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DEPARTMENT OF POSTGRADUATE STUDIES AND
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MASTER PROJECT

GLOBALIZATION AND VIRTUALITY AS ESSENTIAL
ASPECTS OF MODERN TOURISM

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Globalization

*I am from Canada,
Drinking Guatemalan
Coffee in a Belgian
Café, established by
Americans.*

Suffer

*Enculturation,
Our sad indoctrination,
Globalization.¹*

In Life & In Death

*I will always be there,
In your thoughts as a
reality,
In your dreams as a
virtuality.²*

¹ <http://hellopoetry.com/words/138376/enculturation/poems/>, Thomas, DJ. 2010, Jun 26th

² <http://hellopoetry.com/words/215233/virtuality/poems/>, Kaushal, A., Nov 21st

INTRODUCTION

Globalization was a good thing, for as long as there were no terms or even ideas of it- when the whole world was exchanging goods, information and knowledge, when many travelled abroad and were learning foreign languages. It might be that the peak of the this positive development was landing the spaceship "Apollo" on the Moon in 1968, when hundreds of millions were feeling sympathy with Neil Armstrong, while looking at the "Blue planet" as the common homeland.³

Nowadays, tourism is characterized by new organizational and schematic mechanisms which in the surroundings of global as well as regional European trends have been dealt within this paper. Dynamic processes represent an unavoidable challenge of the tourism of the 21st century not only as a constitutional part of world economy, but also representing a crucial factor of its development. There are different opinions about globalization, starting from those accepting it as powerful organizational and management equipment, calling it "Global Bible"⁴, while others warn about unavoidable consequences and concept of unreliability. The unavoidable change in opinions about globalization is becoming an imperative of our times. Globalization fosters territorialization as well as deterritorialization of tourism in many regions of the world. Such complex changes include many international bodies that directly or indirectly make an impact on tourism. Many bodies have been formed directing the development of the tourism on all regional and organizational levels in the process of European integration.

As a result of processes of globalization, virtually everyone now lives in a region that is subject to tourism development. Globalization processes have resulted in greater flexibility, hybridity and difference as various localities are restructured. Such restructuring has, in turn, led to many conventional oppositions and divisions being questioned. The institutionalization of tourism development, meanwhile, takes place at various levels, ranging from the international tourism bodies such as the World Tourism Organization, and national tourism planning bodies down to local level tourism development agencies and nongovernmental organizations. These

³ Elzeser J. (2009), *Nacionalna država i fenomen globalizacije*, Jasen, Beograd, str.5

⁴ Koncul N. (2004), *Položaj turizma u globalnim i europskim integracijskim procesima*, Naše more, Vol 51 2004. No 5-6

institutions are the agents of the deployment of tourism development, the network of new sites of authority that, taken as a whole, constitute the official apparatus of tourism development. It is largely through this network and system of regulatory controls that people and communities are bound to certain cycles of production, certain behaviors and rationalities.

Within these pages the technology and usage of GIS has been clarified, as a changeable feature of every industry and organization and therefore having enormous impacts on tourism, on the visitor and environment. This paper discusses some of the features of a GIS, the general trends in this field and the technology behind it. It also describes the advantages and usefulness of using multimedia, as well as the main subsystems of GIS.

This Master project titled "Globalization and virtuality as essential aspects of modern tourism", divided into six chapters, has clarified the phenomenon of globalization and virtuality, as changeable features of every industry and organization and therefore having enormous impacts on tourism, on the climate, environment, visitor and service.

In the first chapter are shown the terms, its early stages and developing of globalization and tourism. A set of new transportation and communication technologies removed the space and difficulties when it comes to exchanging goods, information or people traveling. Even it suffered the global economic crises, tourism keeps being economically the fastest branch that recovers from the recession.

In the second chapter are shown the terms, its early stages and developing of GIS in general and in tourism. A set of new communication technologies removed the boundaries and difficulties when it comes to exchanging data or people traveling. Although many GIS have been successfully implemented, it has become quite clear that two-dimensional maps with most complex contours and color schema cannot precisely present multidimensional and dynamic spatial phenomena. Most GISs in use today have been developed and designed to support multimedia data and therefore have very extended capability due to the large data volumes, very rich semantics and very different modeling and processing requirements.

The third chapter explains the impact of globalization on tourism, therefore its benefits and disadvantages in the tourism sector, from the visitor and its motivation

and protection, through climate change and cultural resources, to media marketing, social media and e-mail marketing in tourism businesses.

The fourth chapter explains the developing part and enormous impact of virtual tourism, getting the customer's attention fast, giving potential customers the extra reassurance. Virtual Tours bring a 3-dimensional universe to the customers' mobile experience by allowing them to visit and interact with owners anytime they want and from anywhere they are.

The fifth chapter represents the vision of sustainable tourism and the tourist (according to the demand and development) in the future. This is to answer questions of globalization having good or/and bad influence on tourism development. Globalization, being global, always renewable and challenging, thus has two sides of its face.

The sixth chapter represents the vision of sustainable tourism and the tourist (according to the demand and development) in the future. Tourist maps are essential resources for visitors to an unfamiliar city because they visually highlight landmarks and other points of interest. Yet, hand-designed maps are static representations that cannot adapt to the needs and tastes of the individual tourist. In this paper we present an automated system for designing tourist maps that selects and highlights the information that is most important to tourists. It then generates a map that emphasizes the most important elements, using a combination of multiperspective rendering to increase visibility of streets and landmarks, and cartographic generalization techniques such as simplification, deformation, and displacement to emphasize landmarks and de-emphasize less important buildings.

In this Master project, information sources were gathered from secondary books, text books, magazines, newspapers and newscasts.

Methods used: basic analytical (analysis, specialization, deduction), basic synthetic⁵ (synthesis, induction, concretization and generalization), general scientific (hypothetic-deductive, statistical, historical-comparative), special (case study, dialectical, positivism).

⁵ Miljević, I. M., (2007), *Metodologija naučnog rada, Univerzitet u istočnom Sarajevu, Pale*, pg.133-191

1. GLOBALIZATION AND TOURISM THROUGH TIME

1.1 Globalization and connections across space

The first underlying theme which runs through this project is that economic activities are connected across space through flows of goods, money, information and people. These connections are not new, as trading relations between distant people and places involving the exchange of goods have existed throughout much of human history. The notion of globalization, however, emphasizes that their volume and scope of global flows has increased significantly in recent decades. Increased trade and economic interaction between distant places is dependent on technology in terms of the ease of movement and communication across space. In this context, space is understood in terms of the distance between two points and the time it takes to move between them.

A new set of transportation and communications technologies has emerged since the 1960s, including jet aircraft, shipping containerization, the internet, email and mobile phones. The effect of these 'space-shrinking technologies' have brought the world closer together, effectively reducing the distance between places in terms of the time and costs of movement and communication. The growth of the internet from an estimated 16 million users in 1995 to 3 billion⁶ in 2014 has been particularly dramatic.

This new information and communication technology (ICT) infrastructure has made it possible for large volumes of information to be exchanged at a fraction of the previous cost, resulting in 'time-space' compression'⁷. The term was introduced by the geographer David Harvey, who argued that the process of 'time-space compression' has been driven by the development of the economy, requiring geographical expansion in search of new markets and supplies of labor and materials. By overcoming the constraints of geography (distance and space) through investments in transport and communications infrastructure, corporations have reduced the effect of distance as it becomes easier and cheaper to transmit the

⁶ <http://www.internetlivestats.com/internet-users/>

⁷ Harvey, D. (1989), *The Condition of Postmodernity*, Blackwell

information, money and goods between places. As such, time and space are effectively being compressed through the development of new technologies. This is not an entirely novel process, with a previous 'round' of time-space compression occurring towards the end of the nineteenth century through inventions such as railways, steamships, the telegraph and telephone.

While globalization has become a key buzzword of the last decade or so, it should not be viewed as a single inexorable process that people are powerless to shape (though often been portrayed by journalist and politicians as this), but as something that is actively debated and contested by different groups. Two main perspectives on globalization can be identified.⁸

The first, hyperglobalist, position contends that nation states are being bypassed by transnational business networks of production, trade and finance, leaving their governments unable to regulate and control market forces. Globalization is traced to the late 1970s when the UK governments became the first major powers to embrace neoliberal or free market policies, abandoning the interventionist doctrines that had governed economic policy since the 1940s. As a result, restrictions on international investments and trade were reduced. The subsequent growth of powerful multinational corporations (MNCs), allied to the increasing mobility of finance, requires states to follow orthodox pro-business policies. As this suggests, the hyperglobalist perspective closely informed government policies across the world since the 1980s, helping to bring the world that it envisions into being.

Hyperglobalists view globalization as positive, since it increases economic well-being by enabling a more efficient allocation through the market and free trade. At the same time, it represents reduced government interference in our lives, leading to greater individual freedom. This role of government should be minimized to overseeing competition, although a more moderate version emphasizes the importance of investing in skills and knowledge-intensive activities, such as research and development, product design and high-tech activities. Critically, from this 'top-down' perspective, globalization is irreversible. The genie cannot be put back in the bottle and/ nor should it be, given its anticipated long-term benefits.

⁸ MacKinnon, D. and Cumbers, A. (2011), *Introduction to Economic Geography, (Globalization, Uneven Development and Place)*, second edition, Pearson Education, Harlow, England, pg.5-7

The second counter-globalization perspective has been advanced by a new global resistance movement, expressing growing resentment at global inequalities and the way the world economy is being organized and controlled. We use the term 'counter' – rather than 'anti'- globalization since it is the form that globalization is taking, rather than globalization itself, that the movement is challenging. In contrast with the top-down model of economic globalization favored by the hyperglobalist, the counter-globalization movement espouses a more open, participative 'bottom-up' model of globalization, evident in initiatives such as the World Social Forum which was held in the Brazilian city of Porto Alegre in 2001, bringing together different groups and movements. Despite its success in marshalling opposition to 'corporate globalization', the movement faces some important challenges in the years ahead. Very different positions on globalization are evident in terms of the reform/ abolition divide and the geographical scale at which the economy should be regulated. Localists advocate a relocation of the economy and the dismantling of global neoliberal institutions such as the IMF and World Bank⁹- the most radical option- while others call for greater intervention on the national level and globalists favor new forms of global governance and regulations¹⁰.

1.2 On globalization in Europe

At the 15th annual International Hotel Investment Forum in Berlin¹¹, globalization was top of mind and it was characterized by growing demands from world markets and a stagnant European economy. At the annual March conference, more than 1,700 operators, developers and hotel owners from all over the world, came to the Intercontinental Berlin to discuss different topics from global travel trends to specific market demands. Daniel Thorniley, president of DT-Global Business Consulting and Ian Goldin, the director of the Oxford Martin School and professor of globalization and development at the University of Oxford, showed their economic effects beyond provincial borders and put travel trends in an international context. It was pointed out

⁹ Hines, C. (2000) *Localization: A global Manifesto*, London: Earthscan

¹⁰ Monbiot, G. (2003) *The Age of Consent: A manifesto for a New World Order*, London: Flamingo

¹¹ Ricca S. (2012), *Globalization stays at top of mind in Berlin*, *Hotel Management*, Vol 227 2012, No 4

that India and China will represent one-third of global travel and tourism contribution to the GDP by 2022. Even though the overall global performance in the travel sector is up and the European Union "went into decline", Asian nations are growing their travel economies. Goldin considered a macroeconomic point of view of worldwide travel trends, pointing out that the world is at an income growth a point of population growth that together could produce opportunity for innovation. Goldin also stated that the world must think about investment from a different viewpoint. He added that investors must concentrate on reputation and strategy and companies must be prepared with risk strategies.¹²

Thorniley went even further, claiming that this year and moving forward, "more companies and CEOs (Chief Executive Officers) have managed their expectations downward and are finally taking a more realistic assessment."¹³ This means everything should be returned to business fundamentals which will be most profitable if applied to what he called "affordable innovation." He pointed out two current sociological trends- the first one is that the rich are getting richer and the second is that the lower middle-class are also improving while getting out of recession, making it positive for business and humanity. In order to charge cheaper prices and gain volume, we need affordable innovation. He said that this trend is happening in emerging markets, so that we need to do this without compromising our brand and quality. The key point is to look at affordable innovation in emerging markets, like Russia, Saudi Arabia, Mexico, Indonesia, South Africa, Colombia and Brazil.

1.3 Global tourism and the global economic crisis

In order to become to become one of the largest and the fastest growing economic sectors in the world, tourism has experienced continued growth and diversification. Alongside the traditional destinations of Western Europe and North America, many new destinations have emerged. Now almost all countries in the world receive visitors

¹² Ricca S. (2012), *Globalization stays at top of mind in Berlin*, *Hotel Management*, Vol 227 2012, No 4

¹³ Quoted, Ricca S. (2012), *Globalization stays at top of mind in Berlin*, *Hotel Management*, Vol 227 2012, No 4 (<http://www.hotelmanagement.net/events-trade-shows/ihif-2012-globalization-stays-at-top-of-mind-in-berlin>)

and growth has been particularly high in the world's emerging regions, from 32% in 1990 to 46% in 2008 and 47% in 2013 and by 2030 it is expected to reach 57%, which will be equivalent to over 1 billion international tourist arrivals.¹⁴ Tourism has now become one of the major international trade categories. The overall export income generated by international tourism including passenger transport reached US\$ trillion in 2009, or US\$ 3 billion a day. Tourism exports accounted for as much as 30% of the world's exports of commercial services and 6% of overall exports of goods and services in 2009. Globally, as an export category, tourism ranks fourth after fuels, chemicals and automotive products. For many developing countries it is one of the main income sources and the number one export category, creating much needed employment and opportunities for development and becoming a key 'invisible' earner.

Through August 2010 prove that international tourism continues to recover from the decline of 4.2% suffered in 2009 under the impact of the economic crisis. According to the latest issue of the UNWTO World Tourism Barometer, worldwide arrivals between January and August 2010 totaled 642 million. In 2011, growth is continued at a more moderate pace, at around the long-term average of 4%. According to the UNWTO World Tourism Barometer forecasts, in January 2014 growth of 4% to 4.5% is expected in international tourist arrivals in 2014 – above The Tourism Towards 2030 long-term forecast of 3.3% a year. In the first few months of 2014, international tourist arrivals grew an estimated 5% compared to the same period last year, based on the comparatively scarce data reported so far.

In response to the economic events of recent years, the UNWTO has formed the Tourism Resilience Committee (TRC) – a platform for Members to receive and share information on the current economic downturn and its impact on the tourism sector. The TRC has:¹⁵

- Supported the tourism industry in the face of global economic slowdown
- Collected and analyzed economic and industry data to provide real time market information
- Encouraged the exchange of information, experience and good practice regarding response measures

¹⁴ http://dtxqtq4w60xqpww.cloudfront.net/sites/all/files/pdf/unwto_highlights14_en_hr_0.pdf

¹⁵ UNWTO (2011), *Policy and practice for global tourism*, World Tourism Organization, Madrid, Spain, pg.6

Evolution and growth of tourism

Over the last six decades, when international travel started to become more accessible to the general public, tourism has grown consistently from 25 million arrivals in 1950 to 277 million in 1980, to 438 million in 1990, to 683 million in 2000 and reaching 919 million in 2008 but with a decrease to 880 million in 2009. Therefore, it can be noticed that the development of tourism over the last 60 years has been punctuated by declines and recoveries.

International tourism in the world starting from 1950 till 2000 had extremely dynamic development and under the influence of non-economic factors, this successful development was stopped in 2001 when stagnation was present till 2003. From 2004 till 2008 the negative influence got compensated. Because of the world economic crisis in 2009 the decrease of the international tourism was noted, but soon enough, in 2010 the positive tendency of the development from 1950 continued. According to the reached development in the specific years, it is natural to notice the differences in intensity level.¹⁶

International tourist arrivals grew by 4% in 2012 surprising a record 1 billion tourists globally for the first time in history. Asia and the Pacific saw the highest growth across regions, with 7% more international tourists. With an additional 39 million tourists, international arrivals reached 1,035 million, up from 996 million in 2011. Demand held well throughout the year, with a stronger than expected fourth quarter. Despite ongoing economic challenges, growth of international arrivals worldwide continued in 2013 at a similar to slightly slower pace (+4%) and in line with UNWTO's long-term forecast Tourism Towards 2030 which projects an average growth of 3,8% between 2010 and 2020.¹⁷

According to the UNWTO Tourism Highlights, 2014 Edition¹⁸, international arrivals are expected to reach almost 1.8 billion by 2030 (*Diagram 1.1*).

¹⁶ Unković S., Zečević B. (2011), *Ekonomika turizma, dvadeset drugo izdanje*, Centar za izdavačku delatnost Ekonomskog fakulteta u Beogradu, pg.228

¹⁷ Kester J.G.C., (2013), *2012 International Tourism Results and Prospects for 2013*, UNWTO World Tourism Barometer, Vol 11

¹⁸ http://dtxqtq4w60xqpw.cloudfront.net/sites/all/files/pdf/unwto_highlights14_en_hr_0.pdf

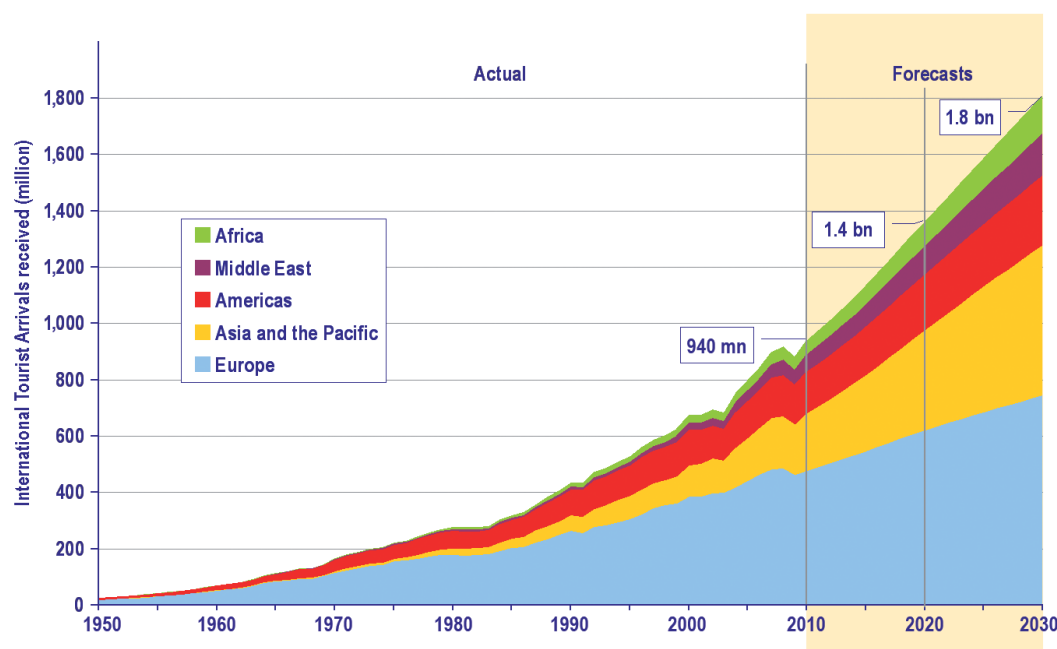


Diagram 1.1

In 2013, international tourism receipts in destinations around the world grew 5% in real terms (taking into account exchange rate fluctuations and inflation) to reach US\$ 1159 billion (euro 873 billion). Growth in receipts mirrored the growth in international arrivals (also +5%), confirming the strong correlation between these two key indicators of international tourism.

Europe, which accounts for 42% of all international tourism receipts, saw the largest growth in 2013: up US\$ 35 billion to US\$ 489 billion (euro 368 billion), boosted partly by a stronger euro. Destinations in Asia and the Pacific (accounting for 31% of worldwide receipts) increased earnings by US\$ 30 billion to US\$ 359 billion (euro 270 billion). In the Americas (20% share), receipts increased by US\$ 16 billion to US\$ 229 billion (euro 173 billion). In the Middle East (4% share) international tourism receipts are estimated at US\$ 47 billion (euro 36 billion) and in Africa (3% share) at US\$ 34 billion (euro 26 billion).¹⁹

2014 has been something of a one-off year due to the impact of the World Cup in Brazil on travel patterns in South America. According to World Tourism Organization (UNWTO) figures, the number of international tourist arrivals to South America grew by close to 7% during the first eight months of this year compared to moderate

¹⁹ http://dtxqtq4w60xqpw.cloudfront.net/sites/all/files/pdf/unwto_highlights14_en_hr_0.pdf

growth of 2.5% in 2013. Much of this growth was generated by Argentines, Chileans, Colombians and other nationalities travelling to Brazil for the World Cup.²⁰

1.4 A tourist in a phenomenon of globalization

More than half a century has passed since what is now known as the ‘tourist boom’ began way back in the 1960s. We have embarked upon the second decade of the twenty-first century and tourism as a mass phenomenon has gone from being a social conquest of the working class, linked to paid holidays that gradually became incorporated into labor law, to an unquestionable and irreversible fact in the mindset of citizens from the countries that gradually improved their standard of living and integrated relaxation and leisure into travel.

It was then that a new industry emerged – the internationalized, globalized and universal services sector – to become part of a society that has taken off in the last few decades, distancing itself from the so-called Contemporary Era to connect with a ‘New Age’ whose sociological, cultural, technological and political profiles have nothing to do with what we have seen throughout the history of humankind. In the 1950s, the number of international tourist trips in the world was 25.5 million. A figure that was to be influenced by the end of World War II in 1945, the start of the Marshall Plan in 1947 and the onset of the ‘cold war’ which would last until the fall of the Berlin Wall in 1989. This traveler scenario was encouraged by the economic growth of many European countries, affected by the negative events of recent years, which have resulted in a flow of tourist–travelers seeking sun and sand at a favorable price for their currencies. This was the case of Spain, which at that time became a receiver country for French, British, Germans, Americans, Japanese, Italians etc., although they had their inclinations for specific regions of Spain. In the following years, the number of international passengers and tourists in the world would gradually multiply, reaching 170.6 million in the 1970s and 278.1 million travelers in the 1980s. Crises and unfavorable circumstances did not prevent the rise of tourism in some countries. As time passed, tourist activity grew with hotels on the coast, on the shore, travel agencies carrying new tourists, cars packed with families crossing the border to get to the Costa Brava, the Costa del Sol and planes taking passengers to our appealing

²⁰ http://dtxtg4w60xqpww.cloudfront.net/sites/all/files/pdf/unwto_barom14_02_apr_excerpt_0.pdf

Balearic and Canary Islands. Two decades after this, in the year 2000, international tourism figures reached 687.8 million tourists, and although the ensuing years were witness to very negative circumstances like the attacks on the Twin Towers in 2001, the pneumonia in Asia (severe acute respiratory syndrome, SARS-2003) and the Iraq War (2003), there was only a slight drop of 1.2%, compared with the previous year. However, figures continued at the forefront and in 2005 international arrivals and tourist movements throughout the world reached 806.8 million with earnings of 548.7 billion euros. In 2008 tourism had generated 924 million tourists in the world and earnings of 642 billion euros. According to the international visitors expenditure data reported by the countries visited, international tourism receipts by destinations grew by 5% in real terms, and hit a new record of US\$ 1159 billion (euro 873 billion) worldwide in 2013, up from US\$ 1078\$ billion (euro 839 billion) in 2012.²¹

In the passage of this half century of tourism, society has progressively shaped itself to the socio-political and economic changes of its respective countries and regions. Some of these countries are both receivers and generators of tourist-travelers, with development and progress having led to the middle classes becoming the authentic architects of mass tourism. However, other countries, due to internal or environmental circumstances and situations, have not experienced this same progress and have become unsafe, intolerant places, resulting in a recession for their inhabitants who cannot attain the sufficient purchasing power to travel beyond their borders. But tourism is a scenario full of uncertainties and constant change, euphemistically called 'circumstances'. On the one hand, tourism has continued to grow and remain fast in a society that has converted it into an almost peremptory need to survive the chaos in which twenty-first century society is apparently going to be immersed. On the other hand, some countries have still not developed sufficiently and are still greatly lacking in good infrastructures but have tourist possibilities.²²

²¹ http://dtxqtq4w60xqpw.cloudfront.net/sites/all/files/pdf/unwto_barom14_02_apr_excerpt_0.pdf

²² Gonzalez M.R.(2011), *Half a century of mass tourism: evolution and expectations*, *The Service Industries Journal*, Vol. 31, No. 10

2. GEOGRAPHIC INFORMATION SYSTEM AS THE BASE OF VIRUALITY

2.1 Defining geographic information system and why it matters

There are different definitions of GIS based on aims of various purposes and functions. The definition of geographic information system had many cognitive phases. Experts and theorists were the first ones to inform about new achievements and ideas of GIS and its new technologies. Concerning specificity of elements of geographic information systems, first definitions, logically, were based on IT principles. Onto the based definitions of information theories and information system, theoretical knowledge about space and time were added.

Geographic information system is a computer information system that collects, stores, analyzes and monitors and displays spatial entities and their attributes, in order to resolve complex explorative, projecting and management problems.²³ GIS as Geographic Information System (or Geographical Information System) is a synonym for terms Geoinformation systems and Spatial information system.

In general, humans are confined in their activities to the surface and near-surface of the Earth. They travel over it and in the lower levels of the atmosphere, through tunnels they dig ditches and bury pipelines and cables, construct mines to get at mineral deposits, and drill wells to access oil and gas. It is extremely important to keep track of all of this and know where it occurs, because it is the most convenient basis for tracking. Since everything that happens, happens somewhere, knowing where something happens is of critical importance if one wants to go there or send someone there to find some information about the same place or to inform people who live in the vicinity. It can be said that almost all decisions have geographic consequences.

Therefore, an important attribute of activities, policies, strategies and plans is geographic location. Geographical information systems are a special group of information systems that keeps track not only of events, activities, and things, but also of where those events, activities, and things happen or exist.

²³ Jovanović V., Đurđev B., Srdić Z., Stankov U., (2012), *Geografski informacioni sistemi*, prvo izdanje, Univerzitet u Novom Sadu, Univerzitet Singidunum, Beograd, pg.10

Being so important, location is an issue that many societies must solve. Some of them are so routine, that people usually fail to notice them and some are quite extraordinary. Geographic problems involve an aspect of location, either in the information used to solve them, or in the solutions themselves.²⁴

Some more examples:²⁵

- In making decision where to locate new clinics and hospitals, health care managers solve geographic problems;
- When deciding the routes and schedules of their vehicles, delivery companies solve geographic problems;
- By selecting routes for new highways, transportation authorities solve geographic problems;
- When assessing and recommending where is the best to site retail outlets, geodemographics consultants solve geographic problems;
- When determining what is the best way to manage forests, where to plant new trees and where to cut, as well as where to locate roads, forestry companies solve geographic problems;
- By scheduling recreational path maintenance and improvement, National Park authorities solve geographic problems;
- When deciding on how to distribute funds for building sea defenses, governments solve geographic problems;
- When selecting hotels in unfamiliar cities, giving and receiving driving directions, and finding their way around theme parks, travelers and tourists solve geographic problems;
- When utilizing new information technology to make better decisions about what amount of pesticide to apply to their fields, farmers solve geographic problems

Geographical Information Systems (GIS) are computer-based systems

²⁴ Longley A.P., Goodchild F.M, Maguire J.D, Rhind W.D. (2007), *Geographical Information Systems and Science*, second edition, John Wiley& Sons, pg.4-7

²⁵ Longley A.P., Goodchild F.M, Maguire J.D, Rhind W.D. (2007), *Geographical Information Systems and Science*, second edition, John Wiley& Sons, pg.5

enabling users to collect, store, process, analyze and present spatial data (Figure 1).

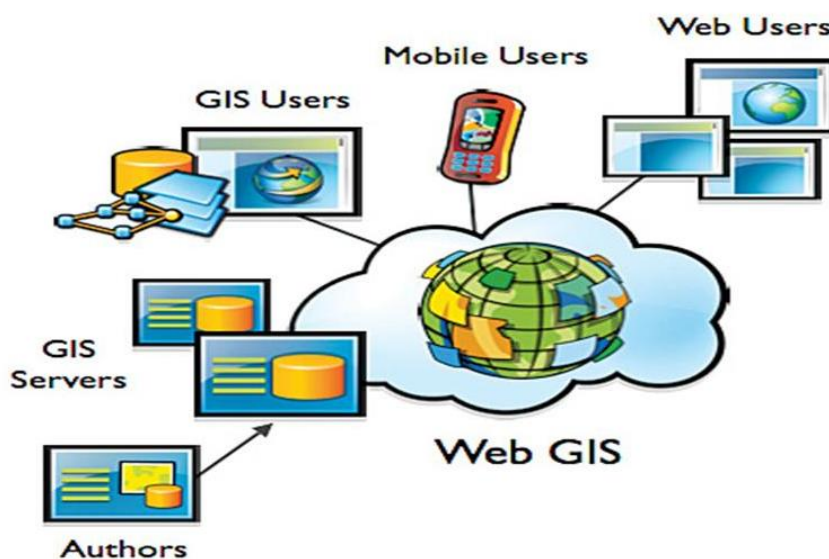


Figure 1 – Users and GIS²⁶

Spatial data provides an electronic representation of information, where GIS references these data elements to a coordinate system, which can be separated into different layers. A GIS system stores each category of information into a separate layer of maintenance, analysis, and visualization that can represent different terrain characteristics, roads, land use, river drainage, demographics information, environmental and ecological data and rare wildlife habitats. A GIS can also store descriptive information of the map features, called attributive data, which are linked to graphics but placed in a separate database from the graphics data. A GIS is made to do the examination of both spatial and attribute data at the same time. Therefore, a GIS can be defined as a computer system capable of assembling, storing, manipulating, and displaying geographically referenced information²⁷ and it can combine geographic and other types of data in order to generate maps and reports, enabling users to collect, manage, and interpret location-based information in a planned and systematic way.

²⁶ http://2.bp.blogspot.com/_2SQ5QmOSMBU/TTgFgGXwSyl/AAAAAAAAADg/izlpBXjYwXc/s1600/Slide4.JPG

²⁷ <http://dspfans.blogspot.com/2008/04/geographical-information-system-gis.html>

GIS systems are dynamic and they use data from many diverse sources such as maps, aerial photos, satellite imagery, and global positioning systems (GPS).

2.2 Types of GIS

GIS application can be always classified under more than one type and following GIS types are not necessarily mutually exclusive:²⁸

- Four-dimensional GIS are designed for three dimensions of space and one of time, while on the other hand, spatio-temporal geo-representations can handle two dimensions of space and one of time
- Multimedia/hypermedia GIS allows the user to access a wide range of georeferenced multimedia data (e.g. sounds and videos, simulations) when selecting resources from a geo referenced image map base. A hypermap is a map that serves as the primary index to multimedia data in a multimedia geo-representation. The storage of multimedia and virtual geo-representations, can be either in extended relational databases, object databases or in application-specific data stores
- Web GIS - widespread access to the Internet, the all-presence of browsers and the eruption of geographic information has made it possible to develop new forms of multimedia geo-representations on the Web. Web-based geomatics solutions are overtaking the traditional Desktop environment where the most future ones are expected to follow the same direction
- In order for the creation, manipulation and exploration of geo-referenced virtual environments to be allowed, Virtual Reality GIS has been developed through using VRML modeling (Virtual Reality Modeling Language). In case of Web-based Virtual Reality GIS, applications include 3D simulation for planning (experimenting with different scenarios)

²⁸ <http://dspfans.blogspot.com/2008/04/geographical-information-system-gis.html>

Multimedia and Geographical Information System (GIS)

Multimedia is a technology that combines various types of data while presenting them in an integrated form. There are several types of data including graphics, text, hyperlinks, sound, images, digital and analogue video and animation.

It has become quite clear that two-dimensional maps cannot precisely present multidimensional and dynamic spatial phenomena, although many GIS have been successfully implemented. It can be said that there is a growing need towards accessing spatial data and it seems that the only way to deal with these issues, is merging GIS and Multimedia.

The development of the Multimedia and Geographical Information System (GIS) has been inspired by the latest advances in computer industry especially in hardware. Multimedia provides communications using graphics, text, animation, and video. When multimedia and GIS systems are used separately, they represent a way to overcome the limitations displayed by the technologies. Multimedia tends to extend GIS capabilities of presenting geographic and other information.

Richer presentation of information and ideas can stimulate interest and enhance information retention by combination of several media. Besides that, they can make GIS more friendly and easier to use. Gaining an environment which facilitates the use and analysis of spatial data will bring benefit to multimedia. As a result, the system has the advantages of both worlds without keeping most of their disadvantages.

2.3 The mobile user

For many people it became so difficult to manage life without a computer. Majority of people need computers to communicate with friends, shop and obtain the latest news, or just to entertain themselves. Computing center was the only place where one could compute in the early days. Computing started its usage in the office by 1970s and at the home by 1990s. From the 1980s portable computers opened the opportunity of computing at the beach, in the garden, on the road, in airports and

airplanes. The wireless access technology (WiFi) now allows broadband communication over Internet using 'hot-spots' in private homes, but also in many office buildings, hotels, airports, restaurants. Computing devices are multiplying so rapidly from the relatively bulky laptop weighing up to several kg to the PDA, tablet computer or the cell phone weighing less than a hundred grams. In just a few years, people are experiencing the improvement of these devices into a single, low-weight and very powerful mobile personal device that acts as computer, storage device and cell phone.

Wearable computer is considered to be the ultimate endpoint of the progression. It is a device, fully embedded in the user's clothing, can be taken everywhere, providing universal computing service which is already available, but sometimes in bulky and expensive form. These devices have an output display to the user's eyeglasses and include a small box worn on the belt, containing the processor and storage.

From the computer center to close to, or even inside the human body, computing has moved. When talking about the wearable computer, which is the ultimate form of mobile computing and greatest interest is the case where GIS is used to analyze the immediate surroundings, when the user is situated in the subject location, that is, U is contained within S. Comparing virtual reality with increased reality represents a convenient way to think about the possibilities.²⁹

Since being easily portable and accessible, mobile devices do encourage tourism communication. Travellers can use their smartphones or tablets to find and share information about the destination they are visiting whilst on holiday or on a business trip. With large number of tourists coming from Asian countries, and China in particular, it is vital that tourism destinations reach-out to tourists. According to the statistics updated in February 2014, 85% of international travellers use smartphones while on a vacation and 46% use tablets. The most popular use of smartphones, while travelling, is for finding restaurants (36% for smartphones, 21% for tablets) and accessing social media (32% for smartphones, 19% on tablets). Also, 44% of travelers use their phones to research travel while they are actually travelling. By the end of 2015, it is considered that 9 out of 10 consumers will have a mobile

²⁹ Longley A.P., Goodchild F.M, Maguire J.D, Rhind W.D. (2007), *Geographical Information Systems and Science*, second edition, John Wiley & Sons, pg.250

subscription.³⁰

An app for the Samsung Galaxy Gear smartwatch, is a very new product that Expedia released in August 2014, is working on one for Google Glass, both focusing on notifications for travellers.

Speed of change requires fast response.³¹

- In order not to lose ground to competitors, travel companies will need to be prompt to accept wearable electronics as part of their strategies targeting always-connected customers
- To be present and easy to reach by customers throughout the whole travel experience in terms of assistance, notifications and service is very challenging
- With companies increasingly focusing on the period after the booking and during the whole trip, this is expected to be competitors' key area in the travel industry over the next few years

Issues in mobile GIS

Being very different from the GIS in the office, GIS 'on the road' is directly relevant to the application where the location of the user is important. It seems great to offer maps that are oriented to the user's direction of travel, rather than north and to provide the capability for maps that show the view from the user's location rather than from above. Certain kinds of interaction can be impractical or less desirable like in a moving vehicle, where it would be dangerous to present the driver with visual displays, unless perhaps, these are directly laid on the windshield (on the field of view). Such issues often use speech recognition to receive instructions, while providing instructions through computer-generated speech. When using wearable devices that provide output on small screens attached to the user's eyeglasses, voice communication may be more appropriate, since there is no way to do a conventional point-and-click with a mouse. Noisy environments, creating problems for voice recognition, may be the only issue that occurs.

Although great steps have been made in recent years, battery technology has not

³⁰ <http://www.stikkymedia.com/blog/2012-2013-social-media-and-tourism-industry-statistics>, updated in February 2014

³¹ http://www.wtmlondon.com/files/wtm_global_trends_2014.pdf

improved as rapidly as other components of mobile system, such as processors and storage devices, so the battery remains one of the most important limitations to mobility. Battery, accounting for the majority of a mobile system's weight, typically remains the major limitation to mobile computing and limits its operating time.

Even though WiFi allows broad band wireless communication, connectivity still remains a major issue and it tends to be: ³²

- Spatial coverage - limited. Only the parallel slower satellite-based systems approach global coverage, since WiFi hotspots are limited to a single building or perhaps just a hundred meters from the router. On the other hand, cellphone-based techniques have wider coverage, but lower communication speed.
- Temporal coverage - limited. Some devices, especially the ones installed in vehicles and PDAs, are unable to upload data within range of a home system and a moving device is likely to lose signal from time to time.
- Noisy. WiFi communications, together with cellphones, tend to 'break up' at the edges of coverage areas or lead to errors in communication as a device moves between cells.
- Insecure. Security often lacks to prevent wireless communication from unwanted interruption, which makes it very easy for someone to bug into a wireless system and acquire important information.

Even though huge progress has been made on all of these fronts, it will still need some years to become possible for GIS to work as efficiently, effectively and safely anywhere in the whole world.

2.4 Digital census atlases

While a more generic GIS database is targeted at users who have considerable experience in GIS, a digital census atlas is aimed at the general public, schools and other non-expert users. Two approaches for producing a digital census atlas are considered in the following paragraphs. A static census atlas

³² Longley A.P., Goodchild F.M., Maguire J.D., Rhind W.D. (2007), *Geographical Information Systems and Science*, second edition, John Wiley & Sons, pg.256-257

consists of a collection of maps and other materials that have been prepared by the census office. It is essentially a presentation in which the user can change the sequence of viewing the content, but cannot change the content itself. A dynamic census atlas, in contrast, combines a digital GIS database and census data in a simple mapping package. The user can use the data to produce custom maps, which can be printed or copied into other applications packages.

A static digital census atlas can bring together maps, tables, graphs and possibly multimedia products such as photographs or movie clips in a visually appealing, user-friendly environment. The presentation can be put together in standard presentation software. Some presentation graphics packages allow the developer to produce a stand-alone version of a graphics presentation that can be distributed together with free viewer software. Most presentations or graphics can also be exported to PDF format, which can be distributed on computer-readable media or via the Internet. Maps can be produced in a desktop mapping package and incorporated into the presentation software using a graphical interchange format or simply the cut-and-paste commands in the Windows environment.³³

2.5 Tourism promotion resources and internet

Sources of tourism promotion reveal the way promotion is transferring a message to the potential consumers, and in the base, belong to the same resources used in promotion of the economy. In that sense, the tourism promotion is affecting potential tourists through their visual and audio senses. Regarding this, there could be distinguished, so called, visual and auditory resources. Visual resources have features of promotion message transmitted through text or picture, while in the case of auditory resources, promotion message is transmitted through the speech or sound based on the auditory senses.

Graphic promotion resources are also characterized by using visual elements,

³³ *United Nations, (2000), Handbook on geographic information systems and digital mapping, UN publication, NewYork*

regarding the fact that promotion's message is going through the text or photo (picture), combining both of those. The most important are: maps, photos (postcards), magazines, guides, travelogues etc. Besides, the group of advertising resources is not only acting visually as graphic resources, but it can also act visually, auditory or combined.³⁴

Different applications associated with Web 2.0 technologies such as social networks (facebook, twitter, my space) pod casting, RSS etc, inspired the widespread use of the Internet for information search about travel and tourism. Many people who travel for tourism purposes could now take information and interact with tourism service providers at any time, without paying high costs, using different forms like writing in chat or e-mail to audio-visual elements associated with tourism demand and supply. During the mid 1990's, many researchers considered The World Wide Web, an instrument for tourism marketing purposes which beginnings were mainly PC-based, enabling marketers to create static online brochures that later evolved into increasingly dynamic, multimedia resources. Costumers are, nowadays, able to make reservations in the tourism sector and purchase products/services directly online without having to deal with intermediary companies. In 2005, the second generation, known as Web 2.0, Web became very popular and transformed the digital world. social networking, user-generated content, social bookmarking, the sharing of information, videos, images and opinions exponentially increased the amount of content on the Web since more Internet users are accessing broadband and surfing the web at higher speeds. Handheld devices, including mobile phones and PDAs, have dramatically increased use of the Web by consumers.³⁵

³⁴ Unković S., Zecević B. (2011), *Ekonomika turizma, dvadeset drugo izdanje, Centar za izdavačku delatnost Ekonomskog fakulteta u Beogradu*, pg.200-201

³⁵ Noti, E. MA (2013), *Web 2.0 and its influence in the tourism sector, European Scientific Journal*, July 2013, edition vol 9, No 20

3. TWO SIDES OF THE MEDAL (GLOBALIZATION)

3.1 Understanding the visitor

Examining visitors and their motivations is crucial in creating demands for products and services and it is of great importance to understand some of the key factors in shaping decision making. The key factors of change, related to the visitor behavior and the impact of key trends on visitor, include location, prosperity, an aging population and increased life expectancy, the rise of low cost carriers, ethical values and attitudes, technology and above all, globalization. Cultural and nature-based experiences are statistically tourism's two greatest strengths - involving considerable frequent traveling, visitor volumes, as well as high spending customers where some growing outbound markets like China, Russia and India are to be shaped in the next 5-10 years.³⁶

Case-study: Understanding alternative motivations to improve the visitor's experience

The Instituto de Planeamento e Desenvolvimento de Turismo (IPDT) is a private, non-profitable and charitable organization. IPDT is helping Portuguese speaking countries (mature and emerging destinations) to become more competitive though looking for alternative holiday experiences as identification of niche markets.

Environmental scanning model has been developed in order to produce knowledge that could be used to attract these markets whose visitor behavior has been analyzed with the specific purpose of getting information to attract these niche markets and construct its promotional campaigns.

At this point, it is very important to convert some of the weaknesses of the destination countries into sustainable development opportunities.

Some niche markets whose motivations are to live with the local community and experience the culture and the living habits of the local community and participate in

³⁶ http://www.developoptourism.com/Special-Interest-Tourism-and-Niche-Markets_-_Nature-Tourism-and-Cultural-Tourism_-_TDS-Consulting-Services.htm

their day to day activities, have been attracted by remote African islands without tourism infrastructure and formal accommodation units.

For example, in an area of low tourism development of a mature destination, signs, as lack of formal directions, were turned into a great attraction for those wanted to experience the sensation and discover the destination on their own. This gives visitors the opportunity to discover new and exciting sites for themselves and interact with local people, so the experience of getting lost several times, makes a stay even more interesting.

There are some regions where the pollution levels resulted in high quantities of plastic accumulation on the beaches or on the streets brought by the winds. Instead of hiding this weakness, the destination informed potential (environmentally conscious) visitors about this and asked them for help, calling people to spend holidays in the destination and join local volunteer teams to help with the cleaning of the beaches.³⁷

3.2 Visitor motivation

Travel motivation is becoming increasingly characterized by a need to “get away from everything” and to use traveling as discovery of place, cultures and of itself. Today, visitors search for leisure, emotional recharge, originality, outdoor activities and fulfilling experience where they are generally seeking for participating and exploring rather than merely relaxing.

Seeking to understand the visitor as a consumer has largely been studied by social psychologist since the 1970s (e.g. Pearce 1982; Pearce 2005). This research has been concerned with why visitors choose to travel, their choices of the different types of holidays and experiences that they consume and the influences upon their behavior. Trying to understand motivation, decision-making and consumer behavior according to travel and holiday-making, there are two critical aspects³⁸:

- Businesses and organizations in the public sector can plan visitor activities
- It is essential for destinations, businesses and other operators to be able to

³⁷ UNWTO, (2011), *Policy and practice for global tourism*, World Tourism Organization, Madrid, Spain, pg.17

³⁸ UNWTO, (2011), *Policy and practice for global tourism*, World Tourism Organization, Madrid, Spain, pg.2

understand what types of visitors and market segments they wish to attract in this increasingly competitive sector

In general, visitors are increasingly seeing themselves as “travelers”, rather than “tourists” and they are looking for indulging in a culture, understanding of the human’s and physical environment, and personal satisfaction from their holiday.

Tourism is:³⁹

- Experimental- travelers seek for exploration and freedom from the limits and familiar things.
- Experiential- travelers are looking for new sensations and authentic experiences where the total experience of the holiday has become larger than the sum of its individual parts.
- Existential- travelers are striving for purpose and personal fulfillment, when participating in a new activity, indulging in sport challenges, learning a new skill and rebounding emotionally with their family or partner.

Visitors are increasingly focusing on the personal fulfillment and an opportunity to reconnect with their soul or family. Rather than passive sightseeing or just relaxing at the beach, some are seeking escape, emotional recharge and adventure.

Suggestions:

Flexible accommodation will be required which allows for different group to stay together. This may include single parents, families of different generations (e.g. grandparents spending time with their grandchildren) and groups of friends. Babysitting services may need to be offered for single parent families. Entertainment may also need to be provided which meet the diverse needs of many generations. Flexible costing which can accommodate different family groups and single travelers, without supplements, will be more important (this applies to both accommodation and transport pricing). Marketing and communications also needs to reflect an understanding of the requirements of these new household compositions.

³⁹ UNWTO, (2011), *Policy and practice for global tourism*, World Tourism Organization, Madrid, Spain, pg.13-19

3.2.1 Rise of low cost carriers and grater accessibility

Another significant trend is the rise of low cost carriers. Affordable transport in general, and in particular the growth of low-cost airlines and cheaper long-haul travel, has made most parts of the world accessible and the increased use of regional airports favored by LCCs (Lufthansa City Centers) has led to improvements in infrastructures and increases in local tourism. In addition, the rise of the internet has enabled travelers to access information on most parts of the world electronically and to make their own independent travel arrangements. Some analysts describe this as a buyer's market - when the rise of the technology and low-cost airlines are combined. It helps explain the rapid boom in low cost travel among a new generation of consumers who have never used a travel agent for their travel arrangements. Dynamic packaging, which enables consumers to build their own package of flights, accommodation, and hire car instead of a pre-define package has further enchased accessibility and flexibility for the consumer. Relaxation in visas requirements has also facilitated greater freedom of movement across borders.

Low cost flights have resulted in declining yields per passenger km/miles traveled, meaning that passenger volumes are now required more than ever to ensure profitability. Mass customization and the selling of ancillary services are increasingly important to ensure profitability. Much tourism demand is now characterized by customization based on the use of electronic technology and the internet. Segments are identified and products and services are developed and marketed to a public that shares characteristics, attitudes, behavior and interests. The scale of the segment may not always be large but there are many where the airline or tour operator is able, through the available technology, to develop what appears to be a bespoke product or service. Such flexibility also allows for trading up, for example the package holiday maker traveling long haul who trades up to fly business class to enjoy a whole luxury. An associated trend is the mixing of experiences, for example where expenditure is restricted on one aspect of the experience (i.e. flying on a low cost carrier) but at the destination, staying in a five star hotel.

As identified in The Travel Gold Rush 2020 prepared by Oxford Economics in

partnerships with Amadeus, in terms of ancillary, this refers to:⁴⁰

- A la carte Ancillary Services, products and services which were previously included in the ticket price such as checked baggage/sports equipment, seat assignment, priority boarding, in-flight meals, snacks, beverages and pillows. This also covers totally new added value services such as “elite security” lanes or guaranteed exit row seats.
- Cross-sell Ancillary Services which are commission-based additional services provided by a third supplier which a travel provider, such as an airline, sells to its customers and includes items such as travel insurance policies, car hire and hotel rooms. Cross-sell Ancillary Services can be offered by various providers including airlines, hotels and cruise companies, they can also be sold by intermediaries like travel agents.

3.2.2 The Drawbacks

For some of the low-fare deals a passenger will supposedly enjoy, many times there's a compromise on this.⁴¹

- Hidden fees. There are many occasions when travelers realize that there are hidden fees, taxes, insurance costs and other added expenses that will increase the amount significantly. It is important to verify the total cost first.
- Two-way tickets. Some low-fare airlines will require a person to buy a return ticket. The cost will generally be the same or even more expensive than getting a regular one-way ticket.
- Bad schedule. Many low-cost flights will limit clients opinions to non-peak hours or days. Airlines usually offer cheap tickets for very early morning or midnight flights, or even have flights delayed or canceled altogether.
- No refunds. Generally, discounted airline tickets will not allow refunds. The no refund policy will require a passenger to schedule the flight properly. Rescheduling might lead to big costs that equal regular ticket.

⁴⁰ <http://www.amadeus.com/amadeus/documents/corporate/Travel-Gold-Rush-2020-EN.pdf>

⁴¹ *Traveler tips* (2013), April 22, <http://travelertips.org/tips/advantages-disadvantages-of-low-fare-airlines/2112/>

- Baggage restrictions. Many passengers are also restricted to carry-on luggage only when using low-fare tickets and sometimes charged extra for checking in or have to pay huge fees for excess baggage.

Therefore it is always good to check the background and reputation of the airline company when it comes to offering low-fare flights or even getting feedback from frequent travelers and then checking for great deals on the website.

3.3 Protecting the visitor

During the last 20 years, developments in consumer law in many countries have required the tourism sector to pay greater attention to its Duty of Care of passengers. Much of the impetus for this can be traced to the Package Travel Directive – PTD in 1990. This Directive has been an important milestone in the protection of European consumers going on holidays and also applies to other travel arrangements provided that there is a “package” combining at least of the following: transport, accommodation and other visitor services. The Directive defines a range of the organizer’s and retailer’s obligations and liabilities as well as the related consumer rights and insists on:⁴²

- Clear information in brochures.
- Certain essential information to be provided to consumers at the pre-contractual stage.
- Certain standard terms to be included in the contract.
- Providing consumers with assistance on the spot, if they experience difficulties in relation to their holiday or travel arrangements
- Protection against being provided with substandard services and compensation where these are provided.
- Insolvency protection if the tour operator went bust.

During the two last decades, the development of the internet together the emergence of low-cost air carriers have revolutionized the way in which visitors as consumers organize their holidays. A certain amount of legal ambiguity is created and uncertainty for businesses and consumers and the number of consumers protected

⁴² UNWTO (2011), *Policy and practice for global tourism*, World Tourism Organization, Madrid, Spain, pg. 31

by the PTD is decreasing. Steps are being taken to revise the PTD to ensure consumer protection for those who have put together their own 'dynamic packages'.

There is also a move to understanding visitor well-being and the wide range of agencies needed to care for the traveler as a host in a country and to make provision for their needs when staying in a strange and unfamiliar environment. Therefore, many popular resorts and destinations have introduced a Tourist Police Force to manage the impact and effect of increased levels of crime associated with the development of tourism and the rise of visitors as targets for crime and harassment. Similarly, major destinations have to cope with the seasonal rise of visitor health issues in the existing medical infrastructure primarily designed for residents so as to help protect the well-being of the visitor when accidents, injuries and trauma occurs. This raises the thorny issue of whose responsibility is visitor well-being and who should be charged with the coordination and management of well-being issues in the destination, highlighted in scenario planning exercises associated with the impact of crises (e.g. a flu pandemic). Issues are raised regarding how to handle the tourism population as a mobile and visible element of the destination upon which the local economy depends.

3.4 Climate change and the cultural resources

In recent years, the issue of atmospheric emissions has been strongly framed by the phenomenon of climate change, which is the gradual increase in global surface temperatures that is widely attributed to the release of the so-called 'greenhouse gases'⁴³ by human activity. By some estimates, the global tourism sector accounts for around 5% of all such emissions, symbolized perhaps most cogently by the airline industry. Tourism-related human responses to climate change have mitigation as well as adaption components. With respect to adaption, pleasure periphery destinations in particular have been implicated as sites of high concern given that coastal and alpine areas are expected to be among the environments most impacted by the effects of climate change. This will occur through rising sea level and increasingly intensive and

⁴³ Weaver D., Lowton L. (2010) , *Tourism management, fourth edition*, John Wiley & Sons, pg.256

more numerous storms in the first case, and through the loss of snow cover in the second.

The drainage of land areas may be affected, with consequent increases in area flooding, with implications for buildings and accessibility. Architectural heritage can also be affected by increased wind speeds, either through damage to such as monasteries or tower houses, many of which are exposed locations.

Through costly, there are number of possible adaption strategies for cultural heritage destinations.⁴⁴

- Master plans and response: e.g. water supply planning (in drought susceptible destinations), risk assessment and preparedness strategies, and implementation of early warning systems (e.g. flooding).
- Scientific monitoring survey programs to assess changes and necessary protection.
- Reconstruction and stabilization of historic assets such as architecturally rich buildings and archeological sites using a combination of traditional materials and skills (to preserve their historic aesthetics and attraction), and modern engineering techniques to enhance their longevity.
- Product diversification: for example: opening up new 'micro' destinations and attractions within an adjacent area to an already popular heritage site.
- Combining traditional materials and skills with modern engineering when reinforcing, stabilizing and renovating historic sites.
- Education and awareness raising on minimizing external stresses; increasing the profile and knowledge base of users and stakeholders of the undermining nature of external stresses to a destination struggling to deal with the impacts of climate change.
- Reduction or removal of external stresses such as overuse and pollution and the case of marine resource.

⁴⁴ UNWTO (2011), *Policy and practice for global tourism*, World Tourism Organization, Madrid, Spain, pg.64

Climate change impacts and implications for tourism⁴⁵

Impact	Implications for tourism
Warmer temperatures	Changed seasonality, heat stress and cooling costs for tourists, infectious disease ranges, changes in plant-wildlife-insect populations and distributions
Shrinking glaciers and decreasing snow cover	Increased snow-making costs due to the lack of snow in winter sport destinations, aesthetics of landscape reduced and shorter winter sports season
Increasing frequency and intensity of extreme storms	Tourism facilities' risks, increased insurance and business interruption costs
Reducing precipitation and increasing evaporation in some regions	Water shortages, desertification, competition over water between tourism and other sectors, increased wildfires threatening infrastructure
Increased frequency of heavy precipitation (in some regions)	Changed seasonality brings damage to tourism infrastructure and flooding damage to historic architectural and cultural assets
Sea level rise	Loss of beach area and higher costs to protect and maintain waterfront
Sea surface temperatures rise	Increased marine resources and aesthetics degradation in scuba diving destinations
Changes in terrestrial and marine biodiversity	Loss of species and natural attractions, high risk of diseases in tropical-subtropical countries

Adaption includes the adjustment that are made in response to such perceived threats by industry (e.g. stronger building codes for seaside hotels, alternative activities for longer off-season in ski resorts), but also the decisions made by potential tourists. Consumers, for example, may believe media reports that the Great Barrier Reef is dying due to higher water temperatures, and decide instead to visit cooler water reefs in higher latitude location. In such a case, industry adaption must

⁴⁵ UNWTO (2011), *Policy and practice for global tourism*, World Tourism Organization, Madrid, Spain, pg. 65

then also include public education and/ or investment in destinations adjacent to more resilient coral populations or higher altitude snowfields.

The impacts of climate change and economic downturn will affect the following groups and patterns:⁴⁶

- the vulnerable groups and poor countries, such as South Africa (Kruger National Park in Zambia), are facing the impacts of climate change
- communities in Small Island Developing States, already facing the impacts of sea-level rise
- less-developed countries with high levels of poverty (destinations will see less tourists as a result of slow travel campaigns and increased travel costs)
- small and medium businesses in developed countries (as a result of lowering wages, job loss, and the increasing need to educate staff for greener jobs in accommodation and tour operation)
- future regulations and legal frameworks will affect the frequency of international travel (as a result of increasing costs, taxes, and other add-ons)
- the behavioral change of domestic and international tourists (selecting nearby and domestic destinations compared to international).

3.4.1 Water shortages and supply

Water is vital to human life and survival, with clean and fresh supplies a basic necessity. Climate change will impact upon fresh water supplies, making supplies scarcer in some regions of the world in the future. Tourism is dependent upon the water supplies for meeting the basic needs of visitors (drinking, sanitation and hygiene).

Tourism has to compete with other sectors of the economy (e.g. agriculture and industry) and domestic needs for water supplies, and studies have shown that the

⁴⁶ Vijay Reddy, M. (2013), *Global Tourism and Travel Industry: Performance During the Double-Dip Recession and Recommendations for Transition to a Green Economy*, *The World Financial Review*, www.worldfinancialreview.com/?p=977, January 14th 2013

average tourist water usage can range from 200 litres a day through 2,000 litres. The latter usage poses significant pressure on the resource when water is already relatively scarce in the destination. As a World Wildlife Fund ⁴⁷ study of tourism and water use in the Mediterranean found, average tourist water use in Spain ranged from an average of 440 litres through to 880 litres where swimming pools and golf courses were present. If this is examined in relation to tourist flows, then areas experiencing a net decrease in water consumption are the United States of America and North East Asia while areas experiencing a net increase are Europe, the Caribbean and SE Asia, as a result of the summer movement of north to south flows of tourists (around 116 million each year).

The UNWTO highlighted several issues along with the threats and human risks which water sourcing posed for tourists. In small island states, water supplies can be directly impacted upon by the highly consumptive demands of tourists. Some of the islands are now seeking external supplies of fresh water in the peak season delivered by water tank ships. In addition, discharges of untreated sewage into the sea water can damage the quality of the marine environment for visitors. In some desert and small island settings, desalination has become a means of servicing fresh water needs although this has very high financial and energy costs, thereby adding to greenhouse emissions. Other areas which have particular problems in relation to water provision for tourism are the Middle East, especially the United Arab Emirates with its reliance upon desalination where it exceeds its renewable water resources. There is also significant debate over the possible political conflict that may arise over access to water supplies as a vital resource. Water overuse impacts on the long-term sustainability of sources that rely on aquifers and artesian wells which may be polluted with sea water in small islands where over-extraction permits the invasion of salt water. Additionally, the impact of climate change compounds the issues of availability and distribution of water supplies.

Among the most obvious solutions will be the reduction in water use (such as removing the irrigation of vegetation in accommodation establishments and replacement of vegetation with more drought tolerant varieties), redesigning swimming pools and their use of water and increased use of desalination for large resort hotels (despite the obvious impact on greenhouse gas emissions). Golf

⁴⁷ UNWTO (2011), *Policy and practice for global tourism*, World Tourism Organization, Madrid, Spain, pg.70

courses are often cited as having significant water consumption and this may be mitigated by using specially treated effluent water, rather than portable water, for irrigation and planting drought and salt resistant grasses.

3.4.2 Case study - A billboard with drinking water (Lima, Peru)

Challenge: Lima is the second-largest city in the world that's set on a desert. And despite the fact that atmospheric humidity levels are often as high as 98%, the annual rainfall is very low indeed (around 28mm, or just over 2mm per month). Water is therefore a precious resource in short supply.

Solution: Researchers at the University of Engineering and Technology (UTEC) in Lima and advertising agency Mayo Peru DraftFCB joined forces to launch a billboard that captured water moisture in the air and turned it into clean drinking water. UTEC, which was founded only a year ago, wanted to put "imagination into action" and show that it is possible to solve people's problems through engineering and technology.

"A billboard that produces drinking water from air,"⁴⁸ says the billboard up high. The panel is strategically located in the village of Bujama, an area south of the capital city that is almost a desert, where some people have no access to clean water.

Access to all

Despite tough conditions with little rain, air humidity reaches 98%. It is spoken from the university that the panel traps humidity in the air and transforms it into water. Internally, the panel consists of five devices that extract water vapor from the air using a condenser and filters. Water is stored in tanks at the top of the structure. Once filtered, it flows down a pipe connected to a tap, accessible to everybody. The air was captured and condensed to create water droplets that pass through a filter, purifying the water, before being stored in a 96-litre tank. A tap at the bottom of the board let the residents use the water for drinking, cooking, washing, etc.

⁴⁸ Prados A. (2013), *Advert turns air into drinking water*, <http://www.bbc.co.uk> from March 22nd

It's not entirely self-sufficient, requiring electricity (it's not clear how much) to power the five devices that comprise the billboard's inverse osmosis filtration system, each device responsible for generating up to 20 liters. The water is then transported through small ducts to a central holding tank at the billboard's base, a water faucet. The internal system costs some US\$1,200 (£790) to set up.

Results: The board collected 9,450 litres (about 2,500 gallons) of water in just three months - equals the water consumption of hundreds of families per month.

The neighbors have given the billboard a warm welcome. It has become a local attraction for and motorists and an indispensable part of life in the local village. And it can be imagined what could be accomplished in any number of troubled spots around the world that need potable water with a solution like this.⁴⁹

3.5 New marketing for tourism businesses

Marketing involves the interaction and interrelationships among customers and producers of goods and services, through which ideas, products, services and values are created and exchanged for the mutual benefit of both groups.⁵⁰

The internet began to be useful for tourism business and destinations back in about 1995. Now it is essential and 'e-marketing' and 'e-business' are well known terms. The use of e-business varies. A bed & breakfast business may have a slick website, but use a handwritten exercise book to record all the bookings irrespective of whether they come in by telephone, mail, email or through the front door. Another B&B may have a computerized booking system, but owners attract bookings without a website of their own.

The use of internet and its impact on the society can be considered as one of the key factors of global change at the end of 20th and beginning of 21st century. Therefore, internet use and internet related technologies for marketing purpose, represents one

⁴⁹ Peckham M. (2013), *Finally, a Billboard That Creates Drinkable Water Out of Thin Air*, <http://techland.time.com> from March 5th

⁵⁰ Weaver D., Lowton L. (2010) , *Tourism management, fourth edition*, John Wiley & Sons Australia, Ltd, pg.182

of the biggest shifts in managing marketing activities, especially promotional. The basic use that internet gives to its potential users can be summarized as:⁵¹

- Constant availability under accessible conditions
- Global character
- Providing special values through enabling price and product comparison
- Facilitating process of making decision on buying by evaluating alternative products and offers of service organizations

Collecting information necessary for marketing decisions requires existence of the particular system for continually collecting, analyses and presentation of data/information. That represents the basics of the marketing informational system (MIS) which includes people, equipment and processes in order to collect, classify, analyze, evaluate and distribute the necessary, in-time, correct information to the marketing decision makers.⁵²

The use of modern technology is specific for all the types of organizations in tourism, as well as in tourism destinations. A good example would be computer reservation systems (CRS) of the airline companies, which were developing from 'one-line booking' to Multi Access Systems. Some good examples would be: SABRE (American Airlines), APOLLO (United Airlines), WORLDSPAN (North West Airlines and Delta Airlines), System one (Texas Air) etc. Tourist (travel) agencies are joining into these systems, representing the openness of the systems.

Travel organizers had also formed their own systems, which travel agencies join in (TOP-Thomson Holidays, INTA-International Leisure Group, as well as rent a car organizations (WIZARD- Avis) and hotels (HOLIDAX-Holiday Inn, MARSHA-Mariott, RESERVATIONIV-Sheraton etc.) It is also notable globalization of the information systems, which is associated with the globalization in market, therefore associated with collecting and distribution of global information. The best example of these technological achievements would be global distributive systems AMADEUS and GALILEO⁵³, making tendencies toward creating travel information systems, e.g. destinations data in order to help making decisions in every level.

⁵¹ Popesku, J. (2009), *Marketing u turizmu, Visoka turistička škola strukovnih studija, Beograd*, pg.137

⁵² Popesku, J. (2013), *Marketing u turizmu i hotelijerstvu, Univerzitet Singidunum, Beograd*, pg.59

⁵³ Popesku, J. (2009), *Marketing u turizmu, Visoka turistička škola strukovnih studija, Beograd*, pg.139

Another revolution in the application of new media is already underway. Much faster, higher-capacity, and more reliable connections, wired and (especially) wireless, are in development in most countries. At the same time, more intelligent software devices, especially smartphones and internet-enabled TV services appeared and are beginning to be integrated for the traveler. Mobile phones like Blackberry and iPhone, e-mail and online conferences over Internet became basic tools for management in every sector. Every day 34 million Americans do internet search, while at least 117 million do buying online.⁵⁴

Therefore, the tourism sector can look forward to more change online in the next ten years than in the last ten.

3.5.1 The benefits of e-marketing

Online information is now the primary influence on consumer decision in nearly all major tourism markets. Travelers research their needs using internet more than any other source. According to "Flights Sector Report - Issue9" research, 'Cheap flights' was the most queried term accounting for 17% (450,000) of all flight-related searches using computers and 20% (110,000) of all searches made via mobile devices. Consumers made a total of 3.2 million online searches for flights in May, over 17% of which were made on mobile devices, reveals a new independent report. Whilst queries for flights to short haul destinations were most popular on laptops/desktops, accounting for a 31% share of overall flight-related searches, those for long haul destinations dominated on mobile devices, accounting for 28%.⁵⁵

The development toward marketing "electronic" or "digital" marketing was supported by the increasing internet use, especially World Wide Web for the needs of marketing activities and tourism politics. Therefore, the approach to internet has been changing:⁵⁶

- From mass toward data-base marketing- marketing needs to use the data base technology for precise guidance, especially promotional activities, market

⁵⁴ Bagarić, I. (2010), *Menadžment informacionih tehnologija*, Univerzitet Singidunum, Beograd , pg.152

⁵⁵ Koumelis, T. (2013), *Mobile devices account for over 17% of consumer online searches for flights*, <http://www.traveldailynews.com>, from June 24th

⁵⁶ Popesku, J. (2013), *Marketing u turizmu i hotelijerstvu*, Univerzitet Singidunum, Beograd, pg.170

priorities, especially adjusting messages to the needs of target group

- From mass media toward interactive media- enabling clients to choose when, where and how to meet the offers bearer- directing to individual client needs
- From market participation to enrichment the relationship- enrichment relationship with consumers will be more important than market participation
- From selling to serve the consumers- marketing represents no more simply message delivering but care about consumers
- From the most creative toward technologically the most sophisticated- the best marketing experts are not the most creative anymore (though it is still very important) but technologically the most sophisticated.

E-marketing can enable business to build a stronger brand, to create and sustain top-of-mind awareness among well-targeted potential customers. And it can produce sales against easily measurable costs, with excellent indicators and how to do even better.

The benefits of e-marketing are wide-ranging:⁵⁷

- It allows users to experience dramatic imagery and animation, as well as enhanced communication and interaction
- It can deliver detailed information in a low-cost, timely, location-sensitive, user-friendly way
- It can allow business to research and to improve brand awareness
- It enables rapid, frequent two-way interaction between businesses and customers- and between customers and other likeminded customers.
- Online communications enables the creation of partnerships with other businesses that have a common interest. Business can:
 - Share market intelligence
 - Run cooperative marketing schemes (such as sharing complementary local information on each others' web pages to strengthen the sales offer).
 - Make joint offers (for example, entry to a show, plus accommodation)
 - Adopt a shared approach to branding of the immediate locality or group of services.
 - Finally, e-marketing provides the ability to engage with customers on a

⁵⁷ UNWTO (2011), *Policy and practice for global tourism*, World Tourism Organization, Madrid, Spain, Pg.136

one-to-one basis- whilst still using 'one-to-many' methods.

General benefits of using information system in companies: it obtains more information in less time and therefore making certain functions in the company more productive, enables getting needed information with less costs and improving economy, it helps big and decentralized companies to efficiently use the information in small organizational parts, it helps making decisions with better control of plans, companies' actions etc.⁵⁸

3.5.2 The main challenges

E-marketing makes particular demands on marketers:

- Each facet of e-marketing requires specialist knowledge and skill which needs constant updating to keep pace with innovations. This applies at a strategic level too. Training, coaching and networking with fellow professionals is essential.
- It is only effective through application of customer relationship management (CRM)
- It enables businesses to measure efficiency quickly and to make continuous improvements (Return on Investments- ROI)
- It needs to be integral to the marketing program, not a separate activity
- The challenge for businesses to develop the infrastructure, the skill sets the content to exploit the new opportunities through multiple channels, offline and online.

3.6 Engaging with social network and e-mail marketing

Research from PhocusWright shows two-thirds of those who buy travel online use social networks. This 'do-it-yourself' publishing online was the internet's second revolution. Social networking involves people exchanging information, images, opinions, and comment, or simply chatting, on the web. It is much like 'face-to-face'

⁵⁸ Čačić, K. (2010), *Poslovanje hotelskih preduzeća*, Univerzitet Singidunum, Beograd, pg.311

advice- it's given here and now, and won't necessarily have a lasting presence. It has exploded with the success of sites such as YouTube (video clips), Facebook (with 1.11 billion users)⁵⁹, Tweeter, Flickr (photos) and many other sites like them, as well as forums that may focus on particular topics and blogs. They have huge numbers of participants and very sophisticated facilities for sharing content.

It is useful to distinguish between general 'social' sites and those that focus on providing reviews (user-generated content or UGC), written by travelers, such as TripAdvisor, although there is much overlap between the two.

Travel advice is an obvious topic for sharing views online. Consumers check reviews before making reservations, more than 50% make leisure travel plans according to the reviews they read.

To understand social media fully, staff of tourism business should get involved. Begin at a personal level, by joining in, and getting each other member of the business's marketing team active in at least one channel-such as tweeting on 'Twitter', chatting on Facebook, reviewing on TripAdvisor. Without doing it yourself, it is impossible to get grips with how it is done, why it is so powerful, and which channels are most important.

Then it is possible to move on to identifying the sites that customer use, and to begin to monitor what's said, or not said, about the business. Actions can include:

identifying the sites that customers use, monitoring what's said about the business and responding; adding brief news items on social sites about what is going on for visitors at the business or nearby; looking for subjects that are timely, here-and-now, amusing, or quirky (many businesses are now employing staff specially for this purpose); encouraging customer reviews: as customer leave, handing them a card reminding them to write a review and add pictures; using e-newsletters to give a reminder to do this.

There are many email systems that make it easy to start or refine email marketing activities aimed at prospective and previous customers. Email service providers' systems are low-cost, relatively easy to use and very efficient. They provide many essential facilities such as design templates and authoring systems, advice on content, avoidance of spamming, creating versions of the design for different mobiles

⁵⁹ UNWTO (2011), *Policy and practice for global tourism*, World Tourism Organization, Madrid, Spain, pg.141

and PCs, bounce handling, and an easy 'unsubscribe' service. Building up email address lists:⁶⁰

- Invite users on the website homepage to enroll to an e-newsletter and on arrival or departure from the premises
- On enquiry and booking forms, make the same invitation. Use an 'opt-in' default so that customers do not get the newsletter unless they make the positive choice
- When enrolling, reassure customers that their personal information will not be used for any other purpose and that there is an easy 'unsubscribe' facility. Tell them approximately how often the email will arrive and what will be in it.

Also, it is very important to make newsletters a positive sales tool, with specific offers, as well as sending emails to visitors when they arrive back home by thanking them to encourage happy moments (for example, giving a link to a library of images on sites such as Flickr that visitors can use to add to their own), sending a link to an online customer satisfaction survey, and asking to add a review to their favorite social networking site, blog or forum. And finally, emailing new ideas to stimulate repeat visits (news, events, special offers, competitions and games).

Case study - Development of the UNWTO online platform, 'platma'

The society for Innovation Management and Technology in Tourism, S. A. (SEGITTUR) was founded with the aim of becoming a link between new technologies and tourism. It aims to support tourism promotion and marketing of products and services through the use of new technologies, with particular emphasis on the internet. It also aims to contribute, through research, development and innovation, to improve levels of professionalism in the sector thereby providing tools to facilitate access to new technologies, SEGITTUR also prepare, process and disseminate information which drives innovation in the tourism sector and is currently working with UNWTO to develop the online platform 'platma'.

The tourism sector is polarized, consisting mostly of small and medium enterprises. The promotion and use of collaborative networks along the value chain of the tourism

⁶⁰ UNWTO (2011), *Policy and practice for global tourism*, World Tourism Organization, Madrid, Spain, pg.147

sector can help optimize the resources of companies and enable businesses to find solutions and develop differentiated products. In this context the Society for Innovation Management and Technology Tourism and the Secretariat of the UNWTO Affiliate Members have developed 'platma', a collaborative online platform. This platform uses social networking tools to encourage dialogue between professionals of the organizations affiliated to the World Tourism Organization, and thus provides a tool to build referral network for tourism industry organizations worldwide.

The platform has been developed with the aim of promoting cooperation between different components of the tourism value chain and stimulating 'coopetition' with similar interests. The platform also allows members to interact with the different departments of the WTO, contributing to the Organization's strategic areas of work.

The platform enables participants to work in groups which can access shared workspaces, post content and publications, news, events, or multimedia files, contact different members of the network, create blogs and discuss and evaluate the different contributions of members. In addition, participants can access online interviews with leading industry experts and conduct opinion surveys. The platform promotes the exchange information, experiences and best practices among industry organizations quickly and dynamically, and will provide the ideal tool for UNWTO to listen and to engage with its Members. The platform www.platma.org entered into its trial phase in the Fall 2010, and in was officially launched in early 2011.⁶¹

⁶¹ UNWTO (2011), *Policy and practice for global tourism*, World Tourism Organization, Madrid, Spain, pg.145

4. VIRTUALITY

4.1 Virtual reality

Providing a window into the world is one of the greatest strengths of GIS. For example, a researcher in an office in Nairobi, Kenya, can combine images from satellites using topographic data base, data on roads, soils, and population distributions, all acquired through internet, in order to collect and analyze data on the effects of salinization in the Murray Basin of Australia. Through the medium of digital geographic data and GIS, the researcher can build up a complete picture of a part of the world that the researcher have never visited before and might learn almost as much through GIS as from actually being there. By doing this, the researcher would save time and money and the analysis could proceed almost immediately. Some aspects would be still missing, like aspects of culture and environment that can best be experienced by meeting the local people and exploring the area.

By presenting information from a database, virtual realities replace what humans normally gather through their five senses: sight, sound, touch, smell and taste. In creating virtual reality (VR), only one of the senses is used - sight. In theory, it is possible to record sounds and store them in GIS as additional features, but in practice, very little use is made of any sensory channel other than vision. The view from above prevails in using GIS applications, which has been criticized by some, on the basis that it distances the researcher from the real conditions experienced by people on the ground.

The biggest benefit from using VR is striving to place the user in distant locations. Detailed systems of VR are capable of indulging and transporting the user into the environment shown in the database by presenting the contents of a database in a three-dimensional environment, using special eyeglasses or by projecting information onto the walls surrounding the user.

Some of the most interesting projects are the ones with the databases built to support near-indulgence in particular environments that regenerate historical heritage like Cultural VR Lab at the University of California, Los Angeles, which supports moving through three-dimensional visualization of the Roman church of Santa Maria

Maggiore and other remarkable structures.⁶²

4.2 Virtual tourism

First time that someone tried using this sort of tourist information system was in 1994 in England. That system provided visitors with walk-through of a 3D reconstruction of Dudley Castle as it was in 1550.

Virtual tour is a computer simulation of some existing locations and objects, usually composed of video or still images. A virtual tour is a series of 360 degree panoramas displayed interactively on a screen, where the viewer feels as being in the photograph and can navigate around it, experiencing the locations as if the viewer is actually there.

Hotels and restaurants have benefited from virtual tours in recent years due to being able to visually demonstrate their facility much better. This leads to reassuring potential diners/guests and an increase in bookings. Even though virtual tours have traditionally been used for the housing market or travel industry, the true benefits of virtual tours are being realized from photo journalism to construction jobs due to popularity on the internet.

Virtual Tours offers professionals, businesses and commercial advertisers, a unique opportunity to promote their work, hospitality and sites directly to prospective audience.

Case study- Virtual London

In 2002, the UK Government announced its Electronic Government Initiative with the objective of delivering all government procurement services electronically by 2005. This has garnered political support for the vision of a "Virtual London" and the 3-D GIS research necessary to create it.

Working at the Centre for Advanced Spatial Analysis at University College London, GIS researchers Andy Smith and Steve Evans are creating a 3-D representation of Central London. The model is being produced using GIS-CAD and a variety of new photorealistic imaging techniques and photogrammetric methods of data capture.

⁶² Longley A.P., Goodchild F.M., Maguire J.D., Rhind W.D. (2007), *Geographical Information Systems and science, second edition*, John Wiley & Sons, pg.250-252

The core model will be distributed via broadband Internet connections, utilizing techniques to optimize sharing of large data sets and create a multi-user environment. Citizens will be able to roam around a Virtual Gallery as avatars in order to explore issues relating to London. Similar models are available for other cities and models of this nature have been used to encourage and enliven public participation in the planning process, particularly with focus upon urban redevelopment proposals.

The model is designed for four audiences:⁶³

- Professionals, such as architects, developers, and planners who are anxious to use a full set of data query and visualization capabilities. For example, architects might place new buildings in the model in order to assess a variety of issues, such as visual impact or likely consequences for traffic and surrounding land use, and law enforcement agencies might use the model for community policing.
- Citizens interested in learning about London or in understanding the impacts of development and traffic proposals. This has obvious links to the development of e-democracy and the evaluation of 'what if' scenarios to enable digital planning by citizens.
- Virtual tourists interested in navigating and viewing scenes, or picking up links to websites of interest. This has implications for the way in which city marketing and regional development initiatives are undertaken.
- Classroom users, with diverse interest in geography, civics, and history, and university-based educators in urban planning, architecture, and computer science.

Geovisualization can make a powerful contribution to decision making and can be used to simulate changes to reality. Yet, although it is governed by scientific principles, the limitations of human cognition mean that geovisualization necessarily presents a further selective filter on the reality that we seek to represent. Mapping is about seeing the detail as well as the big picture, yet the wealth of detail that is available in today's digital environments can sometimes create information overload

⁶³ Longley A.P., Goodchild F.M, Maguire J.D, Rhind W.D. (2007), *Geographical Information Systems and Science*, second edition, John Wiley & Sons, pg.310-312

and threaten to overwhelm the message of the representation. Geovisualization is fostering greater user interaction and participation in the use of GIS as a decision support tool. At its worst, greater sophistication of display may create information overload and obscure the inherent uncertainty in most spatial data: at its best, the media of visualization allow the user to undertake a balanced appraisal of the message of a geographic representation, and to create better description, explanation, prediction, and understanding of GI. The contribution of geovisualization can be viewed as developing and broadening the base of users that not only sources information through GIS, but increasingly uses GIS as a medium for information exchange and participation in decision making. The old adage that “seeing is believing” only holds if visualization and user interaction are subservient to the underlying messages of a representation.

4.3 Virtual Tour 360°

A Virtual tour allows anyone with internet access and a computer to look around a room or view from anywhere in the world at any time of day. They can look left and right, just like they were actually standing within the image.

It is made by taking several photographs of the establishment and stitching them together to produce a very wide photo which is then inserted into a “viewer”.

A Virtual Tour is a full-colored 360° view of an interior or exterior of a property. They immerse a client in the space giving him/her almost the same experience as if a person was actually standing in the room. The tours are interactively controlled by Java or Flash, so no additional software or plug-ins are required to view a tour. The download time is about 15 seconds with ordinary connection.

Virtual Tours are graphic compositions with one or more panoramic scenes. A panoramic scene is a digitalization of a specific place (up to 360 degrees) which can eventually be chained to one or more panoramic scene (for instance, every single room of a hotel is usually a single scene) to create a complete virtual tour. For external environments would be good to realize a scene in every single spot of interest.

4.3.1 Virtual Belgrade

Located on the confluence of River Sava into the Danube, Belgrade has a strategic position and route from central Europe towards Asia Minor. For travelers through South Eastern Europe this means that it is very easy to visit the place over and over again. Today Belgrade spreads across its rivers and over more than thirty hills, all the way to (and around) Mount Avala, the first mountain to the south.

Following the recent trends in the world, Belgrade has been now represented to the world through the newest virtual tours:⁶⁴

- The Museum of Science & Research aims to preserve educational and technical material available in Serbia. On the initiative of academic Aleksandar Despić, a few decades worth of effort to create a science and technical museum succeeded in October 1989.
- Skadarlija Street is a bohemian square, representing is a famous part of Belgrade where one can find its well known taverns, great food, traditional spirit and live music. The street was renovated to provide all the benefits of the 21st century but managed to keep its old charm.
- Vračar Square takes a promenade around St. Sava Square in Vračar where the largest Orthodox temple in the Balkans, dedicated to St. Sava. In its surrounding area one can also find the National Library of Serbia and Karađorđev Park.
- Knez Mihaila Street is the best known and most visited street in Belgrade. It is a pedestrian zone and it is considered to be the favorite place of all Belgraders for walking and shopping but also for those who come to the capital of Serbia for either business or pleasure.
- Belgrade Squares has equally beautiful and interesting squares as big cities like Rome, Paris and London, etc. In some one can find famous buildings and monuments, honey vendors, charming flower, fruit or art booths, while others are packed with cafes.
- Topčider Park is located on the bank of the Topčider river and has for a 150 years been a favored shelter and one of the oldest parks in Belgrade. In the 1830s, during Prince Miloš Obrenović's reign, a lodge which is now turned into

⁶⁴ <http://livinginbelgrade.com/virtual-tours-belgrade.php>

a museum, was built as the central structure of this residential complex.

- The Port of Belgrade has an extraordinary location on the confluence of the rivers Sava and Danube, where the Kalemegdan Fortress forms a stunning setting as one sails into Belgrade.
- The National Assembly of Serbia is the highest legislative body in Serbia. The whole building has a historical significance. The foundation stone was laid by King Petar I Karađorđević in 1907 and the first parliamentary assembly took place in October 1936. The building contains many important documents and valuable works of art.
- Festival of Science provides institutions of research and knowledge throughout the whole Serbia, and it was organized for the fifth time in Belgrade under a slogan “Smart the mind up”. Having the misfortune to miss this event, one now has a unique opportunity to experience it through the virtual tour. The innovative projects were also presented at the festival through many info-points available within the virtual tour.

4.3.2 360° Virtual tours for hospitality and dining

Virtual Tours allows companies and individuals to display their property on the existing website in an interactive way, leaving customers' downloading time within a matter of about 5-10 seconds.

A potential client visiting the website can have a look at the actual manufacturing units, hotels, show houses, or any other kind of existing properties as if the person is actually there. The client can look left, right, up, down, or zoom in/out of anything and go explore any location within the virtual tour (Picture 1):

The property can be taken to prospective clients within a matter of seconds anywhere in the World. Download lasts less than 30 seconds.

Successful project showcasing in the right manner on the portal, can re-enforce customer trust. Owners should keep up the image as a company that genuinely cares for its clients.⁶⁵

⁶⁵ <http://www.fourthdimensionsolutions.com/industry-benefits.html>

virtual effect and enjoy the views, as well as to refer the virtual experience to family and friends.

- Benefits compared to competition

Website and location/property undoubtedly can stand out between competitors through an online Virtual Tour which will generally mean a better business.

- Statistics

Several companies and organizations which are involved in the real estate and hotel business conducted a research showing the following:⁶⁶

- Real estate listings featuring a Virtual Tour are viewed 40% more than listings using only traditional (flat) photographs
- When the potential real estate buyers were interviewed, 75% of them stated that they preferred interactive Virtual Tours over normal photographs.
- 80% of the interviewed online shoppers say that photographic images are very important in making a decision to buy a product or service.
- Online viewers are 115% more likely to book accommodation after watching a virtual tour or a video.
- Travelers searching for accommodation online visit on average 3-4 websites before making a decision and visitors stay generally 3 times longer on that website if a website features a virtual tour.
- 65% of travel bookings are researched online even though only 15% of bookings of accommodation and hotel are made directly on internet.

The World Wide Web has become the most important medium to research travel destinations and products, where interactive Virtual Tours on websites of accommodation and hotels increase online booking with 85%.

4.4 The Interactive 3D Walkthrough

Fourth Dimension Solutions has recently created a first in the world, "The Interactive 3D Walkthrough" application, where a user can interact with a Computer Generated (CG) environment that does not exist, just as one would interact with a 360° virtual

⁶⁶ <http://www.virtualvisitbali.com/virtual-tour-benefits/>

tour, but without waiting for the virtual tour to load for more than 10-15 seconds on a 256 kbps or above connection (Table 1).

A prospective client visiting the website can have a look at what you is intended to be built in the future, whether it will be manufacturing units, homes, hotels or any other kind of property as if a person is actually there. One can look left, right, up, down, or zoom in/out of anything and go explore any location within the walkthrough.⁶⁷

Table 1 – Differences between interactive and regular 3D walkthrough

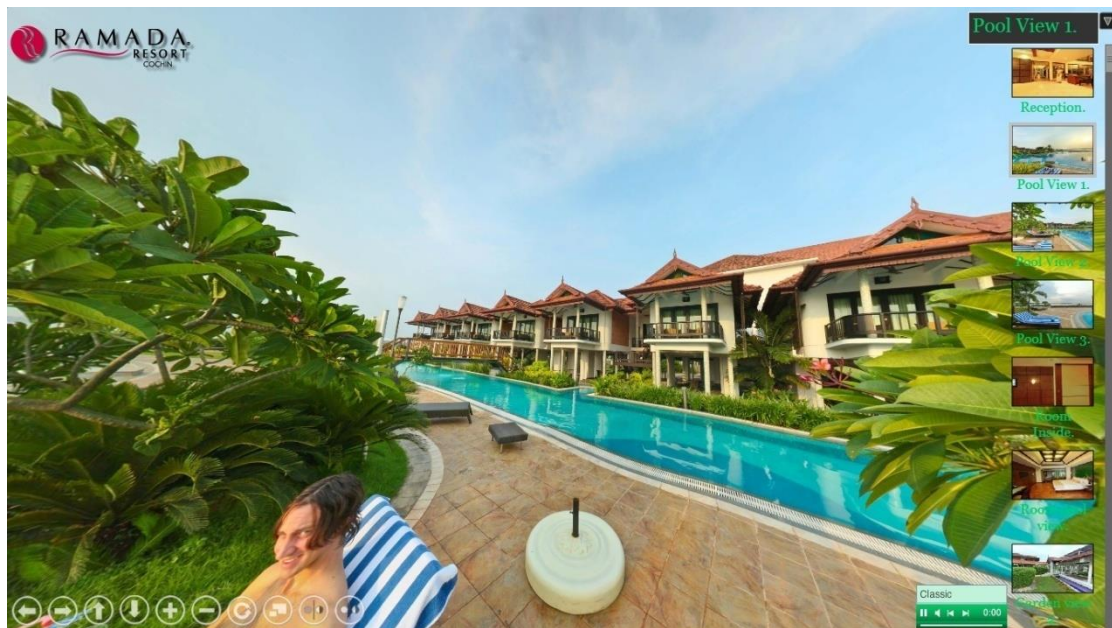
Interactive 3D Walkthrough Vs. Regular 3D Walkthrough	
Interactive 3D Walkthrough	Regular 3D Walkthrough
Being fully interactive, a user can go anywhere and see anything that he/she likes	Since it is a video, the user can not interact with it and has to see whatever is shown
Downloads within 30 seconds in Full HD and within 10-15 seconds in high resolution	Starting after about 1 minute, it keeps buffering and stopping
It is more realistic and life like	The look is artificial
Using a floor plan or site layout, users can navigate to different locations	No such option available

Interactive 3D Walkthroughs hospitality and dining

For projects which are still under construction, the Interactive 3D Walkthroughs are offered in order to visualize the non-existing spaces or building. The Interactive 3D Walkthroughs were created by a group of space engineers who provided all the details regarding to rendering, modeling and texturing. They used perfect lighting technique, together with the right combination of sunlight, artificial light and shadows. Interactive 3D Walkthroughs can be available for commercial, architectural,

⁶⁷ <http://www.fourthdimensionsolutions.com/interactive-3d-walkthrough.html>

residential and industrial buildings or for exterior and interior views of any type of building, landscape designing and photomontage.



Picture 2 – Screenshot of interactive 3D walkthrough

Interactive 3D Walkthroughs have been made to ensure greater ease of use and interactivity for the user and to provide views from any angle (Picture 2) and it comes with an interactive site map for easy movement from one location to another. Just like 360° Virtual Tours, they can be viewed on LCDs or distributed to prospective clients on CDs and DVDs. They are not limited just to a computer.

GIS in tourism can have advantages to both tourists and for the tourism development authorities:⁶⁸

Advantages for the Tourists

- Visualization of tourist sites (seeing what is available in the area they want to travel)
- Valuable information on tourist locations can be embedded in the GIS (videos, photos, product brochures)
- Selective information e.g route planning, accommodation, cultural events, special
- Easily accessible information over the internet (Web based GIS)

⁶⁸ http://www.aianta.org/uploads/FileLinks/94e1c28a87cc4792b0f74c481104e81a/A3_GIS_Tourism_Planning.pdf

Disadvantages:

- Sound is not “native” to the various file types
- Moving objects are “frozen”

Advantages to development authorities:

- Knowing where the customers are coming from
- Planning (regional marketing, community infrastructure)
- Transportation
- Utilities
- Zoning
- Planning for new site selections
 - Do you have the necessary space?
 - Where are the utilities?
 - Will you need to upgrade the transportation infrastructure to accommodate the additional traffic?

4.5 Video virtual tours

Video tours appeared in the market several years ago but did not meet with the success that had been predicted by some people.

The main disadvantage of them is the impossibility of interaction with surroundings; viewers cannot select what they will see; on the contrary, they have to reconcile themselves with the fact that they will see what filmmakers have decided to show them. Among their other disadvantages belong the impossibility of using interactive elements; a large amount of data and therefore demanding requirements for Internet connection; and last but not least also the costs that are higher than the ones for classic virtual tours.

Practice has proved that video virtual tours vanished from the market as quickly as they had been introduced.⁶⁹

⁶⁹ <http://virtualtourphotographysydney.com.au/faqs/i-have-heard-of-video-virtual-tours-are-they-better/>

Some people would say that 360° Virtual Tours are “yesterday’s technology”.

Since online video was the brand new thing, they are assured it is all about YouTube and the video technology itself. It was the technology itself that would sell more rooms, nothing was about the hotel, the potential guest or how the hotel staff and management could use either media. The hotel would usually sell more rooms, meetings and banquets by showing off their features and facilities on the Internet. Video and Virtual Tours each have advantages and disadvantages which are related to the nature of the technologies, how the media is created and especially how it is used. Besides that, they are not mutually exclusive.

Advantages:

- Shows moving objects moving
- Sound comes particularly as a part of technology
- In just one clip multiple locations can be shown
- Video can be made with Still Photos

Disadvantages:

- Lower resolution even on Broadband
- Cannot “go back” or “stop” at a location for a second or longer look
- High production cost for “moving Video”

As a conclusion, when multiple locations need to be in the same file together with the motion and sound, this would represent an excellent way of showing off facilities and features of the particular place on the internet.

4.5.1 Typical 360° Virtual Tour

When it comes to hotel tours, they are mostly using 360° Virtual Images consisted of 10 separate scenes:

The Lobby, Meeting Room, Coffee Shop, Guest Room with 1 King Bed, Guest Room with 2 Double Beds, Fine Dining Room Lounge or Nightclub, Guest Suite, Ballroom set for a Wedding, Pool.

A full set of Still Photos can be shot at the same time by many Virtual Tour providers.

Advantages:

- Prospective guests can view just the scenes they want to see
- Prospective guests can take repeated looks at the same scene
- Lower production costs

Disadvantages:

- Sound is not “native” to the various file types
- Moving objects are “frozen”

Hotel Virtual Tours are very good at showing motionless scenes like hotel rooms, restaurants and banquet rooms.

4.5.2 Typical Hotel Video

Hotel Videos are mostly one to three minutes long “clips” showing the same locations listed for Virtual Tours. Since narration costs more, videos usually have background music and rather than a narration describing the feature or location being shown.

Only some Hotel Videos are made with real “moving” Video combined with Still Photos. Big majority of videos are made completely with Still Photos, making a “Slide Show” with background music, which is much more affordable than “movies.”

For a long time, three technologies were used for online Video: Apple’s QuickTime, Microsoft’s Windows Media Player and Real Network’s Real Player. The generic MPEG format played on all three “players.” Flash has become the most popular Video format with YouTube now being the dominant host for Video.

In Hotel Video is there is only one all-encompassing file. A prospective guest can see many features and facilities from one digital file.

Hotels these days make separate Videos for Rooms, Restaurants, Meeting Rooms and Wedding Receptions.

Accepting commercially produced video at no charge makes a bonus of the single Video clip format that the hotel can post to TripAdvisor.com.

One may think 360° Virtual Imaging is more valuable to the lodging industry overall, but it is important to say that Virtual Tours and Video are not mutually exclusive,

because all depends on how the hotel would use the respective media.

Since having the all-encompassing content, video is a great way to drive many people to the hotel's website from TripAdvisor.com, Booking.com or YouTube.com.

On the franchise site or the hotel's own website, Virtual Tours are more useful when they can close a sale of a specific room type because it can be seen in more details than Video offers.

5. SUSTAINABLE TOURISM AND BEYOND

5.1 The green economy

A gear change is required to move from the traditional economic theory that creating wealth is an end-goal in itself, toward a more holistic economic philosophy which places human and environmental needs equally alongside motivations for private profit. A move towards the 'green economy' is the implementation of such a gear change. Greening the economy refers to the process of reconfiguring business and infrastructure to deliver better returns on natural, human and economic capital investments, while at the same time reducing greenhouse gas emissions, extracting and using fewer natural resource, creating less waste and reducing social disparities.

In order to alter future production and consumption patterns and to cope with the change and the need for inclusive growth, larger investments are needed for sections of the travel and tourism industry. This can be applicable for travel and tourism, as well as for other industries including agriculture to manufacturing, even though there may be more criticism on some of the less performing sectors (e.g. transport, in particular).

This research project suggests ten recommendations for the tourism and travel industry to promote its measures for a green economy change:⁷⁰

1. Community-based skills and making more use of local and original knowledge need to be explored and adopted. Improving eco-tourism practices, carbon emissions could be reduced in less expensive ways in many tourism destinations through better use of ecosystem management and rainforest conservation measures (e.g. reducing emissions from deforestation and forest degradation)

⁷⁰ Vijay Reddy, M. (2013), *Global Tourism and Travel Industry: Performance During the Double-Dip Recession and Recommendations for Transition to a Green Economy*, *The World Financial Review*, www.worldfinancialreview.com/?p=977, January 14th 2013

2. In order to mitigate the impacts of climate change, focus should be added on vulnerable groups and poor countries; enhancing community wellbeing and resilience through investments for green practices and develop tourism-based economic revival frameworks
3. Transforming their business practices to green approaches through government funding, private sector investments and expertise which need to be improved for the accommodation sector and tour and travel operators in destinations (not only in developing countries but also in developed economies)
4. Practicing slow travel forms, enhancing road, rail, and water transport to increase fuel efficiency and improving aircraft design and engines
5. Improving energy and reducing the water usage in accommodation sector by using products such as bulbs, refrigerators and through building construction and renovation (e.g. more ventilation instead of air-conditioning)
6. Reducing waste and recycling in the hotel, events and cruise industries; reducing huddles to favor renewable energy and improve enabling conditions
7. Educating and developing the latest skills among new employees and moving towards green jobs by training the current tourism and travel workforce
8. Encouraging tourists to buy local products and increasing awareness among tourists; respecting local practices and culture and behavioral change and marketing
9. Conservation of forests and other natural resources, indicator assessments with monitoring and reporting; quantifying the costs of ecosystem services through efficient management
10. Emission trading schemes, regulations and setting standards, benchmarking destinations to compare and reduce carbon and the use of bio-fuel as well as carbon disclosure

Sustainable represents one of the key global economic sectors, which highlights sector receiving important status from international organizations such as the UN Division for Sustainable Development New York, besides the campaigns of the UNWTO and the UNEP. In order to work on seven themes to enhance sustainable consumption and production patterns of tourism, The 'Global Partnership for Sustainable Tourism' (lead by the UNEP Department of

Technology, Industry and Economics Paris) involves several multi-lateral partners such as: emphasizing climate change adaptation and mitigation actions within the tourism sector; pollution in key biodiversity areas, reducing tourism impacts and managing protected areas and payments for ecological services; adopting sustainability criteria in tourism investments and decision-making; assisting the small business sector and the tourism businesses.⁷¹

Case study - Homegrown techniques for green cleaning

The minds of hospitality industry professionals and consumers were going toward a sustainable future and hotels are stepping up their green cleaning processes by replacing cleaning chemicals with organic substitutes. Examining the entire cleaning process and identifying all areas that can be improved to benefit not only the environment, but also the hotel, staff, guests, community and bottom line, became very important to the hoteliers.

The Greenporter Hotel, a 30- room, privately owned property located in Greenport, N.Y., is a green-certified hotel with the standard. It is also a member of the Green Hotels Association, where the all-encompassing green cleaning program is derived from a personal commitment to sustainability that spread to the business.

From melting down leftover organic amenity soaps (even used ones) and mixing them with a blend of natural essential oils known to have antibacterial properties such as eucalyptus and lavender, the property created its own house-blended organic cleaning solution for floors, surfaces and windows derived. Only when there are no soaps left behind to make their own house blend of cleaner, the hotel does buy (organic) cleaning products. By doing that, the hotel is able to recycle all of its soaps, providing significant savings when cutting down on purchasing. Customers are also satisfied by the way the hotel smells because the cleaner has pleasant fragrance. Also, the property began recycling older linens where torn sheets work great for windows and towels for the rest of the property. Staffs were recently trained to clean

⁷¹ Vijay Reddy, M. (2013), *Global Tourism and Travel Industry: Performance During the Double-Dip Recession and Recommendations for Transition to a Green Economy*, *The World Financial Review*, www.worldfinancialreview.com/?p=977, January 14th 2013

rooms using minimal electricity, water and cleansers, opting their guests to reuse towels and sheets during their stay. The Greenporter's efforts go beyond housekeeping. The property built a small greenhouse to grow herbs and vegetables for its restaurant, using leftover materials from a renovation last November.

For used cooking oil, the hotel gets a nominal fee, because the oil is picked up by a company that recycles it for various types of machinery. They are also doing shipping and packaging. In the hotel, the staff has recently started baking its own pastries for guest breakfasts, buying local wines for the restaurant, acquiring dry goods in bulk and using only local produce and they are using "to-go" containers for the restaurant and pool that are made from recycled materials and a thermos instead of a hot plate to keep coffee warm in the morning. Conventional hotel suppliers are offering more green products than ever, making them easier to acquire.⁷²

Its noted that it pays for hotels to be sustainable, because it is not just being green, it is the smart use of resources and that will in turn put more money in their pockets to continue to implement green practices moving forward.

Its noted that it pays for hotels to be sustainable, because it is not just being green, it is the smart use of resources and that will in turn put more money in their pockets to continue to implement green practices moving forward.

Green hotels belong to the group of eco hotels, which differ from the other types of hotels by design, materials they use and management of working operations (solar heating, electricity use, recycling), equipment (ecological bedding), contents (healthy food) always for the sake of nature. Ecological component of their product is of huge importance on the market nowadays.⁷³

Capacity expansion is not likely to be a good private investment proposition for the next year or so. In some cases, contraction of currently available capacity may be needed. This is not to say there is no case for new investments. It is to suggest that such investment should be confined to depreciation repair and quality upgrades, without expanding capacity.

⁷² McMullen, S. (2012), *Hotels take holistic approach to green cleaning strategies*, *Hotel Management*, Vol 227, No 4, <http://www.hotelmanagementdigital.com/publication/index.php?p=28&i=104710&ver=swf&pp=2&zoom=0>

⁷³ Čačić, K. (2010), *Poslovanje hotelskih preduzeća*, Univerzitet Singidunum, Beograd, pg.126

5.2 Globalization-localization divide

Globalization and localization are two concurrent but apparently conflicting developments. At one end of the continuum, globalization is facilitated and fostered by continuing advances in information technology and allied to the privatization and deregulation movement. All countries are integrally locked into the global economy and no aspiring market leader can succeed without (or establishing networks in) all major industrialized and emerging markets. At the other end of the continuum is localization with populations responding to this globalization of economies, markets, systems and cultures by looking to their identities.

There will be a growing impact of consumer-led campaigns for sustainable tourism development and for trade in tourism to be “fair” in its distribution of the rewards of tourism to destinations, particularly in the developing country destinations. Although sustainability and fair trade are seen by the south as a northern obsession, since the bulk of visitors come from the industrialized countries, it is important that destinations acknowledge and orientate their policy development and marketing process and strategies towards the principles of sustainable tourism development. In addition, sustainability has become a globalized theme with common concerns for all, particularly with regards to climate change. However, there will be a growing conflict in the minds of the travelling public between the increased socio-environmental consciousness (manifested in increased scrutiny of destinations for sustainability in approaching their tourism development) versus the urge for travel consumption on the other. It must also be noted that there is tendency to think “green”, but not “act” green. Service providers need to ensure that responsible choices can easily be made, without over-burdening customers with feelings of guilt.

Shifting consumer values and demands bring opportunities, as well as challenges. Therefore, recognizing the importance of sustainability as a market driver has become more and more crucial for tourism business in order to stay competitive.

Consumer demand for sustainability still remains difficult to achieve, even though an increasing number of travelers are experiencing alternative travel experiences and socially and environmentally responsible values.

Implementing effective strategies for understanding and responding to the needs,

demands, and preferences are the keys to successfully navigating the new age of shifting traveler values and increasing awareness. The new travel consumer are ever more mindful of the values they receive for their money, more conscious of the elements of sustainability and social responsibility, and, more connected with each other via easy access to online and discussions, exchanges and reviews.

Thinking local with 'volontourism'

More and more travelers are taking advantage of tourism's potential to make a positive impact and are seeking unique, educational and memorable experiences. The local travel supports "bottom-up" approaches to sustainable tourism, with a distinct emphasis on the local people, the local awareness, culture, and the local economy.

There are many opportunities for host communities in both rural and urban destinations for taking advantage of conscious travelers' new and growing appetite for uniquely local and respectful travel experiences.

Voluntourism (travel experiences that volunteers give back to the host community) is being recognized as a unique and effective way for travelers to contribute to the communities they visit, businesses and organizations. Through offering voluntourism programs, travellers are increasingly facing the need to recognize themselves as a consumer product with a strong competitive edge, as well as a community project with a philanthropic mission.

5.3 Roadmap for recovery⁷⁴

Led by the Core Working Group of the Tourism Resilience Committee, a Roadmap for Recovery has been developed. The Roadmap includes a set of 15 recommendations based on three interlocking action areas: Resilience- Stimulus- Green Economy- aimed at supporting the tourism sector and the global economy.

⁷⁴ UNWTO (2011), *Policy and practice for global tourism*, World Tourism Organization, Madrid, Spain, pg.6

Resilience:

1. Focusing on job retention and sector support
 2. Understand the market and respond rapidly
 3. Boost partnerships and 'co-opetition'
 4. Advance innovation and technology
 5. Strengthen regional and interregional support
- I. Stimulus
6. Create new jobs, particularly in small and medium enterprises (SMEs)
 7. Mainstream tourism in stimulus and infrastructure programs
 8. Review tax and visa barriers to growth
 9. Improve tourism promotion and capitalize on mayor events
 10. Include tourism in aid trade and development support
- II. Green economy
11. Develop green jobs and skills training
 12. Respond effectively to climate change
 13. Profile tourism in all green economy strategies
 14. Encourage green tourism infrastructure investment
 15. Promote a green tourism culture in suppliers, consumers and communities

Government should continue planning and investment for infrastructure, such as airports and major convention centers that have well understood capacity constraints and long development lead times.

Passengers in the future

Several interviewees made the point that new technologies could be married to the in-flight experience as a source of new revenue. This would be more than just another form of ancillary revenue generation however, as the merging of in-flight experiences and technologies would require active co-operation and infrastructure development between interested parties. For example, a North American carrier

made the point that partnerships could be established with technology providers such as Apple and/or ISPs.

Others suggested that mobile smartphones with stored passenger preferences could be integrated into airline infrastructure - e.g. slotted into armrests. This would allow airlines to instantly identify traveler preferences by accessing the information travelers want to provide to improve their experience. At least one major Western airline also saw this as a clear future possibility. Others made the point that more could already be done to sell to customers through existing entertainment systems, given many airlines already had access to customer credit card details.

The death of the traditional cabin class and the birth of the personal cabin would allow airlines to quickly and easily understand passenger requirements – both for the flight and beyond (e.g. fare details, food and entertainment preferences, ground transport and accommodation details – or potential needs). It could also speed the blurring of airline classes referred to above – as passenger preferences of meals/entertainment/internet access etc. could be easily accommodated. Potentially, then, there could be a large number of cabin sub-categories. Some of these may be physical (e.g. first class cabins just for sleepers) however, there may also be increasing electronic segmentation of passenger classes as these preferences are catered for.

This raises the possibility that the future may see a breakdown of the traditional cabin class system and the formation of “virtual classes”. For example, some passengers in today’s economy would have access to a wide variety of (paid) electronic services such as Wi-Fi, gaming and entertainment. Others might prefer quiet or distraction free zones. The integration of these different sub-classes with other specialized paying services (such as improved meal services or preferred seating arrangements) could result in further effective fragmentation.

This trend, combined with increased physical separation which caters for specific passenger preferences such as family travel and lone travel, would result in still further fragmentation. One interviewee suggested that there may be as many as 20 effective cabin classes on some flights in the future. Such initiatives would help airlines maximize total revenues per passenger. Expanding along the value chain, like some ancillary revenue initiatives, could therefore lead to considerable changes to the in-flight experience itself as well as providing a win-win scenario by allowing airlines to more effectively cater to passenger needs and increasing overall revenue

yield per passenger. Whether or not a customer focus was in mind, some interviewees point out that airlines such as British Airways and Lufthansa have also moved into expanding along the value chain through ownership of airline terminals – such as Terminal 5 at Heathrow, while some Middle Eastern airlines also own the entire airport. Airports, with their lucrative shopping trade, have obvious potential to be an important revenue stream for airlines.⁷⁵

5.4 Disadvantages of the ‘lifestyle managers’

There could be found disadvantages for both sides, for companies and agents.

Disadvantages for the company could be the feeling of less personal touch, harder to sell, fraud (company loses money), initial costs (hardware, setting/maintaining webpage).

Disadvantages for the traveler: no one to ask them an advice on the holiday like asking travel agents, credit card/identity theft, mistakes can be made when filling in the booking form, site may not be secure.

Agents may face more challenges than airlines in exploiting a generic demand for their services. Nonetheless, as indicated, a key issue is likely to be the repositioning of F2F agents to emphasize the ability to provide services to customers. One possibility is that agents may become “lifestyle managers”, providing higher-margin, tailored services to consumers (e.g. health and fitness or less regular experiences) in their home countries and abroad.

⁷⁵ <http://www.amadeus.com/amadeus/documents/corporate/Travel-Gold-Rush-2020-EN.pdf>

6. GOOGLE MAPS AND GOOGLE EARTH

6.1 Google Maps

Tourist maps are essential resources for visitors to an unfamiliar city because they visually highlight landmarks and other points of interest such as museums, restaurants, parks, and shopping districts. The most effective tourist maps are carefully designed to present this information so that visitors can easily navigate to the places they are most interested in. Tourists often use a combination of public transportation and walking to move from one place to another. Therefore, an effective tourist map must provide rich visual representations of landmarks and points of interest to help tourists quickly identify where they are located and determine the best (most interesting) route to their destination.

In the last decade, digital maps such as those provided by Microsoft Live (www.live.com), Google Maps (maps.google.com) and Yahoo Maps (maps.yahoo.com) have become increasingly popular. Cities are usually in a perpetual state of construction, renovation and renewal in which streets and buildings are created, destroyed and reshaped. One advantage of such digital maps over hand-designed maps is that they are based on continually updated geometric models of the streets and buildings in the city and therefore usually reflect the most up-to-date information. However, these digital maps do not adequately address the two primary challenges of creating tourist maps and suffer from several problems, including:⁷⁶

- Poor recognizability of landmarks. Digital maps often leave out the buildings altogether or show only their footprints. While the location of user selected landmarks can be highlighted using push-pins, it is impossible for a user to recognize the landmark without.
- No context information. Digital maps do not provide context information because they do not highlight visually distinctive buildings that can help users orient themselves while navigating through the city.
- Poor generalization. Digital maps do not generalize less important buildings of

⁷⁶ Grabler F., Agrawala M., *Automatic Generation of Tourist Maps*, University of California, Berkeley

the city. All buildings are presented at the same level of detail, making it difficult for tourists to filter out the information they need. Thus, the maps appear overly complex.

Case study - InterContinental Hotels Group (IHG) using Google Maps

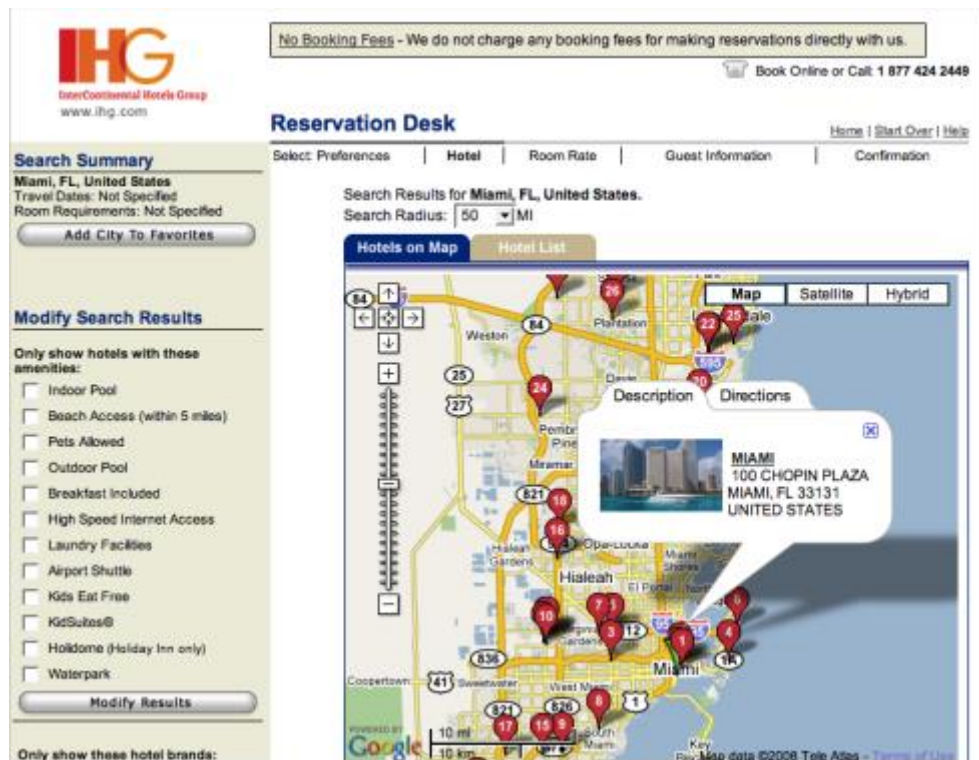
InterContinental Hotels Group (IHG), the world's largest hotel group by number of rooms, with more than 4,000 hotels in nearly 100 countries and territories worldwide, has been welcoming international travelers for more than 60 years. The company's hotels cover seven well-recognized and respected brands: InterContinental Hotels & Resorts, Crowne Plaza Hotels & Resorts, Holiday Inn Hotels and Resorts, Holiday Inn Express, Staybridge Suites, Candlewood Suites and Hotel Indigo.

The company's InterContinental Hotels & Resorts brand has been the international hotel brand of choice for foreign people of high rank, heads of state, royalty, celebrities and those seeking unique and enriching experiences. InterContinental Hotels & Resorts has played host to many well-known people with the world's first truly global hotel brand with over 60 years of insight.

Challenge:

Location is often one of the primary factors in customers' purchasing decision in the travel and tourism business sector. Potential guests want to know if a hotel is close to an airport, where it will be convenient to conduct all-important business meetings, or location in the part of town where they want to go shopping or sight-seeing.⁷⁷

⁷⁷ http://static.googleusercontent.com/media/earth.google.com/en/us/enterprise/pdf/intercontinental_hotels.pdf



Picture 3 - IHG using Google maps

In order to help guide guests to their preferred hotel, IHG has been offering mapping-enabled hotel locators on its sites (Picture 3), including IHG.com and HolidayInn.com. However, the initial mapping solution was lacking in key functionality. The previous maps were static, so customers could neither effectively drag them to obtain the detail they needed, nor the maps looked very attractive, so they needed more effective way to enhance customers' experience.

Solution:

Sullivan started searching for a more interactive mapping solution – one that would provide data coverage for IHG's hotels around the world. The search ended with Google Maps API Premier which enabled the company to add interactive maps to its public websites worldwide and therefore enhance the customer experience by helping them to easily and quickly find the IHG hotel that best meets their needs.

Google Maps API was also used to implement a geocoding system on InterContinental.com that enables customers to do a search by typing the name of a place of interest or tourist attraction to find a nearby hotel. For example, a guest could search on The Smithsonian, and immediately find that the Willard InterContinental Washington D.C. is located close by.

Results:

It was noted that Google Maps API Premier was easy to implement despite IHG's rather complex systems. Customers visiting IHG's sites can click on markers to obtain hotel details like street addresses and driving directions and drag maps to see what else is located in the vicinity. Customer and company reactions to the Google solution have been enthusiastic through receiving very positive feedback, especially from the regions and from various brands since switching to Google Maps. Very positive comments have been given on the online forum from members of Priority Club Rewards, their loyalty program.⁷⁸

If the search results pages have maps, customers will stay an average of one minute longer on there. By Sullivan and his team statistics on how many people are investigating hotels by dragging a map or clicking on a marker representing an IHG hotel, the results show that about a million people each month interact with the maps, 75 percent of whom click on a marker. It is incredible how many maps get loaded and how many people interfacing with them in some way making Google Maps useful and informative for the customers.

Sullivan reports that conversions have increased after implementing Google Maps – the site's visitors are 10 percent more likely to book a stay if they click on a marker. Immediately after launching Google Maps, they had a 35 percent increase in conversion rates for their United Kingdom and Denmark sites.

Sullivan and his team continued modernizations such as adding Google Street View and virtual tours of hotels to the maps. By adding new functionality, Google technology would continue to be incorporated into their technology offerings and keep being innovative all the time and stay many steps ahead of its competitors while Google technology has been considered as a business advantage.

6.2 3D Modeling and Visualization with Google Earth and Google SketchUp

Google Earth is a free software application that represents a digital globe of the Earth, with terrain, aerial photography and 3D models of buildings and other structures. Through three-dimensional imaging and simulation, users can fly through

⁷⁸ http://static.googleusercontent.com/media/earth.google.com/en/us/enterprise/pdf/intercontinental_hotels.pdf

3D communities in Google Earth (Picture 4), rotate it, and zoom it in and out. People can take a look at a particular area of town or look at their own homes or schools.



Picture 4 – 3D modeling (Big Ben, London)

Google Earth is proving to be an effective tool for revitalization programs by having a lot of major cities and big buildings added by modelers. Google Earth helped promotion of regional tourism by showing a historic site within its context which is more visually engaging than just providing text on an online map. One can get directions to a business, find out its hours or look at a community to find the closest coffee shop and see if new stores have opened or, and even read customer reviews. Some of the benefits and possible uses of a 3D model of towns include:

- Allowing community access to the visual toolset and planning as a citizen/group activity
- Cooperating over time and distance
- Creating a quick transformation cycle for models and
- Elaborating low-cost models

Visualizing several alternatives:

- Adding corridor elements like terrain and vegetation
- Arranging traffic system and
- Including street parking

Preserving historical and design projects:

- Maintaining existing structures documentation
- Visualizing structures in context

- Creating renovation scenarios (signs, paint, full facades, etc.) and
- Forming rapid what-if scenarios (what if we run a highway through this district, demolish this building, build a 10-story structure here, etc.)

Marketing:

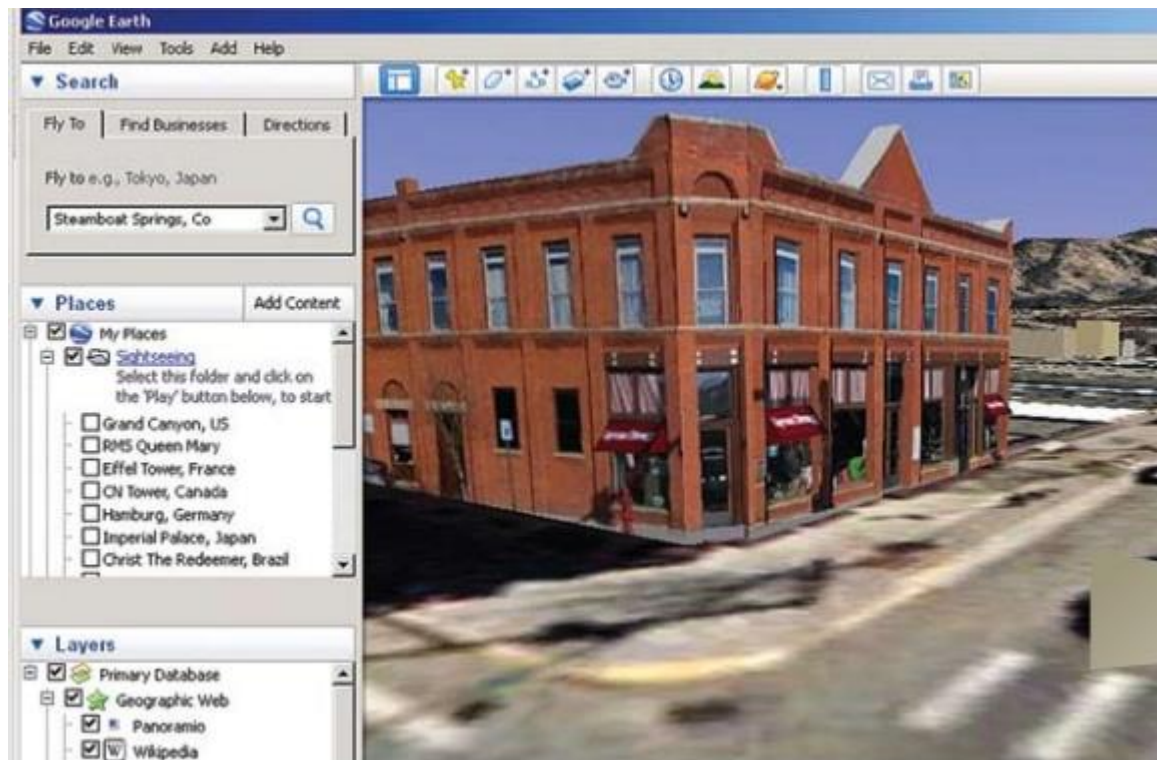
- Giving business information
- Promoting cultural and heritage tourism sites and activities
- Recording tours and creating itineraries
- Promoting Main Street and
- Giving information based on route

Modeling by the People, for the People

The Google Earth tools have achieved the goals that they were designed for: to be easily used and intuitively simple. With Google Earth, other free programs can be used to make the 3D experience even better and to help people enrich it with information and 3D graphics.

There are two 3D modeling tools that Google offers: Building Maker and SketchUp.⁷⁹ Google Building Maker, a web-based application, uses aerial photography already provided and lets users create 3D building models. Unlike Google Earth, one does not have to download an entire program, since it has an easy and fun user interface. However, the images are not yet available for every city and are not as detailed as those one can make using Google SketchUp. In combination with a free Google 3D Warehouse account, Google SketchUp has a great free version that can be used to create and publish 3D models that can be viewed by any Google Earth users.

⁷⁹ Morrison K. (2010), *Visualizing Your Community with Google Earth and Google SketchUp*, Main Street Story of the Week, <http://www.preservationnation.org/main-street/main-street-now/2010/januaryfebruary/visualizing-your-community.html>



Picture 5 – 3D street view (Steamboat Springs, Colorado)

With the Terrain and 3D Building layers selected, this view of a street in downtown Steamboat Springs, Colorado, in Google Earth (Picture 5), shows the Squire-Maxwell Building that was modeled in Sketchup with mountains in the background. If a person clicks on the building, details, including its history and address, pop up. This building's pop-up "advertises" that visitors can stop by a museum located around the corner for more local history.

6.3 Narrated Tour in Google Earth and crowdsourcing

Google Earth gives people the ability to tell their story in a more compelling way, taking users on a narrated tour through the map. As the guide, one can provide a voiceover, show pop-up balloons along the way, and fly users around the globe, creating a video-like experience. Since the tour is within Google Earth, users can pause at any time, explore the planet on their own, and pick up the tour again later.⁸⁰

Creating a product and then relying on the public to populate it with images and

⁸⁰ <http://www.google.com/earth/outreach>

information is exactly what sets Google's 3D rendering software apart from others. The 3D images created by people are added to Earth for everyone to see, is a form of "crowdsourcing" which means everyone is allowed to work together and to create something in the virtual world.

There are mutual benefits for those who enjoy doing this sort of activity by getting an entertainment and for Google that is getting its mapping database populated with lots of 3D correctly located building models, which represents a great way to unite information from a widely diverse group of contributors.

In the world of social media, an online community forms, when groups of people are independently working on something at the same time.

Early users established a group of people gathering together virtually to cooperate and compete with each other.

6.4 The newest street view features

Google's latest Street View shots are considered to be very useful, although they may not be as beautiful as the recent Galapagos Islands images, or as immersive as being able to virtually sail along the canals of Venice, but.

In order to help travelers find their way around, the tech company has mapped over 50 train and stations across the world, 16 international airports and a cable car in Hong Kong. An A380 plane stationed on the concourse at Dubai Airport allows flyers to walk around and find their seat or compare leg room.

These images help people to become familiar with the departure board, find their check-in-desk, layout of stations, or even discover the nearest toilet.

The information is given on how accessible stations are for wheelchair users or parents. An interactive map that plots all of these new additions to its Street View service was created by Google to make them easier to find.

In the UK there are 15 train stations in total, plotted on the map, as well as the main stations in London, such as Waterloo, Victoria, including Manchester's Piccadilly, Liverpool Lime Street and Glasgow Central. One of the most peculiar and authentic locations among Google's new images includes the Ngong Ping Cable Car station on the Lantau in Hong Kong connecting Tung Chung, on the north coast of Lantau, to central Hong Kong via the hills in the Ngong Ping region. In Central America travelers

can explore Mexico's Benito Juarez International Airport, unlike unmapped transport stations or airports in North America. Huge number of stops has also been captured on the Minatomirai Line in Yokohama, Japan, including a handful of subway stations where a highlight is the spooky empty Nihondori Station. On the Street View, stops along the Osaka Municipal Subway have also been mapped.

In the A380, there are many facilities flyers can experience: finding individual seat numbers, exploring the lower deck of the airbus jet, comparing the leg room in economy versus premium economy and even locating the nearest toilets and exits. What cannot be done is neither accessing first class nor the cockpit, for security reasons.

For example, Google Street View program now allows people to visit the check-in counter of their airline in Madrid, map out the way from baggage claim to the bus at Tokyo International Airport and check out where to pick up their rental car at Eindhoven Airport. The passengers can navigate through Waterloo station if they are planning to take the train, so no matter whether they are with a group of friends, family or a baby stroller, they can always be one step ahead. Google's plan is to follow the passengers' demands by mapping more transport locations and adding them to the interactive map in the future.⁸¹

⁸¹ Woollaston, V. (2013), *Google PRE-view: Tourists can now virtually tour major airports and train stations to make sure they know where they're going*, <http://www.dailymail.co.uk/sciencetech/article-2513737/Google-Maps-offers-tourists-practice-run-using-public-transport-abroad.html>, Nov 26th

CONCLUSION

The rise of the new markets are unlikely to repeat the development path which other markets have followed, as specific cultural drivers shape the types of experiences visitors seek. Adding to this the rise of globalization and the impact of new technology, and we can see that the visitor is becoming far more demanding in relation to what they expect from experiences. This is shifting the emphasis from a supply-led philosophy that is often associated with mass tourism to one where great targeting of the product is needed to meet the specific forms of demand. What a visitor is doing became more important than where a visitor is at. Ethical travel is a new mass market, and some governments encourage this with a carbon rebate for volunteering whilst abroad. Therefore, the economy becomes more localized.

At the same time middle classes of countries like China and India will potentially reshape global tourism flows. Climate change will also have dramatic impacts on how, where, when (and even if) people travel. On the other hand, people are more connected than ever and digital media is developing rapidly towards more virtual experiences. If we are to reverse the global decline of biodiversity, mitigate the release of greenhouse gases, halt the degradation of terrestrial ecosystems and protect our oceans, then international trade must become sustainable and responsible. Further, if we are to succeed in eradicating poverty, we will need to ensure that trade benefits the poor. Tourism organizations are tackling the challenge of making trade work for a sustainable development by identifying trade opportunities that arise from a transition to greener economies and assisting countries in harnessing their green trade potential.

GIS is an applied science that provides us with newer, better and faster technological tools with the help of the GIS community, hardware and software vendors. The essence of GIS still lies in the field and district offices, the logging divisions, the engineering offices, and with the small GIS entrepreneurs. A geographic information system (GIS) integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information. GIS allows us to view, understand, question, interpret, and visualize data in many ways that reveal relationships, patterns, and trends in the form of maps, globes, reports, and charts. GIS helps you answer

questions and solve problems by looking at your data in a way that is quickly understood and easily shared.

In this project a comprehensive system for automatically generating tourist maps have been introduced. The system exemplifies how a combination of web-based data mining, perception-guided geometry and image analysis, and advanced visualization techniques yields an effective tool for the automatic creation of tourist maps suitable for everyday use.

One of the greatest appeals of this approach is customization. Users can easily build their own maps according to their preferences and intentions for a particular visit to a city. In contrast to hand-drawn maps, this system makes use of up-to-date information and could thus even accommodate dynamic information such as road closures or specific opening hours of museums or restaurants.

It is quite likely that the future GIS systems will include the additional dimension of time, giving researchers the ability to examine the variations in Earth processes over days, months and years. The advances in computer hardware, software and remote sensing technology will lead to more and more GIS adopting multimedia to represent data. These GIS systems together with the multimedia technologies will result in a powerful and more meaningful presentation of information and ideas which will stimulate interest and enhance information control.

Therefore, we need to realize that globalization and virtuality, as international integrations and the world interchanges have both benefits and disadvantages, and it is up to us to route the process on to a good way, managing to overcome all the challenges while concentrating on the embodiment and performance of tourism by focusing upon the (re)development of visitor's protection and nature-based tourism, while directing GIS into the future to be more user friendly and accessible to the common man.

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