GLOBAL SWOT ANALYSIS

A report produced for

TOUREG Project, Deliverable D.2.1

by the Department of Tourism Management of the

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October 2009

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The TOUREG (Competitiveness and Knowledge in the Tourism Sector) Project aims to improve the competitiveness and strategic position of the service sector and in particular the tourism-oriented sectors in various European regions. This will be achieved through the establishment of a platform for knowledge transfer based on technological innovation and research in the tourism sector. In more details, the strategic objective of TOUREG Project is to establish a platform for developing a competitive tourist industry based on the generation and application of knowledge revolving around a new international research-driven cluster in the tourist industry.

Based on this strategy, the TOUREG Project's general objectives are to:

- Adapt and to strengthen the R&D+I public policies, especially policies for or related ones to the tourist sector.
- Establish an itinerary for the generation and transfer of R&D+I knowledge in the tourist sector.
- Promote, diversify and specialize in R&D+I activity in the tourist sector.
- Facilitate the establishment of a platform for the generation of knowledge in the tourist sector.
- Increase productivity in the tourist sector.
- Exchange experiences between the participating regions and countries.

The TOUREG project is coordinated by the Directorate General for Research, Technological Development and Innovation of the Government of the Balearic Islands, and involves partners from six regions in Spain, Portugal, Greece, Sweden, Bulgaria and Romania. The Project Partners are the following: ARC Fund (BULGARIA), Foundation for Research & Technology (FORTH) / Science & Technology Park of Crete (STEP-C) and Technical University of Crete (TUC) (GREECE), Madeira Technopolo, AREAM and Expedita (PORTUGAL), CG&GC (RUMANIA), Regional Government of the Balearic Islands, IBIT Foundation, GIT Consultors (SPAIN), CDT - Lulea University (SWEDEN).

The Project is financed by the 7th FRAMEWORK PROGRAMME, under the specific Capacities Programme, through the Regions of Knowledge Initiative (ROK) with duration from 1 January 2008 to 30 June 2010.

The Vice-President of the European Commission, responsible for Enterprise and Industry, G. Verheugen[1], addressing the European Tourism Ministers' Conference in 2006, admitted that not many financial instruments were aimed at impacting specifically tourism and indicated that the Commission was working towards integrating tourism in all related Community policies. Thus, for R&D on tourism, the focus of European Commission was even less. He stated that he was confident that 'tourism will profit from the support of the European Regional Development Fund, the Cohesion Fund, European Social Fund, the European Agricultural Fund for Rural Development, the European Fisheries Fund, and from programmes such as the 7th Framework Programme for Research and Technological Development, the "Leonardo da Vinci" or the proposed Competitiveness and Innovation Framework Programme'. Based on the above, TOUREG may be considered as a direct outcome of this approach, as it is for the very few times that a considerable effort has been undertaken and fully supported by the European Commission on setting up a framework for establishing R&D policies and research clusters which can help tourism industry. It is proved also by the fact that TOUREG has been promoted in the research@eufocus[2] in 2008 as one of the supported projects for achieving sustainable tourism in Europe. This is the main objective of TOUREG and this report is one of the deliverables of the project. It is hoped that this document together with all other deliverables of the project will achieve the original objective, which is to increase the amount of effort devoted on R&D in tourism industry in Europe.

[1] Verheugen, G., 2006. Tourism – Key to Growth and Employment in Europe, Speech delivered at the European Tourism Ministers' Conference, Vienna, 21 March, http://fiabrussels.odeum.com/download/news/speech_verheugen_tourism.pdf

2 research*eu focus supplement, 2008. Competitiveness & sustainability in European tourism, Toureg: a platform to create and transmit tourism knowledge, page 8.

1. Executive Summary

The TOUREG Project (Competitiveness and Knowledge in the Tourism Sector) aims to improve the competitiveness and strategic position of the service sector and in particular the tourism-oriented sectors in various European regions. This will be achieved through the establishment of a platform for knowledge transfer based on technological innovation and research in the tourism sector. In more details, the strategic objective of TOUREG Project is to establish a platform for developing a competitive tourist industry based on the generation and application of knowledge revolving around a new international research-driven cluster in the tourist industry.

Based on this strategy, the TOUREG Project's general objectives were set to adapt and to strengthen the R&D+I public policies, especially policies for or related ones to the tourist sector, to establish an itinerary for the generation and transfer of R&D+I knowledge in the tourist sector, to promote, diversify and specialize in R&D+I activity in the tourist sector, to facilitate the establishment of a platform for the generation of knowledge in the tourist sector to increase productivity in the tourist sector and to exchange experiences between the participating regions and countries.

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Vice-President of the European Commission, responsible for Enterprise and Industry, G. Verheugen, addressing the European Tourism Ministers' Conference in 2006, admitted that not many financial instruments were aimed at impacting specifically tourism and indicated that the Commission was working towards integrating tourism in all related Community policies. Thus, for R&D on tourism, the focus of European Commission was even less. He stated that he was confident that

‘tourism will profit from the support of the European Regional Development Fund, the Cohesion Fund, European Social Fund, the European Agricultural Fund for Rural Development, the European Fisheries Fund, and from programmes such as the 7th Framework Programme for Research and Technological Development, the “Leonardo da Vinci” or the proposed Competitiveness and Innovation Framework Programme’.

Based on the above, TOUREG may be considered as a direct outcome of this approach, as it is for the very few times that a considerable effort has been undertaken and fully supported by the European Commission on setting up a framework for establishing R&D policies and research clusters which can help tourism industry. Mr. Verheugen has continued to focus on tourism industry and the means to make it more competitive. Very recently (October 9, 2009) he presented the greatest challenges to be faced by tourism industry, these being, **tourism must be part of knowledge economy** with all leisure and hotel services to be found easily via the web while the industry should work towards **removing all inconsistencies between complimentary tourist services** and invest on people skills which can increase productivity together with innovation capacity. TOUREG tries to answer these questions and present some of the means for tourism industry to face these challenges.

An extensive analysis, based on bibliographic information but also on the primary research from the six participating Regions, presented as Regional reports, has been carried out about the trends on innovation for tourism. More particularly, emphasis has been placed with regards to the innovation trends on products and services with respect to Innovation and Communication Technologies, Energy technologies and Environmental technologies, the main themes which TOUREG has focused on.

A brief historical review on tourism is given followed by the presentation of economic evolution. An analysis of the major stakeholders is presented, the government, the regional authorities and private enterprises, with their characteristics, attempting to describe the means by which they are interconnected and interact, as it is a common product they want to promote and make the optimal benefit out of it.

An analysis of the global tourism today is then presented. Tourism is one of the biggest and fastest growing industries in the world. According to the World Tourism Organization (UNWTO), in 2008, international tourist arrivals reached 924 million. By the year 2010 international arrivals worldwide are expected to reach 1 billion. If domestic tourists are added to the above figure, total tourist arrivals can well

be over 3 billion. According to the World Travel and Tourism Council (2009), the contribution of Travel & Tourism to Gross Domestic Product (GDP) is expected to rise from 9.4% (US$5,474 bn) in 2009 to 9.5% (US$10,478 bn) by 2019, the contribution of the Travel & Tourism economy to total employment is expected to rise from 219,810,000 jobs in 2009, 7.6% of total employment, or 1 in every 13.1 jobs to 275,688,000 jobs, 8.4% of total employment or 1 in every 11.8 jobs by 2019, real GDP growth for the Travel & Tourism economy is expected to be ~3.5% in 2009, down from 1.0% in 2008, but to average 4.0% per annum over the coming 10 years and export earnings from international visitors and tourism goods are expected to generate 10.9% of total exports (US$1,980 bn) in 2009, growing (in nominal terms) to US$4,132 bn (9.8% of the total) in 2019. Thus, the role tourism plays to Regional and National economies cannot be understated.

In Europe, most recent data show that approximately 340,000 companies operate in the accommodation and travel organisation sectors, which provided jobs for nearly 2.8 million people in 20062. This equates to 1.2% of total employment in the EU-27 and a total turnover of €290 billion. With more than 90% of the companies concerned employing fewer than 10 people, “micro-enterprises” form the backbone of the industry. The total tourist arrivals by region shows that by 2020 the top three receiving regions will be Europe (717 million tourists), East Asia and the Pacific (397 million) and the Americas (282 million), followed by Africa, the Middle East and South Asia.

Tourism activity gives birth to both spatial and seasonal concentrations. Based on the intensity or quality of tourism, the concept of seasonal concentration describes the unevenness or fluctuation during the course of a year, with the ‘season’ including (at least one) peak period which is caused by two basic elements, one “natural” and one “institutionalized”. The natural aspect of seasonality is related with natural phenomena such us rainfall, sunlight, temperature etc. and the seasons of the year, while the institutionalized element refers to social factors and policies concerning specific customs and legislated vacations, impacting dramatically productivity, employment, cash flows but also infrastructure and environmental consequences, with huge demans particularly in the summer period.

Mass tourism (70% of market share today) grew rapidly in the 60’s and 70’s mainly as a result of improvements in technology and transports and of increased disposable incomes. It was centered in North American and Western European destinations, and some island destinations such as the Caribbean. Mass tourism was –and still is– dominated by Tour Operators offering low cost, standardized package tours, mainly to destinations ideal for 3S “Sea, Sun, Sand” vacations. A very recent

study for tourists in Crete has shown that 85% of the tourists come here for the 3S's. Mass tourism has been characterized by local income revenues being concentrated in densely packed tourist destinations that employ migrant labor from the hinterland and abroad. Local skills capacity remains low, with more skilled, management jobs often being carried out by ex patriots.

However, tourism consumption patterns do change. Tourism demand trends since the mid-80's reflect the increasing diversity of interests of the late-modern leisure society with the emergence of Special Interest Tourism (SIT) revealing the new values which include 'increased importance of outdoor activities, awareness of ecological problems, educational advances, aesthetic judgment and improvement of self and society. This has also surfaced in the very recent (October 2009) study commission by EC where it is found that consumers will be more demanding, looking for comprehensive travel experiences and value for money.

What is the profile of this customer? Nearly half of all international tourist arrivals are motivated by leisure, recreation and holidays (51%) (data for 2008). Business travel accounted for some 15%, and 27% represented travel for other purposes, such as visiting friends and relatives, religious reasons/pilgrimages, health treatment, etc. The rebound of tourism activities will reveal the trend of increased specialization among travellers, which will be seeking personalized, unique experiences, in terms of adventure, culture, history, archaeology, bird watching, diving and interaction with local people which represent a shift from escapism to enrichment.

In the short to medium term there is almost certain that travellers will be spending less on travel. The demand for the luxury end of the market is likely to decrease while demand for either low cost or perceived good value products for services is likely to grow, a trend that airlines and hotels especially need to rapidly adapt to. This has been seen also in the EU study of October 2009. Modern tourists search "value for money". This implies an increased competition between destinations and operators within the frame of a globalised market and in this respect the investment in new technologies and direct distribution channels will be the key to success.

Tourism has unique characteristics that differentiate it from other industries which have their own distinct products or services. Tourism usually includes multiple products or services, which involve the co-operation of several suppliers; it is not a homogeneous market. Tourism is a heterogeneous sector which consists of several product fields, albeit ones which have a degree of linkage. Like other fields, tourism involves both goods and services, but the service component is relatively very high.

As competition increases in the market, tourism businesses and organisations have found that improving service quality and visitor satisfaction are key factors in increasing market share. Yet, it is not clear to these businesses and organisations which of the two constructs is the means to an end, or, even whether they are separate constructs.

Tourism firms, operate in a business environment where innovation is important for their survival. Globalization of tourism activities, the application of information technologies in tourism firms and the changes in tourism demand and attitudes, all create a dynamic sector where innovation has become of central importance. Innovation in tourism has been in the recent past secondary and capital scarce and for this reason was excluded from the scope of government interest and actions. However, there has been a shift, with European Union leading the way but also national governments following suite.

It should be well understood that tourism industry is not very intensive on R&D, rather they invest on technology supply. For e.g. businesses in Baleares islands have reported R&D expenditure on innovation efforts of only 0.36%. Thus innovation in tourism industry is driven by suppliers of technology and of innovative products and certainly by governmental financial support. The challenge for the companies is then on how to absorb technology and innovative products and make optimal use of them. In other words, it turns out to be really a problem of internal training and the absorption capacity of the firm. The good news is that the industry is information intensive and hence owners and managers are open to possible solutions with IT investments and in particular when they are packaged as integrated solutions.

Emphasizing then **innovation trends on the Information and Communications Technologies** it is well recognized that tourism has been and will be one of the most impacted industries by ICT innovations. A lot of upcoming IT innovations will relate to the vision of “Ambient Intelligence” that has been shaped by the European IT research. The customer will change his or her position and become a consumer with more active role. Hence, there will be more possibilities of service customization and product configuration. In addition, flexibility during the trip will be increased and travellers will have the possibility to book *ad hoc* services.

Implementation of software for optimized business productivity, such as TQM, CRM, SCM, using applications over the market, which is the norm for most tourism based companies, creates major difficulties for hotels and tourism businesses because they cannot differentiate between competitors. Thus hotels and hotel

managers can only differentiate through optimal implementation. This shows the requirements for differentiation and the need for provision of the company's touch. In a relevant study it was shown also that tourist companies having web sites have increased their revenue, but the ones who had their own web site and not using another's portal, had even higher revenues.

ICT technologies and use of the Internet has been changing the way tourism businesses operate. Electronic intermediaries are emerging dynamically and challenge traditional distributors. Thus all tourism players are forced to rethink their business models. For example, many tourism organizations aim to bypass all intermediaries that add cost to their production and distribution. There is thus wealth of information available to the consumer which can, many times, be frustrating. Thus it appears that there is great need for meta-data screening of information so that the consumer can find what he wants in the time frame that he would like to spend and world leaders on meta-data searching are working on these issues, but there are still considerable problems.

A collection of few interesting web sites is then presented, in order to show what can become available and as a driver for other companies to follow. Of course, the list is not exhaustive, rather very limited. An analysis then follows on the evolution (or revolution?) of smart phones and what they can offer to the traveler. Industry is hoping for the new revolution and this, it seems, is about to happen. A similar evolution is expected and already happening with the use of the Web 2.0 technologies, which enable the traveler to become the participant and not only the passive receiver. It is well understood that these technologies do have as audience and as target group the young generation. Tourism companies should really focus on how these technologies can shape their businesses. Also government and local authorities should realize all these benefits and tailor-make programs which can support technology implementation by the tourism companies. Training packages should become available so that personnel can become familiar with these technologies. Full exploitation of the huge benefits from Web 2.0 can be accomplished by infrastructure development, need for education and exposure to global best practice, local co-opetition, focusing on innovation and always with a vision for the future. Several web sites utilizing web 2.0 technology can be found and some are listed in the main report.

Trends on ICT will allow for more automation, but this does not mean that human intervention will not be needed. Many businesses have realized that personal interaction is vital for online ventures with the technology merely used to speed up the process but not to replace human intervention which is urgently needed.

Businesses starting only as on-line tools had to expand to personal customer services to meet client demands.

ICT expands tourism opportunities beyond the 3S, like for example cultural tourism, treasure hunting, religious tourism, e-inclusion. Action in the field of ICT for tourism is targeted at developing new components and distributed architectures for tourism information and communications systems that support users and businesses, by offering value added services and multimedia information on accommodation, events, culture and leisure, together with booking and payment facilities. Challenges are there for promoting also e-Inclusion policy, which promotes the use of ICT to overcome social exclusion, and improve economic performance, employment opportunities, quality of life, social participation and cohesion.

Many researchers have been questioning, though, the capacity of tourism companies to face the challenges of the fast evolving technology in general and of ICT in particular. There is great need for research organizations and tourism industry to come up with the appropriate business models for this new environment. This specifically calls for the businesses to pay more attention to have adequate people that can harness this knowledge within their premises, follow training programs, available by ICT industry and partially supported by government, so that they can fully exploit the benefits that ICT implementation can offer.

Addressing **innovation trends for energy technologies**, it is discussed that the support industry seeks to respond to the present and future energy needs of tourism companies by investing in research, technology and innovation that create commercial value and achieve the highest standards of environmental performance. Analysis of both actual data and modelling results have demonstrated that Renewable Energy Supply (RES) can effectively meet the power demand for stand-alone small to medium-scale tourist accommodations, that are most likely to be located in peripheral and environmentally sensitive areas.

Energy efficient technologies and practices available to businesses include motors, boilers and sophisticated energy management and control systems. In the short term, better material and waste recovery technologies, advanced materials, cleaner coal technologies and energy substitution technologies will help keep existing energy supplies affordable and available. renewable energy supply options for small to medium-sized tourist accommodations, optimisation, achieved by further addition of RES to the existing configurations, reduced net present cost (NPC) in the majority of cases, with the added benefit of increased renewable fraction (RF). Innovative transport alternatives and renewable transportation fuels are key-factors to tourism sector along with the innovative building/hotel technologies since, approximately,

50% of the energy used in buildings is devoted to producing an artificial indoor climate through heating, cooling, ventilation, and lighting. Knowledge and cost-efficient technologies are available to apply “smart building design”, to design, construct and operate buildings that are energy-neutral or that produce more energy than they consume.

A series of case studies with applications of renewable energy technologies, particularly applied to islands in the Mediterranean, where tourism is one of the main industries, are then presented. These include wind energy, photovoltaics, small hydro-power plants. The clever combination of wind-hydro plant is also presented, with the first attempt to be constructed in El Hierro, Canary islands, to be completed in 2011.

The focus then is on **innovation trends in environmental technologies.** Most of tourism destinations rely on natural environment to attract visitors, and in particular the 3S (sea-sun-sand) visitors. However, research with hotels and travel industry executives shows that travel industry is not fully immersed into environmental technology application programs. A very interesting finding of the studies is that the respondents noted that few hotel guests demand that hotels maintain environmental programs. Interestingly enough, similar findings, although to a smaller number of hotels, were found and reported in the case of Crete, already reported in the Regional Report of Crete, for TOUREG.

Use of cleaner technologies lead to minimization of the volumes and hazards of gaseous, liquid and solid waste, minimization of the risk of accidents involving chemicals and processes, minimization of the consumption of raw materials, water and energy and use of the substitute chemicals and processes less hazardous to human and ecological health. Examples of such cleaner technologies that include tertiary treated sewage use for irrigation, metal, glass and plastic recycling, composting organic solid waste, use of renewable energy sources, smart building design to reduce energy demand for lighting and cooling systems. By undertaking cleaner technologies and complying with environmental friendly policies, tourism businesses can attract more and “green” customers, reduce production, fixed etc costs, comply with international environmental protocols and national environmental policies, maintain environmental integrity, reduce energy consumption, reduce material usage.

A series of **best practices** on use of environmentally friendly technologies and approaches to tourism industries are then presented, like **one planet tourism**, with a first attempt to be implemented on large scale in Portugal with Mata de Sesimbra, **the Green Hotel** project in Madeira.

The report then addresses **policies and initiatives** on the above issues currently operating in Europe and the rest of the world. The stakeholders of tourism in Europe will receive strong support from the Commission, since the Commission has put in place a renewed European tourism policy responding to the challenges of today. The main aim of this policy have been to improve the competitiveness of the European tourism industry and create more and better jobs through the sustainable growth of tourism in Europe and globally.

Based on the above and studies by European researchers, the characteristics of an innovative hotel, can be absolute described as hotel highly integrated in a network of commercial relations (with operators and chains) and with owners in full control of costs and new services. Network relations cut costs and bring stability which can carry the risk and costs of introducing new services. Hotel managers and owners would make innovation decisions concerning the additional services on offer, taking into account that bookings are made through tour operators, that hotels are part of a hotel chain and that the owners of the hotel run the business. The policy makers should emphasise education and increasing managerial professionalism in the industry.

Regarding **policies** to promote **e-business and ICT adoption**, measures such as, initiatives to promote networking and cooperation, encouraging the adoption of e-business in micro and small companies, promoting ICT infrastructure and e-integrated business processes and encouraging innovation and research and development in e-tourism, would seem most promising. Measures should also be taken against market concentration, particularly for the online booking business. Promotion of the **Europe brand** is being strongly supported using the European wide portal, visiteurope.com.

Regarding **energy and environment policies and initiatives**, the European Commission has already pointed out that ensuring the economic, social and environmental sustainability of European tourism is crucial, both as a contribution to sustainable development in Europe and world-wide and for the viability, continued growth, competitiveness and commercial success of this economically-important sector. As a result the Commission launched the preparation of a European *Agenda 21* for tourism and set up in 2004 the Tourism Sustainability Group (TSG) in order to encourage stakeholder synergies and to provide input into the Agenda 21 process for the sustainability of European tourism.

A series of specific initiatives, European and world wide are then described which document intervention of the major stakeholders for innovation promotion in tourism industry, in the three technological areas chosen by TOUREG. These include

the European Destinations of Excellence (EDEN), the FutureHotel, the Finish R&D program for Research and Development Programme for Leisure Services, the EUREKA Tourism project and initiative, the 6S Hotel project under EUREKA, the Learning Areas initiative for tourism, the Tourism for Tomorrow Awards, and the projects for energy and environment supported by World Tourism and Travel Council.

The above analysis gives all necessary information and ingredients for performing a SWOT analysis for European industry, which is presented in the conclusions of this report.

The second part of this report presents executive summaries of the five Regional reports for tourism in the Regions of the Isles Baleares, Spain, of south-west Oltenia- Mehedinti County, Romania, sout-west Bulgaria, Madeira, Portugal, and Crete, Greece. It presents the analysis on the current state of tourism in each Region, the SWOT analysis prepared by the partners of TOUREG and proposed action plans for making tourism in each Region more competitive.

A synthesis of the SWOT analysis was then attempted and presented which combines the strengths, the weaknesses, the opportunities and the threats, that are all common to the five Regions.

2. Introduction

Tourism is one of the biggest and fastest growing industries in the world. According to the World Tourism Organization (UNWTO), in 2008, international tourist arrivals reached 924 million. By the year 2010 international arrivals worldwide are expected to reach 1 billion. If domestic tourists are added to the above figure, total tourist arrivals can well be over 3 billion. UNWTO's *Tourism 2020 Vision* forecasts that international arrivals are expected to reach nearly 1.6 billion by the year 2020. According to the World Travel & Tourism Council (WTTC), tourism and related activities are estimated to generate some 9.6% of the world's Gross Domestic Product (GDP), while the tourism sector is the largest employer, accounting for some 225 million jobs or 10.7% of the global labour force (WTTC, 2008).The benefits of tourism, mainly economic, have been enormous, especially for developing and poor countries that have limited sources of foreign currency. Nevertheless, with the non-considerate development of the tourism industry a lot of negative impacts have arisen, causing environmental and cultural deterioration and requiring concrete sustainable measures and policies to counteract and reverse the unfavorable situation.

The tourism sector in the modern globalized, competitive and fast changing world is exposed to challenges that have to be addressed through a series of measures taken both by the public sector and the individual enterprises. The recent all pervasive economic crisis has spread rapidly all over the world and has adversely affected tourism; more specifically it has resulted in a decline of the tourist flows – both international and domestic–, of employment and tourist spending. The negative economic impacts noted above are more serious in countries and regions that are more dependent on incoming tourism.

The regions that are included in the present report are among the most touristic developed in Europe. To effectively address the negative effects of the economic depression on the tourism sector in each region of the present report, an objective evaluation of their strengths, weaknesses, opportunities and threats has been contacted by each participating institution. This document contains summaries of the regional tourism reports prepared by the participating institutions.

The main part of the report analyses the current status of the tourism sector. More specifically, after a brief overview of the historic evolution of travel and tourism from the beginning, in ancient times, till today, global trends in tourism supply and

demand are described; tourism flows and concentrations both geographical and seasonal are given the necessary emphasis.

The advances in Information and Communication Technologies (ICT), Energy and Environmental Technological and Innovation trends are examined in detail with cases studies of their applications to the tourism industry.

Thessaloniki, October 2009

3. A brief history of tourism

The concept of travel and tourism is as old as civilisation itself. An overview of tourism's historical development is required in order to fully appreciate today's modern tourism environment and to understand the challenges of the globalized economy. Most historians of tourism have tended to focus on Europe, from the Greeks and Romans, to the railway and Thomas Cook in the UK. However, it is important to recognise that tourism has existed in other regions of the World for centuries.

The history of tourism cannot be easily traced; back in the ancient years, as ancient world empires grew in Africa, Asia and the Middle East, the infrastructure necessary for travel such as land routes and water ways was created and vehicles and other means for travel were developed. During the Egyptian dynasties, travel for both business and pleasure began to flourish, and hospitality centres were built along major routes and in the cities to accommodate travellers travelling between central government posts and outlying territories (Coltman, 1989). At the height of the Assyrian empire, the means of travel were improved, the roads were improved, and markers were established to indicate distances and directions (Gee et al, 1997). Later, the Persians made further improvement to the road systems and developed four-wheeled carriages for transportation.

It is often thought that the beginnings of tourism date back to ancient Greece and Rome because we have evidence of tourism, from these eras, in terms of travel and tourism writing, for example. The earliest recorded tourism in Greece tended to be specialist in nature and related to religious practice; people visited religious festivals and consulted oracles (Swarbrooke and Horner, 1999). They also attended sporting events like the Olympic Games which began in BC 776, but even these had a religious significance.

The early Greeks advanced tourism developments in two particular areas. First, through the development of a coin currency, replacing the need for travellers to carry goods to barter at their final destination for other goods and services. Secondly, the Greek language spread throughout the Mediterranean area, making it easier to communicate as one travelled.

At the height of the Roman Empire, the ruling patrician class enjoyed their leisure during the periods of relative peace. Like the Greeks before them, they observed their own athletic and religious events and travelled to these cities. Sightseeing was also popular with the wealthy Romans; their most popular choice of

tourism destination was Greece! Romans also toured Egypt to see the Sphinx and the Pyramids. Alexandria was a cosmopolitan oasis for Roman aristocracy, since many nationalities were represented there including Egyptians, Greeks, Jews, Ethiopians, Indians, and Syrians. In addition, the Romans developed extensively the concept of *spa therapy* and bequeathed it to the rest of the world. Until the 17th century, spa therapy was combined with relaxation, entertainment and the development of pleasant social activities. However, the spa therapy, although a form of tourism, had very few conceptual and practical similarities with what denote today the words holidays and tourism.

Thomas Cook has been the so called "father of the tourist trade", since, on July 5th 1841, he arranged to take a group of about 500 members of his local "Temperance Society" from Leicester London Road railway station to a rally in Loughborough, eleven miles away, having arranged with the rail company to charge one shilling per person that included rail tickets and food for this train journey. When industrialization across Europe gave rise to an affluent middle class with an increasing amount of free time, tourism began to take shape as an international industry. However, for the most part of the 19th century it has been expensive and limited to a small number of destinations. When in the 1960's a growing number of people had disposable incomes and the desire for "something new", reasonably priced commercial aircrafts airplanes made international travel easier; mass tourism had arrived.

4. The economic evolution of tourism

4.1 The Fordist concept

Up until the mid-70s, in Western Europe and North America, the dominant model of economic and social organisation was one of more or less distinct features: that which some analysts call "fordist capitalism" (Pelagidis, 1998). The spatial expression of the term is associated with the concentrative tendencies of the great industrial units in the urban centres of the capitalistically developed countries[3].

The labour framework in question relies on a narrow spectrum of specialisation, the standardisation of the object of labour, allowing the production of

[3] It is the so-called urbanisation phase, which lasts from the time of the industrial revolution until the first two post-war decades. The driving forces of population and activity concentration in the big cities are the external economies of scale that the industry appreciates as a dominant form of economic activity (Petrakos, 1998).

goods and services in great quantities and lines, which will nevertheless be characterised by small variety and great standardisation. Hence, during the period of the fordism model of development, a new social prototype was created and its main components were mass consumption of standardised products, supply of standardised goods and services, reduction of unemployment, as well as the labour model of full-time/ typical employment.

Not being an exception, tourism in the second half of the 20th century developed within the context of Fordism, producing standardised products- mainly holiday packages- placing no emphasis on quality, essentially establishing the model of "mass production" that operated at the rate of the "conveyor belts", meaning the production process was strictly specified at both levels of travel package creation and service supply.

The aforementioned "organisation" elements of "fordist development" started fading or even reversing in the last quarter of the 20th century, under pressure from the following important factors.

Endogenous factors:

- The inflexibility and inability of the general, and, consequently, of the tourism system –a natural inclination towards the uniform and standardised market– to meet the requirements of unstable demand, signified a break with the standardised mass production.
- The transformation of the technological base that has as a direct consequence the decline of the model whose major parameter for the viability and the dynamism of a business is "size".

Extraneous factors:

- The internationalisation of the economic system which intensified competition while at the same time reduced the potential national governments have to influence their economies with the usual economic instruments.
- The introduction of new technologies and the parallel support of innovation in small and medium businesses.
- The shift in the pattern of consumerist behaviour. The search for distinctiveness and uniqueness conflicted with the standardisation and the production of identical goods and services.
- The burdening of the social, environmental and economic resources mostly because of the intensity of production.

4.2 Post- Fordism

Under the influence of the above-mentioned endogenous and extraneous organisational factors of fordist development, the trend for developing a new model was established, a model whose theoretical basis is the questioning of the mass production dynamic and the effort to set innovative business principles for the establishment of a new wave of economic welfare. This model was named postfordism and was heavily promoted during the 1980's by political economy scientists in their effort to explain the dynamics of the reformation of production and consumption.

In the vein of cooperation and flexibility of the specialisation of the already globalised small and medium businesses, which tend to be of no great size, but multi-divided and flexible, Schumpeter (1934, 1939) highlights through his theory of "creative destruction" the importance of technology in the facilitation of the transition to the "new age", thus shaping the new infrastructures. For this information technology and telecommunications are of great significance, since they are sectors that created a chain of consequences (Urry, 1990), making the tourist product more flexible through customisation and complete specialisation. In the same way, the transition to the post-fordist era of tourist development goes together with the transition from mass tourism to the development of non-mass forms of tourist activity (Green and Chalip, 1998) on the one hand and to the creation of a new type of independent consumer on the other hand (Free and Independent Travellers-FITs) (see Lew 1998).

This tendency of tourists to view themselves as excursionists-travellers, led to the emergence of specialised tourist agencies that promote a type of mild tourism which encourages a greater accountability and sensitivity towards the needs of local reception communities on the tourists' part (Kelly, 1997). Modern tourism is no longer a heavy industry, but rather a small industry of experiences and impressions, since it now follows the logic according to which the phenomenon transcends the status of simple commodity (which includes goods and services) and becomes a complex product (always commercial) whose main peak component is personalised experience (see Christou et.al 2008, Skayannis and Stamboulis, 2000).

The above show that the determinative factors in tourism, whether we are talking about the product or the producers, the consumer or even the location, undergo significant transformations. Meethan (1998) notes that in the age of "meta-tourism", the traditional tourist destinations should either be restructured or face decline, according to Butler's (1980) concept of life cycle evolution of a tourist area.

Naturally, tourism, as a multidimensional phenomenon, affects and is affected in its turn by the environment, since, in the context of the product's massiveness, additional population numbers live for specific periods of time in places where the natural wealth and the technical facilities with respect to infrastructure are not enough to support the extra burden, thus violating the principles of viability as defined by a number of researchers, such as Coccosis, Farsari, Spilanis and others. The question, posed by the researchers themselves, is how the development of tourism may be planned so that viability is achieved, meaning in a way that the socio-cultural and natural environment is affected as little as possible and has the ability to regenerate itself. These reasons make the planning a far more important and complex issue than it has been until now. The planning of tourism is based on broader infrastructures and it should be a constant, flexible and partial, step by step, process. The partial development of tourism, "stresses the gradual application of recommendations (instructions) for the planning, the constant observation of tourist development and the flexibility in the adjustment of the planning" (Timothy, 1998: 72).

5. Destination's stakeholders and their directions

Since the necessity of new infrastructures has been established, we also have to determine their operational and implementation framework at a specific destination. For this reason, it would be wise to specify: a) the role and the expectations of the tourism producers and b) the essence and status of the destination's administration and promotion organisation. Stakeholders are defined as groups or individuals that have specific interests in an organisation's actions and the ability to affect it. The World Tourism Organization identifies as stakeholders the private citizens, the local community and the government. According to Spilanis (2000), the modern international structure of the tourist phenomenon has created three main groups of stakeholders who are going in different directions, but don't necessarily have conflicting interests. The first and primary group is the government. The organised central administration participates in the formation of the phenomenon even locally, lending stability, financing infrastructure works, supporting investing etc., having as a final goal the inflow of incomings through taxation and the attainment of stability, affluence and social peace. The second group is the one that expresses itself mainly through the local self-government whose main concern is the improvement-preservation of the environmental appeal of the destination, aiming not only at the improvement of the citizens' daily lives, but, also, at the attraction of investors, and the increase of the number of job positions within the narrow limits of

the destination, securing social peace, affluence, incomings and, lastly, the destination's viability. The third group of stakeholders is the private enterprise that aims to increase the profits and for which the social and environmental viability may be second priority.

The activity categories that form the relations of the tourism commissions can be placed in the following five categories:

- *the economic network and its viability,*
- *the qualitative characteristics of the local population,*
- *the natural and man-made environment,*
- *the infrastructure system,* which includes the infrastructures that affect a district's appeal and function both economically (for the attraction of production units, such as transportation, communication and energy infrastructures) and socially (for example, health, educational, cultural and recreational infrastructures),
- *the "developmental climate" or the "ambient conditions",* which includes all the elements that affect the district's developmental dynamic, such as developmental institutions, the cultural level, enterprise, the level of technology and innovations and the inclination to integrate into the production process, the beliefs, the expectations and the intensions of the local manpower concerning the content of the developmental conditions and the quality of life etc.

From the above, it is obvious that in all the stages of design and materialisation of the developmental plan, within the framework of a destination, there is a great need for quantitative and qualitative information. This information concerns the *past,* so that the current condition of the destination can be properly analysed. It also concerns the *present,* in order to be aware of the existent state in the immediate competitive environment and by extension to be able to place the destination in this environment. Finally it concerns the *future*, so that there is on the one hand a correct evaluation of the results of the strategies and the necessary correctional interventions and on the other hand, the possibility of predicting oncoming changes. The latter helps the destination to be able to foresee oncoming changes and react sooner than the competitors, securing a strategic advantage.

This means that the gathering and processing of information in dynamic form (web 2.0, semantic web etc.) is necessary, concerning both the *extraneous* and *endogenous* factors that affect the district's course. It has to be stressed that, in

contrast to the endogenous factors, a destination can neither ignore nor avoid the extraneous ones.

6. The global tourism and hospitality industry

Tourism has become, nowadays, one of the largest industries in the world. In 1984, international tourist arrivals were above 300 million and the total value of the global tourism industry was above $100 billion for first time. Twenty two years later, in 2006, the sector generated 10.3 percent of World Gross Domestic Product (GDP), providing 234 million jobs, or 8.2 percent of total world employment (UNWTO 2007). According to the World Travel and Tourism Council (WTTC 2009) in 2008 the gross product of international tourism reached $7.5 trillion, the capital investment for tourism was $682 billion and tax revenues were close to $503 billion. After four years of growth averaging at 3.6% pa, Tourism and Travel (T&T) Economy GDP growth slowed to just 1.0% in 2008, its weakest performance since the recessionary period. Two difficult years are now in prospect, with T&T Economy GDP likely to contract by 3.3% in 2009 and to expand by only 0.3% in 2010. But, looking beyond the current crisis, Travel & Tourism is expected to resume its leading, dynamic role in global growth (WTTC 2009).

Table 1: **W.T.O Tourism Vision 2020 (international arrivals)**

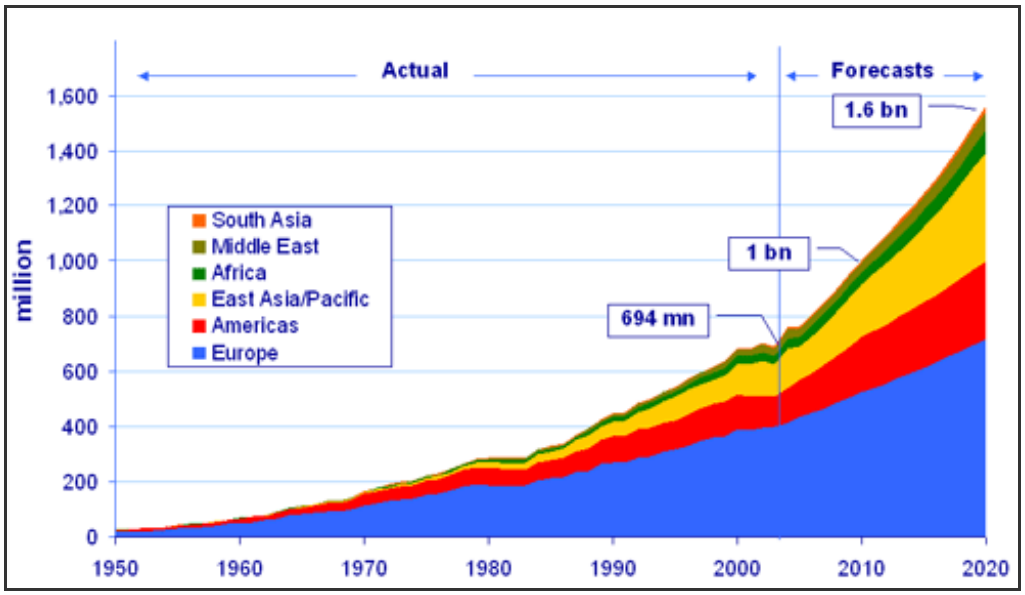
	Base Year 1995	**Forecasts** **2010** **2020**		**Market Share %**		**Average annual growth rate (%)**
	(Million)			**1995**	**2020**	**1995 - 2020**
World	565	1006	1561	100	100	4.1
Africa	20	47	77	3.6	5.0	5.5
Americas	110	190	282	19.3	18.1	3.8
East Asia & the Pacific	81	195	397	14.4	25.4	6.5
Europe	336	527	717	59.8	45.9	3.1
Middle East	14	36	69	2.2	4.4	6.7
South Asia	4	11	19	0.7	1.2	6.2

Source: WTO 2001a, 2001b

The World Tourism Organisation (2009) has estimated an average annual increase in global tourism of 4.1% during the 00s; from 2000 - 2020 the average annual increase was estimated between 3.1 – 6.5%, while estimates for the period 2010 - 2020 show an average increase of 5.0% p.a. (Table 1). According to these estimates, the number of international tourists will double in less than twenty years from now.

The total tourist arrivals by region shows that by 2020 the top three receiving regions will be Europe (717 million tourists), East Asia and the Pacific (397 million) and the Americas (282 million), followed by Africa, the Middle East and South Asia (Figure 1). The vast majority of tourist movement (83.2% of all international tourist arrivals in 2008) takes place in Europe and North America (WTO 2008). The countries that generate tourists, known as "generating countries", must be distinguished from those that receive tourism, known as "destination countries". The leading tourism generating countries include USA, Britain, Germany, France, Canada and Japan, which contribute almost half of the global tourism revenue (WTO, 2008). In Europe, the main generating countries are those in the North of the continent while the main destination countries are in Southern Europe at the Mediterranean basin (Greece, Spain, Portugal, Italy, and France).

Figure 1: W.T.O Tourism Vision 2020 (international arrivals)



Source: WTO 2001a, 2001b

The role played by tourism in the economic development of a nation is very important (Figure 2). Many countries turn to tourism as a means of improving their balance of payments, attracting foreign investment and solving their unemployment

problems. In addition to direct income and employment generated by tourism, there is also the tourism income multiplier effect (Fletcher and Archer, 1991). This means that in order to measure the total economic impact of tourism on a country one must account not only for the direct receivers of the tourists' money but also of the indirect receivers: farmers and factories who supply food and drinks to hotels and restaurants; suppliers and manufacturers of industrial equipment (i.e. furniture, kitchen equipment, etc.); retail stores, banks, and the many other organisations or individuals who benefit by the development of tourism. Particular attention must be paid to the fact that tourism is a labour intensive industry requiring considerably large numbers of capable, well-trained employees.

Figure 2 : Tourism Vision 2020 (international arrivals)

Source: WTO (2008)

As the Chinese Academy of International Trade and Economic Cooperation (2008) points out, the increase in commercial services exports in 2007 was markedly faster than in the preceding year and somewhat faster than that of merchandise trade. In the last 4 years, commercial services trade growth has been lower than merchandise trade. The acceleration in services exports could be observed in all major regions and in all three services categories. Much of this acceleration is due to exchange rate movements and in some cases also to higher costs of transportation fuels. It can be assumed that exchange rate changes played a stronger role in the dollar value change of services trade than in merchandise trade, as Europe accounts for a larger share of services than merchandise exports, and Euro appreciated apparently to dollar in 2007.

Table 2:

World exports of commercial services trade by major category, 2000-07

	Value ($ bn)	Annual percentage change (%)			
	2007	**2000-07**	**2005**	**2006**	**2007**
Commercial services	3260	12	12	12	18
Transport	742	11	13	9	18
Travel	862	9	7	9	14
Other commercial services	1653	14	14	15	19

Source: Chinese Academy of International Trade and Economic Cooperation 2008 from WTO Secretariat.

Transportation, travel and "other commercial services" (including communication services, construction services, insurance, financial services, computer and information services, exclusive rights to use and licensing, consulting, accounting, legal and advertising services, recreational, cultural and sporting services, etc) are the three most important broad commercial services categories (Table 2). In 2007, other commercial services expanded by 19% to $1.65 trillion, again faster than transportation and travel. Higher fuels cost contributed to the relatively sharp rise of 18% in the dollar value of transportation services, and travel services export rose by 14%. Between 2000 and 2007, other commercial services achieved an average annual growth rate of 14%, higher than transport services of 11% and travel services of 9%. Other commercial services expanded more than transportation and travel, mainly owing to world merchandise trade increase and much higher cost of transportation. The differences of growth rate lead to a change of commercial services exports overall structure. The proportion of transport, travel and other commercial services in the total exports of commercial services is 22.8%, 26.5% and 50.7% respectively (Chinese Academy of International Trade and Economic Cooperation, 2008).

According to the World Travel and Tourism Council (2009): a) The contribution of Travel & Tourism to Gross Domestic Product (GDP) is expected to rise from 9.4% (US$5,474 bn) in 2009 to 9.5% (US$10,478 bn) by 2019, b) The

contribution of the Travel & Tourism economy to total employment is expected to rise from 219,810,000 jobs in 2009, 7.6% of total employment, or 1 in every 13.1 jobs to 275,688,000 jobs, 8.4% of total employment or 1 in every 11.8 jobs by 2019, c) real GDP growth for the Travel & Tourism economy is expected to be -3.5% in 2009, down from 1.0% in 2008, but to average 4.0% per annum over the coming 10 years and d) export earnings from international visitors and tourism goods are expected to generate 10.9% of total exports (US$1,980 bn) in 2009, growing (in nominal terms) to US$4,132 bn (9.8% of the total) in 2019.

According to WTTC'S TSA research covering 176 countries world wide[4], the USA continues to maintain pole position as the largest travel & tourism economy in the world, with a total demand of more than US$1,747.5 billion forecast for 2008, rising to US$3,078.3 billion in 2018 (Table 3). China has climbed two places into second position, having overtaken Japan and Germany. Travel & Tourism employment is lead by China (Table 4). Moreover, China is forecast to grow its Travel & Tourism Demand four-fold by 2018, to US$2,465 billion, thanks to an annual growth rate averaging 8.9%, although it will still lag behind the USA in absolute volume (Table 5). Over the next ten years, the picture will change somewhat as emerging tourism markets start to reap greater benefits from their investment in Travel & Tourism development. While the USA, China, Japan and Germany will retain their current top four slots in terms of total Travel & Tourism Demand (in absolute terms), India will be the world's number one in terms of annual growth in Travel & Tourism Demand between 2008 and 2018, averaging 9.4% per annum – ahead of China, Libya, Vietnam and Montenegro.

Table 3 Countries expected to generate the largest volume of Travel & Tourism Demand (TTD) in 2008

		TTD, 2008 (US$ bn)
1	USA	1,747.5
2	China	592.0
3	Japan	514.3
4	Germany	505.7
5	France	418.8
6	UK	403.7
7	Spain	338.2
8	Italy	302.9
9	Canada	231.4
10	Mexico	157.6

[4] World Travel and Tourism Council (WTTC), 2008. Progress and priorities 2008/09.

Table 4. Countries expected to generate largest amount (in absolute terms) of Travel & Tourism Economy Employment

		T&T Economy Employment, 2008 ('000 jobs)
1	China	74,498
2	India	30,491
3	USA	14,933
4	Japan	6,833
5	Mexico	6,633
6	Indonesia	5,936
7	Brazil	5,500
8	Vietnam	4,891
9	Russia	4,126
10	Thailand	3,911

Table 5. Countries expected to grow their Travel & Tourism Demand most rapidly between 2008 and 2018

		T&T Demand, 2008-18 (% annualised real growth)
1	India	9.4
2	China	8.9
3	Libya	8.1
4	Vietnam	8.1
5	Montenegro	7.4
6	Romania	7.1
7	Macau	7.1
8	Namibia	6.9
9	Croatia	6.9
10	Czech Republic	6.8

The hospitality industry forms a major part of the tourism industry. The hospitality industry consists of a number of major sub-sectors and ancillary activities:

- Accommodation: Hotels and motels; self-catering accommodation; health farms; camping sites and caravan parks; holiday camps; timeshare; and, ferries/cruise liners.
- Catering: Restaurants; cafes; bars and clubs; fast food; speciality and outdoor activities; contract catering; and, transport catering (airports, airlines, trains, etc.).
- Entertainment
- Attractions (i.e. theme parks).
- Business hospitality: conferences; conventions; and, exhibitions.

From all the above it is fair to suggest that hospitality is mainly concerned with accommodation and catering services including related activities. The hospitality industry has been expanding rapidly during the last four decades. Since the Second World War the industry started to become truly internationalized with the development of global hotel and catering chains. In 1995, there were approximately 10.5 million rooms in hotels and other various accommodation establishments throughout the world; 50% of these were located in Europe and North America (WTO, 1996). An increasingly large number of hotels are owned by large chains. Experts in the industry believe that soon the hospitality industry will be dominated by a small number of global "mega chains".

In Europe, most recent data show that approximately 340,000 companies operate in the accommodation and travel organisation sectors, which provided jobs for nearly 2.8 million people in 20062. This equates to 1.2% of total employment in the EU-27[5] and a total turnover of €290 billion. With more than 90% of the companies concerned employing fewer than 10 people, "micro-enterprises" form the backbone of the industry.

7. Geographical tourism flows and seasonal concentration

The international tourism activity is characterized by the people's locomotion among countries, originating from a social phenomenon extremely related to the economic factor (Cruz & Rolim, 2005). According to the WTO (2003) the international tourism flow reached approximately 702.6 million people. In 2007, international tourist arrivals grew by an estimated 6% to reach a new record figure of more than 900 million, nearly 52 million more arrivals than in 2006, whilst just two years ago, in 2005, they have reached 800 million (WTO, 2008). This growth comes as a result of a series of factors identified by the IPK International – World Travel Monitor Company in 2006:

- Increasing affluence during the years till 2009
- Rapidly spreading low cost offers around the world
- Asian and African newcomers, still wanting to discover the world and having a backlog demand for international travel

[5] ECORYS SCS Group, 2009. Study on the Competitiveness of the EU tourism industry - with specific focus on the accommodation and tour operator & travel agent industries, Contract of Sectoral Competitiveness Studies – ENTR/06/054

Amongst the other aspects of travel and tourism industry, namely perishability, independence, seasonality and high fixed costs, inseparability is the key factor leading to this enormous number of tourist arrivals. Inseparability means that the act of production and consumption is simultaneous – the performance of the service requires the active participation of the producer and the consumer together (Middleton, 1997) in time and place. Tourism product production presents the need of the consumer's locomotion to the place where the goods and tourist services are being presented, thus, differentiating it from the other lines of international trade, which happen through the locomotion of the goods and not of the consumers (Cruz & Rolim, 2005).

7.1 Geographical tourism flows

Fixed in time and place, tourism activity gives birth to both spatial and seasonal concentrations. This fact allows tourism stakeholders and scholars to identify certain tourism flows in geographical terms and place them on the global map. Research has proven that such tourism flows of great importance exist between Europe and the Americas (especially N. America) and vice versa, between Europe and Far East and vice versa and finally between both Europe and N. America and Africa (Figure 3).

The World Tourism Organization forecasts that international arrivals will be up to 1.6 billion in the year 2020 and travelers will spend over US$2 trillion, making tourism the world’s leading industry. These projections are based on annual growth rates of 4.3% for arrivals and 6.7% for spending, well above the maximum expected expansion of 3% per year in world GDP (UNESCO, The Courier, 1999). Furthermore, tourism flows will expand concerning destination areas and grow concerning the number of tourists.

Despite the high importance of tourism activity’s contribution to GDP growth, employment, tribute and exchange revenue, we cannot oversee the fact tourism development have resulted different outcomes around the world (Cruz & Rolim, 2005). The main tourism flows move from developed countries (origin) to other developed countries (destination) or areas around them. The tourism flow between Europe and N. America is such an example.

Some factors have been identified to contribute to this phenomenon. The main factors are:

- The geographical proximity between these areas allowing low travelling costs and less time spent in transportation
- The high quality of tourism services provided in these areas
- Accessibility options regarding both means of transportation and distribution channels
- Favorable destination conditions resembling the friendly and safe environment of tourists' origin
- Tourism product diversification allowing tourist to choose from a wide range of tourism services and goods within the same destination
- Numerous tourism attractions – such as sights or events – accessible in the developed countries of N. America and Europe.

These factors tend to restrict participation of the developing countries in the international tourism flow. As a result, the economic benefits deriving from tourism activity are concentrated in the advanced economies, usually allocated in North America and West Europe, with some exceptions, such as Asia and Oceania.

Although Europe and N. America represent less than 1/3 of the world's territory they share more that 60% of the global arrivals (Figure 4) (WTO, 2009). On the other hand, South America, Africa and South Asia received less than 7% of the international tourists and approximately 10% of the tourist revenue in the year 2000 (WTO, 2003). Furthermore, nine countries – amongst the top fifteen as origins and destinations – share approximately 50% of the expenses and tourism revenues generated by the international tourism flow: USA, Germany, United Kingdom, France, Italy, China, Canada, Austria and Switzerland (Cruz & Rolim, 2005).

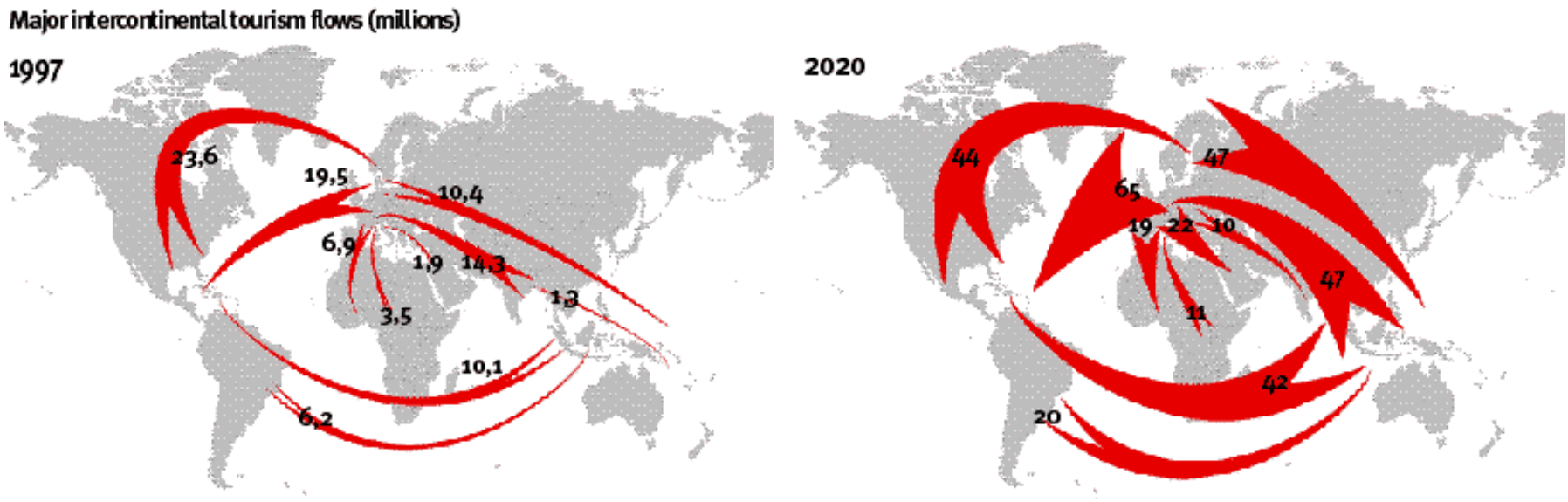
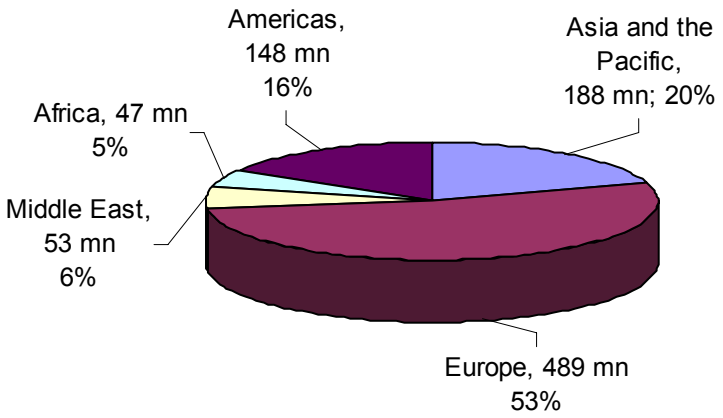


Figure 3

Map Indicating the Intercontinental Tourism Flows (in millions) through the years from 1997 till 2020* (*prevision)

Figure acquired from the UNESCO Courier, July / August 1999

Figure 4: World inbound tourism - International tourist arrivals, 2008



Source: WTO, 2009

Nevertheless, the European Travel Commission (2006) estimates that financial globalization will give more space for new destinations to develop because:

- There will be a more competitive global tourism environment, with tourists looking for more economical travel experiences, searching through the Internet for such, and companies ready to provide them a wide range of options.
- Rising economies will seek for their place on the global tourism map and they will invest on their promotion, tourism infrastructure and destination development.
- Younger people's values and travel expectations will be influenced by the growth in globalization. As a result, several unknown and remote destinations will be discovered and developed.

7.2 Tourism seasonal concentration

As mentioned before, tourism activity gives birth to both spatial and seasonal concentrations. Based on the intensity or quality of tourism, the concept of seasonal concentration or "seasonality" describes the unevenness or fluctuation during the course of a year, with the 'season' including (at least one) peak period (Bender et al, 2005). According to Bar-On (1975) seasonality in tourism is caused by two basic elements, one "natural" and one "institutionalized". The natural aspect of seasonality is related with natural phenomena such us rainfall, sunlight, temperature etc. and the seasons of the year, while the institutionalized element refers to social factors and policies concerning specific customs and legislated vacations (Bender et al., 2005).

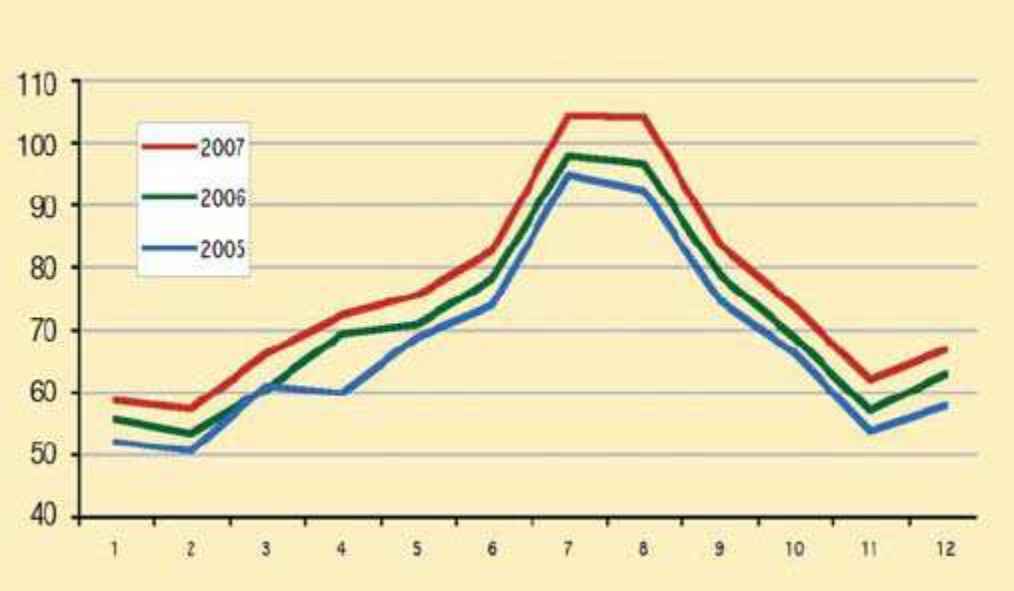
The great importance of seasonality as a fact for tourism is that utilization of tourism infrastructure, financial activity and employment in a destination are affected dramatically by its fluctuation (Bender et al., 2005). Seasonality especially affects the private supply of tourism products and employment (Baum, 1999). Physical capital is also under-used in the low/off-season, thereby lowering productivity rates. Moreover, attracting investment is also difficult if the business operative season is short and there are major periods of closure or reduced operations (Baum & Lundtorp, 2001). Seasonality can also entail other negative impacts, such as possible environmental damage and saturation problems in the peak period that potentially create problems in the provision of basic goods such as potable water. Adverse effects on employment, short-term temporary migration, or problems maintaining service quality have also been identified as results of tourism seasonality (Ashworth and Thomas, 1999; Krakover, 2000).

According to WTO (2008, Figure 5) International inbound tourism has its main peak season in the summer – July and August. Figure 6 shows the high peak seasons in the USA: March, July and August. In Europe, with the exception of ski resorts, June and July are the peak of high season. Strong seasonality is an important feature of tourism especially in the Mediterranean basin, where, as the *Barcelona Field Studies Centre* indicates, most tourists travel during August and no less than 40% of all arrivals are registered in the peak months of July, August and September. Such a strong seasonality dictated by the weather, gives rise to two problems:

1. The need to optimise the use of the tourism infrastructure such as roads to accommodate high flows during the summer, and to redistribute tourist flows to reduce the risk of high unemployment during the rest of the year.
2. From an environmental perspective, during the hot and dry months, both domestic and international tourism are heavily dependent on water resources, and this pressure may cause depletion of the resource base.

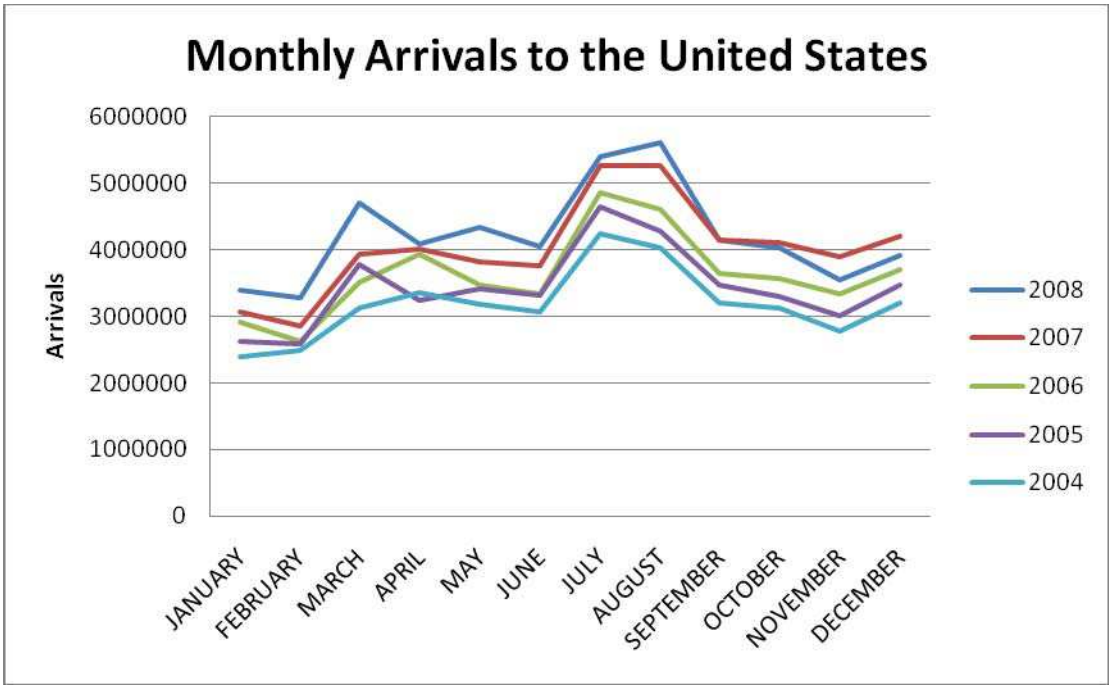
Figure 5: Inbound tourism by month

International tourist arrivals (million)



Source: World Tourism Organization 2008

Figure 6



Data acquired from the ITA – Office of Travel and Tourism Industries, USA.

Butler (2001) identifies public holidays as one of the most common forms of institutionalized seasonality that affects tourism. These are found in almost all

countries and usually are based on one of, or a combination of, religious holy days, days of pagan significance, celebration of specific events and the occurrence of natural features, e.g. solstices. Butler (2001) also argues that the most significant elements of institutionalized seasonality are school and industrial holidays. Two certain reasons can be pinpointed to this fact:

- School holidays were and remain one of the few periods of the year when the entire family can take vacations together without concern of children being absent from school.
- School holidays' institutionalisation took place early in the western industrial countries, about the same time as legislation for paid vacations for workers. This timing allowed solid travel behavior to be adopted by tourists with children. This behavior expanded to tourists without children because not only school but industrial holidays too were scheduled to take place during summer and given the fact that western countries still remain the main outgoing tourism areas, most of the tourists seem to follow this pattern.

8. Tourism demand trends

While the mass tourism market remains fundamental to the growth of many destinations, the new challenge for the decision makers of the tourism sector nowadays seems to be the choice between supporting the conventional mass tourism activities or creating the conditions for the development of a new local tourism supply (Conti and Perelli, n.d.:17). The multi-motivational nature of holiday decision-making combined with the fact that tourists become more and more sophisticated, seeking increasingly for tourist products that fulfil their particular needs, has increased competition between destinations, fuelling the need to target particular special interest visitors.

An important way of viewing travel markets is to distinguish their dynamics. Markets change over time so it is vital that tourism developers are continuously kept up to date on trends (Gunn, 1997). Mass tourism (70% of market share today) grew rapidly in the 60's and 70's mainly as a result of improvements in technology and transports and of increased disposable incomes. It was centered in North American and Western European destinations, and some island destinations such as the Caribbean. At this point we should make clear that mass tourism indicates the way the activity is organized and should be considered as a mode of organization of "conventional tourism", where the term is used in order to highlight the importance of the market, the pricing of resources used as inputs, and a lack of regard for the

environment except insofar as it relates to the tourism product, and of various externalities (Vagianni and Spilanis 2004).

Mass tourism was –and still is– dominated by Tour Operators offering low cost, standardised package tours, mainly to destinations ideal for “Sea, Sun, Sand” vacations (3S tourism). Amazingly enough, a very recent study for tourists in Crete has shown that 85% of the tourists come here for the 3Ss (Matsatsinis, 2009). According to the *Enterprise Development Impact Assessment Information Service* (EDIAIS) of Manchester University (n.d.:7): “This product has been characterised by local income revenues being concentrated in densely packed tourist destinations that employ migrant labour from the hinterland and abroad. Local skills capacity remains low, with more skilled, management jobs often being carried out by ex patriots”. During the 80’s the dominant tendency has been the extension of the tourism season through the creation of new tourism products without a break with the traditional tourism supply (Conti and Perelli, n.d.:1).

However, tourism consumption patterns do change and according to the *World Tourism Organization* (1985, cited in Hall and Weiler, 1992:1), tourism demand trends since the mid-80’s reflect the increasing diversity of interests of the late-modern leisure society with the emergence of Special Interest Tourism (SIT) revealing the new values which include ‘‘increased importance of outdoor activities, awareness of ecological problems, educational advances, aesthetic judgement and improvement of self and society’’. Nevertheless, this ‘‘quest for self-improvement’’ and ‘‘concern for society’’ have been questioned by a variety of researchers (see Trauer 2006: 184-185).

Table 6: Different forms and states of tourism activities

Approach	Conventional tourism	New forms of tourism
Forms of tourism	▪ Sun, sea and sand tourism (3S)	Alternative forms of tourism ▪ Agrotourism ▪ Ecotourism ▪ Cultural ▪ Trekking ▪ Nature
	▪ Mountain (winter) tourism	Special Interest tourism ▪ Conference ▪ Business trips ▪ Maritime ▪ Religious ▪ Health/spa ▪ Educational ▪ Sport ▪ Adventure
Mode of organisation	▪ Mass tourism ▪ Individuals ▪ Social tourism ▪ Second residence	▪ Small groups of tourists ▪ Individuals ▪ Social tourism
Tourist behaviour	▪ Indifference ▪ High consumption (depletion of resources)	▪ Responsibility ▪ Use of resources (not consumption)
State of tourism activity	Not sustainable tourism	▪ Green tourism ▪ Economically sustainable tourism ▪ Sustainable tourism

Source: Vagianni and Spilanis (2004)

Douglas et al (2001:3) define SIT as "the provision of customised leisure and recreational experiences driven by the specific interests of individuals and groups". Accordingly, some visitors are attracted to a destination primarily for customised special interest experiences, such as education, sport, environment, food and wine or even business experiences. These special interest visitors are often referred to as niche markets, meaning typically small, yet profitable groups of consumers. Main examples of SIT includes cultural and heritage tourism, rural tourism, educational tourism, sport tourism, spa and health/wellness tourism, environmental tourism, agrotourism, wine & food tourism, urban tourism et. al (Table 6). However, special interest forms of tourism do not necessarily mean alternative as well. "Special" and "alternative" forms of tourism are both "new" (Varvaresos, 1998: 76) but special forms are defined by the special motives that induce travel, while alternative forms of

tourism are related to the way the travel is organised (relative autonomy) and to the tourists' willingness to learn about the host area and to consume environmentally friendly products (Vagianni and Spilanis 2004).

From this perspective, tourism activity can be divided into two major categories: conventional tourism and new forms of tourism (SIT and alternative), that may be either economically viable or environmentally friendly or both (Table 6). According to Unesco (2002), learning about the impacts of tourism has led many people to seek more responsible holidays including various forms of alternative tourism related to sustainable tourism development (Swarbrooke, 1999:14), as a process for the improvement of the economic, social and environmental tourism performance.

Tourism literature has developed a large number of demand typologies, many of those have been proposed to sub-divide tourists into homogenous groups. Having studied a variety of typologies, Coccossis and Konstantoglou (2006:10) have figured out three major types of tourists that have distinct characteristics as follows in Table 7.

Table 7: General model of demand typologies

Type	Destination preferred	Life cycle stage	Impacts intention	Contact with the local community
Lonely travelers	Pioneer resort	Exploration	Small	High
Tourists travelling in small groups	Popular	Initial stages of tourism growth	Medium	Medium
Mass tourists	Famous	Stagnation	High	Small

Source: Coccossis and Konstantoglou (2006)

As can be seen in the above simplified table, where the life cycle stages referred are after Butler's model of the Tourist Area Life Cycle (1980), there are three major groups of tourists (Coccossis and Konstantoglou, 2006:11):

a. Those travelling alone in pioneer destinations searching for exotic and peculiar environments in places not yet discovered by the tourism industry, using local facilities and seeking contact with the residents. In their case the impact on the socio-economic system and the environment as well, is minimal mainly owing to their small numbers.
b. In the second case, tourists prefer to travel in small groups to destinations with facilities and growing reputation, they are seeking for a combination of amenities

and authenticity, while their impact on the socio-economic system and the environment as well as their contact with the residents is average.

c. Finally, the third group is the one of mass tourists with middle-class income, travelling in big groups, preferring fully organised trips to famous destinations. They have little interaction with local people beyond commercial links which means that the tourism industry in the destination is in full development and the impacts to the society and the environment are high.

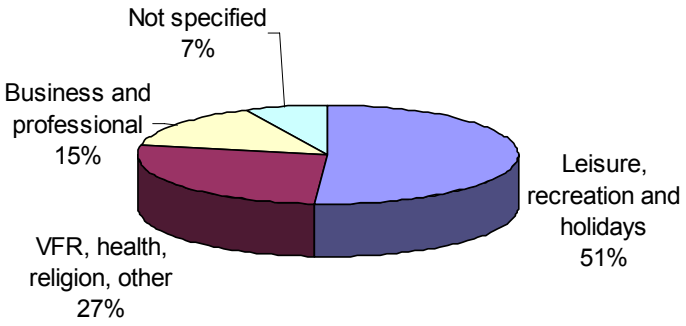
However, according to the writers (ibid): *"During last years there is a remarkable change in tourism demand as far it concerns the third type of tourists mentioned above. Mass tourists are more conscious and they prefer to travel in groups as far it concerns the means of travel but they organise their activities in the destination place on their own. Those tourists organise from their places of origin the transportation and accommodation matters and they are informed according to the facilities and activities offered in the destination area (mainly through the world wide web) and they prefer to prepare their own holiday plan during their length of stay in the area. This way they spend more money in the destination place, they are aware of the place and the activities offered there while socio cultural and environmental effects are medium"*.

Regarding the purpose of visit (Figure 7), according to WTO (2008), in 2007, just over half of all international tourist arrivals were motivated by leisure, recreation and holidays (51%) – a total of 458 million. Business travel accounted for some 15% (138 million), and 27% represented travel for other purposes, such as visiting friends and relatives (VFR), religious reasons/pilgrimages, health treatment, etc. (240 million). The purpose of visit for the remaining 7% of arrivals was not specified.

Since most travel and tourism involves discretionary expenses, it is easily understood why tourism is especially vulnerable in times of economic recession. Nevertheless, this does not mean that tourism stops. As Beirman (2008) points out: *"The trend that we have learned from past crises whether we refer to past economic crises or the global tourism scare resulting from the events of 9/11 is that people continue to travel but they will travel differently from the way they do during times of economic buoyancy"*. According to the World Tourism Organization forum, the rebound of tourism activity will be intense, rising in high levels the figures of development. Within the framework of changing dynamics, the rebound of tourism activities will reveal the trend of **increased specialization** among travellers, which will be seeking personalized, unique experiences, in terms of adventure, culture, history, archaeology, bird watching, diving and interaction with local people

(Hollinshead, 1993). Profoundly, comparisons reveal a shift from escapism to enrichment.

Figure 7: Inbound tourism by purpose of visit (2007)



Source: World Tourism Organization (2008).

What we should also take into consideration is the fact that there are other forces at work, which are believed to have led to a paradigm shift that will outlast the recession. Silberberg (1995) agrees with the idea of a paradigm shift and sees as its causes the followings:

- Higher levels of education, since all studies show that persons in higher education categories are more likely to be culturally oriented;
- The increasing numbers of women in our society in positions of power and authority, since women tend to be more culturally orientated than men;
- The ageing baby-boom generation;
- Less leisure time but greater emphasis on quality time experiences which cultural facilities and events offer;
- Even greater health and appearance consciousness, with concerns for the effects of ultraviolet rays causing travellers to seek out more indoor opportunities.

Figure 8: Consumer profile and behaviour

Source: UNWTO (2007:18)

In any case, in the short to medium term there is almost certain to be a trend of travellers spending less on travel. According to Beirman (2008), the demand for the luxury end of the market is likely to decrease while demand for either low cost or perceived good value products/ services is likely to grow –a trend that airlines and hotels especially need to rapidly adapt to. Furthermore, in the currency shakeout which occurs from time to time, destinations with "favourable" exchange rates may benefit: *"Ironically the surge in value of the US dollar and the Euro may stimulate Americans, Europeans and Japanese to resume travelling overseas. The growth of Chinese and Indian outbound travel may slow but will continue because these economies are still growing. There is likely to be a growth in domestic travel or short haul international travel as people choose to stay closer to home. If governments seek to help bail out industries they could help the global tourism industry by reviewing the plethora of crippling departure and other obscure taxes which have inflated the cost of international air travel"* (ibid).

In terms of consumer profile and behaviour, UNWTO (2007:18, Figure 8) underlines some interesting changes, as during the last years travelers are more mature and experienced, concerned for safety and security, with access to much more information, knowing what they want and what they can get. An aging population with better health and economic conditions is nowadays seeking for new experiences, for innovative and more sophisticated products with more added value and for services that respond to their needs. Modern tourists search "value for

money". This will imply an increased competition between destinations and operators within the frame of a globalised market and in this respect the investment in new technologies and direct distribution channels will be the key to success.

9. Innovation trends on Information and Communication Technologies

After several years of rapid and almost unhampered growth, the global economic landscape is changing. Rising food and energy prices, a major international financial crisis, and the related slowdown in the world's leading economies are confronting policymakers with new economic management challenges. Today's volatility underscores the importance of a competitiveness supporting economic environment that can help national economies to weather these types of shocks in order to ensure solid economic performance going into the future. According to the World Economic Forum, the definition of competitiveness is t*he set of institutions, policies, and factors that determine the level of productivity of a country, or a financial – economic sector.* The concept of competitiveness thus involves static and dynamic components: although the productivity clearly determines its ability to sustain a high *level* of income, it is also one of the central determinants of the returns to investment, which is one of the key factors explaining an economy's *growth potential.* As an industry, tourism is service driven (Seaton and Bennett, 1996) providing products and services for people participating in activities in places other than their residence. The tourism industry consists of all those firms, organisations, and facilities which are intended to serve the specific needs and wants of tourism.

Examples of these establishments include transportation, travel agencies, accommodation, food and related service. A more explicit way of describing tourism is to consider it as "representing the sum of those industrial and commercial activities producing goods and services wholly or mainly consumed by foreign visitors or by domestic tourists" (Ritchie and Goeldner, 1994:72). However, tourism has unique characteristics that differentiate it from other industries. Unlike other industries that have their own distinct products or services, tourism usually includes multiple products or services, which involve the co-operation of several suppliers. As Seaton and Bennett (1996:4) noted, "Tourism is not a homogeneous market like that, say, for breakfast cereals, cars or cat food. It is a heterogeneous sector which consists of several product fields, albeit ones which have a degree of linkage".

Like other fields, tourism involves both goods and services, but the service component is relatively very high. Services have some characteristics that are different from goods:

- **Compared to goods, services are intangible**. Services do not deliver objects to consumers, but rather, they deliver performances.
- **Service delivery may not be consistent across individuals, time and situations.** Despite the fact that the core product offered by airlines is transportation, services from one airline are likely to be different from services offered by others. Even within the same airline services performed by each individual staff member are likely to be different from each other. It is also possible that services performed by the same individual may be different from day to day. Thus, service delivery is heterogeneous.
- **Service production is inseparable from service consumption.** During the visit to a tourist attraction, services are delivered to visitors while visitors also consume them at the same time.

The above characteristics of tourist services suggest that tourism marketing derive much of its inspiration from services marketing. Tourism managers strive for improved service quality in order to provide visitors with more benefits that will encourage them to be loyal to their tourist service provider.

As competition increases in the market, tourism businesses and organisations have found that improving service quality and visitor satisfaction are key factors in increasing market share. Yet, it is not clear to these businesses and organisations which of the two constructs is the means to an end, or, even whether they are separate constructs. If they are the same construct, then tourism managers need to focus on either improving **visitor satisfaction**, or service quality. If they are two different constructs, then tourism businesses and organisations must understand the interrelationship between them because, given limited resources, tourism organisations may be unable to invest in improving both constructs. With a clear understanding of the relationship between the two constructs, tourism businesses and organisations will know which of these factors best influences visitors' behavioural intentions. Taking all under consideration the World Economic Forum indicates 12 pillars of economic competitiveness, which can be processed and adopted in the tourism industry.

- First pillar: Institutions
- Second pillar: Infrastructure
- Third pillar: Macroeconomic stability
- Fourth pillar: Health and primary education
- Fifth pillar: Higher education and training
- Sixth pillar: Goods market efficiency
- Seventh pillar: Labor market efficiency
- Eighth pillar: Financial market sophistication
- Ninth pillar: Technological readiness
- Tenth pillar: Market size
- Eleventh pillar: Business sophistication
- Twelfth pillar: Innovation

Although the 12 pillars of competitiveness are described separately, this should not obscure the fact that they are not independent: not only they are related to each other, but also they tend to reinforce each other. It is our common belief that all 12 pillars of competitiveness are moving towards the direction of product differentiation and market placement.

The importance of innovation was long underestimated in the service sector (Decelle, 2003). In contrast to the radical innovations vital to growth in manufacturing sectors, innovation in tourism was secondary and capital scarce and for this reason was excluded from the scope of government interest and actions. It is important to note that the discourse changed with the emergence of new information and communication technologies (NICT), which have been influential in the realm of tourism.

Tourism firms, operate in a business environment where innovation is important for their survival (Sorrensen, 2007). Globalization of tourism activities (Wahab & Cooper, 2001) , the application of information technologies in tourism firms (Sigala 2007) and the changes in tourism demand and attitudes, (Ioannides and Debbage, 1998) all create a dynamic sector where innovation has become of central importance. In tourism research, networks have become a relatively neglected area of study (Morrison et al. 2004, Sigala and Chalkiti 2007a,b) and attention has been paid to marketing alliances and to the role of networks for sustainable development. However, this approach was quite superficial due to the fact that tourism firms are interconnected through a variety of relations (Tremblay 1998). Additionally, the special characteristics of tourism are reflected in its networks, which are local and non local at the same time (Tremblay 1998).

It should be though well understood that tourism industry is not very intensive on R&D, rather they invest on technology supply. For e.g. businesses in Baleares islands have reported R&D expenditure on innovation efforts of only 0.36% (Martinez-Roz and Orfila-Sintes, 2009). Thus innovation in tourism industry is driven by suppliers of technology and of innovative products and certainly by governmental financial support. The challenge for the companies is how to absorb technology and innovative products (Jolly and Dimanche, 2009) and make optimal use of them. In other words, it turns out to be really a problem of internal training and the absorption capacity of the firm. The good news is that the industry is information intensive and hence owners and managers are open to possible solutions with IT investments and in particular when they are packaged as integrated solutions.

Studies have shown that SMEs are following staged approaches to implementing ICT into their businesses, starting with development of websites. For example, Davidson and Burgess (2006) state that barriers to using ICT were identified as cost, lack of time, lack of knowledge and difficulty finding useful and impartial advice, lack of formal planning, and maybe the most important issue, **lack of understanding the benefits**, as they were not aware of measurement metrics on impact of ICT on their business. Thus, they could not couple their overall strategic goals to their Internet strategy.

Implementation of software for optimized business productivity, such as TQM, CRM, SCM, using applications over the market, which is the norm for most tourism based companies, creates major difficulties for hotels and tourism businesses because they cannot differentiate between competitors. Thus hotels and hotel managers can only differentiate through optimal implementation (Jolly and Dimanche, 2009; Daghfous and Barkhi, 2009). This shows the requirements for differentiation and the need for provision of the company's touch. In a relevant study (Scaliogne et al., 2009) it was shown that tourist companies indeed having web sites increased their revenue but the ones who had their own web site and not using another's portal, had even higher revenues.

A very good portal for assessing information, from regional, global and research reports, all available in pdf format is HospitalityTrends, http://www.htrends.com/index.php, with a wealth and continuously updated information on the very relevant issues discussed on this report.

9.1 ICT Innovation and Tourism

Tourism has been and will be one of the most impacted industries by IT innovations. There are several trends of the recent past as well as recent and forthcoming innovations that indicate certain changes in the landscape of tourism industry. A lot of upcoming IT innovations will relate to the vision of “Ambient Intelligence” that has been shaped by the European IT research. This concept says that in the future the computer as the mean with the main access to the Internet will move to the background, while other mobile devices will provide an interface to the Web. In contrast to the approach of “Ubiquitous Computing”, computing itself will nearly become invisible so the end user will interact in a more natural and relaxed manner (Werthner et.al., 2005). According to them, this “leitbild” will be recognizable in tourism related innovations too. The customer will change his or her position and become a consumer with more active role. Hence, there will be more possibilities of service customization and product configuration. In addition, flexibility during the trip will be increased and travellers will have the possibility to book *ad hoc* services. These visions require new forms of collaboration between service providers. One could imagine that this can be realized by smart and flexible business networks and standardized interfaces that enable seamless integration of services (Werthner and Ricci 2004). Furthermore, an important point is the advancement of decision support procedure.

The tourism industry is highly influenced, as an end user, by IT innovation. Especially, the rise of the Internet has expedited innovations in the sector and enabled new business models. It can be foreseen that this trend will continue and further on ICT will have a great impact on tourism.

During the last years, the contribution of technology’s applications in tourism has been widely recognized, while the consequent alterations in the structure of tourism sector are still being examined. The travel and tourism industry has benefited tremendously from the implementation of Information and Communications Technology (ICT). The growth of the Internet and new technologies in general, has influenced the overall sector and more specifically destinations, in terms of promoting themselves and approaching potential customers (visitors) who seek information and fulfil their purchase through the Web. Looking at the supply-side of travel and tourism, we can see ten good reasons, according to Pollock and Benjamin (2007) as to why Travel and Tourism provides such fertile ground for the application of distributed, peer-to-peer, web services-based solutions:

1. The dominant feature of travel and tourism is supply-side fragmentation. Literally hundreds of thousands of enterprises are involved in providing the various elements associated with overnight travel. Travel/tourism providers are so geographically scattered and so numerous that no one technology vendor or distribution channel can dominate.
2. These providers are also characterized by extreme heterogeneity and diversity in terms of focus, size and sophistication.
3. The vast majority of providers are classed as small, medium or micro-sized (SME's or SMB's). In Europe, about 99% of enterprises employ less than 10 persons. As the vast majority of them do not provide services that can be purchased online, they are still in a digital sense "invisible" and excluded from e-commerce.
4. Within each sub sector and destination, providers actively compete with one another. Cooperation and collaboration only occurs when attempting to reach distant markets and build business volumes to a destination. Autonomy, self-sufficiency and choice are the values and qualities prized by providers.
5. Providers are dependent on a multiplicity of intermediaries and the distribution chain is long and expensive. They are required to distribute their perishable, time-specific inventory via multiple channels and "brands", managed by intermediaries using a variety of technologies and platforms, each requiring separate interfaces.
6. Take-up of sophisticated electronic systems is slow. Most providers will only have dial-up connections. They will not want to join exchanges that rely on private networks nor have their data exposed to potential competitors.
7. Providers have neither the financial resources nor the time to manage multiple systems. Extremely independent, competitive entrepreneurs, they want control over their own inventory management, sales and content.
8. As a result of the volume and fragmentation of both the providers and intermediaries, the industry is awash with thousands of legacy applications that would be costly, if not possible to dismantle and replace.
9. The sector is particularly vulnerable to the ravages of commoditisation and operates on paper-thin margins. Reducing distribution costs, which can exceed 25% of turnover, provides the best opportunity to improve the bottom line and highlights the importance and advantage of selling directly to the end user.
10. Each provider is embedded in a larger network of suppliers from which it procures the goods and services necessary for operations and a community

network of hosts (public and private agencies responsible for helping and benefiting from the economic activity of tourism at the destination).

An interesting study about Internet and the Hotel sector has been recently implemented (Eurobank 2008). Generally speaking, the results of investigation (Figure 9) show that the probability for someone to select incidentally for e.g. Greece as tourist destination between competitors countries in Mediterranean is 5,1%, under Italy (12,7%), Spain 10,5%, Turkey 6,4% and Portugal 5,3%. Similarly for Bulgaria is 4.6% while for Roumania is 4.5%. Further comments can be made regarding the enormous number of web pages of Italy (767,000 that is to say more than 3X from Spain) making Italy the first in the classification and constitutes also a leading worldwide European tourist destination together with France. It appears also that Greece has more “Greek” web pages that promote hotel and lodging services from web sites in Portugal, but Greece follows Portugal in the world scale.

ICT technologies and use of the Internet has been changing the way tourism businesses operate. Electronic intermediaries are emerging dynamically and challenge traditional distributors, like for example, Expedia and Lastminute.com (Buhalis and Low, 2008). Similarly, auctions sites such as eBay.com, price comparison sites such as Kelkoo and Kayak.com; price reversing sites such as Priceline.com and price prediction sites such as farecast.com also provide a great challenge for pricing of both suppliers and intermediaries. Tripadvisor.com, IGOUGO.com and Wayn.com become very favorite with costumers because they enable consumers to interact and to offer advice (ibid). Thus all tourism players are forced to rethink their business models. For example, many tourism organizations aim to bypass all intermediaries that add cost to their production and distribution.

Figure 9. Web pages and shares for different countries

Country	"Holidays" Web pages	Pages / inhabitant	Probability	Book online Web pages	Last minute Web pages	"search.travel" Web pages	Probability
Italy	5.190.000	89	12,7%	1.190.000	140.000	1.423	11,3%
Spain	4.280.000	106	10,5%	1.080.000	15.000	1.287	10,2%
Turkey	2.630.000	37	6,4%	568.000	85.900	831	6,6%
Portugal	2.170.000	204	5,3%	716.000	44.500	845	6,7%
Greece	**2.080.000**	**194**	**5,1%**	**646.000**	**82.200**	**921**	**7,3%**
Israel	2.020.000	314	4,9%	462.000	51.000	645	5,1%
Cyprus	1.930.000	2478	4,7%	494.000	78.100	636	5,0%
Bulgaria	1.900.000	259	4,6%	340.000	29.400	629	5,0%
Egypt	1.890.000	26	4,6%	460.000	67.600	798	6,3%
Croatia	1.850.000	412	4,5%	373.000	23.000	616	4,9%
Malta	1.850.000	4568	4,5%	373.000	37.900	580	4,6%
Roumania	1.840.000	83	4,5%	292.000	14.100	494	3,9%

Source, Eurobank (2008)

On the other hand, travel agencies dynamically package tour products and support the development of customized packages, dis-intermediating tour operators. This then calls for flexible and smart products which will allow customers to plan their own trip according to their wishes, choosing from the large variety of items on offer. This wealth of information many times can be frustrating to the consumer, thus it appears that there is great need for meta-data screening of information so that the consumer can find what he wants in the time frame that he would like to spend. As an example, one can think about anyone that has tried for e.g. to search for Athens hotels, and the number of web pages that will appear. As a particular test, the following result was derived on October 15, at 18:32, using Google.com, 'Results **1** - **10** of about **3,970,000** for **athens hotels**. (**0.23** seconds)'. How can one decipher and screen all this information? Use of Expedia.com and Booking.com or other intermediaries may reduce the number of pages, but the problem still remains.

The industry is 'Still Searching...for Better Search'[6]. In 2008 the trends were "Semantic Technology and the Semantic Web will drive the next wave of Internet technology" and "Search will evolve to become more effective." but it appears that there has not been fully adoption of formal semantic Web. However, as industry observers indicate that search is improving and semantics are being used to improve search. As they begin to show differentiated business value over normal search, they will gain traction. The Workshop on the Future of Web Search took place this year in

[6] http://www.htrends.com/trends-detail-sid-38135.html

Ibiza, April 17-18, 2009 with the main objective to bring together key researchers in the field of Semantic Search.

9.2 A collection of very interesting web sites

There is wealth of information and billions of web pages and also web sites that promote tourism, travel, helping consumers to plan their trip more intelligently. It is not therefore possible to list many of them and analyze their impact on tourism. It was felt, though, that few of the web sites that have been mentioned by several investigators, listed in later pages in this report, that had made an impact, one way or another, should be 'visited' by the research team and after some navigation, to decide whether to include some of them in this report for reference. And of course it can not be exhaustive, but readers can have a fuller picture of what is available and where does ICT takes tourism industry.

The European Travel Commission (ETC), (http://www.visiteurope.com/home.aspx)

ETC, created in 1948, is an association of National Tourism Organisations (NTOs) with 39 members, 27 member countries of the European Union (Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom) and 12 other countries (Croatia, FYROM, Georgia, Iceland, Monaco, Montenegro, Norway, San Marino, Serbia, Switzerland, Turkey, Ukraine). ETC is not a part of the European Commission or any other European institution. It is an independent body which is financed entirely by annual membership contributions. It also generates significant funding for its marketing activities from commercial partners in relevant marketplaces. The web portal is a very good example of ICT implementation but also cooperation among many different countries.

YourGreece.com

The company and the relevant website offer a unique opportunity for small hotels and businesses to promote their activities and services through a very pleasant and interactive web site. This company, yourGreece.com was created in order to 1) Unite exceptional hotels and guesthouses of character in Greece into a Network of Great Small Hotels, 2) Help visitors and tourists to Greece discover unique places to stay throughout the mainland and on the islands offering traditional Greek hospitality, charm and natural beauty, 3) Become the best travel company in

Greece offering exceptional accommodation and a full range of personalized quality travel services to the discerning visitor and 4) Promote one of the most beautiful, diverse and interesting countries in the world.

adriatica.net

The adriatica.net Group developed from an online tourist agency www.adriatica.net, founded in 2000 by Marko Vojkovic, founder and the Chief Executive Officer (CEO) of adriatica.net Group. The first big expansion took place in 2004, with the acquisition of AtlasAirtours, one of the bedrocks of Croatian touroperating business. In 2005 the expansion continued and the Group moved into Germany, the Netherlands and Slovenia through the acquisitions of ID Riva Tours, Odisej, Ilirika Turizem and Adriagate. Another breakthrough in the adriatica.net Group evolution happened in 2006, when Atlas and Kompas with over 26 operating markets, became members of the Group. Last but not least - Jolly Travel, one of the leading tour operators and the leading retailer in Serbia and Sixt rent-a-car franchising in Croatia and Bosnia and Herzegovina and Kollander World Travel USA joined the Group in 2008. The acquisition pipeline remains strong as we continue to identify opportunities with excellent growth characteristics across a number of segments.

coolcapitals.com

CoolCapitals.com is an initiative that started a few years ago and delivers need-to-know info for the hip traveller on always five 'cool' capitals in Europe, Amsterdam, Antwerp, Zurich, Vienna and recently added Valencia, in order to carry out joint promotional campaigns in USA[7]. It is a co-opetition result of the authorities of these cities which pulled together their wish for luring travellers coming to Europe. It is highly interactive and gives opportunity to the 'visitor' to have access online significant information about the places to see and visit, which could also be available on their smart-phone system, once in the city.

Home&Abroad.com

The web site has integrated information for allowing customers to plan their trip and offers exciting new opportunities for travel. The site has been possible by the availability of open source software that allowed the developers to implement their idea. At the PhoCusWright's November 2008 Travel Innovation Summit,

[7] Tourism Evaluation Report 2008, Valencia complies with its objectives

demonstrator **Home and Abroad** explained that they would not have been able to bring their product to market if it had not been for Open Source[8].

www.vastsverige.com

This is a West Sweden web site[9], where 49 cities collaborate to form 'The virtual travel agency' which provides information, booking, visualisations, maps and coordinates and weather.

9.3 Grid computing and p2p networks and clusters

Taking under consideration the influence of ICT in innovation and at the same time the lack of stable and concrete innovation policies of the government and the stakeholders, the research team of the Department of Tourism Management of the Alexander Technological Educational Institute of Thessaloniki, Greece, of came to the conclusion that, although current technologies (semantic web and web 2.0) changed the content of the Internet, the architecture of the networks remained the same for several years. A research initiative thus was undertaken. The proposed peer- to- peer (p2p) Grid technology is about to change the way end users communicate with each other, reconsidering the meaning of clustering, networking, distance and proximity The purpose of the research is to establish a p2p Grid computing network in the area of North Aegean and observe the impacts in the field of innovation and to answer to the fundamental scientific question of the reconsideration of geographical proximity, between the local and non- local stakeholders. Before the technical installation of the network, we should acknowledge a) the ontology of the research area, b) the role of the networks in tourism, c) the knowledge management impacts, d) the contribution to competitiveness and e) The contribution to regional development.

Over the last few years we have seen grid computing evolve from a niche technology associated with scientific and technical computing, into a business-innovating technology that is driving increased commercial adoption. **The innovativeness of our research is to set and answer the question, whether this technology is applicable in local and peripheral tourism networks**. Grid technology also provides the capacity to store, share and analyze large volume of data, ensuring that people have access to information at the right time, which can

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[8] Top 10 Travel Technology Trends for 2009, hospitality industry trends

[9] M. Holst, 2009. ICT in Tourism – a Swedish Perspective, Presentation to TOUREG Conference, Lisbon, Jan. 22

improve decision-making, employee productivity and collaboration. Grid technology improves resource utilization and reduces costs, while maintaining a flexible infrastructure that can cope with changing business demands yet remain reliable, resilient and secure.

At its core, grid is about virtualization, of both information and workload. In *non*-grid environments, existing infrastructures are very much “siloed”; resources are dedicated to applications and information. Many such dedicated infrastructures exist for common applications such as HR, Payroll, etc. and for data/information mining purposes. System response is limited by server capacity – and access to the data stored. It is very difficult to dynamically respond to new requirements, as a new infrastructure would be required, inefficiencies would predominate, and full utilization across the many silos would be difficult to achieve.

In a grid environment, resources are virtualized to create a pool of assets. Workload is spread across servers and data can be seamlessly retrieved. By separating applications and information from the infrastructure they run on and providing this abstract, “virtualized” view, a new level of infrastructure flexibility can be achieved. Infrastructures can now dynamically adapt to business requirements, instead of the other way around. Resources are more fully utilized, resulting in decreased infrastructure costs, reduced processing time, increased responsiveness and faster time-to-market.

9.4 Smart phone systems and impact on tourism

Smart-phones are handheld computer devices, which also double as phones. This comes in very handy to an increasingly mobile generation and particular for travelers. As the complexity of people's jobs continues to grow, the added need for video has become apparent. SmartPhones address that need by providing top-notch video quality. In June, 2007 Apple Computer introduced the iPhone, which initiated a new class of devices now known as "smart phones". The iPhone is really more of a handheld computer--with wireless capability that allows access to the Internet and Web--than it is a phone. It has two major capabilities, a very high-performance display and a "multitouch" technology screen. Google already has customized some of its websites for display on the iPhone, but now the company also dived headlong onto Apple's highly regarded mobile phone with a full-fledge application, a handheld version of its Google Earth geographical software.

Similarly, Amadeus is developing an application that allows travelers to download all of the information they need related to their trip, straight onto their BlackBerry smartphone. The BlackBerry Alliance programmed is supporting Amadeus to develop integrated wireless applications for the BlackBerry platform so that they can satisfy an increasing market of travelers who demand personalized real-time information for managing their travel arrangements while on the move with new levels of convenience and flexibility[10]. Smart phones could start eating into the global laptop market within the year, according to infrastructure software firm Citrix. The firm's chief executive Mark Templeton has told The Irish Times that smart phones and PDA devices could assume a dominant role by 2010[11].

Smart phones can take real advantage with Quick Response (QR) codes or mobile tragging. On Oct. 1, 2009, the Tourism Division of Arkansas introduced it into all social marketing efforts[12]. QR codes allow visitors to take advantage of URL shortcuts to travel information on travel. QR code technology originated in Japan in the late 1990s and is primarily used in the promotion of retail products but now, information such as Web addresses, text, pictures, and maps are encrypted into the image. This image, a black and white patterned square, is placed in the print or Internet advertisement. Consumers **scan the image via a mobile smart phone**, using free code reading software such as BeeTagg or QR APP. The scan opens a Web page. The link is then saved into the software's memory for future use, allowing vacationers to easily reference tourism and destination information while travelling. Some cities have started using the system for directional maps and informational signs. Recently, the airline industry started realizing mobile tagging technology as an alternative to paper boarding passes, believing it will speed up the check-in processes.

"The possibilities are endless," said Joe David Rice, Director of Tourism for the Arkansas Department of Parks and Tourism. They can minimize some of the stress associated with vacation planning. Arkansas.com already offers driving routes, itineraries, maps, city dining and lodging information, and hot deals and packages, but a visitor must know the URL code or click through several pages to find that information. QR codes have been created for these niche sites to offer a direct path to this information. "This mobile shortcutting method will enhance the already interactive, marketing initiatives and make everything more efficient," said Rice.

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[10] http://www.eyefortravel.com/news/europe/amadeus-develop-application-blackberry-smartphones, 17/2/2009

[11] irishtimes.com, July, 26, 2009.

[12] Technology, a Natural for Arkansas Tourism, October 16, 2009, it.tcmnet.com

'Just as the Internet completely revolutionized the way consumers book travel, now the immense, growing reliance on mobile devices is causing a second shift in how travel is purchased,' said Fred Malek, CEO of TIG Global. 'Today, rarely anyone leaves their home without their mobile phone, and twice as many people are using SMS globally compared to email. It is imperative for hotels to tap into this growing market, and as such, TIG Global is rolling out a robust mobile marketing service to allow hotels to leverage the power and revenue potential of this new distribution channel[13].

Treasure hunting has also become possible for tourism travellers. Treasure hunting attracts visitors to nature reserves, as described by Sara Jeswani on July 31 2009[14], and also presented by M. Holst[15]. Treasure hunting is a high-tech treasure hunting game played throughout the world by adventure seekers equipped with GPS devices called "geocaching"[16]. With the help of a GPS receiver people go looking for special geographic coordinates where a "treasure" is hidden.

9.5 Web 2.0 applications and their impact on tourism industry

The term Web 2.0, being around since 2005, has been very controversial[17] which stems from the fact that Web 2.0 applications are by and large based on content generated by users often being anonymous and lacking qualitative credentials. Several have thought of it as a new stage in the evolution of the internet, while others simply rejected it as a new High-Tech hype. Constantinides and Fountain state 'paradoxically, even without an accepted definition and despite lack of extensive research, the corporate world seems to embrace the Web 2.0 concept: high-profile mergers and acquisitions have already taken place or are under way while corporations are rushing to integrate various forms of social media into their marketing planning. The experience so far, based to a large degree on anecdotal evidence, is that Web 2.0 has a substantial effect on consumer behaviour and has contributed to an unprecedented customer empowerment'.

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[13] This article comes from Hotel News Resource http://www.hotelnewsresource.com
[14] http://www.sweden.se/eng/Home/Work-live/Sustainability/blog-about-sustainability/Treasure-hunting-attracts-visitors-to-nature-reserves/
[15] M. Holst, 2009. ICT in Tourism – a Swedish Perspective, Presentation to TOUREG Conference, Lisbon, Jan. 22
[16] http://www.geocaching.com/
[17] Constantinides E. and SJ Fountain, 2008. Web 2.0: Conceptual foundations and marketing issues, Journal of Direct, Data and Digital Marketing Practice (2008) 9, 231–244

Web 2.0 technologies-applications are *tools of mass collaboration, as* Dr. Sigala, lecturer in the Department of Business Administration of the University of the Aegean, Chios, Greece indicates[18], since they empower Internet users to actively participate and simultaneously collaborate with other Internet users for producing, consuming and diffusing the information and knowledge being distributed through the Internet. Web 2.0 tools enable realisation and exploitation of the full potential of the genuine concept and role of the Internet. Thus, content is driving the web and not the design, it can be exported from one website to another.

Dr. Sigala advocates that Internet users and travelers can create and distribute in their own way the content and the channels through which they wish to distribute it via Web 2.0 technologies, thus enabling them to become the co-producers, the co-designers, the co-marketers and the co-distributors of tourism experiences and services as well as the co-entrepreneurs of new e-business models. This creates threats but also tremendous opportunities for tourism and hospitality enterprises. Tourist firms should realize the potential of Web 2.0 and try to exploit it, or they will not survive.

A recent survey of 1,700 executives from around the world, across a range of industries and functional areas, responded on the benefits of using Web 2.0[19]. 69% of respondents report that their companies have gained measurable business benefits, including more innovative products and services, more effective marketing, better access to knowledge, lower cost of doing business, and higher revenues. A very interesting result, pointing out to the great benefits of Web 2.0 technologies, was that successful companies not only tightly integrate Web 2.0 technologies with the work flows of their employees but **also create a "networked company," linking themselves with customers** and suppliers through the use of Web 2.0 tools.

Conclusions and recommendations for New Technologies, New Tourists, as were set in Fifth European Tourism Forum[20], urged for improving our understanding of trends in user generated content, recognize the power of user generated content to enhance existing product information and provide guidance on quality, support technology that will enhance the reliability of user generated recommendations, **facilitate the aggregation** of SME/micro business offers in a way that will reflect the full diversity of the destination's offers, encourage and facilitate DMOs and other players (e.g. trade marketing associations) to develop full e-business platforms that

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[18] Sigala M., 2009. A-new-tourism-generation-and-new-e-business-models
[19] How companies are benefiting from Web 2.0: McKinsey Global Survey Results
[20] Report of Workshop 1, 2006. New Technologies, New Tourists, Fifth European Tourism Forum , Cyprus 2006

enable all tourism businesses (including SMEs, intermediaries and carriers) to cooperate in packaging and selling integrated products and experiences directly or through travel industry distribution channels, offer real-time availability to enable personalized dynamic packaging, based on multiple user profiles, encourage suppliers to monitor user generated content to guide them on required product quality improvement and finally facilitate organizational change within the tourism industry and destination organizations reflecting market and technological change.

Full exploitation of the huge benefits from technologies like Web 2.0 can be accomplished by infrastructure development, need for education and exposure to global best practice, local co-opetition, focusing on innovation and always having a vision for the future. Several web sites utilizing web 2.0 technology can be found, and here below, some of them, as being identified by many as among the top in the industry, from WebTravel 2.0[21] and available sites for someone to plan his vacation:

1. Kayak.com - airline, hotel and vacation booking site, often finds the best deals in comparative studies, one can enter it via the multi-site search engines of BookingBuddy.com or OneTime.com.
2. TripAdvisor.com - massive database of user-generated review, mostly of hotels to get information on hotels in places
3. IgoUgo.com - user reviews of destinations, hotels, restaurants, etc., more like blog entries, now part of Travelocity.com..
4. TripIt.com - automatically generates guides for trip itineraries
5. NileGuide.com, which is a new site that also creates a trip itinerary around your destination and interests. It currently only covers selected sites outside the US, but probably it will change over time
6. http://www.homeandabroad.com/ also allows to plan the trip, based on user input on their preferences
7. Schmap 2.0 (http://schmap.com/) explores destinations online with a unique integration of maps, photos and place reviews. Now also optimized for iPhone and Nokia users. One can plan trips, take virtual tours and custom print your own full-color travel guides with PC and Mac compatible desktop mapping applications.
8. www.tripwiser.com, a site for the traveler offering full planning capabilities.

[21] Travel Web Sites Get Personal, W Tanaka, 03.28.08, forbes.com

9.6 ICT trends and Tourism future

Trends on ICT will allow for more automation, but does this mean that human intervention will no longer be needed? This is not so as many studies and analyses have even recently indicated. For e.g. two very good internet based solutions, YourGreece.com and adriatica.net, have realized that personal interaction is vital for online ventures (e-business@watch, 2006). The technology is merely used to speed up the process but not to replace human intervention which is urgently needed. Adriatica.net started only as an on-line tool but had to expand to personal customer services to meet client demands. Similar conclusion has also been recently drawn by Alford and Clarke (2009).

ICT can have great impact on cultural tourism, a market-share development strategy that focuses on promoting the unique cultural aspects of a city or region in order to draw tourists interested in those particular cultural subjects to the area. Action in the field of ICT for tourism is targeted at developing new components and distributed architectures for tourism information and communications systems that support users and businesses, by offering value added services and multimedia information on accommodation, events, culture and leisure, together with booking and payment facilities. Applications mainly focus on the customization of data-mining techniques, intelligent, multilingual, agent-based technologies and positioning systems[22].

The travel industry must focus on the customer[23]. Anna Pollock made a very good comment during the closing discussion that the industry should focus on the experience of the customer rather than pinching every penny out of their pocket book. She mentions her stay at the Qbic Hotel at the WTC (about 5 minutes away from the RAI Conference Centre). It was the cheapest but with emphasis on business travel with close proximity to the venue. She was very impressed with the service and the quality of the rooms, because as a business traveler it met all her needs without the added fluff. Amazingly enough, there was no phone in the room, but **free WIFI** throughout the hotel (so she could use Skype). This is an example of a hotel focusing on the customer's specific basic needs rather then trying to provide services just for the sake of it. After her visit, she received a nice email from the

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[22] eCulture, Cultural Content in the Digital Age – Ronchi AM., 2009. Springer, 2009

[23] 10 Lessons Learned at Enter 2009, T4 Blog,
http://tourismtechnology.rezgo.com/2009/02/10-lessons-learned-at-enter-2009.html

hotel asking me to rate the hotel and she notices that it was **the only hotel** I have stayed at in over two years to do so.

A similar experience can be shared from our travel in Europe and Greece for e.g. for the meetings of various European projects. Free WIFI **is not** available in the majority of hotels, however, one of the authors of this report would like to share the wonderful experience he had in a hotel (4 start) in Tallinn, Estonia, where, not only there was free WIFI but also there was a **desktop computer available** in the room. However, **nowhere** in Greece have we found a hotel offering WIFI service, instead most charge extraneous amounts (e.g. 10 € /hr).

Researchers (Buhalis and Low, 2008) estimate that ICTs will provide the ‘‘info-structure’’ for the entire industry and will bypass all man-made aspects of tourism transactions and that the future of e-Tourism will be focused on consumer oriented technologies that will support organizations to interact with their customers dynamically.

Challenges are also for implementing e-Inclusion policy, which promotes the use of ICT to overcome social exclusion, and improve economic performance, employment opportunities, quality of life, social participation and cohesion. Inclusion is one of the pillars of the i2010 initiative on the Information Society by European Union, and is closely related to other European policies, namely on social inclusion, education and culture, regional development.

Many researchers have been questioning, though, (e.g. Jolly and Dimanche, 2009) the capacity of tourism companies to face the challenges of the fast evolving technology in general and of ICT in particular, and they raise the very valid point of the research organizations together with industry to come up with the appropriate business models for this new environment. This specifically calls for the businesses to pay more attention to have adequate people that can harness this knowledge within their premises, follow training programs, available by ICT industry and, why not, partially supported by government, so that they can fully exploit the benefits that ICT implementation can offer.

10. Innovation trends on Energy Technologies

10.1 Innovative energy technologies

Energy constitutes a crucial factor for the fulfilment of all human needs and has an essential role in supporting the social, economic and environmental aspects of Sustainable Tourism and Sustainable Development in general. Innovative energy technologies and trends in the tourism sector seek to respond to the present and

future energy needs by investing in research, technology and innovation that create commercial value and achieve the highest standards of environmental performance. Analysis of both actual data and modelling results have demonstrated that Renewable Energy Supply (RES) can effectively meet the power demand for stand-alone small to medium-scale tourist accommodations, that are most likely to be located in peripheral and environmentally sensitive areas (Dalton et al. 2009).

The *European Union* (EU) *Sustainable Energy Systems Research Programme* aims to (Justus and Philibert, 2005:10) a) reduce pollution and greenhouse gas emissions; b) increase security of energy supply; c) improve energy efficiency and the use of renewable energy; d) enhance the competitiveness of European industry; and e) improve the quality of life. As Justus and Philibert point out (ibid) a distinction is made between near and long-term research activities and the budget appropriation is split equally: The short-to-medium term research category targets innovation that can deliver results to meet 2010 policy objectives, whose main challenges are: technological, including market-related and financial issues and to demonstrate cost reductions or integration under full-scale operating conditions. The medium-to-long term research objective is to develop new and renewable energy sources and carriers such as hydrogen. These research activities are mainly Research & Development (R&D) and pilot plants whose main risks are scientific and technological rather than market or financial. International scientific cooperation is supported for research addressing the environmental consequences of energy policies, energy supply inter-dependency and cross-border energy and environmental issues.

Innovation in energy technology has widespread implications for OECD (Organisation for Economic Co-operation and Development) economies[24]; understanding how to stimulate innovation in energy technology in the tourism sector is therefore of growing importance. As the *OECD Environment Directorate and International Energy Agency* (IEA) Information Paper underlines (2003), without radical changes in lifestyles, only a massive deployment of carbon-free (or close to carbon-free) energy technologies can power the world economy and satisfy growing energy needs, especially of the developing world, while stabilising atmospheric CO2

[24] According to the OECD Executive summary on "Innovation in Energy Technology" (2006): "Although the energy sector accounts for a small share of GDP, the pervasive use of energy throughout modern economies makes uninterrupted supplies and stable prices critical to sustaining growth. Rapid growth in energy demand coupled with growing concerns about energy security and the environment, however, raise questions about the sustainability of the current energy system and call for renewed efforts to develop and deploy new and improved energy technologies that can support a sustainable energy system".

concentrations in the long run. Reduced energy-related CO2 emissions can be created by technical improvements at different levels in tourism sector and involve:

- End-use technologies in commercial, industry, transport, which could reduce the amount of energy used;
- Fuel switching from coal to oil to gas;
- Increased efficiency of energy conversion (such as power plants and refineries);
- Phasing in non-carbon energy sources, such as renewable energy sources.

Moving to a secure zero or low carbon energy system requires major changes in the production, delivery and use of energy services such as electricity, heat and motive power. There are already many innovations to save energy, reduce emissions and delay the need for costly energy infrastructure investments, including hybrid and efficient diesel vehicles, efficient wood burners, efficient lights, smart meters and “green” hotels and buildings. Energy efficient technologies and practices available to businesses include motors, boilers and sophisticated energy management and control systems. In the short term, better material and waste recovery technologies, advanced materials, cleaner coal technologies and energy substitution technologies will help keep existing energy supplies affordable and available (New Zealand Energy Strategy to 2050).

According to Dalton’s et al. study (2009: 1134, 1143) on renewable energy supply options for small to medium-sized tourist accommodations, optimisation, achieved by further addition of RES to the existing configurations, reduced net present cost (NPC) in the majority of cases, with the added benefit of increased renewable fraction (RF). Furthermore, NPC for these optimised RES/hybrid configurations were comparable to the optimised genset-only configurations. “Modeling of conversions to RES-only configurations demonstrated this option as uneconomical unless existing RF was already high. Results indicated that wind energy conversion systems (WECS), rather than photovoltaics, were the most economical RES for sampled hybrid systems. For example, the payback time of the WECS/hybrids was approximately 3-4 years compared to PV/hybrids at 6-7 years. Hydrogen fuel cells and storage systems, whilst technically feasible, were not economically viable for the case studies due to the present high cost of components, especially compared to gensets. Modeling future potential increase in diesel fuel prices and implementation of carbon taxes shows a significant increase in NPC for genset-only configurations compared to RES/hybrid configurations in the sample. Carbon taxes of $50/ton increases NPC by 10% for genset-only systems but

increases NPC less than half that amount for RES/hybrid systems. The data and subsequent modeling demonstrate that RES is both technically feasible and economically viable compared to diesel energy supply, for the small to medium-scale tourist operations sampled, dependent on stand-alone power supplies" (Dalton et al. 2009:1134).

Innovative transport alternatives and renewable transportation fuels are key-factors to tourism sector along with the innovative building/hotel technologies since, approximately, 50% of the energy used in buildings is devoted to producing an artificial indoor climate through heating, cooling, ventilation, and lighting. A typical building's energy bill constitutes approximately 25 % of the building's total operating costs, while estimates indicate that climate-sensitive design using available technologies could cut heating and cooling energy consumption by 60% and lighting energy requirements by at least 50 % in U.S. buildings (Martinac 2007 Table 8) and Sustainable building technical manual, 1996). In Table 8 the energy resource consumption in hotels in various destinations is indicated.

Innovative actions in the hotel/building sector include improving building thermal integrity, reducing the carbon intensity of fuels used in buildings, and increasing the energy efficiency of appliances and equipment. According to the OECD Information Paper (2003:33-34), future buildings could be almost alive with communicating sensors, controls and microprocessors that manage energy requirements from central and distributed power systems that allocate energy to building equipment in response to user needs. Buildings could use intelligent envelopes and components (e.g., integrated photovoltaic cells, photoluminescent wall and floor boards, phase and adaptive materials for cladding, windows and roofs), local power systems and energy storage systems, and ultra-efficient appliances; bio- and photonic sensors and actuators; and biotechnology and other applications for water, air and waste purification. The life cycle of raw materials for construction is another significant factor. There is a broad range of possible innovations with regard to improving the competitiveness, attractiveness and technical performances of raw materials that are local, recyclable, non-fossil and energy-efficient in their transformation and disposal processes.

Table: 8

Resource consumption in hotels – Energy, kWh/m2

Japan (1991)	Hong Kong (1995-1997)	US (1999)	Greece (2001)	Cyprus (2001)	Portugal (2001)
745	148.4 – 988 aver. 564 250 – 844, aver. 406	313.9	72 – 519, aver. 289.9	103 – 370, aver. 272.6	99 – 444.6, aver. 296.4
Italy (2001)	**London, UK (1988)**	**Ottawa, Canada (1991)**	**Sweden (1999,2001)**	**Accor (2002)**	**Radisson SAS (2002)**
249 – 436, aver. 364.4	200-1000, aver. 495 - 715	688.7	100 – 200 198 – 379	157 (1*hotel) 380 (4*hotel)	301

Source: Martinac 2007 from Bohdanowicz, 2003

As Martinac (2007) resumes regarding “smart building design”, we have the knowledge and cost-efficient technologies to design, construct and operate buildings that are energy-neutral or that produce more energy than they consume. The main benefits of Energy Efficient Buildings are:

- Lower Operating and Maintenance Costs and Overheads
- Greater Profitability
- Lower Environmental Emissions
- Better Indoor Climate and Air Quality
- Increased Occupant/Guest Comfort, Health and Satisfaction
- Better (e.g. Corporate) Image/Profile
- Deferred Investments in Power Generation – Lower Cost/Risk, Opportunities to Use (e.g. Municipal) Funds for other Purposes
- Greater Opportunities for Using Renewable Energy
- Access to Economic/Market Incentives (Tax Credits, Rebates, Low-Interest Loans and other Financial Schemes)

New technologies also increase the diversity and availability of low carbon stationary and transport energy. New renewable energies such as marine energy, offshore wind, deep geothermal, and fossil fuel power generation with CCS (Carbon Capture and Storage) will help decarbonise global electricity supplies in the medium term, while the use of biofuels and the evolution of vehicles – from petrol to diesel to

hybrids to electric – have significant potential to substantially reduce transport-related emissions (New Zealand Energy Strategy to 2050). In the latter half of this century, transport systems could be dominated by vehicles, ships and aircraft with very low CO2 emissions. This scenario could feature a mix of vehicle types – fuel-cell vehicles powered by hydrogen, electric vehicles, vehicles running on biofuels, and hydrogen-powered aircraft. The hydrogen, bio-fuels and electricity used in transport could be produced with near-zero well-to-wheel CO2 emissions (OECD 2003:35). Regarding innovative distributed energy systems and renewable energy technologies, Martinac (2007) sums up the following, for distributed Energy Systems

- Micro-Turbines, Internal Combustion (IC, Reciprocating) Engines, CHP-Systems, Fuel-Cells, Stirling-Engines, Hybrid Systems

and for Renewable Energy Technologies

- Hydroelectric Energy, Solar Energy - Solar Thermal, Solar Photovoltaic (PV), Wind Energy, Energy from Biomass, Geothermal Energy, Tidal Energy, Wave Energy, Ocean Thermal Energy Conversion

Over the longer term, there is likely to be an increasing number of cost-effective alternatives to the way energy services are provided. Ideally, we will reduce our need to use fuel by, for example, using passive solar design to heat hotels and buildings. Innovative energy supply technologies may include improved battery technology, fuel cells and hydrogen. Following the “New Zealand Energy Strategy to 2050”, two key messages can be taken from global energy research and development: the first is that there are already low carbon technologies and practices that can make a difference over the next 10-50 years in the tourism sector since international research focuses on nuclear energy, CCS, energy efficiency, renewable electricity generation from new sources, vehicle technologies, bio-fuels, clean fossil fuels and hydrogen. The second message is that no single technology will make a sufficient difference on its own; pursuing a range of technologies will increase the opportunities and reduce the risks and, potentially, the costs if one or more fails to make the expected progress.

10.2 Case Studies – Energy technologies

Michalena (2009) assesses the compatibility between renewable energy sources and sustainable tourism development by using some Mediterranean islands as case-studies for the Renewable Energy Technologies (RETs) integration in the

Mediterranean. The cases that are examined, concern the islands of Sicily, Sardinia, Cyprus, Corsica, and the Greek islands, depicted in Figure 10, of Crete, Milos and Skopelos. Some of the main points of her analysis are the following.

Sicily: From an energy point of view, 70% of electricity feeding is coming from fossil fuels and the 30% from renewable energies (mainly from hydroelectric plants). Nevertheless, the potential of renewable energies remains high, mainly for geothermy and thanks to the volcano Etna which is the largest volcano in Europe. This is why, in this island, full of areas characterized as UNESCO's natural heritages, an innovative energy system has been undertaken and is worthwhile to be discussed: A system of electricity produced from waves is tested in the Messina Strait since water density (and therefore energy production potential) is 800 times bigger than the one of wind, and energy coming from waves can be perfectly predicted (contrary to wind energy). For the moment, results are very encouraging and the system is considered to be even more profitable than the wind energy installations. The pilot-project is used as a "demonstrative project" and attracts the worldwide attention and visits of scholars.

Figure 10: Map of Greece

Source: Michalena (2009)

Sardinia: A renewable energy plan was elaborated according the specific energy needs and energy resources of each area separately after a study financed from European Union. The use of heating pumps has been decided for local residences, the biomass combustion for the heating of schools, offices and local residences, the solar energy for the tourism activities, illuminations, and greenhouses, the small wind generators for the energy feeding of local enterprises, farms, and camping infrastructures and the biofuels for transports. It is to be noted that the small wind generators attract the interest of local investors, since the investment cost is not high and the visual impacts are of an acceptable degree. Furthermore, a synergy between thermal and hydroelectric plants is already in place. In fact, water is partly used in order to regulate the electricity charge in the network and in order to maintain the maximum efficiency of thermal plants. During the night, when electricity demand is low, the supplementary electricity production, generated from thermal plants is used for pumping the water back into the reservoir. Nevertheless, even if RETs are to conquer a large part of the local energy balance in Sardinia, the question of the further local awareness concerning these technologies remains important, mainly as far as their benefits for the local economy are concerned.

Corsica: In this island of dispersed energy needs, a variety of renewable energy projects have been implemented. Some of these projects clearly contribute to the achievement of a sustainable tourism development. In 1998, a German company implemented the second wind energy park (wind energy park of Calenzana) on the island. The time that was necessary from the decision to the implementation was rather long (1998 – 2003), but today 10 wind generators of a total installed capacity of 6MW exist on the island and support the electricity peak loads (often observed during the tourism period). It is to be noted here, that the total investment (more than 5M€) was not subsidized by the French government, and that owing to the geomorphologic characteristics of the island the transport of the material on site was rather difficult. Furthermore, an exhaustive dialogue has been launched between the company and the local society before the construction of the project. Today, except from covering local needs with electricity, the wind energy park serves as a demonstration project to European students who attend the summer schools organized by the RET's faculty of the Corte University (Universite de Corte, 2007).

Cyprus: Its intense geomorphologic elements, climate, local natural sources and local acceptance towards the introduction of new energy forms vary depending on

the region. This is exactly why different energy local plans have been elaborated and different energy technologies have been proposed. In areas for example with fragile ecosystems and historical monuments, some «mild» interventions were chosen which would not create optical perturbances. In areas of luxury tourism attractions the idea of the use of solar vehicles in the golf terrains were launched, whereas in remote areas the combustion from biomass was promoted for the domestic use.

Crete: On the island, different forms of tourism are developing in perfect coexistence (leisure, religious, cultural, medical, ecological tourism, etc.). The island is very well equipped with transport infrastructures (two international airports) and facilities. A tendency of these infrastructures' enrichment is occurring in present times with bioclimatic elements to be integrated in hotels, attracting engineers and (mainly local) investors' interest. That's why one of the biggest solar thermal systems in Europe is situated on this island, on a 275 bed capacity hotel. The surface of the solar collector is 2,358m^2 and covers the 70% of the hotel's total demand in hot water (Waldmann, 2004). Apart from this system, since 1999 some hotels of Crete host solar collectors which enable the covering of almost 10% of their needs, meaning an everyday load of 450-500kWH (Bakos and Soursos, 2002). Considering that Greece has a benefit of almost 3,000 hours of sun per year and the possibility of solar energy production is estimated in 1,900KWH/m2 per year (DascalakI and Balaras, 2004) and considering that the construction sector in Greece consumes 36% of the total energy and produces 40% of the greenhouse gas emissions, solar energy is expected to lead at the improvement of living standards of local inhabitants and an increase of tourism's quality. In Crete, renewable energy projects may play also the role of tourism thematic parks. It should be added though, based on the opinion of some of the authors of this report, that many times great opposition has arisen particularly in Crete in the past years, not only for the wind power but also electricity from photovoltaics, with oppositions from the residents of two communities, one rural (for wind energy) and one urban (for the photovoltaics). Hence, authorities should also be particularly aware of such problems and should be ready to resolve any disputes.

Milos: Rich in mines and in geothermy, the island has often been proposed for the implementation of pilot-projects on hydrogen and geothermy. Nevertheless, because of an accident taking place back in '80's where toxic fluids have escaped during an effort of exploiting the 2MW geothermal power plant, local residents remain always sceptical towards the operation of innovative energy projects in their territories (Manologlou et al., 2002). The yearly organisation on the island though of two of the

biggest Hellenic conferences on renewable energy (the one being on RETs and the other on bioclimatic architecture) attract scientific tourism; this form of tourism is expected to lead to the extension of the tourism period on the island, as well as to the attraction of investments on renewable energy sources.

Skopelos: Nowadays, the residents of the island seem to be more and more ecologically sensitive and informed about the importance of renewable energies and their applications. They even think to create a synergy between all productive sectors by further exploiting local products and by using RETs in the dispersed energy needs occurring (Michalena, 2007). Nevertheless, beyond this sensitivity which is certainly an essential pre-condition to engage new strategies, research in Skopelos highlighted a further need for information on renewable energy sources.

A clever combination of **wind and hydro energy**, particularly suited for islands has been suggested many years ago and people are trying to figure out the pros and cons for this situation. Wind power has as main disadvantage the non-stable power provision, with periods of time, depending on wind, to work maybe at peak power, and periods of time to work at almost zero power. If the extra power available at the peak hours is harnessed in the form of water potential energy, water from a lower reservoir could be lifted to higher reservoir and could power a small hydro-power plant when needed. Such solutions have been studied extensively, however, to the authors' knowledge, it is only during this time that it authorities in islands, e.g. El Hierro, are considering this implementation. A variation of this could be with the back-up solution of a thermal power plant, powered by diesel or natural gas.

A power plant fuelled by the wind and generating electricity from water is set to make the Atlantic island of El Hierro (Canaries, Spain) almost self-sufficient from renewable energy resources After more than 12 years of drafting studies and environmental impact assessments, overcoming European, Spanish, regional and local bureaucratic hurdles, and securing a budget of €64.5 million, construction of the world's first wind-hydro power station is scheduled to begin next month[25] and be completed by the end of next year or the start of 2011. It is the first time anywhere a wind-hydro station will attempt to provide about 80 per cent of the annual electricity demand of an isolated area (in the summer months of June, July and August it is hoped it will cover 100 per cent of the power demand). The rest of the island's electricity needs will be covered by the existing diesel power station and, in the near

[25]C Rubio, 2009. A blueprint for green, The National, Sept. 1, 2009

future, by a combination of other renewable energy sources. Among the main components of the wind-hydro system is a wind farm (10-12 MW) which will supply energy to inject directly into the grid or to pump water from a lower to an upper reservoir. The wind farm will be set up on top of a cliff close to the upper reservoir, a waterproofed volcanic crater, located at nearly 700 meters above sea level, but perched only meters from the shoreline. This reservoir will have a capacity of 500,000 cubic meters of water, while the lower reservoir, located at sea level, next to the future mini-hydropower station, can store 150,000 cubic meters of desalinated water. Both reservoirs will be linked by nearly three kilometers of pipes that will distribute water between the two sites.

Continuing on the story, Rubio (2009) presents similar attempts of Abu Dhabi's Masdar City (UAE), where, on a much smaller scale (6 sq km), work has begun on, the UAE's pioneering attempt to reduce the country's enormous carbon footprint – one of the highest per capita in the world because of our reliance on air conditioning, cars and energy-intensive desalination plants – which, it is hoped, will be a model for other cities in the region. The walled city, boasting narrow streets and pedestrian-friendly shaded walkways, will be the world's first zero-carbon, zero-waste, car-free city. Electricity will be generated by photovoltaic panels and a wind farm, while water will be provided by a solar-powered desalination plant. Crops grown outside the city and the landscaping within will be irrigated with grey (recycled household) water and treated wastewater.

A huge construction aimed at shore facilities rather than an island is already in the works in Quebec[26]. Hydro-Quebec begins construction next summer on the 1550 MW La Romaine hydroelectric dam, the $2.8 billion-a-year utility will be simultaneously developing smart grid control and load forecasting technologies aimed at integrating hydropower with Quebec's fast growing inventory of wind farms.

Solutions for this approach have been presented in Europe and recently have been started to be implemented, like the one depicted in Figure 11.

[26] Lorinc J., 2009. Integrating Wind and Hydro Power in Quebec, March 10. http://greeninc.blogs.nytimes.com/2009/03/10/integrating-wind-and-hydro-power/

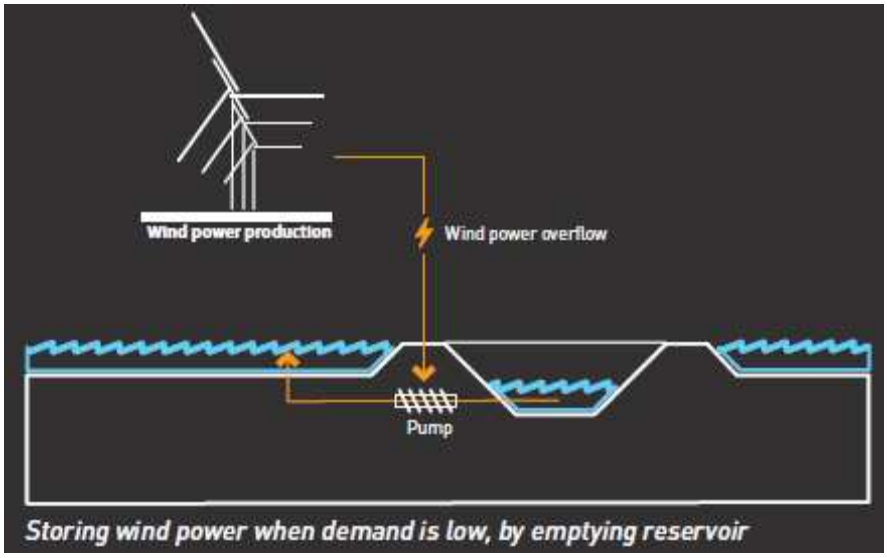


Figure 11. The basic concept

(Source: Green Power Island, Denmark, Gottlieb Paludan Architects and Risø-DTU, with support from Danish and international energy advisors).

www.greenpowerisland.dk

11. Innovation trends on Environmental Technologies

11.1 Innovative Environmental Technologies

Most of tourism destination rely on natural environment to attract visitors, and in particular the 3S (sea-sun-sand) visitors. However, research with hotels and travel industry executives shows that travel industry is not fully immersed into environmental technology application programs. Furthermore, research raises questions about the benefits that industry might have on applying these policies (Blanco et al., 2009). A survey of European hoteliers[27] finds that environmental stewardship has taken a backseat to other operational concerns in many cases. It should, however, be stated that, the surveyed hoteliers recognized that the hotel industry would do well to be more environmentally conscious. In chain-affiliated hotels managers were generally more likely to pay attention to environmental issues than were independent operators, many of whom run small properties. A very interesting finding was that the respondents noted that few hotel guests demand that hotels maintain environmental programs. Interestingly enough, similar findings, although to a smaller number of hotels, were found and reported in the case of Crete, already reported in the Regional Report of Crete, for TOUREG. Similar also results

[27] Bohdanowicz P., 2005. European Hoteliers' Environmental Attitudes, Greening the Business, Cornell Hotel and Restaurant Administration Quarterly 2005; 46; 188-204.

have been reported in New Zealand (Mullan, 2009) where the author found that tourism organizations in Wellington mainly took an informal approach towards environmental management. However, a qualitative method of enquiry revealed that tourism businesses were slowly moving towards change.

How much waste is produced by the hotels? A crude estimate could give indications and directions for implementing environmentally sensitive technologies in order to reduce impact on environment. Based on her own work and literature studies Bohdanowicz (2005) indicated that it is estimated that a typical hotel annually releases between 160 and 200 kg of CO2 per m2 of room floor area, depending on the fuel used to generate electricity, heating, or cooling (Chan and Lam, 2002). It is estimated that, depending on the hotel standard, guests generally consume between 170 and 360 liters of water per night (Verginis and Wood, 2001). It should be noted that our research in Creta[28] indicated a number of 200 l per person per night. By comparison, an older report from a European hotel chain (Radisson SAS 2002) provided a figure of 440 liters per guest-night, while another source reports a consumption of 224 liters per guest-night (Scandic Hotels AB, 2000).

A variety of environmental guidelines have been developed by different organizations, such as the International Hotel & Restaurant Association (IH&RA), the American Hotel & Lodging Association (AH&LA), and the International Hotel Environmental Initiative (IHEI). Even hotel corporations now prepare their own action plans and training programs in environmental protection as there is ample evidence showing that resource efficiency and environmental responsibility make excellent business sense (Bohdanowicz 2005). The survey of Bohdanowicz included responses from 610 European hotels, from a target audience of 4049, a response rate of 16.6% and was concluded between December 2002 and May 2003..

11.2 Case studies - Environmental technologies

Tourists are becoming increasingly sophisticated in their choice of tourism destination (Poon, 1993; Swarbrooke and Horner, 1999). In this regard, a major factor in the choice set of tourists could be the environmental quality of their preferred destination (Yaw, 2005). Bhat (1999) argues that “customers are demanding environmentally benign products”, but as indicated above, other researchers found that this is not the case. Planners of tourism destinations also understand that the sustainability of their product necessitates consideration of issues of environmental

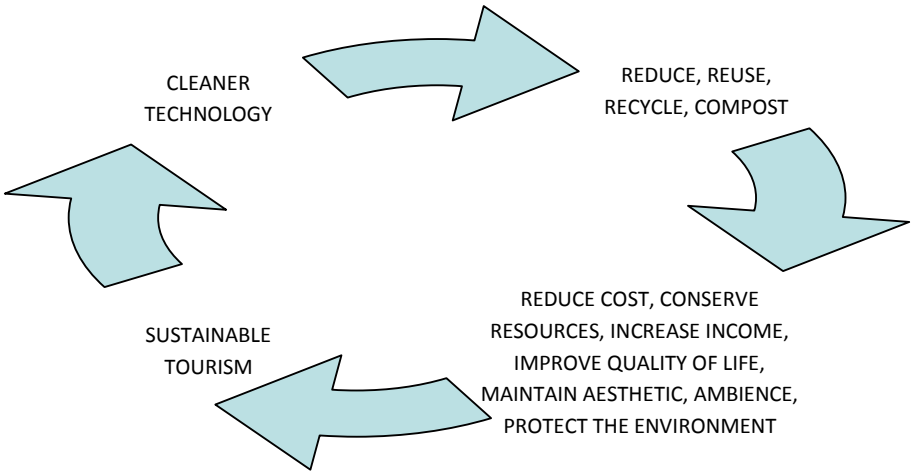
[28] Saitakis et al., 2009. Regional Report on Tourism for Crete, TOUREG project

protection and conservation. As Yaw mentions (2005, Figure 12) the use of cleaner technologies can contribute to the sustainability of the tourism system. Blommestein (1995) goes further concluding in that global competition will force the destination to become more environmental conscious or find itself marginalized in the global tourism market.

Mankind's capability to extract useful services from the ecosystem can be extended through using what are called "cleaner technologies", namely technologies that allow production with little or no waste through total recycling of by products (Yaw, 2005). According to the UNEP (1998) and Asolekar (1999), cleaner technologies can contribute to the closure of the production-process cycle (Figure 12). Yaw (2005) gives examples of such cleaner technologies that include tertiary treated sewage use for irrigation, metal, glass and plastic recycling, composting organic solid waste, use of renewable energy sources, smart building design to reduce energy demand for lighting and cooling systems.

As Clayton et al. (1999) suggest the use of cleaner technologies lead to minimization of the volumes and hazards of gaseous, liquid and solid waste, minimization of the risk of accidents involving chemicals and processes, minimization of the consumption of raw materials, water and energy and use of the substitute chemicals and processes less hazardous to human and ecological health.

Figure 12: Contribution of cleaner technologies to the production – process cycle



Source: Yaw, 2005

According to studies conducted by Yaw (2005), Blanco et al. (2009) and Erkus-Ozturk & Eraydin (2009), tourism firms, by undertaking cleaner technologies and complying with environmental friendly policies can enjoy the following benefits, attract more and "green" customers, reduce production, fixed etc costs, comply with

international environmental protocols and national environmental policies, maintain environmental integrity, reduce energy consumption, reduce material usage.

Best practices, identified by empirical case studies, in using cleaner technologies in tourism could be summarized into energy saving, by means of use of energy saving lighting devices (bulbs etc), use of low energy consumption air-conditioning / cooling or heating devices and use of solar and wind power within the establishments (for water heating or electrical power production). Also they can include material saving and reduction of waste by several means like composting solid organic waste, treatment and reuse of wastewater, collect rainwater in tanks, glass, paper, metal and plastic recycling and use of environmentally friendly cleaning products.

The **One Planet Concept** consists of a range of practical projects and partnerships that demonstrate how we can live within our fair share of the earth's resources[29]. In order to implement it, the CoaST movement has been initiated and a web site has evolved[30], thus producing the **One Planet Tourism** which can be defined as the tourism operating within its environmental, social and economic means, and providing environmental, social and economic benefit. Where-ever you're based, where you are, is a fantastic place to visit, to live and to work; it's even better when we do it within our resources.

Mata de Sesimbra ("Sesimbra Forest") is a €1 billion integrated sustainable building, tourism, nature conservation and reforestation programme about an hour south of Lisbon[31] and will be based on the One Planet Concept. The 5,300 hectare site will contain a 4,800 hectare nature reserve and native pine, cork and oak forest restoration project, alongside a 500 hectare tourism development comprising around 5,000 units. The project uses an innovative new low-energy pre-fabricated polystyrene building block that has very high thermal insulation properties.

Studies suggest[32] that over the next 20 years, tourism in the Mediterranean will rise by 50 per cent to an estimated 350 million people visiting the region each year. Conventional, mass tourism has been identified as one of the major threats to the "natural capital" of the Mediterranean region, through high consumption and

[29] http://www.bioregional.com/what-we-do/our-services/one-planet-initiative/
[30] http://www.cstn.org.uk/
[31] http://www.oneplanetcommunities.org/Sesimbra/
[32] Paulo Reis Silva, One Planet Living Pioneer Project

waste levels, and also direct destruction of natural areas. In a country like Portugal, where tourism represents 10 per cent of national GDP, the alternative model of sustainable tourism being developed as part of the Mata de Sesimbra OPL project if tourism is to go hand in hand with sustainable development.

The **Green Hotel** project[33], has been implemented in Madeira, to promote the use of renewable energies through decentralised demonstration systems that are economically feasible. Furthermore, it can be used as a demonstration facility where they could present environmentally friendly and solid technological solutions. This could be achieved by combining various energy sources and technologies, by implementation of measures for rational use of energy while at the same time obtaining the same quality of comfort. The project produces potable water and has wastewater treatment, bearing in mind self-sufficiency in an isolated area with weak hydro resources, without access to the public wastewater system. This has been achieved with a low-energy water desalination system (3 kWh/m^3), a low-energy wastewater treatment system, with a reduction of waste production in terms of quantity and hazard, by selective collection of waste, by composting of organic waste and use for gardening purposes and finally awareness raising for sustainable waste management.

[33] J. M. Melim Mendes, 2009. The “Green Hotel” Project, (CEC NNE5-2001-707, Presentation to TOUREG Conference, Lisbon, Jan. 2009.

12. Policies and initiatives for innovation in tourism industry

"Innovation is the key to growth, competitiveness and thus social well-being in the 21st century" according to the *European Institute of Innovation and Technology* (EIT, Budapest, Hungary), established in 2008 by the European Parliament and the Council of the European Union as a result of the innovation agenda developed in Lisbon in 2000. As the capacity of a society to innovate is expected to be crucial in an even more knowledge-intensive economy, the EIT's initiative aims to become a flagship for excellence in European innovation in order "to find new and lasting solutions to major global challenges, such as energy, climate change, or the future of information and communication" (http://eit.europa.eu). The year 2009 has been officially designated as the "European Year of Creativity and Innovation" and several other initiatives have been put in place to support the innovation policy framework put forward by the European Commission (2008), for instance the "Lead Market Initiative for Europe", "PRO INNO Europe" and "Europe INNOVA". Initiatives also exist to foster innovation at the regional level; the Innovating Regions in Europe (IRE) network was established by the European Commission in the mid-1990s and currently has 235 member regions (IRE, 2008) (Gretzel 2008:2).

Policy makers worldwide are increasingly recognising that services have central role in the economy, since a well-functioning services sector is the key to the overall economic performance of the countries and to the welfare of its citizens (Kuusisto 2008:8). Tourism is basically a service industry and its management practices are highly focused on the efficiency and effectiveness of the information and knowledge exchanges that occur between the different organizations that need to collaborate in order to deliver composite products (Otto and Ritchie 1996 in Baggio and Cooper, to be published). Drawing from various authors, Gretzel (2008:4) states that "research on innovation in the tourism industry is still in its infancy" but the already existing literature has identified various aspects of innovation in tourism and has examined innovation at the destination level, within the hotel industry as well as within other small and medium sized tourism enterprises. Innovation is vital to success in developing customer strategies for new global tourism models.

The development of new products and services and the supply's adaptation to global customer trends requires a great deal of innovation (Gallo and Krupka 2008:6). Yet, as it will be clarified in the next sections, most innovations currently happen outside the tourism industry and are only later adopted by organizations

within it; this is partly due to the unique structure of the industry and the particular nature of its product (Gretzel 2008:5). Tourism experiences consist of a variety of products and services that need to be created, marketed and sold by a multitude of businesses which are typically small and do not engage in research and development-related activities, or at least not to the extent common in other industries (ibid.). At this point, however, it should be argued that in the global tourism market it is destinations, not individual businesses, that compete to attract more customers (Ritchie and Crouch, 2003 in Baggio and Cooper, to be published, p.2).

Developing collaboration within the "knowledge triangle" of research, education and innovation, has been identified by the European Union as a core factor in building a dynamic knowledge-based economy. As a consequence, the Seventh Research Framework Program stresses the significance of collaborative networks (Gretzel 2008:2). Kuusisto (2008:16, 23) underlines that any policy can drive or be hindrance to service innovation and links the dimensions of service innovation systematically to policies and development tools (Figures 13 and 14)

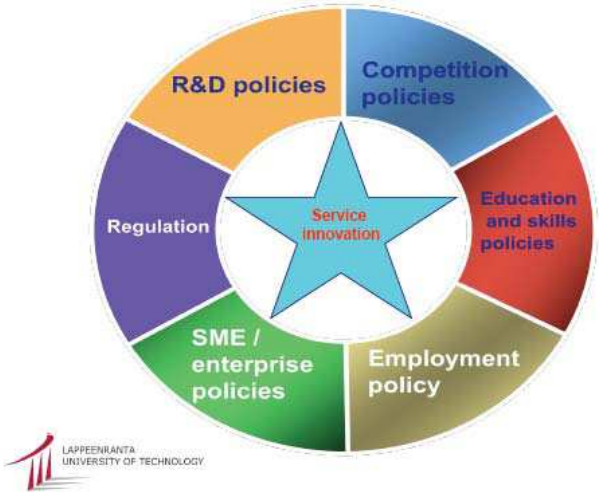


Figure 13: Innovation and policies, Source: Kuusisto 2008:16

Despite the vital need for knowledge sharing and cooperation in order to effectively sell tourism experiences and destinations, collaborative efforts in tourism are still limited. Gretzel (2008:5) mentions that there is some evidence of successful partnerships in tourism (see for instance Novelli, Schmitz & Spencer 2006), yet networks for the specific purpose of fostering innovation in tourism are currently only established in a few regions/countries, with the most prominent example being the *Sustainable Tourism Cooperative Research Centre* in Australia (STCRC, 2008). Progress in service innovation policy has already gained momentum in a number of developed countries, including Australia, Finland, Germany, Ireland, Netherlands,

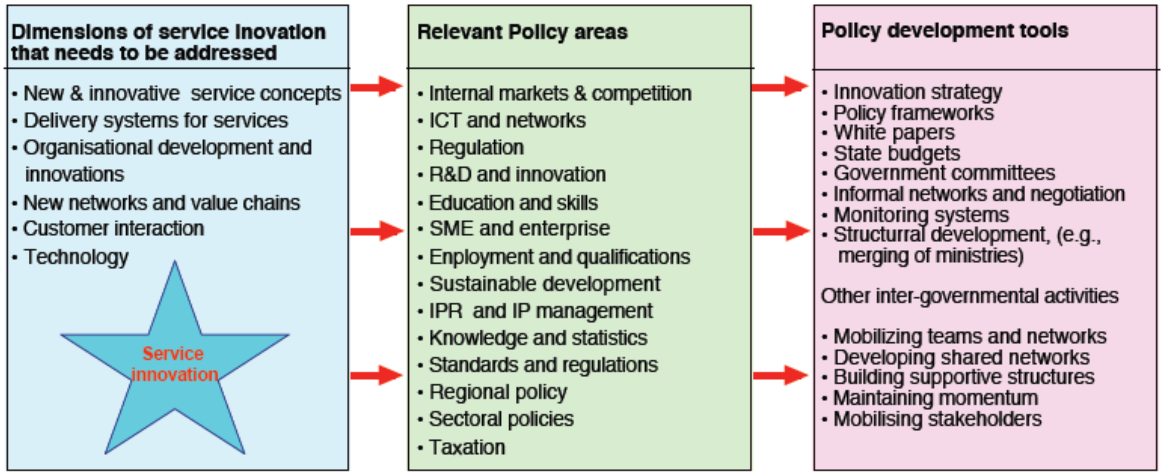
Sweden and the United Kingdom, OECD and EU, have launched high-level policy documents addressing service innovation promotion. For example, Finland, Ireland, Japan and Australia are emphasising service innovation elements in their new innovation strategies (Kuusisto, 2008:20).

Pekkarinen (2006) has been advocating that the chief objective of service innovation is to exploit new technologies and not to create them. This can be achieved by building new service concepts on existing technological platforms. The upgrading of quality systems at the destination, in order to meet customer demands more effectively, is a case of an organisational innovation. Co-operation between formal R&D and enterprises accounts for very little and thus close connections between academia and businesses are being seriously questioned. Contacts with customers and suppliers are far more important to the innovation process in tourism enterprises. Therefore, innovation policies in tourism should mainly aim at enhancing destination-based or networking innovations rather than single company innovations. Governments should encourage innovative firms to achieve economies of scale, innovating on the basis of co-operative alliances and other forms of networking

In a knowledge economy, destinations ought to innovate to remain competitive; the management of knowledge underpins this innovation and so, an understanding of how knowledge can be managed across complex network organizations is fundamental to this process.

Figure14

Linking the dimensions of service innovation to policies and development tools



Source: Kuusisto 2008:23

For tourism, as it has been seen, a particular concern is the fact that most destinations are comprised of SMEs, organizations which tend to be knowledge averse and therefore, as Baggio and Cooper (to be published, p.12) underline, public sector intervention is essential in order to establish cooperative frameworks and networks at the destination level:“In other words, the theoretical interest in understanding the processes of knowledge transfer in a complex system such as a tourism destination is crucial from the point of view of practitioners. This implies a future research agenda focused upon network configuration and metrics linked to the competitive performance of destinations” (ibid).

Orfila-Sintes and Mattsson (2009) studied the innovation behavior in the hospitality sector, as few studies have attempted to investigate it in the past, because Innovation is one of the main determinants of competitiveness. The accommodation sector, as it is non-intensive knowledge businesses, innovate through introducing R&D embodied in technology (i.e. new equipments or software) rather than undertaking internal R&D activities. Their research has verified the importance of the customer competences in service sectors and particularly the hotel industry. The average customer travel motive, way of booking and the kind of accommodation/board they buy are all affecting hotels’ innovation. Furthermore, a positive effect of the average customer directly booking her or his stay there was influencing the firm’s innovation behavior. More demanding customers, it seems, prefer direct booking in comparison with customers booking through tour operators. Orfila-Sintes and Mattsson (2009) outlined the **characteristics of an innovative hotel**, which is a hotel highly **integrated in a network** of commercial relations (with operators and chains) and with **owners in full control of costs and new services**. Network relations cut costs and bring stability which can carry the risk and costs of introducing new services. Hotel managers and owners would make innovation decisions concerning the additional services on offer, taking into account that bookings are made through tour operators, that hotels are part of a hotel chain and that the owners of the hotel run the business.

Sundbo et al. (2007) made some suggestions for an innovation policy in tourism. The **policy makers** should **emphasise education** and **increasing managerial professionalism** in the industry. One may further suggest that tourist firms should be encouraged to introduce more technology, particularly IT (e.g. Websites), and **social research on customer behaviour** and reactions should be supported. Still, tourist products are mostly behavioural and dependent on user needs and reaction, however, IT has increasingly become a means in the interaction with the customer and may even be a self-service instrument.

Several initiatives in Europe, USA and around the world have been implemented in the recent past aiming at fostering innovation promotion in the tourism industry. At the same time companies, research organizations and University laboratories are working, not in high volumes compared to other industries, towards developing new products using ICT solutions and on implementing energy and environmental technologies for improving tourism industry competitiveness. In what follows we will be presenting such initiatives which can help to create a better picture of the innovative hotelier and lodging and leisure industry of the future. The stakeholders of tourism in Europe will receive strong support from the Commission, since the Commission has put in place a renewed European tourism policy, based on the experiences gained so far and responding to the challenges of today. The main aim of this policy have been to improve the competitiveness of the European tourism industry and create more and better jobs through the sustainable growth of tourism in Europe and globally[34].

12.1 Tourism networks and information distribution. Innovation policies against imitation.

A network may be defined as a set of nodes linked by a set of specified relationships, among firms and individuals. According to Burt (2000), the distributed information benefits among the nodes and actors who are positioned in sparse networks, while, Coleman (1988) argues that information benefits are optimized in dense networks. Such networks, promote cooperation, trust and shared norms facilitating knowledge sharing, fine gained information transfer and joint problem solving (Uzzi 1997, Ahuja 2000). While at first glance these are two competing interpretations, they can also be seen as complementary, as it has been argued that sparse and dense networks provide different types of information: **exploration** and **exploitation** (Sorenssen 2007). Exploitation concerns the refinement and extension of existing competences and technologies, which is argued to be supported by dense networks, while exploration on the other hand, concerns the gathering of general information, which is supported by sparse networks (Ahuja 2000).

The Internet, as it is today, is an open, sparse network, where nodes are not competing each other, they are not interconnected and they can easily share information, while in a Grid Network, the nodes are tightly connected, facilitating

[34] COM (2006), A renewed EU Tourism Policy: Towards a stronger partnership for European Tourism, 134 final, Brussels, 17.3.2006

transfer of knowledge and information in a exponential increase of storage and process capacity, therefore argued to be an important factor of innovation.

Tourism firms typically have not been considered intensive information users, as far as innovation in concerned. They have been seen instead as low knowledge, low technology firms which are not innovators as innovations are made in other sectors, supplying tourism firms with products and services (Hjalager 2002); for example, the hotel sector is not characterized by specific pieces of knowledge which may be protected by patent. Tourism firms do not, therefore, engage themselves in costly product development, because any innovation will be imitated immediately (Poon 1993). However, it has also been argued, that increased competition has made the sector high technology depended (Lattin 1990) and that ease of imitation does not render information irrelevant but instead, increases its importance. As tourism firms' innovations are imitated easily, firms need a capacity of continuous learning so, by the time an innovation is imitated, the firm will already have "jumped ahead of the game" (Poon 1993).

Under this scope, we acknowledge different types of relations between the stakeholders of tourism. The most salient of these are: Vertical Distribution Networks (between firms and distributors), Vertical Input Relations (between firms and suppliers), horizontal competitive of chain relations (between similar firms) and horizontal complementary relations (between firms and attractions). A Grid computing network, which has by default the peer-to-peer characteristics, combines all the above elements of relationships, while the innovativeness is contained to the initial research question of the ability of the network to redefine the node of distance between the potential stakeholders. Beyond the geographical structure of a local network, where linkages are quite weak (Coe and Townsend 1998) mainly due to the fact that stakeholders with similar characteristics (within the destination) act more competitively to each other, we need to take under consideration the importance of economic, cultural and organizational distances and proximity between them (Lundvall 1992). From this point of view, non-local proximity networks – i.e strong non-local networks characterized by economic, cultural and organizational proximity, facilitate the flow of knowledge (mainly tacit) that "sticks" to non-local networks, rather than to places.

After the identification of the space, distance and proximity among the local and non- local stakeholders, we shall examine the impact of the established network to the innovation indicators, as they are defined in the European Innovation Scoreboard and the regional European Innovation Scorecard.

12.2 Policies and initiatives applied in the ICT sector

European Community is enforcing European policies in a number of areas which have a considerable and even growing impact on tourism. In addition, several actions in the fields of education, vocational training, youth, culture, regional policy are supported through EU programs. Furthermore, R&D programs with aim to develop product and services for the tourism industry, and in particular the ICT program have significant funds available.

Regarding policies to promote e-business and ICT adoption, the following measures would seem most promising[35]: initiatives to promote networking and cooperation, encouraging the adoption of e-business in micro and small companies, promoting ICT infrastructure and e-integrated business processes and encouraging innovation and research and development in e-tourism. Measures should also be taken against market concentration, particularly for the online booking business.

European Union has also launched the European wide portal, visiteurope.com, already mentioned above and tries, using ICT to promote the **Europe brand**.

12.3 Policies and initiatives applied in the energy and the environmental technologies sector

In recognition of its importance, energy has been identified as one of the top five key thematic areas of Water, Energy, Health, Agriculture and Biodiversity included in the "WEHAB" initiative presented by the UN Secretary-General Kofi Annan as a contribution to the preparations for the World Summit on Sustainable Development (WSSD) in Johannesburg (2002)[36]. This initiative seeks to provide focus and impetus to action in the five key thematic areas that are integral to a coherent international approach to the implementation of Sustainable Development and that are among the issues contained in the Johannesburg Plan of Implementation (JPOI)[37]. It includes proposals for a number of targeted actions in each of the sectoral areas that are anchored in various inter-governmentally agreed multilateral frameworks on the basis of an incremental approach to meeting broad targets (United Nations, n.d). In addition, the importance of energy and its critical role

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[35] http://www.ebusiness-watch.org/studies/sectors/tourism/tourism.htm

[36] WEHAB Working Group "*A Framework for Action on Energy*", August 2002.

for achieving Sustainable Development was emphasized by the ninth session of the UN Commission on Sustainable Development (CSD-9), which was held in New York 16-27 April 2001, and concentrated on energy, transport and atmosphere. During CSD-9, the governments agreed that energy is in fact the driving force behind all the other WEHAB areas and that it is central to the achievement of sustainable development (ibid).

The renewed Lisbon Strategy constitutes an essential component of the overarching objective of sustainable development set out in the Treaty: improving welfare and living conditions in a sustainable way for present and future generations. Already in the Communication "Basic orientations for the sustainability of European tourism" the Commission pointed out that ensuring the economic, social and environmental sustainability of European tourism is crucial, both as a contribution to sustainable development in Europe and world-wide and for the viability, continued growth, competitiveness and commercial success of this economically-important sector. As a result the Commission launched the preparation of a European *Agenda 21* for tourism and set up in 2004 the Tourism Sustainability Group (TSG) in order to encourage stakeholder synergies and to provide input into the Agenda 21 process for the sustainability of European tourism. The TSG is composed of experts coming from a balanced representation of industry associations, destinations representatives and trade unions/civil society. Member States' administrations and international organisations such as the World Tourism Organisation are also represented. The TSG pays particular attention to environment related issues (Commission of the European Communities 2006:7-8).

In order to stimulate innovation in energy technologies, policy makers must choose from a vast and diverse set of policy instruments. Drawing on earlier debates in the economics of innovation energy technology studies frequently distinguish between "demand pull," government actions that enlarge the market for a new technology, and "technology push," those that influence the supply of new knowledge. More specifically, examples of technology push policy that reduce the cost to firms of producing innovation include: government sponsored R&D, tax credits for companies to invest in R&D, enhancing the capacity for knowledge exchange, support for education and training, and funding demonstration projects. Regarding demand pull policy, government actions create incentives for firms to invest in innovation by raising the payoffs for successful innovations. Examples include: intellectual property protection, tax credits and rebates for consumers of new

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[37] World Summit on Sustainable Development, Plan of Implementation, Website:

technologies, government procurement, technology mandates, regulatory standards, and taxes on competing technologies (Nemet 2006:9).

According to the OEDC (Philibert 2004:6): "international technology cooperation, by sharing information, costs, and efforts, might accelerate and facilitate technical change towards more climate-friendly technologies. Cooperation between countries should not preclude competition between companies, and may drive governments to increase their efforts, especially in supporting basic research and development. Increased technology cooperation between countries could help engage more countries into action to mitigate greenhouse gas emissions. The current globalisation of investment, trade and innovation should be seen as an opportunity for leveraging direct efforts toward development and dissemination of climate-friendly technologies. However, governments must act to strengthen and green trade and investment in order to realise this opportunity. National policies and governance are also fundamentally important as they create an environment conducive to wider dissemination of climate-friendly technologies".

Responding to the challenge of climate change and to promote innovation in energy technologies, *Hotel Energy Solutions* (2007, http://www.unwto.org/hes/) is a European Commission co-funded initiative which brings together key organisations in the fields of tourism and energy technologies: the World Tourism Organization which is coordinating the project, the United Nations Environment Program, the International Hotel and Restaurant Association, the European Renewable Energy Council and the French Environment and Energy Management Agency. According to the Hotel Energy Solutions Fact Sheet the initiative will deliver training, information and technical support to help small and medium sized hotels across the 27 EU countries to increase their use of energy efficiency and renewable energy. This will help to reduce hotel operational costs, while increasing competitiveness and sustainability and assist in alleviating the industry's impact on climate change. Within participating hotels, the Hotel Energy Solutions Project aims to achieve 20% increase in energy efficiency and 10% increase in usage of renewable energy technologies.

The **Hotel Energy Solutions Project** will undertake three key functions:

- Develop a toolkit and supporting materials to assist SME hotels to plan for and invest in energy efficiency (EE) and renewable energy (RE) technologies.
- Test the toolkit in hotels – and use the lessons learned to improve the tools.
- Disseminate and promote the toolkit to hotels – highlighting practical solutions for increased use of energy efficiency (EE) and renewable energy (RE)

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www.johannesburgsummit.org/html/documents/summit-docs/2309-planfinal.htm./

technologies in SME hotels across the European Union, alongside tools enabling SME hotels to benchmark their energy performance and prioritise the most cost-effective investments for improving their energy performance.

The project presents substantial opportunities for SME hotels, technology providers, hotel associations providing support to their members, and destinations working to reduce CO2 emissions and improve their competitiveness.

Given the above indicative examples, countries as well as the international community seem to be directing to sustained efforts so as to meet the issues and challenges for making the energy production, distribution and use patterns compatible with the requirements of Sustainable Tourism Development.

Growing consciousness and sensitivity to the negative tourism effects is becoming noticeable in destinations (Krippendrof, 1982). Furthermore, natural assets at tourism destinations and sustainable tourism development are fast growing topics in the tourism literature (Hassan, 2000; Huybers & Benett, 2003). Sustainable tourism is an important issue given the limits imposed on the human economy by the ecological system and cleaner technologies impact positively on maintaining a sustainable tourism industry (Yaw, 2005). Nijkamp and Verdonkschot (1995) define sustainable tourism as “a process that allows tourism growth while at the same time preventing degradation of the environment, as this may have important consequences for future quality of life”.

The adoption of cleaner technology depends on the factors influencing the rate of diffusion (Yaw, 2005). Diffusion in relation to cleaner technology involves the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 1995). Government policies, which can affect the rate of diffusion of technology, reflect the power structure that in turn reflects who controls the information flow (Yaw, 2005). Furthermore, government policies speak to the social construction of technology and links to the point that the pursuit of the sustainable development is not a process that will progress only because of its logic, but also by the socio-political strength of the key decision-makers within any given society (Yaw, 2005).

Public policy is important and directly impacts of the diffusion of technology because it is public policy that establishes the climate in which businesses operate, signalling by executive orders, tax policies, research and development policies, industrial policies, education policies, policies on infrastructure, on accounting rules and incentive regimes what is seen by the government concerned as the desired direction (Yaw, 2005).

Gold (1981) looked more closely at the diffusion of technology from the perspective of business, viewing rates of diffusion of technology as being determined essentially by managerial decisions at the level of individual firms. He also argues that the framework for these decisions is termed “the pre-decision environment”. Irwin and Hooper (1992) also argued that the business environment was critical to the diffusion of technology, highlighting the importance of corporate culture and availability of capital as determinants of innovation.

In accordance to the governmental policy making, voluntary initiatives by users of natural attractions are emerging and are being successfully implemented all around the world, demonstrating that there are other viable solutions (Blanco et al., 2009). These are comprised of individual actions such as best practice (for example, the tour operator’s initiative for sustainable tourism development) or environmental management systems (for example, ISO 14001 and EMAS) (Blanco et al., 2009). Individuals also comprised of collective solutions such as tourism collaborations and partnerships for sustainability (Bramwell & Lane, 2000). Limitations in using cleaner technologies (Yaw, 2005). can be stated as, expensive equipment / investment, low consumer interest, no government sanctions, lack of skilled, professional staff. The author gave the following suggestions, regarding the removal by the government of all taxes on renewable energy technologies, the use of geothermal energy, the implementation of a solar lighting demonstration project, and the permitting the purchase of solar water heaters as an allowance against taxable income.

Alvarez et al., (2001) and Carmona-Moreno et al., (2004) conducted their empirical examinations on the relationship between environmental and economic performance of Spanish three to five stars hotels within a wider research framework, different for each study” (Blanco, 2009). They found that in these case studies voluntary initiatives by tourism firms have been undertaken as means of cleaner technology / environmental policy implementation as far as the private sector in concerned. The provided the following suggestions, that “tourism collaborations and partnerships for sustainability lead to modification of the rules-in-use at the destination and can change the results derived from the use of common pool resources, enhancing the well-being of the agents”.

Studying relations among public and private tourism stakeholders in Antalya, Turkey, Erkus-Ozturk & Eraydin (2009) found information revealing detailed information on the nature of the networks. The researchers have proven that “governance practices, including various collaborative activities among governmental and non-profit organizations, are becoming increasingly popular in Antalya, not only in tourism development but also in environmental protection” . These initiatives act as

networks diffusing best practices and new / cleaner technologies and were shaped as relations formed to increase business efficiency (overbooking, transportation, financial relations), relations formed for promotion (advertising, cultural and natural conservation and its promotion, festivals etc.), relations formed for Problem Solving (legal, managerial and administrative problem solving, awareness-Raising Projects (education programs, conference organisations) and relations related to inputs (supply of food, textiles, furniture, electronic goods etc. from producer companies). The researches recorded that higher environmental motivation leads to higher financial efficiency, environmentally oriented organizations creating emphasises the importance of local concerns and endogenous dynamics and collaborative work in environmental sustainability, provides more protection than can be achieved by individual organisations. Erkus-Ozturk and Eraydin (2009) revealed the great "importance of two main types of environmental linkages: a) self-regulating action networks and b) policy and planning networks at the three geographical levels (local, national and global)" that cooperate on the basis of achieving sustainable tourism development.

Scanlon (2007) identified a lack of systemized measurement and documentation of utility consumption rates and costs in individualized properties in tourism industry. Furthermore, corporate benchmarks for utility consumption were found to be not effective benchmarks for non-affiliated hotels and resorts to achieve. Education of hotel owners and operators was stated as the key to understanding the benefits of implementing environmental management practices. Many hotel operators and engineers were still unaware of the savings opportunities to be realized by implementing environmental activities identified in this study like, utility reduction notices; energy savings technology and linen-towel reuse programs. Lodging operators see growing pressures from shareholders to reduce operating costs, and to present evidence of environmental management practices. She finally concluded that **education** as to the benefits of environmental programs and practices was the **major** factor that could significantly affect the acceptability of implementing environmentally friendly policies and services.

Azorin et al. (2009) concluded that the ability of corporations to manage their environmental performance is a strategic issue for many companies worldwide. Thus, proactive environmental strategies should be proposed as urgent, profitable and sustainable ways for firms to deal with natural environment. Their findings showed that environmental management exerts a significant influence on hotel performance. Then, hotel **managers should consider the implementation of environmental practices** to protect the natural environment and, at the same time, to improve the

competitiveness and performance of their enterprises. Secondly, specific environmental aspects were identified which exert a strong influence on each one of the groups identified.

12.4 Specific Initiatives

The European Union considers that tourism can be a good vehicle as regards to contributing to the achievement of several major EU objectives, such as sustainable development, economic growth, employment as well as economic and social cohesion. Thus EU has placed tourism support high in the development agenda and has established a dedicated web site via DG ENTERPRISE, http://ec.europa.eu/enterprise/sectors/tourism/index_en.html and also supports the European Destinations of Excellence (EDEN).

The denomination "**European Destinations of Excellence**" (http://ec.europa.eu/enterprise/sectors/tourism/eden/index_en.html) which is a recent pilot project organised by the European Commission in collaboration with the European Union Member States entitled "Best Emerging European Rural Destinations of Excellence". For the first time in October 2007, ten rural regions have been officially awarded the title of Destinations of Excellence : Pielachtal (Austria), Durbuy (Belgium), Sveti Martin na Muri (Republic of Croatia), Troodos (Cyprus), Florina (Greece), Őrség (Hungary), Clonakilty District (Ireland), Specchia (Italy), Kuldiga (Latvia) and Nadur (Malta). It has started as a pilot project (2006) to reach to preparatory action[38] to draw attention on value, diversity, shared characteristics, to enhance visibility, to combat seasonality, to help de-congestion, to rebalance tourism flows, to exchange good practices. The European Union site offers best practices on issues like, promotion of the territory, cooperation, planning and involvement of the stakeholders culture, communication and marketing, international cooperation, organisation of events, sustainability education, innovation and funding. Examples include a self-sustained energy-wise tourist resort accommodation which is isolated, Specchia (Italy, presented in 2007). The traditional nature-related tourism and lifestyle has been enlarged to incorporate the modern concept of sustainability. The modern promotion of renewable energy in the area has been included in this concept

[38]http://ec.europa.eu/enterprise/sectors/tourism/eden/pdf/what-is-eden/project-presentation_en.pdf.

through the construction of a tourist village almost entirely fuelled by wind and photovoltaic energy. Secondly, a firm has used part of the local agricultural heritage and created a new officinal herbs sector. In September 2009, 22 more destinations have been added and the network now comprises of 52 members.

The **FutureHotel,** Visions and Solutions for Tomorrow's Hotels (http://www.futurehotel.de) has been an initiative of Frauhoher Institutes and in particular of IAO. It aims at researching questions like, at what directions is the hotel sector evolving, opportunities for new materials, products and services, innovative technologies, innovative hotel concepts and solutions tailored to guest preferences, at the type of future hotel rooms. The basis will be provided from trend analysis, user surveys, scientific studies, and best practice research. The project is coordinated by IAO and eight other Frauhofer institutes contribute. It is expected that within the framework of the project, the hotel of the future will be predicted, identifying new trend solutions for hotel room, reception, conference areas, etc. taking into account technological innovations as well as economic, ecological, legal and aspects affecting society.

Pekkarinen (2006) has described the new programme, **Research and Development Programme for Leisure Services**

(http://akseli.tekes.fi/opencms/opencms/OhjelmaPortaali/ohjelmat/Elamys/en/etusivu.html) , initially focusing on the development of innovative tourism services, launched by the Finnish Funding Agency for Technology and Innovation (Tekes). The programme places an emphasis on research and development based on customer needs rather than technology. Programme duration was 2006-2009, with total funding of approximately 18 million euros, of which Tekes' share is approx. 9 million euros. Additional information can be found in www.tekes.fi/vapaa-aika . Funding is for Product development, for Service development and for Business development. Projects already funded include, Operative integration of networks, WAF-Network ASP system, New Golf Game, Ice Event –concept, eTourismProfiler, Finnish hotel of tomorrow, Dynamic Travel Network Service, RoomToday-sms service.

Launched as part of the EUREKA program, which is led by Spain**, EUREKA Tourism** (http://www.eurekatourism.eu) is a European strategic initiative aimed at generating new ideas for the tourism sector based on innovative technology, which was renewed in Lisbon on June 19 this year for an additional three years.

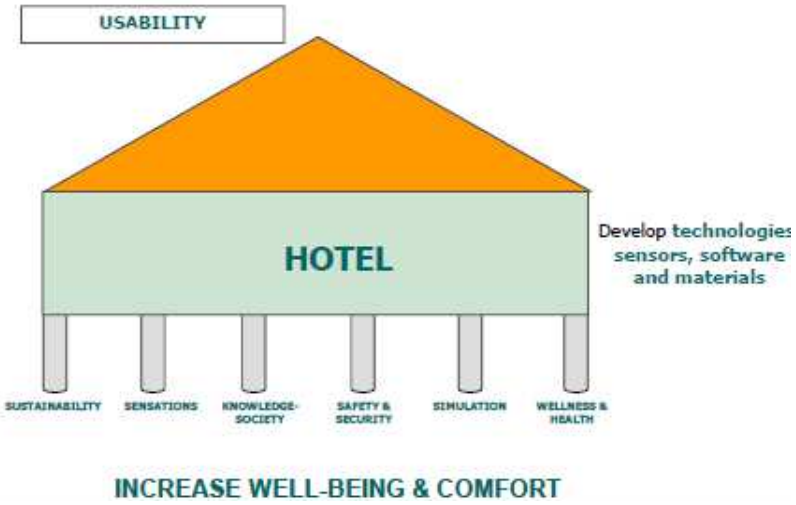


Figure 15. The 6S Hotel concept[39]

The **6S Hotel Project** (Figure 15) led by Spain and financed by Eureka, aims at radically improving the usability of hotels and well-being of guests, assuring the competitiveness of the European hotel industry by developing technologies in the areas of Sensations, Simulation & training, Sustainability, Safety and Security, Services, wellness & health, with a start date of October 2008 and end date of October 2009.

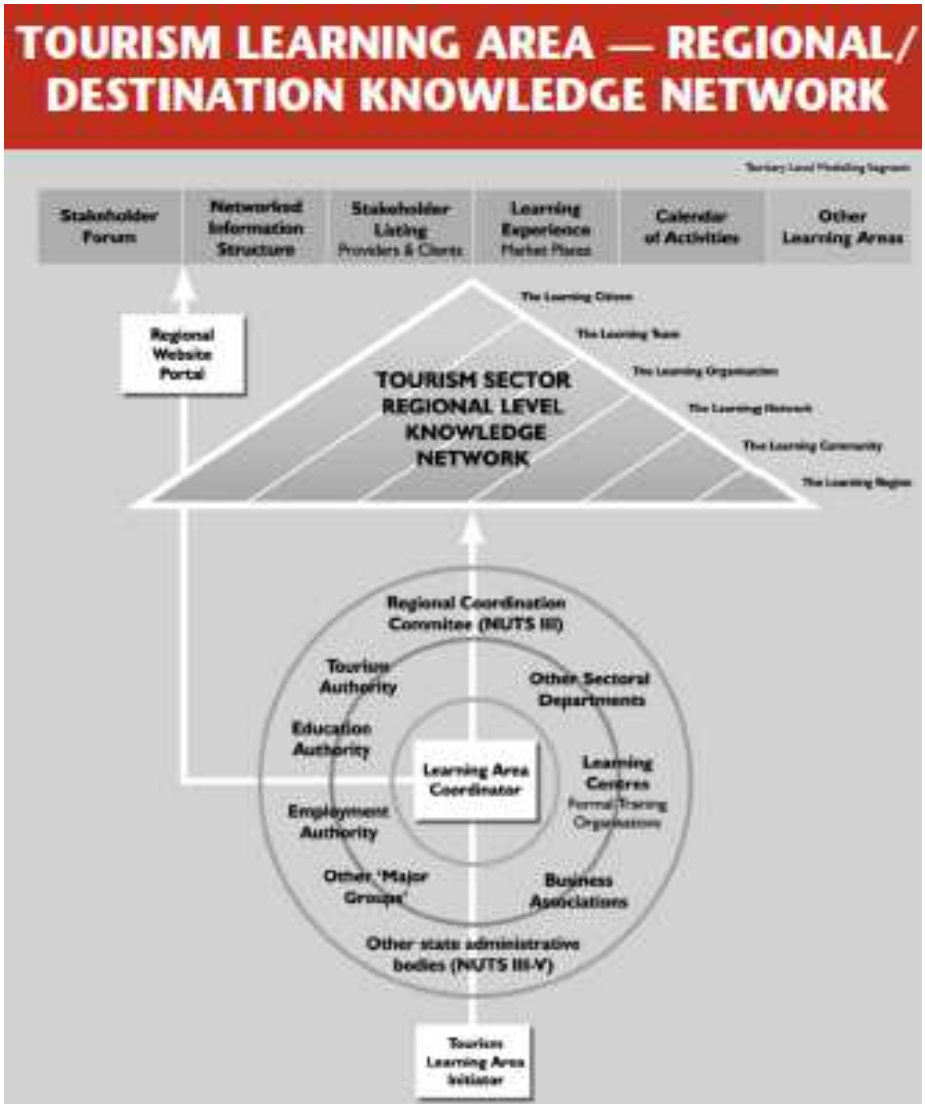
Of particular reference should be given to the concept of **Learning Areas (LA),** which are the concrete applications of a new approach for education and training aimed at sectors with a high diversity and highly complicated learning situation, like tourism. The approach has been funded by European Commission[40]. It has helped in organising the necessary dialogue and collaboration between education and training institutions and the sector stakeholders, as well as the capability of enterprises to develop the existing workforce constituting thus local cooperation platforms for learning and qualification of tourism professionals. Publishing the 'Handbook on how to create a tourism learning area' was one of the specific actions to promote the economic and social stability of European tourism, as it was foreseen in the Commission's communication 'A renewed EU Tourism Policy: Towards a stronger partnership for European Tourism' of 2006.

The aim of the LA approach is to improve the quantitative and qualitative development of stakeholder performance in the tourism industry. This can be achieved by making SMEs more innovative and competitive; by making public

[39] the 6S Hotel, Presentation by Lead Coordinator of TOUREG, Lisbon, Jan. 2009
[40] Sillence G., 2006. Innovation in tourism - How to create a tourism learning area, The handbook

administrators more supportive and efficient; by gearing learning centres towards fostering innovative and entrepreneurial potential; and by helping members of the workforce and local residents to improve their contribution and rewards. This can be accomplished by taking the processes of formal, non formal and informal learning, and structuring them in a more coherent and effective manner to achieve better workforce / SME performance and improved sectoral administrative processes in a given tourist destination, as depicted in Figure 16.

Figure 16. Example of Tourism Learning Area – Destination Knowledge Network



World Travel and Tourism Council inspires the vision for New Tourism via the **Tourism for Tomorrow Awards**[41]. These Awards, aimed at recognising best practice in **sustainable tourism within the Travel & Tourism industry** worldwide giving the opportunity of promoting and partnering with the industry leaders in sustainable tourism, highlighting the prime examples of best practice. These Awards, dubbed the 'Oscars' of tourism by the international media, are helping to lead the way. As a example of best practice around the world, it is worthwhile stating the finalists and the winners of 2009 Tourism for Tomorrow Award, listed below.

[41] World Travel and Tourism Council (WTTC), 2008. Progress and priorities 2008/09

The **Conservation Award** winner for 2009 was **Natureair** (natureair.com). In 2004, NatureAir made a pledge to set new standards for sustainable practices in the airline industry, compensating 100% of its greenhouse gas emissions through preservation and reforestation of tropical forests in the Osa Peninsula. Executives of the company indicated at the award ceremony that 'in an age where everyone claims to be sustainable, the WTTC award has given us instant credibility with our external partners as well as our internal team members. This award inspired the entire company to pursue more sustainable programs, it was nice for everyone to share a little in the glory. We are honored for the recognition" said Alex Khajavi, CEO, NatureAir.

The other two nominees were,

a) Ionian Eco Villagers, finalist for Conservation Award 2009, provides an alternative holiday experience in one of the world's most over-developed tourism regions, the Mediterranean Coast. Focused on conservation, education, and immersion in local culture, Ionian Eco Villagers operates in Gerakas, located in the National Marine Park of Zakynthos, where nearly 80% of all remaining endangered Loggerhead Sea Turtles in the Mediterranean come to nest.

b) Lane Cove River Tourist Park (LCRTP) is a large recreational tourist park with 300 caravan, campervan and tent sites, as well as 28 self-contained guest cabins, bordering Lane Cove River National Park, within the city limits of Sydney. It serves 110,000 visitors annually and is certified by Ecotourism Australia and Green Globe.

For **the Community Benefit award** the winner was Zakoura Foundation for Micro Credit is a Moroccan based not-for-profit organisation founded in 1995. In 2003, Zakoura launched a Rural Tourism Programme to develop tourism-related projects focused on financial, cultural, and environmental sustainability to give rural people opportunities to diversify and increase their incomes by creating or developing tourist activities. The programme has been implemented in regions of the country that are in close proximity to high-tourist areas, and includes financial as well as training, monitoring, one-on-one support, and access to broader networking opportunities

The finalists for this award were

a) Ol Donyo Wuas, an ecolodge set on 255,000 acres of Maasai communal land, located midway between Tsavo and Amboseli in southern Kenya. It was founded in 1992 as an early community-based tourism partnership and serves as one of the measures of sustainable tourism success for the demonstration of a profitable business model and a long-term record of continued community benefit and conservation success.

b) Community Action Nepal / Community Action Treks (CAN/CAT), a unique combination of a for-profit tour operator and a non-profit NGO that provides opportunities for trekkers to enjoy the mountains, wilderness, and culture of the Nepalese Himalaya while maximising community benefits to the indigenous population. This support includes community health, education, cultural preservation, and income generation projects for the communities of the middle hill region that are at present economically and socially excluded from the main tourism economic activities in Nepal.

For the **Global Tourism business award** the winner was Marriott International, Inc, one of the world's largest hotel groups, including over 3,000 lodging properties worldwide, 17 brands, and approximately 151,000 employees. It serves more than 100 million customers per year. Over the last year and a half, Marriott has worked with Conservation International in a bold initiative to put 1.4 million acres of Amazon Rainforest under conservation protection. At the same time they incorporated a five-point company-wide sustainable action plan which included: carbon offsets through the protection of rainforest; further reduction of fuel and water consumption by 25 percent per available room, and installation of solar power; engagement of the company's top 40 vendors to supply price-neutral greener products across 12 categories of the supply chain; creation of green construction standards for Marriott hotels to achieve LEED certification; and education of employees to support the environment.

The finalists for this award were

a) Metropolitan Touring, an Ecuadorian owne d company with offices through the country. Their contributions to sustainability could be seen in three corporate fields: achieving ISO9001 and ISO14001 and Smart Voyager certification for signature ships and hotels in Galápagos corporate environmental policy,

including greening their corporate headquarters, environmental education, solid-waste recycling programmes, and coastal clean-up programmes; and launching the Fundación Galápagos-Ecuador, engaged in community and environmental projects in the Galapagos to promote sustainable tourism practices in one of the world's most heavily visited and most ecologically fragile destinations.

b) GAP Adventures, Canada and Global was founded in 1990, and today offers over 1000 small group, low impact adventures with a focus on sustainable travel to over 85,000 passengers a year. By using small-scale lodging, local transportation, supporting locally owned businesses, and incorporating community-based ecotourism projects into its tours, GAP Adventures demonstrates its commitment to remaining environmentally, socially and culturally responsible.

For the **Destination Stewardship Award**, the winner was Grupo PUNTACANA, a pioneer in sustainable tourism management with nearly three decades of innovative work in the Dominican Republic. Its vision was to create a community that respects the natural habitat of Punta Cana and supports the local people in bettering their lives. They own and operate Puntacana Resort & Club, Punta Cana International Airport, Puntacana Ecological Foundation, and Puntacana Community Foundation, among other destination attractions, real estate developments, and infrastructure.

The finalists for this award were

a) South West Tourism (SWT), a regional tourist board for the South West of England, formed to manage the development of tourism for the benefit of visitors, businesses, the local community, and environment. SWT launched a major sustainable tourism development plan in 2005 with its Towards 2015 regional tourism strategy.

b) Heritage Watch, founded in 2003 as a non-profit organisation and was dedicated to protecting Cambodia's cultural heritage. Based in Phnom Penh, its goals are to prevent the looting and illicit trade of antiquities in Cambodia while promoting tourism and economic development that is responsible, sustainable, and "heritage friendly". It has established a Heritage Friendly Tourism Campaign - a nation-wide initiative which reaches out to tourists

(both foreign and domestic), tour operators, local schools and universities and the broader Cambodian community to reinforce the importance of preserving Cambodia's culture and halting the destruction of heritage sites.

World Tourism and Travel Council supports projects[42] that promote tourism sustainability worldwide, by investing in renewable energies, including:

- Salido Kecil Mini Hydropower Plant: Salido Kecil, West Sumatra
- Mad'Eole – Wind Energy in Madagascar: Ramena, Antisarana
- Clean Electricity in South Africa: Sebokeng, Gauteng Province, South Africa
- Letaba Biomass to Energy Project: Letaba, Limpopo, South Africa
- 100 Village Program, Clean Electricity from Biomass: Bihar, India
- MPPL 4.5 MW Biomass Power Plant: Malavalli, State of Karnataka, India.

[42] World Travel and Tourism Council (WTTC), 2008. Progress and priorities 2008/09

13. Summaries - Regional Tourism Reports

13.1 Regional Report for South West Oltenia- Mehedinti County

Oltenia Region, historical province located in the Southwestern Romania, covers about 29.212 km^2. The traditionally Oltenia's counties are Dolj, Olt, Valcea, Mehedinti and Gorj, while special attention should be given to Mehedinti County. Since 1990 all governments have included tourism development in their strategies, although at present, the contribution of tourism sector to Oltenia's GDP is only 2-3%. The main tourism stakeholders in Southwestern Region and in Romania in general are: Mehedinti Chamber of Commerce, Industry and Agriculture, National Authority for Tourism, University of Craiova, and local SME-s in Oltenia Region.

According to data presented in the *Regional Operational Program 2007-2013*, more than one third of all European mineral water springs can be found in Romania, one of the considered as founder countries of spa tourism. The destination counts today almost 160 spa resorts. Moreover Southwestern Oltenia covers 201.302 ha of protected areas (14% from the total protected areas in Romania). The accommodation capacity by Regions indicates important differences: the South-East Region covers 47%, being hardly followed by Centre Region (12.5%) and by North-West Region (9.2%). In the next period there will be more efforts for a more balanced accommodation capacity distribution; however it is expected that the Black Sea area and the Danube Delta, as well as Carpathian and Sub Carpathian mountain areas will develop in a more rapid way.

The main objectives of the Romanian Government for the tourism sector are a) to increase tourism circulation in Romanian territory and b) to diversify and improve the quality of tourism services. Some of the main actions in order to capitalize the national tourism potential, as stated in the official policy, aim at the following:

- Definition and promotion of a national tourism brand that will attract both consumers and investors;
- Tourism and general infrastructure development;
- Cooperation between the government and the private sector to promote the cross border investments, improve tourism training and protect the natural environment;

- Improvement and financing tourism educational institutions (tourism high schools, specialized university programs, research centers);
- Use of information technology within the action to promote tourism. At this point it should be mentioned that small businesses, declare that can't afford the implementation costs for new technologies; they consider as necessity the authorities support through special policies and public financing.

Regional priorities for tourism development are the following: a) To modernize and develop tourism infrastructure; b) To support the enterprises that activate in tourism field; c) To raise the region's visibility, to develop the regional marketing; and d) To develop the human resources in tourist sector.

The following SWOT Analysis (Table 9) for Southwestern Region Oltenia points out Strengths and Weaknesses of the destination, as well as Opportunities and Threats.

Table 9: Regional SWOT Analysis of South West Oltenia- Mehedinti County

STRENGTHS	WEAKNESSES
▪ Valuable natural potential, in both national and international context. ▪ Diversified touristic resources/variety in tourism types ▪ Favorable geographical position. ▪ Cross boarder region tight relations between administrations from the 3 countries, cross boarder tourism ▪ Good access for transportation national and international routes (E70, Bucuresti-Timisoara highway, the Danube river) ▪ The Danube River is a main resource for industry and tourism development ▪ Diversified touristic potential: protected areas, natural parks, mountains, caves, unpolluted rural areas, minerals, watering places, fishing and hunting, cultural heritage ▪ Oltenia Region is the 2nd in Romania in number of old monasteries of great significance. ▪ Folklore and traditions, traditional cuisine, eco-products ▪ Grown interest for agro-tourism ▪ Cultural and historical vestiges in the region ▪ Sustainable development and sustainable tourism planning	▪ Lack of modernized access roads to the many tourist objectives and areas ▪ Inadequate tourism offer (comfort and services) at local level ▪ Lack of marketing materials for local tourism attractions ▪ Deficiency and low standard level of tourism and recreation infrastructure, inadequate accommodation ▪ Few cultural and tourism events and limited offer regarding tourism services ▪ Social tourism is a main activity (for elders), provided from state budget ▪ Lack of capital investments oriented towards tourism targeting population with low incomes ▪ Delays in private funding of tourism utilities ▪ Insufficient advertising and tourism branding ▪ Lack of basic infrastructure in rural mountain areas (running water, waste management) ▪ Underdeveloped infrastructure for access to the sights ▪ Lack of adequate depositing and recycling spaces in touristic areas

OPPORTUNITIES	THREATS
▪ Increased number of tourist services on the internal and especially on the external market (particularly at the Danube's level where activates Danube Tourism Commission for the cruises along the river) ▪ Need to conserve and protect nature through an organized tourism sector that respects sustainable development (eco-tourism) ▪ Promotion of Romanian tourism worldwide, justified by the existence of exceptional ethnographical values at local level ▪ Creating economic and social complementarities on the terms of industrial regress and agriculture stagnation; ▪ Ecological reconstruction through tourism of habitats, affected by other forms of economic exploitation like mining or agriculture ▪ Increased interest in the research and innovation activities related to tourism ▪ Good opportunities for tourism industry world wide ▪ Good prospects for rural tourism development in isolated areas ▪ Possibility of exploring natural parks and protected areas as touristic resources, protecting the environment in the same time (eco-tourism) ▪ Cruise tourism in Danube	▪ Tourist resources deterioration because of inadequate exploitation and development of other forms of competitive economic capitalization (industry, agriculture) ▪ Building a negative image over the objectives in the cross-border region as a result of an unsatisfied tourism request ▪ Strong competition ▪ Low level of competitiveness for regional tourism offer in comparison with other regions in Romania or abroad ▪ Strong international competition ▪ Insufficient and low technological education opportunities

Based on the SWOT analysis, a proposed strategy (Porter's Diamond model) would include the following priorities and objectives:

Priority No 1: Basic Infrastructure (Financing: Regional Operational Program, Structural Funds, axis 1, Operational Program Environment). **Objectives**: 1.1: Capital investments for the development of general and transportation infrastructures. 1.2: Development of health services. 1.3: Expanding, renewing, developing waste management, waist water, energy, considering the new sustainable solutions available and appropriate for the region.

Priority no. 2: Tourism Infrastructure (Financing: Regional Operational Program, axis 5 Investments in tourism). **Objective** 2.1: Attracting private investment for at least 2-3 international hotel chains that would secure an international.

Priority no 3: SPA Tourism. This type of tourism is sustained by 2 different industries: health and entertainment both with important source of financing. **Objective** 3.1: Developing communities with SPA Potential considering the map of resources. **Activities**: 1. Modernization of infrastructure for thermal water treatments, 2. Infrastructure for accommodation (hotels), 3. Related infrastructure (sports, entertainment). 4. Branding and marketing, 5. protecting and marketing archaeological values (IE: Roman bath)

Priority no 4: Religious tourism. (Financing: Regional Operational Program, axis 5 Investments in tourism). **Objective** 4.1.: Promoting "roads" including some of the oldest churches in Europe. Accommodation and also special cuisine will be offered. **Activities**: 1. Restoring, creating facilities. 2. Developing touristic infrastructure. 3. Organizing special events: concerts, expositions etc. 4. Special touristic assistance services for this type of tourism.

Priority no.5: Ecotourism (Sustainable tourism) (Financing: Regional Operational Program, axis 5 Investments in tourism; European Fund for agriculture; national funds for sport activities). **Objectives**: 5.1: Promoting an integrated sustainable tourism strategy for the region that would integrated environment. 5.2: Creating special sport camps, demonstration camps for students, research camps (archeological studies, geographical studies etc). 5.3 Supporting agro-tourism facilities for investing and providing eco-food.

Priority no. 6: Marketing and branding (Financing: Regional Operational Program, axis 5 Investments in Tourism, priority 2: marketing tourism; priority 3- tourism information center). **Objectives**: 6.1: Creating a regional Brand. 6.2: Creating a tourism information center (virtual content, with latest IT&C technologies for information sharing, GIS technology for tracking, reservation systems etc). 6.3: Supporting NGOs activities for conference, events on special tourism aspects- for example sustainable tourism etc.

Priority no 7: Education and Developing of Human Resources (Financing: Operational Program Human Resources, European Social Fund). **Objectives** 7.1: Creating a think tank for tourism development in the region with members from NGOS, public authorities, universities. 7.2: Supporting educational programs –BA& MA level for tourism and hosting services, creating special educational programs in

collaboration with hotels, commerce chambers. 7.3: Supporting vocational training for the employees in the tourism sector in order to secure the competitiveness of the tourism services.

13.2 Regional Report for South West Region of Bulgaria

Tourism is considered as a priority sector for the development of the Bulgarian economy, accounting for some *8%* of the total final production, *9,7%* of the total gross output and generating some *8,8%* of total employment (circa 285,000 jobs). Bulgaria's attractiveness within the EU-27 area is still low; in 2006 foreign tourists who visited Bulgaria were close to 5,2 million (number 6,6% increased comparing to 2005). The main objectives of the Bulgarian tourism sector according to the "Sustainable Tourism Development" Priority of the "Regional Development Operational Programme 2007-2013" include a) the development and modernisation of tourism infrastructure, such as cultural and historic attractions and accommodation facilities; b) tourism services improvement, throughout the country; c) destination marketing improvement; and d) partnership strengthening between different actors in tourism and tourism related sectors.

The organization Structures in tourism in Bulgaria is regulated by the Tourism Act that defines the main shareholders which are: Ministry of Economy and Energy, National Tourist Board, Bulgarian Association of Travel Agents (BATA), Bulgarian Tourist Chamber (BTC), Bulgarian Hotel and Restaurant Association (BHRA), Bulgarian Association for Alternative Tourism (BAAT), Bulgarian Association for Rural and Ecological Tourism (BARET), Local and Regional Tourist Organisations, Municipal Administrations, Association of Hotel and Restaurant Keepers and Tour Operators – Sandanski.

With its total area of 20,306.4 sq. km. the South West region is the second largest planning region in Bulgaria. It comprises five separate administrative districts: Sofia city, Sofia district, Pernik, Kyustendil and Blagoevgrad, further divided into 52 municipalities. The main part of the hotel infrastructure in Bulgaria is located on the Black Sea coast resorts and on the winter resorts. South West region holds the fourth place in Bulgaria for accommodation capacity. In 2003 the accommodation was 22 562 beds or 13% more than the previous year. The main advantages for the tourism development in the South West region are the good climate and geographical conditions, comparatively well developed transport infrastructure, close proximity with the capital Sofia and the possibility for transnational cooperation.

The following SWOT Analysis (Table 10) points out Strengths and Weaknesses of the tourism sector in South West Region of Bulgaria, as well as Opportunities and Threats.

Table 10: Regional SWOT Analysis of South-West Region of Bulgaria

STRENGTHS	WEAKNESSES
▪ Highly competitive prices ▪ Friendly disposition of Bulgarians ▪ Beautiful and clean environment ▪ Strong cultural and historical heritage ▪ Considerable awareness abroad ▪ Adequate proximity to the main markets for known tourist products ▪ Good & pleasant climate ▪ Extensive availability of a variety of tourism resources (i.e. mineral waters, natural reserves, historic monuments etc.) ▪ National cuisine & wines ▪ Active private sector involvement in tourism ▪ Recognition and acceptance from the industry of the need to innovate ▪ Willingness of the industry to support 'correct' state initiatives ▪ Generally "safe" destination ▪ Presently declared governmental priority for tourist	▪ Considerable lack of "precise" awareness abroad, no branding exists ▪ Absence of agreed national strategy ▪ Limited market knowledge of cultural and historical heritage ▪ Frequent changes of the framework ▪ Poor & unsubstantiated knowledge of the international market demands ▪ Insufficient capability in IT – Internet information and marketing of Bulgaria ▪ Relative disregard of the domestic market ▪ Lack of knowledge regarding ''suitcase trade'' tourism ▪ Insufficient availability of experienced & sufficiently trained/skilled staff ▪ Poor in-country domestic infrastructure for tourism development (roads, airports, etc.) ▪ Tourism services below the desired quality level ▪ Generally unclear or "insufficient" image of Bulgaria's tourism – lack of adequate information availability ▪ Lack of adequate permanent tourism representation in key foreign markets ▪ Low monitoring of tourism sustainability indicators ▪ Low productivity of the advertising and promotion campaigns ▪ Low evaluation by tourists of support or related elements or services outside the tourism sector ▪ Insufficient land use planning and zoning in tourist areas (i.e. over-building, ongoing construction, etc.) ▪ Embryonic level of public/private sectors partnerships (PPP) ▪ Low level of elements beyond the scope of the tourism industry

OPPORTUNITIES	THREATS
▪ Strong tourism potential ▪ Availability of resources to diversify the range of the offered tourism products (special interest tourism, support services and other possibilities) ▪ Potential to promote Bulgaria as a destination for cultural and historical heritage tourism ▪ Unrealised potential of domestic tourism ▪ Dormant domestic and neighboring countries potential for week-end ▪ holidays ▪ Creation of regional / local tourism ▪ Improvement of the qualifications and skills of the tourism staff ▪ Potential to attract foreign investments in tourism ▪ Use of European Structural Funds (ESF) and other donor funding sources for tourism development ▪ Improvement of the effectiveness of marketing and promotion programme and activities	▪ Gradually loss of the present major competitive advantage, the low prices (or identification with a “cheap” destination image) ▪ Non-continuity of government emphasis and support of the tourism ▪ Implications from legislative changes from EU Accession ▪ Lack of implementating spatial planning ▪ tourist areas ▪ Effect of mass tourism targeted campaigns of competitive ▪ Continuing overdependence on international mass tourism tour operators ▪ Failure to achieve advertisement depth due to insufficient funding ▪ Negative influences by issues where Bulgaria itself cannot easily intervene such as several natural phenomena, diseases and terrorist attacks

The data summarized in the following paragraphs are results from a research of the tourism sector and in-depth interviews (30) made by ARC fund consultants in face to face meetings and on-line questionnaires filled in by various stakeholders.

General conclusions: a) Lack of information for existence of new technologies applicable in the tourism sector; b) Usage of old and expensive technologies; c) Different general information for the region as touristic destination; d) Need of common platform for advertisement and presenting the region and local governmental policy; e) Need of professional and qualified personal as the poor service level is indicated as one of the weaknesses of the regional tourism sector; f) To improve the connection between the government, business and educational system in the tourism sector; g) Need of public support for usage and application of energy efficient and ecology technologies; h) Common web site with all tourism facilities in the region in needed; i) More awareness companies and trainings are needed to presents the companies the possibilities to improve their business in the

tourism sector; j) Improve the wireless connection coverage on public places; k) The infatuation should be improved; l) More government investments in are needed to popularize the region as a tourism destination and to develop different kinds of alternative tourism and more efficient usage of the natural resources; m) Lack of good connections with foreign tourism stakeholders; n) A number innovative technologies applicable in the tourism sector are developed from Bulgarian companies and could transferred and in other regions.

ICT technologies: a) The big hotels have web sites, but the majority of the small and micro hotels and operators don't have; b) Need of new technologies for web visualization; c) Client relationship software is usually missing; d) On-line booking is not very popular; e) Hotel management software are used only in big international hotel chains; f) Personnel management systems needed; g) Lack of qualified employees that are able to work with the new ICT tools.

Energy Efficiency: a) Strong interest in green hotel concept; b) Interest of new energy saving technologies; c) Photovoltaic and wind generators application not enough used; d) Need of new technology for water consumption reduction; e) Lack of general energy efficiency policy in the region connect to the tourism

Ecology: a) Waste water treatment (especially for big hotels); b) Waste recycling not used; c) Eco concepts needed; d) Separate waste management not enough popularized.

According to the analyses from the EU co-funded project Regional Innovation Strategy for the South West Region of Bulgaria, coordinated by ARC fund, South West Region is the leading region in Bulgaria in respect to innovation development organizations. Although the demand is stronger than the supply of technologies for the tourism sector, there are many innovative technologies developed by Bulgarian companies that have very good market potential and realisation and could be transferred to other European regions.

13.3 Regional Report for Crete

Crete is the largest island of Greece with a total extent of 8.335 km^2 covering the 6,3% of the total extent of the country. It consists of four administrative departments (prefectures): Heraklion, Lassithi, Rethymno and Chania. The region represents almost 5.5% of the country's total population, 5.3% of GDP and 80.1% of EU25 average GDP per capita (2003). Local economy is heavily dependent on tourism and travel, an important and fast evolving economic factor, contributing to the

overall greek economic growth (~ 8% of GDP). More specifically service activities, such as tourism and transportations dominate mainly the Cretan economy, accounting for over 62% of total employment and producing 78.2% of the regional value-added. Tourism policy in Crete, particularly in the past years, aimed exclusively at tourism growth without an effective consideration for the natural and cultural environment and the needs of the local community. Although Crete has Regional Authorities, there is lack of central planning and administration and the overall efforts to promote the regional tourist product seem to be inadequate and ineffective, particularly during the past decades. The most important public and private stakeholders directly or indirectly involved are Academic & Research Organisations, Authorities and Associations, Champers & Institutes.

Various funding opportunities for private and public investments in the tourism industry could be currently found in different funding schemes on regional, national and European level including the Regional Operational Programmes (ROP), the Community Support Framework Programmes, Investment Incentives Laws etc. The ROP development vision for Crete and the Aegean Islands for 2007-2013 is to strengthen competitiveness and promote the potential of Crete and the Aegean Islands under conditions of sustainable development. The Region's development vision will be served through the following strategic goals: a) Boosting of entrepreneurship and attraction of investments in the regions affected by the programme. b) Promotion of innovation and research and their links with entrepreneurship. c) Ensuring the sustainability and functionality of regional infrastructure, with an emphasis on developing environmentally friendly forms of energy. d) Improving the quality of life. e) Strengthening productive activities and promoting the Region as an area of residential, business and investment opportunity. f) Training of human resources in order to effectively reinforce employment, productivity and social cohesion.

Crete is one of the most popular tourist destinations in Greece for foreigners and locals. The overall regional supply in terms of accommodation & hospitality potential in 2007 was estimated to 1.509 units (hoteliers, apartments, motels etc), 78.220 rooms and 146.955 beds. Most of the hotels were located in the prefecture of Heraklion (505 units), while the prefectures of Chania, Lassithi and Rethymno accounted 490, 213 and 301 units respectively. Normally, charters to Crete depart from European countries (99%) and EU countries (87%) At the same time, country's tourism history reveals that origins such as the UK, Germany and Italy retain their percentage in the Greek tourism market. In general, travel and tourism demand in Crete has seen steady increases in total international visits over the last years, even

during 2006, where a national level decrease of 0.2 millions (as compared with 2000) was found. More specifically, for 2000, 2006 and 2007 the estimated arrivals of overseas visitors in the region were amounted to 1.4, 1.5 and 1.8 millions respectively, ranking Crete the 2nd busiest tourist area for foreigners (21%) in 2007 in the entire county.

In order to identify and assess the characteristics and tourism potential of Crete, a SWOT Analysis (Table 11) is summarized covering the four prefectures of the region.

Table 11: Regional SWOT Analysis of Crete

STRENGTHS	WEAKNESSES
▪ Environmental conditions: excellent weather and temperate climate ▪ Rich and diversified natural environment ▪ Cultural conditions: important culture heritage, many Archaeological sites, Museums and Monuments ▪ Social conditions and impacts: A safe and secure tourism destination ▪ Adequate large or small-scale tourism infrastructure ▪ High-skilled personnel in 3-5 star businesses ▪ Well recognised tourism destination ▪ Agricultural productive structure: high quality agricultural products and Cretan gastronomyStrong tourism potential	▪ Low seasonality (mainly in winter) ▪ Low alternative tourism activity ▪ High dependence on foreign tour operators ▪ Local administration deficiencies ▪ Failure of systematic collaboration and coordination between local public bodies and authorities ▪ Underground economy in the tourism industry ▪ Inadequate environmental conscience and lack of effective planning: lack of effective waste management, uncontrolled building construction, concentration of package tourists on the northern coast of the island ▪ Concentration in space ▪ Absence of tourist marketing in a regional level ▪ Operating problems with international Airports: scheduled charter flights cause big delays in the summer

OPPORTUNITIES	THREATS
▪ Current funding opportunities for private and public investments in the tourism industry ▪ Current and future public projects throughout the island (i.e. new airport, Kasteli) ▪ Important opportunities for the introduction and development of alternative tourism forms ▪ Effective exploitation of the high quality tourism resources ▪ Increasing tendency for domestic tourism ▪ Collaboration with the local Academia: introduction of innovative ICTs with a great impact on tourism ▪ Good reputation of Crete due to history, culture, traditional cuisine	▪ Strong competition in an international level ▪ Environmental threat: unrestricted tourist development damages natural environment ▪ Limited tourism conscience ▪ Inadequate tourism education and training system ▪ Tourism demand may be reduced by the global financial crisis

The region of Crete accounts a significant number of businesses, particularly SMEs that operate in the ICT sector and provide ICT applications for tourism solutions and the establishment of tourist clusters appears to be an effective way for them to adopt technological solutions and innovations, since it tends to allow the sharing of costs and risks. However, it appears that the local academic community has not fully evaluated the strategies and technological applications in the tourism industry, while no clusters have been effectively developed, due to inadequate support and little interest.

According to the market research conducted through interviews and questionnaires in the period October 2008 - April 2009 with SMEs in the Region of Crete, the current situation and the needs in the sectors of a) Information and Communication Technologies, b) Energy Technologies and c) Environmental Technologies are as following.

Information and communication technologies

I. ***Current situation*****:** a) Most of the SMEs are using software for e-booking and for bank payments (CRS – Booking Engine). b) Almost all of them have their own website. c) Less than half of them offer wireless internet connection where the other ones provide an internet corner with payment. d) Only a few SMEs have ERP systems, Quality satisfaction control, Promotion Systems –

Newsletter, CRM systems and Fidelity Program. e) Other Information and communication technologies concerning Global Distribution System - GDS, Internet Distribution System, Virtual image, Training and PMS Systems are not in use either because hoteliers are not well informed about them or because of lack of qualified personnel to use it.

II. ***Needs:*** a) customer's satisfaction/interest for software that will receive information collected from the questionnaires given to the clients, and as a result it will give a statistical outcome. b) Mobiles with multiple functions. c) Extended Internet use. d) Software about: keeping track of the preferences for frequent visitors, training personnel of the hotel, CRS and ERP systems.

III. ***Comments:*** a) SMEs that are part of chain hotels have less flexibility on taking decisions about innovative technologies, as they need to follow general instructions and policies from other enterprises. b) Larger SMEs are more prone to have ICT consulting company providing them with software and hardware solutions.

b) Energy Technologies

I. ***Current situation:*** a) Nearby all SMEs are using solar energy for warm water and electricity for the rest energy needs of the hotel. b) Only few of them are using gas in the kitchen. c) Travel agencies have no particular needs for energy technologies.

II. ***Needs:*** a) Solar photovoltaic power. b) Solar cooling. c) Control of the energy consumption in hotels. d) was found as a need from most of the respondents. e) Stability in the voltage of the electricity. f) Control in the demand on warm water consumption and electricity for the air condition. g) Geothermal energy.

III. ***Comments:*** a) Government's financial and informative support is crucial in order to enhance SMEs competitiveness. b) Of the potentially innovative energy saving technologies listed in the given questionnaire, very few were in use or in need and many SMEs were unaware of these.

c) Environmental Technologies

I. ***Current situation:*** a) Recycling of paper, plastic aluminum, and glass is done by most of the SMEs. b) Very few SMEs are having a special program of water treatment. The ones who use central water treatment plants in nearby cities, they do not have access to treated water for watering their gardens. c) Most of them are using low-energy lamps, room cards for automatically

switching on/off the electricity, and choke devices for less water consumption in the bathroom.

II. ***Needs:*** a) Drinking water though desalination (reverse osmosis membranes). b) Treatment of the used oil from the kitchen. c) Information from the Regional Policies and the Government on environmental treatment.

III. ***Comments:*** a) There is sensitization on environmental issues but not as strong as one would expect compared to the other industries. b) Very few SMEs have environmental ISO certification

Despite the wider development of e-business (i.e. e-commerce, e-sales, e-marketing), particularly in some tourism sectors such as air transport and travel agencies, it seems that SMEs operating in the Cretan market, do not exploit the available technology to take full advantage of integrated systems and e-business solutions. There are 22 available solutions in the three sectors (ICT, Energy, and Environmental Technologies) with innovative ICT technologies outnumbering. More specifically there are **15 technologies in the ICT** sector concerning: costumer satisfaction, mobile solutions, business excellent model, Adaptive Input Device for Kinetically Challenged Persons, Prediction model on how successful hotel services are developed, Distribution System for Transport Reservations and Tickets, Ferry Operator Booking Management System, Ferry, Flight and Cruise Operator Booking Management Systems, Development of web portals and Multicriteria DSS system for new products development. The **4 offered solutions about the Energy Technologies**, are concerning in general energy in buildings, decentralized integrated combustion unit and renewable energy. The **2 innovative products about Environmental Technologies** refer to water treatment and food safety control.

13.4 Regional Report for Madeira

The Archipelago of Madeira, an integrating part of the Portuguese territory, is situated on the Atlantic Ocean 978 km south west of Lisbon. Of volcanic origin, it is composed of the islands of Madeira (736 sq.km), Porto Santo (43 sq.km), Desertas (14 sq.km) and Selvagens (4 sq.km). Only the two first are inhabited, the others are natural reserves. Madeira is an old traditional tourist destination based on maritime connections until its airport opening in 1964, which pushed for an important growth in number of tourists, booming with the upgrading and enlargement of airport infrastructures in 2001.

Tourism is the major economic activity in Madeira Region, as the following numbers reveal: the total profits of the Tourist Establishments in the Region, on 2008, went far than 297, 6 millions (plus 5.6% related to the year 2007) from which, 61, 9% correspond to lodging profit. These, have increased 6,6% when compared to the same period in 2007. In this period Tourism sector was directly responsible for 13% of the existing work places in the Autonomous Region of Madeira. Information regarding 2001 show that The Interior Tourism Consume (CST-M) has reached 688.0 M€ which represented about 21, 3% of the Gross Domestic Product (GDP) of the Region. At a national level this ratio was only at 10%. Tourism accommodation is concentrated along the sea coast of Funchal, in the Lido area, reaching here 75% of the total accommodation supply. Santa Cruz, Machico and Porto Santo are the other main protagonists of this concentration. The avoidance of the negative impacts due to high growth rates in lodging capacity, namely the dangers of "massification", led to the creation of the Tourism Plan of the Autonomous Region of Madeira, approved and published in 2002 which is a cornerstone concerning middle term targets (2012) and strategies for the development sector.

The Tourism Plan of the Autonomous Region of Madeira defines a strategy for developing tourism in the Region and the territorial model to adopt, to help guide investments, both public and private, ensuring a balance in the territorial distribution concerning accommodation and tourism facilities as well as better use and valorisation of human, natural and cultural resources. Madeira's Tourism Plan also aims that the territorial distribution and the characteristics of the tourism enterprises adapt to the landscape and historic realities in the various areas of the Region and also fits in with the social and cultural environment, contributing as a whole to the local development. Given the need to guide this growth in time and physical space, the Tourism Plan establishes limits and growth rates for accommodation, as well as values for its territorial distribution. The tourism model for Madeira Island is based on the following three strategic development axes:

- Consolidation of the dominant product, which is a resort style lodging mainly based in Funchal, accompanied by measures to minimize existing blockages, due to a concentrated and rapid growth model, namely through Funchal's opening to the sea, meaning the development of a better access and use of the sea for tourist activities;
- Development of tourism segmentation, by strengthening tourism products, with benefits from the consequent introduction of new channels of contracting, new forms of management, greater diversification of complementary

products, increased territorial distribution and greater distribution of direct effects;

- Development of the network format for complementary supply, exploring the diversity of the resources and re-qualifying the existing supply.

According to the SWOT analysis (Table 12) carried out for the destination, the Strengths, the Weaknesses, the Opportunities and the Threats are the following:

Table 12: Regional SWOT Analysis of Madeira

STRENGTHS	WEAKNESSES
▪ Natural wealth of the Region ▪ Quality Tourism ▪ Madeira being seen internationally as a safe destination which is important having in mind the terrorist raids that become expectable in some tourist destinations ▪ Being a European region.	▪ Restriction in air connections ▪ High price when compared with other similar destinations ▪ Degradation in urban areas framing important monumental and architectural values in buildings and residential areas ▪ Degradation of the preservation condition of important expressions of rural patrimony (craftsmanship, traditional architecture, archaeological elements, etc) ▪ Unsatisfactory use of expressions of madeiran culture and identity and of the faithfulness strategies in tourist search both under the point of view of cultural entertainment and of products/souvenirs concept, able to be placed on the external market (craftsmanship, multimedia,…)
OPPORTUNITIES	**THREATS**
▪ The pressing liberalization of air connections ▪ The evolution of the Tourist status, which is less and less dependent from the intermediate tour operator ▪ Enjoyment and valuation of the Natural Patrimony ▪ Creation of tourist walkways to value a composite tourist product ▪ Development of new contents to be placed in international networks, associated to research in the domains/expressions of culture and patrimony of the Autonomous Region of Madeira	▪ The increase of building rate that can depreciate what tourists expect from their destination

The importance of the ICT n the Tourism Market has increased in the last years and is now a key component in the companies' efficiency and competitiveness. In Madeira this sector has evolved both by pressure on the stakeholders by its distribution partners, the tour operators, and external competition, and by the local providers that supported by public funding have lead them into innovation.

According to the Energy Policy Plan of the Autonomous Region of Madeira, the hotel sector, in 2000, was responsible for about 6% of the final energy demand, being electricity the form of energy most used, and according to the Electricity Company of Madeira's 2007 Accounting Report, the hotel sector contributed with 18,2% of electricity consumption in the Region. The National System for Energy and Indoor Air Quality Certification of Buildings (SCE) in Portugal, including in the Autonomous Region of Madeira, is being implemented by phases taking into account the training of Qualified Experts and other fundamental technicians for the maintenance of good energy performance and indoor air quality of buildings, as well as the creation of management and inspection structures of the SCE. The timetable for the full application of the SCE was defined by Decree n.º 461/2007, of 5 June, being that from 1 January 2009 all new and existing residential and service buildings are obliged to comply with the legislation that defines the SCE. To the present day, it is still not possible to make an evaluation of the results concerning the implementation of SCE in the Autonomous Region of Madeira, and in particular in the tourism sector, due to the recent dates of entry into force of SCE and respective regulations (RCCTE and RSECE), and also due to the complexity and slowness of the process, namely the carrying out of energy audits in large existing buildings, obligatory every six years, and also the carrying out of indoor air quality audits, every three years, where a great part of the hotel units in Madeira fits in.

In Madeira's tourism sector there are some hotels with environmental concerns, which have implemented important measures to improve energy and water efficiency and waste reduction and reuse. However, these hotels are, in fact, an inexpressive portion of the whole sector and do not represent the usual behaviour. Actually, environmental issues do not constitute a primary concern in the tourism sector, as most of the hotels do not implement measures to improve/optimize energy and water consumption and waste production. Concerning waste production, the existent legislation obliges the implementation of measures of selective collection of solid waste and used oils, which makes this area more optimized in Madeira's tourism sector. In the scope of energy, new legislation concerning the certification of the energy performance of buildings (Directive 2002/91/EC) and indoor air quality will

bring, in the near future, significant improvements to the hotel sector, for new and existing hotels.

According to the results of the survey carried out with questioners in tourism companies not only from Madeira but also from the mainland:

- **Concerning the Demand – Travel Agencies**: a) They want to get to know new booking engines, Internet distributing System and also virtual image; b) Interested in Fidelity Programs; c) Interested in WiFi; d) Interested in Interactive Kiosk. **Hotel Groups**: a) Want to use Global Distribution System; b) Want to use yield management system; c) PDA mobile devices; d) Interactive Kiosk. **Transportation**: a) More information on quality satisfaction control; b) More information on Internet distribution system; c) More information on fidelity programs; d) More information on NL; e) Want to know more about payment services.
- **Concerning Policy: a)** Concerns with Energy Saving; b) Concerns with Environments; c) Concerns with water saving; d) Interest to participate in business seminars in these areas.
- **Concerning Supply: a)** Web design, development and 3D applications; b) Online applications for operational and financial management; c) Web based platform for reservations with advanced features; d) Application to control hot spots; e) Water treatment and filters; f) Air conditioning; g) Solar energy; h)Security; i)Chillers and ice banks; j)Consulting; k) ERP, CRM; l)Thermal Insulation; m) Global management tool.

The main goal is to consolidate the dominant product, by the qualification of its differentiating elements in the integrating components:

- Resort of high qualification (4 to 5 stras) with sea view;
- Complementary offer centred in Funchal city – city walking, gardens, shopping, animation, patrimony.
- Excursions in the island to enjoy the natural beauty and unique landscape;

To achieve this goal the regional government proposals are centred on:

- Regarding resorts – To enhance the levels of the global offer and of the professional qualification – Improvement and diversification. Also to incentivise the requalification of the older hotel units and the promotion of regional materials and to enhance the qualification of the territorial insertion.

- Regarding the complementary offer – To develop a structuring idea for the city and promote it in a thematic way.
- Regarding excursions on the island – Reorient Funchal as the great centre from which depart the walking sand excursions by sea and by land. Diversify the excursions and walking tours exploiting the sea as a resource and betting in the effort of the tourist centrality of the island.

For 2009, the main goals for Madeira destination are: A) To increase the growth rates for sleeping and entries around 2,5%; B) To increase the total income in around 5, 5%; C) To increase the medium occupation rates giving special attention to the months with less demand like January, through the organization of events like Madeira Walking Festival and Madeira Orienteering Festival; D) To increase the percentage of repeated visitors; E) To maintain the satisfaction of the visitors; Besides the final consumers, considered potential tourists by excellence, the promotion of Madeira Destination should also work in an indirect approach through decision-makers and other segments that have or might have influence in the consumer's decision – operators, travel agencies, tourist guides, media, public personalities, etc. Several promotional activities are foreseen such as: A) Institutional campaigns in the national market and in some emergent markets; B) Publicity campaigns with tourist operators directed to the final consumer; C) Road shows and workshops and presence in tourism exhibitions; D) "Fam trips" for the Media and for Trade. The purpose of this communication strategy is, as said, the consolidation of the Madeira Destiny but also the increase of the Madeira Brand. It is intended to position Madeira as a quality destination with a diversified tourist product. And there are other goals: A) Enlarge the tourism and visitors segments in term of age segments and trip motivation; B) Support the operators and agents interest by familiarizing them with the existing offer; C) Improve the accessibility to the destination with the liberalization of the air route and with the increase of low cost connections;

13.5 Regional Report for the Balearic Islands

The Balearic Islands is a region located on the western Mediterranean Sea, near the eastern coast of the Iberian Peninsula. The four largest islands –Mallorca, Menorca, Eivissa and Formentera– cover a surface of 5.014 km^2 and 1.239,9 km of coast, representing a wide variety of landscapes. Tourism sector represents the 44,2% of the GDP (10,7 of Spanish GDP) and the 30,8% of jobs (39,5% in the high

season, Oct-May) with all economic activities related to tourist services to employ currently more than 130.000 people. The Balearic Islands are a mature destination that needs to capitalize 50 years of tourism knowledge to be able to subsist as a sustainable region and as a tourism destination.

A total amount of 13.103.901 tourists visited The Balearic Islands in 2008. From those, 9.922.777 came from abroad: 4.052.642 where German, 3.373.272 British, and the rest from other nationalities (all of them arrived by plane). Mallorca is still most visited island with more than 9 million tourists each year. Currently there are 707 hotels with a total amount of 200.128 beds. If we add to those, other type of accommodation (apartments, hostels, agro tourisms, etc., in 2008 there were 2.617 accommodation establishments with a total amount of 423.198 beds. The current tourism model in the Balearic Islands is Sun and Beach mass tourism, though there are being developed several emerging niche products (some of them already consolidated) as Rural, Cruises, Congress and Meetings, Nautical, Cycling, Trekking, Equestrian, Music or Bird watching products, among other. The current tourism model is a complex model with three key components: (1) environment and destination attraction, (2) big tourism companies that coexist with traditional smaller ones and (3) technology. The type of visitor in the Balearic Islands corresponds to a person between 25 and 65 years old coming from Germany or Great Britain, staying in a hotel in an average stay of 10 days, and coming for vacation purpose. Balearic Islands' offer of tourism services includes a variety of natural attractions combined with a good leisure proposal offering proximity, accessibility, tourist reception capacity and good quality complementary services.

There are several trends impacting tourism sector in The Balearic Islands: social changes (family model, aging of population, healthy way of life promotion), technology emergences (internet, high speed train, ICT incorporation to business models), economic trends (market globalization, new industrial power emergency) and geopolitical trends (instability on certain regions of the world, development of regions with high tourism potential). All of this trends can have an impact on tourism business models, tourism economy and industry growth. Governments and Companies capable of turning these trends into opportunities will have the key of future Tourism Sustainable Development. Companies, University and Public Administration in The Balearic Islands have realized the need of working together to capitalize and sell knowledge on tourism. Those companies and institutions configure a complete list of stakeholders whose opinion and decisions are important for the future development of the Region. Tourism SME technological needs in the region are basically related to Environment and Energy technologies information, as ICT

providers are quite developed in The Balearic Islands and are quite able to provide any type of service required by an SME. Most of the action priority items proposed have to do with cooperation promotion, knowledge capitalization, internationalization and human capital improvement in order to guarantee The Balearic Islands sustainable development.

Though there is no tourism policy strategic plan at European level, in Spain there is a strategic plan for tourism called: “Plan del Turismo Español Horizonte 2020”, that addresses national policy in tourism, and all actions boosted by national government are articulated along this plan. At regional level, competences on tourism are two-headed as there is a *Tourism Ministry* and an *Economy, Treasury and Innovation Ministry*, each of them leading initiatives towards the sector. There are many initiatives promoting technology development and innovation in tourism, and there is a Research and Development policy for tourism since about 8 years ago. As a general conclusion, though there is no long-term planning for policies regarding tourism, there exists a Scientific, Technologic & Innovation Plan, which includes action lines on innovation and research in tourism, and there are several entities and ongoing initiatives for the quality, innovation and promotion of tourism.

ICT tourism sector in The Balearic Islands is organized around a Cluster created in 2007. This cluster joins more than 50 ICT companies and public and private institutions from The Balearic Islands, including University, Technological centers and technological parks. The Balearic Islands technology supply for tourism is specialized on Information and Communication Technologies. Only two innovative products have been identified out of this field, one of them (Algasol) is still a pilot program, and the other one (Sampol enginyeria) is a consolidated consulting company on energy and installations. An overview of the strengths and weaknesses of the Regional Innovation System is presented in the following table:

Web 2.0 technologies are considered to be the key for the new product development and consolidation, and there are several research initiatives on semantic web and 2.0 boosted by IBIT Foundation in this line. Another research line to be considered for the commercialization of emerging tourist products in The Balearic Islands is audiovisual production, in order to develop material that can transmit experiences of people living or tourists visiting the region. As a general conclusion, though Sun and Beach has been Balearic specialization over the last decades, now competitive panorama underlines the importance of product diversification and market segmentation, and Internet is the most important market strategy for new products consolidation.

In the following SWOT analysis (Table 13) for Tourism in The Balearic Islands Strengthens and Weaknesses are underlined as internal to the sector and Opportunities and Threats as external to it.

Table 13: Regional SWOT Analysis for Balearic Islands

STRENGTHS	WEAKNESSES
▪ The Balearic Islands is a very important tourist destination at European and Global scale ▪ Proximity to issuer markets ▪ Natural resources, good weather, tourist attractions diverse and adequate ▪ Enough critical mass in the sector to lead Research and Innovation activities ▪ Safe destination ▪ Adequate communication infrastructures ▪ Worldwide leading hotel companies with their origins and main offices in the region ▪ More than 50 years of tourism know-how ▪ The first region in Spain in promoting Research, Development and Innovation policies for tourism sector ▪ High entrepreneurship rates ▪ Existing cluster for Tourism ICT Technologies	▪ Mature destination with geographically limited capabilities of growth through physical expansion ▪ Low human capital employment, lack of qualified personnel specialized in technological subjects or knowledge intensive activities ▪ Low cooperation level between companies, and with university ▪ Low innovation culture: absence of active innovation and lack of critical mass to participate in regional, national or European funding for projects ▪ Lack of matching between education supply and demand ▪ Low level of internationalization in SMEs ▪ Low level of internationalization in products that are not related to Sun and Beach
OPPORTUNITIES	**THREATS**
▪ Tourism sector growth at international level (more people travelling more often) ▪ ICT technologies as the key for new tourism business models ▪ Social and political will of growing through knowledge capitalization ▪ Slow movement: slow city, slow holiday, slow life ▪ Social environmental conscience	▪ Loss of tourists and loss of benefits per tourist for the growing competence of other destinations, not only in price, but also in quality ▪ New emerging destinations ▪ High degree of seasonal variation ▪ High pressure over certain natural resources ▪ Business uncertainty facing the financial crisis ▪ Decreasing availability of European funds for the region

As a traditional tourism destination, The Balearic Islands have developed and implemented several mechanisms for tourism training and education. There is enough education offer in tourism within the Islands, though it is not balanced between islands (it is mostly concentrated in Mallorca) and sometimes it does not respond to companies demands. A list of possible action priorities derived from the fieldwork and the analysis performed for the tourism sector in The Balearic Islands may include:

- Sensitization activities on Energy and Environment Technologies.
- Benchmarking study on environmental friendly practices in tourist services companies
- Map of ICT offer for tourism and integration of existing management tools.
- Research project over safety in the destination. Safety systems and technologies.
- Cooperation promotion between companies and with university: projects identification workshops.
- Technology prospective studies for Sun and Beach hotel technologies.
- Existing know-how documentation: process and methods definition.
- Market study for internationalization of existing know-how. Identification and tests for pilot business models.
- Definition of an innovation management process adequate for tourism companies, including measurable indicators of innovation activity.
- Organizing an international event with an international organization related to Economy or Tourism, like OECD or TWO.

Differentiation is and will be the key factor as The Balearic Islands can't compete in price with all the emerging destinations offering a similar Sun and Beach product. Analyzing the impact of three types of technology (ICT, Energy and Environment) on SME, it has been pointed out that in The Balearic Islands ICT implementation is very high, and energy and environment technologies implementation are very low. This might have to do with the cost of energy and the low impact on business of environmental technologies. There should be more linkages between policy makers, companies and technology suppliers in order to develop actions towards Environment. Existing indicators models are not adequate to evaluate innovation in tourism. There should be other indicators to compare innovation activity between companies and regions in tourism. Cooperation, Research and Existing Know-how Internationalization are the most important three components of the action priorities identified for The Balearic Islands.

14. Conclusions

Tourism –a cross-cutting sector linked to various economic activities, services and professions– impacts on sectors such as transport, construction, retail and on the numerous sectors that produce holiday products or provide leisure and business travel-related services (Commission of the European Communities 2006:2). Although some big international companies contribute to the contemporary tourism sector, it is mainly dominated by SMEs. As Dwyer et al. (2009) underline, “a key element of a successful tourism industry is the ability to recognize and deal with change across a wide range of key factors and the way they interact”. Key drivers of global change within the external environment can be classified as economic, political, environmental and technological.

The types of changes taking place in the global tourism industry present both challenges and opportunities to public and private sector organizations around the world as they seek to achieve an innovative and sustainable tourism industry. An examination of the primary research results along with the study of the world tourism trends can provide a basis for the discussion of important change agents, on both the supply side and the demand side of tourism. In response, as Dwyer et. al. (2009) have also underlined, innovative strategies can and should be implemented by destination and business managers and tourism operators so as to avoid strategic drift for their regions and organizations and to develop tourism in a sustainable way.

Due to the slow and continuous change of phases in modern tourism, tourism experience innovations have been suggested to involve mainly incremental innovations of individual tourism goods/services or total tourism experiences and to be new at the firm or at the destination level rather than to involve more radical innovations and “giant breakthroughs”. Though innovations are suggested to be mainly incremental and though such do not individually have the potential to change “the tourism world” they may be seen in total as important innovations that gradually change the phenomenon of tourism and secure the survival of destinations and of tourism firms.

Despite the wider development of e-business (i.e. e-commerce, e-sales, e-marketing), especially in tourism sectors such as air transport and travel agencies, it seems that SMEs operating in the regions above, do not exploit the available technology to take full advantage of integrated systems and e-business solutions. The extent of innovation (new product development, procedures and structural innovation) seems to be limited, due to the lack of national, entrepreneurial ICT infrastructure and the lack of personal ICT skills of both employees and employers.

However, all tourism firms have the intention to become or to continue being innovative. Local and non local networks have been identified of high importance regarding the innovation activities. Data, information and knowledge (vertical and horizontal) dissemination and dispersion, provide firms with the ability to offer additional production benefits.

Within the destinations, the tourism firms tend to see each other as partner, rather than competitors. The network plays the role of providing an environment of trust and common understanding. A set of factors have been identified to be decisive for the differentiated innovative behaviour of the tourism firms. Such vary from one tourism firm to the other and consist of e.g. experience, dogmas, tourism demands and/or the characteristics of the tourism experience.

The challenges facing the world at the beginning of the 21st Century are challenges that the Travel & Tourism sector is already embracing. This was concluded in the 'Breaking Barriers, Managing Growth' 7th Global Travel & Tourism Summit held from 10-12 May 2007 in Lisbon[43]. It has been finally suggested that sustainable and responsible growth can only be achieved by bridging inequalities in wealth and opportunity, boosting international understanding, and balancing resource use with resource availability. Similarly, exploration for the tools, involving fiscal, regulatory, educational or other means, to strike a balance of freedom and opportunity to travel with sustainability in a world, where the laws of nature are now daily introduced to the rules of economics, was one of the key objectives for the the 2008 Global Travel & Tourism Summit convened in Dubai, United Arab Emirates (UAE), from 20-22 April 2008.

According to a very recent Eurobarometer study (Verheugen, 2009) the impact of the global economic crisis has been felt throughout the European industry and tourism specifically. However, it has not been as bad as it seemed, because the study showed that 63% of the EU citizens traveled or planned to travel, as of September 2009, for private purposes, compared to 67% in 2008. The study showed that travel patterns have changed, with 50% of the European travelers preferring to stay at their home country (up 10% from last year), they spent less by staying fewer days and relying more on **last minute offers.** These patterns show possible ways that industry should change and adapt to meet these challenges.

The EU wide study, at the request of the EU member countries has just been completed and the results were presented at the European tourism day and European tourism forum, in Brussels 8 and 9 October 2009. The study concluded

[43] World Travel and Tourism Council (WTTC), 2008. Progress and priorities 2008/09

that EU tourism industry will continuously strive to find its place in a global competition. Consumers will be more demanding, looking for comprehensive travel experience and value for money. Tourism stakeholders should set new global environmental protection goals striving for sustainable tourism while remaining competitive, they should understand the challenges ahead and be prepared to address them. Using the study findings, Mr. Verheugen has presented the greatest challenges to be faced by tourism industry, these being, **tourism must be part of knowledge economy** with all leisure and hotel services to be found easily via the web while the industry should work towards **removing all inconsistencies between complimentary tourist services** and invest on people skills which can increase productivity together with innovation capacity.

Eight mega-challenges (megatrends) have been identified by this study (ECORYS, 2009), globalization, demographic change, **access to information**, experience economy, **customization**, **sustainability**, health and wellness, low cost business models. Most of the above, if not all, have been at the heart and the core of TOUREG SWOT analysis, both Regional and Global, and they are addressed by focusing on trends on innovation, products and services in ICT, energy and environment. Tourism industry has not made the transition to the knowledge economy, thus generating significant challenges but also opportunities not only for the tourism businesses but also for the support businesses providing innovative solutions on the subjects. This occurred despite the huge developments in ICT (e.g. Web 2.0) which have fundamentally changed the way industry interacts with the customer.

Professionalism should be improved via training with the necessary support from public authorities. Innovative solutions, focusing also on eco-innovation, and already identified via the results of this study and the work by TOUREG partners, should be sought to overcome major obstacles of tourism companies in order to increase their competitiveness. Actions on five major fields are proposed, and we list here some of the major ones which are directly related to the technologies which are the focus of TOUREG, development of a Center of Excellence at European level for R&D on tourism, improvement of collaboration with education and training institutes, raising awareness about innovation implementation benefits, stimulate networks and social and environmental sustainability, improvement of EU financial instruments.

Following the full global analysis on tourism issues and trends as well as the trends on innovation and in particular with respect to ICT, energy and environmental technologies, we performed a SWOT analysis for tourism in Europe and we present it in Figure 17. They should come as no surprise for the stakeholders of tourism,

however, one cannot wonder and raise the point that significant opportunities exist, both for tourism companies and for technology providers, which should be properly addressed and captured for the industry to become competitive.

Figure 17. Global SWOT analysis

STRENGTHS	WEAKNESSES
▪ Europe is among the top tourism attractions globally with very long history and traditions and large diversity in a small geographical area ▪ Very good infrastructure, albeit needing refurbishment ▪ It is generally considered as a safe destination ▪ There is strong R&D infrastructure able to develop and deliver much needed innovative products and services	▪ There is no brand 'Europe destination' ▪ Low involvement of tourism companies on innovation product and service development ▪ Economy dominated by low knowledge and low technology intensive tourism SMEs ▪ Still seeking tourism sustainability with no definite road map on how to achieve it ▪ Low absorption capacity for innovative products and services ▪ Aging population ▪ Strong dependence on 3S (sea - sun – sand) tourism ▪ Tourism industry still not part of knowledge economy ▪ Professionalism should be improved ▪ Inbound tourism to Europe not addressed in a structured way ▪ Considerable fragmentation within tourism industry
OPPORTUNITIES	**THREATS**
▪ European and national funding for implementing innovative product and services in tourism industry ▪ Several innovative initiatives at European and national levels (e.g. EDEN) ▪ Development of next generation ICT technology (Web 2.0, smart phones) is exploding ▪ Easier access to information ▪ Tourists change their profiles necessitating the offering of comprehensive packages requiring tourism service integration ▪ Increasing awareness of customers on requirements for energy savings and environmentally friendly technologies ▪ Good prospects for rural tourism and agro-tourism development	▪ Strong competition from nearby countries and Asian (India and China) countries ▪ Global crisis changes tourist profiles ▪ Negative impact on environment and natural resources ▪ Seasonal variation, with very strong tourism traffic during summer

Based on primary and secondary research, the Regional tourism reports carried out for the TOUREG project, covering the five Regions participating in the project, explore the ways in which the factors already mentioned affect the tourism industry in the specific regions of South West Oltenia-Mehedinti County (Romania),

South West Region of Bulgaria, Crete (Greece), Madeira (Portugal) and The Balearic Islands (Spain).

In all these reports, a SWOT analysis has been performed, identifying the **Strengths, Weaknesses, Opportunities and Threats** in the Regions participating in TOUREG. These are presented in each report and are included in the executive summary of these reports, in the second part of this Global SWOT analysis report. A synthesis of all these points concerning the SWOT, identifying common issues regarding Strengths, Weaknesses, Opportunities, and Threats appears in Figure 18. Comparison with the individual Regional SWOT analyses, one can identify commonalities among the Regions, in particular the three islands, Baleares, Madeira and Crete, not-with-standing the fact that the less developed Regions of South-west Bulgaria and South West Oltenia-Mehedinti County present also similarities in terms of SWOT.

In conclusion, various funding opportunities for private and public investments as well as plenty of initiatives exist aimed at the tourism industry on Regional, National and European level. A list of possible action plans has derived by the Regions participating in TOUREG from the fieldwork, the responses from the major stakeholders and the analysis performed for the tourism sector in Romania, Bulgaria, Greece, Spain and Portugal, revealing the priorities in each region.

Innovative technologies are available and will continue to become available, provided that the word is spread around by projects like TOUREG, which can raise awareness about innovation, disseminate relevant information and knowledge, prepare tourism companies to become more adapt to absorb technologies, facilitate communication between stakeholders, and promote company needs to the Research Community. Innovative technologies, products and services in the areas of ICT, energy and environment can contribute significantly for a sustainable tourism, can enhance in multiple ways the quality of the travel experience, can allow for tailor made travel packages centred to the customer, can help decrease resource consumption per tourism unit and tourism destination. The challenges are there and the companies involved in tourism industry should be prepared to meet them and take advantage of these many opportunities.

Figure 18. Synthesis of the Five Regional SWOT Analyses

Strengths	Weaknesses
➢ Safe and secure destinations ➢ Growth interest for agro-tourism ➢ Cultural and historical heritage ➢ Sustainable development in tourism sector ➢ Governmental priorities for tourism ➢ Natural beauties ➢ Environmental conditions: excellent weather and temperate climate	➢ Unsubstantiated development of clusters concerning innovative technologies and services. ➢ Few synergies between universities and tourist companies for innovation and knowledge transfer. ➢ Limited growth of innovation culture ➢ Inadequate continuously governmental emphasis and support of the tourism. ➢ Lack of qualified personnel on technological subjects or knowledge intensive activities ➢ Inadequate development of infrastructure in remote-urban areas (mountains,) ➢ Few alternative tourism activities
Opportunities	**Threats**
➢ Good prospects for rural tourism development in isolated areas ➢ Current funding opportunities for private and public investments in the tourism industry (regional, national and European) ➢ Important opportunities for the introduction and development of alternative tourism forms ➢ Effective exploitation of the high quality tourism resources ➢ Increasing tendency for domestic tourism ➢ Potential synergies between policy makers, SMEs, Universities, Technology Parks and research centres for knowledge and innovation transfer	➢ Strong competition in an international level ➢ Seasonal variance of ➢ Inadequate education system for tourism sector. ➢ High pressure over certain natural resources

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