. Stefan Röllinghoff	Economic Developer

5.12 IAREG Advisor Committee Members

An Advisory Committee was constituted with two main objectives. First, to focus the research undertaken by the IAREG project towards the kind of issues that public administrations are interested in. Second, to **monitor the policy recommendations** extracted from each of the workpackages as well as **to validate the final policy recommendations guide.** This collaboration between the WPs and the Advisory Committee has been very important to ensure that policy recommendations extracted from the project have beene practical to be disseminated and implemented.

Members:

- **Dra. Gemma Garcia**, General Sub-director for Studies, Planning Directorate General, Department of Economics and Finance, Regional Government of Catalonia, Spain.
- **Mr. Francesco Marcheschi** , General Director of Sardegna Ricerche, Agency of the Sardinian Regional Government for the promotion of innovation, Italy.
- **Mr. Jean-Claude PRAGER,** French Agency for the Diffusion of Technological Information, France.
- **Mr. Lars Wrage**, Department of Innovation and Industry, Germany
- **Mr. John Barber**, former Director of Technology Economics, Statistics and Evaluation at the Department of Trade and Industry (DTI), a former Chairman of the OECD Committee on Scientific and Technological Policy,UK.
- **Mrs. Annamaria Inzelt**, Director of Innovation Research Center (IKU), Hungary.
- **Mrs. Karin Jaanson**, Deputy Mayor of Tartu, Estonia.