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Improving Competitiveness in the Caribbean Tourism Sector through ICT-based Innovations

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turismo e innovación

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Executive Summary

The geographic location of the Caribbean shapes the characteristics of its economy. Local climate favours the development of a year-round tourism industry, which represents 14% GDP, 11.3% employment and 17.6% of exports. Thus, tourism is one of the most important contributors to the local economy.

It is known that tourism plays a significant role in the global economy as well. Despite the poor financial and economic situation, the travel and tourism industries have managed to remain relatively resilient over the last years. Moreover, forecasts provided by different organisations, the UNWTO and WTTC amongst them, reveal that international tourist arrivals will continue to increase at a 4% rate in 2014. In 2030, tourism international arrivals are likely to reach 1.8 billion.

Meanwhile, the distribution of international arrivals has changed in the last years. While the top 15 destinations accounted for 96% of the market share, today, they just receive 66% of the international inbound traffic. The remaining 44% of the share is spread in other destinations.

This new market distribution, together with the growth forecast expected overall for the sector represent an opportunity for the Caribbean, which contributes 2% in global tourism. Thus, despite its already significant contribution, the region could base an important part of its future development, growth, wealth and job creation on the travel and tourism industries.

In order to take advantage of today's global economy and maintain the economic importance of tourism in the region, the Caribbean needs to remain and gain competitiveness. So far, most of the Caribbean countries have based the development of tourism on what their

location can naturally provide: nice sceneries, beaches, i.e., natural resources. However, the region needs to work further on its unique characteristics to become a destination that is articulated intelligently, in a way that fosters productivity and efficiency based on innovation, while preserving its local environment.

Generally speaking, the adoption of Information and Communication Technologies (ICT) changes radically the traditional functioning and competitive landscape for most industries and sectors. Thus, one of the most important challenges industries face nowadays is how to manage the adoption of technology-based innovations towards quantifiable competitive gains and advantages with respect to the competition.

The same can be said about the travel and tourism industries. ICT has changed and continues to change the nature of contemporary tourism. Its major adoption in all parts of the industry is transforming tourism into an information and knowledge intensive sector, valid in a globalised economy. No player, large or small will refuse to implement ICT-based innovations if that means to remain competitive in today's economic schema.

The distributed nature and the small size of the tourism companies in the Caribbean do not constitute the adequate setting to work on innovation towards competitiveness. Therefore, in addition to the managerial and philosophy implications the adoption of ICT-based innovations carry along, it also creates the right setting for efficient co-operation within the agents by offering tools for clustering and working together and for globalization and creation of a critical mass.

Thus, as important as it is for companies to work together, States need to take an active role in promoting and implementing policies that allow companies to work and cluster together. These ventures will make it possible and more affordable for companies to adopt existing innovation, be active innovators and in the end, increase local competitiveness as well as productivity.

The Caribbean Tourism Administration should recognise the capacity of ICTs to empower their local SMEs and their competitive capacities considering them when designing new policy policies. Therefore, together with the new programmes, additional resources will be needed to support SMEs modernisation and digitalisation; launch ICT training programmes; promote widespread use of eCommerce and improve their online visibility and interaction with the digital traveller.

Chapter 1: Introduction

The Caribbean Region embodies a diverse reality. The region is heterogeneous in its historical past, economic development and geographical landscape. But there are also common grounds and its tourism relevance is acknowledged worldwide. However, these differences and similarities cannot be forgotten when approaching the region as a whole.

Tourism and the industries therein embodied are inherently connected and attached to a given territory. The singularities, authenticity and character of those territories are key for their competitive and innovative development.

The present work addresses the Caribbean tourism strategies within the context of the dynamics of global value chains. The globalization of the tourism industry has framed the Caribbean tourism growth model in a way that most of the regions have attracted foreign investments in order to create a higher level of luxury. These investments have opened the access of the Caribbean region to global markets. However, at the same time, these large foreign players represent a constraint in the development of regional tour operators, as it is difficult for local (usually small companies) to compete with foreign (usually large companies). The advances in IT of the global industry have moved those international operators to the digital environment, putting together sophisticated platforms to perform better on the online markets.

The industry network in the Caribbean is rather complex. On the one hand, there are large foreign players, highly innovative and competitive, partially constraining the development of local economy. On the other hand, the local industrial network is

made up of small and medium businesses who struggle to remain competitive and for whom innovation constitutes the usual barriers inherent to SMEs.

Within this context, the present report has been conceived to present innovation strategies, policies, cases, challenges and trends to be useful for a broad audience: national and subnational level **tourism, innovation, industry and competitiveness authorities**, and private tourism sector **locally based**. The main objective of this report is then to support locally based public and private tourism players with guidelines and knowledge about technology-based innovation. Successful policies implemented in other parts of the world in order to foster innovation those territories and in the travel and tourism industries therein embodied will also be shown.

Within the suggested innovation development model fostering learning processes, policies are approached as the framework preparing well-greased gears closing the innovation gap that could be encountered. Tourism as an economic sector is inherently connected to many industries. As such, it needs to be taken into account when drawing policies on entry restrictions to countries, transport, connectivity (physical and virtual), health and safety, education, innovation, entrepreneurship, and technology.

Therefore, it is argued that tourism shall be regarded as a sector in need for careful policy design in connection to other economic sectors relevant for a given territory. Equally relevant is to acknowledge the singularity of a given region / local area in its development of tourism to adapt such policies to fit this unique destination. Moreover, arguments are provided to

reinforce integrated, place-based economic transformation strategies, building up on each region's strengths, competitive advantages and potential for excellence.

The present report starts out placing the reader within the global trends and challenges the tourism economic sector is facing. It goes on by providing an insight about the current status of the Sector in the Caribbean region, by analysing its singular development and underlining the need for approaching future tourism development with a high innovation scope in order to be and remain competitive in the global economy.

Precisely, Chapter 4 suggests an innovation framework for regions where SMEs need to be empowered when facing international competition. This empowerment comes mainly from the adoption of technologies explained in Chapter 5 that is boosted by a framework of an adequate clustering and co-working policy atmosphere created by public policies explained in Chapter 6.

Chapter 7 provides a review of innovations practices. Finally, the document closes with some conclusions and a set of guidelines for the Caribbean Region.

Chapter 2: Trends and Challenges

The travel and tourism sector faces numerous challenges despite its positive status and optimistic predictions. Technology development is driving major changes in the tourism industry. In addition, tourism is each day a larger player in today's global economy. Therefore changes occurring in general have also implications and drive changes in tourism.

Global economy, knowledge-based societies, more affordable means of transportation, the World's demographics, environmental and sustainability policies, to name but a few elements, are changing the way we live. They are also driving changes in the way we travel, in how the tourism industry operates, in how tourists behave and in how we understand tourism.

People around the world have been willing to travel despite the global economic and financial crisis. As mentioned in the Introduction, the tourism industry has shown once again its resilience and ability not only to maintain, but also to overcome the overall difficult situation as opposed to other industries. Although there was a short downturn in the number of visitors in 2009, the number of international visitors surpassed the milestone of 1 billion tourists globally for first time in history in 2012 (UNWTO, 2013).

In the same way, UNWTO foresees that international tourist arrivals to America will grow from 150 million to 248 million in 2030 (UNWTO, 2012, 2). Although this figure represents an important growth, it is comparatively lower than in other regions. Thus, action needs to be taken in order to improve competitiveness and keep or increase the current market position and share.

Considering this general situation, in striving to better understand the opportunities technology-based innovations could bring to the Caribbean tourism sector in the coming years, it is not only necessary to know how innovation will and/or can support the destinations and their businesses. It is also crucial to have a deep understanding of how the world, the industries and the consumers are changing and how these changes are driving farther transformations in the travel and tourism industries. The awareness of the overall situation will fund the base upon which the adoption of different innovation strategies and measures will be supported.

In today's global economy, trends are global but opportunities are local. Thus, the focus on local factors is key for the development and sustainability of any sector. This is even so more important in the tourism sector. Thus, this section outlines some of the most significant trends and challenges the travel and tourism industries are and will be facing globally in the coming years. These trends will be categorised in trends the sector is facing itself as a sector and social, market and other general trends that are driving changes in tourism, which could create opportunities at the local level.

Figure 1, represents graphically the framework that articulates these trends and challenges. The vertical axis arranges technologies according to the life cycle of the trip, i.e. technologies that can be used or adopted during the pre-trip, on-trip and post trip phases from the industry, destination and tourists perspectives.

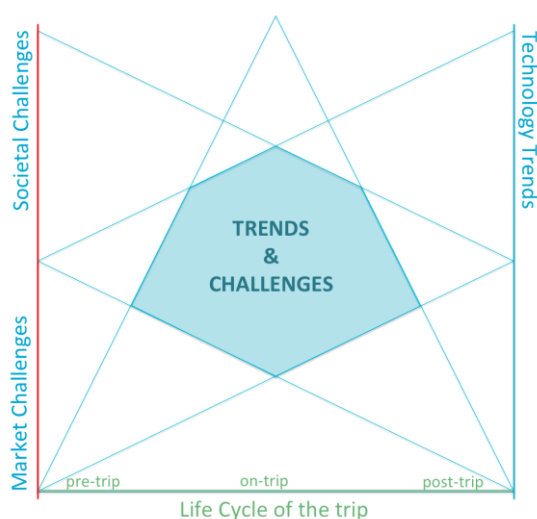


Figure 1: Trends & Challenges approach.
CICtourGUNE

On the other hand, general trends and challenges have been arranged in the horizontal axis. As mentioned earlier, the adoption of technologies in tourism is not only driven by technological development, but also by a number of factors outside tourism, such as general social or market transformations.

ICT adoption is leveraging changes in tourism value chains and in the way we consume tourism products and services. More general changes, i.e. market or societal changes, are shaping people’s behaviours. Technology can support to better understand these behavioural changes as well as to provide the right kind of service or product adapted to these new behavioural patterns.

The model of trends and challenges presented in this report brings new insights into the Tourism sector and presents a framework for its comprehension. In the same way the model aims to integrate the different factors in a single view.

The following table summarises the trends and challenges tackled in this chapter of the report.

Table 1: Challenges and Trends

Challenges	
<i>Social Challenges</i>	<i>Market Challenges</i>
<ul style="list-style-type: none"> • Population Ageing • Environmental Changes • Polarization of wealth • Globalisation <ul style="list-style-type: none"> ○ Sustainability ○ Mobility ○ Digitalization ○ Internationalization 	<ul style="list-style-type: none"> • More competitors • Diversification of products/services • New destinations • Building Smart destinations • New distribution model • Brand creation (place identity) • Knowing customer expectations • Personalization of products/services
Technology Trends	
<ul style="list-style-type: none"> • New mobile technologies • Internet of things • Cloud Computing • Cross platform and network technologies • New materials (grapheme, etc.) 	<ul style="list-style-type: none"> • Big data technologies • Mobility and tracking technologies • New smart devices (glasses, watches) • New social media tools • New sensors (NFC, RFID)

2.1 Social Trends and Challenges

Social changes have a structural impact on tourism. New family structures, ageing of society, polarization of wealth and income (pressure of cheap imports, immigration, most retirees with less pension to spend more years) are just a few examples new generations of politicians need to deal with.

The world's population is growing and it is expected that there will be more than 8 billion inhabitants by 2030. Cities will host around 70% of the global population and it is very likely that they will become the dominant nodes in the everyday increasing flows of travellers in the future.

Quality of life and life expectancy have improved significantly in developed countries. In addition, longevity is gradually increasing in developing countries. As a consequence, people live longer, in better conditions and they have a higher disposable income to devote to travelling. For instance, in Europe, the average tourist on the age of 65 or over spent 11% more than the general tourist (Statistics in focus, Eurostat, 43/2012).

ICT is essential to address social challenges. It brings unique responses, for instance, to the growing needs for ageing well and for more sustainable healthcare systems. People demand more efficiency, connectivity and flexibility from the healthcare system. Progress in the standard of living and innovations in healthcare allow more people to take a more active part in society.

Nowadays, travel possibilities are countless and easily accessible. The massive adoption of technology in everyday life makes it possible for individuals to become more international and present at global scale. Everybody is virtually connected to everybody and to everything else. Globalisation brings substantial challenges

related to areas such as mobility, sustainability and digital society, which have a direct impact on tourism. Hence, market **globalisation** stresses the need for highlighting the singularity of the local destination on such a global context of fierce competition.

There are no local markets any more. The supply chain is becoming the supply web. And within this “business webs”, players are forming more flexible relationships with each other and with the customers. As these individual relationships emerge and grow in size and scope, due to a great extent to social networks, the traditional value chain of tourism will change.

Currently, Society faces shrinking natural resources and biodiversity and extreme **environmental changes** (climate changes, global warming, extreme weather conditions and so on). In order to promote sustainable development for the planet there is a need to manage the use and exploitation of natural resources, reduce pollution and carbon emission, and achieve efficient soil and water management.

ICT can and will play a determining role, developing more energy-efficient products and services taking in better control, monitoring and planning (smart buildings, smart grids, manufacturing, transport).

On the other hand, environmental protection in tourism destinations is increasingly taken under consideration in the development of products and processes. Natural resources are being used efficiently and environmentally harmful effects are being minimised throughout the whole product life cycle. For example, technologies are being used to conserve energy and water, for sophisticated waste disposal, recycling and filter systems as well as techniques for the efficient use of renewable energies.

From the demand point of view, **travellers' behaviour** is also changing. Today's travellers expect highly personalized products and services as well as instant customer care. Understanding the expectations of travellers has become a key competitive issue for the travel and tourism industries. The intensive use of ICT, more in particular of intelligent systems and real-time analytical techniques, is making it possible for the industry to deliver highly customised products. The analysis of big amounts of data with information aggregated from social media is enabling companies to have a deeper understanding of their customers and to know them better.

Tourism is considered to be an important **driver of changes** in the spatial, economic and social contexts. The socio-economic repercussions of tourism development make tourism a significant **agent of** social change and **social innovation**.

Social innovation refers to new concepts, ideas, strategies and organizations that meet social needs of all kinds (from working conditions to community development and health) that extend and strengthen civil society. The term has overlapping meanings: it can be used to describe social processes of innovation, such as open source methods and techniques, alternately it refers to innovations, which have a social purpose, like distance learning or microcredit. The concept can also be related to social entrepreneurship and it also overlaps with innovation in public policy and governance. Another related concept is **collaborative social innovation**, focused on the types of platforms needed to facilitate cross-sector collaboration, a key issue for tourism destinations.

Social changes refers to modifications that are occurring in the last years in society, such as: growth of luxury tourism, growing price sensitivity in all types of travel, trend

to shorter vacations and short trips and city tours to rest (city breaks), hotels with family rooms, accommodations for seniors at very affordable price (with or without public subsidy), health tourism development (Banca March, 2012).

Generally speaking, the way of living is changing. These major changes are driving, at the same time, changes in the ways companies do business and compete with each other. As a consequence, tourism is also changing: there are more people willing to travel, with different expectations, with high requirements and technologically educated and active.

2.2 Travel and Tourism Industry Trends and Challenges

Looking at the market, the trends the travel and tourism industries face nowadays are focused primarily in the following factors: increasing competition, emerging countries and destinations, adoption of technology and branding and identity building.

As mentioned earlier, it must be taken into account that the Travel & Tourism Sector is tightly related to other sectors, such as transportation, telecoms, accommodation and leisure among others (Deloitte, 2010). Therefore, trends in each of these sectors need to be seriously taken into account, as they drive changes in the Travel & Tourism Sector itself.

One of the main factors of change in the market is the existence of new competitors. The **competition** in the Tourism Sector at all levels (destinations, distribution agencies) is growing. The tourism market is **increasingly diversified**, new destinations emerge and major destinations represent a smaller percentage of the total (Banca March, 2012).

Some **novel destinations** are emerging strongly in Asia, Middle East and Latin

America, the top regional growth markets such as China, India, Russia, Brazil and the Gulf states (ITB World Travel Trends Report 2013/2014). In these new markets, the luxury sector is being developed first. The section devoted to the middle class is still under development. These destinations will be so significant that emerging economies will reach a greater number of arrivals than advanced economies by 2020.

Due to the intensive technology adoption, destinations will become smart in the future. This is an extrapolation of the smart city concept. A smart city is an innovative consolidated space on the basis of territory and a cutting-edge technology infrastructure that combines the concepts of sustainability, knowledge and technological innovation. The added value provided by the concept of **smart tourist destination** is the consideration of the visitor / tourist at its centre. In this sense, placing the visitor at the centre of developments will facilitate the generation of integrated intelligent systems, improving the integration and interaction with the destination (before, during and after the travel), creating elements that facilitate the interpretation of the environment, streamline decision-making and increase the quality of visitor experience.

Regarding the destinations, there is a need to develop a unique market position and to have its own **brand position**. In the coming years, the brand will become an increasingly important factor of choice, especially in the field of luxury travel and the highly customized travels (Deloitte, 2010). Agents capable of differentiating their services in today's globalized and digital market will be leaders in creating socialized brands in new technological environments. Brands that are unable to respond to these transformations are facing great risk of losing their competitiveness permanently.

Social media offers opportunities to build brand awareness and community.

Branding often appears related to the concept of "**place identity**". This concept refers to the significance of places for their inhabitants and users. The relationship between people and place is the subject of environmental psychology. Places have been described as "centers of human existence" that help create a sense of meaning and stability in people's lives. Places comprise both the physical and the social environments since people seek places where they feel safe, secure, and comfortable and where they feel that they belong.

Place identity influences people's attitudes and behaviours, including behaviour toward the local community. Thus, the level of identification that residents have for their particular town can have positive effects in fields such as Tourism.

So related to Tourism, the place identity has a significant, positive effect on entrepreneurial self-efficacy and support for the community. Thus, a tourism entrepreneur's sense of identity with the place in which his/her business operates contributes toward **entrepreneurial success** (Hallak et al, 2012). Thus, place identity is an issue to be addressed by the destinations, to better positioning in the competitive Tourism Sector.

Another issue to bear in mind for entrepreneurial success is Knowledge management. It will promote synergy to break obsolete paradigms. Open management models (open innovation), networked, participatory, sustainable will strengthen. Greater experimentation with **new business models** is expected, with a proliferation of 'making money' based on environmental models, auctions or consumption patterns (Deloitte, 2010).

Tourists today are informed, connected and participate actively in social networks. The proliferation of these media and new forms of communication have led to a better understanding of the products offered as well as of the experiences of other visitors. Technologies play an important role facilitating the design and configuration of memorable **experiences**. By the use of these technologies, the tourism sector can accommodate its services to the real **expectations and needs of travellers**. Furthermore, as tourists are going mobile, the travel and tourism industries need to **go mobile** as well in order to be able to meet consumers' expectative, anytime, anywhere and in real time (see Section 2.3, Technology Trends for more detail).

Each traveller has its individual preferences, demands and expectations. One of the great dangers is falling into traditional thinking to understand the fragmented tourism demand. New trends show that people and travellers do not identify with predetermined groups. The challenge is to understand and act accordingly, leading and promoting the phenomenon of "**inherent personalization**" of the sector. Tourists will have preference for destinations that provide a complete and personalized choice of all elements (or more) of their stay. In the future, the decisions and changes that make the tourists can be very fast, as fast as the tools allow.

Given this new reality, individual operators may be less attractive and competitive to well-organized business groups, unless they have high capacity and resources to launch **personalized and flexible offers** (Deloitte, 2010). However, giving people too many choices tends to lessen their satisfaction. The focus at the moment is on providing relevant results that target the specific needs and wants for each traveller given their situation. Providing such specific and personalised content is even more critical

when going mobile, where the information displayed needs to really meet the expectations, as smaller screens require special presentation design and interaction principles.

Distribution Trends

New distribution models are undermining the old paradigm of travel distribution, which saw big intermediaries, such as global distribution systems. Personal clouds, for example, enable users to access information anywhere, anytime and on any device.

Even small hotel companies can connect with customers in real-time by means of ubiquitous communications. Customers can now search, compare, shop and book with no time nor location restrictions.

This new communication paradigm between companies and customers has brought a revolution to the travel and tourism industries. The new distribution model resembles a "swarm", where the customer is at the centre of a number of potential interactions between suppliers and distributors (IBM, 2011). In this new environment, customers can be influenced at almost any time of the trip through offers, announcements and suggestions. Meanwhile, each of the members of this new travel ecosystem gets unique and important data on how to best serve the customer.

Therefore, it is vital for distributors to have integrated and multi-channel distribution platforms within this new ecosystem. All agents of the tourism sector can share their deals and tourists have the experience of successful and easy reservation process. These new platforms will need to integrate the small content providers using APIs that allow both viewing information as much as loading on the system. In this new

ecosystem OTAs (Online Travel Agencies) are gaining more and more relevance.

Regarding new distribution competitors, collaborative housing markets like Wimdu, Zipcar and Airbnb are growing at an incredible pace. In fact, Airbnb sells more beds in Manhattan than all the hotels (Eye for Travel, 2012). It is uncertain the extent to which this new phenomenon will or can affect the traditional hotel industry and car rental companies. What is certain is that new business models and ways of distribution are transforming the industry and that traditional industry will have to adapt to the new rules.

2.3 Technology Trends

We live in a technology-mediated world. Over the past decade, ICT used for or during travel has become much faster, smaller, more intelligent, and more embedded in the user's environment. Convergence of technology and

This change is particularly noticeable when travellers are equipped with today's cutting-edge mobile technology characterized by smartphones and their apps. The fast adoption of **new mobile technologies** generates a tremendous impact on travel and will very likely transform the behavioural patterns of tourism consumption and the tourism experience itself.

A new world is emerging as a **smart world** (smart cities, smart destinations), where everything is connected to everything else, making the physical, digital and social spheres converge and creating this way hybrid worlds, which are practically inseparable and indistinguishable. In these new environments individuals **interact**, play, communicate, collaborate and share information **in new ways**. Businesses and destinations need wholly new development

principles, policies, processes and objectives: sustainable world strategies, comprehensive planning, integrated models and globally effective solutions.

According to CISCO Systems (Bradley et al, 2013), the Internet will be four times larger in 2016 and more and more people and objects will be connected to the network. In 2013, it is estimated that 2.4 billion people will be connected to the Internet, in 2020 this figure is expected to reach 5 billion people. In relation to the **Internet of Things**, by 2020 it is expected that 50,000 million objects will be connected to Internet. The Internet of Things enables integration of connectivity and objects that can influence a trip, such as real-time baggage location, weather conditions and homeland security advisories.

Cloud solutions are transforming the way large amounts of digital data generated in travel and tourism are processed. **Cloud computing** will have significant tangible consequences on prices, optimized routing and planning, customer profiling, privacy and security protection, among other areas. It will also have implications on the culture of companies. The cloud market worth \$ 4 billion in 2011 and it is expected to increase to more than \$ 242 billion in 2020. By 2014, over 50 % of all workloads will be processed in the cloud (WEF, 2012). On the other hand, **personal clouds**, allow users to access information anywhere, anytime and on any device.

This **new-networked environment**, enables the creation and development of intelligent destinations. In this sense, digitization of the physical world will be growing, and the convergence between the physical world and the virtual world will become more transparent. As the price and size of the sensors and chips decline, new technologies and new products will create an ecosystem of intelligent transportation. Currently, this

is reflected in telematics, assisted parking and automatic payment systems. In future it has the potential to include auto-driven vehicles (WEF, 2012).

Cross-platform data access is essential to make this a reality. as It requires tourism companies to track the changing user-interface patterns of their customers to provide the suitable level of service. This will be a continuing process as new technologies develop and businesses become less restrictive about the devices their employees can use for special tasks. The suppliers and distributors that support the most user-friendly, convenient interfaces will enjoy increased market share. HTML 5 enables programmers to design it once, but being able to run anywhere (under any hardware or software).

On the other hand, there are **new materials** that will enable new ways to interact and consume information in smart spaces. Graphene is one of the materials of the future. It's a material with very good properties and there are many application examples. For instance, many components of new devices will be made by graphene and it will be used in the next generation of solar cells. The use of new materials and optimisation of construction processes would yield significant benefits in buildings and transport systems. In the accommodation sector, new materials will enable the development of innovative hotel concepts and solutions tailored to guest preferences and to design future hotel rooms.

Following, a list with top technology trends and challenges the travel and tourism industries are facing is shown, considering the life cycle of trip as a means to classify such trends and challenges.

Technology Trends related to the pre-trip process

Taking a look at how travellers **arrange their journeys**, it seems that Online Travel Agencies (OTAs) are growing in importance. In fact, the Internet increased its dominance as a booking channel to 65% in 2013, while travel agency bookings just rose by 4%. However, as in the booking process travellers visit more than 20 sites before they make a booking decision. In the future meta-search, social media and a strong brand website will provide great opportunity in competing with OTA's and gain **more direct bookings**. Moreover, other applications as **Google Carousel** will appear, to make the booking process easier. The Carousel is currently live in Europe for location & events based searches, 2014 will bring the Google carousel for hotel related searches (already live in the USA) (Net Affinity, 2014).

On the other hand, around 75% of travellers carry a smartphone. **Mobile travel bookings** are becoming significant globally, reaching double-digit shares online sales for some key players in the online travel agency and hotel categories. Both destinations and the tourism industry need to pay attention to this emerging trend.

According to the report released by Google on the process of **decision-making in travel** (Google Think Insights, 2011), the use of Internet in **planning the trip** continues to grow reaching 87% of U.S. users. With regard to activities on the Internet: 62 % use them to investigate the destination, 45% initial idea of travel in the inspiration phase, 43% read reviews from other travelers, 31% watch videos relating to destinations, 24% are looking for information related blogs, 16% are providing feedback and 11% do so in online travel journals, 11% upload videos of your vacation, 9% makes comments to videos and 7 % explains your holiday in a blog.

Tourism marketing is also suffering important transformations. There will be more marketing campaigns in the future, but they will be more fragmented and personalised and addressed to any device: computer, tablet or smartphone. Regarding product personalization, the customer's profile and the range of offers will be taken into account, in order to serve just the most accurate offers to the customer and improve the travel experience.

Customer relationship is also being performed in new ways: destinations are using virtual tourist offices across social networks, and the hotels are using tablets and Smart TV, to **interact with customers**. Thus, **multi-screen marketing** is needed with travellers moving across devices to complete bookings.

When making marketing, video usage is growing at a fast pace. In 2013, 81% of online travel bookers consulted videos before purchasing products. So the **engagement through video** is a key trend to take into account (Net Affinity, 2014).

Technology Trends related to the trip and destination stay process

Related to on-trip processes, technology is offering many alternatives to get **more efficient automated processes**. For instance, in processes such as check-in/check-out at airports and hotels, or payments (all kind of establishments), technologies like NFC and fingerprint biometrics will be generally used in the near future. Hotel companies have only begun to tap into this potential, utilizing RFID and NFC enabled mobile devices for room entry purposes as well as for payment delivery.

Visitor tracking offers further opportunities for indoor environments. The analysis of this information could allow providers to know what information, where and by

whom was consumed at what time. The gathering of all these data and its later exploitation can increase significantly the knowledge about how people consume spaces and thus, to design services that lead to improvements in the visitor experience.

Concerning bookings made during the trip, **Mobile Hotel Bookings** will continue to grow throughout 2014, with a prediction that 50% of direct online bookings will be made via mobile devices by 2017. With respect to Marketing made during the trip, Geo Targeting is set for huge growth throughout 2014. The hotel industry needs to see the potential with this targeted marketing method (Net Affinity, 2014).

When analysing trends about mobile **technology**, location-based services must be taken into consideration, as they can provide significant added value applications such as alerts, recommendations, location of people or objects and real-time offers for example. Furthermore, it could be integrated with User Generated Content (UGC), obtaining new services as the "social seating" which consists to choose the travel partner or an event partner, according to the affinities extracted from social networks.

On the other hand, today, there is no reliable and scalable **indoor tracking** solution. Hence, working on these kinds of systems would provide a significant competitive advantage. According to most technology predictions, sooner than later indoor tracking technology will be available. This will constitute a great opportunity to better understand visitors' behaviour, in within indoor environments such as accommodation, restaurants, airports, shops, museums and so on. This will also enhance the analysis of mobile behaviour as the generation of mobile data will grow.

Regarding **intelligent transportation**, an example could be Kutsuplus, a personalized

bus service implemented in Finland. A mobile application has been developed to order a bus. By selecting the pickup point and the destination, the app adapts the bus route to the requests received, with a maximum of 9 requests. After selecting the route, it will give the closest stop address, the estimated arrival time, the vehicle number, and the travel code that serve as ticket to start the route.

New devices connected to the Internet will offer services never before possible, offering more complete knowledge-based information and impacting on the visitor experience and changing the on-trip process. Currently the mobile revolution is a reality, more and more people are connecting to the Internet through mobile devices as smartphones and tablets. Moreover, new devices are appearing (smart glasses, smart watches, new sensors, digital tags for suitcases), which will improve the connectivity on the move and will develop new ways of interaction. Related to **Smart Glasses**, it is noteworthy that Google Glass will be available by the end of 2014. At the same time, at least a dozen other digitally enabled frames are in development. So, some competition in the coming years is expected.

Following with the study of new devices, the **next evolution of mobile** will be the Phablet, this smartphone-tablet hybrid combines the best of both worlds. Most of the main mobile manufacturers already have their own Phablet: Apple, Nokia, Samsung, HTC, etc. Concerning to **Smart Watches**, note that it is a wrist-based device that lets you access apps, e-mail, and even phone calls. Samsung's Galaxy Gear is top for now, but Sony and HTC are hot on its heels. Their adoption by the general public is taking longer than expected.

The biggest challenge for users of information technologies will not be the

hardware but the software. For example, Smart Glasses mentioned earlier are certainly useful, but the voice-based interface they implement depend on menus that must be uttered in a particular sequence, instead of free formatted commands that can be issued in any order.

Another key trend for the upcoming years will be the gamification and the monitoring of visitors. With Mobile spearheading the market, it is essential to ensure the **engagement** and retainment of users. This is done through strategies designed to piece along bits of information to users through point systems, interactive activities, and competition; otherwise known as **gamification**. Strategies to ensure optimal gamification include: content management, separating information based on similar traits. Each piece is distinctly separate from another, however they are intertwined with one another through the engagement process.

Additionally, the aim is to provide users with just enough information to peak their interests, and increase that amount of information the longer usage is occurring through different levels within the Mobile Tools. With the advent of this new technology, there are now tools in place to observe **usage patterns** of various devices, and their respective tools. Items such as frequency, usage time, travel and spending patterns can all be measure through mobile tool such as gps and email. These various categories are measured with the hope that organizations can come up with strategies to match the appeal of the current popular trends, in turn benefitting their own businesses.

Technology Trends related to the post-trip process

The post-trip process is the last stage taking into account the trip experience. So, in this

stage the activities made by the tourist are related to the evaluation of service, to sharing the travel experience in social networks.

Thus, **Social Media** is one of the main drivers in the post trip process. Facebook alone has more than 1 billion users, while social media in general reaches 85% of the world's total Internet users. However, travel companies have yet to unlock the true potential. The discussions of return on investment are outdated. Instead, social media should be thought of as a way to **engage with target customers**. Besides, social media is still in its infancy. Social media is here to stay. In the next five to 10 years, you will see that it will generate leads and performance will be up.

From the tourism agents' point of view it is time to analyse the data gathered during all the trip process. The quantity of data is increasing and the quality of data is improving. This data revolution is forcing a change in the travel business. Data is present in all areas of the business: marketing, travel pricing, planning, products, etc. (IBM, 2011).

The true changes will be driven by data that does not look like data, when it looks like a sign saying: the next bus will arrive in 10 minutes, or the price of a hotel reservation for next week is \$102. For extracting **knowledge from Big data** and advanced data analysis, it is required different experts (in computer science, business, maths) working together (IBM, 2012). Consequently, future companies will make deeper use of analytics, supported by better tools and workers with new expertise.

The effective use of big data can really increase the companies' performance and can really be their competitive differentiator. Instead of focusing on transactions, companies must focus on data

to better understand how, when, where and why travelers shop and book the way they do. Such efforts, while costly and challenging to implement, allow companies to better tailor offerings and help guests realize the value that will foster their lasting loyalty.

Chapter 3: Tourism in the Caribbean

In the 1980s, the Caribbean was a region that received over 7million stay-over arrivals and over 4 million cruise arrivals a year¹. Nowadays, this region hosts 21,229 million international tourist arrivals (representing 2% of the world market share); US\$ 28.1 million in receipts (2.1% of the world market share)² and the total contribution of Travel and Tourism to the region's GDP was US\$ 49bn (14% of GDP)³.

This economic relevance occurs in a region that **embodies vast differences from country to country** concerning geography, topography, landscapes, demographic composition, character, historical and political background, and economic performance. Such differences are echoed in their respective tourism sector development.

One of the key variances on how tourism is impacting on their separate GDP lies on the diverse business models under which the sector has been developed in each country. For instance, there are several country destinations where wholesalers (tour-operators) have a greater influence. In other countries the cruise business surpasses stay-over demand. In other cases their geographical distance to source markets makes more difficult the entry of visitors by air and/or cruises. And finally another scenario, countries, whose historical background, strongly links them with relevant source markets.

Some of these scenarios co-exist in one same country. The figures 2 and 3, one on arrivals and another on receipts, highlight

how the identified differences result on some of the countries hosting most of the tourists and their expenditure.

According to both UNWTO and WTTC, 75% of the 20,8 million international tourism arrivals are concentrated in seven destinations: Dominican Republic, Puerto Rico, Bahamas, Cuba, Jamaica, Aruba and Barbados. Likewise, concerning receipts, the first six countries maintain their ranking, whereas Bahamas ranks higher than Jamaica.

Beyond the individual country, as it is widely known this region has significantly distinct historical backgrounds. If arrivals are looked-at from a division of sub-regions, as the following figure shows, the so called *other Caribbean group*, which embodies the large destinations like Cuba, Dominican Republic, Haiti and Suriname, upheld its dominance (44%) on the total arrivals in 2013 (CTO, 2014). Followed by US territories and French Caribbean, both witnessing a small reduction, as opposed to Dutch Caribbean experiencing a slight increase. Perhaps these figures point out the **relevance of size** of the islands as a known determinant of development, and reassures the **historical tie to source markets**.

¹ CTO (2006)

² UNWTO (2014)

³ WTTC (2014)

International Tourist Arrivals 2013

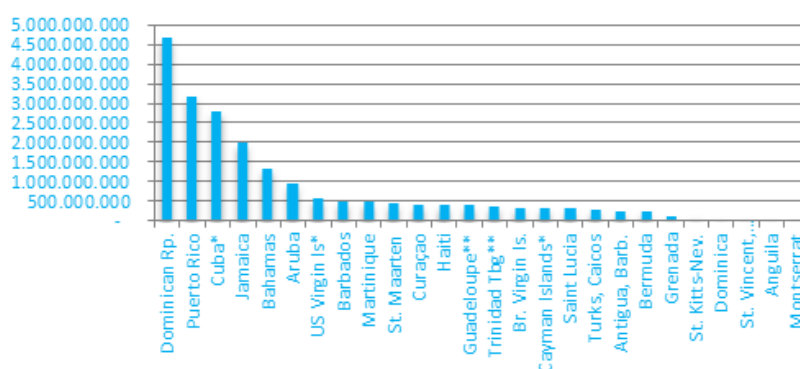


Figure 2: International Tourist Arrivals

International Tourist Receipts 2013

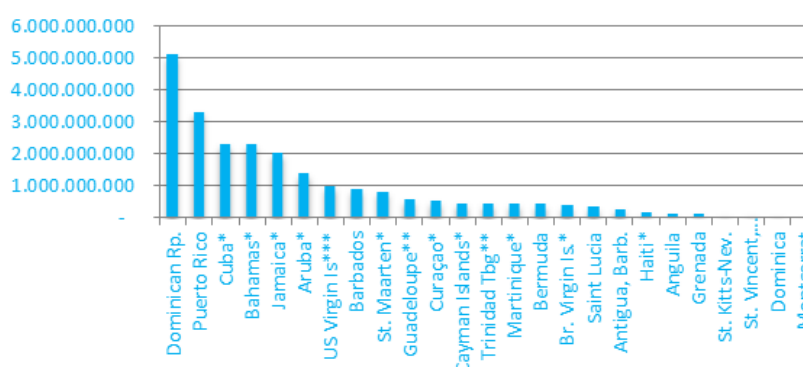


Figure 3: International Tourist Receipts 2013

Table 2: Tourist Arrivals by Main Market. Source: CTO, 2014

Tourist Arrivals to the Caribbean by Main Market ('000)						
MARKETS	2009	2010	2011	2012	2013e	%ch 13/12
Total Arrivals	22,426.5	22,790.1	23,407.0	24,564.3	25,010.3	1.8
United States	11,278.1	11,305.4	11,404.2	11,975.9	12,323.1	2.9
Canada	2,558.9	2,677.0	2,865.0	3,063.5	3,085.9	0.7
Europe	4,916.2	4,857.0	4,962.8	4,916.5	4,734.3	-3.7
Caribbean	1,457.9	1,487.0	1,584.4	1,562.8	1,595.2	2.1
South America	858.9	898.2	1,131.6	1,289.6	1,456.9	13.0
Other*	1,356.5	1,565.5	1,459.1	1,756.0	1,814.9	3.4

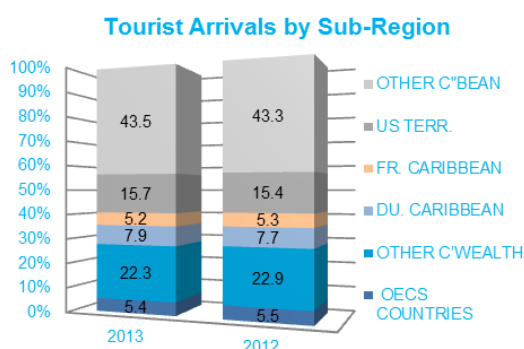


Figure 4 Tourist Arrivals by Sub-Region. Source: CTO (2014)

Precisely, regarding the main source market of international arrivals, if attention is placed in table 2, the **US market** remains outperforming the rest as the **main source market for the region**, 50% of the total arrivals. The main destinations for United States citizens are Bahamas, Jamaica, Dominican Republic and Puerto Rico (CTO, 2014). Moreover arrivals from this market have grown in 2013 (2.9%).

Canadian market is up 0.7%, Caribbean as well 2.1%, South America notably higher 13% and on the contrary, Europe, as a source market, it has declined in arrivals by 3.7%.

Concerning Cruise Passenger Arrivals and its performance in the region, 2013 has been an extraordinary year.

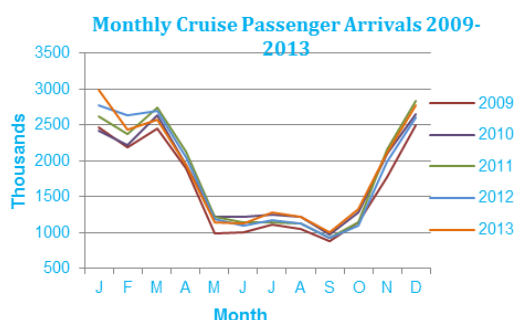


Figure 5: Monthly Cruise Passenger Arrivals 2009-2013

The Caribbean Tourism Organization highlights a remarkable fact: the Caribbean was reported to be the leading cruise destination by Cruise Lines International Association (CLIA⁴) and accounted for 45.3%⁵ of global ship deployments. The 21,884 million passengers achieved in 2013 represent a 2.7 increase over 2012 and embody higher numbers for summer months than most of the previous years. Performance among the diverse destinations varies. On the one hand, those destinations located furthest from the US remain showing lower attraction of cruise arrivals. On the other hand, there are contrasts such as Curacao increasing 45.1% in 2013 over 2012 and Grenada reducing its cruise passenger arrivals by 21.8% (CTO, 2014).

In sum, as a first look, this is a tourism wise prominent region encapsulating vast differences country to country: with seven outstanding destinations concerning arrivals and receipts, those larger destinations and those US territories concentrate a significant arrival market share, those closer to mainland or main source markets have lesser arrival barriers, and some destinations have barriers to cruise arrivals and some have further cruise passengers than overnight visitors at times.

The Caribbean: initial tourism development influencing factors

- Unbalanced performance across the region
- Country size matters
- Historical ties matter
- Distance to main source markets matters
- Large arrivals of non overnight visitors: Cruise Passenger Arrivals

⁴ CLIA is the world's largest cruise industry trade association with representation in North and South America, Europe, Asia and Australasia.

⁵ CLIA's figure adjusted to include Bahamas and Bermuda

On a closer look at the region, two key elements emerge: the ever-present business model where **tour-operators count with much leverage** and **overdependence (in many cases) on non-stay-over segments**. Any of the two lead to shrinking margins for local businesses.

This is no surprise in a region developed under mass tourism logic, which provokes a sudden expansion of demand. Suppliers had to react and responded by adopting economies of scale with homogeneous and undifferentiated services for consumers (Garrido, 2011). Most of their tourism strategies circle around (1) Sun and Sand where the product offered lies on the Destination Resort and Hotels; (2) Cultural/Heritage tourism, where the product is based on events (music is a relevant element) and plantation tours; (3) Nature, the product being related to soft adventure, ecotourism and marine activities; (4) Honeymoons and weddings and (5) Cruise ports and yachting.

Thus, wholesalers and potential tourists are not always aware of most of these differences when promoting a given country or destination or planning a trip, which causes significant damage and increases competition unfairly. Which implies that all of the destinations within **the Caribbean suffer the pressure to count with a distinctive brand and product given such a fierce competition**.

Another consequence of the mass tourism model is the constraint of the business margins as well as the shrinkage of small firms and ventures. As it tends to go hand in hand with dependence on foreign direct investment and disproportionate use of imported goods to the detriment of locally sourced ones, Bolaki (2011). In sum, these lead to the renowned concept of **leakage**.

Some additional external factors influencing the region are: the high vulnerability to oil prices and income shocks from abroad. In order to address the reduction of such vulnerability, market differentiation and targeting less price sensitive audiences are the usual recommendations, which come attached to a transversal suggestion on further cooperation among countries within the region.

Technology could eventually become a good allied to overcome some of those vulnerabilities. It is the case of some existing hotel energy efficiency solutions, which have been promoted in the Region through public funds and initiatives (i.e., the “Caribbean Hotel Energy Efficiency And Renewable Energy Action Advanced Programme – CHENACT AP”).

Additionally, there are a number of internal factors to bear in mind. The smaller size of some of the countries impacts on a lesser-diversified economy due partially to smaller population. Thus there is higher resource constraints, higher dependence on tourism, higher dependence on imports (consumer goods, construction, repatriation of profits, etc.) and in sum, a higher leakage.

Occasionally, profitable tourism activities managed by multinational companies in the Region have not always had the expected positive impact on local economies. In these cases, ICT could provide, on one hand a good opportunity to local providers to offer more integrated tourism packages. On the other, a good opportunity to local authorities to develop online joint promotion strategies to specifically target cruise travellers.

Finally, in order to work towards an economic diversification and a more inclusive economic model, it would appear that local SMEs need to be empowered. For this purpose, it is common to implement

policies to facilitate the domestic credit to the private sector, higher cooperation among public and private actors and higher population density.

Moreover, numerous reports point out the need for the Caribbean to improve infrastructure (not only transport and accommodation, but also waste management, energy management and ICT infrastructure), human resources (qualified and experienced labour, which relates to an improvement on the education system and a better awareness), targeted marketing (highlighting the differentiation of the service/product offered and being selective on the demand intended), fostering strong linkages among the tourism sector and the rest of economic sectors, higher investment and steering public-private cooperation⁶.

The benefits of ICT policies to empower local SMEs include enhance communication, access to information, increase productivity, acquisition of new skills and knowledge, and which is critical for many of those businesses improving their marketing strategies, especially through e-commerce and direct interaction with tourist.

Besides, Zhang (2008), from the microeconomic perspective, postulated that the focus of public policy within cities of the Caribbean region should be working to **promote positive externalities such as knowledge sharing** and addressing coordination failures (2008:1) so that the **private sector is encouraged to innovate and upgrade, aiming for collective**

⁶ Wayne, S. (2012) Caribbean Tourism & the Global Market Towards increased linkages & competitiveness. SW Associates S.L. Sustainable Development through Tourism. Zhang, M. (2008) What can cities do to enhance competitiveness? Local Policies and Actions for Innovation. *En breve* July 2008(127) World Bank Latin America and Caribbean Region. Bolaki, B. (2011) Tourism competitiveness in the Caribbean. Cepal Review 104, August 2011.

efficiency. Furthermore, innovation is argued and hoped to be the right choice to remain or achieve competitiveness (Wolpert, 2002). This could be done through the design and implementation of what has been called “Smart Destination Strategies”.

The concept of “Smart Destination” implies also to empower destinations, local providers, through technology and innovation, to take advantage of niche tourism segments⁷. Among the most common niche tourism segments of the Region we could mention MICE (Meetings, Incentives, Conference, Exhibition), golf, diving, health and wellness, honeymoons, bird watching, charity tourism, etc. Most of them are available in many Caribbean countries, but the degree of development and sophistication varies a lot.

Specific policies address to develop new niche tourism products or to improve existing ones using ICT solutions could help the region to reduce their dependence on certain markets, increase tourism diversification, reduce seasonality and redistribute better tourism flows on their reduce territories.

One of the greatest challenges facing the Caribbean is finding new areas of tourism competitive advantage and niche tourism segments together with new technologies could be a good opportunity for doing so

The table on next pages summarises some of the elements that can be improved in the industry as well as some recommendations for tourism development in the Caribbean region. These will be addressed in the following Chapters.

⁷ Note that “niche” does not necessarily mean to be “small” some niche segments can generate large numbers of tourists.

Table 3: Improvable elements and recommendations for tourism development in the Caribbean Region. Source: Own elaboration

Improvable elements	Recommendations
Overdependence on middlemen and on non-stay-over segments leading to reduced margins for local businesses.	<ul style="list-style-type: none"> Developing and promoting other tourism that further impacts on the local economy, e.g. cultural tourism, voluntourism, community tourism, ecotourism, etc.
Homogeneous and undifferentiated services and tourism products for consumers.	<ul style="list-style-type: none"> Targeted marketing (highlighting the differentiation of the service/product offered and being selective on the demand intended)
Wholesalers absence of rich knowledge of the region.	
<p>Numerous SMEs, highly atomized</p> <p>Resource constraints, higher dependence on tourism, higher dependence on imports (consumer goods, construction, repatriation of profits, etc.) Leakage.</p> <p>Tourism suffers from low levels of local value-added and high levels of external control by foreign operators.</p> <p>Geographic concentration of markets.</p> <p>There is insufficient coherency collaboration between countries and across the region in designing and implementing common tourism policies.</p> <p>Lack of strategic programmes and policies in place for promoting tourism innovation at the national or regional levels.</p>	<ul style="list-style-type: none"> SME empowerment Increased domestic credit to the private sector, higher cooperation among public and private actors and higher population density, in order to nurture the tourism value chain with financing expertise Public policy promoting positive externalities such as knowledge sharing and addressing coordination failures so that the private sector is encouraged to innovate and upgrade, aiming for collective efficiency Improve infrastructure (transport, accommodation, waste management, energy management and ICT infrastructure) Improve human resources (qualified and experienced labour, which relates to an improve education system and a better awareness) Innovation and technology literacy to penetrate and spread across the tourism value chain and related industries. Work in the development of a much more diversity of high-value-added niche tourism products. Strengthening cooperation, partnership and Networking among Caribbean National Tourism Administrations. Develop a tourism innovation regional policy framework identifying priority areas for action (i.e. Smart Destination Strategies)
Much more infrastructures to satisfy the growing needs of international tourist in areas such as electricity, road and rail transport, water and telecommunications (improving connectivity).	<ul style="list-style-type: none"> Caribbean countries will be required to invest heavily to maintain, upgrade or replace existing (and often ageing) infrastructures, to preserve their international competitiveness as a major tourism destination.
“Disconnect” between the requirements of tourism employers and the ICT skills of tourism graduates	<ul style="list-style-type: none"> Strengthening the capacity of Caribbean countries to use ICTs
A general absence of data for benchmarking and strategic planning in the region.	<ul style="list-style-type: none"> To put in place a tourism observatory to measure and follow up the evolution of the sector and the impact of new technologies.
Dependence on foreign direct investment and disproportionate use of imported goods to the detriment of locally sourced ones.	<ul style="list-style-type: none"> Fostering strong linkages among the tourism sector and the rest of economic sectors. Higher investment.
High vulnerability to oil prices and income shocks from abroad.	<ul style="list-style-type: none"> Steering public-private cooperation. Implement policies and measures to increase

	<p>efficiency at all stages of the energy chain: generation, transformation, distribution and final consumption at hotels and destinations.</p>
<p>Challenges / Opportunities</p>	
<p>Heterogeneous Region</p>	
<p>Heterogeneous Tourism Business Models</p>	

Chapter 4: Innovation for Competitiveness

From a global perspective, the tourism sector has a growing potential for expansion and future development (UNWTO, 2014). It is believed that the expansion of international tourism will create a new market structure that will provide opportunities for sub-national tourism destinations, while simultaneously international competition will increase (ibid).

There is greater diversification thus opening opportunities for other regions and cities worldwide. Equally, those countries that have enjoyed such a high market share in the past are bounded to react not to lose their significant market share. In that sense, given that tourism is an economic and social phenomenon that incorporates a key commodity, a territory, a place, more specifically a destination, the current context of fierce global competition stresses even more the need for highlighting the uniqueness of each destination down to the local level.

This emphasis on regions and cities is also supported by “the perceived relative decline of the nation state with respect to power and decision-making and the emergence of sub-national structures and systems of local control” (Greene et al, 2007). Hand in hand with cities or city-regions turning into hubs taking the center stage (ibid). Part of this change is fostered by the believe that 1) **cities are embedded in the economies of their regions**⁸, 2) **knowledge and innovation embody a significant social component** and 3) the fact that the **nature of innovation is interactive and social**. Hence cities and regions, or the

so-called formula city-regions, provide, what it may seem, a prosperous context for innovation.

The question remains on how those destinations being cities, city-regions or countries become more competitive and how innovation is relevant for such goal achievement. Alzua (2006) suggests that destinations and their respective travel and tourism industries, need to progress over three different stages of evolution on their way towards better economic development and higher competitive positions. The advance stage rests on these economies being based on innovation (Figure 6).

As the sector and the destination evolve, they leave behind the first phase where endowments are the main asset, infrastructures need to be improved, changes into a tourism activity starting to produce quality standard services, private and public investment starts to occur for the modernization of the mere tourism activity, and technology stops being a stranger or unattainable. Then, **the desired stage to be reached is a destination and its tourism sector competing based on innovation**, which implies strong values along the four diamonds of the Porter model⁹.

⁸ Sassen, S. (2005) Denationalization: Territory, authority and rights in a global digital age. Princeton, NJ:Princeton University Press.:38.

⁹ Porter, M. (1998) The Competitive Advantage of Nations.



Figure 6: Tourism Development Stages. Source: Alzua-Sorzabal (2006)

The third stage of competitiveness (Tourism Activity is based on Innovation) requires a close coordination of companies and local administration.

Then, the next question would be how destinations and their tourism industries reach and remain on the third stage.

Overall, uneven innovation progress is found between tourism SME (Small and Medium Enterprise) and tourism large companies. Regarding large companies, the tourism sector is among the top ten sectors in generating innovation, mainly due to the initiative of airlines, international hotel chains and the agents involved in the distribution side of the business (European Commission, 2005). Indeed, innovation has often been generated through (technological) breakthroughs in related industrial fields. Especially innovations in transport and IT have helped the tourism sector to evolve and upgrade. Major changes related to the creation of booking systems and the dissemination of tourism information grew, for example, out of the global breakthroughs in information

technology during the 1970s and '80s. Currently, the rise of Internet, social media and mobile technologies and applications offer similar opportunities that the tourism sector should take into consideration.

Adaptive Tourism innovation

Thus, it is an established fact that major tourism innovations are initiated by large companies, and on the other end, experience shows that **SMEs' innovation adoption in tourism and travel has been largely adaptive** (Cooper, 2006). At the destination level, where tourism SMEs are eminently present, innovation tends to be an issue of multiple actors (Cooper, 2006). SMEs cannot afford to invest time on R&D and usually lack the ability to conduct such activities. These tourism actors are not necessarily big players or well-connected conjoints. Also, they often operate in a rather fragmented way, and are thus susceptible to "network failures". Furthermore, the fact that local and small actors are prone to suffer from a lack of human capital, organizational capacities and other resources typically reduces their

product / service development activity (European Commission, 2005). And such resources and skills shortages also put a strain on their ability to scan consumer needs, to make markets more transparent, to overcome “market failures”, and consequently to meet client needs with success and to develop competitive products and services.

As a consequence, and in order to create the agglomeration advantages that small companies miss-out-on in a stand-alone position, the affiliation to clusters, networks and other kinds of groupings are often advocated (Porter, 1998; Martin and Sunley, 1998 in Martin and Sunley, 2001; Nordin, 2003). **Proximity (physical and network) and agglomeration** are concepts that come to support the place-based development theories, which suggest that **smaller and medium sized city-regions, with their own characteristics, peculiarities, and their activity specialization steer economic development.**

Territorial capacity for innovation

In addition to the peculiarities discourse, it has been argued that there is also a need for ‘cognitive, organizational, social, and institutional proximity’. Feldman refers to the concept of “the character of place” as “a spirit of authenticity, engagement, and common purpose” and that such character is “the particular feature that differentiates successful places” (Feldman, 2014).

Stamboulis and Skayannis (2003) argue that one of the keys for such lateness or even failure in knowledge management, by the tourism sector, is the weakness of the existing relationships between the sector’s firms and the institutions performing research. **Without innovation structures within certain relative proximity to firms the flow of codified knowledge would be limited or even the creation of new knowledge would be scarce due to the**

firms’ narrow budget (Parrilli et al., 2010). Moreover, **frequent and stable interactions are needed between the firms and the innovation structures so that a rich innovation output is generated and firms absorb it** (ibid).

There appears to be a robust consensus that in the present economy, the key determinant of economic success is **the territorial capacity for innovation.**

The prescriptions for policy-makers are to support that innovation capacity and helping local innovators to access innovation resources to participate more effectively and competitively in global innovation networks.

In sum, tourism destinations, and more specifically, the Caribbean region due to the facts explained earlier, are to take into account the following elements in order to strengthen such territorial capacity and the factors therein embodied already mentioned:

- Tourism SMEs need to collaborate, engage and find a common purpose
- Tourism SMEs are to be empowered via further access to education and professionalization
- Tourism SMEs further education needs to seek broadening their absorptive capacities
- Policy frameworks fostering SME cooperation, education and professionalization are to be in place
- Innovation Structures with a focus in Tourism are needed and umbrella formulas, such as regional/national innovation systems are advisable
- Tourism SMEs and Innovation Structures are to exchange information, transfer knowledge and collaborate, policy frameworks fostering this exchange are recommended

- Authenticity and character of place is to be enhanced and greatly valued
- Local Tourism SMEs are to be connected and interact with the

regional/national level and with other economic sectors, seeking synergies and engagement

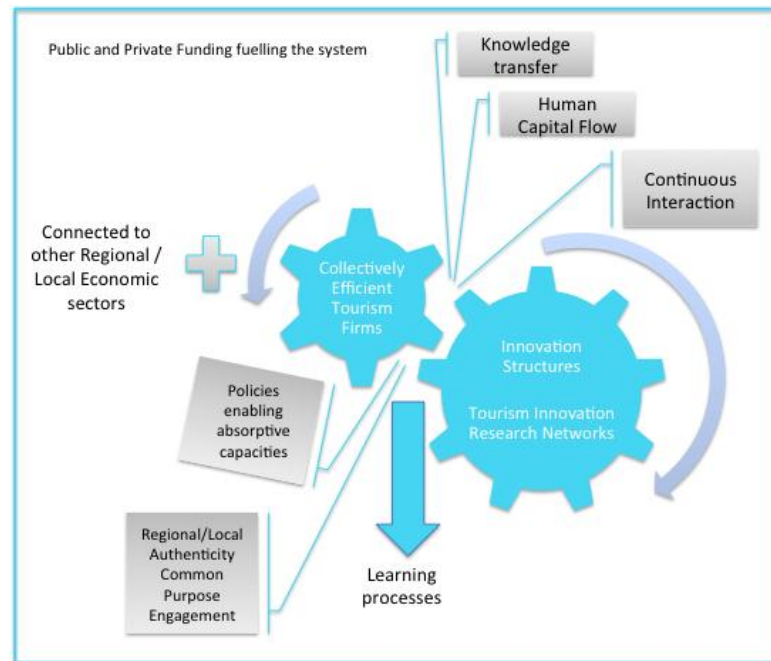


Figure 7: Public and Private Funding fuelling the system

The Caribbean faces fierce competition, but at the same time, new opportunities are arising. Each destination, enhancing their unique character of place, needs to differentiate itself, be efficient and competitive. Innovation is seen as a key driver in order to reach competitiveness. Innovation in the case of the Caribbean requires SMEs to innovate incrementally or at the very least to implement existing innovations.

Therefore, enhanced singularity, uniqueness, common purpose and engagement of its firms, collaborative spirit among firms and with innovation structures, mere existence of innovation structures, and key actions to foster increased absorptive capacities that nurture fructiferous learning processes, is recommended.

Chapter 5: Technology Map

The travel and tourism industries have been one of the first ones in the world to make intensive use of information and communication technologies. The use of ICT has had important impacts not only on how companies have reached the market and their customers, but also, on how they have driven significant internal organizational changes to support their adaptations to the requirements of the new environment.

There have been three major landmarks impacting the travel and tourism industry. It was the Computer Reservation Systems (CRS) in the 70s, Global Distribution Systems (GDS) in the 80s and the Internet in the late 90s. Nowadays, the rapid and general adoption of mobile technology, as mentioned in Chapter 2, is having major implications on how companies promote their services through mobile devices as well as how they need to create new more efficient, faster, direct and personalized ways to communicate with their customers.

The technology map presented in this Chapter is intended to guide policy makers and travel and tourism entrepreneurs and managers to have a whole picture of the technologies involved at destination and at company level. The description of these technologies will enable professionals to benchmark their current status regarding technology use and performance.

It is also intended that the technology map supports tourism professionals assess and decide how to implement and boost technology adoption with the objective to strengthen their companies' competitiveness and that of the Caribbean region as a tourism destination as a whole.

The players of the travel and tourism industries value chain are heterogeneous in

nature and roles. Thus, to attempt an overall map of technologies that can be potentially adopted in the sector would not be neither easy to accomplish nor useful. Therefore, the approach taken in the Report in order to structure the analysis of technologies used in travel and tourism industries has been based on the identification of processes that govern the functioning of both at destinations and companies.

The industries considered for the purpose of this Report have been taken from the standards dictated by the UNWTO¹⁰. Following, the set of processes that drive the activity of companies has been defined and, finally, the focus has been put on the identification of the technologies that are or could be implemented in the functioning of these processes.

The same process-based approach has been performed to assess the use of technologies in destination management. After having defined the processes embodied in destination management, then the technologies involved in the processes have been thoroughly analysed.

With that approach in mind, this section thus presents each of the industries associated with their processes. This process-based vision is essential to provide a global vision about the industry itself from its own nature, rather than having just a technological approach. Thus, technology adoption can be driven by the needs of the industry and their characteristics rather than by technology itself. This will enhance the understanding on what technologies can be used to drive processes and

¹⁰ UNWTO as part of IRTS 2008 defines tourism characteristic consumption products and tourism industries.

what/how technologies can be implemented to bring innovation by their adoption.

This methodological approach will enable professionals to understand both destinations and companies as a set of processes. These procedures can be handled, managed and worked on by the use of technology. The section does not explain each of the technologies in detail, a more thorough detailed description of their functionalities, characteristics and applications/applicabilities may be found in the Annexes.

Technology used in tourism organizations can be classified into two main sections, namely vertical (industry-specific) and horizontal (general business) applications, aiming to cover both hardware and software specifications which are of relevance to the tourism-related organizations, together with the connectivity requirements among departments, branches and external partners.

5.1 Accommodation Providers

Tourism Agent

Accommodation Providers

Processes to consider

- Front Office processes
- Marketing
- Commercialization
- Internal Management (Strategy, General Administration and Metrics)
- Guest Services and General ICT management

Technology Map

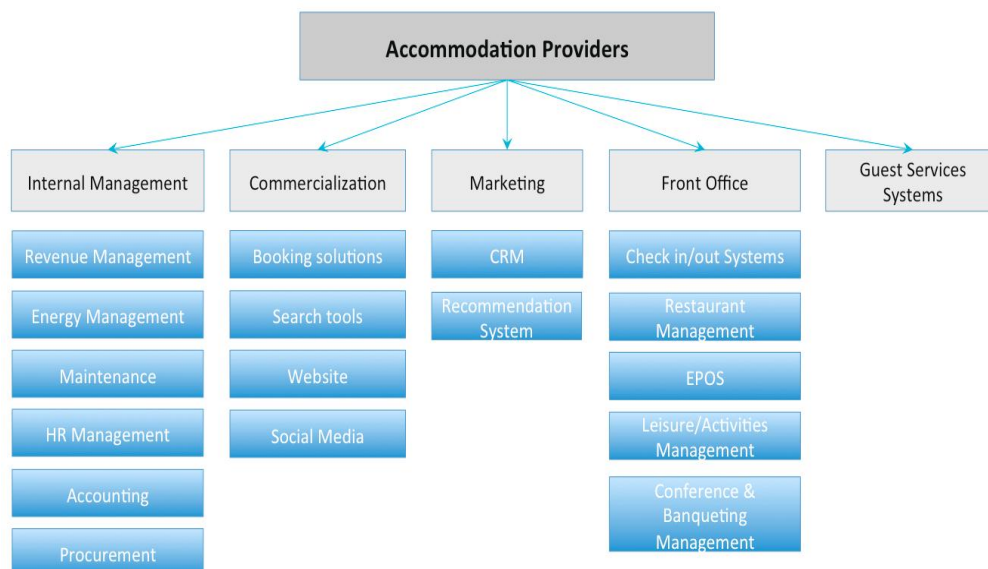


Figure 8: Accommodation Providers

Hotel Property Management System (PMS)

PMS refers to the software solution to support all basic activities involved in the day to day operations of accommodation establishments. It can also centralize the interconnectivity between systems within the accommodation establishments.

Examples: Those offered by Northwind, Protel Smart offered by Protel, Micros-Fidelio's OPERA.

Automated check-in/check-out systems

Check-in and check-out systems are located in the entrance area of the hotel and allow customers to enter data concerning their reservation and undertake their check-in

and check-out completely by themselves, in a similar way to the auto check-in that has been developed by airlines. This offers many advantages to the host, especially for group travel in which the process of check-in and check-out can be time intensive. At the same time, the hotel staff would be freed to undertake other tasks.

Examples: Premier Inn, Ariane's systems.

Booking Solutions

By booking solution it is meant systems that enable hotels obtaining reservations. These include reservations made through their own booking engines, sales through GDS/IDS and possibly with the assistance of channel management systems; search tools enable customers finding information about the hotel online and in this way they support hotel's commercialization. Finally, resource libraries relate to elements of the website.

Examples: Xcaliber, Sirvoy

Search tools

Search tools facilitate finding information about the hotels online. Therefore, they are essential for the commercialisation. These can be of two types, one is search engines and the other one relates to accommodation databases.

Examples: Google, Bing, Yahoo, Booking.com, open data for accommodations

Guest Service Systems

These can be used for both generating further revenue and increasing customer satisfaction with the provision of additional services to the guests. Their relevance to the property and the required level of interconnectivity with the PMS will be determined by the property size, resources, type of customer, level of service offered and revenue generation strategies.

Examples:

- Locking systems: C-Star , Northwind, Uniware or Amano McGann.
- I-R Electronic minibar: INNCOM
- In-room Entertainment System: LodgeNet (Sonifi Solutions)
- Telephone systems: Alcatel, Fujitsu, Genesis Telemangement System by Maestro, HotelMGR by ComXchange

More information

See Appendix B

See website

5.2 Destination Management Organization

Tourism Agent

Destination Management Organization (DMO)

Processes to consider

- Product Management
- Enquiry Management
- CRM - Visitor and Business
- Business Intelligence / Management Reporting
- Other processes: eCommerce, Banner Advert Management System, Membership Management for DMOs, Consumer Importer, Survey Builder.

Technology Map

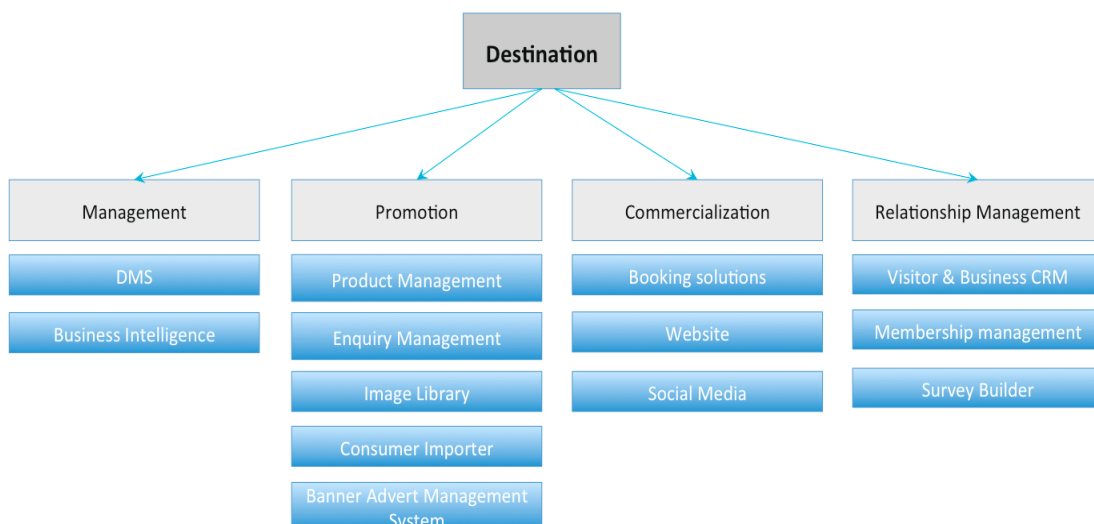


Figure 9: Destination Management Organization

Destination Management System (DMS)

DMS is said to be “the” ICT solution for DMOs. It is conceived to enable DMOs to gain efficiency and effectiveness in their everyday tasks, by allowing for the integration of the different resources, products and services that the destination embodies. A DMS incorporates a set of core modules that constitute the essential items for a DMS, then there are supplementary or additional modules that can be added

depending on the interests of the given DMO

Examples: New Mind, New Vision, Tiscover

Business Intelligence (DMS core)

This module represents a tool that gathers data on the processes followed by the DMO, analyses it and creates reports. Therefore, it represents a source of information for taking strategic decisions.

Examples: Visit Brighton, Visit North East England

Product Management (DMS core)

The heart of a DMS is this module. It is constituted by a database that gathers all the information needed concerning tourism resources present at the destination as well as product and service providers within the destination. More specifically the description, facilities, contacts, opening hours, prices and images of the following elements among others desired: accommodation providers, events, tourism resources, food & beverage providers, conference and events Venues, activities, entertainment facilities, retail, transport services.

Examples: EnglandNet

Enquiry Management (DMS core)

A significant part of a day of professionals working within a DMO is invested in responding kindly and accurately to potential or current visitor of the destination. This module's main objective is to ease these tasks and keep control of the whole process so that mistakes are minimized.

Examples: Visit Brighton, Visit North East England

Consumer Importer (DMS supplementary)

In the case that the DMO purchases lists of contacts this would be the module that helps process the incoming database to later be compatible with the CRM module of the DMS.

Examples: New Mind etourism solutions

Banner Advert Management (DMS supplementary)

This supplementary module helps manage banner adverts of the DMO website, concerning analytics that can be extracted. There are numerous solutions in the market that offer this service and are not part of a DMS.

Examples: There are numerous solutions in the market that offer this service and are not part of a DMS.

CRM Customer Relationship Management (DMS supplementary)

CRMs help manage the relationships with individuals, groups or firms external to the organization. The particularities of CRMs in the case of DMOs are the following: DMOs in their everyday work scenario deal with visitors and businesses. Those businesses can be members of the DMO association, stakeholders, tourism firms that are providers of tourism products and services, or other type of firms such as technology providers, consultancy companies, etc.

Examples: Visit Brighton

Membership Management for DMOs (DMS supplementary)

DMOs as part of their usual form tend to be associations with numerous members, some more active than others, some more influential than others but all members in the end to take care of and to respond to. This module intends to help the membership process, memberships application, acceptance, membership payment fee monitoring, etc.

Examples: Webges c-Join Solution, New Mind etourism solutions

More information

See Appendix C

See website

5.3 Professional Conference Organizers (PCO)

Tourism Agent

Professional Conference Organization (PCO)

Processes to consider

- Event design, program development
- Communication and promotion
- Site inspections, venue selection and booking
- Registration and accreditation
- Logistics (accommodation, etc.)
- Sponsorship and financial management
- Others: IT management, leisure management

Technology Map



Figure 10: Professional Conference Organizers (PCO)

Quotations and proposals solutions

This solution is used for preparing, delivering and managing quotes and proposals. This solutions can be found as an online solutions or not, some more flexible than others, some are even general

proposal and quotation solutions for any business fields.

Examples: eOPCompany by EdN-ICT Solutions S.R.L.; Quoteroller; General Quotes and Proposals on the Fly by CallidusCloud.

Ticketing System

Events that require the payment of a fee usually count with a ticketing system which helps process the payment of such fees, issuing tickets

Examples: Web Ticket Manager; eVa solutions; Webges.

Budgeting Management Solutions

Those events that require the payment of a fee usually count with a ticketing system and this system needs to be monitored for accounting purposes. These solutions facilitate the tracking of event expenditure, revenue streams (fees, sponsors..) and overall financial performance.

Examples: eVa solutions; eBudget by etouches.

Registration solutions

This solution intends to facilitate the process of registration management for event organisers.

Examples: Ticketing systems; Budget Management Solutions.

Program & Paper Processing Management solutions

One of the most time consuming tasks of event production is the program management and the papers handling. This

type of solution intends to help collecting abstracts, posters, papers and presentations; establishing deadlines for the call for papers process; allowing authors to create their own profile so that they can upload their material themselves; allowing for the scientific committee to log in and initiate their reviewing process that it is also supported by this system; and it also enables conference personnel to contact authors, committee members and other stakeholders for different purposes.

Examples: cPaper by Webges; eCongress by EdN-ICT Solutions S.R.L.; eSelect by etouches.

Presentation Management and Delivery solutions

This solution intends to help when managing speaker presentation materials so that these are easily uploaded into the system by the authors themselves, then these are pushed to the corresponding session. These allow for session chairs and speakers to be able to read in advance the materials of the session, fostering a better discussion during the event.

Examples: cSlide by Webges.

More information

See Appendix D

See website

5.4 Association Management Agencies

Tourism Agent

Association Management Agencies

Processes to consider

- Membership management
- Event production and management
- Marketing and promotion
- Services demanded by partners

Technology Map

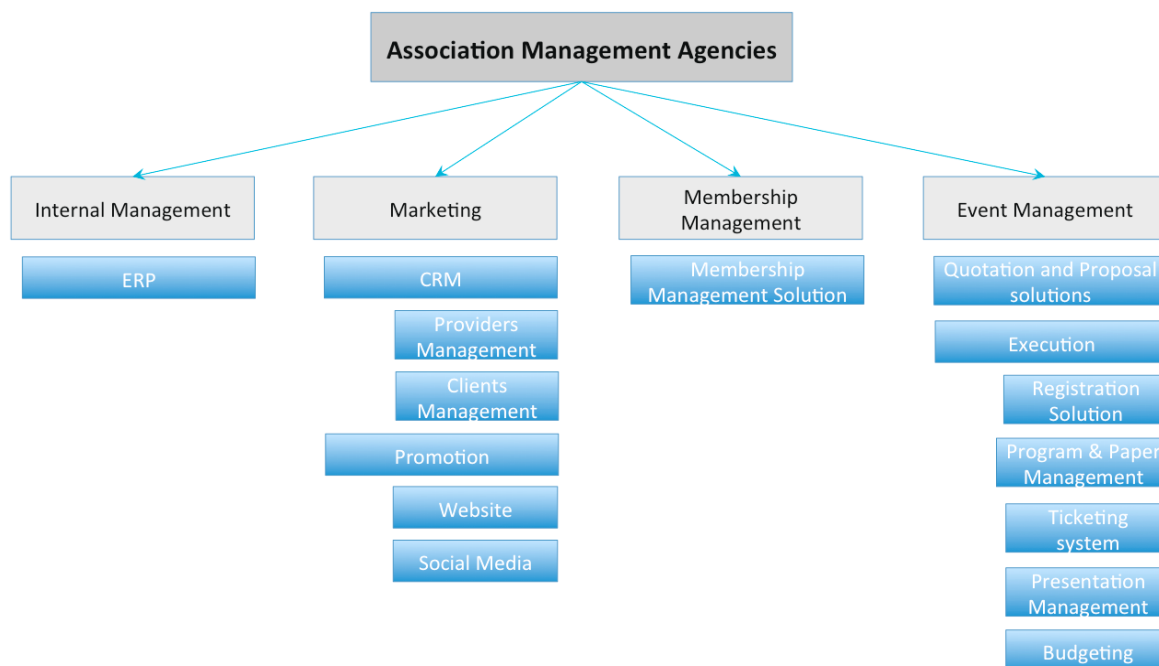


Figure 11: Association Management Agencies

Membership Management Solution

This is a solution that intends to facilitate the management of the members' data. All correspondence with members — including management of addresses, payments, discounts, subscriptions and more — can be handled through one administrator.

Examples: cJoin by Webges.

Quotations and proposals solutions

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Examples: cSlide by Webges.

More information

See Appendix E

See website

5.5 Venues

Tourism Agent

Venues

Processes to consider

- Spaces Management
- Event execution
- Marketing and promotion

Technology Map

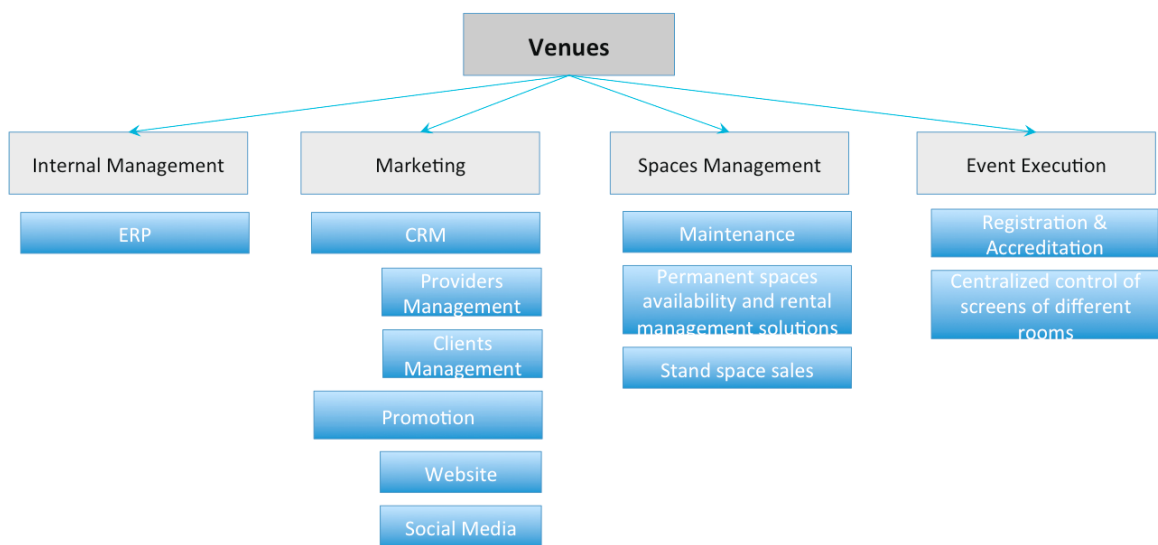


Figure 12: Venues

Computerized Maintenance Management Systems

This system keeps a database of information about the venue's maintenance operations. For maintenance human resources to have a record of the operations that have been executed in different rooms, or other rooms that are awaiting reparation, etc. in sum this systems helps these members of the staff to perform their responsibilities more efficiently.

Examples: MEX maintenance software

Spaces Availability and rental management solutions

This solution responds to the following process: easy presentation of all rooms and spaces availability status for a set of dates, presents waiting lists on rooms or spaces, allows for room/space rental by different customers at different times during the same day, allows for room partition - avoiding overlap, etc.

Examples: eConvCenter by EdN-ICT

Solutions S.R.L.; EventPro Event

Management Software.

Stand space sales management solutions

There are venues that can host fairs and exhibitions, and as such they count with large spaces that depending on the event they might be divided in different ways. This refers to the spaces that are temporary and change per each event.

Examples: White Label Floor Planner by Exhibit Core; eBooth by etouches; eConvCenter by EdN-ICT Solutions S.R.L.; EventPro Event Management Software.

Registration and Accreditation solutions

This solution intends to facilitate the process of registration and accreditation management for event organisers.

Examples: eReg by etouches; c-Reg, c-Lock and c-Lead solutions by Webges; eRegister by EdN-ICT Solutions S.R.L.

Centralized Control of Screens of different rooms

These solutions allow centralizing the control of the screens and content pushed to those screens throughout different rooms of a given venue for the same event. This allows event managers to have an eye on every room visuals and audio on real time from just one place.

Examples: Televic Conference

More information

See Appendix F

See website

5.6 Incoming Agencies & Active Tourism Agencies

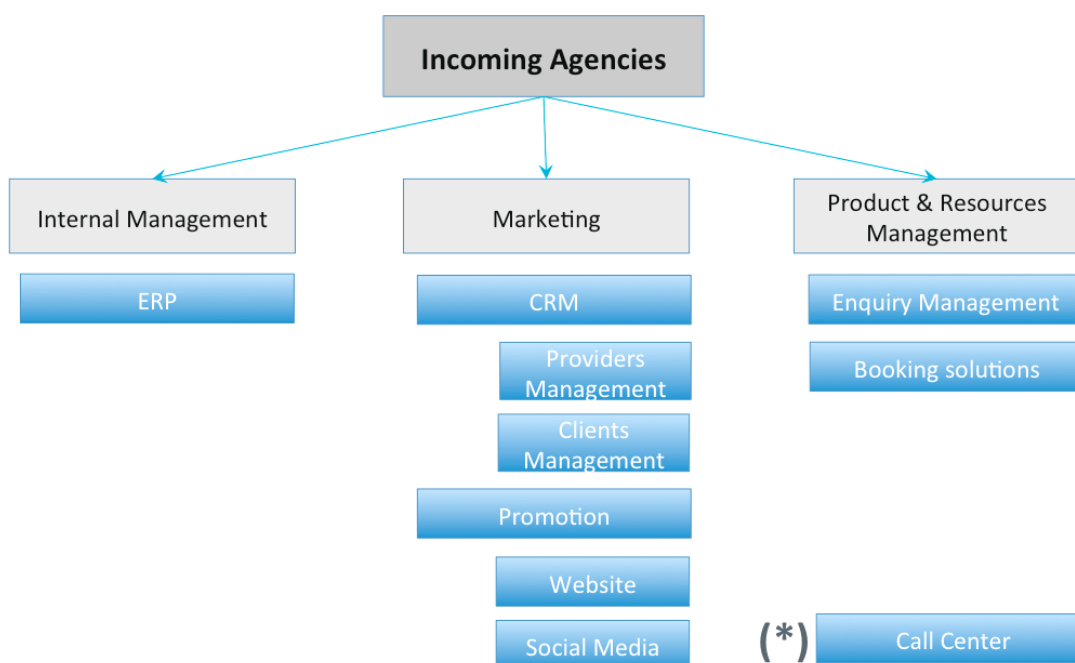
Tourism Agent

Incoming Agencies & Active Tourism Agencies

Processes to consider

- Designing destination experiences
- Product and resources management
- Marketing and promotion
- Call Center services

Technology Map



(*) Incoming Agency only

Figure 13: Incoming Agencies & Active Tourism Agencies

Enquiry Management Solutions

Incoming agencies tend to receive enquiries from clients via their website, email, or phone. If the volume of daily enquiries is significant, it seems appropriate to count with a solution that helps staff manage them.

Examples: Inquiry Management by Travel Agent CMS.

Call Center System

It aims at streamlining a company's communications technologies while also easily managing them through an easy-to-use online dashboard. This system tends

to incorporate VoIP phone systems, scalable PBX trunks, online faxing and hosted call centers.

Examples: PlanPlusOnline by FranklinCovey Software; 3Logic's Cloud Contact Center; FieldOne; Salesforce; GoldMine CRM; Nextiva Hosted call center; inContact Hosted Call Center Software; NetSuite CRM+; Five9 Virtual Call Center; SalexExec;

Booking solutions specific to Incoming Agencies and Active Tourism Agencies

There are two different types of solutions concerning selling the incoming agency products. The first type implies that the incoming agency uses another intermediary, better positioned in front of the demand, to sell its products, so the incoming agency in a sense plays by the rules of such other intermediary. The second type implies that the whole positioning and selling process is done by the incoming agency itself and the solution has to adapt itself to the requirements of the incoming agency.

Examples: Rezgo.com; Tour Writer Online Tour Operator Booking software

More information

See Appendix G

See website

5.7 Food & Beverage Providers

Tourism Agent

Food & Beverage Providers

Processes to consider

- Procurement management
- Stock and Stores management
- Commercialization and Booking management
- Command management and other Front Office Management

Technology Map

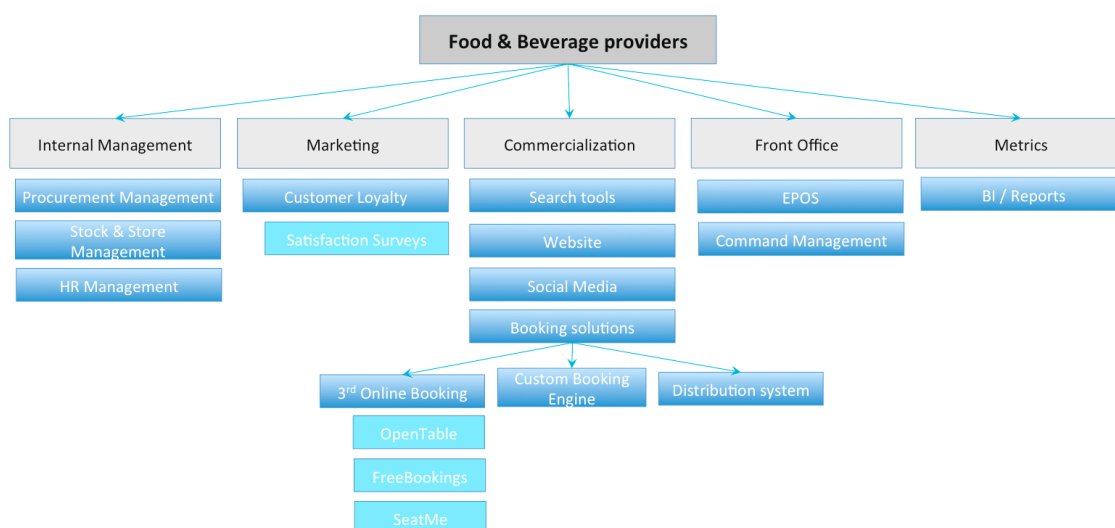


Figure 14: Food & Beverage Providers

Procurement Management

One of the most important areas in the management of hospitality is the procurement department. For good strategic management is essential to have an efficient procurement module conveniently connected to other areas of the system such as " Cost Management" and " Stock & Storage Management".

Examples: Cuiner, RES (Micros Fidelio), ICG, Profitek.

It is an area connected with "Procurement Management" which is responsible for controlling the stock of existing products in storerooms. On many occasions, both the area of "Procurement" and the present one, they converge. Therefore it is common to see some overlapping functionality between the two.

Examples: Cuiner, RES (Micros Fidelio), ICG, Profitek.

Stock & Stores Management

Loyalty Management

Customers are the foundation of any business so a good loyalty strategy is

extremely important. This module should help organize and keep track of customers their priorities, tastes, as well as a history of bookings. This creates a long-term link that is expected to result on higher direct and indirect benefits (recommendations).

Examples: Cuiner, RES (Micros Fidelio), ICG, Profitek.

Command Management

The connection between the different modules that interact since the moment a customer enters the property or makes a reservation, until they leave is essential. Nowadays it is very common to have the opportunity to choose from the menu at the time of booking a table, therefore, command management is not only limited to the time period in which the business is open to the public.

Examples: Cuiner, RES (Micros Fidelio), ICG, Profitek.

Booking Engine

The main point of entry from the economic point of view is the booking phase, whether on site, by phone, through the business website or through specialized foodservice pages. This module consists of 2 parts: back-end and front-end. The front-end embodies a higher complexity than the back-end attending to the different typologies there are. The different types are those discussed in the "Booking Engine" description.

Opentable.com, freebookings.com, seatme.com, eltenedor.es

More information

See Appendix H

See website

5.8 Retail Sector

Tourism Agent

Retail Sector

Processes to consider

- Product purchasing and Supply Chain Management
- Sales management
- Product delivering and Logistics
- Marketing and commercialization

Technology Map

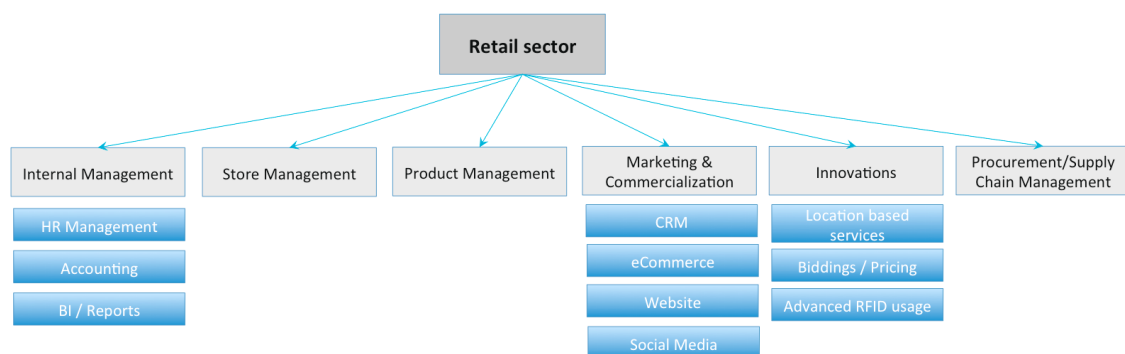


Figure 15: Retail sector

Store Management System (SMS)

A store management system enables retailers to streamline in-store activities, improve merchandise management, reduce labour costs, support remote store processes, and manage true store-level profit and loss.

Examples: Krawler Store Management System, Retailix StorePoint, Starmount SMS.

Product/ Merchandise Management

A product management system gives you the tools and functionality you need to analyse, order, price, and distribute merchandise for maximum return on your investments. In these systems, there are several key operations that must be taken into account: Inventory management, Allocating Merchandise to stores

Examples: Epicor Retail Software, Netsuite.

Supply Chain Management (SCM) & Logistics

The supply chain management system is used to deal a set of activities and techniques companies employ to efficiently and effectively manage the flow of merchandise from the vendors to the retailer's customers. These activities ensure that the customers are able to purchase merchandise in the desired quantities at a preferred location and appropriate time.

Examples: SAP SCM, SCMSolution, Microsoft Dynamics.

CRM

CRM allows to retailers increase their profitability by building relationships with

their better customers, the goal of CRM is to develop a base of loyal customers who patronize the retailer frequently.

Examples: Magento, Prestashop.

More information

See Appendix I

See website

5.9 Internal Management

Tourism Agent

Internal Management

Strategic Management

The ultimate purpose of the strategic planning process is the identification of opportunities and the allocation of resources towards strategies. A well-conceived strategy includes four basic components: scope, resource deployment, competitive advantage and synergy. The scope component of a strategy specifies the present and planned interactions between the organization and its environment, in order to achieve a strategic fit. The strategy should include an outline of the business's projected resource deployment: how it will distribute its resources across various areas.

A Strategic Management System transforms the static plan into a system that provides strategic performance feedback to decision making and enables the plan to evolve and grow as requirements and other circumstances change. To accomplish this goal this system must be integrated with the ERP and other decision support systems (DSS), as: Business Intelligence Systems, Market & technology surveillance systems and Strategic Quality Management.

Examples: SAP Strategy Management

Accounting

The main purpose of an Accounting Information System (AIS) is to track the

Processes to consider

- Strategic Management
- Market & Technology Surveillance
- Strategic Quality Management
- Accounting
- Human Resources (HR) Management
- Enterprise Resources Management
- Client Management

income and expenses of the business. Among its functions highlights the following: manage and consolidate business groups at general and analytical accounting; do the monitoring of budgets; calculation of the Value Added Tax (VAT), personal income tax, and their corresponding tax returns.

The AIS plays an important role in the control of the business. This is so that the lack of an accounting system could lead quickly to cash- flow problems and loss of key management information. As an example of its potential, in residential hotels, detailed accounting reports can analyse the revenue and profitability of different room types and rate brackets, market segments, days of the week and even wings or floors of the hotel.

Examples: SAP Accounting System, Navision Accounting System

Human Resources Management

Every size companies must handle the management of people as a key aspect of the organization, to drive the development and the professional and personal growth of the employees. The result of a company comes by the sum of policies, strategy, tools, processes, people, etc. elements that must be properly linked together. The engine of all this gear is the people. A Human

Resources software usually carry out the next functions: employees & payroll; time & attendance for monitoring employees entrances and exits from the office; staff management, for labour scheduling, labour management, employee selection, learning & training; last, in order to achieve a collaborative work environment an employee portal is used.

Examples: SAP HR, Navision HR

ERP

An Enterprise Resource Planning (ERP) is an Integrated Information System, which a company use to store, manage and analyse data from every stage of business (product development, procurement, manufacturing, commercialization, sales management, internal management, etc.). ERP provides an integrated real time view of core business processes. Its component-based architecture enables to customize and configure the system tailored to the specific needs of each company. Thus, there is a set of core modules that are the same (or very similar) for all companies. And there is another set of integrated modules responding to the different needs of each company.

Examples: SAP Business, Microsoft Navision, IBM Websphere.

CRM

Customer Relationship Management (hereinafter CRM) is a business strategy that attempts to organize, automatize, and improve management processes with customers. Born from the need to restore the connection between companies and customers, where customization is the most relevant added value. To carry out the CRM strategy, there are many softwares on the market, both free and paying solutions. They are accessible from any device applications that are hosted online (cloud)

allowing outsourcing, on the one hand maintenance and management of servers, and on the other hand, allowing being efficient on the use of only those resources needed at a time (on-demand).

Examples: SugarCRM, Zoho, Salesforce, vTiger, Microsoft Dynamics CRM, OpenCRM, SageCRM

More information

See Appendix J

See website

Chapter 6: Technological Innovation for Competitiveness in the Tourism Sector

6.1 Introduction

Innovation is a key factor for growing a business in today's increasingly competitive Tourism Sector. For many companies innovation is a priority or a primary focus of their business strategies. In the same way, it is known that innovation and R&D are essential for differentiating, improving efficiency, increasing growth, and thriving in the market. According to OECD (2010) the countries and companies that invest the most in innovation and R&D will get better performance and higher growth potential in the long run.

There are typically five areas where companies can introduce innovations: generation of new or improved products, introduction of new production processes, development of new sales markets, development of new supply markets and reorganisation and/or restructuring of the company (OECD, 2006).

Taking under consideration the classic differentiation between process innovation and product innovation it is noted that, while product innovations in tourism activities focus on quality improvements made to rooms, client loyalty programs and computer hardware availability among others, process innovations include the development of online reservation systems, new distribution and market systems, optimization of services, the development of supply side cooperative practices and client satisfaction programs. For SMEs within the tourism sector, computer functionality for process activities makes their work more efficient and less costly, becoming more profitable.

In last years, major tourism innovations have been driven by the adoption of new technologies, especially ICT-based innovations. Thus, most of the travel and

tourism companies have developed strategies to implement their own websites, work with information management system, use social networks and in general, try to make an intensive use of information in order to improve and generate more knowledge and insights about the industry in general and their particular business in particular.

At the same time, the increasing proliferation and adoption of information systems together with other developing technologies (cloud computing, internet of things, new interaction devices, mobile devices and so on) is generating an unprecedented amount of data. These data are acquired from heterogeneous and distributed sources and are often unstructured. One of the major challenges nowadays is how to use technology in order to make sense out of the data, in real time, so that new services and knowledge can be generated.

This requires also new analytic capacities. This phenomenon is known as Big Data. In order to deal with Big Data, the travel and tourism industries are turning into new data centres (more storage capacity, integration of data sources, network management, faster connections and so on). The generation of new analytic capacities will enable companies to make their processes more efficient and give them a deeper and more complete insight into their customers. The effective use of Big Data has the potential to transform the tourism sector, delivering a new wave of productivity growth and consumer surplus. Using Big Data will become a key basis of competition for existing companies, and will create new competitors who are able to attract employees that have the critical skills for a Big Data world.

Therefore, based on the policies and technologies that have been shown in

previous chapters, and following the structure of the tourist life-cycle, this section has identified some of the latest most remarkable tourism innovation real cases, which have been grouped as follows: Innovations related to the pre-trip process; Innovations related to the on-trip process and Innovations related to the post-trip process. In addition, this section remarks the importance of building a Tourism Observatory as a source of information to boost not only innovation, but also deeper knowledge and understanding about the tourism sector. Finally, there are some other tourism industry innovation examples.

Since many of the cases studied in the report have been driven by Big data, first a review of the importance of Big Data in Tourism Sector is approached.

6.2 Innovations related to the pre-trip process

From the point of view of the tourist, the pre-trip stage refers to the trip planning

process and related activities: information search, making reservations (plane, hotel), contrasting prices, opinions, etc. Whereas from the point of view of tourism services providers (accommodation, incoming agencies, food & beverages, retail) the pre-trip stage is related to the following main business processes: commercialization, marketing and promotion. As a sample of the technologies used in these processes, booking solutions, search tools, websites, social media, recommender systems and CRM can be mentioned.

It is important to keep in mind that it is in this step, when the potential tourist makes the decision of “where to travel to” and then of making the travel transaction. So it’s also a key factor to study the destination image and the expectation-formation that a potential tourist can have. All this, in order to anticipate and thus influence tourists’ decision making.

<p>Case Study: Kayak.com</p>	<p>Tourism Lyfe Cicle: Pre-trip process</p>
<p>Description</p> <p>Kayak.com is a travel meta search engine offering users the possibility to find flights, hotels, rental cars and vacations across dozens of distinct booking websites. One of the main innovative features of Kayak is that its processes depend on big data and analytics for both internal decisions and customer offerings, and it relies on a variety of big data technologies. It handles over a billion searches each year, so it has plenty of data to analyze. In terms of customer offerings in search, there are considerably more analytics required in search and result rankings for hotels. Unlike airline flight results, which are typically displayed in order of price, hotel rankings consider such variables as distance from the customer’s specified preference, facilities, and the pricing deal compared to alternatives (Amadeus, 2013). In air travel search, Kayak.com uses analytical models to ensure that prices displayed on its website are consistent with those on airline sites. Moreover, Kayak has developed mathematical models and algorithms that can predict the price, using historical data from search queries from the past years and providing a statistical confidence level behind the prediction.</p> <p>On the other hand, Kayak.com makes wide use of A/B testing, a randomized testing, in its website decisions. Daily more than 30% of users are taking part in some type of test. This testing is the only way to set up cause-and-effect relationships behind which characteristics of the site lead to better results. Kayak makes use of a variety of big data tools and open-source statistical analysis tools given the amount of data to be processed and analysed, these tools have ben, found to be much faster and cheaper than alternative technologies. Thus tasks that took days now they take only a few minutes. This use of Big Data tools and data analysis by Kayak, should be inspiring for other companies that have a great amount of data.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Its processes depend on big data and analytics. • The use of Analytical Models to ensure that prices displayed on its website are consistent. • A/B testing and randomized testing in its website decisions. 	<p>Benefits</p> <ul style="list-style-type: none"> • Faster and cheaper task performance. • Optimization of the webpage. • Faster decisions.

<p>Case Study: Amadeus</p>	<p>Tourism Lyfe Cicle: Pre-trip process</p>
<p>Description</p> <p>Travelling is becoming both more democratized and more complex and in this context customers need increasing help in navigating through the travel applications options. Answering to these needs involves easing the search process and delivering solutions to the travel agencies that enable them to present consumers with targeted options and product/service innovation with big data; this is a major focus of Amadeus' efforts to provide value to travel agencies. Extreme Search offers exactly that kind of service, in which a consumer enters data about the overall budget, the number of passengers, the length of time for the trip, and the minimum temperature at the destination. Extreme Search is able to return proposals for a trip with those characteristics. Amadeus also analyses what requests have been asked for, and works with tour operators to integrate related services into packages.</p> <p>Featured Results is an additional consumer service created by Amadeus. Having a business challenge of increasing importance. Amadeus required some way for travel distributors, making attractive offers to customers. A sample of this business challenge is the number of online queries per booking or the "look to book" ratio. In addition, Featured Results displays four possible itineraries in which consumers may be especially interested, based on data from several databases.</p> <p>Amadeus has been implementing technologies for internal operations to achieve both cost reduction opportunities and minimized response time for customers. Amadeus is also working with its travel provider customers to deliver better decision outcomes. It works with airlines, for instance, on how to optimize their websites through testing of different versions, and finding out what customer preferences are for booking channels, kiosks vs. human agents at airports, baggage check-in times, and many other issues. The efforts made by Amadeus, in order to reduce the costs and minimize the response time for customers, can be recognized as good practice for any company. In the same way the attempts to innovate and to develop consumer centric services are key aspects to be taken under consideration by other companies.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Process Innovation with Big Data • Implementing technologies for internal operations • Consumer centric services 	<p>Benefits</p> <ul style="list-style-type: none"> • Easing the search process • Targeted options and product/services • Cost reduction • Minimized response time for customers

<p>Case Study: Hipmunk</p>	<p>Tourism Lyfe Cicle: Pre-trip process</p>
<p>Description</p> <p>The Hipmunk online travel website, searches for and ranks flights, hotel options, apartment and room rentals, and The National Railroad Passenger Corporation of the USA (Amtrak) rail journeys along a variety of criteria. Its big data activities involve both customer facing offerings and internal operations, and their focus on creativity is characteristic of the innovative cultures in online travel startups.</p> <p>On the customer-facing front, Hipmunk has created some very illustrative proprietary algorithms to rank flights and hotels by criteria in addition to price. Airlines, for example, are ranked on an Agony Index, which considers flight duration and the number of stops. Hipmunk has an Ecstasy Index algorithm for hotel rankings, which combines a hotel’s price, amenities and customer ratings. These ranking criteria set Hipmunk apart from the many other online travel sites.</p> <p>For internal operations, testing is the principal activity of big data at Hipmunk and its aim is to understand user’s online behavior. The company logs all single user click, and records the entire stack of pages that were clicked on, thus being able to perform the usual A/B testing. For instance, the company conducted experiments on how prominently travel prices should be displayed, and found it a relatively unimportant factor in conversion.</p> <p>The consequences of these tests can result in small changes, such as making the hotels button a little bigger, whereas, others result in considerable breakthroughs, such as realizing that a type of users that was running one search and never booking a flight was actually a “bot” used by hackers.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • New algorithms to rank flights and hotels. • Small changes by means of testing: making buttons and text displays bigger or smaller 	<p>Benefits</p> <ul style="list-style-type: none"> • Stand out from other online travel sites. • Understand user’s online behavior. • Better conversion factors.

<p>Case Study: AIRBNB</p>	<p>Tourism Lyfe Cycle: Pre-trip process</p>
<p>Description</p> <p>Airbnb will overtake the InterContinental Hotels Group and Hilton Worldwide as the world's largest hotel chain by this summer, without owning a single hotel (FastCompany, 2014). The startup, which allows users to rent out their spare rooms or vacant homes to strangers, surpassed 10 million stays on its platform last year, doubled its listings to 550,000 (in 192 countries), and according to a source familiar with the company's business, tripled revenue to an estimated \$250 million. Airbnb has created a baseline of nine standards of care for Airbnb hosts to follow as part of its mobile tools. As design is a key aspect in this process, company managers are encouraging employees to ship new features on day one. For instance, one new designer decided to change the icon used to favourite a listing from a star to a heart. This little change increased engagement by more than 30% and inspired a new product, Wish Lists. Rather than just include design in the boardroom, Airbnb's mentality favours design as the leading aspect of the boardroom.</p> <p>In light of the Airbnb success, new similar platforms are emerging. For instance Aluguest, it is an Airbnb-style rental platform aimed at the Latin America market. Other example could be: Windu.</p> <p>In the Caribbean Islands, local people could use these kind of platforms to rent their houses or rooms, offering complementary accommodation beyond resorts and hotels.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • New business model, allowing users to rent out their spare rooms or vacant home. • New mobile tools. • Design innovation. 	<p>Benefits</p> <ul style="list-style-type: none"> • Significant Market Share • Higher engagement. • Inspiring new products.

<p>Case Study: Tingo</p>	<p>Tourism Lyfe Cicle: Pre-trip process</p>
<p>Description</p> <p>Tingo is a new brand which is part of the review giant TripAdvisor family and that intends to bring transparency to travel pricing, in this case specifically for hotels. With Tingo, consumers book the hotel whenever they want, and the service automatically re-books in the future at a lower price if the rate drops. No extra work is involved from user' side, and they get notified about lower price, rebooking and the difference refunded. No more checking again and again for the best deal, with Tingo customers will get what they want. Long term, the macro trends are clear: Price transparency will become the norm, and it is expected to come to airlines and other parts of travel ecosystem as well.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Lower price notification. • Rebooking option, refunding the difference. 	<p>Benefits</p> <ul style="list-style-type: none"> • Travel pricing transparency. • Get the best price for the customers.

<p>Case Study: Gaming with Smile Land (Thailand)</p>	<p>Tourism Lyfe Cicle: Pre-trip process</p>
<p>Description</p> <p>The Tourism Authority of Thailand (TAT) launched several Facebook games in an effort to promote the country. Smile Land¹¹ is its main Facebook game and it aims to turn users into Thailand tourists. In the first level of the game, for example, players wander through popular Bangkok tourist attractions like the Flower Market, the Grand Palace and Jatujak Market. With Smile Land is possible to experience more than 200 places in the country. Aside from being fun, it will also build a great experience and create more awareness of the value of Thailand's tourism.</p> <p>Since it was launched in 2011, Smile Land has become a popular game and thanks to this game TAT has expanded its databases from 500,000 to one million users, and it has increased the frequency of use and the access to TAT's social networking media and mobile applications.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Using gaming to promote the destination. 	<p>Benefits</p> <ul style="list-style-type: none"> • Expanding users database. • Increasing the frequency of use and the access to TAT's social networking media and mobile applications.

¹¹ <https://www.smilelandgame.com/>

<p>Case Study: Using social networks to promote a destination</p>	<p>Tourism Lyfe Cicle: Pre-trip process</p>
<p>Description</p> <p>Obermatten, a small mountain village in Swiss Alps, aimed at welcoming more tourists and they asked a social media expert to create a campaign¹². This initiative has become one of the most successful Facebook campaigns to date. Quite conventionally, the village created a Facebook page for the little village and the local mayor made an unusual promise in the first video they posted inviting visitors to "like" their page if they wanted their profile picture to be posted on the Commune's official notice board. In no time at all, the board was completely swamped with fans. In order to deal with the flood of inquiries from fans, it was necessary to resort to hanging up the profile pictures on barn walls of the village.</p> <p>More than 60 million people all over the world have now heard of Obermatten. Traffic to the Graubünden tourism website is up 250%. On the other hand, the campaign cost of 10 thousand Swiss francs reportedly brought in earned media of some 2.4 million francs. The question remains, of course, whether people will actually visit the place.</p> <p>Similar campaigns would be interesting in the Caribbean, especially when it comes to making secondary destinations more popular and thus to receiving more visitors from principal Caribbean destinations.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Marketing and promotion using social networks. • Innovative ideas in social networks. 	<p>Benefits</p> <ul style="list-style-type: none"> • More followers in social networks. • More visits to the destination webpage. • Advertising all around the world. • Making Brand.

¹² <http://www.innotour.com/>

6.3 Innovations related to the trip and destination(s) stay process

The on-trip process refers to the assistance to the traveler on the destination. Some activities related to this stage are: information search on destination, mobile services consumption, map navigation, sharing experiences, on-site transactions, etc. All these activities are related with short-term decision-making.

From the point of view of tourism services providers (accommodation, incoming agencies, food & beverages, retail) the on-trip stage is related to these main business processes: front office and guest services. A sample of the technologies used in these processes are: check in/out systems, payment systems and management systems (restaurants, activities, conference and banqueting).

Case Study: Mobile apps to better know the destination	Tourism Lyfe Cicle: Trip and destination(s) stay process
<p>Description</p> <p>Mobile phones applications are increasingly replacing paper based information systems and guiding services in tourism. This market is characterized by being very creativity. Thus, each day new apps are introduced in order to address special interests for travelers. Many of these apps address outdoor activities and interests, and they aim to increase the experience and the benefits while on tours and expeditions.</p> <p>Taking into account the great ammount of plants and bird life that exist in the Caribbean Islands, it would be interesting to develop nature related apps, such as a bird watching app and flower species identifying app to better know the local nature.</p> <p>On the other hand, considering the presence of colonial heritage in the Caribbean Islands, it would also be interesting to develop heritage related app-s.</p> <p>These apps give tourists the opportunity to know the destination in a deeper way and they could encourage the tourists to interact with the host community, thus enabling new local trade opportunities.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • New mobile apps related to the destination: <ul style="list-style-type: none"> ○ local nature ○ heritage 	<p>Benefits</p> <ul style="list-style-type: none"> • Deeper know of the destination. • Increasing the experience on the destination. • Enabling new local trade opportunities. • Encouraging the tourists to interact with the host community.

<p>Case Study: Auto checkin in accommodations</p>	<p>Tourism Lyfe Cicle: Trip and destination(s) stay process</p>
<p>Description</p> <p>IBM has worked with hotel chains such as Hilton, Starwood and Marriott in the provision of self-service solutions, for example the opening of the rooms via Bluetooth mobile system.</p> <p>The implementation of a system of self service in the process of check-in and check-out prevents the buildup of guests at the reception, the creation of queues and waitings. With this system, operating costs are reduced and the satisfaction of customers that want to avoid waiting and preferred auto checkin increases. The trend in this direction is to detect customers loyal to the brand. It also enables the reception staff to have more time to add value while handling the customer dealing a care of those who continue to go to reception for check-in.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> Using new technologies to perform check-in / check-out processes. 	<p>Benefits</p> <ul style="list-style-type: none"> No waitings for customers. Higher customer satisfaction. Brand engagement. More time for reception staff to add value

<p>Case Study: Designing new spaces: creating an Oasis in the airport</p>	<p>Tourism Lyfe Cicle: Trip and destination(s) stay process</p>
<p>Description</p> <p>OTG is reshaping the airport experience with a mix of design, technology and local flair (Fastcompany, 2014). Its terminal renews in Chicago, Minneapolis, New York, Orlando, Toronto, and five other markets put iPads at gate seats, the better to order from the nearby dining and bar options. In Toronto, for instance, OTG works with locally renowned chefs to add Indian and Japanese restaurants in two terminals, and a local sommelier brings wines from the region for the airport. Thus, OTG restaurants are unique to each city.</p> <p>OTG has obtained very good results, growing 71% since spending \$50 million to outfit terminals with iPads. Last year OTG opens 39 new stores to give it 214 total. And while passengers in the top 50 U.S. airports spend before boarding about \$6.25 on average, those in OTG–designed terminals spend \$8.94, a 43% more.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • New space design. • Using new technologies. • Working with locals. 	<p>Benefits</p> <ul style="list-style-type: none"> • Differentiation • Brand making. • More sales.

<p>Case Study: YELP, local information</p>	<p>Tourism Lyfe Cicle: Trip and destination(s) stay process</p>
<p>Description</p> <p>Yelp as a social recommendation system, had always excelled at half the retail experience for sealing the deal with its users that is, browsing (Fastcompany, 2014). For its 117 million monthly users, the online service offers user-generated opinions on local restaurants, doctors,... producing up to 47 million reviews and counting. So it can be said that Yelp is a social recommendation system.</p> <p>In 2013, the Yelp Platform¹³ was launched. This new platform allows users to read a review and then to order from restaurants in 35-meter area. Appointment bookings for places such as hair salons, dentists' offices, and yoga studios are also available. Now Yelp can definitely take the lead on Seamless' and Delivery.com's territories and stay ahead of competitors, from OpenTable to Foursquare, that are increasingly focused on Yelp-like localism.</p> <p>All the same, Yelp platform also offers advertisers (its main source of revenue) measurable transactions, which has led to a rise of the revenue compared to the previous year. And the company is making an aggressive international push with the acquisition of Qype, its main European rival. It seems, Yelp's appetite for new markets is increasingly growing.</p> <p>It is regrettable that at present there's no Yelp service for the Caribbean Islands. It would be strategic to have Yelp or other similar recommendation systems in the Caribbean, in view of the opportunities it offers to find great local businesses and services.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Social recommendation system on local businesses. • Location based services. • Measurable transactions for advertisers. 	<p>Benefits</p> <ul style="list-style-type: none"> • Improved market position. • Greater competitiveness. • Higher sales.

¹³ <http://www.yelp.com/>

<p>Case Study: Augmented Reality Solutions</p>	<p>Tourism Lyfe Cicle: Trip and destination(s) stay process</p>
<p>Description</p> <p>According to the AR related report published by Yahoo (2013), with the release of powerful smartphone devices, and more recently Google’s project Glass, Augmented Reality (AR) has quickly become the new buzzword. The technology that allows combining seamlessly physical world and virtual information, but is still widely under-utilised in the field of Tourism (Yahoo, 2013). Following, highly innovative AR experiences are presented, that showcasing the potential of the technology to revolutionise the way we experience new destinations and services within the industry such as an Enhanced Booking Experience; Museum Interactivity; AR Browsers in the Destination; Responsive Experience Through Gaming; Services in the Restaurant; Re-living Historic Life and Events; The Hotel Experience; Transportation; Accessibility and Translation; Participative Destination Management, etc.</p> <p>The Saint Petersburg Clearwater Bureau developed the most successful examples related to the booking experience using AR to offer a cutting-edge 3D experience to potential tourists. Named “Two Treasures 3D Tour” (above), the experience features a virtual tour guide which can be viewed on a desktop video camera at home. The experience features a virtual tour guide and provides a persuasive and interactive preview of the world famous beaches and museums.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Virtual tour guides (3D visualization). • Travel processes with higher interactivity (enhanced booking experiences, visiting museums, gaming, etc.). • New ways of human and computer interaction. 	<p>Benefits</p> <ul style="list-style-type: none"> • New ways to experience destinations. • Higher engagement. • Brand making.

<p>Case Study: The Jungle Bay Resort Case (Dominica)</p>	<p>Tourism Lyfe Cicle: Trip and destination(s) stay process</p>
<p>Description</p> <p>Jungle Bay, a resort from Dominica has created a local NGO, the “South East Tourism Development Committee” (SETDC), to help residents of the area prepare for the advantages and opportunities that tourism offers. Over the past 10 years, SETDC has developed a network of natural sites and trails, trained farmers, small entrepreneurs, and tour guides, and promoted environmental concerns and the overall welfare of the rural committee. At the same time, farmers are given incentives to increase their farms’ productivity. Jungle Bay Resort and Spa also launched the Southeast Entrepreneur Loan Fund (SELF), which allows 10 to 15 local entrepreneurs to borrow up to US\$32,400 for business activities, such as organic produce, seafood, local arts and crafts production, and guides for local tours and hiking that can contribute to Jungle Bay’s operations (The World Bank, 2013).</p> <p>This case shows that the commitment of the resorts with the local community is possible and very beneficial for both. Hence, the companies could find this example encouraging if they decide to proceed in this direction.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Creation of a local NGO. • Developing a network of local businesses, trained farmers, tour guides, etc. • The commitment of the resorts with local community. 	<p>Benefits</p> <ul style="list-style-type: none"> • Improving destination sustainability. • Synergies between the tourism industry and local businesses. • Higher locals’ satisfaction towards tourism.

<p>Case Study: Food as a local attraction</p>	<p>Tourism Lyfe Cicle: Trip and destination(s) stay process</p>
<p>Description</p> <p>Food is one of the main tourism attractions, and the coordination of local food production and the tourism services is emerging very rapidly, developing new tourism packages. It is the case in "Arcachon Basin natural marine park", in France. The park has the sustainable management, biodiversity and water quality as primary objectives. However, the development of viable fishing communities depend on innovative activities of the locals, and that is also becoming an advantage for small scale tourism¹⁴.</p> <p>The small-scale tourism development includes, for example the Oyster tasting cabin concept and combines tasting, education, promotion and awareness. Oyster cabins are one of the main features and attractions of the Arcachon basin. Each oyster farmer has a cabin in which he stores his equipment, but many are also used for tasting sessions as well as for direct sales. Thus, it can be said that tasting sessions are clearly a good way to promote the product.</p> <p>In addition, this helps people to understand the challenges and the standards of locals' work. They also contribute to the conservation of traditional oyster farming, ensuring that the Arcachon basin remains a breeding site. And finally, the learning from this project is that tourism activities are important supplements to food and community initiatives.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Developing new tourism packages related to food. • Small-scale tourism development. 	<p>Benefits</p> <ul style="list-style-type: none"> • Destination promotion. • Improving destination sustainability. • Conservation of traditional jobs and natural areas.

¹⁴ <http://www.innotour.com/>

<p>Case Study: New visitor information center</p>	<p>Tourism Lyfe Cicle: Trip and destination(s) stay process</p>
<p>Description</p> <p>The Manchester Visitor Center, UK, makes use of sophisticated technology to collect and present information, and thereby it distances itself from most centres. It is the first Visitor Information Centre in Europe to use Microsoft Surface tables, an innovative computing platform that responds to touch, natural hand gestures and real-world objects placed on a display.</p> <p>The use of this technology allows seeing the information in a different and interactive way. It can be the perfect place to begin a visit to a region, discover events and attractions, etc. Furthermore this type of innovation creates a new and complementary experience in the destination.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Using new technologies in visitor information centers. • New ways of interaction and visualization. 	<p>Benefits</p> <ul style="list-style-type: none"> • New and complementary experience in the destination. • Brand making.

6.4 Innovations related to the post-trip process

The post-trip process is the last stage taking into account the trip experience. So, in this stage the activities made by the tourist are related to the evaluation of service, to sharing the travel experience in social networks, etc.

From the point of view of tourism services providers (accommodation, incoming agencies, food & beverages, retail) the post-trip stage is related to the following main business processes: business management and relationship management. A sample of the technologies used in these processes are: business intelligence, CRM, survey builder.

<p>Case Study: Engaging clients using WhatsApp</p>	<p>Tourism Lyfe Cicle: Post-trip process</p>
<p>Description</p> <p>In order to improve the relationship between hotels and customers, during and after the trip, WhatsApp can be used, a messenger application for mobiles. Thus, the customers can receive messages with personalised offers and discounts. It also can be used for recommendation, giving local information to the tourists. In fact, it would be useful for any conversation between a tourism service provider and a customer. This kind of tasks helps to gain more loyal clients and help to engage them to the brand. It is also possible to use other social networks in a similar way.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> Using mobile messenger application to improve the relationship between hotels and customers. 	<p>Benefits</p> <ul style="list-style-type: none"> Improving clients' loyalty. Engaging clients to the brand. Giving local information and recommendations to the tourists.

<p>Case Study: Feefo, knowing how the customers feel</p>	<p>Tourism Lyfe Cicle: Post-trip process</p>
<p>Description</p> <p>Feefo¹⁵ is an independent customer feedback system that allows companies to instantly see how their customers feel. Feefo gathers feedback on the service provided to clients, including specific comments regarding their experience.</p> <p>One company that has contracted the review specialist Feefo is BeWILDerwood, a children’s adventure park. The initial satisfaction rating of BeWILDerwood was below 90% and 11.5% of customers declared themselves dissatisfied. The reasons for this were easy to tell, not enough toilets, the wrong food, and apparently overpriced coffee. All of these factors were easily rectifiable, thus rising the satisfaction rate to over 97%. Equally, Feefo was partly responsible for an increase in food & beverage turnover of 23%.</p> <p>Essentially, knowing the customers better is a key factor to the success of a company and nowadays Internet offers new possibilities to have knowledge about customers.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Taking into account feels and emotions, taking decisions accordingly. 	<p>Benefits</p> <ul style="list-style-type: none"> • Knowing customers better. • Improving clients satisfaction ratings. • Rising sales.

¹⁵ <http://www.feefo.com/>

<p>Case Study: A data driven culture</p>	<p>Tourism Lyfe Cicle: Post-trip process</p>
<p>Description</p> <p>For any organisation, data and analytics are important and if the goal is to be able to offer the best services to customers, analytics becomes even more important. In order to make sense of the immense amount of data companies have nowadays and to get better business management, analytic (business intelligence, big data) tools and algorithms are clearly needed.</p> <p>It is the case of McDonald’s, a global food service retailer with more than 34.000 local restaurants serving more than 69 million people in 118 countries each day. In order to become a more information-centric company McDonald’s changed the organization management culture to a data-driven culture. Thus, McDonald’s creates multi-disciplinary teams to discover, develop and deploy new data solutions across the organization. In order to make better the company and the customer experience, McDonald’s analyses huge amounts of variables. They analyse in-store traffic data, measuring the flows in the stores, customer interactions, ordering patterns, sensor data and video data. Information extracted from this data is used for testing the design of the restaurants, variations in the menus, optimization of their training program and their supply-chain. Furthermore, McDonald’s went from using averages to trend analytics that provide a lot more insight about what was happening in each local store. They combined datasets and visualized them to better understand the cause and affect in the differences between stores, estimating the correlations. These insights were used to create more clear, relevant and actionable actions, resulting in saving money and time across the organisation.</p> <p>As it can be seen analytics can lead the company to a better position, creating the best experience for the customers and making the organization more effective and efficient.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Creation of multi-disciplinary teams to discover, develop and deploy new data solutions across the organization. • Using data analytics to support decisions. • Data driven business processes analysis. • More deeper analysis at the level of the smallest business unit. 	<p>Benefits</p> <ul style="list-style-type: none"> • More effective and efficient company. • Improving competitiveness, saving money and time. • Improving the experience for the customers.

6.5 Innovations related to tourism policies

This chapter has a very practical purpose; it aims to provide concrete examples of solid tourism public policy frameworks and good practices from across the World in designing and implementing tourism policies related to innovation in general and more specifically in the promotion of ICT among tourism SMEs to improve the industry's competitiveness.

The selection procedure of the cases and the analysis done has been characterized by five important elements in a bottom-up approach:

- 1) A worldwide perspective of the research work done, in terms of major economic regions (Africa, the Americas, East Asia and the Pacific, Europe, the Middle East and South Asia) and number of countries revised. The analysis has a global scope, covering 91 countries situated in different regions and level of income, although only some of the most representative cases for the Caribbean Region have been included.
- 2) Reliance on information, guidance and advice from the experts from SEGITTUR and CictourGune involve in the research, and the on-going contacts with some National Tourism Administrations.
- 3) The identification of good practice on the basis of robust evidence and the information available in different primary information

sources like Internet and institutions consulted, like UNWTO.

- 4) A particular concern to ease the process of transferring practice from one country or region to another, by assessing the transfer potential of specific examples of good practice tourism policies and by gathering material that could strengthen the case for their broader adoption.
- 5) A special focus on tourism public policies or other relevant innovation public policies address to the tourism sector to promote its competitiveness through innovation and new technologies.

The chapter 6 does not attempt to provide a complete and exhaustive analysis of the existing tourism policies within the scope of the study, but to identify some of the most relevant and more representative of the diversity of the existing policy frameworks, focusing attention on practices that can make a real difference.

It is important to note that the analysis covers only public strategies and initiatives (i.e. public policies); thus, the only private or non-profit strategies have been screened are those which are included within a governmental framework (for example, public-private alliances or cluster support by public bodies).

Most of the cases analyzed are focused on nation-wide public policies, although in certain cases countries can foresee their implementation through decentralized administrative structures, such is the case of Spain, in which a special mention of the tourism public policies to promote

innovation of the Basque Region have been included because of its relevance.

On the other hand, no detailed analysis of related programs launched by multilateral institutions or development banks has been performed, due to the fact that they usually provide technical assistance for capacity building, but are the countries themselves who define the specific focus and content of policies¹⁶.

The criteria to select the countries subject to analysis have been how relevant is tourism in their economies or development plans; thus, both mature and emerging tourism destinations have been considered. This selection has been based on rankings and conclusions of recent reports on the matter¹⁷.

Thematic scope

The thematic scope of the research made has been in broad terms: tourism technology innovation. In some cases this kind of policies are promoted directly by National Tourism Administration, but in others we have found other Administrations involved in the designed and

implementation of the policies, such as the Innovation & Research Administrations.

Therefore, along the analysis made two major typologies of policies have been found, and included in the report:

- 1) Tourism policies. Identification, within the Tourism National Plans, of those axis or priorities specifically oriented towards either Technological Innovation or Information Society. Other strategies that might be considered 'innovative', such as creation and marketing of new touristic destinations or products, general training programs or sustainable tourism, are excluded, if they show no direct relation with RTD, Technology Transfer or eTourism.
- 2) Other relevant policies. Identification, within other national plans aiming at enhancing innovation and competitiveness, of strategies or programs where the approach towards tourism sector is explicit. Thus, national RTD Strategies, Digital Agendas and SME Support Policies have been considered. Within these frameworks, *only programs for tourism or instruments where tourism is mentioned as a priority sector are considered*: other general programs that might be used for tourism development but are not specifically oriented towards this sector remain outside the scope of the analysis.

¹⁶ See, for example:

- ASEAN *Tourism Strategic Plan 2011 – 2015*.
- UNECA *African Information Society Initiative 1996-2006 and National Information and Communication Infrastructure (NICI) Plans*.
- *EU 2010 Communication on Tourism (and rolling implementation plan)*.

¹⁷ See, for example:

- *The Travel & Tourism Competitiveness Report* (World Economic Forum, 2013).
- *Tourism in Africa: Harnessing Tourism for Growth and Improved Livelihoods* (World Bank, 2013).
- *Enhancing the competitiveness of tourism in the EU – An evaluation of 20 cases of innovation and good practice* (European Commission DG Enterprise and Industry, 2013).

6.5.1 Funding and Resource Mobilization

As a result of the analysis made, we could conclude that, in general terms, there is inadequate funding and resource mobilisation in the Caribbean Region for ICT based innovation policies.

Quite often tourism policy makers are unaware of the funds available in other governmental agencies, such as the Science and innovation ones.

A clear example of a National Tourism Administration committed to the promotion of Research, Development & Innovation, is SECTUR, from Mexico.

They have programmes like the *Sectorial Fund for Research, Development and Technological Innovation in Tourism* (SECTUR - CONACYT), whose purpose is the allocation of federal public funds to support carrying out scientific or technological research, training of specialised human resources, scholarships, creation and strengthening of groups and academic bodies of research and technological development, scientific and technological dissemination, and infrastructures for research that the tourist sector requires.

Another good example of an existing fund to promote business innovation managed by the Scientific and Technological Promotion Agency, benefiting tourism SMEs is the FONTAR in Argentina.

<p>Case Study: Incentives to promote business innovation: The Argentine Technological Fund (FONTAR)</p>	
<p>Description</p> <p>Business innovation generates benefits for the whole of society. By innovating, companies renew their offer of goods or improve their production processes, resulting in improvements in the diversity and quality of products and services offered to the population.</p> <p>Some innovations also help to increase energy efficiency and minimise the impact on the environment. In addition, innovations are the key to a strong participation in local and international markets.</p> <p>While the social benefits of innovation are often great, many businesses, particularly SMEs located in developing countries, are reluctant to make innovation a priority to expand their businesses because of the uncertainty involved. This makes it difficult for planning and estimating the necessary resources to carry out a project, together with the rate of return on that investment. To technological contingencies, we must add the volatility imposed by the financial context.</p> <p>To mitigate failures that limit business innovation, the National Agency for Scientific and Technological Promotion of Argentina, through FONTAR offers different types of instruments (subsidies, loans and tax breaks) to co-finance projects for the modernisation, innovation and technological development in individual companies, supply chains and consortia of companies and research and development institutions. FONTAR's instruments are combined to fund different aspects or stages of the company's innovation process, from the activities arising from the initial phase of technological developments (research and development costs, creation of research and development units, development of new products , materials, processes or services, carrying out trials and prototypes), to the expenditure necessary to reach an the industrial scale.</p> <p>According to a study by the National University of Quilmes, companies supported by FONTAR achieved significant results in terms of new or improved products and processes and human capital development and innovation skills. For example, 68% of companies surveyed said that they achieved product innovations, while 51% achieved process innovations; almost 30% obtained product and process innovations. In turn, as a result of these innovations, they said to have increased their sales and product quality, and reduced costs.</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Additional resources. • New financing instruments. • Interaction with Innovation policies and agencies. • The regional focus. • Its private approach. • To focus on financing SMEs innovation processes. 	<p>Benefits</p> <ul style="list-style-type: none"> • To develop and implement mechanisms for resource mobilization to finance innovation tourism policies at national and regional level. • To develop a funding formula to support SMEs ICT modernization. • To benefit from the funds available at the Scientific and Innovation Agencies and regional programmes. • To create alliance with regional and international innovation agencies to provide

	financial support to tourism SMEs.
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6.5.2 Promotion of Tourism Observatories and Research Centres as drivers of Innovation

A tourism observatory is a technology-based instrument used to surveil and watch the tourism sector within a destination (at national or subnational level). This requires collecting data from many sources where destination data is available: statistics (Statistic Offices), surveys, open data, social networks data and so on. So, the monitoring of this information enables tourism destination

organisations and tourism related businesses to make better-informed decisions based on objective real-time data.

In other words, a tourism observatory allows all tourism related agents to have access to an intelligent instrument for analysing the evolution of the main figures and relevant facts about the Tourism Sector, allowing to improve the tourism services and its innovation in the destination. In addition, an observatory supports the identification of new trends and track competitors destinations, getting valuable comparisons between destinations. In an observatory other tasks can be highlighted, such as determining the current status of the source markets, both domestic and international, to assess the quality of tourism services or the tourist satisfaction levels, etc.

<p>Case Study: BASTIS, the Baltic Sea Heritage Tourism Service</p>	
<p>Description</p> <p>The Baltic Sea Heritage Tourism Information Service (BASTIS)¹⁸, is the main source of tourism market information in the Baltic Sea Region (BSR). Within it can be found, tourism statistics, market research results and analyses on all Baltic Sea destination countries, on the most important source markets for the Baltic Sea Region and a segmentation and analysis of different cultural and natural tourists in Europe interested in holidays in the Baltic Sea region. The focus of BASTIS is heritage tourism but is not limited to this topic. Its general contents are valuable for basically all areas of tourism (INRouTe, 2014). As in Wikipedia, the user can add and update information within BASTIS, a key factor of its success.</p> <p>According to Ulf Sonntag¹⁹, Institute for Tourism Research in Northern Europe (NIT): "the aim of BASTIS is to access and harmonise publicly available information and locate and make accessible restricted information in order to provide relevant market information free of charge and easily accessible for SMEs, tourism authorities and tourism associations working in heritage tourism in the BSR. Its content is now focusing on the national level, but the technology and structure could very easily be adapted for the regional level".</p> <p>The set of indicators to be covered in BASTIS was developed together with the heritage tourism stakeholders in the BSR. As described in the Agora project²⁰, a conceptual model was used to classify the indicators and to make sure that nothing was forgotten due to the bottom-up approach. Its approach is to focus actively on these aspects and to describe which central factors determine whether and where tourism takes place (Lohmann 2009). In defining what leads to potential demand and a potential offer in tourism, it refers to the five factors being a prerequisite for tourism: attractiveness, amenities (or facilities) and accessibility on the side of the region to become a destination, ability and motivation to travel on the demand side (Lohmann et al. 1998).</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Harmonise publicly available information about a destination and make it accessible. • Provide relevant market information free of charge and easily accessible for SMEs and Tourism Industry. • Using easy and free IT technologies, such as a wiki. • A conceptual model to classify the indicators. 	<p>Benefits</p> <ul style="list-style-type: none"> • A single site to look up information about a destination. • Data driven decision making. • User generated content. • Collaboration among the tourism agents. • Researches related to the destination.

¹⁸ <http://www.bastis-tourism.info/>

¹⁹ http://balticsea.com/wp-content/uploads/2012/10/Baltic_Sea_Breezes_2_small.pdf

²⁰ http://www.bastis-tourism.info/images/c/cf/Agora2.0_BASTIS_Core_Drivers_Text.pdf

Case Study:

Basque Tourism Observatory

Description

The Basque Tourism Observatory²¹ has been conceived and designed for the monitoring of the tourism activity in the Basque Country and to strengthen the intelligent management of the information and knowledge with the aim of the Basque Country to become an intelligent destination and worldwide referent. This observatory deals with the so-called Big Data, specifically Tourism Big Data, provides advances towards how regions can make sense of the big data and take advantage of it. The content generated by users on the Internet through social media, access to destination and intermediation sites allow information consumers to gain knowledge about, among other topics, patterns of behaviour, consumption, situations, analyse the creation of a brand, impact analysis and opinions posted spontaneously, so that destination managers can get to know customers and the given market better and relate to them more efficiently and with greater efficacy (INRouTe, 2014).

New technologies and the Big Data phenomenon represent a new paradigm that allows exploring the reality and the tourism system itself in a new way, providing a powerful tool for observation, analysis and anticipation of change. Big Data has a close relation with digital economy/data economy, in which information represents the raw material for knowledge generation and decision taking. Data constitutes a source of innovation thanks to which new models emerge such as the data market. This model allows organizations to have new ways of access to data, more sustainable and easier, but above all, more effective when applying to the strategies. Understanding such relevance of new technologies and Tourism Big Data, the Basque Tourism Observatory was launched during 2011 by the Basque Tourism Agency, Basquetour, and by the Cooperative Research Center in Tourism, CICtourGUNE.

Two concepts that vertebrate the Observatory are Competitive Intelligence (CI) and Open Innovation. Competitive Intelligence tends to be defined as an ethical and systematic process for the collection of information, analysis and relevant, accurate, opportune, predictable and active dissemination about the business environment, competitors and one's own organization (SCIP (2005). Based on the Theory of the Information Economy, the Theories on Strategy, the Competitive Advantage and Resources and Capabilities, Knowledge and Marketing Orientation, CI also has a strong connection to the areas of Technology and Security. Hence, CICtourGUNE believes that the tourism observatory should also be conceived as: a platform for objective observation; a facilitator of analysed information at the decision-making point; an administrative tool for warning and monitoring purposes; a means whereby companies and the Basque tourism sector can improve their baseline; a tool for detecting and anticipating trends.

The second concept, Open Innovation, it is seen as a new strategy of innovation in which companies go beyond the internal limits of their organisation and where the co-operation with external professionals takes on a fundamental role. Open Innovation means combining internal knowledge with external knowledge to take R&D projects forward. It also means that companies use both internal and external channels to place their products and innovations in the market. Starting from this framework, the Tourism Observatory embodies an open model of work, with the certainty that companies in the sector are both customers and external collaborators with which information and knowledge can be

²¹ <http://observatorioturisticodeeuskadi.basquetour.net/>

exchanged.	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Using Big Data technologies. • Competitive Intelligence. • Open Innovation. • Focusing on the regional level. • Harmonise publicly available information about a destination and make it accessible. • Incorporating a set of monitors that approach tourism big data from different perspectives: visitor mobility, hotel dynamic pricing, destination web monitor. 	<p>Benefits</p> <ul style="list-style-type: none"> • Improvement of measuring and analysing tourism at subnational levels. • Provide anticipation and reaction to the tourism sector to face environment changes. • Offer the highest probability of success in the strategy implementation. • Identify opportunities. • Facilitate changes in the corporate culture.

6.5.3 Collaboration through joint regional strategies

The insufficient collaboration, partnership and networking within countries and across the region in common tourism ICT innovation based programmes and policies, could be mitigated through the implementation of specific programmes such as the “Caribbean STEP Project” promoted in 2009 by the Organization of American States.

The objective should be to develop communities of practice devoted to promoting ICTs in the tourism sector within countries and across the region by sharing knowledge and best practice in tourism innovation.

They should encourage funding agencies to support projects which are being implemented collaboratively within the region.

Case Study:

A project for small tourism companies: The Caribbean STEP

Description

In the Caribbean region a good example of this type of policy or instruments of a supranational nature is the *Small Tourism Enterprise Project (STEP)*, or *STEP Caribbean* project, which is aimed at business development training, promoting the adoption of technology, creating mechanisms for joint promotion of destinations and helping in the communication and exchange of best practices among small tourism companies and small Caribbean hotels.

It is an initiative driven by the Organization of American States (OAS) with financial support from EuropeAid aiming at, among other aims, reducing the "digital divide" of hotels in the use of different technologies, including the use of internet as an instrument for marketing their accommodation and bookings, but also by improving their internal management and accounting processes.

The Small Tourism Enterprise Project (STEP) aims to provide business development training, promote the adoption of technology, create mechanisms for joint promotion of destinations and facilitate communication and the exchange of best practices among small tourism companies and small hotels with 75 rooms or less, in the Caribbean. All the Caribbean states except Haiti are involved

Their main achievements have been providing, through web portals, tools to strengthen the management and operations of the hotels, and a plan to promote the 13 STEP Caribbean destinations, as well as the hotels affiliated with the programme. It also provides internationally recognized certification tools and programmes, more than 2,000 employees of 228 small hotels were certified by the American Hotel and Lodging Association Education Institute (AHLA-EI). It also provides training on environmental issues, staff from more than 140 companies have been trained, and immediate assistance centres have been set up.

The STEP Caribbean model has spread to the Central-American STEP project, involving Costa Rica, Guatemala, Honduras, Nicaragua, Panama and El Salvador. This supported the creation of the Central Federation of Small Hotels (FCAPH) with over 800 members. Its activities have focused on the use of digital technologies to strengthen regional integration. Their websites contain tools for training and capacity building and the project has been added to social networks such as Facebook and Twitter. The initiative has spread to other SMEs through a joint effort with the Central- American Secretariat of Tourism Integration (SITCA).

The South America STEP project uses the same model. The initiative was launched in 2008 as a four-year project to boost the development of tourism and provide participative support for small tourism businesses in the subregion. Bolivia (Plurinational State of), Chile, Colombia, Ecuador and Peru are also part of the Andes STEP initiative. More than 300 small and medium hotels participate in the project, with web sites and are on social networks, like the aforementioned one.

Source: http://portal.oas.org/en/sedi/dedtt/tourism/p_cr_ca.asp

<p>Principal Innovations</p> <ul style="list-style-type: none"> • Public-private partnership. • Intense use of ICTs • Elaboration of toolkits and online training modules. • Engagement and interaction among different Tourism Authorities in the Region. • The regional focus. • To focus on SMEs needs. 	<p>Benefits</p> <ul style="list-style-type: none"> • In partnership with the American Hotel and Lodging Association Educational Institute (AHLA-EI) over 7,420 persons received skills training and 243 persons were certified as trainers to continue delivery of training. • Two web portals were created: Caribbean-experiences.com is a marketing portal which showcases the countries and STEP properties, where guests can book directly with the property of their choice; Caribbean-innkeeper.com is an information and networking portal which hosts articles, toolkits, training modules, a discussion forum, as well as information on training and certification. • In 2009, the OAS was successful in obtaining a Trademark for exclusive use of the Caribbean Experiences Brand and Logo with the United States Patent and Trademark Office (USPTO). • The success of the STEP can be accredited in part to the active involvement and engagement of the Ministries of Tourism and the National Tourism Authorities in the Region, who were active collaborators in implementation. This strong support by Governments and private sector resulted in increased interest and engagement and a lasting positive impact. As a result small tourism enterprises have continued to be at the forefront of the development agenda for these national agencies and so receive ongoing support and assistance. <p>Source: Organization of American States http://www.oas.org/en/</p>
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6.5.4 Training and skills programmes

Caribbean Tourism Administrations should design and provide adequate and up to date training and skills to young tourism professionals and workers in the tourist and leisure industries, in areas such as new ICT solutions and the new digital economy. Including programmes designed to increase the use of Enterprise Resource Planning (ERP), Customer Relationship Management (CRM) applications and e-invoicing, among other tools that have been shown to contribute to greater productivity.

In Spain there is a programme specifically designed to provide training on the digital context, digital citizenship, digital economy and digital public services, called “Avanza Training Plan”, which included a specific approach to the tourism sector needs.

Case Study:

The Avanza programme (Plan Avanza)

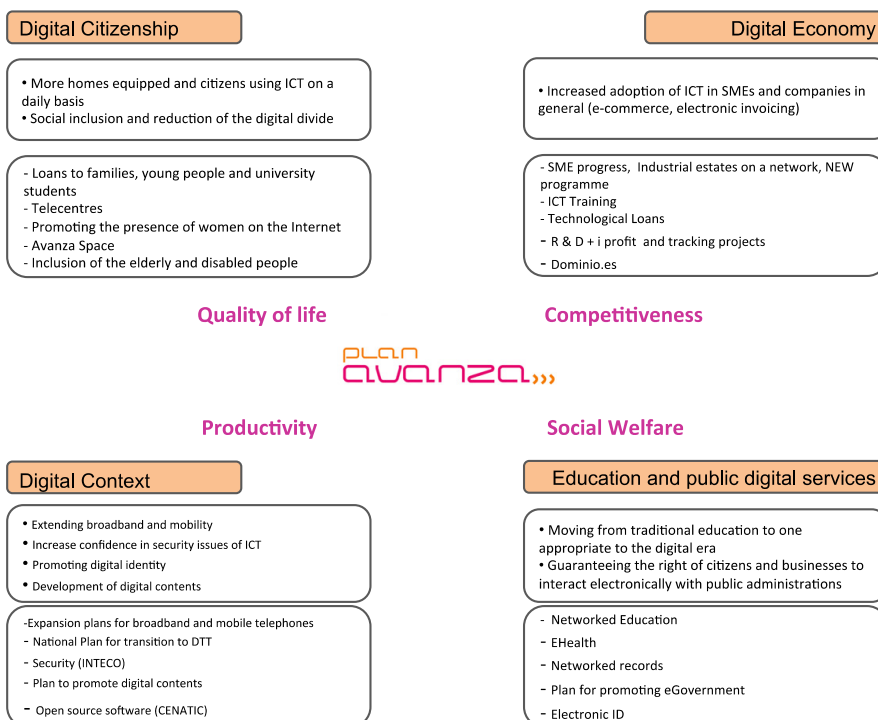
Description

The Avanza programme (Plan Avanza) supports learning and training activities in telecommunications, information and communication technologies (ICT) providing participants with high-level knowledge, qualification and internationally recognised training in ICT.

Plan Avanza is Spain’s umbrella strategy for the advancement of its information society (IS). The Plan was approved in 2005 by the Government and launched early in the following year with its first 2006-2010 Action Plan. The strategy operates under the direct authority of the Ministry of Industry, Tourism and Trade (MITT), specifically under the State Secretariat for Telecommunications and the Information Society (SSTIS).

The programme is meant for professionals and employees working in SMEs and its objectives are to consolidate knowledge of new technologies, encourage use of IT services, support teleworking, increase competitiveness and improve businesses’ productivity by using specific training and sale-promotion techniques.

Among the different programs implemented in 2008 and 2009 there was one specifically designed for tourism SMEs on e-commerce and ICT skills, it was very successful.



Source: Gobierno de España, Secretaría de Estado de Telecomunicaciones y para la Sociedad de la Información, Agenda Digital de España, Plan Avanza 2 <https://www.planavanza.es/InformacionGeneral/ResumenEjecutivo2/Paginas/ResumenEjecutivo.aspx>

<p>Principal Innovations</p> <ul style="list-style-type: none"> • ICT and e-commerce skills focus. • Intense use of ICTs. • Most of the courses where provided online. • Transversal strategy • To focus on SMEs needs. 	<p>Benefits</p> <ul style="list-style-type: none"> • In promoting use of e-commerce in rural SMEs • Familiarization with the digital channels, Web 2.0 and social networking technologies. • To boost awareness among tourism SMEs regarding the productivity and competitiveness benefits of having an online presence.
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6.5.5 Promoting tourism innovation through entrepreneurship

During the analysis a number of issues and challenges for tourism innovative entrepreneurship in the region have emerged in relation with the lack of entrepreneurial culture in the sector, the limited use of ICTs in the sector, limited number of networking and promoting activities, scarcity of seed capital and financing in general. One of the few cases found in the Region to promote youth entrepreneurship was “Caribbean Innovation Challenge”.

<p>Case Study: The "Caribbean Innovation Challenge" (CIC)</p>	
<p>Description</p> <p>The Caribbean Innovation Challenge (CIC) is an international entrepreneur competition and business start-up accelerator for young people in the CARICOM Member states. Awarding projects in three categories (Social, Economic and Environmental), the CIC promotes innovation, the development of entrepreneurial initiatives, and taps into the potential of young people to generate ideas that benefit their societies and communities. Many entrepreneurs are developing innovative projects on Rural Tourism.</p> <p>The CIC is a component of the UNDP project Youth Innovation (Youth-IN): A Caribbean Network for Youth Development, which responds to the needs of youth identified in the report of the CARICOM Youth Commission (2010): 'Eye on the Future: Investing in YOUTH NOW for Tomorrow's Community'. The CIC differentiates itself from other existing business model competitions by incorporating "before and after" stages, focusing on training and mentoring as preparation for the competition, and providing follow up services that include access to finance, networking activities, internships and promotion opportunities – which are key support services for young entrepreneurs.</p> <p>Objective: Promote youth entrepreneurship with the launch and institutionalization of the "Caribbean Innovation Challenge". The objective will be achieved while promoting: i) Coordination among stakeholders; ii) An innovative public/private sector alliance; and iii) An ecosystem for young entrepreneurs.</p> <p>Implementation strategy: Promotion of capacity building for youth and mobilization of partners around the "Caribbean Innovation Challenge". The challenge is a sub-regional competition that encourages young entrepreneur innovation and provides hands on support for youth to start up a business. The challenge will be a process built with partners and will create an ecosystem for young entrepreneurs.</p> <p>YOUTH-INENTREPRENEURSHIP: A partnership between UNDP Barbados and the OECS and YABT, Youth-IN Entrepreneurship, promotes innovation and youth entrepreneurship, in coordination with public/private alliances and stakeholders, generating a favourable ecosystem for the development of young entrepreneurs in the Caribbean.</p> <p>Source: http://www.youthin-cic.net/index.php</p>	
<p>Principal Innovations</p> <ul style="list-style-type: none"> • Youth entrepreneurship focus • Public-private initiative • Creation of an entrepreneur ecosystem in the region 	<p>Benefits</p> <ul style="list-style-type: none"> • Knowledge generation and dissemination of the projects participating. • Networking, collaboration and sharing of information. • Cross sectorial capacity building and

	<p>mentoring.</p> <ul style="list-style-type: none"> • Boosting the potential of young people to generate ideas.
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6.5.6 Communication and dissemination strategies

There is limited dissemination and promotion of new technologies and tourism innovations within the region. It is required to increase SMEs awareness about the importance of adopting such technologies.

The culture of using communication strategies to inform the private sector about new trends and innovative tourism business models is underdeveloped in the Region. Most research made by universities has not been adequately disseminate across the Region.

An appropriate tourism policy on innovation shall ensure that there is a strong culture of research and innovation adequately supported by funding and dissemination of findings on the use of ICTs by SMEs to improve their competitiveness.

The objective must be to support national and regional tourism innovation research, to build in the Caribbean their own research capacity, to set up national and regional repositories of research and best practices, to enable publication of tourism research journals, and to disseminate all that through symposiums, conferences and events. A good example of a Symposium on tourism innovation was hold in Grenada very recently.

Case Study:

The Executive Symposium for Innovators in Coastal Tourism

Description

The Executive Symposium for Innovators in Coastal Tourism is a good example of the kind of event that could be organized by NTOs and tourism stakeholders is the case of an event held at St. George's University in Grenada on July 2014.

The Executive Symposium for Innovators in Coastal Tourism was convened by CREST (Center for Responsible Travel) and CTO (the Caribbean Tourism Organisation) together with Grenada Tourism Authority, Compete Caribbean and Grenada Hotel and Tourism Association.

The intention of the event was to bring together over 100 green tourism innovators from around the world to see if the Caribbean tourism opportunities and challenges could be addressed and enhanced, and that the activity could be healthy and sustainable.

As far as climate change is concerned, the Caribbean is right at the centre of it and pretty powerless, even as a cohesive entity, to affect the progress towards global temperature increases to 4 degrees and over. Mainly the cause for this is in the industrialized world.

Moreover, the Caribbean is one of the world's great tourism destinations and depends on the industrialized world for its 25 million tourists and around 22 million cruise passengers each year. Although income from tourism has more or less stagnated since 2008 and the beginning of the global economic crisis.

Further challenges for the Caribbean relate to the island states need to get more income from the tourism activity and constant pressure on margins from all. To any knowledgeable onlooker it often appears that tourism in the Caribbean is an extractive activity mainly operated by and for global organizations.

The challenges to a healthy Caribbean tourism industry may be substantial - but also the opportunities are gigantic and these were examined in depth. However, it takes the destination states' willingness to engage and manage their own tourism for benefits to be apparent.

Presenters outlined a swathe of fascinating innovations on hand to help tourism in the right direction. In particular, there appears to be both an upsurge in community-related tourism in the area and a major extension of linkages between sectors to deliver tourism benefits to a wider stakeholder base.

An innovative sustainable tourism mapping initiative was also unveiled at the event - Skyview already produces maps of the area and they intend to create apps and maps to assist tourists find sustainable lodgings, car hire and all the other tourist needs.

Source: http://www.responsibletravel.org/news/press_releases.html

6.5.7 Finding synergies with Science and Technology policies

National Tourism Administrations in the Region have to take advantage of the existing synergies with other Ministries and Administrations such as the Science, Technology and innovation Agencies, or the Ministry of Industry Development, and their programmes; it is not just a way of resource mobilisation, as we have already mention, but an opportunity for cooperation and sharing knowledge.

Most countries have their own specific programmes to support SMEs, may be such policies are a good opportunity to address to the tourism SMEs needs.

Case Study:

PROPYPE FUND-COSTA RICA

Description

A good example in the Caribbean of such programs designed from the administrations responsible for science and technology in the country but from which SMEs in the tourism sector can also benefit is found in Costa Rica, where the Ministry of Science, Technology and Telecommunications has launched the PROPYPE Fund which aims to fund actions and activities to promote and improve the competitiveness of Costa Rican SMEs through technological development and innovation as key levers.

Budget: 300 million Costa Rican colones.

Beneficiaries of the programme: SMEs or SME groups of Costa Rica registered with the Ministry of Economy, Industry and Commerce (MEIC).

Funding: One sole project is financed per company for up to 60% of the total project cost. The total amount requested may not exceed 20 million colones.

Actions that the programme funds: Under this fund actions and innovation projects are funded and/or technological development submitted by SMEs according to the following description of innovation and technological development:

"Innovation is understood as the introduction into the market of a new or significantly improved asset (product or service), process, and / or marketing method. This introduction should generate new value for the user.

Technological development is understood as the set of systematic works, based on existing knowledge gained from research and / or practical experience, which is aimed at the manufacture of new materials, products or devices; to set up new processes, systems and services; or substantial improvement of existing ones. "

Both definitions are sufficiently broad to allow SME projects related to tourism to be financed.

Source: <http://www.micit.go.cr/index.php/comision-incentivos/secretaria-tecnica-fondo-incentivos/fondo-propyme.html>

6.5.8 Implement a tourism cluster policy

“The success of the cluster approach is not a function of simply adopting global best practices but rather adapting them to the unique socioeconomic context in which they are applied...and it holds tremendous potential for the Caribbean”. (IDB, “Cluster Best Practices for the Caribbean”, 2010) In other territories, like in Spain, cluster tourism policies has been prove to be an effective instrument to improve the competitive advantage of their members or of the territories where they are developed.

Good examples of the cluster approach in the Region are the cases of Dominican Republic (the “Consortio de Competitividad Turística” is trying to promote 9 community based tourism clusters), Guyana (the “Guyana Trade and Investment Support” is promoting a tourism cluster based on birding), Haiti o Jamaica.

Case Study:

The cluster approach

Description

Supporting Clusters is one of the key elements to regional growth and in a more competitive world the creation of cluster support is a clear success factor. Lessons learnt from over 10 years of cluster development in Europe, that could be useful for the Caribbean Region, have also showed us that there are no “one size fits all” solutions that can be given as a “happy pill” to regions in order to create growth.

Even though cluster organizations are common in Europe, most of them are in areas like ICT, aviation, traditional industry, food or creative industries. The tourism sector still seems to have a potential when it comes to supporting clusters and this could help the sector become more competitive on an international level.

The first cluster that was object to more structured research was the ICT cluster in Silicon Valley. During the past years there have been many attempts to copy what was made in SV, but nobody has really succeeded. The reason is that Silicon Valley is a unique place, where a lot of different factors peaked at the same time, creating the world’s most innovative area. Trying to copy this will probably only cost money. Instead, the way forward is to create a European way of supporting clusters, something that has been tested during the past 10 years.

It is important to notice that UNWTO has identified very recently cluster support as one possible action to take in order to create a growing tourism industry in Europe. A specific cluster policy could contribute to create collaboration between different actors in the tourism sector which will increase the competitiveness for the European region as a whole.

To compete globally, cluster locally

At the Caribbean Region many tourism destinations must reconsider their value proposition taking into account the cluster factor. it means its companies developing more advanced and diverse tourism products in partnership with other cluster actors. We can not forget that the real competitive advantage for many destinations lies outside the tourism company, residing instead in the increasingly complex local economies of which they are a part. Greater diversity of actors at a destination provides greater opportunities for knowledge spillovers, cross pollination of ideas, and a broader economic base from which to draw competitive advantage.

Core issues to deal with in a proactive tourism cluster development strategy in the Caribbean are:

1. Investigation and ‘mapping’ of regional resources and potentials, i.e large tourism companies or business associations as potential anchors for economic development, Public sector agencies and universities and knowledge institutions.
2. To design your own and specific tourism cluster development plan focused on your Priorities as tourism administration.
3. To identify the most promising ‘clusters’ in a specific context according to its development

potential.

4. To create a micro-finance facility specifically designed for tourism clusters.

5. To create a stimulus policy through a micro-finance facility.

6. To start a dialogue between NTOs, Research and Development institutions, Innovation Agencies and Universities.

7. Partner ongoing innovation strategy priorities.

8. Marketing and promotion of the new tourism cluster development strategy.

9. To create an Inter-institutional platform for tourism cluster promotions all together with the Ministry responsible for Innovation policies and Industry promotion.

10. To get familiar with similar initiatives in the field of tourism clustering launched in other countries.

11. To promote interaction with other complementary strategies, i.e. Smart Destinations or Regional Smart Specialization.

12. To establish metrics and a mechanism for monitoring and evaluating the results of the strategy.

Source: 57TH Meeting of the UNWTO Commission for Europe: "Seminar on developing effective Tourism Clusters", Baku, Azerbaijan, 3-4 April, 2014

Case Study:

Queensland tourism cluster (Australia)

Description

The main objective in the Queensland cluster is “Commercial Cooperation” whereas in Perth the “Innovation and Technology” objective is of significance. Both cases are examples of successful clusters that have led to “Cluster expansion” initiatives.

Commercial cooperation - The threat of the declining fishing industry led to a closer cooperation between the fishermen in the region. A success in transforming the fishing industry into yacht tourism demanded collaboration between many small enterprises. Collaboration was needed to create a strong, unified voice towards the government that could bring attention to the industry situation in the region, and also towards the market to communicate their new business ideas.

Innovation and technology - In the mid 80s Australia won the sailing competition Americas Cup. As a result of the victory, the next Americas Cup competition was held in Australia. Perth then got the opportunity to host twelve of the world’s best shipbuilding teams – working 18 months on the preparation for the next competition. This event contributed to the knowledge creation in fields such as fluid dynamics and ship construction. After the event, some of the team-members decided to stay permanently in the region and work in the marine industry.

Cluster expansion - In both clusters, the successful transformation towards new industry has led to new constructive business initiatives. The Queensland yacht tourism cluster has brought a lot of attention to the region, and entrepreneurs have started to see new possibilities in the region. An example of the new businesses started is luxury furniture manufacturing for high-class hotels. This idea came from designers who discovered Queensland after having participated in a yacht tour.

Source: IKED, “The Cluster Policies Whitebook”(2004).

The case of the tourism innovation cluster of Vila-seca (Catalonia, Spain)

Russo, A.P. (2012) Knowledge Management Tools for the enhancement of tourism competitiveness. The Science and Technology Park for Tourism and Leisure. In Antón Clavé, S. (ed.)(2012) 10 Lessons on Tourism: The Challenge of Reinventing Destinations

Anton Clavé, S. and Duro, J.A. (2010) Competitividad y sistemas de innovación territorial en turismo. Monografía 2009-2, Càtedra Universitat-Empresa per al foment de la Innovació Empresarial. Rovira i Virgili University, Tarragona.

The municipality of Vila-seca is by the coast of Catalonia (The Mediterranean), it covers 21.4km², gathers over 21.000 inhabitants and receives over 300.000 tourists a year. It has been a focus of study for many reasons, but it is important to notice that its immediate neighbour is renowned Salou and the Port Aventura Them Park. Therefore, the territory lacked notoriety in the face of a door-to-door competitor. The region re-invented itself, as the municipality's background is mainly industrial, and already in 2006 the services sector generated over two thirds of the Gross Added Value (around €300 million). Part of this re-invention comes from the investment in innovation.

According to the authors that studied this case (Anton Clavé, Duro and Russo), briefly, the keys are as follows:

- "Tourism triple helix" is presented: industry-academia-government
- For innovation to occur in local productive systems universities and research centers are to be in place, and a high quality of links are to be established with the regional stakeholders-government and companies.
- **The quality and extent of networks between knowledge producers and local companies directly impacts on the productivity and competitiveness in local tourism destinations**
- A Regional Innovation System was created in the region of Tarragona, with three pillars: R&D centers, Public Institutions and Entrepreneurial Associations (Accommodation providers, Incoming Agencies) and a center piece formed by innovation centres: the creation of Costa Daurada Tourist Studies Foundation and the creation of the Science and Technology Park of Tourism and Leisure (PCTTO). The basis for this is strong collaboration and time and resource investment by all parties (public, private and academia).
- "the knowledge produced contributed to the development of the places which host such processes to the extent that **it becomes rooted in the structure of local interests**. In this way, the **local community becomes a stakeholder, establishing a stewardship or knowledge**. As such, university education and research – powerful generators of knowledge and its dissemination – cannot be separated from the social and environmental context in which they take place, as this will determine the extent to which knowledge filters and **becomes deposited in local socioeconomic processes**." (Russo, 2012: 452)
- The singularity of a place and its people it is to be carefully considered, as the processes of economic development and innovation are place-specific. "**the elicitation and cultivation of knowledge feeds on territorial idiosyncrasies**" (Castells, 1996 in Russo, 2012: 452).

6.6 Innovation Cases Summary

The table below is a summary of the innovation cases and policies described before. Besides the innovation case its main

features are presented and it is classified according to the trip stage (pre-trip, on-trip and post-trip):

Table 4: Summary of the innovation cases

Innovation Case	Trip stage	Main Innovation features
Kayak	Pre-trip	<ul style="list-style-type: none"> Price prediction (flight, hotel, etc.). Thanks to big data and data analysis tools, now computer tasks take less time.
Amadeus	Pre-trip	<ul style="list-style-type: none"> New big data services to provide value to travel agencies. Implementing technologies for internal operations: cost reduction and response time minimization.
Hipmunk	Pre-trip	<ul style="list-style-type: none"> New index algorithms for rankings (hotels flights, etc.).
Airbnb	Pre-trip	<ul style="list-style-type: none"> Business model innovation. Design innovation.
Tingo	Pre-trip	<ul style="list-style-type: none"> Travel pricing transparency.
Social networks to promote a destination	Pre-trip	<ul style="list-style-type: none"> Facebook campaigns for small destinations.

Gaming with Smile Land	Pre-trip	<ul style="list-style-type: none"> Expanding users data bases through games. Increasing the use of destination social media channel and the use of its mobile applications through games.
Mobile apps to better know the destination	On-trip	<ul style="list-style-type: none"> Know the local environment in a deeper way. Interaction with the local community.
Auto checkin in accommodations	On-trip	<ul style="list-style-type: none"> Self-service solutions. Approximation technology (Bluetooth, NFC, etc.).
Designing new spaces: Creating an Oasis in the airport	On-trip	<ul style="list-style-type: none"> Design innovation Technology use (iPad for ordering) New business model (local food)
Yelp local information	On-trip	<ul style="list-style-type: none"> Recommendation system Opportunity for local business and services
Augmented Reality Solutions	On-trip	<ul style="list-style-type: none"> New devices (Smart Glasses, smart watches, etc.) New experiences, more persuasive and interactive.
The Jungle Bay Resort Case	On-trip	<ul style="list-style-type: none"> Social Innovation. Supporting Local community.
Food as a local attraction	On-trip	<ul style="list-style-type: none"> New tourism packages: coordination between local food producers and tourism services providers. Sustainable business model.
New visitor information center	On-trip	<ul style="list-style-type: none"> Adoption of new technologies. Creating new experiences.
Engaging clients using WhatsApp	Post-trip	<ul style="list-style-type: none"> Customer engagement and loyalty.
Feefoo	Post-trip	<ul style="list-style-type: none"> New customer feedback system. New customer insights.
A data driven culture	Post-trip	<ul style="list-style-type: none"> Multi-disciplinary teams to discover develop and deploy new data solutions and products. Actionable actions, resulting in saving money and time across the company.
Innovations related to tourism policies		
Tourism Observatory as a driver of Innovation		<ul style="list-style-type: none"> Collecting data from many sources, handling interoperativity issues. New measurement and modelization methods and techniques. Identification of new trends and competitors. Monitoring new markets. Better decision making.

Chapter 7: Policy recommendations

7.1 Introduction

The analysis carried out throughout the entire document reveals how in a globalised world with increasingly open and competitive economies, in a region like the Caribbean where for the majority of countries the tourism industry has become the engine of their economic and social development, and an important future investment in their national strategies, we find some tourist locations with clear signs of exhaustion, lack of competitiveness and little differentiation in their positions in source markets.

This fact means that national tourism administrations and other stakeholders involved with tourism, should undertake a process of reflection, design and implementation of new tourism policies. There should be a new generation of public instruments and tools for a new era in which innovation and new technologies are essential elements in the development of new products and services, and to identify new market niches.

In short, this means supporting the transit from prevailing models of exogenous tourism development in the region, largely imposed from abroad and with a scant range, towards a new tourism business culture based on endogenous innovation, typical of the region, which is systemic and very dynamic, within the accelerated change in which we are immersed in the new technological context.

The rapid adoption of technology by the tourism sector in the last decade,

throughout its value chain, its intensive use by tourists themselves before, during and after their trips, and how both factors have transformed the way that companies and destinations are promoted, sell their services and interact with their customers, makes those countries whose tourism industry is not able to adapt to changes swiftly, risk losing their effectiveness in promoting their strategies and their companies will lose control of the online channel through which they make themselves known and market their services. In short, they are pushed towards a steady loss of competitiveness with other regions and countries, with a diminishing presence of the Caribbean and its destinations in the distribution of tourist flows and the income that they generate on a worldwide scale.

From the analysis carried out in the Caribbean region, a general lack of policies has been noted in the area of innovation and new technologies specifically aimed at the tourism sector. There are very few cases of countries in the region that have implemented such policies. A notable case, but not the only one, of places where references to these types of policies have been found is the Support programme for the competitiveness of tourism SME's or the Sectorial Fund for Research, Development and Technological Innovation in Tourism promoted by SECTUR 22 in Mexico.

A series of conclusions and key ideas are presented below as "lessons learned," which identify specific areas of action that

22 Secretaría de Turismo de México - <http://www.sectur.gob.mx/>

should guide and support national tourism administrations and those in charge of them in the design and implementation process of the policies in this area.

This set of "lessons learned" presented below take three principles or basic assumptions as a starting point that we cannot miss highlighting here:

- 1) Recognizing the important role of innovation and technology in the competitiveness of the tourism sector;
- 2) The need to move towards a model for productive innovation suitable to the tourism industry, with the typical specificities of the Caribbean region;
- 3) The importance of being able to provide a response to public action to the demands of the global tourism market from the local capacities of the destinations.

The recommendations included in this report could be classified as follows: recommendations to improve the competitiveness of SMEs and the positioning of destinations; recommendations to support the development of new infrastructures of

excellence in innovation and technology applied to tourism; recommendations to train human resources in the tourism sector, improving the competitiveness of SMEs through programmes like Innovative Business Groups, support for tourism entrepreneurs. Finally there are other recommendations to promote cooperation among the countries of the region.

Naturally, a very general approach is offered here, and it should be each Caribbean country which should establish their own priorities when designing their policies and support programmes for innovation and tourism technologies according to the particularities of their specific reality (level of development, productive structure, technological requirements, number of Internet users per capita, number of households with broadband access, degree of mobile phone penetration, type of tourist resources, types of destinations etc..), however we are confident that the issues presented below will be shared, to a greater or lesser extent, by most of the countries of the region.

7.2 Policy Issues

7.2.1 Innovation and Technology as Levers for Tourism Competitiveness

The main idea that emerges from the analysis undertaken relates to the importance the development of active policies has and will increasingly have in the coming years in the Caribbean region to encourage the incorporation of innovation and technology as a tool at the service of its tourism development strategies as a lever to improve the productivity of their companies and the competitiveness of their destinations.

From a purely technological perspective it is necessary to continue contributing to reduce the "digital divide" that may exist in SMEs and tourism destinations in the Caribbean and that of their main competitors in an industry in which tourists are increasingly using new technologies to find a destination and interact with their tourism service providers in these sectors.

For companies in the tourism industry, in the current financial and technological context, knowledge and use of Information and Communication Technologies (ICT) are essential for the development of small and medium tourism companies and to enable their access to global markets, which are increasingly segmented, through the online promotion and marketing of their services.

From the perspective of innovation in the tourism company area, it is imperative to develop public policies to support improvement of the product and processes in terms of: quality of service, improving physical and technological infrastructure (hardware and software), improving loyalty programmes, development of internet booking systems, management systems for

dynamic pricing, customer satisfaction programmes, etc.

In the specific case of destinations is important to note the role that innovation can play in the process of regional and global repositioning of certain regions whose image and tourism product have become a little obsolete and that have little capacity for differentiation compared to similar destinations and products.

A good example of this type of policy are initiatives such as the Innovation in Tourism Programme, promoted by Innova Chile Corfo, which seeks to improve the competitiveness of the Chilean economy through four areas: improving the R + D + i environment in companies, seeking business innovation, technology transfer and promotion of entrepreneurship.

7.2.2 Increased Public Investment in Tourism Programmes for Innovation and Technology in the Caribbean

The analysis carried out shows that, with few exceptions, Caribbean countries have underdeveloped financial systems and instruments specifically aimed at generally financing innovation and new technologies projects. When we approach the reality of the tourism sector, and its SMEs in the destinations regarding the problem of access to finance to fund technological developments or implement private tourism innovation projects, the challenges are even greater.

Therefore, it is not surprising that one of the main obstacles for business development and entrepreneurship in the region is precisely that, access to financing sources that understand the peculiarities of the tourism business, its risks and opportunities, particularly when those who request funding are a tourism SME or a micro-sme.

Another element to consider, which also comes from the analysis carried out and, on the other hand, inherent to the productive fabric of the Caribbean, unlike what happens in the nearby countries of North America, like USA and Canada, is the smaller presence that, for various reasons, the private sector has when investing their own equity in the development of innovations and technologies. This lower propensity to invest in actions of this nature, also between the compensate in the tourism industry, means the National Tourism Administrations must make an extra effort to compensate for the reduced presence of resources and activities from the private sector.

From the perspective of the public funding, the study of existing policies to support tourism innovation in the Caribbean region also demonstrates the inadequacy of the resources made available to them by the public administrations.

Aware that the total investment in science and technology programmes in the whole region hardly reach 1% of the gross domestic product (GDP)²³, a target that has been set by many Latin American countries for many years, in the case of specific budgets for tourism the amounts are even less representative of the weight that this activity represents in the economies of the region.

23 http://www.cepal.org/iyd/website/default_001.asp

Research and development expenditure as a % of GDP (Latin America and the Caribbean)



It should be kept in mind that, moreover, the resources mostly come from more general budget programmes for science and technology issues, in which tourism is not their main target, and those from National or Regional Tourism Administrations usually have little relationship. To activate such contacts, creating or constituting working and inter ministerial groups to build bridges between these two administrations, the tourism one and that which manages programmes and resources to support research, development and innovation, becomes crucial.

7.2.3. Implementation of Joint Regional Policies to Support Tourism Innovation:

The Caribbean is, as opposed to other areas of the world, a relatively homogeneous region, made up of small sized countries that share much more than what divides them, both in terms of their climate, geography and culture, as well as from the point of view of their productive structures and models of tourism development.

It is undeniable that tourism development in the Caribbean in the last three decades has been based on the massive influx of foreign investment from a very successful

own model, which tour operators themselves have also exported to other regions, based on the resort and the tourist complex as basic productive units of the "sun and beach" product. This fact means that we find huge similarities between the types of needs and issues that Caribbean destinations and businesses face, from technological abilities that are also very similar, which justify a joint and coordinated approach to the policies that are promoted from their countries .

On the other hand, the very nature of the global challenges facing a tourism industry in the middle of a rapid transformation process, largely as a result of the impact of technology on it, and the fact that the capacity of each of the countries of the region and their destinations to compete globally are closely linked to their ability to compete collectively under the brand name "Caribbean." This makes it much more necessary to have a joint project to design and implement tourism policies in innovation and technology issues, where the work of associations which bring together the countries of the region is essential, such as the ACS (Association of Caribbean States), CARICOM (Caribbean Community) and the OECS (Organisation of

Eastern Caribbean States) as well as the role of intergovernmental institutions and international organizations in the region as well as the IDB itself, the OAS (Organization of American States), the CELAC (Community of Latin America and Caribbean States) or CAF (Latin American Development Bank). It would be advisable to establish new forms of collaboration by promoting networks of institutions, companies and experts in the region committed to the technological development of the Caribbean in the same way they exist at the European level with initiatives such as Eureka Tourism24 or the Tourism Sector Technology Platform (Thinktur).

²⁴ <http://www.eurekatourismplus.eu/>

7.2.4 Training and Education in Innovation and New Technologies

One of the key elements to make innovation and new technologies be incorporated in the tourism sector, both from the point of view of their businesses and their destinations, are training and skills policies for human resources in the sector. Investing in the creation and consolidation of own skills through training.

Most Caribbean countries have a large skills gap in this area, to the extent that this know-how is not usually part of the training curriculum of most universities and vocational training in the region, and is much less specifically applied to the tourism sector. It is therefore essential to develop specific policies and programmes in the region to strengthen these skills.

A good example of these types of policies are the initiatives developed in Spain with Avanza Tourism Training Plan, with projects or actions relating to the training of e-business professionals in the tourism sector in the areas of: knowledge of the online business management models; online marketing strategies; Internet presence and customer relationship and development of management skills. This is part of the Spanish strategic digital plan which is divided into four action areas: digital citizenship, digital economy, context, and education and public services, giving priority to the financial area with support to SMEs, vocational training, technological loans and research, development and innovation. Likewise, to interact with major institutions for public and private education in the region to incorporate such knowledge into their teaching programmes.

7.2.5 Commissioning of ICTs Innovation Based Tourism Observatories

It is also essential to enhance the implementation in the region of centres of excellence for research in the field of tourism innovation and associated technologies, R & D centres, training centres, transfer centres or centres that demonstrate tourism technologies, similar to how some countries in other regions have been doing, in order to develop their own skills from which to design customised training programs.

In some countries the implementation of innovation centres and tourist technologies has been made through initiatives of public-private partnerships such as the only one that exists in the world at the Microsoft Centre specializing in tourism in the archipelago of the Balearic Islands, Spain.²⁵ The existence of these centres in the region can promote cooperation with similar centres in other regions which can complement their own skills.

One of the essential functions of such centres is precisely to encourage much-needed transfer of technology and innovation to the market, hotel, catering premises, the passenger transport company, the marketer or manager of complementary activities at the destination. These transfer processes allow solutions to be validated, new features be identified, in short, to adapt technologies to the needs and requirements of specific tourism businesses and their customers.

However, innovation policies in the Caribbean region, and specifically those aimed at the tourism sector in the countries of the region, have paid little attention to technological development opportunities

offered by international cooperation within the region itself or geographical areas that are more developed and where this type of facility or infrastructure already exist.

²⁵ Microsoft Innovation Center Tourism Technologies: <http://www.micct.com/principal/>

ICTs in SMEs, both promoted by the Mexican government.

7.2.6 Supporting Tourism Entrepreneurship in Innovation and New Technologies Projects

The experiences examined show the importance of articulating support policies for young entrepreneurs with technological innovation projects in the tourism sector. Many of the new tourism products and services, new business models and their marketing, are the result of the youngest entrepreneurship, talent flowing from the most technical engineering schools towards the tourism sector in the search for alternative ways to earn a livelihood.

Examples of such policies would be the Entrepreneur Programme promoted by the Ministry of Tourism of the Spanish Government, which was created to facilitate access to finance for entrepreneurs in the tourism sector with the objectives of supporting research and development applied to products in the tourism industry; to strengthen R & D + i processes in the tourism sector; promote the development of innovative tourism products that will improve the industry's competitiveness and profitability; and help companies to access innovative developments to improve their tourism products. Other support programmes for entrepreneurs, which despite not being specific to the tourism sector have a strong presence in them, are the MYSMES Programme, which supports skills training and adoption of technologies in SMEs in Industry, Trade, Services and Tourism sectors, and the National Entrepreneur Fund which supports the incorporation of

7.2.7 Contributing to the Dissemination and Promotion of Innovation and New Technologies

Often certain innovations and technologies are not incorporated in the companies simply due to ignorance of them, especially in rural areas where the main tourist destinations are usually located in the Caribbean. To persuade potential users of their advantages and benefits that can

mean their incorporation into their businesses through awareness actions is essential.

For this reason it is essential that the Caribbean countries invest resources in the organization of conferences, events and dissemination initiatives to explain the benefits of incorporating technology and innovation in the sector. For this, the National Tourism Administrations can rely on sponsors and local partners or suppliers in the tourism sector or technological and innovation solution suppliers who may be interested in contributing to these congresses.

7.2.8 Collaboration with the Policies for Science, Technology and Innovation in other Spheres

The transverse nature of the tourist phenomenon itself requires the design of its policies to take into account the policies of a financial nature, infrastructure and industry that may exist to identify synergies and common goals, more so in an area such as innovation and technology. The cooperation between Ministries or ministerial units with competencies in tourism with those in charge of the systems for science, technology and innovation of the Caribbean countries may allow tourist policies to be enriched with new instruments, measures and indicators, and sometimes have access to a greater amount of resources.

administrations to design policies that take tourism as a source of inspiration or reference to implement from the Ministries responsible for the industrial policies of small and medium businesses, for education or political science and innovation. Some exceptions are countries like Spain where from an existing programme called "Innovative Business Groups (AEIs)" promoted by the General Department for Support to Small and Medium Companies of Minetur,²⁶ a specific programme has been started up for the tourism sector,²⁷ although over time they may end up converging.

In any case it is highly recommended, when there are defined scientific agendas and

The analysis of the countries demonstrates the limited capacity of the tourism

²⁶ Ministry of Industry, Energy and Tourism - <http://www.minetur.gob.es/>

²⁷ http://www.segittur.es/es/proyectos/proyecto-detalle/Agrupaciones-Empresariales-Innovadoras-de-Turismo/#.U9d22-N_uQ4

support for innovation and technology in the country, to incorporate tourism into them as a priority and support them as long as they are consistent with the priorities

and strategies promoted by the tourism administration.

7.2.9 Promoting Innovative Company Clusters in the Tourism Sector

Clusters are today recognised as an important instrument for promoting industrial development, innovation, competitiveness and growth.

very small and scattered nature, is ordinarily reluctant to collaborate and share resources.

It is becoming increasingly more common to find among the list of possible support innovation policies to support SME programmes those to improve competitiveness of companies and the territories in which the clusters and groups of innovative companies settle. In the tourism sector examples of countries that have successfully implemented tourism clusters programmes have also been found, which promote cooperation between companies with complementary skills and specializations that act on a specific destination or tourism product.

This is the case of Chile, the National Innovation Council for Competitiveness, identifies the Tourism industry as one of the sectors with the highest growth potential, so has decided to prioritize it within its cluster policy, which involves the implementation a series of initiatives to strengthen and stimulate competitiveness in the sector. Spain has also for years been promoting a programme called "Innovative Business Groups" the basis on which the Tourism Administration has developed its own equivalent programme specifically for companies in the tourism sector.

Such programmes allow economies of scale to be created in an industry, which by its

7.2.10 Development of Indicators for Tourism Innovation and Technology

The many difficulties faced in countries are seen when they try to join up indicator systems and measure impacts of actions and policies that are implemented in the field, while at the same time recognising the importance of monitoring these. We must be aware of the difficulties that measuring everything related to innovation entails, as stated in manuals by Oslo and Frascati in their latest editions.²⁸

It is therefore essential to work both in the development of public policies on tourism innovation and technology, as well as simultaneously devoting resources to the design of performance measurement systems and indicators and create methodologies to compare their effectiveness in various countries, within the Caribbean region itself.

Therefore we should recommend to National Tourism Administrations to design and incorporate such indicators from the outset to all policies and programmes that are set up in the matter, so that an ex-post evaluation of their outcome can be made.

²⁸ Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data, third edition, 2005
Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development, 6th edition, 2002

Conclusions

Tourism is one of the most important economic activities in the Caribbean region. At the world level, tourism will continue to grow. But at the same time, the market share will continue to be distributed among more and more countries, as opposed to be concentrated on a few large players. This, on the one hand implies opening opportunities for smaller territories. On the other hand, this will make it more difficult for countries to find their own competitive differentiation to gain notoriety among their competitors, as more players are getting their message out.

Thus, the opportunities are plenty for the regions. However, the challenges are also numerous. In an everyday more globalized world, where competitiveness is based on an information and knowledge intensive economy, innovation becomes the only possible way towards sustainable growth and well being of the countries. Innovation is also a tool to address the global challenges identified in the report, which indirectly have an impact on the tourism activity as well, e.g. ageing population, health care, unequal economic development, amongst others.

For innovation to be widespread and impacting competitiveness among a fragmented set of tourism firms a series of conditions are to occur. In a world of global value chains, collaboration between different agents of a territory is necessary.

Moreover, in order to address innovation, it is necessary for tourism entrepreneurs to look beyond their own business, seek collective efficiency benefiting the destination as a whole. In order to address that, locally based tourism firms and destination management organisations and the competent authorities are asked to

understand how their business/entity fits in the destination puzzle and reference issuing markets.

It is being suggested that firms/entities should find what makes them genuine, different, and enhance it as a powerful differentiation element. Then, in order to operationalize such differentiation edge, further knowledge on one's improvable areas and on current and exiting innovation and technology available out there has to be gained.

The technology map should have certainly started closing this gap of knowledge. This is why this report does not only focus on technology-based innovations, rather on the knowledge required to identify the suitable technology needs, this is, the increasing absorptive capacities to be developed are especially highlighted in this document. The integrated and collaborative work between universities, companies and administrations is mandatory not only to transfer existing or new technology to companies, but also, in order to create the required training capacities in the sector's professionals.

An important factor in boosting innovation comes from the local public administration. Thus, the report shows an analysis of how different countries in the World have designed and implemented a number of initiatives and have created the appropriate frameworks through policies and mechanisms. These examples are expected to inspire the Caribbean region or other world regions to confront similar challenges.

Tourism comprehends both the public and private initiative, industries and territory; the social and cultural. Often when the conventional factors do not account for

differences in the economic performance of places, we attribute the difference to culture. But culture, rather than fixed and imputable, is socially constructed and defined (Feldman, 2014).

One of the interesting questions is how place changes from being static to being entrepreneurial. With respect to tourism, the Caribbean Region calls for a new economic logic to facilitate the potential or latent entrepreneurs, to start companies.

There is a need to open the initial decision to become entrepreneurial and engage in technology commercialization to the social and tourism domain requires an invention report or invention disclosure, which is an observable action. Culture changes and evolves. Norms, standard operative procedures, and culture are influenced by expectations and education. Feldman appreciation for diversity, and confidence in the realization of mutual gain for the public

and the private sector is evident. But certainly, this requires different ways of thinking about the economy and the objectives of economic development.

Building successful regional economies is a complex and long-term endeavour. Governments around the world have engaged in providing technology-based economic development incentives to stimulate innovation and entrepreneurship. It may be of interest to prioritize of place-based policies, so that people's sense of place is better understood.

In my conceptualization, tourism provides a platform to organize resources and a place identity toward specific purpose. Location provides a viable alternative, a platform to organize economic activity and human creativity.