UNIVERSIDADE DO ALGARVE

FACULDADE DE ECONOMIA

SOURCES OF LOCAL KNOWLEDGE SPILLOVER WITHIN THE ALGARVE TOURISM REGION

Evidence to identify a Regional Innovation System

MAURICIO MALDONADO ROJO

Master in Economics of Innovation and Entrepreneurship

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Abbreviations and Acronyms

ACRAL	Association of Trade and Services of Algarve
AHETA	Association of Hotels and Tourist Enterprises of Algarve
AICEP	Agency for Investment and External Trade of Portugal
AIHSA	Association of Hotel Industry and Similar of Algarve
AMAL	Major Metropolitan Area of Algarve: Association of Municipalities of Algarve
APAVT Algarve	Portuguese Association of Travel and Tourism Agencies
ASA	Association of East Algarve
ATA	Association of Tourism of Algarve
ATLAS.TI	Software tool; Qualitative Data Analysis
CACE of Algarve	Support Center Business Creation of Algarve; IEFP
CCDR	Coordination Commission and Regional Development
CEAL	Confederation of Employers of Algarve
CIITT	International Centre for Research in Territory and Tourism
CIS	Community Innovation Survey
COTEC	Enterprise Association for Innovation
CRIA	Regional Center of Innovation of Algarve
DRE Algarve	Regional Direction of Economy of Algarve
DREALG	Regional Direction of Education of Algarve; Ministry of Education
DRUID	Danish Research Unit for Industrial Dynamics
eCommerce	Electronic Commerce
EHTA	School of Hospitality and Tourism of Algarve
EIS	European Innovation Scoreboard
ERT	Regional Tourism Entities
ERTA	Entity Algarve Regional Tourism
eTourism	Electronic Tourism
EU	European Union
EUROSTAT	European Statistics
EUS	European Union Scoreboard
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GEM	Global Entrepreneurship Monitor
GINI	Unequal Distribution Coefficient
GREMI	European Research Group on Innovative Environments
GVA	Gross Value Added
HDI	Human Development Index
HORECA	Hotels, Restaurants and Catering
IAPMEI	Institute to Support SMEs and Innovation
ICT	Communication and Information Technologies
IEFP Algarve	Institute of Employment and Training
IN LOCO	NGO support business development
INE	National Statistics Institute
INOVAlgarve	Regional Programme of Innovative Actions
KIBS	Knowledge Intensive Business Services
KIS	Knowledge Intensive Services
KISA	Knowledge Intensive Services Activities

MERCOSUR	Southern Common Market
MITE	Meetings, Incentives, Conferences and Exhibitions
NACE	Classification of Economic Activities in the European Community
NAFTA	North American Free Trade Agreement
NERA	Association of Business of the Region of Algarve
NGO	Non-Governmental Organization
NIS	National Innovation Systems
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Co-operation and Development
PALOP	Portuguese-Speaking African Countries
PCT	Patent Cooperation Treaty
PENT	National Strategic Plan for Tourism
PO Algarve 21	Operational Program of Algarve Region
PRIAlgarve	Regional Plan for Innovation of Algarve
PRO INNO EUROPE	New and Better Innovation Policies for Europe
QREN	National Strategic Reference Framework
R&D	Research and Development
RIS	Regional Innovation Systems
S&T	Science and Technology
SMEs	Small and Medium-sized Enterprises
SWOT	Analysis; Strengths, Weaknesses, Opportunities and Threats
TEA	Total Entrepreneurial Activity
TICs	Information and Communications Technology
UAlg	University of Algarve
UMIC	Agency for the Knowledge Society
UNDP	United Nations Development Programme
UNWTO	World Tourism Organization
WEF	World Economic Forum

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Abstract

Tourism sector in Algarve region is the main engine of regional economy. Although frequently, tourism is considered as a low – moderate innovative sector, tourism competitiveness is still highly dependent on specific features of a Regional Innovation Platform, highlighting the crucial importance of knowledge creation and diffusion, learning, cooperative and collaborative interaction that may evolve to a Regional Innovation System (RIS). Studies of Local Knowledge Spillovers have been frequently focused on empirical evidence provided by regions highly related with manufacturing sectors. Considering a case study in Tourism Algarve Region, emphasizing a theoretical character on the analysis of these areas and using a qualitative methodology, the goal of this study was to provide preliminary evidence of the main sources and vehicles of regional knowledge spillovers used by tourism enterprises. Main information has been obtained using primary information collected from 20 interviews over main stakeholders regarding regional private and public sector. Primary information was complemented with secondary information, a deeply and extensive bibliography revision and also statistical information. Results show that, on the one hand, main sources of knowledge used by micro and small tourism enterprises are human resources and formal and informal networks. On the other hand, large tourism companies are weakly related with regional sources using mainly internal company and economic group resources to generate innovation activities. Regional innovation platform shows clear weaknesses on linkages and coordinated initiatives to promote and support innovation performance of firms hampering to increase tourism competitiveness and regional development.

Key words: Tourism Innovation, Algarve Region, Knowledge Spillovers, Regional Innovation System.

Resumo

O Turismo na região do Algarve é o principal motor da economia regional. Embora o turismo seja muitas vezes considerado um sector moderadamente inovador, a competitividade do turismo continua a ser altamente dependente de aspectos específicos das plataformas regionais de inovação, enfatizando a importância crucial da criação e difusão de conhecimento, aprendizagem e cooperação a nivel regional que poderá evoluir para Sistemas Regionais de Innovacão. Os estudos de difusão de conhecimento local têm sido frequentemente focados em evidências empiricas fornecidos em regiões altamente relacionadas com os setores da indústria transformadora. Considerando-se um estudo de caso sobre o turismo na região do Algarve e utilizando um enfoque de caracter particularmente teorico e usando uma metodologia qualitativa, os objetivos desta tese foram prover evidência preliminar sobre as fontes e principal veículo para a difusão do conhecimento utilizado pelas empresas de turismo na região. A informação principal tem sido conseguida utilizando informação secundária e também informação primária, obtida através da aplicação de 20 entrevistas com os principais "stakeholders" relacionados ao setor público e privado regional. Os resultados mostram que, por um lado, as principais fontes de conhecimento utilizadas por micro e pequenas empresas no setor do turismo, são os recursos humanos e redes formais e informais. Além disso, as maiores empresas de turismo estão pouco relacionadas com os recursos regionais, principalmente com recursos internos e do seu grupo económico do comércio para gerar actividades de inovação. A plataforma de inovação regional mostra claras fraquezas nos vínculos e nas iniciativas coordenadas para promover e apoiar o desempenho da inovação nas empresas, dificultando o crescimento da competitividade e do desenvolvimento do turismo regional.

Palavras chaves: Inovação, Turismo, Região do Algarve, difução de conhecimento, Sistema regional de Inovação.

PART I
INTRODUCTION

1. Contribution of the Thesis

Considering an Economic Geography perspective, new features of the market (Malerba, *et al*, 2003) have set new patterns in spatial reality linked to flexible production systems and the use of new technologies in firms (Piore & Sabel, 1984). The focus on the spatial variable from the evidence of the concentration of economic activities in the theoretical debate (Bertuglia, *et al*, 1997, Malmberg & Maskell, 1997, Audretsch, 1998, Maskell & Malmberg, 1999, Fujita, *et al*, 2000), have resulted in the development of intervention policy programs with special focus on the Regions as an appropriate scale of analysis taking into account the importance of proximity (Kirat & Lung, 1999) and externalities in economies of agglomeration (Gordon, *et al*, 2000, Scott & Storper, 2003, Bönte, 2008).

Likewise, since the debate on a theoretical level and convergence, brought about the concepts of competitiveness and innovation among the "Innovation Systems" (Lundvall, 2007) and "Regional Science" (generated mainly by theories of regional development) are posed and suggests the creation of Regional Innovation Systems (RIS) as a social system where innovations are the result of interactions between economic actors, and also an open system in interaction with the environment (Asheim & Isaksen, 2000, Isaksen, 2001, Evangelista, *et al*, 2002, Cooke, 2003, Andersson & Karlsson, 2004, Asheim & Coenen, 2004, Bracayk, *et al*, 2004, Doloreux & Parto, 2005). Complex systems that can be fed back through a mechanism of new knowledge production, based on accumulated local knowledge and learning process (Hudson, 1999). The dimension of this system arises from the members of the regional networks that make it up, large and small firms, industry, entrepreneurs, educational institutions, R&D laboratories, members of trade and a government structure (Storper, 1995), in which there are "Networking" relationships (Singh, 2005). This entails a sub - national level

based on an organizational and collective learning process (Capello, 1999) and associativity, a regional system capable of generating an environment of competitiveness and innovation (Sternberg & Arndt, 2001). An inclusive system for all development actors involved in the region (Howells, 2005, Cooke, *et al*, 2007), stressing that industrial and development strategies in regional bodies have greater feasibility of impact because they are efficient in capturing differenced and decentralized policies, allowing the application of specific instruments to each regional reality.

Tourism as a service activity can be studied from the perspective of new theoretical approaches to understand main behaviors and impacts of tourism on the economic and innovation geography, especially taking into consideration the increasing dependence of specialized firms in tourism (knowledge based) to the generation and use of knowledge to innovative proposals, getting higher competitive advantages to capture new markets.

Many industries that Tourism involve, ones more than others, have had to move more and more toward a more intense utilization of knowledge while at the same time they provide and diffuse knowledge to other organizations and customers in order to solve specific problems, provide high quality products and have a wide range of competitive services.

Tourism around the world and in Algarve specifically, has experienced increasing demand and growth. It is the main economic income in Algarve allowing an important business development around all sub sectors that participate in this economic activity. Therefore, the region can be used as a case study to understand the relationship between tourism and innovation and knowledge spillovers.

Many authors have studied tourism activity from a cluster approach to understand and analyse specific issues of a tourism regional specialization as innovation, knowledge management in firms and so on (a complete bibliography revision can be found in Hall & Page, 2008,

Hjalager, 2010a), but only incipient research initiatives have tried to understand tourism from a RIS approach leaving a gap that must be progressively fulfilled with new evidence.

Tourism activity is highly dynamic and featured by a constant development, evolving and adapting to different global challenges including environment protection, rapid technological changes, economic restructuration and more demanding customers. In this context, many efforts must be made by firms in order to survive to constant changes.

There are many ways in which tourism businesses have been involved in innovation processes. But, in general, many of them are incremental or related with organizational or process innovation, emphasizing management and the incorporation of new technologies to deliver quality service (Hjalager, 2010a). Industrial strategies should attempt to harness the benefits of local knowledge spillovers (in Addition to international spillovers) in order to establish a viable path of competitiveness and growth, based on the promotion of an increasing knowledge intensive service activities in the tourism industry (Hall & Williams, 2008).

The analysis and interpretations of the new economic geography and the various currents that have expanded their state of knowledge (Noronha Vaz & Nijkamp, 2009) such external source of knowledge to the firms are very important (Simmie, 2002, Audretsch & Feldman, 2004, Hirose & Yamamoto, 2007, Christ, 2009).

In many ways there is somewhat consensus of the understanding and explanation of these new dynamics, considering the importance of variables that are inherent to the territory on a regional scale, understood as a system that incorporates several areas including political, cultural, geographical, economic, etc. (Alburquerque, 2000).

In this context, it is stresses the necessity to understand regional features taking into account the location and proximity of firms, networking, informal business systems, lower transaction costs, motivations generated by competition, generation and dissemination of information and

"Knowledge Spillovers" as an input for innovation (Paci & Usai, 2000, Breschi & Malerba, 2005, Fischer, 2006). Other important regional factors that should be considered are socialization in the use of new technologies and specialized inputs, options for collective responses to complex needs or opportunities and changes, and so on, specific spaces where it is possible to find an environment of competitiveness and innovation based on synergy and learning.

Knowledge Spillovers play in providing access to new economic knowledge and increasing the productivity of economic actors; Audretsch & Feldman (2004) based on Krugman (1991) and Romer (1986) consider a model based on increasing returns based on scale productions across firms and industries from externalities. In this context the importance of proximity is highlighted because tacit knowledge is transmitted and diffused trough the interactions of human capital and that means a lower marginal cost of knowledge by communication and observation reducing uncertainty to activities of innovation (Audretsch & Feldman, 2004). Besides, it has been also shown that productivity effects of Knowledge Spillovers increase with geographic proximity (Fischer, *et al*, 2009).

2. Objectives

Innovation activities in tourism firms can be visualized as isolated efforts, but can also be considered as the result of dynamic processes where there is a use of regional externalities through knowledge spillovers and interactions. In order to shed lights about these innovation processes in tourism and main linkages among actors within an hypothetical regional innovation platform in the Algarve region, it is mandatory to have a preliminary and panoramic vision of the main stakeholders of this sector from a perspective of knowledge spillovers, interaction processes and national and international networks among different

regional agents (tourism firms, universities, public sector, customers and other institutions). This preliminary vision of stakeholders should also be complemented by a deeply theoretical revision of recent advances in tourism and innovation areas.

2.1. Main Objective

- To determine the importance of local knowledge spillovers between regional organizations and tourism firms in Algarve region and the role played by the regional innovation platform as critical factor to increase competitiveness.

2.2. Specific Objectives

- To understand main regional innovation behavior of tourism firms in Algarve and principal sources of knowledge used to develop them.
- To examine main theoretical advances in different areas that innovation in tourism are involve and analyse recent case studies to better understand tourism behavior in Algarve region.
- To describe the role of regional tourism policies in the support and promotion of regional development and their relationships with the National Innovation platform in Portugal.
- To determine the importance of knowledge spillover to improve regional business performance of tourism service firms in Algarve.
- To comprehend to what extent knowledge spillovers among regional agents and tourism firms are seen as a critical factor to promote and build a regional innovation system.

3. Methodology

Knowledge spillovers are seen as the prime form of agglomeration economies (Caniëls & Verspagen, 2001). It refers to the diffusion of knowledge from where it is created or from one agent to another in society. It's in this way that it becomes useful and acquires societal value (Stough & Nijkamp, 2009). Knowledge Spillover is a benefit through the exchange of information without any direct compensation to the producer of the knowledge and it is gained and used in a no rivalry process. The knowledge spillovers are to some extent geographically bounded, and many studies have shown that they promote innovation (Kesideu & Romijn, 2008).

Taking the discussion also into account the possibility to consider (or not) tourism firms as Knowledge Intensive Services (KIS) (Sundbo, 2010), more information must be provided. It is important to understand those different mechanisms through which tourism firms can absorb, utilize and generate new knowledge at a regional level in order to increase competitive advantages and thus maintain and capture new markets.

In this context, in order to better understand about knowledge spillovers and their importance to the conformation of a Regional Innovation System in Algarve region, the main questions that this work entails are:

- What are the main sources of knowledge and what channels are used when innovation activities are developed by Tourism firms in Algarve Region?
- Regarding knowledge spillover as a base factor of RIS; is there any evidence of these processes in the Algarve region to support the existence of a RIS? What is its stage of development?

Methods of research in this case study (Yin, 2003) in Algarve region are constructed in order to analyze and understand main regional innovation dynamics and knowledge spillovers

among tourism enterprises and principal regional structures that contribute to the development of tourism in the Algarve region.

Regarding main models of innovation in tourism and services (Deccele, 2004, Cooper 2006, den Hertog, *et al*, 2006) and variables used in these studies of knowledge spillovers, different dynamics are categorized separately as vehicles and sources depending on their direct or indirect capacity to impact on innovation activities in firms. There are regional variables that have a mayor impact in the process of Knowledge Spillover because are used by firms as a free regional externalities produced by the highly specialization of the region in the tourism sector. From the models of classification and identification of main sources and vehicles (described below in more detail) were mixed key variables identified on the Shaw & Williams model (2009) that examines indirect diffusion and direct transfer of knowledge in tourism, variables of knowledge spillover studied by Hjalager (2002) and Sundbo, *et al* (2007) other variables as labor mobility noted by Kesidou & Romijn (2008) and formal or informal networks examined by Boshuizen, *et al*, (2009). The central idea of this categorization is that firms take advantages from accumulated knowledge as a result of regional specialization in tourism activity and this process could be developed directly or indirectly. Sources provide a direct input to innovation activities while vehicles act as an indirect input to innovation.

Formal and informal visions of key regional actors about regional dynamics and innovation behavior in tourism firms were collected. Formal views of regional stakeholders are usually shaped by legal bodies of regulations and innovation promotion synthesized into specific tasks of their regional organization. But many times informal discourses shed light in a better way of how social systems have been built, how they have evolved to the creation of a regional innovation support and in what extent key regional actors are linked.

In this context, an important body of informal and specialized discourse was collected by twenty (20) interviews obtaining deeper information from stakeholders and high leaders of

regional organizations linked to tourism regional development. These interviews have permitted to understand how public and private organizations are effectively positioned as a factor and component of a potential innovation system in the region, how they contribute to the construction of regional institutions and to what extent these efforts allow the generation of a RIS based on the accumulation and diffusion of specific knowledge, interaction and learning.

In this context, this research was developed considering a qualitative methodology of analysis (Clark & Fast, 2008, Phillimore & Goodson, 2004) where information was collected using a semi – structured interview. This flexible interview guide was used with open questions in order to not limit interviewees to reach the best degree of depth in their responses. Different regional organizations were considered as elements related to tourism sector. These sources of information allowed us to cover different approaches about tourism innovation and identify main sources and vehicles used by tourism firms to generate new marketable knowledge. It was also the base information to develop a SWOT analysis that sensitizes a common regional denominator around this topic and the current and future perspectives around the development of a RIS and tourism sector.

Information collected through interviews to regional stakeholders (Freeman, 1984) permitted to have a general perspective and specific sensibilities related to tourism development. The general vision of firms was specifically obtained from main firms' tourism organizations and from secondary information. Key regional actors that were interviewed were; firm associations, public regional organizations, tourism regional organizations, educational organizations and experts related to tourism and innovation topics. There were interviewed the most six important regional stakeholders directly related to tourism public and private organizations. Main regional stakeholders linked to the academic study of tourism of the University of Algarve were contacted to the interview but it was not received any response

from them. The rest of stakeholders interviewed were directly linked to regional organizations mainly focused on the innovation area and those subareas that are viewed as direct inputs to promote regional tourism innovation as education, firms support, training, etc. With an average duration of 40 minutes, all the interviews were personally developed during February, March and April in 2011. It was only received one interview by email from Sr. José Macário Correia, President of AMAL (Major Metropolitan Area of Algarve: Association of Municipalities of Algarve).

This primary information obtained through the use of extensive interviews was studied by content analysis using ATLAS.TI software tool. Main discourses were analyzed through the classification and categorization of specific topics and sub – topics allowing finding correlations among variables considered in function of research objectives, common speeches and key differences about a certain points. Main categorization of the information collected was divided in four areas, innovation behavior in tourism firms, sources and vehicles of regional tourism knowledge diffusion, interaction and networks and finally information related to mechanisms and conditions for the development of the Algarve regional innovation system.

Information collected from interviews was completed with secondary information. Statistical data and other relevant and pertinent bibliography were used to put the study case on a frame and find possibilities to analyze specific topics and find more explanations.

An extensive revision and discussion of theoretical advances in tourism and innovation was developed in order to permit a better understand of Algarve region case, complementing and supporting findings provided by the analysis of primary information obtained by interviews.

4. Structure of the Thesis

Chapter 1 shows the central justification of this thesis and the methodology that was used to reach the general and specific objectives proposed. Chapter 2 contains a theoretical framework used to examine recent debate on evolutionary economic geography and regional development policies. Key literature is examined to underpin the relevance of innovation, knowledge spillovers and RIS to the promotion and support of tourism economic competitiveness.

Chapter 3 is highly related to tourism and innovation variables, processes and dynamics explained in the theoretical framework. This Chapter is developed to understand Portuguese and Algarve regional realities. Main national and regional innovation indicators, actors, tourism and innovation policies are provided to know key factors that have a direct and indirect impact on regional tourism innovation behavior.

Chapter 4 describes main sources of knowledge spillovers identified. Major regional linkages of regional private and public actors are analyzed taking into consideration the capacity of the regional innovation platform to promote innovation in tourism firms.

Chapter 5 provides main conclusions of this thesis. Despite the fact that tourism can be considered as a moderate and low innovative sector, firm innovative performance is highly conditioned by features of the firms and regional innovation policies support. While large firms can initiate and develop innovative activities using internal resources, micro and small firms are highly dependent on regional sources of knowledge to develop them.

This special characteristic of the region stresses the necessity to generate conditions to the generation of a RIS based on better linkages among regional actors and an innovative culture capable for example in promoting interaction instances where knowledge can be diffused and absorbed by firms.

PART II
THEORIZING GEOGRAPHY OF INNOVATION AND TOURISM

1. Introduction

In the context of the "New Economic Geography" approach, the spatial dimension of the economy has been continuously complemented by different inputs. Primarily attempts were focused to clarify the factors that determine the location of economic activities over space. Weber (1909/29) and Lösch (1940/54), for example, concluding that the localization of economic activities is determined by comparative advantages through a spatial competition, and this ultimately has an impact on a specific regional specialization. These works were usually based on the concepts of transportation costs and demand behavior. By contrast, Marshall (1920), Myrdal (1956), Hirschman (1958), and Krugman (1991), explained the location and economic agglomeration as the result of external economies of geographical areas, stressing the high importance and role played by territorial factors in the understanding of economic performance.

The neoclassical growth theory was mainly characterized by a short term view of development based on conditions of perfect economic equilibrium. Since economic activity affects economic agents homogenously, they all have the same economic opportunities to growth and hence socioeconomic development convergence is a fact. This framework was built and based on an economic equilibrated model, where different regulations and policies were seen from a linear perspective stressing the spontaneous regulations of markets and the ultra liberalization of the market system. This theory has a focus on external macroeconomic aspects of economy growth and at the core of the economic equilibrium there is equality between supply and demand. All variables can be adjusted simultaneously as an effect of market prices (Solow, 1956).

Endogenous growth theory is a more complex perspective and tries to overcome the reductionism of neoclassical theory. Incorporating a microeconomic perspective of the firms and consumers, the outcome of endogenous elements in economic systems may explain economic growth (Lucas, 1998, Grossman & Helpman, 1991). Growth is the outcome of technological change (technology improvements from accumulated knowledge) and the intention and decisions by agents maximize their profits. Romer´s model emphasises technology as a non rivalry and partially excludable good, and assume that stock of human capital determines rates of growth (Romer, 1990). The capacity of technology to spill over between economic actors and over time should be one of the main points sustaining innovation policies (Johansson, *et al*, 2007).

An important conceptual model to understand the improvements of the Solow´s neoclassical model where nature of technology and source of technical change are omitted (Solow, 1956), is provided for Acs & Audretsch, (1990), through the Marshall-Arrow-Romer model where externalities based on the non rival feature of knowledge are determinants to the creation of new knowledge regarding technology spillovers and entrepreneurship as basic regional dynamics to promote growth.

During the 90s the role of space was again brought to the center of the economic theory. Walter Isard's (1956) ideas were the base of "regional science" and allowed, three decades after, to lay the foundations of a "New Economic Geography" theory that has had a fundamental repercussion in many levels of economic and political decisions (Krugman, 1991). The differences between economic concentration and density were analyzed as the result of a set of cumulative processes; they do not responded only to inherent differences in the locations. The forces of market tend to concentrate investment within areas that can offer the better infrastructure, human capital, less risks and better access to the markets (Krugman

& Venables, 1990). Agglomeration processes are the result of centrifugal and centripetal forces that promote geography concentration of economic activities (Fujita, *et al*, 2000).

The central idea considering the relevance of "socio-economic scale" dilemma is configured to the extent that while globalization tends to uniform ideas, technologies and a global market, the regions and local levels, based on proximity and concentration phenomenon, are seen as the sole levels where market strategies should be developed (Kirat & Lung, 1999). Globalization and new technologies have set new standards in spatial reality linked to flexible production system (Piore & Sabel, 1984). The increasing use of new technologies in firms also has promoted that tacit knowledge becomes codified modifying traditional advantages of localization factors because they become "Ubiquities". As this ubiquities process gradually augment the competitive advantages of low cost regions, new competitive advantages such as a location factor to firms are based ever more on accumulative and useful tacit knowledge and trust within local actors in regions and their potential to foster innovation (Maskell & Malmberg, 1999). As tacit knowledge is generated and diffused easily through local proximity, knowledge economic activities tend to concentrate. This means a re-conceptualization of where comparative advantages are located. Firms take benefits from externalities and agglomeration economic activities within an industrial concentration, depending highly from the stage of their life cycle (Audretsch, 1998).

Meanwhile, the GREMI School has developed fundamental theory bases to better understand the relation between specific localized external and internal environments to firms and innovation processes through deep analysis of Industrial District and Milieu Innovateur.

Based on the Marshall seminal ideas of Industrial District, has been emphasized the agglomeration advantages and the role of endogenous institutions and a common culture that permits complementarities and cooperation between specialized firms to promote innovation (Becattini, 1990). The Milieu Innovateur theory (Camagni, 1995) is based mainly on the

concept of learning and interaction considering that the transfer of accumulated and interactive common knowledge in high Technology Milieux is based on a collective learning process embedded in the element of "club externality" understood as a set of social rules that allow individuals to coordinate actions to solve problems (Capello, 1999).

The Californian school though, however, has recognized difficulties to unify different patterns of industrialization focusing on conceptual frameworks to identify types of productive activity (scale and scope economies), territorial dimensions and Governance structure. It is stressed the way of how industrial spaces operate when agglomeration productive systems promote innovation from inter – firm transactions and social interaction and regulations that arise from specific institutions and members of local networks; large and small firms, industry, entrepreneurs, educational institutions, R&D laboratories, members of trade, etc. Many cases have been studied such as Silicon Valley, Southern California, Emilia – Romagna, etc, where we see how inter - firm coordination can be fostered through a government structure based on untraded interdependencies (Storper & Harrison, 1991, Storper, 1995, Scott & Storper, 2003) or Institutional Thickness (Amin & Thirft, 1994).

The focus on the evolutionary growth is based on a long term economic growth that is the result of evolving and dynamic processes. This means that every process of generation of new knowledge is related to a path of dependency. Technology changes should incorporate all the diverse elements and interactions that made this evolution possible, so every process has a specific history related. The generation of new knowledge is possible through natural innovation drivers such as creation, selection and competition, and takes into account factors like uncertainty to understand the behavior of firms and markets as a response to their evolution. In other words, they will respond based on their dependency path (Johansson, *et al*, 2007). Evolutionary economist put especial focus on the routines of firms and markets, environmental influence and institutions. Firms do not make optimal decisions. The role of

knowledge, creativity, sharing information and technologies through a learning process is stressed. Firms are considered as collective organizations with capacity to learn, especially through the interaction with other firms and local actors stressing socio cultural environment where they are located and embedded (Cooke, 2004).

The efforts linked to economic development have focused mainly on the generation of public policies and strategies to promote development at both national and regional level stimulating an environment of competitiveness and innovation that encourages entrepreneurship, business productivity, stimulate economic growth and create jobs (Acs & Varga, 2005).

From the field of Public Policy in many countries, the various initiatives and programs to stimulate economic growth and development have had to consider the current market events in a context of accelerated globalization and rapid changes and have internalized the urgent need to adapt to this reality through strategies that promote environment competitiveness and innovation. These specific policies have been focused in the support of science and technology, regional policies to support lagging regions reducing regional disparities within the national context and policies directly supporting regional strategic industries (especially linked to support for SMEs) (OECD, 2007b).

Different programs in many countries, at national and regional level, have been created to promote the identification, strengthening and creation of specialized regions in productive clusters as a mechanism to deal with the transformations of the world economy (Asheim & Isaksen, 2000, Andersson & Karlsson, 2004, Ketels, *et al*, 2006).

2. Innovation, Innovation Policies and Regional Development

Different factors as the incorporation of new technologies, the globalization process, the increasing liberalization of markets (labor markets, flows of products and investments among

countries and others), the incorporation of new producers and potential markets as China and middle east countries to the international economic sphere, new customers dynamics and others, have had an important repercussion on the competitiveness of markets, generating the necessity to improve and accelerate the productive process of firms; small, medium and big firms have had to innovate constantly on their products and services in order to survive and maintain their competitiveness. Regarding Schumpeterian differentiation between innovation and invention, innovation can be broadly understood as the process where an idea is used effectively in the practice (Schumpeter, 1934).

In this context, as a knowledge economy is reinforced (OECD, 2004a, 2007b) productivity is now more centered on factors as human capital, R&D investments, incorporation and use of TICs and less on the exploitation of natural resources (Cooke, *et al*, 2007), increasing the necessity to constantly generate new commercial knowledge in order to generate competitive advantages and satisfy increasing demand of customers stressing a wider process where different sources, internal and external to the firms, and types of knowledge are used.

Nonaka & Takeuchi (1995), in a dynamic model of spiral knowledge, reduce this process distinguishing different stages where tacit knowledge becomes explicit and thus codified, in this process knowledge has to be first externalized in order to be after socialized, then knowledge is internalized and learned by individuals becoming tacit once again.

Considering the importance of innovation and the spatial component of a knowledge economy, from the field of public policy and industrial programs, many countries, have had to consider the current market events in a context of accelerated and rapid changes, internalizing the urgent need to adapt their policies to this new scenario through strategies to support endogenous firms and promote and environment of competitiveness and innovation. In this setting, as Cooke argues, (2003) advanced economies have promoted regional innovation and cluster policies practically everywhere to foster national competitiveness. These policies

should be designed considering an analytical perspective and best practice experiences in other regions (Cooke, 2003). However, policies must be generated locally considering unique cultural conditions of each region; it is impossible to base or imitate a policy entirely on other successful practices.

Despite of the fact that most economic functions in a modern society are best fulfilled by the market mechanism and capitalist firms, there is, however, a necessity to complement the market and capitalist actors through public intervention by specific policies, the issue is what should be performed by the state or public sector, and what should not be. Edquist (2001) argues that the main reasons to public policy interventions are the failures of the market mechanisms and the ability of the states (national, regional, local) and their public agencies to solve or mitigate the problem. To do this, generating policy instruments and new organizations and institutions to carry out the intervention is mandatory. At a national level, there are two main categories of policies to solve or mitigate these problems; first, the state can use non-market mechanisms and secondly, public actions should create new markets and improve existing markets (Edquist, 2001).

As it is sustained by the European Trend Chart on Innovation, the design and implementation of policies should depend on the innovation features of the region; basic regional economies may focus on diffusion-oriented policies emphasizing adoption more than creation of new technologies, regions with high innovation activities should have policies focusing on spin-offs and high-tech clusters creation (Pro – Inno Europe, 2003a).

Many of the current policies at a regional level are related to capital accumulation and skills embodied in the human capital, growth of R&D activity, macroeconomic environment, well developed financial markets, trade and investments. Inflexible regulations hamper the efficiency of product markets and impact negatively on the overall economic growth (Bassanini, *et al*, 2001). Regarding general innovation policy instruments, they should focus

on institutions, infrastructure, incentives, education and training policies, on labor and financial market policies and also company related policies (i.e. avoid bureaucracy friction). Specific innovation policy instruments should include innovation systems policies, R&D policies and commercialization policies (e.g. public internet) (Johansson, *et al*, 2007).

Based on the analysis of almost 40 existing instruments promoting innovation capabilities of SMEs in European countries and considering innovation as a complex, interactive a non-linear learning process, Asheim & Isaksen (2000) propose that RIS should support; a) instruments focusing on behavioral aspects instead traditional direct support schemes, b) proactive working methods, (c) instruments targeting bottlenecks in regional production and innovation system, (d) all-round instruments (or group of instruments), and (e) adaptation of instruments and policy systems according with different types of SMEs and regional circumstances (Asheim & Isaksen, 2000).

Malmberg & Maskell (1997) support a resource-based view demonstrating that history and proximity matters acting as a force to develop localized agglomeration of economic activities promoting economic growth. Development has an endogenous component, disparities in growth (advanced and lagging regions and countries) can be attributed in part to specific social capabilities related to cultural factors, internal "asset mass efficiency" of firms and external interaction and learning processes embedded in a networked structure of customers, suppliers, competitors and institutions taking advantage of market opportunities. This also means (considering the convergence phenomenon) take into consideration industrial structure patterns of specialization. Important empirical results have been provided to demonstrate increasing disparities and divergences (Malmberg & Maskell, 1997).

Another aspect considered regarding differences between administrative levels where policies are generated and levels where those interventions are applied (local, regional, national or international level) is discussed by Kuhlmann & Edler (2003). They take into consideration

the relationship between the ‘‘political systems’’ and ‘‘innovation systems’’ in Europe to argue that public research, technology and innovation policies are not generated exclusively by national authorities because increasingly, those even compete with regional or transnational innovation policy programs (in particular UE). Duplicity of decisional spheres where innovation policies are elaborated and applied could finally mean losing resources and expecting impact of policies, confusing local reaction of the target in the intervention program and weakening the general objectives of specific policies.

In a more micro firm level, new organizational processes have meant new characteristics of the human resources, more polyvalent, multi-skilled and empowered workers are now required to increase productivity. However, in a context of extreme discipline and unemployment, those new forms of works intensify the exploitation, auto control, discipline and labor processes, increasing an asymmetric form of power between capital and work, promoting a disempowered subordinate situation and generating precarious forms of work (Hudson, 1999).

Other studies have stressed the positive impact of policies that consider the role of mega agglomerations as city - regions and specialized regional economies as an active and causal element in the process of economic growth and development, the relationship between agglomeration, urbanization and development has been demonstrated empirically. According to path-dependencies in city - regions they will be able to attract investment and generate development considering different industrial activities. A extremely liberal economy, inabilities to transfer untraded interdependencies, competitiveness and productivity factors between regions, reinforce the process of increasing uneven development. However, there are some complementarities between central and peripheral regions as well, that contributes with convergence processes. Policies must focus on the creation of common assets in the region, institutional and organizational foundations and synergies to promote economic growth

considering also balanced interventions between agglomerations and lagging regions support (Scott & Storper, 2003).

2.1. Cluster Approach and Innovation

Different programs in many countries on national and regional level have been created to promote the identification, strengthening and the creation of specialized regions in productive clusters as a mechanism to deal with the transformations of the world economy (Asheim & Isaksen, 2000, Andersson & Karlsson, 2004, Ketels, *et al*, 2006).

According to Porter, Clusters are;

"*Geographical concentrations of interconnected companies, specialized suppliers and service providers, firms in related industries, and associated institutions in particular fields (e.g. universities, standard agencies, and trade associations) that compete but also co-operate"* (Porter, 1998. p. 197).

From the analysis of European Trend Chart on Innovation of the European Union, despite European cluster policies present a wide variation in policy design, essentially main forces behind these interventions are built around; the notion that clusters promote innovation because they stimulates concentration of expertise and knowledge in a limited geographical area, enhance competitiveness through a scale and scope economies facilitating dissemination of knowledge, encourages a culture of learning, are potential growth poles and finally help to develop a common vision among regional actors to achieve common goals (Pro – Inno Europe, 2003b).

Although Porter´s model has been subjected to many critics (Martin & Sunley, 2003), much evidence show that at an international (e.g. EU), national, local and regional level, programs

based on cluster policies are increasing in the world; they have been able to adapt to a wide variety of contexts as a complement or specific policy to promote innovation and competitiveness. Specifically, programs that support cluster and regional specialization have originated three different focused policies: a) regional policies, with emphasis on peripheral regions and RIS generation; b) science and technology policies, focused on collaborative R&D, high-growth industries and new technologies within regions with a basic platform of key firms and agglomeration, and c) industrial policies, with focus on SMEs as a fundamental platform to foster economic growth. Of course, there are cases where these kinds of policies are mixed (OECD, 2007a). However, it is possible to differentiate among these specific initiatives policies that have focused on the external conditions to promote innovation and others that are centered to encourage internal capabilities to promote innovation within the firms.

Clusters may evolve from both, evolutionary or planning forces. Both forces are bound by history and geography, and therefore every cluster has its own unique characteristics, they tend to develop differently in distinct geographies and time periods. Clusters should be described along four key dimensions: type of agglomeration, level of dynamism and competitiveness, stage in the life cycle, and level of political involvement (Sölvell, 2009).

Cluster policies are not homogeneous because they depend basically on their objectives and implementation processes. It is possibly describe them considering features such; level of aggregation, network and collaboration, policies dealing with national or regional clusters and degree of international dimension, policy cluster linked with strengthening of existing 'traditional' clusters or emerging clusters, and finally, the role of the government to support clusters as a bottom-up process or top-down decisions (Pro – Inno Europe, 2003b).

According to Sölvell (2009), the main policy area implication for clusters are; a) Science and innovation; clusters are sensitive to investments in science and technology development, b)

Competition; rivalry is one of the key ingredients of dynamic clusters, c) trade; links to world markets have a fundamental importance to the dynamism of clusters, d) Integration (for example the European Union), e) regional; clusters can gain from regional programs, and f) social; regarding the importance of access to superior public services enhancing their attractiveness and bringing new resources from the outside. In addition, the objectives of cluster initiatives should include; human resources, cluster expansion aiming to increasing the number of firms, business development, commercial cooperation and interaction, innovation objectives and a business environment (Sölvell, 2009).

2.2. Innovation from an Evolutionary Approach

Innovation systems can be thought as a set of actors; firms, organizations and institutions with recurrent patterns of behavior, conventions, values and routines, interacting in order to generate, use and diffuse new and economically useful knowledge in the productive process (Fischer, 2006).

2.2.1. A System Approach, Region and Innovation

A functional definition of Region is provided by Andersson & Karlsson (2004) as a "*Territory in which the interaction between the market actors and flows of goods and services create a regional economic system whose borders are determined by the point at which the magnitude of these interactions and flows change from one direction to another"* (Andersson & Karlsson, 2004. p.7).

Innovation is an endogenous and crucial factor for regional development derived from the ability of local business to perform and generate incomes. A core element in a non-linear approach to understand economic growth should be focused on regional policies promoting improvements on the ability to obtain knowledge diffusion and management, education,

cluster development, research, innovation and new technology, adventure economy, local entrepreneurship and human resources (Cornett, 2009).

As economic activity is directly related not only with the technological innovations but also with knowledge and learning process, policies should promote at a regional level a new institutional layout and organization forms promoting innovation and sustainability in a long term. This means a paradigmatic change giving emphases on intangible factors as human resources promotion, overcoming the classical innovation infrastructure promotion (Koschatzky, 2005). Innovation policies should be centered on region unities and based on a set of relations among local actors and organizations generating innovation and facilitating the emergence and adaptation of norms and rules of interaction. A particular intermediating role of the government is suggested as a public intervention, focused on making rules of interaction (Bellandi & Caloffi, 2010). Regions must improve their regional resource - base, therefore it is essential to deepen links and interaction between businesses, the knowledge of public sector and also with the external environment (Cornett, 2009).

However, when interactions are seen as a critical factor to promote innovation, outputs and impacts of specific public policies applied should be consider appropriate ways of evaluation specifically centered on the relational or social effects of interventions. New tools to assess these specific impacts have to be applied considering the difficulties to measure both synergies of networks in an evolutionary perspective and also evaluation problems related with an appropriate unit of analysis (Bellandi & Caloffi, 2010). Tura, *et al,* (2008), sustains that despite of the fact that new measures of innovativeness and innovative capabilities have been developed, there are problems with evaluation tools of innovation policies. They are a challenge to build regional innovation policy models to evaluate regional innovative or network - base capabilities.

The central problem, based on the difficulty to evaluate the outputs of the innovation, is part of the debate about policy impacts and is highly related to the parameters and conceptual approach to clasificate and measure innovation. The traditional understanding of linear innovation processes is a sequential model where inputs are first (R&D expenditures or investment), then processes (monitoring inputs), followed by outputs (e.g. patents) and finally outcomes of these previous stages (Noronha Vaz & Nijkamp, 2009). Innovation is a very complex and chaotic process, doing difficult to identify a cause – effect mechanism. Many times proxies as variables to determine innovation do not permit identifying if they are related with inputs or outputs in the innovation process or if they are associated with other efforts generated between inputs or outputs (a model process to advance in this area is provided by Noronha Vaz & Cesário, 2008).

2.2.2. From National Innovation Systems (NIS) to Regional Innovation Systems (RIS)

Innovation systems have been considered as the main instrument to reach economic growth. One of the most important changes in this matter was the reconsideration of the scale of analysis to understand the economic performance and technological competitiveness. Innovation policies were rethought from a national level toward a regional level. According with Fischer (2006) there isn't a particular reason to prefer a national scale over sub-national scales of innovation systems (Fischer, 2006).

Some definitions of National Innovation Systems agree and support the idea that a network of public and private sectors initiatives at a national level have a major impact on new technologies, the interaction and relationships from different elements in a nation allows the creation of new and economically useful knowledge, the interaction of these institutions and structures determine the performance of national firms and affect the rate and direction of the technological change in the society. All these definitions highlight the importance of

interactive learning processes and the role of nation-based institutions as cornerstones to innovation activities; however, authors are also aware of the increasing importance of regional level to promote innovation (Edquist & Lundvall, 1993, Freeman, 1987, Lundvall, 1992, Lundvall & Borrás, 1998, Nelson & Rosenberg, 1993). Complex systems that can be feedback through a mechanism of new knowledge production based on accumulate local knowledge and learning process (Hudson, 1999).

According with Asheim & Isaksen (2000); "*Policy emphasizes moves towards the support of networks and clusters of firms (that may have a regional, national or even a larger geographical extension), and the stimulation of interactive learning among firms and with knowledge organisations. The shift towards the interactive innovation model has, accordingly, increased the importance of the concepts of national and regional innovation systems in policy design*" (Asheim & Isaksen, 2000. p. 3).

Innovation systems addresses the importance of tacit knowledge embedded in a person, networks, firms and local cooperation to the development of an interactive learning process (Lundvall, 2007), specially within broader societal and institutional contexts at a regional level. Marshall emphasizes that trust reduces transaction costs in the local production system; there is an industrial atmosphere which facilitates generation and transfer of skills required by local industry, and that promotes incremental and diffusion of innovations among firms (Asheim, *et al*, 2007).

Cooke (2004) argues that: "*Regional innovation system consists of interacting knowledge generation and exploitation sub-systems linked to global, national and other regional systems for commercializing new knowledge"* (Cooke. 2004. p. 3).

A RIS is built as a base to support a business climate and promote competitiveness at regional level. They have a special local sensibility to incorporate the industrial network in the context

of an administrative regional space. It has been recognized the importance of the culture in the economic activity performance, coordination and development in three directions: 1) Individual level (trust), 2) in a workspace with cultural ability to cooperate and 3) a network based on trust and reciprocity. Therefore, the key to policy makers from a cluster perspective is on the relationships of competition and collaboration (Cooke, 2004). Besides, a RIS policy allows focusing on the current industrial strengths of the regions, a systemic view from the firm and the supply side, a more coherent public innovation strategy and allows identifying policy levels and inter-regional cooperation (Cooke, 2003).

Asheim & Coenen (2004) sustain that the analysis of RIS must consider two types of knowledge; analytical (science based) and synthetic (engineering based) because they mixed tacit and codified knowledge. Therefore, skills, organizations and institutions involved in these settings should be considered to differentiate policies and analysis (Asheim & Coenen, 2004).

Cluster and RIS policies are different. Since cluster and RIS are closely related, the difference has to consider the sector, specifically of clusters and the high density of functionally related firms. A RIS can extend or contain several sectors in the regional economy, it is only necessary that firms and knowledge organizations interact systematically, therefore, it is possible that clusters or more than one and RIS coexist in the same territory, however, it is not necessary that a cluster be a part of a RIS (Asheim & Coenen, 2004). Andersson & Karlsson (2004), say that clusters can play a key role for a RIS but the existence of regional cluster is not good enough for a RIS (Andersson & Karlsson, 2004). Isaksen (2001) in the same way supports the idea that the first pre-requirement for the emergence of RIS are not regional clusters, but regional innovative networks, cooperation and organization activities between firms. Furthermore, regional cluster are seen more as a spontaneous phenomenon while RIS have a more planned and systematic character.

The knowledge based perspective of Asheim & Coenen (2004) has implications on analytical distinction between clusters and RIS. Clusters based on analytical knowledge tend to be more integrated in the RIS ("integrated cluster-RIS") than clusters based on Synthetic knowledge ("Auxiliary cluster-RIS") (Asheim & Coenen, 2004).

Increasingly, many studies have focused on RIS experience's analyses that are deeply interested in well developed RIS in very competitive metropolitan areas and regions. Andersson & Karlsson (2004) on the contrary, put more interest on proposals provided regarding RIS possibilities in small and medium sized regions with less interaction, cooperation and networks advances and with a mid-developed industrial sector dominated by manufacturing of traditional industries, precarious innovation infrastructure and lack of universities and other regional actors that might collectively promote innovation (Andersson & Karlsson 2004).

Andersson & Karlsson (2004) summarize main points that should be considered to the possibility of a RIS generation in manufacturing small and medium sized regions: a) emergent clustering of manufacturing firms can facilitate interaction and exchange of technical know-how, b) endogenous knowledge should generate considerable learning-by-doing and learning-by-using processes, taking advantage of codified knowledge in a first step, c) new knowledge and technical know-how are gradually introduced to the system by diffusion and relocation processes, d) links with other regions help to convey ideas about how to improve and alter existing products/production processes and finally, f) innovative activities mainly concerned with incremental innovations from imitations and improvements of existing products. They also propose as a relevant regional policy in these regions to promote; contact with relevant research milieu, technical institutions for innovation support, financial support for innovation, young educated people to start in the industry, new subjects in technical colleges in the region, and overcoming network bottlenecks.

However, it is important to consider that the efforts to promote RIS from public sector can turn them overly dependent in the same way that overestimation of forces from the private sector can only be considered in the most advanced development levels, a balance between public and private governance is emphasized (Cooke, 2003).

Chung (2002) supports the idea of formulation and implementation of a national innovation system as a matrix composed by RIS because that would allow the creation of sectarian innovation systems effectively in terms of mapping of innovation actors. Those innovation systems should further developed and be promoted by the central government and focus on interactive learning between actors and cooperation between central and regional governments.

Park (2001) considers the experience of regional innovation strategies in the knowledge-based economy in Korea since the 1990s and proposes five major policies to promote RIS; promotion of regional clustering, building habitats for innovation and entrepreneurship, collective learning processes and innovation network, promoting local and global networks and building a stock of social capital.

However, some problems are inherent to a capitalist and learning economy. As capitalist economy has clear structural limits (competition and profits) and economic success is based increasingly on knowledge and learning processes, should be careful considered the possibility to increase also social development. For example, path-dependency and cumulative causation processes can be an obstacle to regional development; RIS may not be guarantee of social development. The critic issue on the “new economy” is the fact that only a few (individuals or region) have the control on the knowledge and will try to protect it in order to take advantage from it and increase their profits. Therefore, the existence of learning regions does not mean necessarily an egalitarian socioeconomic model, on the contrary, can foster economical and social interregional disparities, some spaces will be able to learn and

win and at the same time many others will lose. These effects cannot be ignored (Hudson, 1999).

Despite a systemic innovation view through the RIS concept has evolved significantly, there are still unanswered questions about the territorial dimension of innovation, the role of institutions and their emergence and sustainability. The diversity of RIS means confusion about their definition and empirical measurements. The learning process and untraded interdependencies are not enough factors to understand the territorial dimension of these studies. A multidimensional perspective is required to advance in RIS (Doloreux & Parto, 2005).

2.2.3. Considering Networks and Interaction to Innovation

Despite of the fact that technology and the revolution of information and globalization provides a better access to codified knowledge, the critical importance of tacit knowledge to innovation in firms has been highlighted lately (Nonaka & Takeuchi, 1995, Gertler, 2003). Likewise in order to comprehend how tacit knowledge can be produced, founded, and how it is shared and applied in a region, has been stressed the difference between knowledge and information and its relevance to the knowledge management and innovation in firms (REGINA Paper, 2004).

In a knowledge based economy, the innovation model is an interactive process that stresses cooperation between firms and institutions and enhances the role played by dynamic formal and informal networks based on tacit knowledge involving different organizations. Firms in a horizontal and vertical network can cooperate in order to have a rapid access to technologies and markets, allowing to take advantage of external sources of know – how and know – who, to share risks, flexibility, trust–based relationships and so on (Fischer, 2006).

This cooperation is a mechanism to transmit information through the different stages of a productive process and it is the result of complementarities among firms in an increasingly

functional division of labor and firm specialization settings (Antonelli, 1995). It is also important to emphasize that despite proximity in networks can be a facilitator of knowledge diffusion and interaction, distance can be relativized taking into consideration the positive outputs of linkages and exchange that might be harvested between one specific space with other areas where there is a high concentration of knowledge (Bathelt, *et al*, 2004).

Networks can be understood as an evolutionary system of mutual dependence based on relational formal and informal resources produced by interactions, processes, procedures and institutionalization (Tijssen, 1998). Networks of individuals and institutions undertake support activities, preference and reciprocity. The importance of networks to innovation addresses the idea of considering these dimensions through policies based on innovation systems (Fischer, 2006).

Recently, Moulaert & Mehmood (2010) from the analysis of regional development policies and new regionalism approach (Industrial districts, Innovation Systems, Milieu Innovateur, etc.) incorporates the "black box" of the institutional dynamics into the analysis of regional development. They stress that it is necessary to have a new approach based on "sociology of knowledge perspective", meaning a new interpretation of economic policies from a network theoretical approach with a full cognizance of structural – institutional and cultural dimensions of strategies (Moulaert & Mehmood, 2010).

Asheim, *et al*, (2007) adds to the argument of Storper & Venables (2004) the importance of face to face contacts in urban economies (the transmission of complex tacit knowledge) and buzz (the exchange of group-based information) as the main feature of proximity and interaction for agglomeration clusters, showing the necessity of taking also into an account outsourcing, off-shoring, and foreign direct investments and consider the type of industries (analytical, synthetic or creative) where face to face contact and buzz interactions are

produced. A set of policies for regional development can be drawn to incorporate these elements of learning processes (Asheim, *et al*, 2007).

Cooke (2003) shows that the concept of learning is a central feature in Innovation systems;

"Learning is defined as a collective process shaped by the existing structure of production, by organizations and by institutions. It is assumed that the characteristics of such a learning system are central to questions of growth, employment and competition… Learning… takes place within the production process; therefore it might be called learning by producing, indicating that its basic components may be thought of as learning by doing, by using and by interacting in relation to normal production activities". (In Cooke, 2003. p.5)

Nauwelaers & Wintjes (2002) propose a change in the rationality and orientation of innovation policies, innovation capabilities demand specific policies and instruments based on differentiated regional settings. This means to generate "policy intelligence" considering the variety of regional contexts, diversity of firms, abilities and attitudes, driving forces and barriers towards innovation in SMEs. Should also be considered a non-linear approach to understand public policies and also a regional dimension of innovation as a learning and interactive process.

It is necessary in those settings that regional developers can influence and participate actively in the operational environment of firms, in order to anticipate and determine firms' needs for innovation and networking allowing the development of micro-level policies and promotion of external support to fulfill those firms' needs (Kirsi, 2010). In recent years the impact of governance has been seen as a fundamental factor to strength productive systems in a long term, contributing with the selection of coordinated forms of cooperative patterns in related firms and environments (Noronha Vaz, et al, 2004).

Despite the fact that many authors recognize that regional public policies are the best unit where policies should be promoted, Tödtling & Trippl (2005) sustain that there isn't an ideal

model for innovation policies because it is necessary to consider first the kind of industry that specific policies are promoting, central, peripheral or old industries are preconditions to generate a specific policy characterized by networking and innovations barriers. Innovation policies based on a lineal model have focused on traditional financial innovation support, R&D infrastructure provision and technologic transfer, neglecting specially the absorb capacity, behavioral characteristics and organizational deficits of the firms and an isolated view of the regions, ignoring also interrelationships with other regions and other spatial levels, national or international (Tödtling & Trippl, 2005).

Nowadays societies are demanding new forms of governance capable of promoting innovation. This means a possible restructuring and reforming of public organizations to improve their contribution to social and economic problems (OECD, 2004a). While Global corporations are coordinated at a globalized economic level, their decisions to invest will be determined by regions with competitive advantages, places that promote innovation (Cooke, *et al*, 2007).

According to Tödtling & Trippl (2005) a new policy model to foster innovation at regional level should focus on high-tech, knowledge based or "creative" industries; building research excellence; attraction of global companies and stimulation of spin-offs. If the evolutionary approach considers RIS policies, lack of interactions; lock in specific situations and low levels of clustering and organizational thinness, those subjects should also be considered.

One of the main problems considered into the evolutionary policies is related to path dependencies; meaning that cooperation relationships or networks between actors within a region are unlikely to respond to certain demands and specific necessities of the market when there are strict rules, institutional memory or collaborative expressions that convert the region into an inflexible system. These mechanical routines work as an obstacle to the creativity and

innovation processes and do not permit commercialization of new knowledge to solve problems (Cooke, *et al*, 2007).

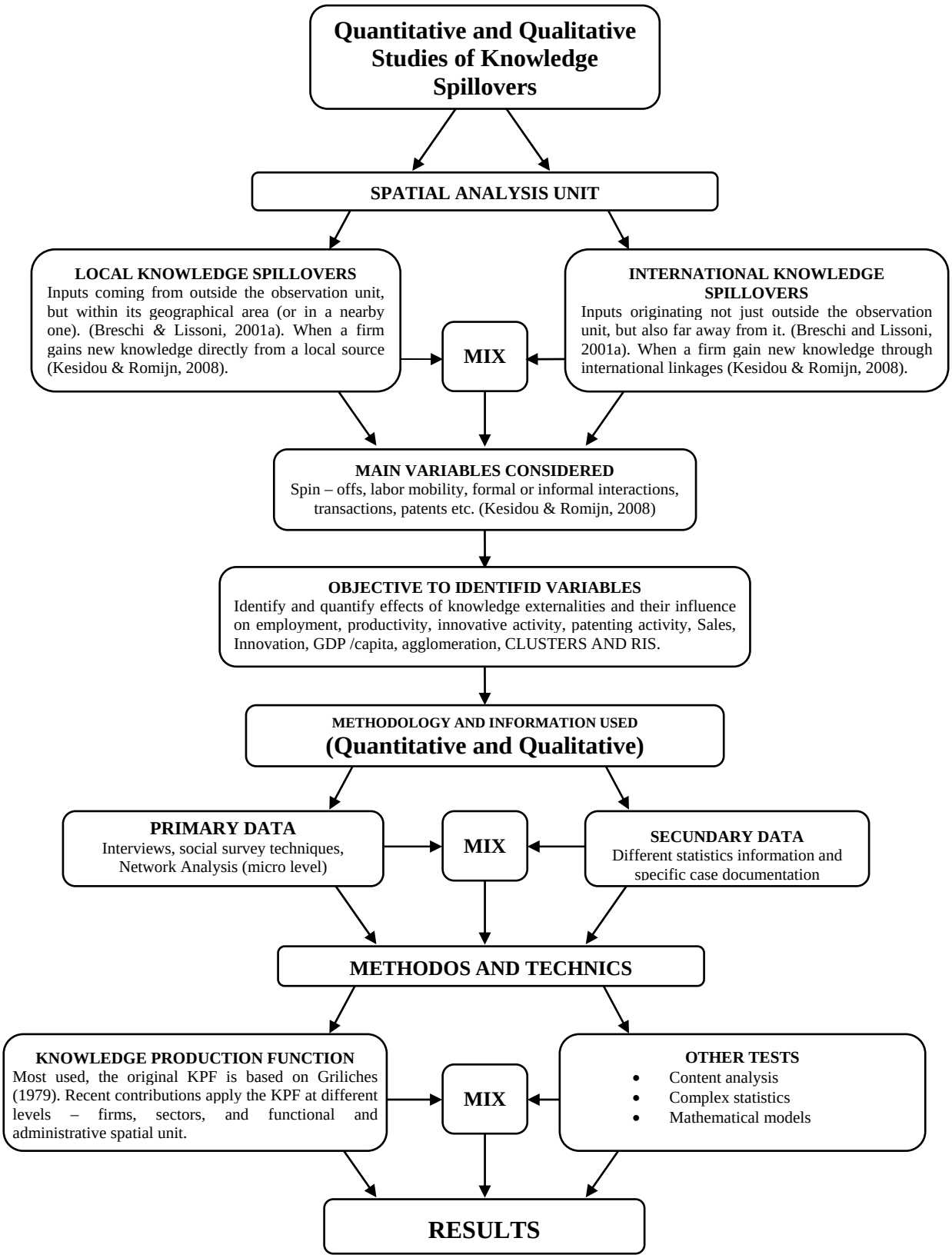
The development and progress of science and technology, information and communication technologies in advanced economies have enhanced productivity and made it possible for a greater number of individuals, firms and countries, to participate in a knowledge based economy. In the past, research was largely entrusted to governments and to the scientific community itself. Today a greater attention needs to be given to more and various issues, focusing on the interface between science systems and industrial innovation, human resources for science, technology and innovation, and international S&T collaboration. As innovation becomes more science-intensive and firms increasingly acquire scientific and technical knowledge from external sources, businesses have a more intensive use of public research (OECD, 2004a).

2.3. Knowledge Spillovers and Innovation

A large part of the qualitative literature on agglomerations such as high-tech clusters and Industrial Districts try to understand the mechanisms through which knowledge flows locally (Breschi & Lissoni, 2001b). Breschi & Lissoni (2001a) summarize those initiative studies as an effort to understand this process considering the role of non-market-based social ties with special emphasis on interpreting knowledge flows as spillovers (pure externalities) and spatial proximity that facilitates the transfer of knowledge through market-based channels, interactions and trust-building activities. Pecuniary externalities may also arise, but these cannot be described as originating a local public good (Breschi & Lissoni 2001a).

Besides, a knowledge spillover process should also consider the capacity to capture, absorb, learn, assimilate and use free knowledge (Fischer, 2006).

Fig. Nº 1
Classification Studies of Knowledge Spillover



Source: Own elaboration. 2011.

2.3.1. Localized Knowledge Spillovers and Measures Methods

Localized knowledge spillovers have been studied as a key factor for the clustering of innovative firms because transmission of new knowledge occurs more efficiently among closely located actors. Learning through networking and by interaction is seen as a crucial force pulling firms and essential ingredient for the success of innovative clusters (Breschi & Malerba 2005). Gilbert, *et al*, (2008) show that ventures founded in locations with a high concentration of industries have higher product innovation and sales growth than ventures founded in locations with limited industry clustering. The results also confirm that technological spillovers are positively and significantly related to product innovation (Gilbert, *et al*, 2008).

There are important studies trying to measure local knowledge spillovers using a knowledge production function approach. In this function, many different variables are incorporated as an independent variable; the effects of knowledge spillover over academic research (Acs, *et al*, 1992), spillovers from R&D and the relationship with the firm size and their life cycle (Acs, *et al*, 1994), existence of some localized technological spillovers from the academic institutions into the local business realm (Jaffe, 1989), knowledge spillovers from technological activities in a local industry influencing positively over innovating activities in the same sector and contiguous areas, underpin the importance of proximity (Paci & Usai, 2000). In general terms, most of the results of those studies have demonstrated the close relationship between proximity and knowledge spillovers and the positive impact over innovation.

Also, there are different studies trying to measure local knowledge spillovers from other kinds of test (mathematical models and complex statistics), but while the methods used to measure local knowledge spillovers are different, variables measured are in general the same ones; patents, labor mobility, Spin – offs, formal and informal interactions. Some of those studies

are related specifically to the propensity of the scientists to commercialize their research contributing with the knowledge spillover (Audretsch & Aldridge, 2009), to analyze patent families, patents that refer or cite each other and indicate the flows of knowledge from one invention to another (Jaffe, *et al*, 1993), to demonstrate that firms located in agglomerated regions tending to produce a higher number of new products than firms located in more peripheral regions (Brouwer, *et al*, 1999). Has been also noted that firm location choices underpin the importance of proximity for knowledge spillovers (Alcácer & Chung, 2007), stressing importance of trust in buyer–supplier relations and the inflow of knowledge from trading partners (Bönte, 2008). Has been shown empirically that knowledge exchanged between local firms and universities does involve market transactions (Zucker, *et al*, 1998) adding internalized market elements in the diffusion of knowledge. Sectarian and spatial knowledge spillover effects are considered to be major motivating forces for regional concentration patterns of high-technology industries (Tsai 2005). Besides, the importance of creativity, the skills and knowledge embodied in individuals are the mechanisms by which spillovers actually occur (Knudsen, *et al*, 2008). Local knowledge spillovers have a significantly positive impact on firms' innovation performance through labor mobility, company spin-offs, and informal interactions among actors (Kesidou & Romijn, 2008), scientists working in knowledge clusters should tend to be more productive than their counterparts who are geographically isolated (Audretsch & Aldrige, 2009).

Initiatives to measure knowledge spillovers in a networking context have been introduced to understand the impact of knowledge diffuse in collaborative knowledge creation as an important input for firms to gain new competitive advantages (Ding & Huang, 2010), participation in local business networks does support firm employment growth (Boshuizen, *et al*, 2009), interpersonal networks are important as well in determining observed patterns of knowledge diffusion (Singh, 2005), and also other studies focused upon the role of

entrepreneurial firms in the exploration of new technological spaces and the diffusion of accumulated knowledge through local small firm networks (Almeida & Kogut, 2004).

2.3.2. International Knowledge Spillovers

Besides those studies linked with efforts to measure local knowledge spillovers, other initiatives are related to the study of international knowledge spillovers that commonly take into account foreign investments, imports and exports of goods and services as variables of knowledge spillovers impacting over the economy performance of countries and regions. Falvey, *et al,* (2004), show the existence of spillovers through imports, with consistently significant growth-enhancing effects, Lee, (2006) shows that international knowledge spillovers through inward FDI as a disembodied direct channel are significant and robust, in contrast, outward FDI and imports of intermediate goods are not conducive to international knowledge spillovers. Other studies show evidence of significant spillovers from R&D outcomes through import flows (Coe & Helpman, 1995), Branstetter (2000) analyses FDI as a significant channel for knowledge spillovers, both from investing firms to indigenous firms and from indigenous firms to investing firms (Branstetter, 2000).

2.3.3. Knowledge Spillovers and Services

Although, as has been previously shown, there are many methods to measure both local knowledge spillovers and international spillovers, there is an important gap trying to measure knowledge spillovers in service economic activities or cluster services where innovations are mainly related to innovation processes and organizational intra - firm process (Kaiser, 2002), highlighting for example the importance of knowledge spillovers from suppliers and clients to SMEs (Simmie, 2002).

3. Knowledge Intensive Service (KIS) and Tourism

Important inputs from the analysis of Knowledge Intensive Services (KIS) can be used to understand Tourism Industry. In the last 20 years the importance of "Services" or the "Tertiary sector" has been explosive. Service sector becomes fundamental for the economies, providing an important source of employment, productivity, regional and national economic development and acting at the same time as an interconnector and facilitator of the development of the other economic activities.

Since service sector has presented a very deep and high impact over the dynamic of economy performance, literature in the academic and economic/political area has emerged contributing to a productive debate around these areas and many other specific sub-areas that this field involves. Despite the fact that traditionally innovative policies have focused on manufacturing or good production, policy makers, public institutions and organizations at different decisional scales (local, regional, national and international) have increasingly considered this area as a central issue for discussion, preoccupation and achievement (ODEC, 2007b, Muller & Doloreux, 2007, Miles, 2008a, Rubalcaba, *et al*, 2010).

Nowadays, taking into consideration the critical dependence of knowledge and the increasing importance of services to the whole economy, an important theoretical debate has flourished around the generic concept of "Knowledge Intensive Services" (KIS) (Miles, 1995) and other particularly related concepts (Miles, 2003, Aslesen & Isaksen, 2007), "Knowledge Intensive Business Services" (KIBS) (Miles, 2008b, Toivonen, 2004, Muller & Zenker, 2001, den Hertog, 2000, Rodriguez & Camacho, 2010) and "Knowledge Intensive Services Activities" (KISA) (OECD, 2004b).

There have been many efforts to advance in this area and develop a conceptual framework considering specific terminologies for each concept (KIS, KIBS and KISA), but still the boundaries and levels of study and focus are diffuse especially for the high complexity that

means grouping economic activities according with the economic performance of each classification, identifying and categorizing sub industries according with their capacity to generate new knowledge, the capacity to absorb and utilize knowledge and also types of knowledge that are mostly used to generate innovations.

Commonly, the most popular classification used as a first differentiating factor within "services activities", is provided by the Statistical Classification of Economic Activities of the European Community (NACE. Rev 2), where main categories that group this sector, go from "G" to "O" sections. Particularly tourism activities are generally grouped under letter "I" that involve hotels, restaurant, catering and letter "H" that considers transport and storage.

Despite the slight confusion in some research and policy topics around the "Service sector", it is possible to see some general agreement about the necessity to move conceptually toward a better understanding of the sector considering its specifications and features, its development and evolution and its impact on different areas. In this sense, the literature has advanced to a conceptual differentiation of primary and secondary sectors, particularly based on the factors that could be considered as variables to explain different firm behaviors in areas such as innovation, generation and use of knowledge, networking, etc.

Regarding that economic activities in Tourism sector are contained in the classification of "Services sector" this classification can be even harder. According with UNWTO, *"Tourism is a social, cultural and economic phenomenon related to the movement of people to places outside their usual place of residence, pleasure being the usual motivation"* (UNWTO, 2008. Pp.1). Enterprises that may arise to satisfy directly necessities of this people movement considering this definition can be many and therefore it is a much diffused and complex classification.

Tourism as a service activity has not been a part to this debate, especially taking into consideration the increasing dependence of many economic activities and specialized firms

(knowledge based) to the generation and use of knowledge to innovative proposals giving them higher competitive advantages to capture new markets. Many industries that Tourism involve, some more than others, have had to moved increasingly towards a more intense utilization of knowledge while, at the same time, they provide and spread knowledge to other organizations and customers in order to solve specific problems, providing high quality products and having a wide range of competitive services.

3.1. KIS, Knowledge Intensive Business Services (KIBS) and Tourism

Merino & Rubalcaba (2006) sustain that the main factors regarding the increasing importance of KIS are associated with the consolidation of a knowledge based society, where there is a new importance attributed to intangibles assets in the current productive system, new information and communication technologies (ICT) are constantly provided and the role of human capital is highlighted.

Despite the large number of service definitions, a basic vision of the terminology considers them as immaterial outputs supplied by producers to users in a production and consumption process that takes place simultaneously (Viitamo, 2003). Rubalcaba *et al*, (2010), argue that the residual, unproductive and non innovative character of service activities have meant that definitions are strongly characterized considering what they are not, transportable, tangible, storable, etc. Specifically, KIS are related with institutions, firms or organizations that are focused on selling specialized knowledge intensive services in the market (Aslesen & Isaksen, 2007).

Some definitions of KIS are really based on high specialized technical knowledge, computer and consultancy, logistics (Wood, 2002), but others use conceptually a broader definition that may include other kind of services, for example cultural or educational services (Merino & Rubalcaba, 2006). Sundbo (2010), considering a case study that includes tourism as a KIS

(featured by the development of destinations and new tourism systems) puts focus on innovation and public – private networks collaboration to promote cities and regions.

Despite the important differences that are currently present in the service industry, Miles (2008a) argues that there are at least two characteristics that are common in the whole sector; intangibility and interactivity. While intangibility means that services are much related and focused on data and non material goods, interactivity suggests the importance of an interaction process or physical presence between customers and firms.

Other features that are common in the service sector are co - terminality, low portability and information intensity. Regarding intra-sectarian firm behaviors, it is possible to find three differences linked to innovation activities; a) fundamental processes related to the transformation of objects where different types of knowledge are used, b) knowledge intensity, innovation in firms is highly dependent from labor skills and capabilities, and c) market relations (Miles, 2008a).

KIS have been studied from different perspectives, giving rise to a different conceptual approaches and definitions depending upon the focus and type of services firms that are the central core of the work. Muller & Doloreux (2007), taking into consideration the last decade of evolution in KIBS studies, review an extensive literature considering a three conceptual key dimensional perspective to analyze this industry; knowledge, innovation and spatial proximity.

In the same context Doloreux, *et al*, (2008), reviewing different research around the KIBS topic, identifies five main developed streams of analysis; 1) conceptualizing with no empirical analysis; 2) KIBS at national level stressing differences with other services; 3) comparing manufacturing firms with KIBS firms; 4) analyzing innovative activities, production and diffusion of knowledge and finally; 5) stressing the role played by KIBS in RIS and clusters.

However, even though these dimensions are proposed specifically to review KIBS literature, they can be also used as main dimensions to explain and understand KIS.

Nonetheless, even though tourism cannot be defined as a KIBS (considering the use of critical assets as highly specialized expertise and high skills and qualified employees), the intense use of knowledge communication focused on the firm-costumer interaction in tourism, must also be taken into consideration. In this context, Miles, (2008b), identifies main economic activities that are generally associated with Tourism Industry in NACE; Hotels, Restaurants, Catering, Transport services and Travel agencies, and classifies them as "Less Knowledge Intensive Market Services".

3.2. Innovation in KIS and Tourism

Nowadays innovation in services is still (in the theory but also more importantly in innovation policies) a not well developed arena. In many cases, services are only recognized as facilitators inputs to innovative manufacturing firms, in other cases it is underlines their capacity to imitate manufacturing innovations and also as a sector that only reacts to innovation generated in other sectors (Howels, 2000).

One example is the CIS (Community Innovation Survey) that only captures some aspects of innovation in services partially. Only in recent years, some institutions and organizations have considered the necessity to incorporate non – technological variables to measure and promote innovation and improve innovation indicators in services in general terms (European Commission, 2007).

There is also some agreement that innovation in services must consider intra-sectarian differences because firms vary in terms of market, function and employment (Miles, 2008a, Doloreux, *et al*, 2008). There are many service firms that are knowledge intensive based, and have a very similar performance with high-technology manufacturing firms, present high

levels of labor skills and capabilities, network interaction and also important R&D expenditures. Unlike these firms, organizations like HORECA (Hotels, Restaurants and Catering), have a poorer use of knowledge (but not completely absent) and the intense use of networks, high educational or professional requirements for specialized workers are not mandatory (Miles, 2008b).

In the same context, Czarnitzki & Spielkamp (2000) showing empirically the differences between KIBS and "ordinary services", note the less innovative behavior of ordinary services versus KIBS, that are instead, more related to skilled workforce and technological aspects, involved in R&D processes and cooperation projects for innovation, becoming this in bridges of innovation between manufacturing and services (Czarnitzki & Spielkamp, 2000). Specialized services play the role of source, vehicle and facilitator of innovation (Dobrai & Farkas, 2009).

Regarding technological and non technological innovations, there is some recognition that services, in general terms, present increasingly a more innovative behavior (Howels, 2000). Based on the three types of innovations in services suggested by Soete & Miozzo (1990) and adapting the Pavitt´s service taxonomy, Miles (2008a) proposes to add new styles of innovations as an input for innovation policies and conventional statistics:

1) Supplier dominated: Firms rarely generate innovation; it is commonly acquired. The author linked this typology to hotel, restaurant and catering services.

2) Scale – intensive physical information networks: Considers sectors like transport and travel. They are intense users of technologies for efficiency. Some firms use information networks to deliver services.

3) Science based and specialized suppliers: Specialized in software, R&D, with high levels of expenditures in innovation.

4) Professional knowledge-based: related to traditional professional services and other more specialized (legal or advertising). They are intensive adopters of technologies.

5) Public service style: public and social organizations that supply the service. Generally, those services are dominated by technologies.

6) Interactive style: Services that are based on firms – client interaction to co - produce innovation.

One of the main axes of theoretical discussion is around the differences between performances of manufacturing sector and services sector in terms of innovation, R&D expenditures, employment, etc. Particularly, Miles (2007) suggests that despite the important contribution provided by the service sector to the employment and regional and national economies, the sector shows poor levels of R&D because many surveys and questionnaires present operational problems to measure basic information incorporating specific variables related with services, using instead, a manufactured sector logic that is focused on technological and scientific R&D, reducing and underestimating the contribution of total R&D in the OECD countries, especially considering that sources to generate innovation activities in services are closely linked to other sources of knowledge such as interaction and learning (Miles, 2007). Those problems can be extrapolated to innovation measures, especially considering non technological inputs and outputs linked to innovation in service firms, traditionally known as marketing and organizational innovators. Den Hertog, *et al*, (2003), based on a Schumpeter´s concept associates this kind of creation (through new combinations) to the “soft side” of innovation.

In the same debate around the less attention of R&D and innovation policies towards services, an assimilation (services are less technologically innovative and manufacturing theory is also applicable to services), demarcation (innovation in services is unique) and systemic approach

(innovative services need to be part of an innovation systems) is proposed by den Hertog, *et al*, (2006) based on a seminal work of Gallouj (1994).

Howels, (2000), identifies five barriers to innovation in services; 1) Intellectual property rights and imitation; 2) regulatory lag; 3) problems with the information and knowledge (to demonstrate capabilities); 4) problems with the employment because skilled levels of services increase constantly and 5) the limited cultural and institutional history of innovation in services.

Another important and increasing problem to distinguish between service and manufacturing sector is due to the fact that manufacturing and services are more intensely linked through outsourcing activities. Thus, the line to separate investments, employment and other variables that belong to one sector or to another sector becomes fuzzier, complicating for example, the process of statistical analysis and demarcated information.

Furthermore, there are many problems with some manufacturing firms that at the same time involve services process as a part of their business process (Viitamo, 2003). Howels (2000) has called this mechanism an "Encapsulation" process, specifically focusing on the activities where non-technological innovations encapsulate service products in order to deliver a better product and thus increase the qualities of the sale process. The same phenomenon, but in the opposite direction, is common in Tourism firms since they are intense users of manufacturing firms products that are once incorporated in a tourism firm and see them as part of the service process (e.g.: hotel furniture).

A multidimensional model to classify patterns of innovation in services is provided by den Hertog, *et al*, (2003), where innovations are divided in a non - technological dimension that includes the introduction of a new service concept and three technological dimensions that consider new client interfaces, new service delivery systems (new working routine, organizational concept or back-office improvements) and new technology innovations (ICT

investments). As a result of the strong link among four dimensions, when a specific innovation is developed, not only one dimension will be affected because changes in the rest of dimensions will be necessary in order to carry out the innovation successfully. Considering those innovative dimensions a taxonomy of service innovation is proposed; 1) supplier dominated innovation, 2) innovation within services, 3) client-led innovation, a innovation is initiated considering specific needs of clients, this pattern can be associated more closely with the tourism industry, 4) innovation through services and 5) paradigmatic innovations that affect all actors in a chain of value (den Hertog, *et al*, 2003).

Den Hertog, *et al*, (2006) taking into consideration policies to promote innovation in services emphasize the differences between knowledge externalities from technological versus non technological investments. As innovation in services is more related to organizational processes, spillovers from service firms to others can be lower considering collaborative projects. Aslesen & Isaksen (2007) consider a KIBS and KISA approach and focus their work on static and dynamic ways of how knowledge exchange happens and how those processes are linked to innovation in firms.

3.3. Geography of Services and tourism

One main line of work in KIS studies has stressed the relationship between services and space. Merino & Rubalcaba (2006) emphasize the importance of KIS to the expansion of regional economies. As other economic activities (manufacturing activities, principally) geographic features of KIS are strongly linked to clustering forces and the utilization of externalities and knowledge spillovers from localized spaces, stressing that their presence is highly close to very advanced countries and specialized regions. However, despite the fact that KIS show high patterns of spatial concentration, they also present some differences to

other economic activities especially as a result of off-shoring trends allowing decentralization processes through ICT.

Considering important differences in KIS industries, proximity will play a lesser or better role in their business process, spatially considering the requirement of firms to have a continued interaction with their customers (Thorsten & Böhn, 2003, Merino & Rubalcaba, 2006). Koch & Stahlecker (2006) emphasize the importance of proximity to entrepreneurships, start - ups and early stages of service firms because they take advantage of regional resources or externalities fostering at the same time regional development.

In a national and RIS context the important role played by KIBS as intermediary actors promoting innovations through outsourcing and collaboration activities is recognized (Howells, 2006), acting as a node function in the creation, diffusion and implementation of knowledge, essentially through a face to face communication and diffusion of tacit and localized knowledge among regional agents where learning by interaction is stressed (Doloreux, *et al*, 2008, Thorsten & Böhn, 2003, Koch & Stahlecker, 2006).

Rubalcaba, *et al* (2010), underlines that innovations in the service sector should consider the role of innovation systems, their interactions and interdependencies. The importance of KIBS in the regional economic performance has suggested the necessity of including specific features of the sector as a factor to understand the dynamic and evolution of RIS, considering them as suppliers of expertise to other firms promoting and helping them in the innovation process (dos Santos Ferreira, 2010).

However, although tourism (specifically traditional services like hotel and catering, trade or transport) cannot be defined properly as a KIBS (den Hertog, 2000) and is continuously used as an example of lagging service industry (Merino & Rubalcaba 2006), it can also be seen as a base industry on which a RIS may be developed. The main difference is while the effects of KIBS are more indirect because they are more functional to the entire economy from their

capacity to produce, transfer knowledge (Merino & Rubalcaba, 2006) and act as a node of knowledge-related networks (den Hertog, 2000), tourism effects are more direct and concentrated on a specific industry.

4. Tourism and Innovation

4.1. The Importance of Tourism

The increasing significance of tourism as economic activity is a fact but also an important future challenge. Firms and governments should face new scenarios in tourism according to the transversal socioeconomic and cultural changes that are currently affecting most economic activities particularly the manufacturing and service sector. Many global changes produced (among others) by new information and communication technologies, new possibilities of customer credit capacity and financial access, new dynamic of markets, have meant a new competitive and dynamic scenario for firms featured by the increasing need to create differentiated products and services with high quality and added value. Many of the efforts to create new marketable ideas incorporated in product or services (ones more that others), are a mix of tacit knowledge and explicit knowledge (Shaw & Williams, 2009). Therefore, as innovation efforts produced by firms are very important to gain new markets and competiveness, much emphasis has been given to the capacity to generate knowledge, absorb it and finally use it in order to produce more and better products and services. Knowledge has become the cornerstone of society and markets and this reality is part of the tourism dynamic and also its trends and challenges.

Considering the study of tourism and innovation, increasing research (an important review of tourism innovation research is provided by Hjalager, 2010a) has been developed from different perspectives, most of them qualitative and exploratory cases, but also empirical analysis that contributes with the understanding of the sector and its dynamics. Hall & Page

(2008) through a complete survey of geographical research contributions in tourism, identify several studies generated around areas such as tourism and globalization, tourism planning, tourism and social mobility and voluntary migrations, growth and development, environment, tourism and patterns of impacts over space, different kinds of flows produced by tourism activity (such as market networks, distribution, trade, knowledge spillovers, etc), tourism firms, organizational features, innovation, tourism entrepreneurship, clustering, future prospects, etc., all of the subjects studied from different scales of analysis, local, regional, national or international. However, despite of the many advances in the tourism research area it is still necessary to generate more information by systematic empirical and qualitative evidence of innovation impacting tourism destinations (Hjalager, 2010a).

Despite the fact that for many years innovation in services and tourism was not part of the research agenda and government policies, more research has recently focused on the topic of innovation in tourism (Howels, 2000). Since this new recognition, innovation in tourism sector has been focused mostly on destination and product level (Hall, 2009) giving the impression that innovation in tourism is moderate but also has a high potential of development (Sundbo, *et al*, 2007). Despite this generalized vision, some authors have proven empirically with case studies that delivery and organizational innovation processes are a common and well developed phenomenon in tourism firms especially in the accommodation sector (Jacob, *et al*, 2003).

As has been shown by den Hertog, *et al*, (2006) there is an assimilation, demarcation and systemic approach to understanding innovation in services regarding differences and comparisons with innovation in manufacturing. A conceptual and dynamic model approach of innovation in tourism is provided by Decelle, (2004) taking into consideration different previous models of tourism innovation, among others; Hjalager (2002), Porter's Cluster model (1990), Barcet (1996) synthetic approach model, and a structural model approach

where are stressed differences between a more traditional model of innovation (Fordist tourism) versus a new tourism model featured by the capacity of firms to offer complex services while the autonomy and self-organized customized tourism activities are increasing. In general terms, the model is mostly based on new TIC's incorporated into tourism firms and the industrialization process of the sector as main factors of innovation in tourism.

An important model of innovation in tourism is provided by Hjalager (2010a). Regarding theoretical problems to define and limit innovation and tourism, the author identifies five types of innovations; product or service innovation; directly observed by customers, for example a new destination; process innovation related highly to backstage innovation to increase productivity many times through TIC's introduction; managerial innovations related to new organizational forms within firms; management innovations, linked with efforts to generate new ways to communicate, positioning, attract and loyalty building relationships with customers via marketing activities; and finally, institutional innovations developed in order to promote a network and collaborative organizational structure gaining competitiveness and new innovation opportunities.

Despite the increasing importance of services and tourism, instruments to measure and support innovation activities in the sector are still focused on technological innovation concepts linked mainly to performance of manufacturing firms. Regarding differences between technological and non–technological innovations (more associated with service firm's performance) recent studies have shown the increasing importance of investments in intangibles as the principal input for innovation and critical factor to the tourism industry. However, even though the generation of technological innovation is minimal in the tourism industry, it is very important that firms are able to absorb and utilize knew knowledge from other sectors (Plaza, *et al*, 2010). In the same context, tourism SMEs shows a lower capacity to absorb knowledge and information (comparatively with large tourism firms) because their

low skilled workers and high labor mobility (turnover of workers and owners) (Sundbo, *et al*, 2007). It is necessary in this sense to promote professionalism regarding new tourism business models based mostly on e-tourism and e-commerce and ICT as principal agents changing the industry structure. Hjalager (2002) questioned as well the capacity of tourism workers as sources of knowledge to innovate based on their low industrial specialized training.

A special analysis regarding innovation and tourism has been focused on the importance of innovation activities as the principal engine of tourism productivity, regional development and competitiveness, especially in areas where competitive advantages are limited and specialization in tourism is seen as a good alternative to generate economic growth, employment and sustainable development (Korres, 2007).

The use of new communication and information technologies is considered by some authors as the core for innovation in tourism sector, giving to some tourism products a higher value (Decelle, 2004). These new tourism business based on new technologies has been called e-tourism regarding e-commerce (Korres, 2007). The intensive use of technologies has changed both, the internal organization and production system of tourism firms, and also the logical dynamic of customers when buying a tourism product, interacting closely with tourism firms and making purchase decisions with more information, empowering consumers with tools to choose the best option in the market.

Sundbo, *et al*, (2007), study comparative innovate behavior in tourism firms in Spain and Denmark regarding three levels of analysis; firm level (management and innovation), network level and innovation national system, concluding that the main determinants of innovation (behavioral or organizational and technological) are related to the size of the firms, the level of professionalism, level of entrepreneurship in small firms and participation of firms in innovation networks.

4.2. Tourism and Clusters

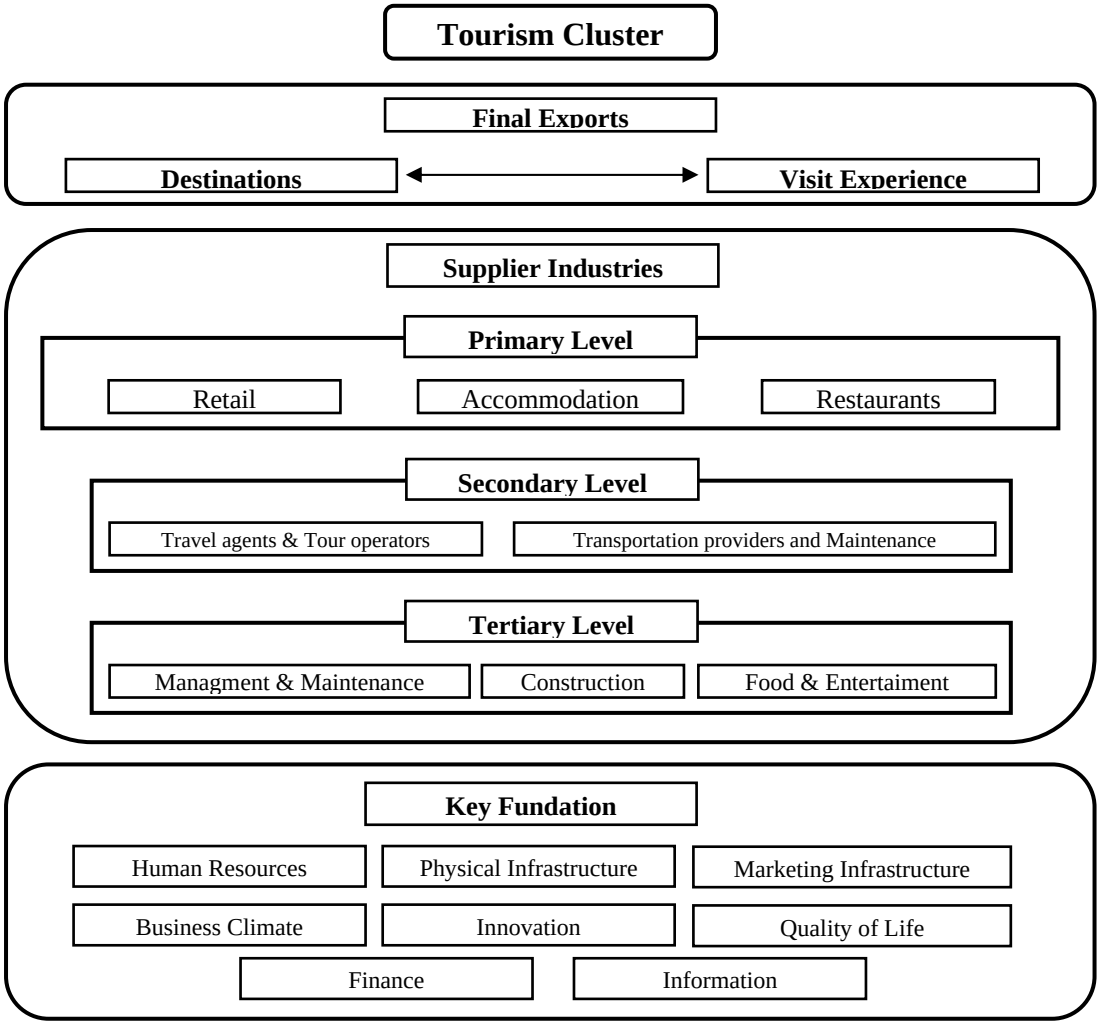
As internal and external factors behind innovation activities in tourism firms present a high complexity, the main classical theoretical approaches trying to cover this study field are entrepreneurship (Schumpeter, 1912/34, 1950), innovation systems or cluster models (Marshall), and technology and demand forces (Hjalager, 2010a). Since Tourism activity is largely characterized by a high presence of SMEs, the possibility to take advantages and gain competitiveness from scale and scope economies is suggested (Korres, 2007). This argument is complemented by the importance attributed to geographic aspects regarding social and geographic proximity, a spatial context where tourism activities are developed promoting rivalry and competition, networking and cooperation behaviors and also promoting knowledge transfer. Those processes may foster the development of a tourism cluster that finally may increase the capacity of innovation in tourism firms. This argument has also notable sense regarding tourism products as experience services that in a context of tourism destinations will demand to involve a set of complex interlinked elements, reinforcing the necessity to consider tourism with a high spatial component (Decelle, 2004, Hjalager, 2010b).

The undeniable impact of Porter´s Cluster model (1990) has had important repercussions on various spheres, including regional development, internal organization of firms, sectarian politics, etc. Based on Porter´s diamond model, it is possible to find literature that attributes important advantages of clusterization, sectarian specialization and networks to Tourism economic activity (Novelli, *et al*, 2006). Nordin, (2003), highlights a cluster model to develop tourism destinations focusing mostly on singularities of the industry and differences with the manufacturing sector, stressing also the importance of positive tourist´ experiences reached by synergy, common goals, collaboration, interdependencies and complementarities among firms that participate in a tourism destination. Cluster, in this context, could also allow us to identify gaps viewed them as opportunities to generate new products or services. Despite the fact that

a tourism cluster approach is used as a theoretical framework, different emphasis in specific topics is given in order to understand, many times partially, current case studies of tourism cluster, process models and also politic orientation (Ferreira & Cristina, 2009, Jackson & Murphy, 2002).

Decelle (2004), stresses the importance of a systemic tourism approach to reach higher development and competitiveness of tourism, underlining the processes of "Co-opetition" (competition and cooperation) among co-localized firms, utilization of local social capital to capture knowledge, synergies and integration of tourism firms through networking. Cooperation and networks have been also studied empirically to determine interlinks between actors in tourism clusters (Santos, *et al*, 2008). In a context characterized by a high internationalization of the economy and a tourism sector "*geographically focused and organizationally fragmented"* (Gollub, *et al*, 2003, Pp. 3), it is mandatory the possibility to generate diversified local value chains in tourism cluster, mechanism to minimize "leaks or missing components" as environmental costs, forgone profits, international payments of goods and services (that otherwise would be obtained locally) and maximizes local benefits produced by the sector (Gollub, *et al*, 2003).

Fig. Nº 2
Tourism Cluster



Source: Gollub, *et al*, 2003.

According to Beni (2003) (in Ferreira & Cristina, 2009) "*tourism cluster is a set of attractions with touristic differential, concentrated in a limited geographical area with facilities and services of quality, collective efficiency, social and policy cohesion, with coordination of the production chain and of the cultural associations, and with excellent management of companies' networks that generate comparative and competitive advantages*" (Ferreira & Cristina, 2009).

In the same context, although some studies have analyzed competitiveness of regional based - tourism economies regarding only variables of a cluster model approach (Ferreira & Cristina,

2009), other studies have incorporated cluster models as one of the many variables that composes the main structure axes of competiveness in tourism destination. Hong, (2009) regarding tourism as a complex and multi dimensional industry determines that competitiveness should be composed by Ricardo's comparative advantages, Porter's competitive advantages, tourism management and environmental conditions. Competitiveness and sustainability of tourism clusters have also been applied to measure the impact of tourism on the local development (da Cunha & da Cunha, 2005).

Sources of competitiveness were also studied empirically from the perspective of local tourism production systems or Marshallian´s industrial district approach, concluding that external economies and "tourist filière" are central determinants to reach competitiveness, growth and local development (Capone & Boix, 2008). Hjalager, (2009) studying tourism destinations from an industrial district approach sets also key factors that can be linked and analyzed to understand tourism industry. Weidenfeld**,** *et al*, (2010), has studied specifically knowledge transfer in a clustering tourism context concluding that spatial proximity and similarities of products and markets contribute with innovation spillovers.

4.3. Tourism and RIS

It is relevant to understand Tourism industry from the perspective of an innovation system, where the generation of new knowledge through partnership, collaboration and networking are essential and highlighted. Since tourism innovation is highly related to the capacity of creating value and competitive advantages in a specific tourism destination that involves many firms, it is better to understand innovation through a systemic approach, than promoting innovation in each firm, separately (Plaza, *et al*, 2010). Main ideas and conclusions that compose the innovation system approach, take into consideration that Tourism is still an open field to be analyzed (Hjatlager, 2010b).

An evolutionary approach based on innovation systems has been used as a theoretical framework to understand the dynamic of tourism economic activity and determinants of the success in the industry (Hjalager, *et al*, 2008). The importance of tacit knowledge as a competitive advantage (regarding differences with codified knowledge) and know-how by routines for example, are stressed as a key factor of learning processes and accumulation of knowledge and skills within specific organizations, as well as at a regional level. However, when tourism specificities are considered, there are two transversal problems that affect the dynamic of innovation in the sector (Shaw & Williams, 2009). The first one is related to the low propensity of sharing tacit knowledge as the main competitive advantage in tourism SMEs (Cooper, 2006) and the low diffusion of an entrepreneurial spirit and professionalism, reducing the possibility to augment training on specific work performance within the sector. The second obstacle to innovation is related to the inadequate incentives mechanisms especially from the tourism operators and their employees (Decelle, 2004). Sundbo *et al*, (2007), contrarily, argues that innovation systems in tourism do not exist (or at least are a very weak) regarding traditional factors to create an innovation system as in the manufacturing sector, because innovations in tourism are simpler therefore easier to imitate, so that firms prefer to keep this knowledge and specific information within the boundaries of the firm, becoming increasingly less oriented to cooperate and participate in networks (formal and informal, local or international) despite their benefits. This is accentuated by the factor that firms do not perform innovation activities considering their participation in a specific tourism destination, and they do not have systematic and intense relations with external agents as research institutions, despite the fact that they are very dependent of external factors (Sundbo, *et al*, 2007). Hjalager, (2002) stressed this idea arguing that tourism firms see other firms only as competitors, reducing the possibility to create direct relations based on trust and cooperation, leaving other organizations to assume the role of intermediation and facilitation.

Despite some arguments that have portrayed tourism as a sector with low possibilities to develop innovation systems, some researchers have identified tourism innovation systems; institutional innovation determinants based on collaboration, spin – offs and highly related sectarian agents (every one of them taking different roles, some of them acting as drivers of the process and others assuming more peripheral roles), generating synergy and mutual benefits. In this process, firms have taken advantage from externalities and other outputs of innovation systems (Hjalager, 2010b). Prats, *et al*, (2008), have centered on the evolution of tourism destinations using a tourism local innovation system model approach, added to the discussion important evidence of generation of social networks and shared benefits among firms promoting innovations.

Hjalager, *et al*, (2008), consider that tourism innovation systems should be featured by many actors developing high levels of diversity and density. Some actors assuming keys roles and the existence of an innovative atmosphere willing to receive new participants in chains of value, promoting innovation of second comers, "co-petition", a public sector assuming a facilitation role of innovative practices and activities to increase global sectarian extension.

4.4. Knowledge Spillovers in Tourism

Knowledge spillovers present important differences in services and manufacturing. Special features of innovations in tourism and sources of knowledge used to develop them, do not allow us to consider the same factors and variables that are commonly used in the manufacturing sector. Using a den Hertog, *et al*, (2006) model of innovation in services, it is possible to incorporate specificities of innovation systems based on tourism sector to analyze the structural axes developed by firms as a process to use and absorb knowledge and generate innovation. Since one of the main common innovations in tourism is related to changes in the conceptual service provided by a tourism firm, other innovations are more technological

linked to the incorporation of specific new technologies and improvements of a delivered and interfaced interaction with the consumers. In these cases, sources of knowledge to create new knowledge are more associated to learning processes and know-how. For example, when technologies are absorbed by firms from the manufacturing sector, the systematic utilization of these technologies becomes after a while in a routine and then this specific know - how is transformed in a first stage in tacit knowledge and then spilled over as codified knowledge. In this context, beside trade processes and institutional frameworks, key factors to understand the interactive processes of how knowledge is diffused, must also consider structural features of the tourism firms (size, organizational design; part of a multinational chain or franchise, etc.), and also cognitive factors to manage this knowledge and used it to increase innovation within firms (Decelle, 2004). In this context, when some features of firms are considered to analyze innovations in tourism sector, the process of knowledge transfer and knowledge management is stressed (to review specific literature; Shaw & Williams, 2009).

However, as in general tourism firms present low degrees of R&D, low spin – offs from universities, low collaboration initiatives with other firms and also low investments to obtain knowledge in order to generate innovation (Hjalager, 2010a), the question that emerges from this context is evident; When does a tourism firm innovate?, What are the main sources they use to obtain knowledge? Of course many characteristics of internal structures of firms must be considered, but also the role played by a specific environment where firms are located and formal (market) and informal networks connected and interrelated at a local, regional, national or international level. The great difference between technological manufacturing SMEs and tourism SMEs is related to the degree they can take advantage of externalities, generating specific spaces to innovate, precisely because innovation processes in both sectors are different and there is little in common between them, regarding their innovation agenda. Therefore, the process to generate innovation is different and many times non-comparable.

A more recent and important field of research has been increasingly developed to understand knowledge management dynamics in different spatial levels and their repercussions for tourism industry, tourism destinations and tourism products (Cooper 2006, Clarke, 2009). Cooper (2006), regarding knowledge transfers and manage aspects in tourism firms, takes into account differences with manufacturing sector and highlights the importance to change the traditional view of knowledge management in isolated boundaries of firms towards an understanding that includes a macro level approach, involving more private and public organizations and networks at a regional, national and international level. For example, at a destination level, part of this process would be based on the 1) identification; 2) capturing (from internal and external sources to convert it from tacit to codified knowledge); 3) transferring and 4) sharing of this knowledge to adapt and promote innovations in a specific environment. Since this knowledge can be accumulated, the importance and dependence of learning processes should be stressed. Hjalager, (2002) argues that despite of the fact that tourism industry brings more obstacles to knowledge transfer than other sectors hampering innovation, this does not mean that this process are inexistent in the sector, but it is necessary to analyze them in a broader way. Four main sources are provided to identify channels of knowledge transfer; trade system (knowledge embedded in associations, or tourism organizations, and diffused in conferences, forums, sectarian surveys, etc.); technological system (knowledge embedded in technologies); infrastructural system (knowledge embedded in free goods), and regulation system (knowledge embedded en regulations or mandatory actions that promote innovation (Halager,2002). Based on Kacker (1988) and Halager´s model, Shaw & Williams (2009) proposes a model to identify “main vehicles of knowledge flow in tourism”.

Tab. Nº 1
Vehicles of knowledge flow in tourism

Vehicles of flow	***Main types of knowledge flow***
Indirect conduits (diffusion / process)	*Observation, trade press and trade associations* *Seminar convections and demonstration* *outsourcing* *Human resources*
Direct conduits (transfer / process)	*Foreign direct investments* *Franchising* *Joint ventures* *Management contracts* *Regulation system and training*

Source: Shaw & Williams (2009)

Since Tourism is highly intense in human relationships to provide a high quality service (Dobrai & Farkas, 2009), face to face contacts between firms and clients, the importance of intangibles and tacit knowledge are stressed (Nonaka & Takeuchi, 1995). On the other hand, since intense use of new technologies to flow information is critical for tourism business, both aspects, knowledge and technologies can be seen as the platform over which tourism should be developed.

Tourism firms do not only need to improve their efficiency and productivity investing in ICT (software, new equipment, etc.), but they also need to take part in a dual process; by becoming more knowledge based and competitive, in order to continuously generate new knowledge, specifically closer to the market (regarding the tourism chain value) and also intensifying the relationships with knowledge intensive service activities (KISA), in cases where a specific process is not part of the central core of the business.

Some arguments emphasize that service innovation is generated closer to the market (den Hertog, *et al*, 2006). Rubalcaba, *et al*, (2010) sustains that firm-client relationship is the basic element of service innovation because in this interaction new knowledge is co-produced.

At the same time, as services innovations are explained much better for intangibles and human factors (and not necessarily for R&D expenditures for example), service innovation is more varied and complex that good innovation.

The participation of firms in strategic networks is a determinant factor to the innovation performance in the tourism sector. The possibility to access to specific knowledge (tacit and codified, separately or simultaneously), new technologies, equipment, infrastructure and know – how, increases when a small firm for example, is voluntarily part of a franchise or a multinational chain (intra organizational – international networks), or is a direct foreign investment that can promote standardized processes of services and count with skilled professional resources to transmit or diffuse knowledge and information to develop specific technological or managerial adjustments (Cooper, 2006, Shaw & Williams, 2009, Hjalager, 2002, 2010a).

4.5. Innovation Policy in Tourism Sector

The role of public sector to promote innovation is a critical issue in tourism. According to Hjalager´s (2010a) literature revisions of innovation policies, the focus of public sector must consider initiatives to facilitate knowledge spillovers, technology transfer and promote entrepreneurial initiatives and risk financing, networking and collaboration, training, interaction in innovation systems, regulatory efforts, coordination, stimulation and planning role. Since tourism industry shows poor levels of innovation, policies should not be focused on tourism industry, but on external forces to the sector, that can indirectly promote tourism innovation (Hjalager, 2002).

Studying Nordic tourism innovation systems, Hjalager, *et al*, (2008) identify seven potential policy fields that should be considered by policy makers and research area; new knowledge generation and acquisition (specially to client oriented innovations), development and reinforcing of an innovative culture in active actors of the system, to improve cultural and natural values, conditions of systems, to enhance financial availability, strengthening links among scientific and technical knowledge and tourism, encouraging knowledge transference and spillovers from public sectors and institutions.

Despite of the fact that many countries make efforts to incorporate tourism policies into a national innovation policy strategy, even in countries like Australia and New Zealand where tourism is one of the most important economic activities, there seems to be some difficulty integrating and encouraging effective tourism innovation and competitiveness through the national innovation policy. In the opposite direction, tourism is not recognized as a sector that can contribute mainly in areas of innovation to reach competitiveness at national level despite the fact that tourism in fact is considered into the agenda of national innovation (Hall, 2009).

5. Conclusions

In this chapter, research literature was examined in order to frame theoretically the objectives of this thesis. As it was showed, the understanding of variables, process and specific dynamics that knowledge spillovers involve in an increasingly knowledge based economy, must be contextualized particularly when an economic activity, such as tourism in a specific region, will be studied. First, because Tourism is a very complex and not very well defined economic field and second because studies of innovation have been very centered on manufacturing sector.

Only in the last years, research and policies initiatives have noted the necessity to study the service sector in a moment when this area has gained enormous notoriety and weight in the economies of the world, contributing to increase rates of country growth and social development.

In this context, it was exposed a brief revision of theoretical advances in economic geography and main topics that knowledge spillovers involve. It was first considered attempts to understand the performance of economy regarding main features of space as variables that must be included in the analysis of economy performance.

Cultural, human, historic and other microeconomic aspects that are present in a specific space and time, have stressed the necessity to include in specific studies an evolutionary perspective. This theoretical framework is analyzed regarding that knowledge, its creation and diffusion through social networks are cornerstone factors of an economy increasingly based on the competitiveness of enterprises.

Micro and small tourism firms need to improve their performance innovating constantly to survive in a very dynamic and fast market. Thus, the creation, absorption and use of knowledge depend on differentiating factors of the regions and enterprises to ensure and maintain competitiveness of their productive systems. Tourism enterprises and tourism regions as the Algarve region are strongly involved in these geographic, economic and social dynamics. The capacity to create a culture of innovation and create mechanism to facilitate knowledge spillovers will be mandatory, especially in a sector that increasingly becomes a knowledge intensive service.

PART III
NATIONAL AND REGIONAL CONTEXT FOR TOURISM AND INNOVATION IN ALGARVE REGION

1. Introduction

The increasing relevance of creation and commercialization of new knowledge has lead to a deep rethinking of several areas in our daily lives, and has opened many new questions about the functioning and potential development of an economic knowledge based system. Especially, in the field of economic geography the process of creating new knowledge has become the cornerstone of economic development and growth theory. Conceptual frameworks have changed to understand in a better way how the process of generating, diffusing and absorbing new knowledge is related directly to dynamic economic processes, human behavior culture and space. Regarding the main characteristics of knowledge, the central approach to understand the "knowledge process creation" in different settings, has been focused on a special symbiosis with the concept of systems and evolutionism able to gather in a harmonic and natural way different elements of a dynamic process allowing the possibility to create new commercial knowledge.

Fast changes in communications and technologies in a globalization process and new dynamics of markets have pressed the restructuration of firms to respond to unpredictable demands of the consumers rapidly and efficiently. As competitive processes are intrinsic to the neoliberal market model, entrepreneurs, firms, regions and countries need to innovate constantly and develop products and services fast enough to have the best participation possible in the market and thus capture new business opportunities. The increasing competitiveness of the market between producers and the necessity to solve problems and unsatisfied necessities are the main engine to generate innovation and new valuable economic knowledge. Globalization also has promoted a new international trade, where multinationals

or big corporations through the organization of their productive process on a global scale, have changed the international geography and, at the same time, the local geography through direct investments on competitive regions and exploitation of territorial advantages such as lower labor cost (offshore), natural resources and so on. These kinds of firms rarely have a strong interaction with the environment where they are located, and can solve their innovation process internally, rather than locate in a special place to respond mainly to company functional requirements such as market access, lower labor value and access to different input productive resources.

On the other hand, associated essentially with micro, small and medium firms, the necessity to take advantages of the external environment through agglomeration, scale and scope economies, proximity and collaboration and cooperation with more local agents (firms, universities, agencies, etc.) to promote innovation processes according to their portfolio and economic activity, have meant a more aware and critical economic located decision. Regional or local environments affect and impact firms differently to the extent that they participate, collaborate and interact with economic agents in a systemic process enabling an innovation process. The place where firms are located has a historic, cultural, accumulative knowledge, institutions and organizations that can act fostering or blocking innovations. Regions are the best unit of analysis to understand how firms can evolve and interact with specific actors to stimulate innovations and entrepreneur behaviors. Formal institutions mixed with untreated interdependencies; trust, rules and specific conventions to “do something or take action” are unique and unrepeatable, the spatial boundaries of the regional system are commonly determined by a specific cultural expression. According to how those regions will respond to market and trading processes, the regional system will be able to compete better than other regions stimulating economic growth and development.

At a regional level, competitiveness encourages the necessity to accumulate specific knowledge specialization to advance constantly toward a better synergy in a segmented economic activity, capable of solving problems and necessities in a better way. Many firms take advantage producing in a specific industry located in a specialized region where specific knowledge has been accumulated over the years; those firms are prepared to respond quickly and better than other regions, since they are more competitive than others. If there is a system that promotes firms' competitiveness, firms will have more advantages to compete with others to capture a specific market (Saxenian, 1994). If the firm knowledge - base is aware that the same region can increase payoffs, the company will feel stimulated to locate in a specific region despite of the fact that this could mean higher production costs compared with other more isolated and lower competitive regions for the company (Malmberg & Maskell, 1997).

Currently, social development model in most countries is based on innovation and creativity as the first target to promote economic growth and employment, modernization of traditional economic sectors and productivity, covering at the same time, the failures of the market system. The dichotomy in the competitive neoliberal model is that while more energy is given to promote winning spaces based on innovation, at the same time more spaces become lagging, increasing an uneven model where disparities and divergences are promoted (Storper, 1995). The social development model should attempt to reduce those disparities and promote long term convergence among regions and countries. The prospect of this model is that finally technological spillovers will produce a convergence of regions, meaning that developed regions will be able to push up lagging regions to reach competitiveness and higher levels of growth. However, structural limits of a capitalist model and specific features of particular regions should be reconsidered estimating convergence possibilities and an egalitarian social model (Hudson, 1999).

In these settings, the capacity that countries have to incorporate and be part of this new paradigm based on innovation determines in a great extent the opportunities to generate growth conditions and better economic and social conditions of development. In the European context currently the regional differences of economies that consider innovation as a central focus of the country development agenda have shaped a specific geography of innovation strongly marked by disparities and divergences. Portugal, as many European countries has had to participate also in this globalizing process to reduce this gap and has had to consider the incorporation of new and critical factors in order to improve the capabilities to take advantages of a knowledge based economy. However, some indicators at European level, point out that Portugal is still lagging, considering many average indicators related to innovation and competitiveness; R&D expenditures, patents, educational level, etc., showing that there is still so much to improve and advance in this context. It is mandatory that economic and regional public policies change the actual traditional neoclassic logic and deepen the efforts and activities to promote innovation and creativity. Despite important efforts have been developed from the European Union through the "European Agenda of Lisbon" to become "the most competitive knowledge base economy", Portugal has assumed only recently the necessity to add efforts in order to contribute with the European Union vision where the necessities to transit to a knowledge and innovation based economy is evident and mandatory.

Despite the fact that from the first Portugal TrendChart Country Report in 2000 to the last Portuguese Report in 2009 (Pro – Inno Europe, 2009a) there has been significant advances to gain and achieve more national and international competitiveness based on a National Innovation System (from the 21st to 16th place), many variables remain quite underdeveloped, especially those that consider intra - coordination and linkages between key players both at national as well as regional level. Regional cluster policies as a national

industrial model to improve in this aspect has only been considered recently as an alternative strategy included in the Portuguese agenda for innovation policy.

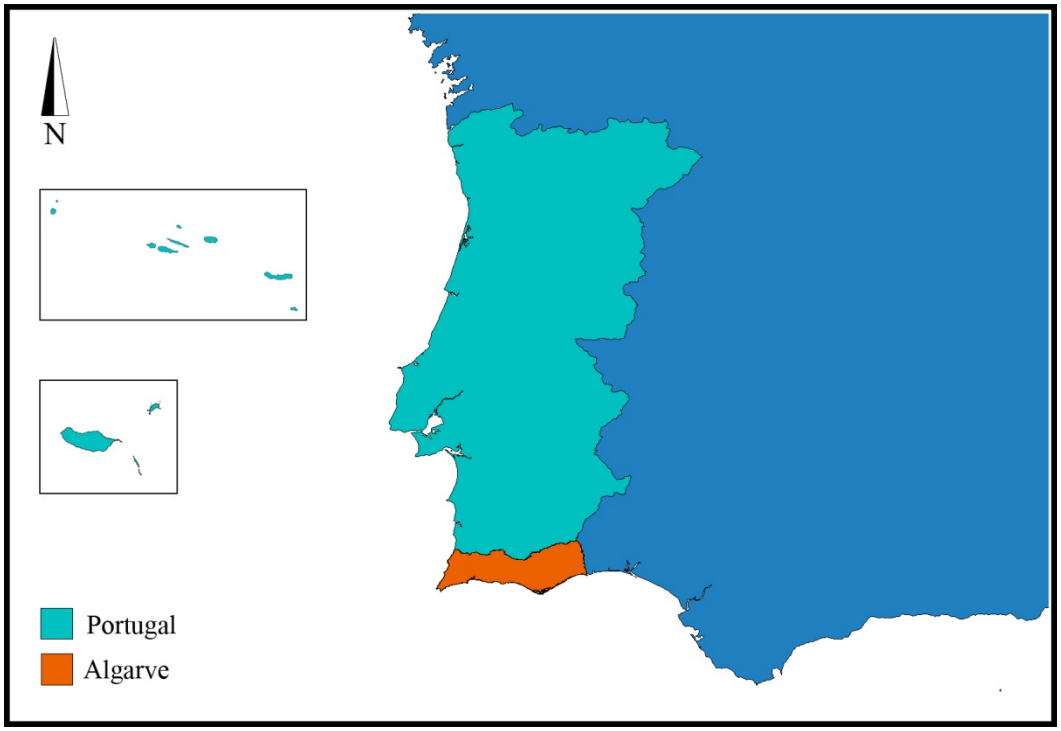
Thereby, tourism and other economic activities that have been included in "Poles of Competitiveness" do not consider the high dependence of Tourism to territorial features. Key aspects are indentified by this work as principal problems (or opportunities) to the innovation performance: lack of human resources, capabilities, especially in graduate and undergraduate levels, reduced rates of creation and establishment of new domestic and international companies, low capacities to promote SMEs, underdeveloped cluster policies and policy coordination. (Pro-Inno Europe, 2009a)

Un-concentrated and decentralized (or regionalized) innovation policies in Portugal thereafter should promote competitiveness, entrepreneurship and innovation also at a regional level, which will mean, among other things, focusing mostly on intangibles, interaction and network aspects among actors in order to create new economic knowledge. If regions have a specific history and specialized accumulated knowledge, they will have the capacity to learn and use this knowledge in a better way in the future. Since the presence of SMEs is very high comparatively with other European countries, greater efforts should be made in order to promote their competitiveness increasing thus the impact of these firms over the Portuguese economic growth. Policies should stimulate learning by interacting and cooperation between firms and different regional actors because they are at the same time promoting a culture where innovation is the main competitive advantage to deal with dynamic market processes. One of the most important characteristic of innovation in regional context, especially to micro and small firms, is the capacity that regional actors have to interact, to build strong linkages (within the region and with other intense knowledge spaces), to coordinate efforts with common visions, to learn from specific regional dynamics, and diffuse (willfully or un willfully) specialized and usable knowledge to generate new knowledge.

2. Portugal, Innovation and Tourism Framework

Covering an area of 89.000 Km², Portugal is located in the Iberian Peninsula in the southwest point of Europe. According with NUTS I Portugal is divided in three main areas; Continental Portugal, Autonomous Region of the Azores and Autonomous Region of Madeira. In turn, these areas can be subdivided in seven areas corresponding with the NUTS II classification, where Portugal is divided administratively in five regions (from the north to the south) as follows; North region, Lisbon, Center, Alentejo and Algarve region. These regions, managed by the Commissions of Coordination and Regional Development, can be divided according to NUTS III classification in thirty subareas.

Map. Nº 1
Portugal and Algarve region



Source: Own elaboration. 2011

Considering the demographic division of the territory, in 2008, the population in percentages was distributed approximately as follows (from North to South): The Mainland concentrates the 95.3 % of the population distributed in the North region with 36.9%, Center, 23.5%, Lisbon region, 27.8%, Alentejo, 7.5% and Algarve region with 4.3%. Insular Portugal concentrates the rest of the people with a 4.7 % distributed in the Autonomous Region of Açores with 2.3% and Madeira Island with 2.4%. The population density in Portugal, in 2008, was 115.4 (hab/km2) and the main concentration of population was located on the cost of the continent between Viana do Castelo and Setúbal (INE, 2008a). Regarding connectivity and accessibility infrastructure of the country, Portugal has nowadays almost 13.000 km of roads, 3.500 km of a railway net and 14 airports.

In the last quarterly report published by INE, in August 2010 there were in Portugal 10.637.713 people confirming a very slow process of growth in population with an increase of nearly 0,15% comparing with 2007 (strongly influenced by immigration processes). Several economic and social trends have had an important impact over the demographic structure of age segments changed it progressively in the last twenty years reducing the amount of people below 24 years of age in almost 10% (INE, 2010).

The Human Development Index (HDI) report of UNDP, 2009, that considers variables as healthy, education and standard of living to define the conception of well – being, increased their indicator from 0.768 in 1980 to 0.909 in 2009 (considered as a very high indicator of human development), positioning Portugal in the 34th place in a list of 182 countries (UNDP, 2009).

According to the 2010 report provided by EUROSTAT on “The Risk of Poverty”, during 2008 at least 18% of population in Portugal was in risk of living under the line of poverty after receiving social aid remaining with an income below of poverty threshold (this line is relative to the reality of each country). Europe rate was 18% (EUROSTAT, 2010a).

Regarding inequalities of monetary resources, when GINI coefficient is considered to estimate the distribution of incomes in the Portuguese population, it is possible to note that from the mid-1980s to mid-2000s inequality went up, reaching the 19th place among 24 OECD countries considered for this period. Countries that showed the highest increase in this coefficient were Portugal, Finland and New Zealand. Considering only 2000s, with the same GINI coefficient, Portugal is ranked with a level of 0.42 (being 0.31 the average of European Countries) as the third largest unequal country of 30 OECD countries being only surpassed by Mexico in the first place and Turkey (OECD, 2010a).

3. Understanding National Innovation System in Portugal

Considering labor market in Portugal, in 2010, the amount of active population reached 5.581.400 people, representing a 59.3% of total Portuguese population. In the last 20 years, the activity rate of population (15 years old and more) increased nearly by 5% reaching, in 2010, approximately 62%. This was strongly influenced by woman's (and more qualified) participation in the labor market and the postponement of the retirement age. Also there was a decline of inactive people (level of inactive people that depend of employed persons) that in 2008 reached 96.2 every 100 employees which explained principally the increase of employed population. On the other hand, in 2008, unemployment rate reached 7.6%, corresponding to 427.100 individuals. In the last two years the important incidence of Portugal recession and other factors have increased this percentage reached nearly 10.6% corresponding to 589.800 people (INE, 2010).

Regarding employment, in 2010, the amount of jobs places reached 4.991.600, these jobs considering the professional situation, can be separated by "wage earning" (77.5%), "self-employed workers" (21.5%) and "unpaid familiar workers and others" (1%), approximately.

Considering the sector of economic activity, 10.9% of employees are related with primary sector, 27.8% with secondary sector and 61.4% with tertiary sector.

The average monthly basic salary, in October of 2009, was € 918.2 and the minimum national wage in 2010 reached € 475 (webpage; Ministerio do Trabalho e Solidaredade, 2010). In 2008, the enterprise structure was composed of 1.096.255 firms, from this total around 46% was related to construction, retail and wholesale commerce as well as consulting activities, scientific, technical and similar.

Considering the labor productivity levels (OECD, 2008), Portugal presented an index of 27, 5 (GDP per hour worked) taking the place number 9 of 37 countries that are part of the OECD in the same year. Considering the percentage of total value added in the country, the agriculture sector shared, in 2008, 2.3%, industry 23.9% and services 73.8% of the total. One of the main important features of Portuguese economy is the high proportion and economic dependence of small and medium-sized enterprises. In 2007, considering manufacturing industries, approximately 92% corresponded to enterprises with less than 20 people engaged (http://stats.oecd.org/Index.aspx).

According to the information provided by the International Monetary Fund, Portuguese economy expansion, considering GDP (measured in current prices) reached, in 2010, €171.083 Mill and the GDP per capita reached the same year € 16.083 (www.imf.org). Portuguese GDP rate of growth (using as a base year 2000), has showed from 2000 to 2003 an important slowdown from 3.9% to - 0.8%, respectively. Following years, GDP moved between 1.5% in 2004 and 1.9% in 2007 presenting an important reduction in 2008, when GDP had a nil variation, principally as a result of the balance between the contribution of the external demand and positive contribution of domestic demand (INE, 2008a). From 2008 to 2009 GDP fell to - 2.5% in 2009 giving clear signals of recession and economic crisis. Currently, the second quarterly of 2010 has showed an increase of 1.5% compared with the

same period in 2009, mainly due to the increase of exportations associated to a larger external demand of goods and services (INE, 2010).

Although, Portuguese economy shows slight irregular improvements, the macroeconomic indicators and projections still show high chances of stagnate in 2011 indicating that the process of economic adjustment and recovering will take some years, especially considering the too many difficulties resulting from the internal and external conditions that Portugal is facing with the current crisis (Banco de Portugal, 2010).

Regarding the international trade balance of import and export of goods and services, Portuguese economy shows an important dependence of imported goods, increasing year after year and reaching a negative balance of -34.2 billion US dollars in 2009. In contrast, services show a constant rise of positive balance reaching 9.5 billion US dollars (http://stats.oecd.org/Index.aspx). In 2009 the main destinations of exports were members of the European Union (74.2%), PALOP (8.6%), NAFTA (4.4%) and others (12.8%), while main regions of import are the European Union (78.%), MERCOSUR (2.4%) and others (19.6%) (AICEP, 2010).

Regarding the international investments, in 2009, the gross foreign direct investment (FDI) reached € 31.8 billion, meaning a decrease of nearly 10% compared to 2008. Nearly 89% of all investments are provided by members of the European Union in economic areas linked to wholesale and retail, real estate and manufacturing industry. Now, considering the gross FDI of Portugal in other countries, total amount reached in 2009 was approximately € 8 billion, showing an important downfall specifically considering 2007, when investments were the double of 2009. Real estate and financial activities account for nearly 88% of all investments and Netherlands, Spain, Angola and Brazil concentrated nearly of 60% of the invest destination (AICEP, 2010).

Regarding educational aspects, the education system in the last years has been marked for the important increase of pre - schooling stage covering nearly 80% of the target age group (helped particularly by the augment of public educational network) and a general declining in the last twenty years in the primary and lower secondary educational levels with nearly 300 thousand student less between years 1990 and 2008. Regarding upper secondary level, the number of students from 1995 has also decreased. Finally, superior education schooling rates have been increased. In 1994 - 95, this percentage was nearly of 15% comparing with 2008 – 09 where it was around 30%. Considering the period 2000 - 2008 the number of graduates went up from 61.000 to 84.000 principally in the field of business administration, health and engineering. Despite important advances in the educational system, the lack of human resources is current considered as the principal factor hampering to increase innovation activities.

In the last Eurostat Pocketbook of Science, Technology and Innovation (EUROSTAT, 2010b), some indicators related to innovation performance are provided allowing to have an idea of the current position of Portugal comparatively with European Union countries (27) and other countries like Russia, China, Liechtenstein, South Korea, Japan, Norway, Switzerland and US, grouping 34 countries. Portugal, in 2007, spent 1, 18% of the total GDP in R&D expenditures occupying the 22nd place among all countries, leaded by Sweden with 3.60% and finishing with Cyprus with a 0.45%. This percentage was increased to 1.51% in 2009. Considering the business enterprise R&D expenditures by sector of activity, in 2006, 46% was concentrated in manufacturing, 44% in services and 10% in other activities. Regarding the percentage of R&D personnel of the total people employed, Iceland occupied the first place in 2006 with a 3.68% and Portugal presented a 0.87% positioning in the 29th place only followed by five countries. Regarding researchers in Portugal in 2007, divided by economic activities, a 51% was concentrated in manufacturing, 47% in services and 2% in

other activities. In 2008, the percentage of total employment of human resources in science and technology in Portugal was 12.6% having the last place with other two countries (12.4% and 9.2%). This percentage is highly contrasted with the 30% shown by Norway. Regarding patent application (to the European Patent Office) between 2000 and 2005, Portugal reached 4 and 11 (respectively) per million of inhabitants, showing an average annual growth rate of 22.2 while the average in UE-27 was 1.4. Germany, the country with highest amount in the same years shows 269 and 283 in the same item. Despite annual growth indicator evidences some improvements in this area, still patent applications amounts comparing with other UE countries remains very low. Counting venture capital investment in firms in early stages, Portugal reached 56.7 in 2008 (EUR million) corresponding to 0.03% of GDP.

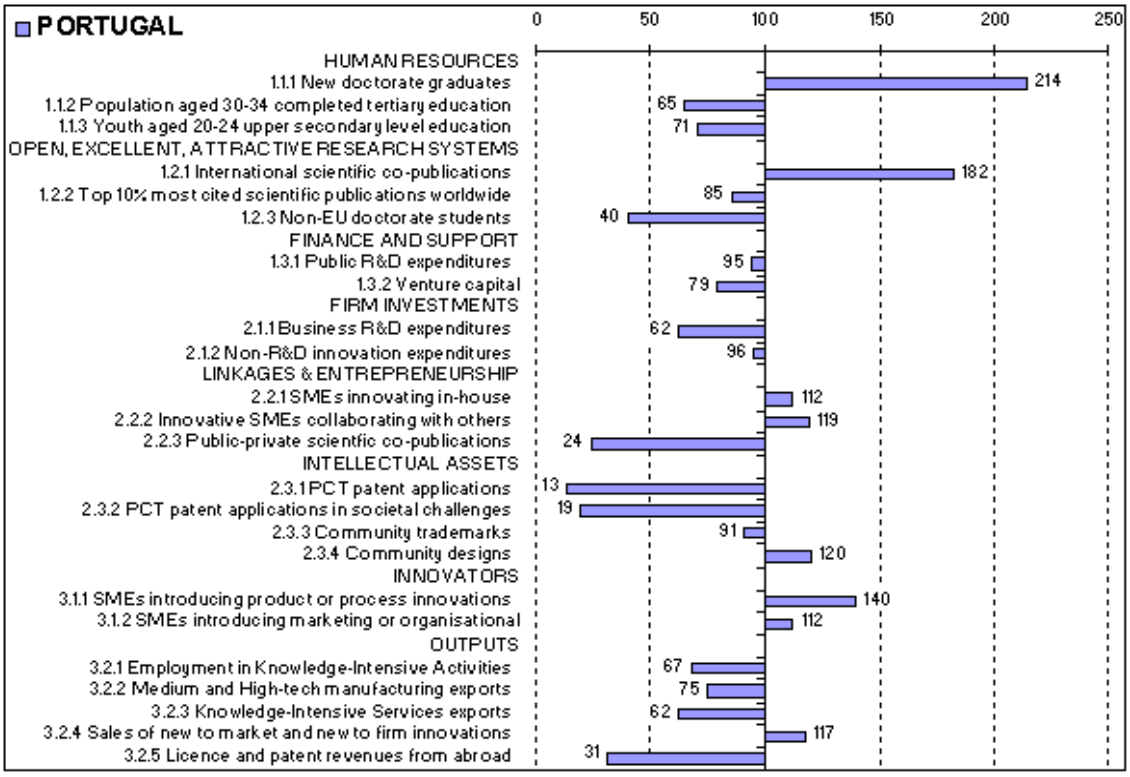
Other variables can be also analyzed to understand Portuguese competitiveness. Information could be obtained from the last Community Innovation Survey (CIS) 2008 of EUROSTAT. However, despite of the fact that it is possible to have an idea of the current innovation activities in enterprises in manufacturing and service sector in Portugal, the sample of the survey (regarding classification typology of economic activities in services) do not consider the most occupied economic activities used to identify tourism firms (as e.g.: accommodation firms) Although this can be a barrier to get an idea of innovation in tourism, results of the survey allows comparing advances based on past CIS surveys in Portugal and comparing with other UE countries. The CIS 2008 shows that 58% of enterprises surveyed present product, process, organizational or marketing innovation. The main reason was to “improve the quality of goods and services”. Of this group, 54% corresponds to the manufacturing sector and 64% to the service sector. Many of the innovation activities were produced in firms with more than 250 employees. The CIS 2006 shows that in 2004 and 2006 innovation in enterprises reached 41% and 42%, respectively (only to have an idea, Deutschland, the best positioned country of EU-27, excluding France, in the same CIS year shows, 63% and 65%, respectively). Despite

of the fact that between 2004 and 2008 it is possible to see important advances (more than 15%) on the percentage of innovation activities in Portuguese firms, much care should be considered in this analysis considering differences in the methodological criteria used between both years.

Other important studies as European Innovation Scoreboard (EIS), 2008, of Pro Inno Europe, grouped Portugal as a "Moderate Innovator" improving its classification from 2007 where it was considered as a Catching-up country (The other two groups are "Leaders Innovator" and "Innovation Followers"). In the last European Union Scoreboard (EUS, 2010), where innovation systems and national research were explained through 25 innovation indicators and specific methodological criteria has been changed compared with 2007, Portugal was again classified as a "Moderate Innovator" country (Pro – Inno Europe, 2011).

From 2007 to 2010 Portugal advanced from the 21st to the 15th position of the EU-27 ranking and reached from 2008 - 2009 to 2010 the best growth rate (over 5%) with other 5 European countries. Specific indicators of innovation considered by the European Union scoreboard study of 2010 are showed below in the Figure Nº 3 where it is possible to identify main obstacles and facilitators of innovation performance in Portugal (Pro – Inno Europe, 2011).

Fig. Nº 3
Indicators of Innovation used by the European Union Scoreboard (2011)



Indicator values from EU27 where EU27=100.
Source: PRO INNO EUROPE, Innovation Union Scoreboard, 2010. Webpage.

Three highest points of Portugal are related to "Human Resources" area, specifically considering new doctorate graduates, "Open and Excellent, Attractive Research System" focused on the sub-group of International Scientific co – publications and "Innovators" centered in SMEs introducing product or process innovations. On the other hand, lowest points are linked to "Intellectual assets" in PCT patent applications and PCT (Patent

Cooperation Treaty) patent applications in societal Challenges and "Outputs" in License and patent revenues from abroad (Pro – Inno Europe, 2011).

As it is mentioned in the Portugal Trend Chart Country Report, 2009, national innovation system in Portugal has experimented important improvements on its framework conditions promoted by continued efforts from both European Commission and Portuguese government policies.

Even though, it is not possible to omit the current crisis that Portugal is dealing with and specific plans designed such "Iniciativa para o Crescimento e o Emprego" in 2008, to redefine structural problems, current main initiatives to support specifically innovation in Portugal are contained in the National Strategic Reference Framework, 2007 – 2013 (2007), Technological Plan (2005) and in the Lisbon Strategy elaborated on 2000. Those initiatives have promoted a knowledge based economy and have meant important steps to enhance and boost innovation initiatives, trying to improve the performance of the Portuguese economy as a whole. The Technological Plan (2005) is based on three specific areas; Innovation, Knowledge and Technology, including measures to promote and improve networking, entrepreneurship, science and technology, financing system, human resources and company capabilities. In this context, have been stressed the necessity to improve coordination, delivery and evaluation (Pro-Inno Europe, 2009a). From the National Strategic Reference Framework at a national level, regional operational programs have gained more importance and are currently the principal regional tool to promote innovation. However the high dependence of regional institutions to centralized national institutions is still an important obstacle to generate regional development (Pro-Inno Europe, 2009a). Other important operationalization initiative in the field of competitiveness is focused on the encouragement of clusters formation as a part of "Collective Efficiency Strategies" where private - public associability and common vision of territories are promoted.

Despite the presence of key government actors at national level that are included in the design and implementation of innovation policies, there is some agreement that there are important overlapping tasks, low internal capabilities and weak linkages among them. These features do not allow carrying out efficient policies to support innovation. Principal Ministers linked with innovation policies are Minister of Economy, Innovation and Development which is related mostly to enterprises support and is the responsible of the National Strategic Reference Framework, 2007-2013. The Minister of Science, Technology and Higher Education, is related mainly with the coordination of research area. There is also a transversal government office that is responsible for the national coordination of Lisbon strategy and the technological plan (Pro-Inno Europe, 2009a). On the other hand, generated in 2003, the main private initiative to promote a culture of innovation in enterprises is leaded by the "Enterprise Association for Innovation" (COTEC).

Regarding entrepreneurship area, from the Global Report 2010 of the Global Entrepreneurship Monitor (GEM), it is possible to find important evidence of the entrepreneurship situation in Portugal as well as other countries in the last ten years. Portugal was classified (by GEM based on the World economic Forum, WEF) as an "Innovation-Driven economy" with other 22 countries (the other two less developed economies are grouped as "Factor-Driven" and "Efficiency-Driven" economies). Portugal was ranked in the last positions of this group considering indicators of entrepreneurial attitudes such "Perceived Opportunities" (19th place), and "Fair of Failure" (15th place). Information about total early stages of entrepreneurial activity (TEA) shows that Portugal was in 15th place of this same group. Specifically, considering the main motivation that explains these activities, a 22% of TEA corresponds to necessity - driven activities reaching the 8th place of this group and giving important evidence of the current situation in the country where alternatives to generate incomes must only be provided by new entrepreneurial activities. Taking into

consideration entrepreneurial conditions of the countries, the three most positive Portuguese conditions are “Education Post School”, “Internal Market dynamics” and “Physical Infrastructure”, on the contrary, the best three most negative conditions are “National Policy, Regulations”, “Education, Primary and Secondary” and “Cultural and Social Norms” (GEM, 2010).

Even thought, important advances in the national innovation system have been carried out by Portugal, a focal issue remains also quite underdeveloped regarding innovation policies. There is some agreement that currently regions do not have political and legal tools to design and promote innovation policies with an adequate level of decentralization and autonomy allowing self administrative and managerial decisions. Currently, regions have national administrators responsible for their development and coordinated by a semi - deconcentrated government bodies called Regional Coordination and Development Committees (CCDR) (http://www.rim-europa.eu). Despite of citizen’s referendums to initiate regionalism in the country, Portugal has maintained a non regionalism policy of development strengthening a national political and economical structure that has had an important impact on several regional dimensions, including innovation and Tourism. Despite of this lack of deconcentrated and decentralized initiatives and aware of the importance that regions have to the local and national development, some efforts have been promoted by the European Union such “Regional Strategies for Innovation Policies”, “Regional Strategies of Innovation and Technology Transfer” and “Regional Program of Innovative Actions”. Portuguese recent regional initiatives are mainly contained in the “National Strategic Reference Framework, 2007 – 2013” (first called “Community Support Framework” I, II and III, from 1989 to 2006), where regional development is emphasized through “Regional Operational Programs” that mostly re-distributes policies that have been built considering a national frame and then should be adapted to regional contexts. However, some of these policies have allowed (at

least) to reduce the high impact that regionalism policy has over five regions of Portugal (except Madeira and Açores which are autonomous bodies), adapting in some way national policies to a more deeply regionalism perspective policy (Sociedad Portuguesa de Innovação, 2005).

4. Tourism and the Algarve regional growth

Tourism is an economic activity that has a deeply positive impact both, international as well as at a local level. This positive impact can be measured in economic incomes generated by tourism customer dynamics, regional or international investments, entrepreneurships linked to the sector, new business with other economic sectors (e.g.: agriculture or other manufacturing sector that provides high technologies to the tourism sector, etc.), employment within the sector, participation of tourism to regional domestic growth and so on. But above all, there is some agreement that sustainable tourism should be seen as an important engine to lead regional development, socioeconomic progress and increase the quality of life of its inhabitants, especially in local or regional places that are lagging in terms of industrial production or primary sector.

Tourism has positioned as one of the main economic activities with high levels of expansion, growth and diversification. From the 1950's world tourism has grown from 25 million international tourist arrivals to 880 million in 2009, generating to the same year 610.000 million Euros (although, almost 39 million less than in 2008 explained mostly by the world recession). Tourism exports group 30% of total world's export of commercial services and 6% of total exports, reaching the fourth place in the list of more important economic export activities. Tourism employments are estimated in 7% of total jobs worldwide and generate 5% of total economic activity. International arrivals will be around 1.6 billion in 2020 (UNWTO, 2010a). In 2009, Europe leads the list of principal tourism destinations with 52% of total

arrivals (460 million), followed by Asia and the Pacific with 21%, America, 16%, Middle East 6% and Africa with 5% (UNWTO, 2010b). Portugal accounts for 2.3% (10.6 million) of the total international tourism arrivals in Europe, taking the 13th place (shearing this position with Russian Federation) from a total of 26 European countries (UNWTO, 2010a).

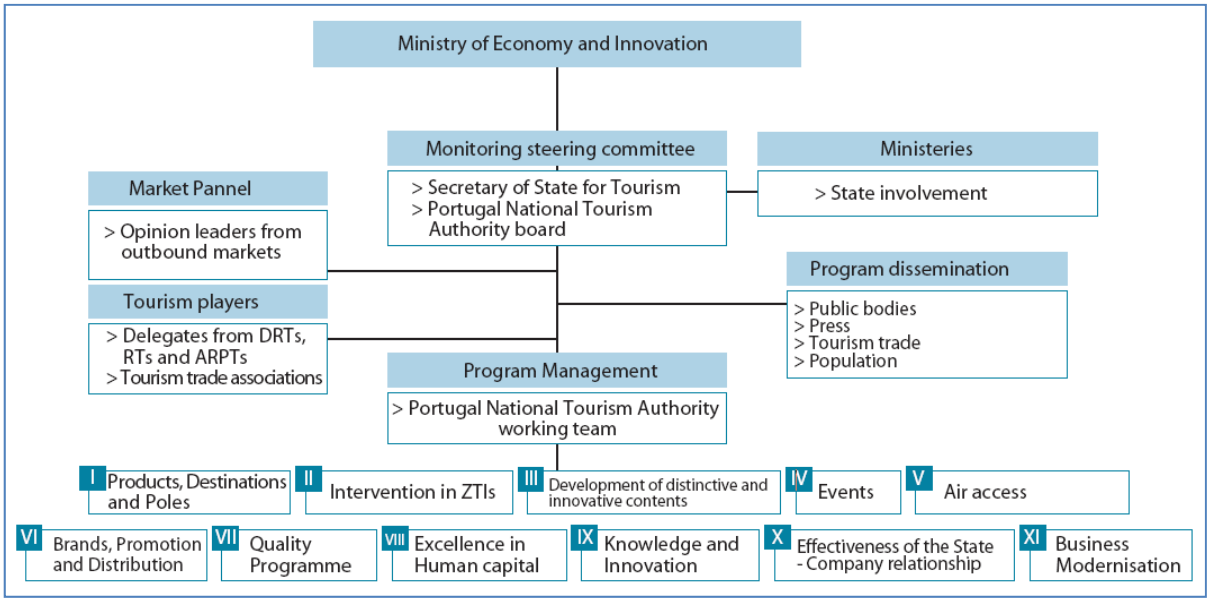
In Portugal, regarding incomes and expenditures in 2009, tourism sector generated a positive balance of 4.206 millions of Euros (approximately 7.000 million of Euros were revenues), 6.6% less than 2008. However, in spite the high impact that Portuguese and worldwide crisis had over the tourism sector in 2009, Portugal ranked at the 6th place considering balance country results on the EU -27 (INE, Statistics from 2009). In 2008, Tourism consumption resulted in a 10.5% of total GDP and contributed in 2007 with 8% of total employment (OECD, 2010b). According to INE, in 2008 main outbound countries of tourists in Portugal were United Kingdom, Germany and Spain. Total overnight stays in Portugal were shaped by 55% of UE residents, 36% Portuguese, 7.2% others and 1.5 from U.S.A. Region of Algarve concentrated 35.4% of these overnights, followed by Lisbon Region, 21.7%, Madeira 15.1% , Norte, Centre, Alentejo and Açores amounted the rest 27.8%. The main reasons of Portuguese citizens to travel were holidays, leisure and recreation (51.2%) and visiting friends and relatives (37.7%) (INE, 2008a)

Special economic, political and historical contexts of Portugal in the century 21, in some way have retarded initiatives of regulations, managing and planning programs related to the tourism sector. Around the 50´s tourism left to be an exclusive activity reserved only for few families in Europe and showed first signals of mass due to different factors such higher levels of connectivity (transport, infrastructure) better purchase capacity, etc. The amount of arrivals and incomes generated by tourism began to increase steadily and it was necessary to consider it in the agenda of national policy. In spite of the fact that it is possible to identify some isolated regional regulations in tourism in the 1950´s and 60´s (e.g. Portuguese Development

Plan of 1965-1967) where tourism was concentrated, it was only as a result of the important growth of tourism in the 70´s and 80´s that specific legislative initiatives in tourism were more rigorously and deeply considered in the policy national programs (e.g.: the first National Tourism Plan was created in 1983). Since then, tourism has increasingly gained participation on the GDP and tourism policies have tried to incorporate base planning and common strategies for the activity in order to support one of the main economic activities to Portugal, especially in terms of participation in GDP and employment. Currently, since 2007, the centralized national government body responsible for tourism in Portugal is "Turismo de Portugal. I.P" legally under the direction of the National Touristic Authority which in turn is part of the Secretary of State of Tourism dependent of the Minister of Economy of Innovation and Development. The National Touristic Authority (which does not has government budget) has the main focus on the promotion, valorization and sustainability of the tourism sector through initiatives related to tourism infrastructure, qualification of human resources, investment support, domestic and external promotion of Portugal and supervision of specific activities (e.g.: gambling). Internationally, the promotion of Portugal abroad is carried out by the Global Portugal Business Development Agency. In regions, those policies are carried out, financially and administratively, by 11 semi-independent regional bodies (5 regions and 6 poles of competitiveness) called "Entidades regionais de Turismo" since 2008 (ERT), having as a mission to cooperate with the tourism national policy agenda, valorize regional products, create conditions for a sustainable exploitation of tourism resources, domestic market promotion tourism, generate poles of tourism development in regions, and finally act as an interlocutor for the National Touristic Authority to the development of national tourism. These goals are complemented by private entities called Regional Agencies for Tourism Development, shaping a public – private collaborative body responsible for the design and execution of the regional tourism promotional plan. Among other programs to support

competitiveness of the tourism sector (e.g.: institutions of tourism education), main strategic guidelines of tourism development executed by "Tourism de Portugal, I.P" are related with the National Strategic Reference Framework (2007 – 2013) and the National Strategic Plan for Tourism (PENT, until 2013) serving both as the principal mechanisms to align the private and public sector into one common strategy around tourism (OECD, 2010b, www.turismodeportugal.pt, Diário da República, 1.ª série — N.º 158 — 17 de Agosto de 2009).

Fig. Nº 4
Management team of PENT strategy



Source: PENT, 2007.Pp.115

Main areas of implementation and execution are structured around territory, destination and products, brands and markets, qualifying resources, distribution and sales, innovation and knowledge. These lines are subdivided in eleven sub areas of implementation; development of international markets, consolidation and development of ten strategic products, development of distinctive offers for the regions (e.g.: "Algarve should be based upon products like the Sun and Beaches, Golf, Meetings and Congresses", PENT, 2007. Pp. 76), developing other poles of tourism development, strengthening air access, fostering events, strengthening traditional

Portuguese content and urban spaces, environmental and landscape quality, increasing quality of service and human resources, generating innovative ways of promotion and distribution and finally, strengthening "effectiveness and modernization of public and private actions" where specific initiatives to increase innovation in tourism activities are centered in *"facilitating interaction between companies and the state, promoting the dissemination of knowledge, stimulating research and development and the adoption of innovative practices by companies to encourage business modernization"* (PENT, 2007. Pp. 108).

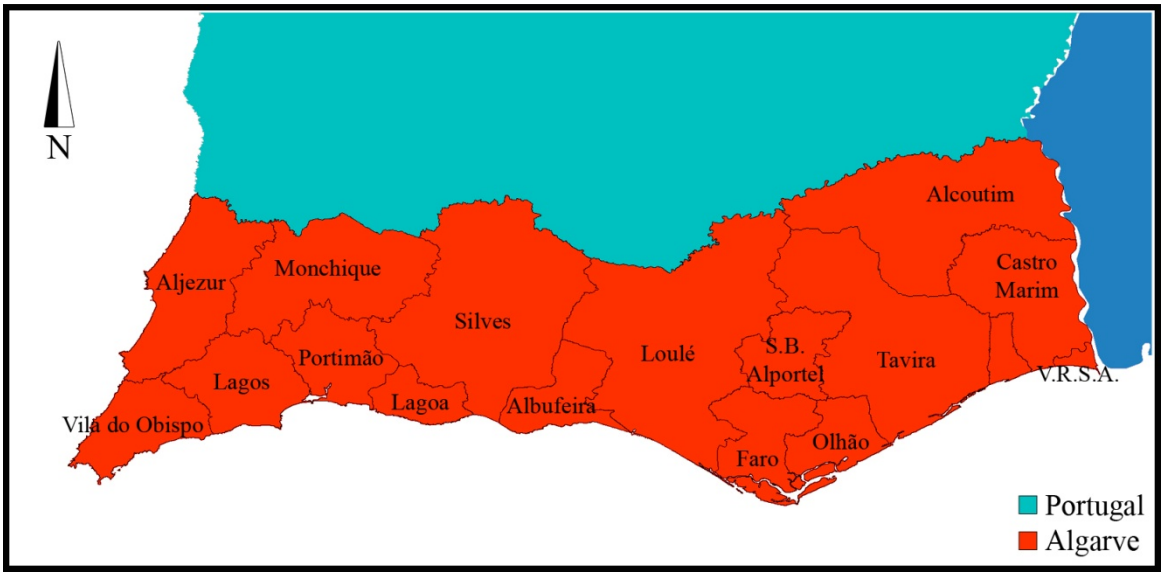
There is some agreement and clear signs that tourism in Portugal should intensify diversification and qualification processes within the sector in order to gain competitiveness and do not reduce the focus on tourism exploitation in "sun and sea" model. A new model should avoid the tourism dependence to certain seasons of the year, increasing and adding new market targets and also supporting and promoting domestic tourism as a base income to the regions (Daniel & Rodrigues, 2005).

Tourism is an economic activity very interconnected with other economic sectors. In this context, it is necessary to maintain in tourism destinations, a basic platform to respond adequately to tourist necessities linked with transportation, financial system, physical infrastructure, goods and services, etc. (OECD, 2008). This special focus established on the tourism destination, should consider the necessity to emphasis some aspects over others, which will depend mostly on the capacity of responsible organizations (national and local governments, private or public organizations, public – private tourism associations and others) and policy makers to generate efficient and innovative policies to respond to the tourist demand adequately.

Algarve region is located at the southern part of Portugal and occupy approximately a 5% of continental Portugal. To the north is separated from Alentejo region by a mountain range called "Serra do Caldeirão", in the East is separated from Spain by the Guadiana River and to

the south and west is washed by the Atlantic Ocean. A common geographic division of the region is known as “Barrocal” that includes the interior and more unoccupied zone of the region. The coast, a more urbanized and high-dense area is called “Litoral”. Administratively, Algarve region is subdivided in 16 municipalities.

Map. Nº 2
Algarve Region



Source: Own elaborated. 2011.

The total area of the region is approximately 5.000 km². From the total area in 2008, around 150 Km² of land were occupied in urban areas and 5000 Há (50 km²) for tourism activities. Regarding some climate aspects of the region, the annual average temperature is around 18ºC and the total annual average of rain is around 530mm. Population density in 2008 was 86.1 Hab/km² and the crude rate of increase was 0.86%. In 2008 the average population residing in Algarve was 430.084. From this total, around 54% was concentrated in the age group from 15 to 64 years. Regarding education indicators of the region, lacks of regular education of Algarve people have in some way affected human resources. The success rate in secondary education reaches 76.1% while in Portugal this value reached 79.7%, around 70% of the population has schooling below 12 years and educational attainment rate in higher education

reached in Algarve only 19.9% while at national level Portugal this rate reached 29.7%. Regarding labor market, in the last trimester of 2010, Algarve region presented an unemployment rate of 14.8%, the highest regional amount in the country that reached 11.1%. In 2008, population employed in tertiary sector (services) as a share of total employment reached 72% approximately, while in Portugal this indicator was 59.3%, highlighting the structural importance of tourism activity in the region. About 75.7% were employees and 22.9% were self-employed. Only 69.4% of the total employees had an indefinite contract while in Portugal this percentage was 77.2%. Regarding average in monthly earnings in 2008, Algarve region reached € 848.6 while in Portugal it was € 963.3. To the same year, 218.300 people were considered as an active population. Of the employed population by sector of economic activity, primary sector grouped 6.3%, secondary sector 21.5% and tertiary sector 72.2%. In 2007 Algarve region provided 4.2% of total national GDP with € 6.842. The regional GDP per capita reached € 16.200, a little bit more than Portugal that reached € 15.400. In 2007 there were a total of 17.306 companies and 58.251 firms in Algarve. Of them, 55.863 had less than 10 employees, 2.175 had from 10 to 49 employees, 196 had from 50 to 249 and 17 had more than 250 employees highlighting the important presence of micro and small enterprises (INE, 2008b).

Algarve region has become one of the most important tourism destinations in Europe. With important comparative advantages in terms of climate, geomorphology, landscapes and also with a rich cultural and historical legacy (with presence of Romans, Greeks and Arabs), Algarve region has been able to stimulate their regional economy (civil construction, retail and wholesale, real estate, among others) based on the tourism activity, contributing with almost 47% of total regional GDP (World Travel & Tourism Council, 2002). Despite of a relative isolation feature from the rest of Europe, Algarve region presents a good ground,

maritime and air connectivity that allows the arrival of millions of national and international tourists every year.

In 2008, the lodging capacity per 1000 inhabitants in Algarve was 229.5, while in Portugal it was 25.8. There were 14.265.164 overnights spend in the regional tourism establishments and 2.927.819 guests (around 21% of total country). Of these overnights, 1.005.046 were from Portugal, 813.909 from United Kingdom, 223.648 from Germany, 214.826 from Spain and the rest came from France, Italy and The Netherland, mainly. From 1990 to 2009 the amount of Portuguese tourists in Algarve has increased strongly while the number of international tourists has steadily declined in the same period. Only accommodations, restaurants and similar economic activities in tourism sector ("I" in NACE Rev.2) generated in 2008, 33.400 jobs in the region from a total of 203.100. In 2007, from the total 58.251 enterprises of the region, 7.715 corresponded to Accommodation while Restaurant companies in this classification amounted 2.557 (H in NACE-Rev.1.1).

However, despite statistical information can be used effectively to have an idea of tourism development in the region, it is also very important to complement this understanding incorporating historical and cultural factors. These variables permit to analyze the specific evolution of Algarve region and its actual ability to adapt to new economic tendencies through regional policies in order to increase competitiveness and innovation outputs. In this context, must be also analyzed, cultural aspects, socio and institutional behaviors, levels of cooperation and trust among regional public or private actors, relying heavily on the specific actions and historical line that have constructed and have determined the past of the region and will also influence its future. The current evolution and development of regional economic activities as tourism in Algarve depends on a specific past trajectory, the current regional behavior is the result of past and present human decisions, internal and endogenous territorial factors and also particular external variables. Current tourism development in

Algarve region should be understood as a whole dynamic phenomenon that includes many elements and the linkages among them including national and international elements.

Historically in the 1960´s, Algarve region becomes very popular as destination of Northern countries of Europe that find in the region a good place of retirement, secondary or holiday homes. The region that starts as an up market destination was losing this characteristic progressively as a result mainly of inefficient tourism planning programs. Despite this fact, from the 1980´s the amount of arrivals grew rapidly followed in the 90´s by a strong slowdown trend due mostly to high prices that converted the region in a less competitive destination for a specific profile of tourist compared with Spain. Algarve was not able to revert this situation due lack of investments and marketing. In the last 10 years this situation has changed showing moderate values of growth in some periods but very far from the figures in the 80´s (World Travel & Tourism Council, 2002). Some authors attributed this stagnation among other important factors, to the maturity stage of regional tourism destination and higher levels of unplanned mass tourism.

Regarding main past factors of tourism in Algarve, Palma Brito (2009) shows key issues that have affected the relationship between tourism and territory in Algarve region. Around 1960 tourism was already the main economic activity in Algarve region and the main factor of territorial transformation. Besides, an important concentration of human population and economic activities in coastal areas supported mainly by tourism activity, meanwhile a historically deficient, non productive and unsustainable agricultural and forestall traditional exploitation in more central areas of Algarve continues its declining. Also, other industries located in Algarve such conserves, fishing and bark industry supported mainly on the low cost of regional workers began to weaken in terms of economic returns, employment (better salaries were provided in other sectors like tourism) and sustainability. This trend generates a remarked irregular spatial dynamic and accentuates a differentiated development processes

between coastal areas and lagging and unoccupied spaces in the "Barrocal" of Algarve. Added to these differences, education, accessibility, environment and social aspects in Algarve region have shown historically a very poor level of development compared to other regions of Portugal, reinforced migratory movements of people outside the region and also rural – urban movements that only from the 70´s were reversed through strongly immigration movements to the region (Guerreiro, 2003 in Palma Brito, 2009). During 1960 tourism established itself as a regional activity that was able to generate some employment and promote new investments in the region transforming the economic structure of the region. Since then, the accentuated specializing of the region in tourism as a basic economic activity has permitted to the region to generate economic growth and regional development helping it to reduce high levels of isolation and insulation within the national context and giving it the possibility to increasingly insert the region in the international context. In fact, the first regional plan of Algarve was elaborated in 1964 and tourism was visualized as the main economic activity to the region. However, from this regional Plan centered mostly in tourism, different plans have shown a considerable lack of focus in a specific strategy for tourism trying to promote regional diversification, supporting specifically industries linked to tourism and also promoting other regional resources (Palma Brito, 2009).

A key factor to the mass and development of tourism in the region around the 60´s and 70´s was related to the first models to sale tourism destinations like Algarve; "the holiday package" was one of the most important factors of democratization of tourism increasing a human mobility in Europe. Considering the period from 1962 to 2006 maybe the most important fact that allows putting and integrating Algarve in the world as a tourism destination was the construction of the Airport in Algarve. All those important evolutionary and historic factors have had an impact over the recent configuration of Algarve territory. These factors are deeply linked to first models of tourism businesses, not yet complete

residential tourism disappeared and gave way to accommodation facilities. As tourism demand increased and new tourism tendencies changed, those first models had to adapt giving way to new business models promoting new different tourism enterprises. New services and facilities to leisure gave way to a new land use planning (supported in 1991 by land use planning programs of the region) featured by concentrated tourism urbanizations (isolated tourism nucleus outside of urban perimeters or within urban spaces promoting building companies and construction sector) very dispersed and fragmented within Algarve region, shaping a new intense use of land and a new spatial configuration of the region that despite is present nowadays is increasingly debilitated (Palma Brito, 2009). Current policy land planning in Algarve promotes a territorial organization based on polycentric urban agglomerations (CCDR Algarve, 2006). These regional historic factors such demographic, economic, infrastructure and other deficient conditions are nowadays becoming important obstacles to the consolidation of Algarve as a competitive tourism destination; a late incorporation of environmental issues to the tourism planning, lack of efficient public regulating institutions in key tourism issues, poor connectivity within the region, public transport, deficient maritime and road transport infrastructure, etc, are determinants to the regional development. Fortunately, since 1990 new legal and environmental issues are much more considered in tourism regulations in Algarve (Palma Brito, 2009).

Palma Brito (2009) also empathizes that main problems related with tourism development in the region are connected with a lack of public tourism promotion and support, privileging a strongly regional economic diversification and forgetting that tourism is the main engine of regional development. Other problems are related with limits imposed for tourism exploitation reducing for example natural markets to tourism enterprises initiatives. In 1981 first limits for tourism were proposed (amount of beds) trying not to convert Algarve in a mass tourism destination affecting thus socio - cultural regional values. Other problem is

linked to public obstacles to building in urban zones and urbanization of lands by tourism enterprises in order not to affect negatively over the tourism destination landscape through environmental impacts and over exploitation of construction.

5. Algarve, Tourism and Innovation Policies

Innovation in services and industry in Algarve has been promoted mainly in the last twenty years through different initiatives contained in the regional strategic plans. In 1990, considering tourism as the main economic activity of the region, economic diversification processes based in products with high value and advanced services were suggested as the principal competitive strategy to the region. In 2003 are promoted initiatives to transform Algarve region in an important pole of tertiary activities in Europe linked to the demands of the knowledge society (Palma Brito, 2009). In 2007 are also reinforced those ideas basing the long term goals of regional strategy in the positioning of Algarve as one of the most developed regions in the country and Europe, supporting skilled human resources and a competitive, dynamic and diversified economy, driven by the tourism cluster of the region and featured by high standards of employment, cohesion, environmental and social protection (CCDR, 2007).

In this context, current main public initiatives to promote and regulate tourism and innovation in the Algarve region are aligned with new necessities and specific requirements to develop tourism in accordance with current and future international and national economic trends. In this context, the main structural guidelines of national development to key economic areas in Portugal such tourism are contained in the National Strategic Reference Framework, 2007 – 2013. In turn, specific suggestions for national tourism activity are contained in the Strategic Plan for Tourism Development (2007). These plans are made considering a national context

and then regional and non concentrated institutions in accordance with other regional agents must adjust them to local (municipalities or "freguesias") and regional programs considering specificities of regional realities. Every program that arises regionally must consider this regulatory national framework limiting their actions to pre-established structures of decisions hampering regional initiatives that take place as a result of regional institutional necessities and dialog.

Considering the National Strategic Reference Framework of Portugal 2007 – 2013 as a encompassed action field (that is in turn focused around guidelines provided by the European Union), main regional private and public actors elaborate the "Algarve Development Strategy 2007 – 2013" that also considers lines of actions contained in the Regional Land Planning of Algarve (CCDR Algarve, 2006). Headed by the Regional Coordination and Development Committee of Algarve, this document emphasizes the necessities to increase regional competitiveness and skilled employment. A differentiate tourism/leisure cluster must be reinforced as the main regional economic activity by increasing territorial and tourism product quality, supporting also new regional or traditional sectors. Those new or traditional products and services should present high levels of innovation and use of new technologies, promote entrepreneurship, national and international networking of enterprises and contribute to insert Algarve region in a knowledge based economy. This objective involves a change of direction considered to the sustainable regional development and put as a relevant issue to act efficiently increasing investment attractiveness and resources. This innovative trend should be able to face growing shortage in the budgets of structural founds of European Community taking into consideration that Algarve region is not longer considered as a priority and lagging region for the European Union ("facing out"). But, maybe the main challenge identified by this strategy plan is "*to break an institutional culture centered around its internal targets, creating the necessary mechanisms for the transfer of technology, promoting innovation,*

fostering cooperation and the internationalization of markets" (CCDR Algarve, 2007. Pp. 37). This means an important institutional reorganization and restructuration of the region, the arising of new actors and the reinforcing of others such as municipalities becoming key development agents in a process of modernization and qualification of public administration. Other important initiatives to foster regional innovation are centered on the promotion of Regional Innovation Forums by economic sectors, to stimulate advances on a regional technologic platform (Algarve Digital) in order to modernize public performance and facilitate relationships between them, promoting innovation directly in regional enterprises, reinforcing a regional innovation culture in the private sector, developing knowledge and technologic networks stimulating star –ups and spin-offs, development of KIS firms, incrementing regional relevance, intervention of key actors such as universities and also the creation of a technological pole as a nucleus of creation and diffusion of (marketable) knowledge bringing thus to the region direct foreign investments. These initiatives are deeply dependent and are strongly related with tourism activities since tourism is the main economic sector of the region. In this context, tourism should stimulate and incorporate other sectors in this regional innovation dynamic and promote a whole regional action more than isolated initiatives. Considering tourism activity, sectoral development should be focused on the diversification of the Tourism Cluster organized around "sun and beach" product concepts, minimizing seasonality and incorporating new trends of the sector such golf, leaser, health and senior tourism (CCDR Algarve, 2007).

Taking into an account main guidelines and challenges to insert Algarve in the knowledge society contained in the "Algarve Development Strategy 2007 – 2013", the main public instrument that has priority on the three lines of investment of structural founds (competitive, innovation and knowledge, protection and environmental qualification and valorization of territory and urban development) is the "Operational program of Algarve Region (PO Algarve

21). This program is part of the National Strategic Reference Framework, 2007 – 2013 and contributes with € 175 million for the region in this period.

The Regional Land Planning of Algarve (CCDR Algarve, 2006) from 2006, is structured considering guidelines provided by the Portuguese "National Strategy for Sustainable Development 2015" elaborated in 2007, the "National Policy Program of Land Planning" from 2007 and the "National Strategic Reference Framework of Portugal 2007 – 2013". PROTAlgarve regarding long-term objectives of the region contained in the "Algarve Development Strategy 2007 – 2013" has for main goals to develop a regional model of territorial planning that valorize environmental factors and support a base structural regional model of the economy performance including also social, cultural and institutional dimensions. One of the six main axes of action is focused on the competitiveness of tourism cluster, increasing conditions to augment diversification and quality of the tourism activity.

Other initiatives are centered on promoting a basic regional economy diversification, qualification of human resources, supporting new actors such as University of Algarve, to develop KIS as a prospective market, efforts to incorporate Algarve in the knowledge society and encouraging internalization of the region (CCDR Algarve, 2006).

Specifically, headed by the ERT Algarve, the Regional Tourism Plan of Algarve region provides eight strategic axes of development that are aligned with structural action orientations contained in the PENT, 2007. These axes are mainly focused on strengthening great strategic markets for the region (Germany, United Kingdom) and developing new markets such as France, Italy and Holland; reinforcing the generation of seven new flight connections, promoting five areas of attraction in the region (Sun and beach, golf, nautical tourism, residential tourism and MITE (meetings, incentives, conferences, and exhibitions), supporting specific products in these areas, other less important areas like health, cultural and nature tourism should be also supported; improving environmental urban requalification of

tourism and urban zones, augmenting the integrative quality of the Algarve tourism destination through certification processes of tourism agents, promoting an equilibrated territorial agenda of tourism events and finally, increasing processes to promote the region in new prospective markets (webpage of Turismo do Algarve, 2009)

6. Innovation in Algarve Region

As a part of national structural policy programs that promote innovation in Portuguese regions through deconcentrated initiatives, in 2007 from guidelines of main regional innovation actors of Algarve, the "Regional Plan for Innovation" was elaborated (PRIAlgarve). This initiative has as a goal to generate a technical and productive requalification of the region and to create conditions to the conformation of a RIS promoting Algarve strategically as a competitive region. This Plan, leaded by the CCDR and delivered by the "Regional Center of Innovation in Algarve" (CRIA), should act as a complement and also as a framework of action and efficiency regarding innovation support to other national and regional programs created to generate competitiveness. Main four axes of intervention that also incorporate initiatives, programs and monitoring phases are focused on the generation of funds for the creation and development of innovative enterprises in technological advanced segments, business creation and enterprise development, incentive and investment supports, generation of advanced skilled training and international and regional cooperation promotion, especially in the relationship among university and enterprises.

Specific product, process, organization and marketing innovations are proposed to the tourism cluster from the perspective of a RIS, considering all regional actors and financial and required linkages among them (CRIA, PRIAlgarve) (Universidade do Algarve, 2007). Other important initiative to promote innovation arises with the creation of Algarve TransferTECH

from University of Algarve. The main goal of this organization is to promote knowledge and technology transfer from the University of Algarve to the markets, fostering spin – offs and start- ups and increasing the role of the university as a key player to the regional development (Universidade do Algarve, 2008).

In 2004 expenditures in R&D as a percentage of GDP in Algarve was 0.2%, in Portugal 0.7% and in EU it was 1.8%. The same year, expenditures in R&D in the business sector as a percentage of GDP was 0% in Algarve, 0.3% in Portugal and 1.2% in EU (Universidade do Algarve, 2007). The Proportion of GVA (Gross Value Added) of enterprises in high and medium- high technology sector is only 0.7% while in Portugal is 11.9%. The proportion of GVA of manufacturing industries with advanced competitive factors is 52.8% while in Portugal reaches 55%. These indicators can also be used to demonstrate the difficulties of the region to generate innovative activities since much of the quantified innovation initiatives are generated in the high technological sector and in competitive manufacturing enterprises. Regarding business demographic indicators such birth rate and dead rate, Algarve region shows in 2007 better indicators than country average. Specifically birth rates of enterprises can be stimulated by reduced obstacles to create new business in the tourism sector (INE, 2008b). However, due to important specialization and proportion of Algarve region in tourism, high levels of R&D efforts or high qualified human resources linked with tourism economic activities are not mandatory. There isn't a push – side sector or market that encourages and stimulates innovation process regarding input efforts as R&D expenditures, patent processes or higher level of skilled human resources. Also, initiatives are not commonly totally registered in the classical indicators to measure innovation in the manufacturing sector.

Regarding Community Innovation Survey of 2008, from a total of 434 enterprises surveyed in Algarve region that generated 16.192 employees and generated € 1.265 million, a 62%

presented innovation activities, 53% had technological innovation, 32% product innovation and 44% process innovation. In each category Algarve shows a better percentage than at a national level, only in product innovation the national percentage is better than Algarve region (2% of difference). Regarding innovation activities in Algarve, only 30% had intramural activities of R&D, quite below of national percentage that reaches 44%, 23% acquired extramural R&D, 72% acquired machinery, new equipments or software, 58% had training activities and 29% marketing activities. In general, these percentages are very similar to the same national indicators. Considering total national expenditures in innovation, Algarve only accounts for 3% (8M€) while 45% is concentrated in Lisbon region and the rest 50% in North and Center regions. In order to develop innovation activities 18% of the total enterprises surveyed in Algarve contributed with a partnership, in Portugal this amount reached 25%. In Algarve the least used partnerships were universities and R&D laboratories and the more commonly used were suppliers. The most important reason to innovate was to improve the quality of products and services followed by the necessity to increase presence in the market. Regarding other kinds of innovations generated in Algarve, a 42% carried out organizational innovation and 29% marketing innovations, a 24% recurred to both. The main objective to generated organizational innovations was to improve quality of products and services and the other reason was to reduced time of responds to the needs of customers or suppliers. The main reason for marketing innovation was to increase or maintain market share.

Tab. Nº 2
Sources of information for the implementation of innovation projects (CIS 2008).

	Information sources									
	Internal sources	Market sources				Institutional sources		Other sources		
	Within the company or the group it belongs	Suppliers of equipment, materials, components or software	Clients or consumers	Competitors or other enterprises in the same sector	Consultants or private companies for R & D	Universities, technical colleges or interface institution	Government or other public institutions of R&D	Conferences, exhibitions and expositions	Scientific journals and technical / professional books	Professional or business associations
	%	%	%	%	%	%	%	%	%	%
NATIONAL TOTAL	29	16	24	10	6	3	2	10	6	5
	Size. Number of employees									
10-49	24	15	21	8	5	2	2	8	5	5
50-249	42	20	32	12	9	6	4	15	9	7
250 os +	63	31	38	16	12	10	6	13	9	5
	Region (NUTS II)									
Algarve	13	8	27	9	4	1	1	9	7	7

Source: Modified from CIS, 2008.

Interesting results can be analyzed regarding sources of information to innovate considering the size of the enterprises. At a national level, 29% used internal company or group firms as a source of information, in Algarve this percentage reached 13%. Enterprises with more than 250 employees were the group that used this source of information the most largely due to the internal capacity to generate inputs of innovation. In Algarve the source of information used the most were clients and customers. Institutional sources such universities and governments were almost not considered in the region.

The Regional Innovation Scoreboard, 2009b, also provides information about innovation in Algarve region. In spite of the fact that information does not identify specifically innovation in tourism, a general overview of innovation in the region can be visualized comparatively with the rest of regions in Portugal.

Tab. Nº 3
Regional Innovation Scoreboard classification

Portugal regions	RIS		Enablers		Firm Activities		Outputs		Relative Strength / weakness	
	2004	2006	2004	2006	2004	2006	2004	2006	2004	2006
Norte	Med-low	Med-low	Med-low	Med-low	Med-low	Med-low	Med-low	Med-High	Enablers	Enablers
Algarve	**Low**	**Med-low**	**Med-low**	**Med-low**	**Low**	**Low**	**Med-low**	**Med-High**	**Output**	**Output**
Centro (PT)	Med-low	Med-low	Med-low	Med-low	Med-low	Med-low	Med-High	Med-High	Enablers	Enablers
Lisboa	Average	Average	Average	Average	Med-low	Med-low	High	High	Output	Output
Alentejo	Med-low	Med-low	Med-low	Med-low	Med-low	Med-low	Med-High	Med-High	Enablers	Enablers
Região Autónoma dos Açores + Região Autónoma de Madeira	Low	Low	Low	Low	Low	Low	Med-High	Med-High	Output	Output

Source: Modified from Pro – Inno. RIS, 2009b

Algarve region presented advances in terms of RIS classification; from "Low" in 2004 to "Med-low" in 2006, regarding enablers of innovation the classification was maintained in "Med-low" to the same period. Firms' activities were categorized as "Low" and Outputs passed from "Med – low" to "Med – high" improving in this area between 2004 and 2006.

7. Conslusions

In this chapter were examined main features of national innovation system in Portugal and regional policies and programs to support innovation in tourism.

The structural regional policy in Portugal has meant that regions in the country become very dependent and conditioned by central decisions hindering the possibility of creating regionalized initiatives in tourism and innovation. The increasing centralism of Portugal and national policies of tourism and innovation have had a direct impact on the features of the region in terms of innovation in tourism and regional competitiveness.

Were also been examined main economic and social indicators as well as key indicators of innovation and tourism at national and regional level. At national level main indicators have been examined at European level in order to have a comparative idea of Portuguese performance in specific topics. Results have shown medium and low levels of innovation at

European level as well as at regional level. Others indicators such as employment, economic growth, percentage of GDP in R&D also show clear differences comparing them with countries that lead these statistics at European level. These indicators have been strongly deteriorated in recent years compounded by the international crisis and the crisis in Portugal.

Have been also reviewed main European guidelines and national policies to promote innovation. At regional level principal policies that influence tourism sector have been examined and a brief overview of tourism in Portugal was reviewed to understand how tourism arises and how it was developed. These facts are possibly linked highly with current regional innovative features by a lack of cooperative and collaborative initiatives.

PART IV
RESULTS

1. Introduction

Regarding high disparities in terms of size and innovation activities in tourism firms that shape the productive system of Algarve region, there isn't a general and regular pattern of use of knowledge sources and vehicles at a regional level.

Different studies of knowledge spillover have identified sources or vehicles of knowledge considering where knowledge has been created and how it is diffused and finally the way it is absorbed by the enterprises. In Algarve the main regional sources of knowledge for micro and small enterprises identified are human resources and formal or informal networks like Business Associations. The case of big tourism companies is quite different, since the main source of knowledge is provided mainly from internal resources of the company or from the economic group that firm belongs to.

Considering vehicles for the flow of knowledge in the region, some identified are labor mobility, observation and market transactions. Even though other variables have been identified from primary and secondary information, they have a quite different impact on the Algarve region; some of them like spin – offs can only be considered as an isolated source of knowledge and research centers are only important when acting as a source for human resources because direct cooperation projects to innovation are somewhat irrelevant. Indirect drivers of knowledge such as outsourcing exist, but only in large enterprises that within the Algarve region and tourism productive system have less presence in terms of quantity.

Other regional instances such as seminars, forums and conventions that could promote informal interactions are unusual in the region, therefore they are not commonly used as a vehicle for regional innovation. Other vehicles of transfer of knowledge such as control systems (e.g.: environmental) and foreign direct investment are given in the case of Algarve

mostly through the major hotel companies. Other vehicles of knowledge such as risk capital, management contracts or franchise model are irrelevant and nearly non-existent.

2. Tourism Firms Innovation Behavior

In the Algarve region and in the tourism sector specifically, currently two highly differentiated business realities co-exist. On one side, a small number of large international companies with a reduced impact and interaction at regional level, and on the other side, a large number of micro and small enterprises.

In general, large companies that are present in the Algarve region are multinationals that belong to the international hotel chains and tour operators, commonly linked to the region through travel agencies with a regional presence. Big hotel chains have tourism investments in the country and around the world and are characterized by having innovation activities, modern business structures, innovative processes of marketing, incorporate advanced technology, skilled human resources and have a specific know - how of hotel management that allows them to organize their operations efficiently. Since many of these companies belong to international chains, they must continually adapt their productive operations to the policies and guidelines of core business, promoting systematic innovation activities gaining global competitiveness. Large companies in addition to being present in the hotel sector and Tour Operators (increasingly less important since new tourist trends reduce the need for clients – company's intermediation) are also involved but to a lesser extent in economic activities related with tourism as Real Estate, food distribution, etc.

Moreover, the regional business network is comprised mainly of micro tourism enterprises (some of subsistence) and small enterprises related to entertainment, tourism accommodation, travel agencies, restaurants, nature tourism and culture. Big companies have commonly

national providers that generally are not in the region with whom they have centralized large scale purchasing contracts.

In this context, large companies take benefits from the region mostly through the exploitation of geographical features and the low-skilled labor that in comparison to the rest of Europe is less expensive. These companies and regional dynamics reinforce the fact that there isn't a systematic interaction between companies and the region and when innovation processes are generated they are rather retained. Other situations are isolated events.

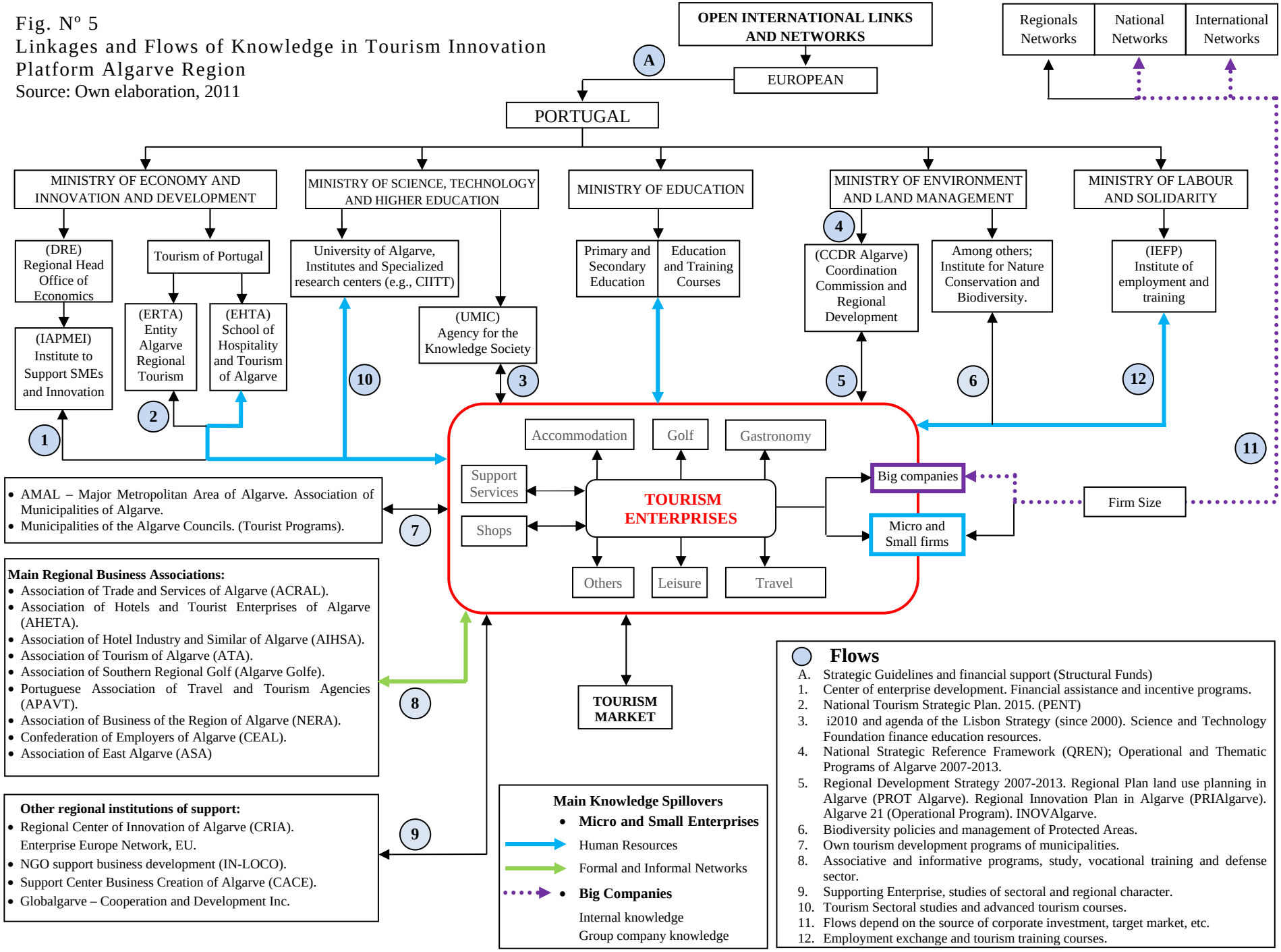
"Big groups [...] buy in Lisbon in supply company centers that supports them throughout the entire country, [...] their use minimally small and medium regional companies, this is another tremendous contradiction" (Interview, Vitor Neto, 2011).

In addition, there are not economic and political instruments and tools to maintain and reinvest returns that are created by these companies in the region and there is an important lack of regional political power to attract other investments. Also, large companies generally do not make attempts to generate productive cooperation and linkages in the region because business logic tries to buy at the lowest possible price. Generally, this price can only be offered by large companies (scale economies) because of the industrial structure of the region is not commonly in Algarve. Many small regional firms also fail to produce under the conditions that are imposed by large companies and finally they do not generate commercial links. The consolidation of large companies has meant, moreover, that many smaller companies in the region tend to disappear becoming unprofitable because they cannot compete with large enterprises that are present in various economic sectors. In this context, should be emphasized the need to strongly support a regional segment of micro and small enterprises because they have greater impact at regional level and can thus foster the local economy.

On the other hand, a significant number of regional companies that were present for some time in the region through regional branches, in a context of economic crisis, budget-cutting and reengineering of companies have had to finish their regional business and regroup their activities in their origin country. Many large companies in the region that were linked to these companies have preferred to keep these business relationships with companies outside the region and do not resort to service providers in the region.

In Fig. Nº 5 it is possible to identify main international, national and regional actors that participate and have an influence over the regional innovation platform, impacting directly on the development of tourism sector in Algarve region. At the central of the figure there are tourism enterprises having a fragile feedback with regional public and private agents. The intensity of the linkages among tourism enterprises and regional actors regarding innovation initiatives are not the same specially taking into account sources of knowledge and type of firms. In this context, main regional actors linked with micro and small firms are knowledge sources of human resources such minister of Labour and Solidarity and business private associations, large firms otherwise are not very related to the region to innovate. There are also identified differences of large and micro and small enterprises using sources of knowledge and information transferred by regulatory and support programs that are contained in the fluxes among actors of the regional innovation platform. Despite it is possible to note that there are linkages among tourism enterprises and regional actors, they are quite isolated and weak. A lack of culture of innovation in the region can also be identified as a result of the lack of cooperative and collaborative projects in the region, that currently are very isolated. There is an important deficiency at regional level of interaction instances and therefore tourism firms cannot exploit systematically regional sources of knowledge to innovate. In this context, it is not possible to identify a regional innovation system in Algarve region.

Fig. Nº 5
Linkages and Flows of Knowledge in Tourism Innovation Platform Algarve Region
Source: Own elaboration, 2011



3. Local Knowledge Spillovers within the Algarve Region

In general, in the Algarve region it is not possible to note an innovative climate for innovation and identify a coordinated platform for innovation incentives. The region is featured by relatively isolated experiences that depend on specific factors to initiate their generation. At the regional level, there are few regional meetings where transfer of knowledge, best practices and successful experiences are promoted. Currently regional actors are trying to generate these public and private instances with a focus on innovation, but these initiatives are still in an embryonic stage. Sources of knowledge for innovation could be promoted from national and regional programs focusing specifically to the area of knowledge transfer for innovation.

3.1. Main Sources of Local Knowledge Spillovers

3.1.1. Human Resources and Tourism Training

The important number of small companies that are involved in the regional productive system of tourism sector in Algarve have a lot of difficulties and lack of technical and operational resources to carry out innovation activities. The most innovative tourism firms generally belong to large economic groups where use of knowledge to innovate is organized within their own companies or within their business group. These groups operate globally and through their organizations are able to gain scale and reduce prices because they participate in the internal company chain values. Unlike these companies, in Algarve there are a lot of small businesses that are unable to provide quality service because they have financial problems, lack of public support, less access to special knowledge, etc.

But often their ability to have a better economic performance and adapt their product or services to market needs gaining competitiveness is linked to the characteristics of the owners of these small enterprises. Those project leaders may get access to specific knowledge especially through specialized training in tourism allowing them to remain as a competitive enterprise in the market. On the contrary, if the owners or founders of tourism enterprises are not able to access to specific knowledge especially through increased skills and job skills, they fail to boost business units at a competitive level by increasing qualified staff, incorporating new technologies, projects, associations, etc. Generally these companies remain in a constant state of development because they do not invest in their firms failing to generate access to financial backers with no risking on key factors that possibly will improve the firm performance.

The recent public and private offer in tourism training, coordinated and adjusted to the regional setting has become an important source of knowledge for innovation at a regional level. There is a high rate of employment with students leaving training courses, especially in large enterprises. An example of this situation are the programs offered by Tourism of Portugal (EHTA), Ministry of Labor and Solidarity (through IEFP), and also the Ministry of Education, that offers in the region secondary level education courses and vocational training in the area of tourism sector allowing specialization of human resources which is then absorbed by the sector.

As was indicated earlier, the university can only be considered as an isolated source of knowledge at regional level when are considered spin – off and cooperation projects with private sector. Nowadays only a few tourism companies have generated cooperative relations with universities and commercial knowledge is generated only for a few specific projects and initiatives. From the perspective of specialized training, the University of Algarve can be considered as an important source of knowledge for

innovation in the tourism sector, mainly due to the high specialization in higher education that has in this area. Also considering the specialized training area there are also other research centers at a regional level that serve as sources of knowledge. However, relations firm - university that might arise in order to commercialize specific knowledge have not had the impact it should and this lack of market relationships is not only confined to tourism sector, but to all areas of the market at a regional level. It is necessary in this context, a constant interaction among University and private institutions involved in tourism firms in order to constantly acquire specific knowledge market requirements.

These initiatives that consider the relationship between universities and private sector have been only promoted as a national and public policy in recent years in Portugal. In this context, the number of activities that consider the generation of knowledge from the relationship between enterprises and universities should be increased. The regional situation today shows that this relationship is very weak, however, has been increasingly promoted some initiatives to advance in this field. These emerging processes of diffusion of knowledge from universities and privates sector have generated interest in other companies when positive results are obtained. The spread of positive results generated in these relationships promote the generation of new initiatives.

Today, these relations need a strong support in the early stages by regional agents that assume the role of interface in order to promote them. CRIA is nowadays an important regional player that promotes relationships despite the isolation of both, the private sector and the University of Algarve in the region. Therefore there must be a regional player to lead and promote this kind of relationships.

There are necessary mechanisms promoting regional players such as the University acquiring a more active regional role and becoming key agents in transferring knowledge to companies in traditional sectors, companies linked to KIS and others that may act supporting tourism business. In this context, an entire regional platform to support private sector tourism enterprises that can meet the needs of both large companies and small companies providing added value to the intervention generated by tourism must be created.

"Another major challenge is to create mechanisms so that the university may have an important role in the region, the transfer of knowledge and the incorporation of this knowledge to industry; currently it isn't happening" (Interview, João Faria, 2011).

When associative projects are generated to carry out specific studies, the results obtained are in general not scattered in the region and thus are not diffused to be used by regional companies as a source of knowledge for innovation. An important fact is that the university is a closed system of source of knowledge within the region and thus this knowledge is not properly used to innovate. Contrarily, the university has to be the institution over which knowledge is generated and organized within the region.

The opening of the university to private initiatives is still very weak, "*the gap between the economic and scientific capacity installed in the region should be enhanced"* (Interview, João Amaro, 2011). Currently, these areas (scientific and economic) are unrelated realities that have to increase their ties involving also public structure supports. The university in this sense could stimulate specific projects and initiatives to increase regional retention factors and attractiveness of key agents in order to involve new highly qualified actors bringing new knowledge to the region, helping to create and expand a climate of innovation in the region.

3.1.2. Networks and Enterprise Associations

In the regional context of public and private action, beside same benefits that can be harvested by participating in formal and coordinated regional development bodies, are emphasized the advantages of informal networks of interaction contributing with the diffusion of tacit knowledge in the process of generation innovative initiatives in micro and small enterprises. It is necessary to underpin that despite networks are identified as a source of knowledge, formal or informal interactions are quite fragile processes and are also quite underdeveloped. However, comparatively with other regional sources of knowledge, these interaction dynamics generate more impact on innovation.

"*There are networks, informal networks, there is not really a corporate entity that makes as a coordinator. That does not exist* (in the region), *there is only a relationship that has been established over time, with the entities, with some people, etc."* (Interview, Vítor Madeira, 2011).

Important regional bodies where formal and informal networks are used by enterprises to gain new knowledge are Business Associations. In these regional bodies different knowledge is shared and absorbed by enterprises. Business Associations are also linked and involved in regional tourism bodies that have been generated to discuss and propose political guidelines regarding regional development and the role that tourism has to play specifically in this process. In these instances are participating all regional players who play a significant role in the development of the region giving conditions of interaction among public, private and other NGOs.

"Boosting Associations (business) *in this sector, could be one way to facilitate knowledge diffusion and absorption by the companies"* (Interview, José Macário Correia, 2011).

In this sense, regional business associations that group mainly micro, small and medium firms, also act as a source of knowledge to innovate and start new business, promoting diffusion of ideas, projects opportunities, issues of financing, business plans, etc. Also, despite there are only a few presentation forums, sectarian meeting or seminars that are generally coordinated by business associations in the region, those encounters can be also considered as an instance when there are exchange of ideas, sharing business experiences among private firms, etc.

(Enterprises) "Share their experiences in forums, seminars; also provide training on specific subjects, on innovation [...] they share their information. This also occurs in informal situation" (Interview, Daniel Queirós, 2011).

Instances of interaction should be relevant in a small territory as Algarve region where proximity plays an important role as a facilitator for generating new business and innovation activities. These companies work together and cooperate, for example, to structure a specific product or to create an external promotion platform in order to sale and promote in a better way their products; otherwise, its size would not allow them to fund a project of this type.

Business Associations have also developed advanced training courses for entrepreneurs that are generally used by small enterprises. Through specific training, they are able to incorporate a number of innovative elements which are then taken to their companies improving their performance. These practical programs are adjusted to the needs of enterprises because requirements arise directly from them and are constantly updated it the extent that tourism market is changing.

Generally in the region there are not permanent or structured relationships in which good practices implemented by big companies may be known by small businesses. In the region there are only a few large companies that make available this knowledge

openly in forums, seminars, etc., where information about the company is diffused and serves ultimately to smaller firms to generate innovation inputs (knowledge) from other innovations activities adjusting them to their fields of actions and their stage of development.

These companies also sometimes produce specialized training where knowledge and know - how is transferred to other companies. Finally, sporadic instances of interaction may generate knowledge dissemination to the extent that these small companies absorb what they have learned and incorporate this knowledge as an element of their business model. Although these instances are rather isolated, territorial impact generated by these large firms in terms of dissemination of knowledge for innovation is quite limited. Moreover, they also have an indirect impact on the regional economy and tourism, because besides from generating employment, they disseminate and promote the region internationally as a tourist destination through their well known multinational brands.

In general, innovations that have been developed in the tourism sector in the Algarve region are the result of individual initiatives and are well insulated. Generally those innovation initiatives correspond mainly to large corporate chains and in quite less occasions to smaller companies. Innovations in micro and small enterprises are mainly not the result of cooperative projects with other regional actors such as other companies or universities. Despite formal and informal interaction that can be arise in Business Associations there is a lack of instance of interaction and lack of participation of small tourism enterprises in regional networks (in national and international networks is almost inexistent) to access to specific knowledge and that is a traditional feature of the region, there is not a culture of permanent relations between enterprises and other regional actors and when these relationships are carried out are rather intermittent.

These regional dynamics do not facilitate the generating of innovation in business activities through cooperation initiatives. This issue highlights the importance that must be attributed to the incorporation of more qualified human resources as an input for innovation in small enterprises.

4. Vehicles of Knowledge

4.1. Labor Mobility, Observation and Pecuniary Externalities

Tourism is an economic activity heavily marketed by seasonality. In Algarve this is not an exception despite of the fact that many efforts have been made in order to reduce these disparities among the year tiring to offer a more diversified set of regional products and services. Despite these initiatives have shown some advances, international factors have influenced heavily the capacity to attract a homogenously amount of tourists. International factors as economic crisis and the important devaluation of the Pound currency against the Euro have meant the reduction of British tourist (main source of international tourist) to Algarve during the year. But while that meant a reduction of international tourists, a new and increasing tourism demand of domestic market has reduced in some way the high marked seasonality. The most important impact of this market dynamic of Algarve region is the noticeable dependence of level of regional employment on times of high demand. On the other hand, as is common in tourism sector highly skilled human resources are not demanded by the sector resulting finally in strong labor mobility among different jobs and among different geographical places within the region. Generally, the main source of employments in high season is offered by big companies that have an important regional presence and count with specific know - how, efficient organizational and business models. These companies in some way have spread their organization models

to the tourist area of influence through a remarked labor mobility where sometimes, technical and operational profile of human resources contracted and specific works developed are capable to structure certain knowledge, ways of internal organization, business models etc. that are finally internalized by workers and diffused through different companies in the region.

4.2. Observation

When companies generate innovative activities that are incorporated in the market thorough product or services, these initiatives began to be spread or copied through observation by other enterprises. These innovations can be known and validated by other economic agents, taking advantages from good examples with good results, initiating the dissemination of knowledge. One example of this process can be observed in concept innovations that are developed in Nature Tourism where large investment for project development and implementation are not required. As these innovations are novel good or traded ideas and are still not well developed in tourism services, they can have an important impact on the market and can be easily observed and copied. When these innovations are carried out, are imitating immediately. These kinds of innovations that are rather elementary began their dissemination through observation or by informal instances that are facilitated by the proximity and the small size of the Algarve region. There are also large and medium enterprises (usually) that as part of their marketing sale and advertise process disseminate their products or services within the region. Other companies, usually small enterprises take advantage of this free knowledge, transforming and adjusting it to their own capacities and objectives.

4.3. Pecuniary Externalities

Considering other forms of knowledge dissemination, it has been noted out that market and commercial transactions can also be considered as a minimal source of knowledge in the region. Regarding that knowledge used for innovation porpoises could be diffused by value chains through the relationship between suppliers and final tourism firms, there is a reduced presence of these patterns of diffusion in the region. Despite the fact that there are commercial links between tourism firms and there is also a knowledge that is trespassed in these formal instances those processes are quite hampered by various reasons. Main factor that contributes with that is the reduced amount of value chains shaped with different regional firms. More innovative firms (related mostly with big firms) have commonly supply – contracts with firms outside the region and also market transactions between big companies and small regional companies are very reduced hampering the possibility to disseminate innovative knowledge in these market processes.

There is also a reduced dissemination of knowledge from the relationships built between firms and customers. However, in some occasions, tourist may demand a certain standard of services and products that are consumed by a certain value and therefore push the quality of supply to a certain level becoming them as a source of information and knowledge because they also spread experiences, events and trends, best practices, needs, etc., both by formal and informal situations.

Finally, other quite reduce vehicle of knowledge but present in the region are Outsourcing practices. In some cases large companies in order to access to knowledge and information and initiate innovation activities (e.g. incorporating online sales system, payment system providers, etc.) use outsourcing practices. However, despite some contracts are made with regional firms, frequently those contracts are made with

medium or large enterprises that are linked to their economic groups or also with other firms that are commonly outside the region. Sometimes large companies are able to generate innovation by using knowledge of their own structures, but this knowledge is often not found in the Algarve region but rather in the headquarters where they concentrate more skilled human resources. This coincides with the fact that headquarters of these companies are not in the Algarve. The transfer of knowledge that can be generated by these business relationships are therefore exclusively as a result of market transactions.

5. Tourism Regional Innovation Platform

Considering the possibility of creating a culture of innovation in the region should be taking into account the fact that tourism emerged spontaneously in Algarve as a result of an increasing tourism demand so it was not very complex and complicated that quickly was created a regional productive structure for its economic exploitation. This relative passivity with which has been developed the exploitation of tourism, has not allowed the consolidation of an endogenous, dynamic and modern regional culture that constantly try to generate better conditions of attractiveness to Algarve tourism destination because market has been secured by the factors "sun and beach". It was a secured market demand that for three decades constantly pushed regional development and the formation of a business network based on the exploitation of tourism.

The problem arises when a mature regional productive system shaped mainly of micro and small businesses in a turning point in the demand, have to create competitiveness in order to attract a market that for structural reasons (extensive use of ICTs, low cost

airlines, more information to make decisions, etc.) have a greater access to other tourist destinations.

"Tourism is an external element to the Algarve, comes from outside, it was not a consequence of the evolution of the economy of the Algarve, was an act almost artificial and this caused a break with the old economic structure " [...] here was not required innovation, was to follow the wave, because demand was stronger than supply " (Interview, Vítor Neto, 2011)

In a context where tourism in the region is closing a cycle and is entering in a period of stagnation, a regional culture with these features makes difficult the capacity of response and adaptability of tourism enterprises (small, no larger than the large companies) to new market dynamics. It is at this point that the ability to compete with other destinations relies heavily on innovative and differentiating initiatives of new enterprises and companies involved in this activity.

"The new small and medium enterprises in the Algarve are very young and grew up in an atmosphere of ease [...] today in a difficult situation they do not have the corporate culture substrate to overcome the difficulties and create new paths" (Interview, Vítor Neto, 2011).

However, it is possible that in a context of high competitiveness and economic crisis, companies are forced to change their mindset to adapt to new scenarios, this context can work directly and indirectly as an incentive for companies to innovate.

From another perspective, this new scenario may also be advantageous if is considered the ability of small businesses to adjust their services and make them more attractive in terms of personal service, lower prices and consumer loyalty through human relationships using a "face to face factor" as the base of their tourism offer. These companies are generally single-family and therefore have the characteristic advantage of

being flexible and quickly adapt their service or product offer to new conditions, they no need in this context major internal changes or investments to become competitive in that segment.

The lack of a regional culture that promotes innovation may be due to several factors, but among them one of the most important is linked to structural issues related to regional planning policies and development generated at national and regional level. This innovative regional behavior is also related to internal conditions of the region where business regional development is the result of the evolution of the regional production network that has only responded to external incentives (like market demand) and has not promoted an specific offer to attract a new demand.

At national level, industrial and development policies that promote RIS have not been generated. The two regional entities (CCDR and DER), which should be lead and also are mostly related to innovation initiatives through a more horizontal and less sectarian (as well as all regional public system) perspective are still highly dependent on guidelines generated centrally (Lisbon) and then decentralized from regional strategic programs. This process, from the beginning of the decentralization policy, was politically and economically assumed by the municipalities as local development agents but at the present there are not an administratively body sufficient to boost regional economy. Moreover, the CCDR which by definition should be the entity that leads the regional action is also a peripheral service of the central government.

"The political centralism promotes economic knowledge and innovation centralism; [...] the centralism in Portugal in my view is one of the biggest obstacles to innovation capacity, especially in the tourism sector" (Interview, José Leite Pereira, 2011).

This lack of social, economic and policy autonomy that characterizes the deconcentrated institutions in the region means that often initiatives that arise in Algarve are hampered

at central level, mainly as the result of the reduced capacity of regional coordination and decision making. These two factors have influenced the lack of a regional organization and the lack of formal and informal processes which spontaneously generate an innovative and a creative critical mass that internalize a culture of risk and actively articulate regional actors such as research, laboratories, companies, public sector institutions, etc.

"Regionalization in Portugal could bring profits to the development of innovation systems, [...] because having regionalization could begin to have unity and would become easier to generate employment, education, scientific and technology policies, all these policies integrated into an institution that coordinate and lead these activities doing easier to operationalise this process" (Interview, Vitor Madeira 2011).

In this context, there isn't a structural support in the region to promote innovation. Although the origin for creating competitiveness has to be carried out by companies, there must be a regional platform that encourage and strengthen these processes and performances in business. In this sense, there is also a not clear regional leadership to position itself as a leading institution for regional development. Although regional strategies can be well raised and be assertive in policy areas, they must be applicable at the territorial level and that involves participation of regional actors and above all a body to coordinate and articulate these processes.

Although the Regional Strategic Plan and the Algarve tourism plan considered innovation and diversification as an important factor for regional development, these guidelines are not applied to business reality with initiatives and projects with high impact. In order to contribute to regional development it is also necessary in the region a strategy that considers the application of integrated instruments policy discussion of investments.

However, one factor that is also identified as a problem for tourism sector development at the regional level is the high public component of tourism especially in strategic and regulatory issues. Although this is a business carried out finally by private enterprises, this condition limits the ability of innovation in the sector, which is more dynamic and flexible and unlike the public sector it does not have much time to adapt to new scenarios.

Although tourism is transverse to the regional economy and involves many economic activities, another important aspect in the sense of lack of regional promotion of innovation is that often innovation in tourism is not considered as a relevant key issue that should have priority at regional level. It is commonly considered that other regional economic activities usually related to innovation activities such as manufacture or knowledge-intensive services should have priority to be developed and promoted. However, this may also mean an indirect contribution to tourism businesses to the extent they generate commercial links with companies in other sectors, especially in a region where most of the productive sector that creates jobs and regional growth is tied to tourism. Tourism businesses in this way add value to the tourism sector and act as "front office" (for tourists) of innovations arising in other sectors acting as a synthesizer of information and using them to maintain and attract new markets.

At the regional level, exchanges or dissemination of knowledge for innovative purpose are quite limited. There are only a few initiatives intended to bring together companies around a knowledge transfer or dissemination of good practices. In general, these bodies that have innovative purpose are outside the region, especially in Lisbon, so they do not act as a regional source of knowledge. To facilitate the dissemination of knowledge it is important to generate a continuous network to place in permanent contact different companies that are more inclined to generate innovative activities in specific areas.

Learning networks to strengthen the innovation activities of companies that participate in these relationships and trying to systematically involve and attract new actors.

"It would be very important for us to make up a network to place in permanent contact, a network of companies, at least those companies that have a greater appetite for innovation" (Interview, João Rodrigues, 2011).

Public sector institutions have attempted to generate these networks through interaction instances by both virtual and regional meetings, but after a while they have not been encouraged by the business sector. These instances of enterprise meetings grouped by a factor of proximity can be reinforced as an instance of transfer of knowledge to innovation.

Moreover, the regional tourism agency ERTA has a role to promote the region with the goal of disseminating the region in the market and attract new customers. However, there is no support from this body to the innovation of tourism firms. It works only as a source of knowledge as delivering statistical information or studies to support tourism businesses so they can invest or reinvest in their businesses. Also ERTA coordinates some instances of debate that have more to do with strategic guidelines in the industry.

Another isolated and indirect source to promote innovation in small and medium enterprises in the region is generated from regional programs of the European Union. This program through support and strengthening of business models, European regulations, etc., has supported firms to generate innovations in order to internationalize their businesses and access to new European Union markets. Also, they are generated conferences and business meetings where are expose major sources of financing programs where companies may apply. However, this is a very small program with a regional impact.

Municipalities, especially through the association of municipalities of the Algarve (AMAL), participate increasingly in developing instances of strategic tools for regional development and tourism specifically, but their influence is scarce regarding operational and specific projects to the development of the sector tourism. Municipalities have some tourism initiatives but are more related to informational issues, dissemination and promotion of tourism in each municipality. In terms of support that certain municipalities give to tourist sector, often it depends on the emphasis given by the presidents of the municipalities in the sense they may promote efforts to develop tourism initiatives beyond the regular policies that correspond to legal internal regulations of municipalities.

6. SWOT Analysis to the Algarve Innovation Platform

In the following SWOT analyses are identified main strengths, weaknesses, opportunities, and threats that were examined in the regional innovation platform during this work. Are included in the same analysis main features of public and private sector, since has been elaborated from a regional perspective.

Tab. Nº 4
SWOT analysis

1. Strengths
- Highly regional knowledge specialization in the tourism sector. - Agglomeration and proximity of regional agents allowing a better tacit knowledge diffusion promoting innovation activities in tourism sector. - International market position of Algarve as a European tourism destination with key products as “sun and beach” and Golf. - Comparative advantages in terms of geographic conditions.

- Good offer of technical and professional training support in tourism sector.
- Specialized human resources in tourism sector in the region that can be diffuse knowledge through labor mobility.
- Some regional instances mainly in the private sector that permit partially the diffusion of knowledge among micro and small tourism firms.

2. Weaknesses

- Regional coordinated initiatives among regional actors linked with tourism sector.
- Weak intensity of linkages among regional actors and tourism firms.
- Initiatives and programs to promote interaction instances to facilitate knowledge diffusion.
- Isolated diffusion of innovative activities from large tourism companies to micro and small enterprises.
- Lack of studies and statistical information to identify and analyse innovation in tourism sector in order to promote specific and efficient policies.
- Weakly national and regional innovation platform to promote tourism enterprises.
- Large gap between main regional innovation tourism policies and operational programs and tourism projects.
- Monitoring processes to identify outputs of regional policies that involve innovation tourism initiatives.
- Seasonality of tourism that affect the concentration of income and employability in the region and some enterprises.
- Lack of an innovation culture to promote systematically regional cooperation and collaboration between regional private and public actors.
- Weak linkages among university and tourism private sector to generate cooperative marketable projects.
- Low rates of primary education level and high desertion rates due to seasonal work in tourism.
- Low promotion and bureaucratic obstacles of regional institutions to the generation of new tourism firms and low support to tourism firms in their first stages of development.

3. Opportunities

- Increasing importance of tourism sector in regional economies and worldwide as a development engine.
- Necessity to augment competitiveness and differentiation of regional destination may push

enterprises to initiate innovation activities.

- Increase regional linkages to a better development of a regional tourism destination or regional products that may include firms with different features (size, economic activity).
- Economic diversification process of the regional productive system based on tourism activity.
- Tourism policy initiatives emphasizing in a first stage the adoption of new technologies.
- Necessity and possibility to increase Tourism sector as a Knowledge Intensive Service (KIS). More knowledge process creation, diffusion and absorption by firms will be required.
- Increasing demand of regional tourism from domestic market.
- Generation of a tourism regional destination based on differentiation processes and a quality tourism offer.
- Generation of specific projects to support formal and informal knowledge transference and diffusion among regional actors, especially between large and small firms.
- Increment the capacity of knowledge absorption of firms to generate innovation activities.
- Greater chance of diffusion of knowledge through the observation that other economic sectors.
- University as a regional origin of spin off and marketable tourism projects.

4. Threats

- Increasing concentration of tourism innovation initiatives at regional level (In large firms, in main tourism cities and coastal zones).
- Increasing centralism and dependence of “Lisbon” as a result of the regionalism Portuguese policy.
- Environmental degradation caused by tourism in the region.
- Massification of tourism driven by medium and large companies in the region rather than the regional tourism based on the quality.
- Tourism as a moderate and low innovative sector is seen as an economic sector where is not needed innovation support.
- Highly dependence to external factors of the region.
- New competitive tourism destination to the European market.

PART V
CONCLUSIONS

1. General conclusions

The main sources of knowledge identified and used by tourism micro and small enterprises in the region are mostly related to human resources, especially firms that invest in their qualified human resources using regional training centers, affecting positively the possibilities to have innovation activities. It was also noted the importance of formal and informal networks interaction as a source of knowledge where some instances that are promoted by both public and private sector were identified. Those initiatives have tended to be promoted and increase progressively but still in the region they are not a systematic source of knowledge for innovation. Other less important vehicles of knowledge that have been identified are observation, labor mobility and market transactions, especially in the tourism businesses where interaction is strongly with the final consumer market. Specifically considering spin - off and patent processes that are generated from the university, the limited interaction "university – region" has meant a weak level of knowledge dissemination from the university to others regional agents and therefore this issue is recognized as an area to be developed and promoted.

Considering sources of knowledge to generate innovation in the tourism firms, a central element to be considered is the current capacity of the region to enhance the job skills in various areas of human resources that can later be incorporated into business and can generate innovative projects. The training educational offer in the tourism sector that is present in the associations, universities and other training centers specialized in tourism have allowed an important flow of knowledge through human resources between these

institutions and other companies improving their competitiveness behavior through a more dynamic innovation activities.

Tourism training offer from regional institutions must be constantly adjusted, not only considering tourism areas required to the region but also, and above all, a particular workforce regional profile. Mainly, a technical level presents the highest employability in the region. Tourism does not require highly skilled labor so the oversupply of this segment cannot be absorbed by the market encouraging a process of regional unemployment and social mobility to new workplaces often in other regions.

Particularly in the case of the University of Algarve, besides its high importance on advanced tourism formative education, in most of the cases knowledge created is retained within the university and is not managed for innovate porpoises as a source of knowledge in firms, reducing a potential impact on the market. In this context, this knowledge generated is not a practical and marketable knowledge input, hampering the systematic creation of spin – offs.

In the case of large companies, a source of knowledge identified in the region is the "know – how" that is bringing directly to the region by these companies. Despite this knowledge is not often intentionally spread it to the region, it can be transferred through the observation, especially in tourism sector where services offered to the customer are so basic and visible.

Business associations can be one of the focuses that regional strategies should underpin in order to facilitate knowledge transfer among enterprises. Currently there are in the region several business associations that bring together a large number of regional tourism businesses firms and other regional agents.

It is also noted that there are sporadic initiatives to increase knowledge for innovation in tourism enterprises and between regional actors. There is a high isolation of regional

firms and innovation is generally associated with large companies that are able to carry out innovation activities themselves or make outsourcing with consolidated companies outside the region. Large companies and micro and small tourism companies are very weakly related through formal and informal linkages.

The micro and small companies depend heavily on the labor qualification of founders and staff of the company. In general, enterprises of necessity arise in the region related to specific activities (e.g. restoration) and do not generate systematic innovation, but when they innovate, initiatives are generally related to process innovations incorporating new technologies. These companies come to a level of development in a short time and maintained itself over time with low levels of investment and development, in this context are rather are conservative.

The limited presence and use of local knowledge spillover may be due, among other factors, to the lack of need in tourism to generate innovations. Regularly, tourism sector is associated with a moderately low innovation behavior and this is one of the current characteristics in the region. This little incentive for companies to innovate does not generate a spontaneously search and use of regional sources of innovation. In general, these processes also occur because there is a strong demand, which pushes companies to innovate, which does not happen in tourism.

Small businesses are able to survive because they capture a market segment that is not very fluctuating and therefore they do not need continually to modify their business models. On the other hand, besides the little interaction and isolation of regional actors in the field of innovation, structural issues of national and regional context does not contribute or facilitate that current dynamic tend to change, there is a marked lack of coordination not only between tourism actors but in all regional actors that participate in regional public and private institutions. On the other hand, small businesses, which

shape most of the productive sector in the tourism sector, do not exploit regional knowledge sources and besides there is not a RIS that promotes these dynamics. This is dialectical relationship that does not permit that a system might evolve. In the geographical sense, despite there is an important cluster of tourism firms and related regional public and private bodies, there is a significant and systematic lack of cooperation and interaction among actors.

Considering an evolutionary line towards a RIS can be said that there are some elements and conditions for its development but still cannot be assumed its consolidation in a medium term. This fact is strongly related to a region that for years did not need associative and cooperative efforts to attract and consolidate a tourism destination in the European tourist market. The companies began in the tourism sector driven by a growing demand, they did not need to change their business models, it was only necessary to accommodate their offer in function of the demand for tourist arrivals. Firms did not need to make many efforts to capture this market. This also meant the creation of a regional business climate that was created in a context of facility for nearly three decades, in which no changes were necessary and where the need for adaptation and generation of initiatives to capture market was not mandatory.

Today, in a context where other important tourist destinations have emerged and Algarve region has reached a certain degree of maturity of their productive system, it will be necessary a new impulse that may encourage the development of a new regional climate based on cooperation, trust and intensive use of knowledge sources that are generated in the region. If this process does not arise spontaneously in response to new market dynamics, it should be induced at the national and also at regional level.

Although it is possible that the increasing need for differentiation and quality required by the tourism in the region could be absorbed by medium and large companies in the

beginning, these long-term dynamics may give a new impulse to the region if new economic processes are extended and intensified tourism value chains in the region integrating regional firms. In a situation featured by an adverse and complex economic scenario is more likely that begin to emerge coordinated and complementary forms of action with the goal of achieving together and efficiently certain regional objectives.

It is not possible to observe in the Algarve region structured and formal instances of interaction created as a base of an innovation platform to promote the transfer and dissemination of knowledge. These instances are rather haphazard or are directly related to individual efforts generating by companies according to their own needs.

The development of a regional climate of innovation is an evolutionary process that can be the result of the tourism economic specialization, featured by strong links among regional elements and the ability to think collaboratively and in an atmosphere of trust and creativity. But, if this culture does not arise spontaneously, regional policies should participate increasingly as innovation forces mostly emphasizing intangible assets of the region. Despite tourism can be associated with a low and moderate innovation sector, a RIS can promote and support that tourism firms tend to become increasingly a knowledge intensive services in order to augment competitiveness and provide to the customers higher quality tourism products and services. In this context, the possibility to the generation of a RIS must be thought also as the result of planning institutional forces, especially taking into account that features of innovation in tourism sector do not generate unprompted forces pushing the conformation of a regional culture of innovation and learning.

2. Limitations of the thesis and future research

Considering main limitations in information inputs used to develop the thesis is possible to identify two problems. On the one hand, studies of services and innovation in tourism are already a not well developed field of research. It is also still very difficult to measure organizational and process innovations in tourism and classifications are much linked with innovations in manufacturing sector. In the case of tourism, this difficulty is also important because there is not a common classification that incorporates features of the sector such economic activities that comprise the entire sector. On the other hand, tourism is traditionally classified as a sector that does not need to innovate, therefore is not a priority target of policies that promote innovation.

There is also an important lack of regional statistical data on innovation in tourism. This issue do not allow the generation of additional quantitative analysis in order to enhance main findings generated from interviews considered as a source of primary information. CIS (community innovation survey) information is also not representative of the tourism industry despite this survey allows to have an idea of how regional business works and how enterprises increase their competitiveness through innovation activities.

It is also necessary to emphasize that although in this work it is represented a common vision and knowledge of the private sector through business associations, another important step would be to obtain information directly from tourism enterprises. For this, however, would be interesting to conduct a representative survey of all tourism businesses in the region that includes variables such as size, types of innovations, knowledge sources, funding for innovation, etc. in order to identify what priority areas should be targeted through incentive and innovation policies.

Finally, would be interesting to deepen qualitative methods especially considering that the process to generate innovative activities is highly related to human and cultural

factors of the geographic areas where businesses are located and where tourism is developed.

Should also be noted the lack of time (considering formal deadlines to finish this work) to generate a deeper empiric primary information and a further analysis.

PART VI
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PART VII
ANNEXES

Annex1. List of Interviewees. (Interviews, 2011)

Interviewed	Position	Date
Vítor Neto	President of NERA (Association of Business of the Region of Algarve)	02-12-2010
Fernando Anastácio	Vice-President of ERTA (Entity Algarve Regional Tourism)	13-12-2010
João Amaro	Executive Coordinator of CRIA (Regional Center of Innovation of Algarve)	10-01-2011
João Rodrigues	Coordinator of IAPMEI (Institute to Support SMEs and Innovation)	12-01-2011
Vítor Madeira	Director of CACE of Algarve (Support Center Business Creation of Algarve)	13-01-2011
Nelson Dias	President of IN LOCO (NGO support business development)	17-01-2011
Olga Neves	Main Advisor of DREALG (Regional Direction of Education of Algarve; Ministry of Education)	17-01-2011
João Faria	President of CCDR-Algarve (Coordination Commission and Regional Development)	18-01-2011
José Macário Correia	President of AMAL (Major Metropolitan Area of Algarve: Association of Municipalities of Algarve)	21-01-2011
Mª Fernanda Santos	Regional Delegate of IEFP Algarve (Institute of employment and training)	22-01-2011
Cristina Neto	Head of Division of Culture and Tourism, Municipality of Faro.	11-02-2011
Elidérico Viegas	President of Executive Commission of AHETA (Association of Hotels and Tourist Enterprises of Algarve)	14-02-2011
Carlos Gonçalves	Regional Delegate of APAVT Algarve (Portuguese Association of Travel and Tourism Agencies)	16-02-2011
José Leite Pereira	Regional Director of DRE Algarve (Regional Direction of Economy of Algarve)	16-02-2011
Paulo Bota	European Business Advisor of Enterprise Europe Network	17-02-2011
Antonio Almeida Pires	President of ASA (Association of East Algarve)	17-02-2011
Paulo Bernardo	General director of Globalgarve (Cooperation and Development Inc.)	18-02-2011
Daniel Queirós	Executive Director of ATA (Association of Tourism of Algarve)	21-02-2011
Ana Fernandes	General Secretary of ACRAL (Association of Trade and Services of Algarve)	01-03-2011
João Fernandes	Director of EHTA (School of Hospitality and Tourism of Algarve)	04-03-2011