An Investigation into the Feasibility of the Use of Google Earth as a Marketing Tool with Focus on Green Business Environment in the BMW Region of Ireland

by

John Scanlon, BA (Hons)

A dissertation submitted in part fulfilment of the HETAC requirements for the award of:

Masters of Science

in

Marketing

at the

Institute of Technology, Sligo

Supervised by:

Dr. John Hession

August 2008

Acknowledgements

I would like to express special thanks to my supervisor, Dr. John Hession, whose advice and support made this project all the more interesting.

Thanks to Dr. Catherine McGuinn, Course Director and all the lecturing members on the MSc in Marketing programme.

To my fellow classmates on the MSc in marketing programme whose camaraderie was invaluable.

Thanks to my aunt Mary Boyd (nee Clarke). Without her help while in Japan my thesis would not have been submitted on time.

Special thanks to my older brother Patrick whose support, help and friendship has been unquestionable.

To the interviewees and the respondents to the field research a sincere word of thanks.

To my Daddy and Mammy, Pat and Breedge whose support was invaluable throughout the duration of the Masters.

To my Brothers and Sisters, Patrick, Tommy, Joey, Katie, Sarah and Anthony Flores for their support and encouragement as well as helping me stay grounded throughout the MSc.

And finally, I would like to dedicate this research and dissertation to my Grandmother Kathleen Clarke.

Declaration

This research dissertation has not been submitted previously to this or any other Institute/College. With acknowledged exception, this is my own work.

The opinions expressed in this thesis are mine alone and do not represent the views of any other person or organisation.

John Scanlon

Abstract

Purpose: The purpose of this research is to assess the future of sustainable business models and the use of Geographic Information Systems as marketing tools to stimulate economic growth on a sustainable level. The study identifies future trends that will be important to the world economy over the next 5000 days of the World Wide Web. Evaluation of current mapping systems and the development of a mash-up web based GIS application.

Design (Methodology/Approach): A dual design incorporating qualitative and quantitative methods took place. Quantitative surveys were carried out using social networking to sample an international population of Generation X and Y respondents. An assessment of the web confidence and awareness of the Green Box member's also occurred. Qualitative in-depth interviews highlighting five key individuals in sustainable methods of marketing was also included in this research.

Findings: A generational divide was identified in geographic information system technologies and open source applications. This has implications to the methods that will be used in the future of sustainable marketing techniques. Identifying international norms in regards to web technologies has repercussions for the future of the interdependent global economic environment.

Research Limitations/ Implications: Future research would benefit from assessment of the Asian economic powers and their use of GIS techniques, due to the continuing strength of developed and developing economic entities. Their usage of hand held devices would also shed light on the future trends in North America and Europe. Finding a sample reflecting the entire world population by assessing sustainability could lead to further progress in the area of maintaining the green environment.

Practical Applications: Companies embracing new applications as the buying power of new generations occurs. A future feasible business model is necessary to up-date old economic models to develop a framework so that the triple bottom line becomes more than a concept. This could occur through incorporating Geographic Information Systems across industries including Government agencies, NGO's and for profit corporations.

Originality and Value: The assessment of Generation X and Y sampling identifies clear differences in the attitudes around the world from individual members and start-ups in the Green Box. The value occurs due to the future customers of the Green Box businesses using the four H's of sustainable tourism will be Generation X and Y in nature.

Table of Context

List of Abbreviations

A.D.	Anno Domini
B.2.B.	Business to Business
B.M.W.	Border Midlands and West
C.E.O	Chief Executive Officer
C.H.2.M.	Cornwall Howard Hayes Merryfield
D.o.D	Department of Defence
D.5	All Things Digital Fifth Year 2008 started 2003
E.P.A	Environmental Protection Agency
E.U.	European Union
F/O.S.S.	Free and Open Source Software
G.E.	Google Earth
GEN X	Generation X (1965-1980)
GEN Y	Generation Y (1981-1994)
GLONASS	Global Navigation Satellite System
G.I.S.	Geographic Information Systems
G.I.S.	Global Information Systems
G.M.I.T.	Galway-Mayo Institute of Technology
G.P.S.	Global Positioning Systems
H.R.S.C.I.	House of Representatives Standing Committee Inquiry
H.T.M.L	Hypertext Mark-up Language
I.F.A.	Irish Farmers Association
I.P.M	International Prime Meridian
I.T.	Information Technology
K.M.L.	Keyhole Mark-up Language
M.P.K.20	Menlo Park campus 20

N.A.S.A.	North American Space Agency
N.A.T.O.	North Atlantic Treaty Organisation
NAVSTAR	Navigation Satellite Timing and Ranging
N.G.O	Non-Governmental Organization
N.S.A.I	National Standards Authority of Ireland
O.E.C.D.	Organisation for Economic Co-operation
O.G.C.	Open Geospatial Consortium
O.P.W.	Office of Public Works
O.S.I.	Ordinance Survey Ireland
P.D.A	Personal Digital Assistant
P.O.I.	Point of Interest
S.L.	Second Life
S.M.E.	Small and Medium Enterprise
S.W.I.N.G.	Simple Windowing Geospatial Applications
U.A.E.	United Arab Emigrants
U.S.A.	United States of America
U.S.P.	Unique Selling Point
W.W.W.	The World Wide Web
X.M.L.	Extensible Mark-up Language
3D	Three Dimensional
4H's	Habitat, Heritage, History and Handcrafts
4P's	Product, Price, Place and Promotion

1.0   Introduction

The dynamic International business environment has evolved due to the advent of three key international developments,

- Global warming (green projects and initiatives)

- Ethics Era (regarding eco friendly tourism, triple bottom line and sustainable living)

- Communication, Information Revolution (Internet and Google)

The latest Bali and Kyoto targets mean many of the current wasteful habits of society will be reviewed to incorporate carbon efficient and sustainable alternatives. Innovative new changes are now incorporating efficiency into daily activities, including many forms of preplanning for holidays and work related geographic routes.

The era where the guiding force of popular opinion points at the greatest battle for the world will be living sustainable and within peoples needs. This will include the introduction of innovations to the environment that does not exist at present. Ireland is trying to create a renaissance of their previous economic success through creativity and innovation. Projects like the "Green Box" encompasses theses ideals, creating a sustainable holiday destination has the world taking notice of the Northwest of Ireland. The social, economic and environmental objectives of this approach need to be realised in new dynamic ways of the future. In the Boarder Midlands and Western region there have been a number of academic reviews and adoption of innovative tourism techniques.

The development of the internet and the networking abilities of Web 2.0 over the past fifteen years have changed the life of many people forever. A knowledge based society and globalisation has allowed adaptation to come about faster than any time in recent history. As the next step in the evolution is three dimensional applications with base in reality Google Earth fills this void. Taking an advantageous first step Westport town tourism and the BMW region have availed of the opportunity to use Google Earth 3D capabilities to the fullest degree at present. Google's European headquarters location

adds to the feasibility of carrying out a study of Google Earth as a marketing tool. The scope and depth of modern GIS applications may herald the next step of Human and Computer integration on a daily basis.

2.0   Economic Review (Chapter 1- Literature Review)

The Economic environment is the central determent in the consideration of financially viable businesses on a National and International level, as identified by Wellington & Zandvakili (2007 pp.429) [62] "Karl Marx and Milton Friedman are agreed that the capitalist system churns out surpluses. They are even agreed as to who are the receivers of the surplus. That is except for the names: Marx's evil capitalists or Friedman's most worthy entrepreneurs." (See Appendix 1- surpluses being gained in equilibrium) The issue of surplus or creation of profit is particularly important in today's society as global warming envelopes the world.

> "The British government, for instance, seeks a long-term reduction of 60 percent in greenhouse-gas emissions by 2050, the Tyndall Centre for Climate-Change Research in Norwich warns that this cannot be done because of today's expansion rate of commercial aviation. The centre's Simon Shockley cautions that if the air-transport sector "continues to grow at its current rate, then it won't be possible to meet the 60 percent targets until we all massively reduce our consumption of energy in other ways"
>
> Richardson (2006 pp.76) [46]

Highlighting this fact, is a new hybrid system of economics needed to solve the problem of sustainability? Identification of a standard that could be accepted by the global interdependent environment needs to be addressed over the next number of years. Adaptation and the incorporation of collaboration as a viable means of synergy between partners maybe a logical next step in the evolution of economics.

2.1   Micro Environment and the Internet

The micro environment over the past ten years as identified by Friedman (2006 pp. 507) [4] has evolved in to an area where "Globalisation of the Local" is happening on a daily basis. This environment has occurred due to the advent of the "great flattener, the internet revolution". Geographic Information Systems (GIS) have also evolved to enable satellites to remote sense coming micro economic needs. Pal (2006, pp 1) [41] recognises

11

"Globalisation of the market place is a current trend. Nations are moving from independent states dependent on trade within a small group of nations to interdependent states buying and selling in a global trading system." At present this is being used on Macro level by countries, Pal goes further to stress a "problem is that when data is "free" (or supplied at the cost of reproduction), the value of the data is not realised." Technology and innovation as discussed by Manyika et al (2008 pp.62) [32] states "consumers also co-create with companies; the online encyclopaedia Wikipedia, for instance, could be viewed as a service or product created by its distributed customers." This development along with businesses becoming aware of the importance of quality interactions puts in place an environment where effective allocation and capacity planning systems can be totally decentralised. Cottage industries on a micro scale could take place on a "glocal" stage through new business models where enterprise occurs through knowledge based businesses. Zip Cars are an example of the beginning of this new business paradigm using geographic convenient locations for hourly car rentals (See Appendix 2).

2.2   Macro Environment and the Internet

The trends that have enabled a fusion of economic systems can be identified in the special relationship that has enabled China and the United States to partake in mutually beneficial trade relationships. The European Union is also an example of the future direction to the Macro international environment. Partnership and collaboration has been stated by Smedlund (2005 pp. 206) [51], "it is easier to see the critical roles of intermediaries that are associated with the dynamics of a region, and this way improve the overall regional capability to meet the future challenges and adapt to the global market environment." The Green box is an example of this type of dynamic partnership between sustainable ideals and cross border collaboration to create a model that is being

12

rolled out Nationwide as a sustainable tourism destination. Macro Economics in the form of foreign direct investment was the catalyst that elevated Ireland up the totem pole of developed National economies, Cooney (2008 pp.66) [18] identifies the three stages the Irish economy has went through as identified in (Appendix 3). Starting in a depressed 1960's economy where a "factor-driven" economy had Ireland heavily reliant on the agrarian industry. The focus on quality education policies by the government created high functioning graduates. As a country Ireland was struggling to move in to the "Investment-driven" stage. Finally in the 1990's Ireland came of age and achieved efficiencies. The top stage of an island wide innovation-driven economy is also experiencing difficulties, due to poor communications infrastructure and planning. McAuley & Fillis (2005 pp.498) [35] identifies "the OECD estimates that 95 per cent of enterprises within the OECD are SMEs, which account for 60-70 per cent of jobs in most member states. They are the source of most new jobs and make significant contributions to innovation and employment, often based on high-technology." McAuley & Fillis goes further to highlight the craft workers on the Orkney Islands are local yet global businesses and are achieving success in their respective enterprises.

2.3   Development of a New Dynamic Business Model

Web 2.0 has created many opportunities for entrepreneurs with innovative collaborative ideals. The evolution the occurred on the World Wide Web as (highlighted in Appendix 4) created an opening that many seasoned business professionals neglected. Benkler (2006) [1] focuses primarily on internet-based social production models. The example of Yahoo!'s "Social Directory" was originally formed by passionate independent individuals. They created it from a simple message of collaboration and the result was honest value added services. A new fourth stage evolved from the transactional framework (see Appendix 5) where decentralised social sharing creates major economic value. This

13

creates added opportunities with a focus on social relations. The dynamic element to this model as Allee (2008 pp.23) [9] states "Value network analysis can provide a systematic way for approaching the dynamics of intangible value realization, interconvertability, conversion, and creation." The solution to understand the knowledge economy is in accepting intangibles as resources. Brand equity stems from coming to terms with how exclusive configurations of interaction, communications, and assets react in value added networks.

2.3.1 The Use of Collaboration

The open source movement embodies the essence of the polar shift of creativity from being an "all rights reserved" method of property ownership, to becoming a "some rights reserved" method of continuous development.

> "Innovation policy should therefore not only rely on the role of appropriability in new technologies, but also allow for the fast diffusion of accumulated experiences which can feed rivalry and diversity during processes of entrepreneurial opportunity recognition, exploration and exploitation. The appropriate mix, however, cannot be assessed out of context of the technology in question."
>
> Ulhøi (2004 pp.1111) [58]

The business paradigm has started to change from a ruthless winner takes all competition, to a trusting partnership where true collaboration becomes mutually beneficial. Elliott & Scacchi (2008 pp. 27) [25] highlights "as more businesses become involved in the use and maintenance of F/OSS systems, new business models involving labour contracts such as internet-based bounty systems may emerge with the norms of the F/OSS occupational community evolving in new directions." A knowledge economy would be wise to educate graduates in the intrinsic value of understanding this new business proposition.

14

2.3.2 An Innovation Breeding Ground

Open Source Movement has extended to the Sustainable Tourism Movement in the form of the Green Consensus and Green Maps. The Green Mapping system has highlighted many sustainable businesses in the Amazon basin. Multiple languages allows for the scope to encompass the vast majority of the worlds population. Claudia Greens innovative foresight allowed of social mapping to occur, with the option to become a map maker. The Mantra for this website is to "think global but map local". This framework could potentially be the collaborative tool to unite a fractured target customer and Ecopreneur's in one unique forum.

2.3.2.1 Tourism

The collaboration and the inclusion of partnerships are identified as core competencies in the majority of eco-tourism initiative as highlighted by Sweeney (2008 pp.7) [55] the four H's "Habitat, Heritage, History and Handcrafts" are essential in many new ecotourism destinations. Allowing for acknowledgement of the Triple Bottom line in to a carbon neutral or low carbon alterative to regular holidays, slow transport and indigenous holidaying have become far more popular due to the international fuel and food crisis, this is largely due to the 140 dollar price of a barrel of oil. A coordination of information is necessary to address these major global issues as Mader (1999 pp. 78) [31] states "there is a great need for detailed information about the environment" when approaching ecotourism destinations.

> "When Websites do offer valuable information, they are mostly the product of a specific individual. There are hundreds of committed individuals who are making their information available to anyone who cares."
>
> Mader (1999 pp.79) [31]

Tourism is no different, from any other open source movement that has occurred in the last ten years. The creation of a global standard as identified by Crowley (1999 pp.1025)

15

[19] "The HRSCI (House of Representatives Standing Committee Inquiry) further recommends environmentally sound purchasing policies; national environmental standards; and environmental management certification" when marketing ecotourism destinations equitability is paramount in setting a high standard. Premium prices can also be in place. There is a greater perceived value to the core product and an enhanced brand perception.

2.3.2.2 Archaeology

The location of Archaeological sites in the BMW region has specific requirements due to the damage large scale tourism would do to sensitive sites. Carrowmore tombs are an example of this as highlighted in the findings section. 3D virtual reality could potentially enable international collaboration between high-level specialists to occur. Aldenderfer (2008 pp.3) [8] identifies many of the useful applications for the prediction of sites through GIS and remote sensing capabilities "there will be a steady demand for archaeologists with intensive GIS training over the next decade". Due to the development of such programs many are missing high quality 3D capabilities. Google Earth fills the void with its new orb features in GE 4.3. Ground penetration radar will become an essential tool to many heritage students of over the next ten years. As sustainable tourisms four H's includes History and Heritage. A sustainable method for individuals to view local heritage sites with interactive guided tours on mobile devices have be used through protective methods of tourism (i.e. all rights reserved). Due to the Irish structure of protection of heritage sites by the OPW (office of public works) a non-profit structure already exists and could be a leader in this field due to the large density of untouched sights in Ireland. Bracke et al (2008 pp.221) [12] highlights the unique ability maps have due to them being interdisciplinary documents. The rich resource of compiling maps from the past can be a tool for "community-building, local history,

16

archaeology, genealogy, and other University disciplines." Traditional GIS work tends to be a closed environment and is adversely opposed to the release of proprietary applications on an open source level. Iran has made inroads in to documenting heritage and archaeology using GIS methods, Miri & Varshosaz (2005 pp. 9) [37] clarifies the importance of protecting the heritage and archaeology for future generations to assess. The evolution of technology should reflect this and GIS is an important element of this ideal.

2.3.2.3   Sustainability

Sustainability and grass roots entrepreneurship is identified as a core competency in creation of a enterprising   green movement, Down & Warren's (2008 pp.16) [22] perspective conflicts with this ideal, "the talk of autonomy and freedom and the autonomy implied in the talk of ambition and growth seems incongruous when set against the constraints and obligations inherent in the joint venture relationship." This conflicts with the guiding principles of the 'Green Box'. The extension of or evolution of traditional business criterion is needed when approaching the new dynamic green globalised world.

> "When dealing with issues related to sustainable business development, the specialised field of environmental communication is understood to be concerned with environmental citizenship. It is quite literally, about keeping people informed so that they can be effectively engaged. In such cases, environmental communication is the planned and strategic use of communication processes and media products to support effective policy, innovation, and stakeholder participation in programs aimed at enhancing environmental sustainability."
>
> Camilleri (2008 pp.19) [16]

Without partnership between stakeholders this successful business proposition would not be possible. Parsons (2008 pp.102) [42] states the "social and environmental problems can not be resolved without challenging neo-liberal, and indeed colonial, assumptions. Yet, this presents an apparent contradiction. Neoclassical and neo-liberal ideology are

17

manifested as economic globalisation, individual libertarianism, mass production, and competition and colonialism is characterised by domination of physical space, reformation of indigenous knowledge systems, and framing of local economic histories from western perspectives." These descriptions do not conform to the principles of localism and conflicts with stakeholder theory. To re-address old theories is not to say they are debunked, it a simple acknowledgement that technology has changed the environment forever. A strong foundation of great visionary thinkers have come about in the past through collaboration, the difference between the past and today is geographic location is no longer an issue that hinders innovation, creativity and sustainability.

2.4   The Triple Bottom Line

The final stage in the sixth stages of marketing is the societal stage (see Appendix. 7). At the core of the societal stage of marketing as identified by Newport et al (2003 pp. 357) [38] the drive for sustainability won new visibility, new allies and new high-level awareness of sustainability's so-called three-legged stool:

(1) The environment;

(2) Economic development

(3) Social equity

This is also known as the triple bottom line. Many commentators feel it is not realistic in its expectations to relight on a theoretical framework like the Triple Bottom Line, as its basis in reality fails to highlight major economic issues. Garvare & Isaksson (2001 pp. 14) [26] states the "current models of business excellence, based on the values of total quality management, are not focused on the concept of the Triple Bottom Line but have their drivers and enablers in the traditional context of the market economy." This state of affairs is across the board and has many businesses lingering in the forth stage of marketing. The evolved situation with Global Warming's and its effects being felt around

18

the world has academics and marketing professionals reassessing the Triple Bottom Line (see Appendix 8). Incorporation of technology in to the future marketing plans of companies using the triple bottom line has begun to make opportunities more viable.

2.5   Economics and Technology "The Binding Force"

The creation of a sustainable economic model incorporating technological trends in todays environment as Wellington & Zandvakili (2007 pp.429) [62] identifies, "technological change has become the most significant influence bringing economic growth, and probably has a huge effect in the economy." The opportunities that have evolved from the current world climate has allowed for further openings in existing markets, Dixon & Clifford (2006 pp. 327) [21] predict that entrepreneurs will consider sustainable development as, "one of the biggest business opportunities in the history of commerce". The highlighting of the concept of the Ecopreneurship is lacking the core criterion of IT and Technological skills as identified by the CEO of the "Green Box" in the findings section. Bring the three element of Economics, Sustainablity and Technology together is a dificult proposal. Technology is neglected due to the;

> "Concentrating on issues of environmental preservation or economic development, the problem is that either technological progress or opportunities of environmental improvement must be sufficient to enable a strong sustainable development or economic development results in continuous degradation of the ecosystem capital as it is not generally possible to realise economic growth without physical expansion of the economy which involves land use and cover change. It is dividing economists and environmentalists, rather than reinforcing and integrating different perspectives, and comprehensively addressing the overall challenge of sustainable development."

Hediger (1999 pp.1121/1140) [27]

The assessment of this inequity in the market, it is important to the future success of sustainable business models to embrace technological developments in a hybrid model that encompasses current and future technologies. GIS (Geographic Information

19

Systems) or online mapping systems maybe a potential niche to bridge the gap in understanding evolving technological trends.

3.0   Technical Review

GIS (Geographic Information Systems) history of mapping goes back to pre AD 200 the use of these maps were largely used as a war tool. Political framing of geographical areas led to more detailed cartography. Shipping and the movement of goods was one of the first uses the business world adapted from Navy shipping lanes. GIS development (2008 pp.3) [68] highlights "the 'Mahabharata' is the first among the Sanskrit literary sources that has a separate section devoted to the geography of the Indian subcontinent and its adjacent countries in central Asia." The focus of the western world on Europe led to the development of "Ptolemy's Geography, what we would now call an atlas in the 15th century. Ptolemy suggested that people replot his data, and a good section of Book I of the Geography offers advice on how to draw maps." This innovative ideal became the first open source movement, with the instrument of trigonometry Ptolemy literally reshaped the world.

Originally mapping was funded due to cartography becoming extremely useful in war. The next best use of maps in the past was taxation and the identified difference between agrarian and non-agrarian land. This stemmed the idea that Information could be linked to geographic location. In 1571 the introduction of a "rational revenue assessment system" based on regular surveys occurred in Mughal Empire of India. This gave considerable value to maps and brought the control of information from the people in to governmental hands.

Language has always been a point of contention when preparation of mapping systems has occurred McKieran (2004 pp.38) [36] identifies "Perseus Digital Library is a member of the open source Language Archives Community" this innovative site along with David Rumsey's collection of maps are solving the age old problem of inability to access information due to language barriers. Today like the past is no different, without accepted homogenised languages and new technologies for uniform usage valuable data

21

from across the world is inaccessible except to indigenous peoples. This issue existed from the rise of the great European sea faring nations. Paris, France originally had the first prime meridian, with the change of the power base from France to England with the establishment of the Royal observatory in Greenwich the centre of the world changed positions. At present there is a battle occurring on the Internet for the standard system of virtual globes the difference between the pre-enlightment era and today is the collaboration that is occurring Driessen et al (2007 pp 110) [23] highlights "A knowledge map helped them to stimulate collaboration between teachers and gave a coherent overview to students of the subjects that were taught." This concept has the potential to be transferred in to the greater community at large through Mash-up programs.

Gaspard Felix Tournachon in 1859 was the first person to partake in Aerial photography for mapping using hot air balloons to take photos from above. The aim was to create surveys from land photos and therefore creating a more precise snapshot. This also helped the army with weather predictions. It was not until (1891) "At the International Geographical Congress, Berne, Professor Albrecht Penck advances the idea of an International Map of the World." These global ideals where not realised until a truly International organisation came about in the form of League of Nations (later United Nations) in 1922 the International Geographical Union is established in Brussels. The USSR and The United States advanced technology immeasurably through the cold war and the space race. The use of KML technology has its roots in 1977's KH (KeyHole) NATO satellite technology. This collaboration with the military is still happening today, as Timmer (2008 pp. 1) [57] identifies "Open Geospatial Consortium (OGC) has announced that it has accepted Google's XML-based annotation system, KML, as a standard." The executive board of OGC includes members of NASA, Boeing, Lockheed-Martin, and Northrop Grumman, along with the Army Topographic

22

Engineering Centre and the entire Australian Department of Defence. Due to the cold war many restrictions and secrecy was extended to mapping and topography.

Following the 1960s and the launching of satellites in to space mapping moved from terrestrial base to an extra-terrestrial GIS base, the Moon mapping that has occurred through Google Earth Sky has also evolved its system to include the universe. The Internet has proven the scope and innovation that occurs from releasing technology from the military. The GIS capabilities that exist today will multiply tenfold as more people become aware of its capabilities. Durzun (2008 pp. 35) [24] highlights "GIS is critical to new scientific trends, especially multidisciplinary research, global systems study and the scientist as advocate." Tying eco-capitalism and commerce to GIS capabilities seems a logical progression Traffic density, weather and internet activity are the current dynamic capabilities of Google Earth. Ground penetration radar has existed since the 1970's Archaeology; Mining and Water location could be issues that would be solved through GIS systems. Education will benefit from the data recorded by the Landsat retrospective data complied over the past 25 years. Gore's (2007) [5] "An Inconvenient Truth" used this data in highlighting global warming. Spot imagery in the mid 1980s becomes important in the quest to establish internationally accepted method of comparison of data. Business capability of mapping markets arises in the 1990 this starts a frame of thought from making businesses decisions from GIS information. Combining stratification and segmentation allows for scientific precision in enterprise activity, Smith (2008 pp. 29) [53] identifies "keywords" in search being the single greatest determinant of successful searches. GPS and Geolocation took thirty year to become main stream and affordable. Location becomes a very important positive Business and Marketing tool Rothery (2007 pp. 56) [47] states "how Americans compete and what American buyers want, but the bottom line is that if you say you're Irish you will get a dramatically more positive response. The U.S. army in the 1970's was using early versions of this GIS

23

technology in Vietnam. Collaboration is going to occur with U.S. and Russian satellites in 2008 when Ordinance Survey Ireland will use a combination of these "NAVSTAR system, operated by U.S DoD, was the first GPS system to be widely available for civilian use. The Russian GPS system, GLONASS, is similar in operation and is proving complimentary to NAVSTAR system." The current market leaders in the Geographic Information Systems (GIS) Virtual Global market, a extra focus on the open source applications due to there ability to create a Marketing or Enterprise models. To see main players in the market (see Appendix 6)

The new stage is being used for innovation due to there dynamic platforms where Open source data and applications are allowing peoples from around the world to innovate and collaborate. The different methods used have revolved around interactive and easily up-dateable communities and systems.

3.1   Development of GIS Systems

The GIS resource (2008) [68] website highlights, "The application of geospatial sciences has spread very fast and wide over the past few decades. Application specific papers are presented in 12 broad categories in this section. They are as follows Agriculture, Business GIS, Geology, Land information systems, Natural hazard management, Urban planning, Archaeology, Environment, Health, Military, Utility and Natural Resource." This website is an advocate of Google as they proudly use Google search in there websites application. Google identifies that some of the current devices being used in Geospatial information systems are addictive and also encapsulates the quote from Branin & Case (1998 pp.476) [13] "the current society is Drowning in information but starving for Knowledge." The idea that a persons medical records and Genome will be on a hand held device in the near future, leaves a need for software to be developed to fully utilise these developments. A fifth stage in the evolution of marketing has occurred since Friedman

24

(2006) [4] declared the world was flat. This revolution in marketing has a heightened focus on business to do good rather that maximising profits. This stage of societal marketing goes hand and hand with joint ventures and partnerships. This is the current business model that Google is using. The GIS development that has occurred as identified from partners specialising in Google Enterprise geospatial technologies, CH2M HILL - Google Earth Specialist Englewood, Colorado, First Base Solutions - Google Earth Specialist, Toronto, Ontario and Spatial Energy Google Earth Specialist from Boulder, Colorado . This method of innovative enterprise also stays in line with Enterprise Irelands current tact of creating a knowledge driven creative economy. The following is a rundown of Virtual Worlds (Globes), the systems that have been developed around the simple concept of recreating the world from satellite imagery and combining other online streaming web 2.0 applications.

NASA's World Wind, latest version is 1.4. This application allows for a three dimensional view of satellite imagery to any place on the earth, a combination of shuttle Radar Topography Mission data makes the terrain extremely detailed. World Wind is an excellent teaching tool but does not combine all the capabilities of web 2.0. It is described as a Learning tool. The business and enterprise capabilities also are lacking due to protectionist input. Due to the nature of the developers at NASA the information and imagery is very detailed. Excellent reviews from the geospatial communities also are of note.

Microsoft's Virtual World is a virtual world that has come up with a niche product for creation of a 3D picture development. The uptake has been slow and the population is low due to the higher price and not so embracing culture behind the application. The look of the application is very professional and collaboration is not embraced as much as the Google earth platform.

25

3.2   Development of GIS as a Marketing Tool

Technology and Mobile Mapping systems are at the cutting-edge of technology trends. The development of digital maps as Desmet (2005 pp. 5) [20] highlights, "the middle east is a budding excellent environment to test GIS as a marketing tool", this is due to the high levels of use of computers and mobile technologies to their full capabilities. The augmented technological advancements in hand held devices with the advent of the I-Phone and Nokia's N series phones has allowed marketers to develop strategies to take advantage of the GPS mapping developments. Ireland is slow in its uptake of technological trends. Second Life is an ideal method of assessing Glocal ideals, Smith (2007 pp. 31) [52] states "As soon as you move on to SL, it's no longer an Irish context." The youth of the Middle East have started using Bluetooth as a way of dating, as social and culture norms stop public male-female interaction in public, Sharpe (2008 pp. 1) [49] identifies UAE students have interactions through bluetooth, "It happens in malls, cinemas and cafes - in Dubai's notorious traffic jams, and now by mobile phone."

The uptake of GIS by estate agents identifies a niche in the market for people who wish to get location specific information to there handsets. GIS and data integration is the key to success of the development of usable business models. Google earth as a mash up tool has an html accessible interface in the form of Google maps without this development the data from Google earth would not be user friendly. The vision of Google to organise the world's data is admirable and Google maps being downloadable goes a long way to keeping the information accessible, Jones (2007 pp. 10) [28] recognises "our (Google) vision of the future to create a global information landscape where people experience a uniquely real understanding of the answers to their questions." Ecotourism in the form of Egyptian heritage mapping as discussed by Cultnat (2008) [65] identifies the feasibility of creation of a three level GIS system where "firstly Multimedia components are important, secondly only using GIS technology and the third is using virtual reality and

26

multimedia technologies." This tool helps in simplifying, and communicating geological scientific knowledge, a valuable resource of easy-to-use spatial data useful for ecotourism. The system also protects the archaeological sites as a positive off shoot of the systems.

The Geospatial systems have developed over the last ten years. The mapping systems as follows have a focus on Ireland due to the nature of the research.

Open Street Maps: has a very basic interface and the development of the information outside of the U.S.A is very poor. The system's maps are underdeveloped and Ireland's maps need serious attention.

Yahoo Maps: Has an excellent interface and the speed of the zooming abilities. Only the city has the abilities to zoom to one kilometre (poor information on in the business finder search for Ireland).

MapQuest: is the one of the oldest applications and has a focus on driving directions, a recent development has occurred with a check list of related business search in the driving directions. Ireland's information is basic and reflects the nature of the mapping system.

Google Maps: has taken a large share of the market the unique ability to link the back end data from Google Earth has allowed Google maps to be included in many new hand held devices like the I-Phone or any other phone with download capabilities.

3.2.1   A New Customer Experience

The idea of creating a interactive tourist guide has been assessed by Ologun et al (2004 pp.6) [39] a number of problems with implementation of a Nigerian system existed, "The greatest challenges in developing a multimedia GIS is to integrate different types of data such as text data, graphical data (maps, graphs), pictures data (still and moving Pictures) and sound data (voice and music), thus creating in some cases, a multiple representation

27

for the same data." The neglecting of open source movement made Ologun's system unfeasible as collaboration between all stakeholders was not possible (see Appendix 9). China also identified an up and coming trend in the abilities of mobile phones and PDA's better technological capabilities and thus extra opportunities in GIS visualisation.

> "MacauMap is a tourism-oriented map application for the Macau territory. It includes common map viewing and navigation functions, searching functions, hotel, restaurant, and tourist guides (including photos), a bi-lingual (English/Chinese) interface, and other features. The original version of MacauMap was designed for low-performance personal digital assistants (PDAs) running PalmOS. It was later modified for PDAs running the Pocket PC operating system. The current version has undergone a complete re-design to make it operate on mobile phones running Symbian OS"
>
> Biuk-Aghai (2004 pp.1) [11]

A major issue in 2004 was the processing speed of mobile technology. Over the last four years the development of the hardware has been expediential. The study was carried out at a time when the technology was on the verge of being capable of running the programmes with a large enough screen as well as a fast portable processor. Duke University Created a 'Micro-Blog' System for Mobile Phones. Perez (2008) [74] identifies "the Micro-Blog application lets users obtain real-time, location-specific information from other mobile phone users. The application can also act like other mobile social networks, such as Loopt." Once this type of application take centre stage the voices of the world will communicate, at present Africa is struggling for market penetration due to the expense involved with connecting to the Web. The smaller and cheaper the hardware gets the greater the potential for full internet activity across the world.

3.2.2 Development of the Community from a Stakeholder Perspective

The social, environmental and economic environment has changed in the last twenty years. Weiber & Kolliman (1998, pp603) [61] identifies a key characteristic ten years ago, "in order to activate information, marketing is forced to adapt to the conditions of the

28

environment. This may mean Information networks in the virtual marketplace (marketspace)." Marketing Age the Marketing Institute magazine highlights viral marketing, Second life and Blogging as viable modes of marketing

Highlighting this fact many considerations must be assessed in the current dynamic virtual environment. One of the evolutions includes second generation networking capabilities know as Web 2.0. Parvine et al (2007, pp132,135) [43] emphasise that "Societal pressures are shifting management attention to relationship management and network participation...... corporate culture has, since the 1980s, been acknowledged as a driving force behind the success of many corporations." The ideal of the Celebrity Corporation was identified in this article, the author states Nokia and Google as truly customer empowering corporations.

Knowledge is levelling the playing field for business. Martin (2007, pp248) [33] recognises, "the internet has radically altered the means by which wealth is created. The internet and cheap computers are spurring a new method of producing economic value." From this attitude the world has identified people as the Stuarts of sustainability through Corporate Social Responsibility, equitable and multicultural understanding. This analysis points towards an attitude of survival of the most marketable businesses. The unfortunate issue of the web is the ability to access relevant and useful information. A two tiered world wide web exists at present. Summers (2005, pp 160) [54] highlights three major trends, "firstly the connected society" secondly "Connected objects and places" and finally "Connected enterprises" This heralds an era of Ad-hoc mess networks with real-time data slices. The new environment has major impact on the enterprise eco-system and will end up with a Swiss army knife facility. Google Earth fills this niche in the market.

Sayer (2007, pp 477) [48] states a 21st century cottage industry is projected to explode, due to the dynamic nature of the Generation Y employees born between 1980

29

and 2000. Google are creating the base for this potential employment through a free application in the form of Google Earth. Populating this world as defined by Patrick & Dotsika (2007, pp398) [45] needs to address "the glut" of unnecessary information floating around the internet. "Pull" techniques in the form of user searches are no longer effective. This situation allows "push" techniques or broadcasting information through socially interactive services. Second generation web technologies are incorporating collective intelligence in to their structures. Collaborative tools such as collective intelligence and Mashing-up as identified by Bughin & Manyika (2007, pp 4) [15] is an attitude not a technology it is comparable to just in time method of distribution but in the form of information. Eliminating the distance between the surface web and deep web can be achieved with the help of people and applications like Google Earth.

Monetary value from accessing and highlighting information from the deep web through changing channels as Virtual World (2000, pp 6) [59] stated eight years ago, could potentially achieve "information based synergies". Network effects all sides win changing old ideals to traditional businesses is paramount to adopting new innovations. Prime Minister Brown (2008) [14] states "Globalisation means that a new world has come about, reform of the world traditional structures are needed."

3.3 Pitfalls of GIS Technology

A major concern when approaching a new hypothesis is how do you keep digital maps fresh, without devoting to many resources the up-dating process. Desmet (2008 pp.1) [20] identifies "On average, as much as 10-15 percent of map content - everything ranging from a changed street direction, a lane marker change to new streets or buildings and new Point of Interest (POI) information - changes every year and in high growth areas, this can be even greater. Consider the millions of miles/kilometres of roads in the world, as well as buildings, landmarks and other structures that need to be updated." The

solution is collaboration and partnership, when approaching new map based applications. As the internet is further used as a collaborative medium, businesses with service contracts will be subcontracted for up keep of such partnerships. The green box identified a considerable gap in the market for sustainable focused IT based service businesses. Secondly Baxi (1998 pp.8) [10] recognises "GIS engine based technology assumes some preliminary knowledge on computers and ability to interpret the knowledge of GIS and other IT related terms. Hence, it does require considerable investment in training." This issue may have been remedied over the past ten years due to the added IT systems focus of many companies and individuals.

Advertising is what has made the internet so profitable to many companies. The next development will incorporate ideas of mobile access and an integration of real life activities with virtual capabilities. The GIS and geospatial applications at present are a linking point of these two worlds. The development of such ideas in California of assessing traffic due to the concentration of GPS systems on a real time basis can be adapted to many business and marketing processes. Once the mobile phone interface comes to a standard where GPS is as standard integration of mapping and internet mash-up capabilities can be realised. Google earth is currently the furthest application to do this. The need for personas or aviator maybe the next step for these tools, the current systems that Google have brought out will allow for cottage industries to exist using Google applications and enterprise. The more innovative a company becomes to stay a head of the curve the more recognition from peer to peer and early adopters focus they will get.

3.4   Applying Porter's Criteria to Environment GIS Exists

The most effective way of assessing current technological trends is to apply it to current and past marketing frameworks. The four P's (Products, Price, Place and Promotion) of marketing have evolved with the advent of the internet as discussed by Taylor & England

(2006 pp. 84) [56] the more accessible the content relating to products and services offered via a web site, the more the likelihood that they will be purchased by the consumer. The importance of Geographical locators in the future of Sustainable tourism links to the ideology of the "Glocal" form of economics. Porters "value chain and five forces" also change their respective paradigm in an interdependent web 2.0 world.

3.4.1 "The Five Forces"

Porter defines the five forces (see Appendix 10) as a key determinate in the future of internet business as each of the five forces have a major influence on the core product or service. Technology adjusts the five forces as it globalises the central force "Extent of Rivalry," Wright & Burns (1998 pp. 899) [63] states it can be seen that the "factors contributing to globalisation span a hierarchy from focused technological advances, to business-level development.......... governmental and international changes, and to changes to society as a whole." The Societal stage of marketing embraces this ideal. It is an incongruent paradigm when partnership is addressed by the five forces. Collaboration is the guiding force of sustainability and web 2.0. A creation of a new adjusted five forces maybe necessary Kotler & Keller (2006) [6] states, that an increasingly global focus of media and politics is necessary. This major statement maybe true in media and politics but to create a technology driven sustainable movement, occurs at a grass roots level. To have in-depth awareness of overseas markets is a prerequisite to assess the comparative advantages of a threat of substitute products and services. The internet naturally increases the bargaining power of consumers as assessed by Loukis et al (2008 pp.34) [30] the "bargaining power of the buyer and supplier are significant elements of the five forces", today buyer and supplier are becoming indistinguishable from the customer and partnership is changing the core criteria of many modern businesses. Customer empowerment has occurred due to companies like E-bay making exchange of goods safe

and convenient. Chaffey et al (2000) [2] states companies offering web-based service before its competitors have a significant competitive advantage.

3.4.2 "The Value Chain"

Information Systems have a substantial effect on the nature and external image of businesses Porter Value chain addresses this evolution in a Porter (1985) [7] seminal work (see Appendix 11). Koudal & Coleman (2005 pp.23) [29] highlights that "Value chain Innovation" has come with the advent of the Internet. Inside the primary activities assimilation has occurred of the support activities due to the entwined level of IT in businesses everyday workings. This will increase with the projections of future trends where hand held devices will be as powerful as desk top computers. Linking end-users with supplier the internet will reduce the significance of conventional intermediaries, GIS and GPS is very important in this development. Blue-tooth capabilities have been used in advertising in urban areas where location specific criteria is used. Creating a smart advertisement where location specific products are advertised as Simonite (2006 pp. 2) [50] states "As each passing device has a unique Bluetooth signal, this enables the screen to identify different individuals passing by. It builds a record of the adverts those people have been previously been shown to make sure messages are not repeated." These innovations are brought to the attention of interested parties in a non-intrusive fashion this maybe the golden goose for future marketers. Google maps have identified this proposition and partnership. The Green box could benefit immensely from this as highlighted by Clements et al (2008 pp. 357) [17] study from New Zealand on sustainable fresh produce supply found, "management of information functions is facilitated by relationships that are connected by strong information exchange and cooperative norms, along with two-sided buyer-seller adaptations." The key is the up to date information in

33

the chain. Therefore a system needs to be simple enough to update by any lay person and not a trained IT professional. This is where a niche for easy to use software exists.

4.0   Future Trends (Chapter 2)

The environment we live today has change beyond recognition from the business environment of ten years ago. Identifying future trends before they occur is one element of a marketer's repertoire that can be neglected. The modern day soothsayer tends to be economists and stock traders. Marketing needs to move in to this area foretelling what is to come in the future as Marketing Age has highlighted in all of the 2008 editions of there magazine, taken heed of the future "is the survival skill in the current global economy". This is due to many technologies been out of date before a three year assessment can be carried out. The Ad-hoc nature of the world has the majority of businesses caught flat footed. The current economic downfall has many turning to sustainable living. The focus on technology and green credentials of businesses is at present a Unique Selling Point (USP) but how long will this last? It is important to assess this due to the nature of the study.

4.1   Web 2.0 Evolution from a Concept into a Reality

Once the new age of the internet occurred, the dynamic nature of individuals and companies big and small's value could truly be assessed. Many technology buffs believed that Web 2.0 was a creation of savvy marketers, Rosenberg at Google (2008) [67] felt this opinion was largely due to "dominate players in on-line circles missed many of the new web 2.0 big trends and in turn developed a bitterness that still exists today." The single greatest player in this revolution is Rosenberg's own company Google. The criers that broke the big news of Web 2.0 was O'Reilly media, O'Reilly (2007 pp.28) [40] states "Google's lightweight programming model has led to the creation of numerous value-added services in the form of mash-ups that link Google Maps with other internet-accessible data sources." This mash-up facility has allowed individuals to become greater than their respective place in society, the "wisdom of the crowd" in the cloud of the

internet has made for greater transparency in all spheres. Today it is largely accepted that the experts are wrong and the average of the crowd is better that any one bias opinion, this is reflected in the Wikipedia insurgency that came from no where yet holds such a high place in peoples' hearts.

4.2   Future Trend in the Internet

Google and Yahoo have at present through well planned processes cornered the market in online search advertising much to the dismay of Microsoft.

The view of Cerf (2008) [64] highlights, as the internets chief evangelist and creator of the internet states six key trends in the coming years:

- Mobile Devices

- Increased access

- Managed through networks (stronger authentication)

- Sensor type systems (building instrumented)

- Majority of the trends are yet to be conceived

- Capabilities of building businesses upon applications for a potential market of over 5 billion people.

Mobiles due to there increased capabilities will create a massive influx of users of the internet. These findings have been identified trough the penetration of internet users. Google (2008) [67] categorise a breakdown internet penetration, "Europe is at 42% penetration while Asia has a population of 460 million on line but has great potential for expansion. The United States is currently over 70% penetrations and is the ideal framework once mobile access is more accessible."

One in eight Americans married today met on line. Internet has developed an international character and through this greater niche markets and products have become

36

more feasible. Cerf also alluded to the fact that due to the dynamic nature of the internet it is future proof. The push rather than pull basis of the current environment has change many peoples ideal of a reputable source. Wikipedia and other community monitored websites of a similar nature has proven this fact and the moderation on an Ad-hoc basis has proven quite reliable

Laurentiu & Vasiliu (2008) [70] research in Galway in to "Semantic Web Services, B2B, e-Commerce, Extended Enterprises / Virtual Enterprises, SWING # geospatial application of semantic web services (EU project)" is evidence of the vast potential of applications for future business service with export potential. These projects are supported by Europe and also Enterprise Ireland is eager to fund indigenous growth in the industry.

Pertaining to the geographic location and characteristics of natural or constructed features and boundaries on, above, or below the earth's surface; especially referring to data that is geographic and spatial in nature.

4.3   Overload of the Internet

Since the original IT economic boom of the mid-1990's people have been highlighting how unpredictable the infrastructure of the internet is. There is an "order from chaos element to the nature of the cloud" as Steve Jobs (2007) [66] identifies at the D5 interview with Bill Gates. The network effect of the more you use it the better it works applications can not be stopped in the most traditional ways. The open source movement has been the most identifiable success stories of the internets progress. Ideas coming from anywhere, sharing, openness and partnership tends to be blatantly in opposition to traditional protectionist businesses. The clogging of the internet could potentially occur with 6 billion users, servers would go down and bring the world to its knees. The bigger treat to the dynamic environment would be in the form of court cases

the likes of which is occurring between Viacom and You Tube (Google). With the loss of anonymity the internet and Web 2.0 would come to a crashing halt. Interest groups like the screen writing guilds strike was a direct result of innovative sites like You Tube and Bit Torrent. Without inclusion of such interest groups and ground-breaking thinking to combat these issues the days of individuals being as powerful as large multinationals are numbered and consequently the end of Web 2.0. Companies that you can trust were an oxymoron before Google's proclamation of the "Don't Be Evil" mantra. Is it feasible to allow for a truly empowering environment or is it to dangerous to modern society?

4.4 Confronting Virtual Reality Head On

A good indicator of future trends and business focus come from the stock market and how well the companies using geospatial tools are performing. The recent development and potential take over of Yahoo! by Microsoft is a clear indicator of where Microsoft feels they are lacking in respect to the future. The bid for the search engine is a clear sign as to the potential market power of the future of the cloud that is the internet. The slow uptake of corporation with the scope of Microsoft and the neglect of web 2.0 capabilities over the past five years has been documented as a kink in the armour of Microsoft. The proactive strategies in place at present is an attempt to pull back a missed opportunity in the search engine business.

This also extends to mash-up faculties like Google Earth, Microsoft's attempt through Virtual earth as a pay to use applications. Virtual worlds have a similar scope Second Life's development has occurred in the virtual world has many educational institutions producing education and distance learning lecture theatres in the virtual world this was highlighted in the libraries area of Second life. The social capabilities are vast but the business capabilities seem to be of a greater magnitude. Due to the workable credit system and the ability of a created exchange system in the form of the Linden

Dollar, real businesses are stepping in to this world. The speculation that has occurred has created millionaires in the last six months.

> "Indeed, real-world companies such as Toyota and American Apparel are exploring whether this 3D world can be adapted to serve real business purposes, similar to the way the Web evolved from a medium for academics and hobbyists to one that supports corporate commerce and marketing. Already, your avatar can test-drive a Toyota Scion or buy clothes in a virtual American Apparel store. So far, however, it's not clear how much these efforts are doing to sell real-world cars, clothes or any other merchandise."
>
> <div align="right">www.baselinemag.com</div>

World of Warcraft is another idea that many said would not work. The success of games of the scope of "World of Warcraft" have the business community asking if it would be possible to translate the fervour that existed within these fantasy worlds in to real life applications. The developer developer's developer's conference in GMIT highlighted this fact in the new method of the agile developer. Claudio Perrone identified in his talk about "Passionate Teams and Cooperative Customers: Agile tales of creative customer communications". Perrone (2008) [talk at GMIT "Developers Developers Developers conference"] stated that there is a paradigm of a predictive or adaptive management style in today's software development, the core criteria identified was the ability to adapt to change.

MPK20: Sun's Virtual Workplace: This opinion has been confirmed in the pioneering works of Sun Microsystems virtual world. Integrating virtual work place now exist where customers, developers and employees interact.

> "Mixed Reality is the next stage in the MPK20 project is to design complementary physical and virtual work spaces. If personal and team workspaces primarily exist in the virtual world, then people in physical spaces should be able to project their workspace around them no matter where in the world they are and interact seamlessly with people who are remote."
>
> <div align="right">www.sun.com</div>

Google has just released "Lively", Vella (2008) [81] identifies it as mash up of instant message, chat room, virtual world, and Web page. "Think: Second Life in a web browser." The logical next step would be incorporating Google Earth in to this world, the avatars in "Lively" would record information and thus creating web 3.0 (could extend

this one step further by allowing people to modify the site or resource itself, and thus reason about the Web in a quasi-human enity fashion.)

4.5   The Brave New World

The advent of the second generation of the Internet has many observers predicting future integration of social networking and technology in to the populations' daily life. This next stage of evolution as Pascu et al (2008 pp. 38) [44] states "Time Magazine's selection last December of "You" as the person of the year may be viewed as the recognition of the new digital democracy, of the people behind social computing trends, going mainstream." This evolution has many early adopters clearly identifying the next stage of this process. Societal re-engineering is occurring at present, producing optimistic, concrete social outcomes such as the development of friendships, dating relationships, and collective action, "democratisation of innovation" and "creative institutional destruction" (new players emerging, old actors refusing to adapt disappear). Von Hippel (2002 pp.3) [60] goes further to identify, "it is our contention that complete fully-functional innovation networks can be built up horizontally – with actors consisting only of innovation users (more precisely, "user/self-manufacturers"). Users participating in the network design and build innovative products for their own use – and also freely reveal their designs to others." Clearly future trends will fall in to the following criteria identified by Matthing et al (2006 pp.293) [34] "technology readiness" as a key condition for bottom up innovation and adaptation in to the new reality of a competition friendly open collaboration in a multidiscipline global environment.

5.0   Research Methods (Chapter 3)

The nature and scope of this investigation needed to use a hybrid structure of both Qualitative and Quantitative methods. This study needed to encapsulate both early adopter IT junkies and green businesses from the green box and beyond. Getting a basis of comparing the two groups to identify some areas where improvement of skills would be an ideal result of this study. Vision is becoming a staple in many business plans due to the direction it creates. Data drives all decisions in businesses while in the general public an idea can produce grand results. This is where the "Green Box" as a viable venture differs from the majority of pure profit businesses. "Bet on a trend or fall victim to one" has to be clearly understood by today's Ecopreneurs. Rewarding innovation i.e. pay the people who deliver are two of the 16 keys to Google's success, any business could put this in place if the individuals are open to the possibility of needs of your partners are core to your success. This statement would need to be addresses in any findings of the research.

5.1   Problem Identification

The dilemma that has been identified is the use of IT and the internet as a collaborative tool in the Green Revolution that is currently occurring. Is it being fully utilised? An open source framework is identified as a key determinate in the success of this method. The issues are the individuals who set up green businesses of a standard of IT skills where full utilisation was to occur or should it be recommended for them to outsource these capabilities and thus creating a business opportunity. The defining factor of this internet and communication revolution was Mobile phones and 100% access to the cloud of the Internet. Proving that a mash-up application could be used as a marketing tool for a green business plan and green entrepreneurs were assessed using the following methods.

5.2   Primary and Secondary Research

The primary research was conducted through two methods, firstly two surveys were prepared. The questionnaires were to assess the Computer Literacy and Internet Proficiency of the members of the "Green Box," as well as there current opinion of the effectiveness of their companies websites. A focus on Web 2.0 applications and successful websites occurred. The sampling that was used was a predictive sample of the partner members' of the "Green Box" provided by IT coordinator from the "Green Box." The analysis of future trends identified Mobile technology in the form of phones, blackberries and palm pilots to be the next development of Web 2.0 and equipment. A number of questions were developed to assess this paradigm.

The second questionnaire also focused on Web 2.0 applications and successful websites. Social networking was recognised as a method for identifying potential participants in the survey. Web 2.0 dynamic constitution has enveloped persons and persona in real life avatar's this has developed and the market leader is currently Facebook a number of questions were developed to assess this.

The second form of research had a focus on Key Individuals in the Green Box as well as BMW region in GIS technology. Secondary research occurred from assessing published information as well as online information on the Green Box and sustainable tourism around the world as well as assessing the latest development in marketing techniques. GIS and web 2.0 came together in the form of Google Earth and the surveys back up coming future trends, as highlighted in the findings section.

5.3   In-depth Interviews

In-depth interviews occurred with Representative from Google Earth Ireland website and a Ordinance Survey Ireland (OSI) Representative, Eco-prenuership (encompassing the four H's of sustainability Habitat, Heritage, History and Handcrafts) this was in the

form of the CEO of the Green Box, Chief Archaeologist Carrowmore tombs Sligo. An education representative was also interviewed in the field of sustainable tourism. The final interview occurred with a international sustainable tourism representative from Maryland U.S.A. this interview highlighted the difference between the international and Green box perspective to sustainability.

5.4   Virtual Comparison Questionnaires

In the design of the questionnaires it became important that the two elements of focus were assessed and considered, i.e. Technology and the environment. It was imperative to have a frame of reference between the company survey and the individual general public survey. This allows for a comparative analysis to occur. Drafting the questionnaires was very important due to the dual focus of the research.

Identifying a clear and understandable standard of language became an important element due to the phraseology and acronyms that may have had an influence on individual responses. The in-depth interviews left some important questions to be addressed. Firstly comparing the standard of Internet and IT skills in the "Green Box" and comparing them statistical to the greater international population became important. The rationale behind the surveys was highly quantitatively centred and mainly focused around strength of opinion questions with the expectation of some questions allowing participants to expand. The scaled questions were constructed in such a way as to allow for no on the fence responses. A number of questions were survey specific due to the nature and method of the sampling, the three elements of the triple bottom line are assessed through these questions. Getting a quantitative frame of understanding of the ascetic value and usability of open source web sites and protective closed sites could warrant further research. The importance of the length of the questionnaire was assessed, a standard thirty question format was deemed to be too excessive for both samples.

Surveymonkey.com (2008) [75] allowed for an effective method of combining individual questions so the participants divulge the most amount of data and opinion with as little incontinences as possible. Both surveys had ten substantial questions, the business survey had one open ended question while the Individual survey had two open ended questions one addressing the environment and one with a technology focus.

Both questionnaires went through four pre tests one IT lecturer, one Business lecturer, one Environmental Tourism lecturer and a Marketing Professional in Toronto, Canada. The questionnaires were also assessed for relevance by the CEO member of the "Green Box."

The following subsections were identified as key areas, they are as follows (for Surveys see appendix 12)

1. Systematically cover basic information demographics (Name, Age, City/town, County) in the business survey, company was substituted for Age due to relevance. This allowed for generational, geographical analysis to occur.

2. The second question assessed open source applications and volume of samples usage.

3. Question three assessed websites with a open source function as well as a green slant.

4. Question four and five in the individual survey diverged from the business questionnaire at this point due to method of finding participants i.e. social networking, mobile phones where assessed in both.

5. The next question identifies perceived Internet and Computer abilities

6. This question focused on climate change and allows for a open ended response

7. Technology and work life balance also gets rated and an open ended, technological trends question is addressed.

44

8. The business survey focuses on the opinion of the owner on how effective their website and monitoring processes. This question assessed if the market leader Google analytics is the strongest player among Green Box members.

The questionnaires were distributed using surveymonkey.com as a host site and links were sent by social networking through Facebook and Bebo, emails and the network of Green Box businesses. Follow up emails were not needed as the target sample was attained.

5.5   Sampling

Sampling is about taking a small segment of the larger population to extrapolate statistical evidence. It is a scientific method of finding out allot of information from a small section of society about issues that affect them. This method is focused on the route taken to get to the size of the segment. The stages of sampling as identified by Domegan & Fleming (2003 pp.355) [3] are divided in to seven stages,

1. Define the Population,
2. Select the sample frame
3. Choose a sampling method
4. Choose a sampling type
5. Determine the sample size
6. Analysis of data
7. Validation of the sample

The sampling for the two questionnaires was as follows, the first survey was a predictive closed sample made up by partners of the "Green Box." The second was a non-predictive general sample with people from across the world taking part this had a focus of people who use web 2.0 in the form of social networking. The second section had an

age range to encompass both Generation X and Y. Social networking was accepted as a means for categorising possible partakers in the survey. The first survey was business focused and the second was highlighting individual opinion. It is a good comparison to see the standard Irish Ecobusiness IT skills are at in relation to the standard across the world. To get accurate results 40 individuals and 20 businesses were necessary for a good result from the quantitative sample. The dual focus on mobile technology identified some staggering finding for the future of Ecopreneurship and IT related GIS systems.

6.0 Results and Discussion (Chapter 4)

6.1 Interviews

The Interviews were carried out over a four week period from May to June. The people represented come from the main industries involved with GIS technologies and sustainable tourism. A member of the OPW was included due to the potential of collaboration across governmental departments. A leading Academic was also interviewed in the field of sustainable tourism. A design and sustainable innovation professional was identified as being a leader from the East coast of the U.S.A. and was interviewed to get perspective of Irelands standing in the coming Green business boom.

6.1.1 Ordinance Survey Ireland (OSI) Representative

Interview with the head of field survey's for Ordinance Survey Ireland in the North West region. Interview took place on Sunday the 8th of July and questions where prepared before hand (see Appendix 12). The interview identified the history today of GIS technology and a rundown of the equipment used to produce the maps also occurred. The Sligo town maps are up-dated every 12 months, it is vitally important for the accuracy of the maps as they become legally binding documents. OSI mapping is regarded by the land registry as tracking peoples' property and is necessary to prevent conflicts. Older Ordinance survey maps may have different boundaries in place. This is why it is necessary to keep maps for posterity sake. The development of the mapping process has change over the last 50 years as GPS technologies have been adapted from the United States Navy systems. The United States have 25 satellites that can be used by OSI, the European Unions Galileo project has 1-2 satellites and more are planned, the Russian satellites will be coming on line in the next number of months. For a detailed

map to be made it is necessary to have positioning by no less than 5 satellites this makes the accuracies second to none.

Over the past ten years OSI has become more privatised due to the reforms Charlie McCreavy made when he was Minister for Finance. 70-80% of the funding for OSI comes from the sale of Maps and the rest is funded by the government. There was a board of directors put in place and the aim is to become self financing in the near future. Different bodies have controlled the Ordinance Survey in the 1990's the Army and Valuation office was in charge of this facility and civil service like bureaucracies existed. On the board of directors now sits Owen Ryan communications and environment affairs are heavily involved in the activity of the office.

The future plan of OSI is more collaboration across the U.K. and Northern Ireland this will create parity across maps. Ireland being the only country in the European Union without postal codes this is due to the town land system being in place. It is difficult for a system to be set up at this stage in mapping circles. An alliance has begun with An Post to create the Geo Directory including fire and ambulance services. This would add to efficiencies as it would create direct routes. The fear that it may turn in to a mail shot is justified as An Post has gone private over the past number of years.

There are three types of large scale maps. The maps are called International Prime Meridian (IPM) maps they are 1:1000 scale 1:2500 scale and 1:5000 (main small scale) these maps are sold to the public. The Sligo Regional Office reviews and up-dates Sligo town every year, the surrounding area every three years and rural maps are done every five years. For truly accurate maps it is necessary to have a point of reference in Sligo this is called the Eirenet tower this is located in Sligo General Hospital. The major issue KML and Google Earth has to get over is the reference point as the maps tend not to be accurate to a higher degree. OSI mapping has an accuracy of 3mm due to the use of the towers and 5 GPS satellites. Using aerial photographs is innovative and may be the

solution that plagues the OSI maps. In wooded areas and close to high buildings it is very difficult to get an extremely accurate reading and to pick up multiple satellites.

Over the last number of years sub-contracting has occurred for Niche mapping, these include mapping 100 year old drainage systems, roads buildings and streams, county councils are using them more and more. The main reason this is occurring is purely economic and reflects the trends of cost cutting. Main business OSI works with is county council and corporations recently they work with solicitors also. This is done on a contract basis. Everything is done on a unique level. Road classifications can be pulled out on specific overlays this can be added in greater detail to do with explicit needs. Trails are a potential niche due to the most the system can pick up is better than you can from the ground. Sligo County Councils use of Google Earth for identifying recycling and historic sites it is good for snapshots in time. Highflying topography at 10,000 feet also occurs at OSI. Creation of the maps is labour intensive but once it is done it can be updated on an ad-hoc and systematic basis.

80% of the larger scale is out sourced. The use of the Russian satellites in the future is due to the amount of down time in the winter (or depending on situation) where five satellites can not be located. GPS companies like NAVSTAR have been using maps that they are not paying for due to the nature of the business and no international laws exist to protect the creators. Ireland currently does not have the critical mass to institute open access mapping across the board, this is why a monopoly exists and cheaper map makers find it hard to break though.

6.1.2   CEO of the Green Box

This interview with the Chief Executive Officer of the Green Box took place in the Green Box Headquarters in Manorhamelton County Lietrim on the 10th of June 2008. Questions were prepared for this interview and they can be found in Appendix 13.

Permission was given to carry out the quantitative surveys among the Green Box partners. The CEO identified the Green Box as, a NGO creating an Ecotourism destination in three way's, through product development this entails helping partner companies physically through advice, giving them grants, developing and delivering training centres and marketing products that are eco-friendly. The definition of eco-tourism was developed by Tighes International definition of this concept positively adds to the conservation value the main premise has to be nature based. The success to date of the Green Box has been International in scope.

Four global awards where achieved over the last year, these have taking in developing the Green Boxes standards and achieving a highly sought after brand or mark of approval. The Green Box has delivered something new to tourism, helped changed public policy and brought a product to a market where the future has been assessed and a sustainable environmentally friendly creation of a unique concept has come about. The development of this new type of tourism has been marked by an expansion from the test area inside the Breffni Region to all Island area. Change.ie has been an excellent collaborator and has brought about equity. The idea had roots four years ago, but over the last two years, it has really taking off and become very successful. The funding initially came from a European Union cross border initiative the funding has been extended for the next five years from 2008-2012. The ideal of up-skilling has a particular resonance in the current economic climate.

The Green Box has been very embracing to new technologies and advocates include members using Wiki and Blogging in their role in the Green Box. The website was created by Copper Reed from Limerick and there is an individual internally in the Green Box, who has responsibility for up-dates so there is a heavy I.T. focus on the daily processes of the Green Box. The future plans include an all Island All-Ireland eco-label,

more commercialisation and further improvement of the environmental situation through Eco-Audits.

There is a Strategic Plan in place and there is many key milestones that have been achieved. The plan has the foresight that it extends to 2012. The plan also addresses different groups and is not a generic map. Culture has a major influence on the direction of the Green Box. Justifying EPA targets and achieving NSAI goals is a major consideration throughout the development of the Green Box. There are regular audits of the standards and it is a central focus of the program. Currently there is no open access walks and the networking capabilities of the Green Box greatly improves relationships between partner businesses, from collaboration and innovation businesses such as the Ireland EcoTours have been established. This is a business that runs a bus on rapeseed oil (Bio-fuel) and thus shortens the carbon cycle with offset grown rapeseed. Many more businesses of this nature will come about over time and the future looks bright for these types of business partnership initiatives.

6.1.3   Chief Archaeologist Carrowmore Tombs Sligo (OPW)

This interview took place in the "Carrowmore Information Centre", Sligo on the 20th June 2008. The current situation facing Irish Historical sites around Ireland is the restrictions on numbers able to view historical and ancient sites. The protection of great sites is the number one priority when projecting figures on tourism and guided tours. Relatively few excavations have occurred in Sligo's Carrowmore due to the potential of losing sensitive artefacts. The issue stated for the small number of excavations was it (excavations) can only be done once. The Archaeology community are waiting for improved technology and methods.

The projections the Archaeologist highlighted are low when it comes to tourism due to the protective nature of the ancient sites. Over the past twenty years tourism to

Carrowmore has tripled. This is still modest on an international scale. In 1990 there were a total of 8,000-9,000 visitors to the tombs. In the year 2000 there was 29,000 people who visited. As of 2007 the total visitor dropped back to 22,000 people. The location can only facilitate 45,000 people a year as any more than that would harm the nature of the tombs. This could be a potential opportunity to create a virtual Carrowmore for the world to visit in cyberspace. Google Earths 3D warehouse technology as well as the new orb 360 geographic views would be ideal for a location of this nature. The tourists that come to the tombs tend to be of a specialised nature. The interest in archaeology, well read individuals and bus tours include a broad spectrum of historical sites in the region.

A special balance needs to happen between Preservation and Presentation in the heritage sites across Ireland and the world. The majority of the marketing occurs from a centralised basis by the government and Failte Ireland. Heritage Ireland uses a form of GIS technology on the website to highlight the locations of sites with visitor centres. The site caters to multiple languages including Irish, English, French, Danish, Italian, Spanish, Polish and Japanese. There is need for future development when other countries with buying power wishes to travel to Ireland. Russian and Chinese will become two viable languages to have the website translated in to. The monitoring of such sites is extremely important to assess the viability of these translations. Developing a framework to incorporate mash-up facilities is the next step in this positive development by the Office of Public Works.

Many issues with tours have occurred in the last ten years with unauthorised tours of private farm lands. The OPW has begun buying lands that have major heritage sites on them. Carrowmore is no exception. The location of Carrowmore was important due to access to food due to the dual estuaries. Each excavation that occurs in Sligo changes the understanding of Neolithic and Mesolithic cultures. Facilities should be

developed to increase the understanding of the ancient structures. New Grange has been very successful at marketing its unique world heritage site internationally.

6.1.4   Education Representative (Sustainable Tourism)

The use of the Internet by Academics is very important to the workings of Universities and Institutions across the world. The tourism lecturer stated that she uses the Internet over 8 hours a day. Blogging is becoming of major importance due to the international dimension of the forums. In the opinion of the educator there is a need for internal and external branding or marketing and especially on the Internet as it is the outward essence of the corporation or business. In Ireland the Green Box, Slow Food Ireland and Ballymaloe Cookery School have made great inroads in to changing regulations on a national level towards a sustainable way of living and organic foods. The teacher identified when she goes abroad she uses AA route planner and learns from the locals abroad. No systems are identified in Leaper (1995) model this method is a holistic approach to making the public carbon aware. Many people who go on holidays do not what to deal with their mobile phone. This current perspective is due to mobile not being navigation devices with GPS capabilities. Currently 20-20 research has been identified Irish people are taking up to five holidays a year. These consist of short spurt weekend holidays around European capitals. Internationally global networking is occurring and from this there is a quick diffusion of ideas and evolution of ideas come about quicker. Green issues are part of life in today's world. Food and fuel prices are going to be the biggest changer of individual's daily routines over the next five years.

6.1.5 U.S. Sustainable Design and Innovation Professional

The Interview with the CEO and IT Master from Tilt Studio, Inc. took place in the Glasshouse in Sligo town on the 14th of July 2008. Preparation for the interview included full background profile of work done in Baltimore's Urban Forest Project. Sustainable business and design, improvements of web 2.0 and value added advertising, in this interview a focus on the Green Box occurred. The representatives felt it was more than an Eco tourism destination. Identifying a number of things that were lacking globally was another element to the interview. One thing is some way to connect all the businesses, in the U.S.A, treehugger.com fills this void but an international site does not cater to this niche. This site facilitates people so anybody can do business internally within the web community. In Baltimore there currently is a Green Map. Communities like "future department" bring out magazines called the next issue, focuses on the next innovations in the design and business community. An added focus on sustainability is one of the main criteria out of six issues a year. The devotion to sustainability is the central ideal of the magazine. This group is a member's only partnership and is on an invite only basis it is 1450 dollars a year for membership but it is a great honour as only 200 people to be asked to be a member annually. This group is based on a referral basis. The CEO became a member due to her work on a global project called the Urban Forest Project. Currently this initiative is being used as a model and extended out on an international basis. Collaboration occurred between the founders of Tilt. Green IT and green tech is a future trend identified by this interview. Green Tech is an eco friendly method of outsourcing. The "Green Box" is an ideal situation for partnership and collaboration. The next stage of this project is going to be GPS capabilities. The identifiable difference between the cell phone capabilities, i.e. I-Phone and Blackberries, this is in the culture. Having a

work life balance where living to work is mandatory for success of these phones. A distinctive laid back mentality exists in a number of countries around the world.

Google are friends with everyone through partnership and collaboration. Apple has been quite protectionist in the role out of their I-Phone due to deals they done with carriers. This does not stay in line with the ideals behind the Open Source Movement. Social networking capabilities have the potential of revolutionising the business word. The CEO identified her level of proficiency by identifying Twitter (is a real time connection tool) as an excellent site of business collaboration. Bebo is more about the design community in America and culture. Facebook is connecting with friends from high school, these sites all have there own niches. Myspace was more music orientated. The business listings networking site is called Link-in and Rspca. Link-in is a global business community, professional business community. Bally is a leadership society there is 35 all over the country they focus on sustainability in businesses. The current international movement is a movement of learning, everyone is learning from each other. The Green Box was a progressive corporation and concept, possibly lacking in its business friendly characteristics. Adaptation and re-branding of the "Green Box" may be necessary in the near future due to the N.G.O. characteristics and the reduction in funding from the EU. Centralised funding may become inefficient. Tilt Studio, Inc. work with Baltimore's Urban Forest Project allows for the status (501P3 charitable contribution status) is as good as a church. People give (Tilt Studio inc.) funding to provide that to other people throughout the world, the job of this company is to find a company like the Green Box to bring it to America. The international awards the Green Box has achieved are very impressive. The Green Box is not just tourism it is a lifestyle and very unique in the opinion of the CEO of Tilt Studio, Inc. The focusing on mental, spiritual wellness is unique to the Green Box. The model of the Westport is also the most developed in all of the D3 designs in Google Earth. The majority of American high

functioning tourists tend to stay south of Westport and the tourism in the region has developed around that premise. Galway to the members of Tilt studio was quite a commercialised city. Sligo was real life in the opinion of the CEO and IT manager. Symbolism and traditions are a very important element of the international environment that may be used to amplify web presence. The Tilt Studio, mantra is thinking outside the box thinking about different ways to do the same things, this in turn breeds innovation.

6.2   Virtual Comparison Questionnaires

The quantitative questionnaires where constructed using an innovative site called survey monkey, this website created two methods of distribution, firstly a link method using an http page. The second method is an email attachment dispersal system. Both methods where used in the comparative study. Social networking was utilised to get an international sample, Facebook and Bebo where the social networking sites used in achieving a two week trial distribution. The Green Box partners were sent a simple email and asked to respond. A total of 70 responses were received from both samples over the two week trial period.

6.2.1 Individual Questionnaires

The review of websites atheistic appeal revealed telling issues with a number of websites as identified from the International sample.

Table 1

Green Box Assessment of Website
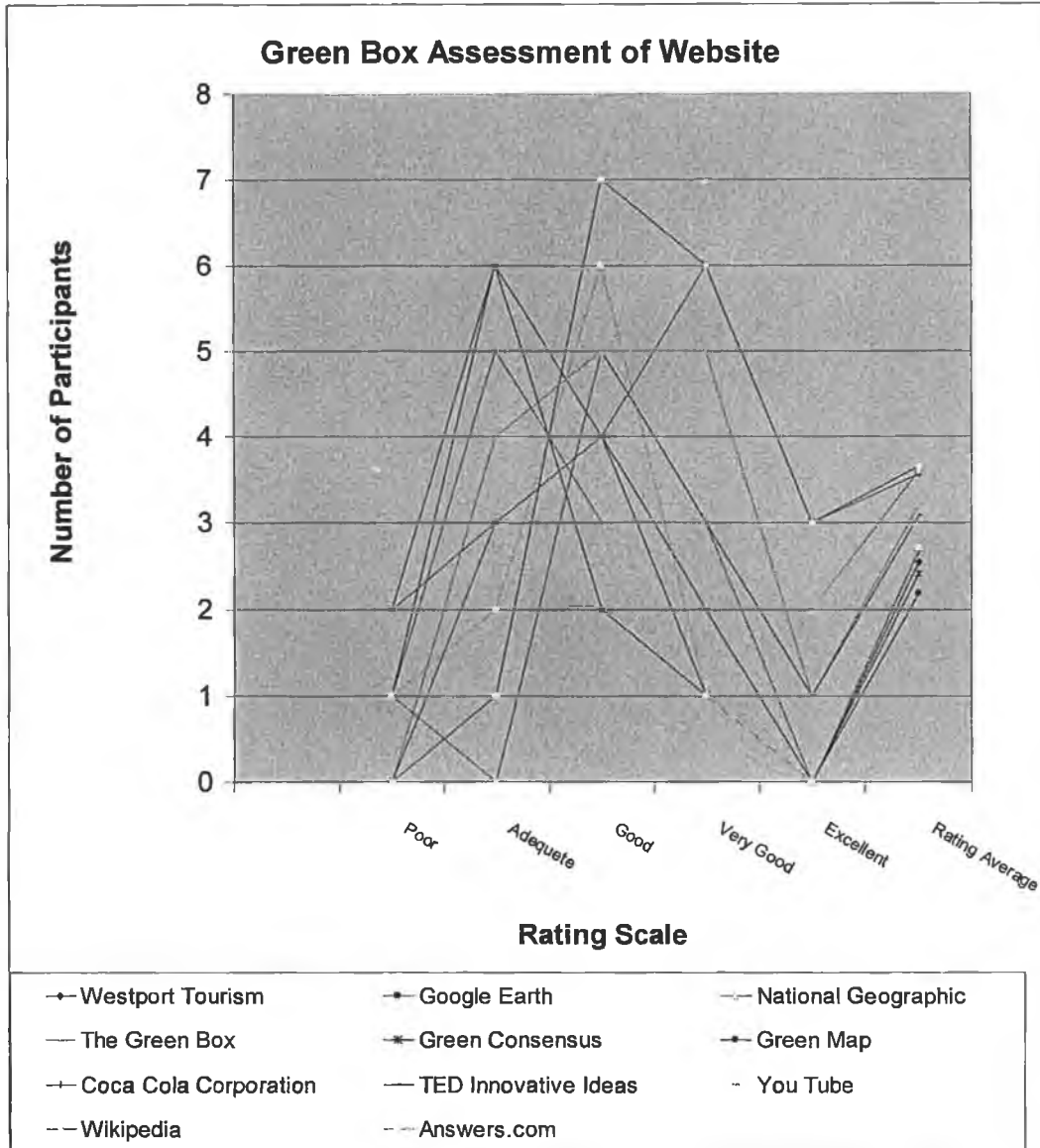
The work life balance compared across an international sample identified 18.6% having poor opinions on it as highlighted in as follows.

Table 2
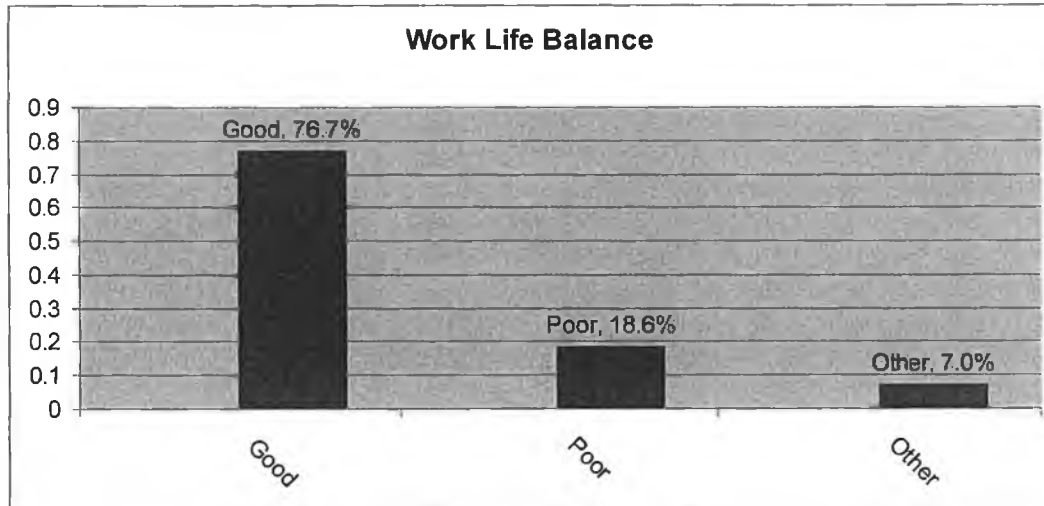
Work Life Balance

Further investigation found people from Ireland had the poorest out look on their daily work life balance as identified from the following results.

Table 3

Focus on the poor work life balance
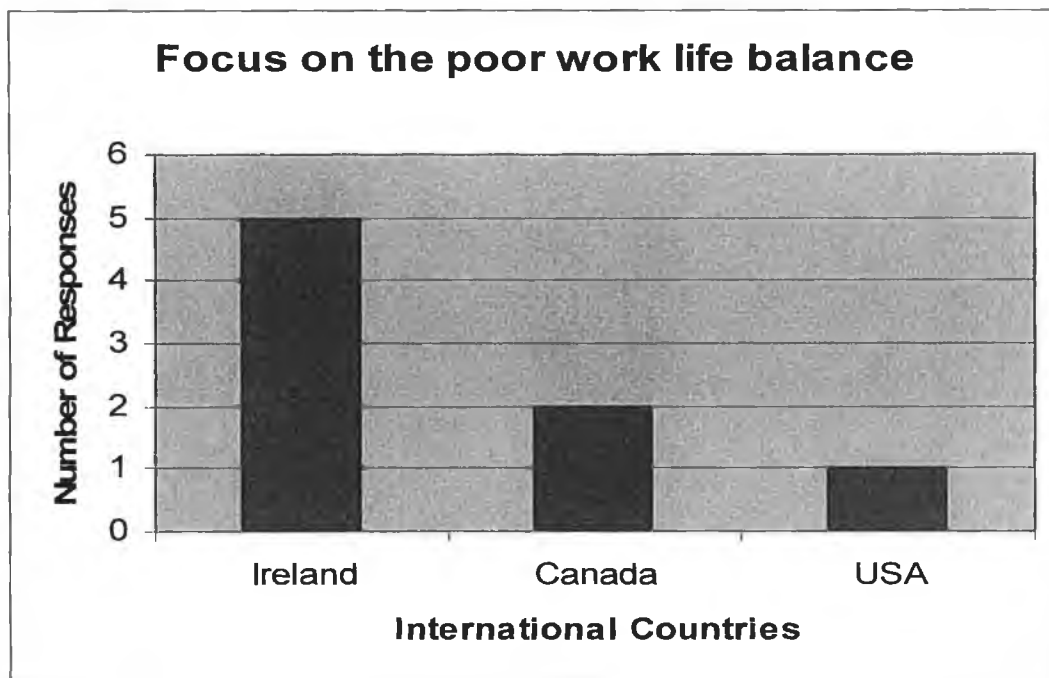
The percentage of Irish users that have a negative out look on their work life balance is more than double the Canadian and American responses. This could be explained from the total amount of people who took the questionnaires and their respective counties as follows;

Table 4

International Country Breakdown

- Canada
- U.S.A
- Ireland
- Mexico
- Italy
- UK
- Japan
- Spain
- France
- Sweden
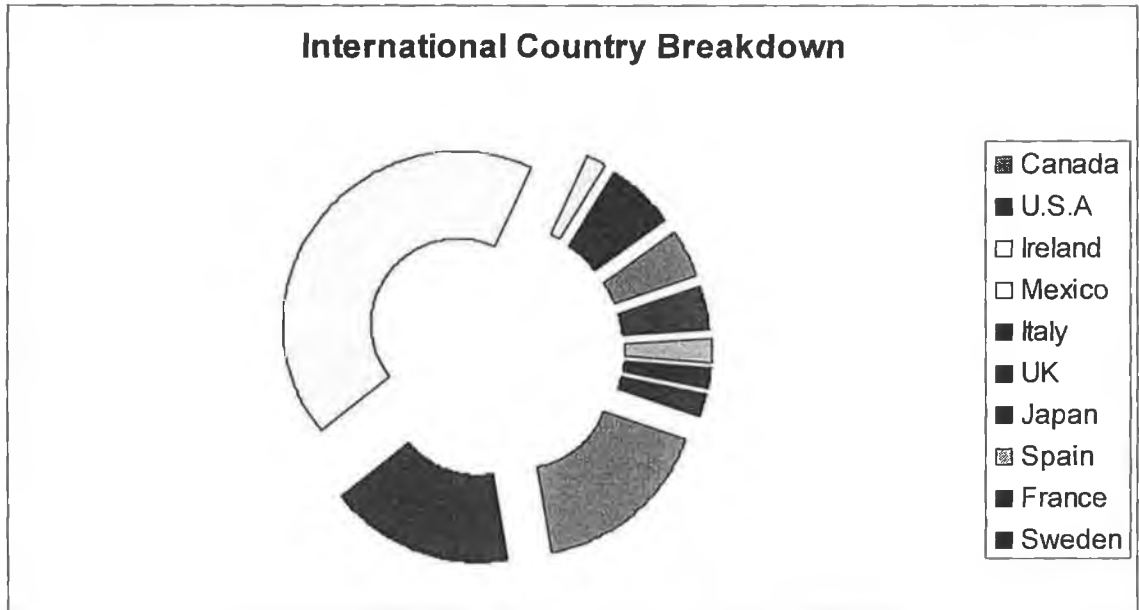
These results confirm that Ireland and the U.S.A and Canada have the same dissatisfaction with their working environment. The age profile also reflects high functioning generation X and Y sampling.

Table 5

Age Profile of International Sample

15%

5%

9%

17%

13%

2%

- 21
- 23
- 24
- 25
- 26
- 27
- 28
- 29
- 18-19
- 30-31
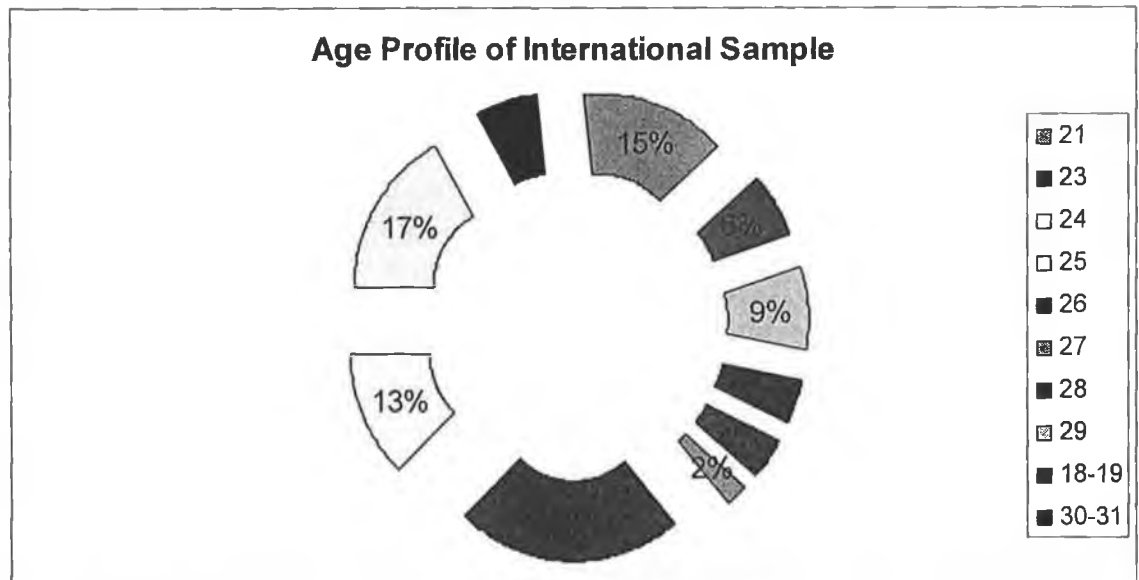
The focus on social networking identified three major players in the social networking market. Bebo was largely used by Irish persons'. Myspace was not rated as high as the Average leader Facebook this is clear from the following trend Graph.

Table 6

Social Networking Assessment
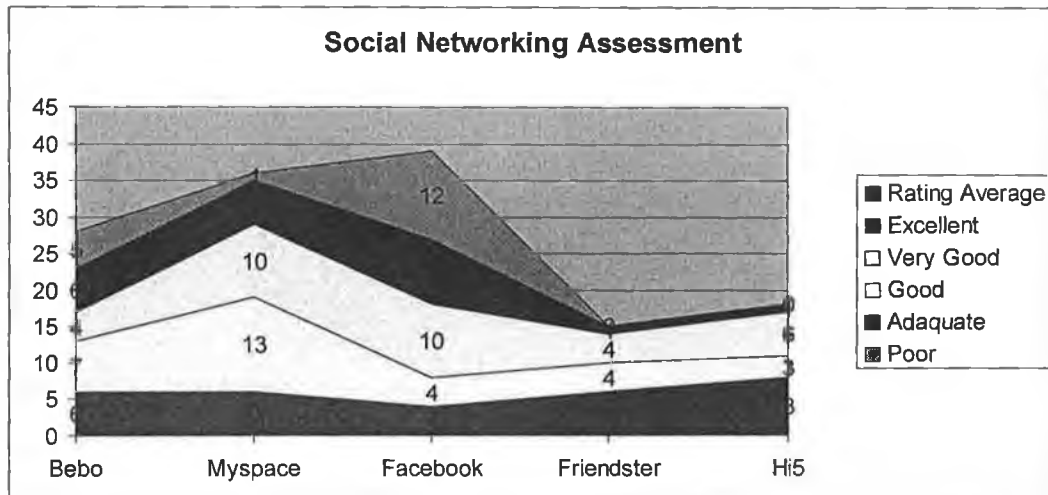
This information is useful due to the perspective of the future of the world economy concern about the economy and climate change identified in bar chart.

Table 7

Opinions on Climate change
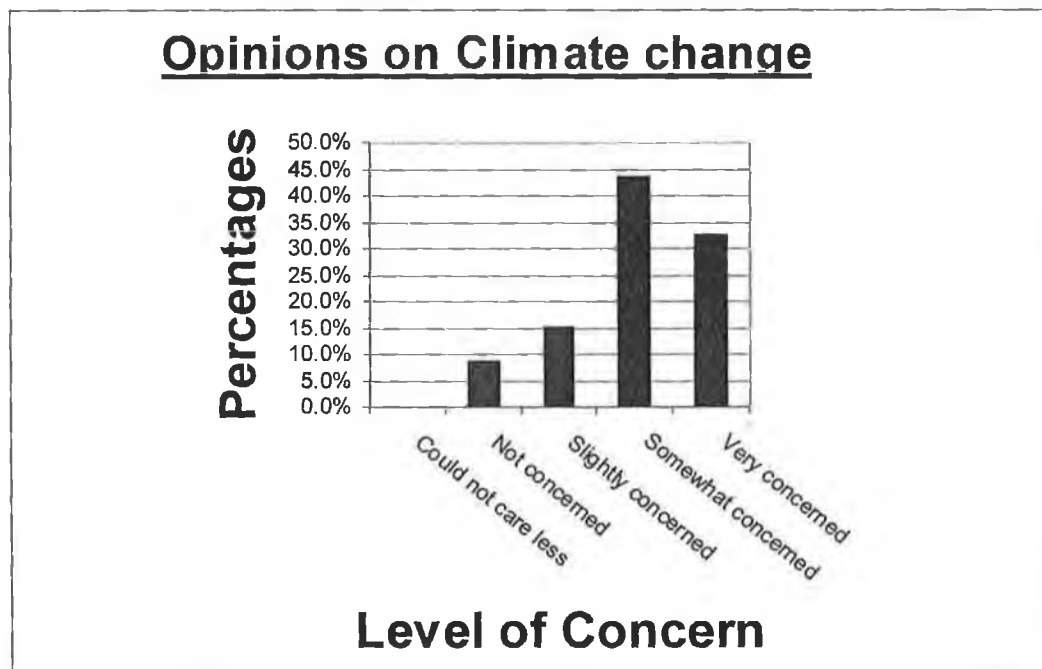
The majority of the people surveyed are very concerned and somewhat concerned. The positive to be taking from these results are innovative partnerships like the "Green Box" will become very profitable due to the future trends and personal perception.

6.2.2 Business Questionnaires

The assessment of websites by the "Green Box" partners identified a different segment of the on-line market. The ratings were a lot higher and the not applicable responses did not become an issue, average rating was used instead of the not applicable response on the following table.

Table 8
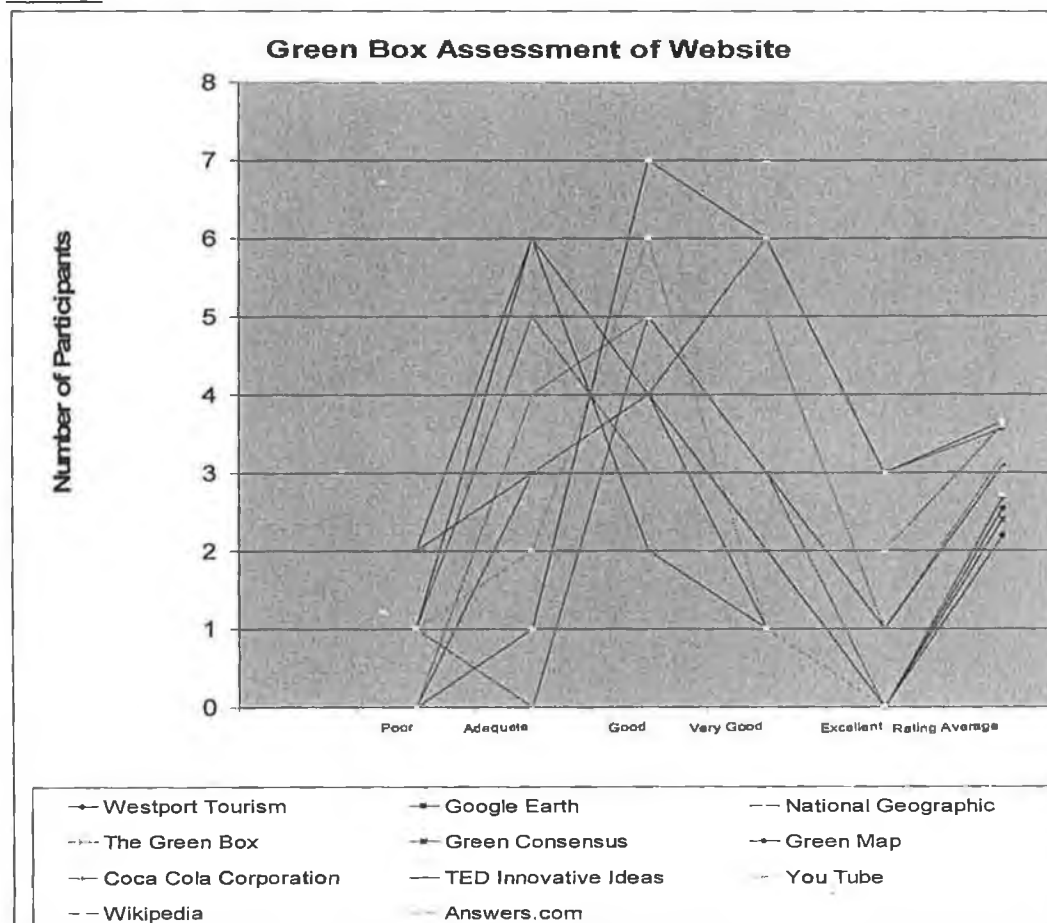
Four websites where rated the highest average rating of 3.6, they were National Geographic Website which is not an open source site. The fact that the sample identified Wikipedia, You Tube and Google Earth as an average of 3.6 recognizes that the members of the "Green Box" are consistent in their reviews as the international environment in their opinions. National Geographic is also another site that is used in partnership with Google Earths GIS mash-up abilities.

61

6.2.3 Empirical Findings

A comparison between the Internet Proficiency and Computer Literacy in question six reflects the lower perceived capabilities of Green Box Members as identified from the following:

Table 9

Comparison of International Internet and Computer Proficiency to members of the "Green Box"
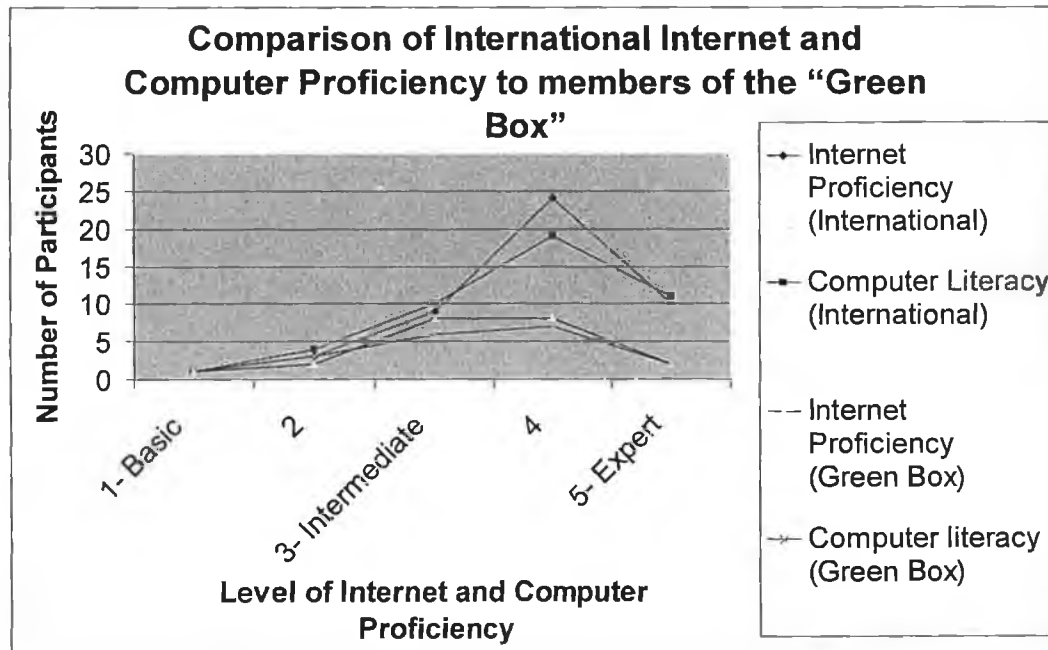
This highlights the need for future IT training to bring the perceived proficiency to a greater level. The target sample focused on the correct individuals due to the small number of the sample that perceived their proficiency to be of a basic level. To fully understand these findings it is important to review the Average response rating, this reflects the difference between the two segments.

Table 10
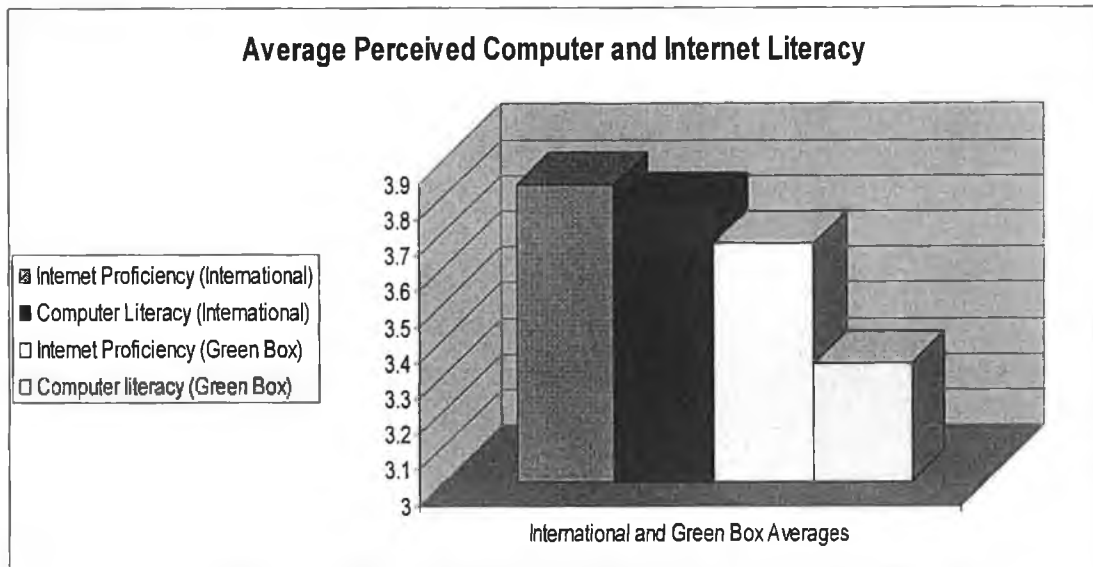
This table clearly highlights the vast differences between the target audience greater perceived skills. Internet literacy and Computer proficiency is therefore of a substantial difference in the Green Box. A full half a rating point of difference would be reflected in the participation in creation of quality web presence utilising Web 2.0 capabilities. The International community being sampled from Social Networking may account for this variance. A recommendation would be a embracing of social networking by Green Box participants to improve perceived IT confidence. Question two highlighted the usage of the internet and the frequency taking from a snapshot in time this was identified through question A and B of question 2.

Table 11
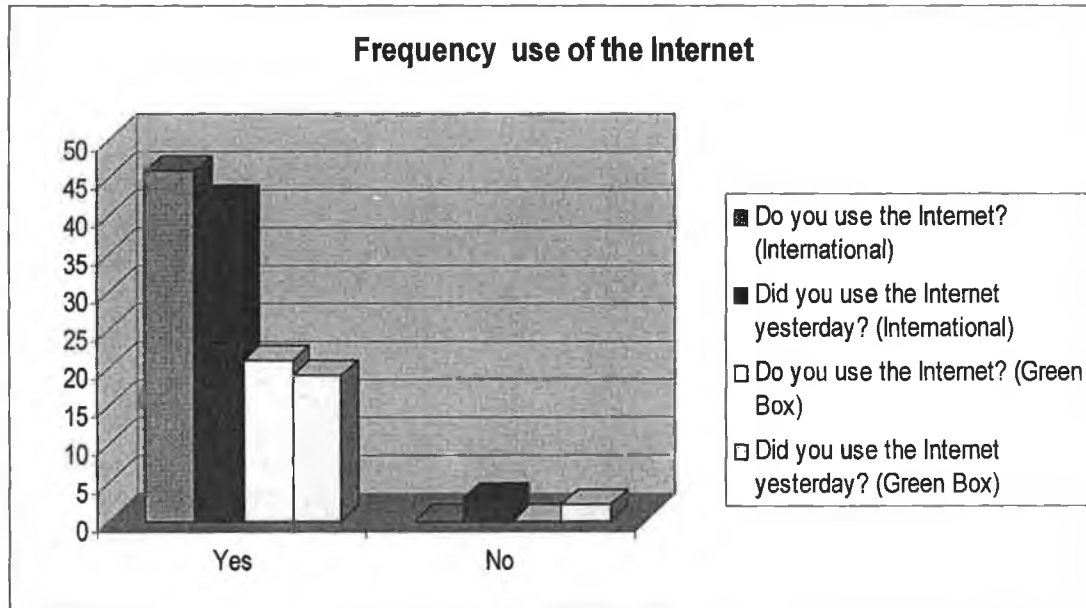
The results of this question confirm the usage of the internet, the interesting finding from this question on a comparative basis is the members of the "Green Box" proportionately use the Internet more than the International sample on a daily basis. Part C in question 2 highlights open source applications with a focus on Google Earth and Wikipedia. The results of these findings confirm a proportion of people that has added information to Wikipedia is identically inverted between adding and viewing.

Table 12

Open Source Web 2.0 application assessment

Legend:
- Have you experienced Google Earth? (International)
- Have you found information using Wikipedia? (International)
- Have you added information to Wikipedia? (International)
- Have you experienced Google Earth? (Green Box)
- Have you found information using Wikipedia? (Green Box)
- Have you found information using Wikipedia? (Green Box)
- Have you added information to Wikipedia? (Green Box)

Categories: Yes, No, Don't Know

The result of this question confirms the great penetration Wikipedia and Google Earth have made in the population using the internet. The proportion of the population that adds to the open source application is substantially lower. Adding information to Wikipedia is not necessary expert users that are making the additions to the application, as Table 12 and 13 emphasizes.

Following the assessment of the perceived capabilities and use of Open Source Applications, it is important to identify what ascetically a participant in the survey's felt was a quality website. Question three addressed this area. Web 1.0 and Web 2.0 websites where assessed in this question. The number of participants was important due to the proportionate sample.

65

Table 13

Comparative assessment of average ratings

Legend:
- Westport Tourism
- Google Earth
- National Geographic
- Green Box
- Green Consensus
- Green Maps
- Coca Cola
- TED
- You Tube
- Wikipedia
- Answers
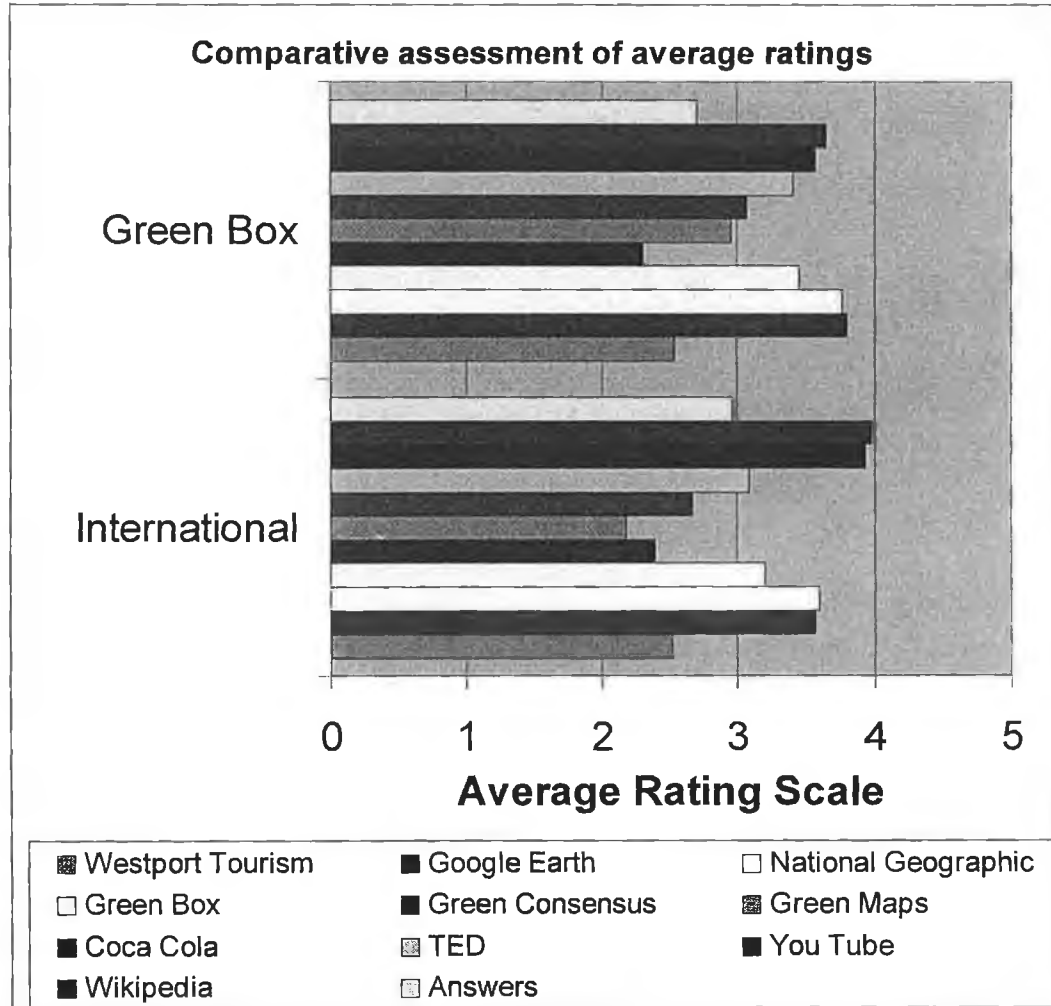
This table compares the two sample types and identifies a number of identifiable differences in perspective.

6.3   Discussion

Table 1 clearly identifies many of the websites where not applicable to the questioned audience. The three most popular websites where identified as You Tube, Wikipedia and Google Earth as they had high satisfaction with the sites and thus was acknowledged as clearly applicable. The fact that all three of these websites are Web 2.0, Google Earths mash-up application encompasses all of these sites. They also have open source functionality.

The research identified a key criterion that needs to be embraced by the international business community. The open source movement with their web presents is from the sample constantly more popular than regular protective sites. Wikipedia, Google Earth and YouTube all use the open source method for creation of information on their sites. The comparison goes across the entire range of people and businesses interviewed. The one site that done consistency better than many of the other closed web 1.0 sites was National Geographic's site this identifies the current need for eco-information. Coca-cola's very advanced flash site was well down among members of the Green Box. This could identify underlying dislike for large profit making multinational corporations among members of the Green Box. The age range of the international sample was between 18 and 30. They identified TED innovative ideas as the fifth most popular site after Wikipedia, Google Earth, YouTube and National Geographic. This was an interesting finding as the responding population range was the target audience of advertising on the Ted website. BMW cars, Nokia phones and AutoDesk design innovation. Creating a sample internationally through Social Networking sites gave an interesting perspective of the people using Bebo, Facebook and Myspace. The response by individuals using Facebook was higher than the other two networking sites. This stays consistent with international figures. The focus on network providers in the Green Box

sample highlighted Vodafone as being the top provider. Irish statistics also confirm this to be a reliable sample as it matches with national data.

7.0   Conclusion

The Internet has changed the paradigm of the world's economic environment. The Internet will continue to attempt to replicate and replace daily habits. Currently there is not a foreseeable backlash as the currents of change are driven from all spheres of influence. The tide has come too far be pushed back. The focus on sustainability and the use of GIS technologies has grand scope. Currently an era is upon the world where nothing is beyond the capacity of handheld devices. The quantitative research with a focus on Generation Y sampling identified a 100 percent usage of mobile phones. The perceived Internet capacity also highlights the curve of the future towards integrated life enriching geographic systems on a mobile basis. Usage of GIS capabilities on a sustainable green business environment basis could potentially occur with a partnership on a collaborative level. The Green Box is in an ideal position to put this in place. Barrack Obama in his speech in Berlin on the 24th of July 2008 highlighted the amount of walls that has gone up around the world, Obama (2008) [73] stated "partnership has worked in the past, the coming together of Europe and America following the second world war is evidence of that......Technology and Information reduces barriers to prosperity in the 21st century, the world is more intertwined than ever before." True partnership is a union of prosperity and peace this can only be created by "Learning" from each other and most of all through "Trust." This is an important factor as it includes people and businesses left behind by globalisation. There remains a viable business opportunity in the provision of an innovative enterprise where open source GIS applications are used to market sustainable products. The dilemma remains as to how to provide this service without resolving the issue of invasive applications, which store data on searches and GPS location trackers.

Organising data is Google's guiding force, the mash-up applications of Google Earth and Maps has been extremely proactive in sensing the markets needs. The Green

Box would be an ideal partner to institute these methods of marketing due to their NGO status. A feasible partnership between Google and the Green Box would be of benefit to both parties. Due to the extent of Google internationally and the respect that the Green Box has accumulated over the past number of years in sustainable circles, from this partnership best practice could be identified in the efficient use of Google Earth and Maps.

8.0   Future Research

The quantitative research identified a number of key issues that exist in the current international environment. The focus of the sampling allowed for perspectives to be highlighted from North America and Europe. Future research in Asia may identify higher usage of GIS technologies in everyday life. The advent of China and India's growth opens up a line of research which could produce innovative ideas. The scope currently exists through technological advances in the cloud of the internet for tremendous collaboration to occur. This could occur by focusing on the best elements of all cultures uses of technology from an anthropological perspective. The planet could evolve to a type one civilization across the world. Hand held devices and the ever expanding power of the World Wide Web will be the great equaliser. At present as highlighted by Kelly (2007) [70] the web is only 5000 days old. In the next 5000 days or ten years what will this evolve in to? Research is needed to protect users from abuses by subversive elements on the planet. Closing the open source movement could scupper the further advancement of "the greatest machine ever created". An example of this occurring is the court case where Viacom is accusing YouTube of "massive intentional copyright infringement." The Japanese GIS market may give insight into the future direction of the Irish mobiles and applications. The assessment of the restructuring of the web and mobile technology from a 3G basis, a seminal work combining the findings from this research into a usable profit based business application or models on a Global scale. This would also create co-dependency on an international level and trade barriers and national boundaries would break down. Language and an international web currency will change the current dynamic of geopolitical activity. Further research could shed light on these trends and the willingness of the populace to accept the changes.

9.0   References-Bibliography

Books

1. Benkler, Y. (2006) *"The Wealth of Networks: How Social Production Transforms Markets and Freedom"*8 Yale University Press, New Haven, CT. cited in Allee, V (2008) "Value network analysis and value conversion of tangible and intangible assets" in the *Journal of Intellectual Capital*, Volume 9, Number 1, (pp. 5 – 24) Emerald Group Publishing Limited

2. Chaffey, D, Mayer, R, Johnston, K & Ellis-Chadwick, F (2000) *"Internet Marketing: Strategy, Implementation and Practise,* (pp. 13-56) Pearson Prentise-Hall, Hempstead, U.K.

3. Domegan, C & Fleming, D (2003) *"Marketing Research in Ireland, theory and practice "* 2nd Edition, (pp. 271-393) Gill & Macmillan, Dublin, Ireland.

4. Friedman, T (2006) *"The World is Flat (The Globalized World in the Twenty-First Century) "* (pp. 3-543) Second Edition, Penguin Books Ltd. London U.K.

5. Gore, A (2007) *"An Inconvenient Truth: The Planetary Emergency of Global Warming and What We Can Do About It"* (pp. 1-192) Viking Juvenile, New York, U.S.A.

6. Kotler, P & Keller, K (1998) *"Marketing Management:United States Edition 12th edition"* (pp. 1-20) Pearson Prentise-Hall, Hemel, Hempstead U.K.

7. Porter, M, (1985) *"Competitive Advantage"* (pp 11-15) The Free Press. New York. U.S.A.

Journals

8. Aldenderfer, M (2008) "Archaeologists have begun to adapt both GIS and RS technologies to the investigation of individual archaeological sites, and it is here that both show great promise for the future," in *Geospatial Application Papers, Archaeology, Interviews,* Web archive, (pp1-7) viewed 23rd June 2008, @ http://www.gisdevelopment.net/application/archaeology/interview/ev028.htm

9. Allee, V (2008) "Value network analysis and value conversion of tangible and intangible assets" in the *Journal of Intellectual Capital,* Volume 9, Number 1, (pp. 5 – 24) Emerald Group Publishing Limited

10. Baxi, P (1998) "GIS applications in marketing & sales" in *Geospacial Application Papers,* Web Archive, (pp. 4-12) viewed 20th June 2008, @ http://www.gisdevelopment.net/application/business/bus0010.htm

11. Biuk-Aghai, R (2004) "MacauMap: Next Generation Mobile Travelling Assistant" presented to the *Map Asia Conference 2004*, Web Archive, (pp.1-6) viewed 18th June 2008,@ http://www.gisdevelopment.net/technology/mobilemapping/pdf/ma04155.pdf

12. Bracke, M, Miller, C & Kim, J, (2008) "Adding value to digitizing with GIS" in the *Library Hi Tech*, Volume 26, Number 2, (pp. 201 – 212) Emerald Group Publishing Limited

13. Branin, J & Case M (1998) *"Reforming Scholarly Publishing in the Sciences: A Librarian Perspective"* in the *Notices of the American Mathematical Society,* Volume 45, Number 4, (pp.475-486)

14. Brown (2008) "Brown's India News Conference" on *Sky News,* Viewed 21st January 2008, @ http://news.sky.com/skynews/article/0,,91211-1301597,00.html

15. Bughin, J & Manyika, J (2007) "How businesses are using Web 2.0: A McKinsey Global Survey" in *The McKinsey Quarterly,* (pp1-5) viewed 19th January 2008, @ http://www.mckinseyquarterly.com/Marketing/Digital_Marketing/How_busin esses_are_using_Web_20_A_McKinsey_Global_Survey_1913

16. Camilleri, C (2008) "Sharing Yalumba: Communicating Yalumba's commitment to sustainable winemaking" in *Corporate Communications: An International Journal,* Volume 13, Number 1, (pp. 18 – 41) Emerald Group Publishing Limited

17. Clements, M, Lazo, R & Martin, S (2008) "Relationship connectors in NZ fresh produce supply chains" in the *British Food Journal*, Volume 110, Number 4/5, (pp. 346 – 360) Emerald Group Publishing Limited

18. Cooney, T (2008) "Celtic Tiger found in education jungle" in the *Education + Training Journal,* Volume 50, Number 1, (pp. 64 – 66) Emerald Group Publishing Limited

19. Crowley, K (1999) " Jobs and environment: the "double dividend" of ecological modernisation?" in the *International Journal of Social Economics,* Volume 26, Number 7/8/9, (pp. 1013 – 1027) MCB UP Ltd

20. Desmet, A (2008) "Keeping Digital Maps Fresh" in *GIS Development,* Web Archive, (pp.1-6) viewed 20th June 2008, @ http://www.gisdevelopment.net/magazine/global/2008/june/36.htm

21. Dixon, S & Clifford, A (2007) "Ecopreneurship – a new approach to managing the triple bottom line" in the *Journal of Organizational Change Management,* Volume 20, Number 3, (pp. 326 – 345) Emerald Group Publishing Limited

22. Down, S & Warren, L (2008) "Down Constructing narratives of enterprise: clichés and entrepreneurial self-identity," in the *International Journal of Entrepreneurial Behaviour & Research* Volume 14, Number 1, (pp. 4 – 23) Emerald Group Publishing Limited

23. Driessen, S, Huijsen,WO & Grootveld, M (2007) "A framework for evaluating knowledge-mapping tools" in the Journal *of Knowledge Management,* Volume 11, Number 2, (pp. 109 – 117) Emerald Group Publishing Limited

24. Durzun, Z (2007) *"THE FUTURE OF GIS,* Getting Started With GIS" (pp. 1-41) viewed 20th June 2008 @ http://www3.itu.edu.tr/~seker/files/gis-week10.PDF

25. Elliott, M & Scacchi, W (2008) "Mobilization of software developers: the free software movement" in the *Journal of Information Technology & People,* Volume 21, Number 1, (pp. 4 – 33) Emerald Group Publishing Limited

26. Garvare, R & Isaksson, R (2001) "Sustainable development: extending the scope of business excellence models" in *Measuring Business Excellence,* Volume 5, Number 3, (pp. 11 – 15) MCB UP Ltd

27. Hediger, W (1999) "Reconciling "weak" and "strong" sustainability" in the *International Journal of Social Economics,* Volume 26, Number 7/8/9, (pp. 1120 – 1144) MCB UP Ltd

28. Jones, M (2007) "Google's Geospatial Organizing Principle" in the *IEEE Computer Graphics and Applications,* Volume 27, Number 4, (pp. 8-13) @ http://csdl2.computer.org/persagen/DLAbsToc.jsp?resourcePath=/dl/mags/cg/&toc=comp/mags/cg/2007/04/g4toc.xml&DOI=10.1109/MCG.2007.82

29. Koudal, P & Coleman, G (2005) "Coordinating operations to enhance innovation in the global corporation" in *Strategy & Leadership,* Volume 33, Number 4, (pp. 20 – 32) Emerald Group Publishing Limited

30. Loukis, E, Sapounas, I & Aivalis, K (2008) " The effect of generalized competition and strategy on the business value of information and communication technologies" in the *Journal of Enterprise Information Management,* Volume 21, Number 1, (pp. 24 – 38) Emerald Group Publishing Limited

31. Mader, R (1999) "Ecotourism research and promotion on the Web: experiences and insights," in the *International Journal of Contemporary Hospitality Management,* Volume 11, Number 2/3, (pp. 78 – 79) MCB UP Ltd

32. Manyika, J, Roberts, R & Sprague, K (2008) "Eight business technology trends to watch" in *The McKinsey Quarterly,* Number 1, (pp. 60-71) McKinsey & Company

33. Martin, C (2007) "Knowledge and the Wealth of Nations" in *On the Horizon,* Volume 15, Number 4, (pp. 245-251) Emerald Group Publishing Limited

34. Matthing, J, Kristensson, P, Gustafsson, A & Parasuraman, A (2006) "Developing successful technology-based services: the issue of identifying and involving innovative users," in the *Journal of Services Marketing,* Volume 20, Number 5, (pp. 288 – 297) Emerald Group Publishing Limited

74

35. McAuley, A & Fillis, I (2005) "The Orkney based craft entrepreneur: remote yet global?" in the *Journal of Small Business and Enterprise Development,* Volume 12, Issue 4, (pp. 498 – 509) Emerald Group Publishing Limited

36. McKiernan, G (2004) " E-profile" in *Library Hi Tech News,* Volume 21, Number 7, (pp. 30 – 39) Emerald Group Publishing Limited

37. Miri, S & Varshosaz, M,(2005) "Standardization of Geomatics Applications in Cultural Heritage" in *Map Middle East,* Web Archive,(pp. 1-9) viewed 23rd June 2008 @ http://www.gisdevelopment.net/application/archaeology/general/me05_022.pdf

38. Newport, D, Chesnes, T & Lindner, A (2003) "The "environmental sustainability" problem: Ensuring that sustainability stands on three legs" in the *International Journal of Sustainability in Higher Education,* Volume 4, Number 4, (pp. 357 – 363) MCB UP Ltd

39. Ologun, J, Taiwo, O & Adeofun, C (2004) "The Role Of Geographic Information System In Tourism Development In Nigeria" in *GIS Development,* web archive, (pp.1-17) viewed 20th June 2008, @ http://www.gisdevelopment.net/proceedings/mapindia/2006/emerging%20applications/mi06eme_170.htm

40. O'Reilly, T (2007) "What Is Web 2.0: Design Patterns and Business Models for the Next Generation of Software" in *Communications and Strategies,* 1st Quarter, Number 65, (pp. 18-37) O'Reilly Media, Sebastopol (CA) USA

41. Pal, T (2006) "Sensing the "Remote" markets" on the *Geospacial Resource Portal,* Web Archive, (pp. 1-4) GIS Development @ *http://www.gisdevelopment.net/technology/rs/techrs0010.htm*

42. Parsons, R (2008) "We are all stakeholders now: The influence of western discourses of "community engagement" in an Australian Aboriginal community" in *Critical Perspectives on International Business*, Volume 4, Number 2/3, (pp. 99 – 126) Emerald Group Publishing Limited

43. Parvine, P, Tikkanen, H & Aspara, J (2007) "Corporate strategic marketing: a new task for top management" in *Business Strategy Series,* Volume 8, Number 2, (pp132-141)

44. Pascu, C, Osimo, D, Turlea, G, Ulbrich, M, Punie, Y, & Burgelman, J (2008) Social computing: implications for the EU innovation landscape, in *foresight,* Volume 10, Number 1, (pp. 37 – 52) Emerald Group Publishing Limited

45. Patrick, K & Dotsika, F (2007) "Knowledge sharing: developing from within" in *The Learning Organisation,* Volume 14, Number 5, (pp395-406)

46. Richardson, J (2006) "If humanity and the environment fail one another" in *Foresight,* Volume 8, Number 2, (pp. 70 – 77) Emerald Group Publishing Limited

47. Rothery, G (2007) "Destination Anywhere" in *Marketing Age,* Volume 1, Number 4, (pp. 54- 57) Whitespace Publishing Group Ltd.

48. Sayer, R (2007) "The right staff from X to Y Generational change and professional development in future academic libraries" in *Library Management,* Volume 28, Number 8/9, (pp 474-487)

49. Sharpe, H (2008) "Phone Technology Aids UAE dating" on *BBC News Dubai,* viewed 21st June 2008 @ http://news.bbc.co.uk/2/hi/middle_east/4718697.stm

50. Simonite, T (2006) "Advertising screen tailors ads to its audience" in *New Scientist Tech* viewed 20th June 2008 @ http://technology.newscientist.com/article/dn10065-advertising-screen-tailors-ads-to-its-audience.html%20

51. Smedlund, A (2006) "The roles of intermediaries in a regional knowledge system" in the *Journal of Intellectual Capital,* Volume 7, Number 2, (pp. 204 – 220) Emerald Group Publishing Limited

52. Smith, G (2007) "A Life of its Own" in *Marketing Age,* Volume 1, Number 4, (pp.29-31) Whitespace Publishing Group Ltd.

53. Smith, G (2008) "In a Word" in *Marketing Age,* Volume 2, Number 3, (pp.28-30) Whitespace Publishing Group Ltd.

54. Summers, P (2005) "VIEWPOINT, The role of the library in a wired society – compete or withdraw: a business perspective" in *The Electronic Library,* Volume 23, Number 2, (pp157-167)

55. Sweeney, J (2008) "Meaningful Travel? Intermediaries and the evolution of the Irish volunteer toutist abroad. A case study of ecotourism projects in Ecuador." A paper presented at Tralee IT 12th June 2008, (pp. 1-17) yet to be published

56. Taylor, M & England, D (2006) "Internet marketing: web site navigational design issues" in the *Journal of Marketing Intelligence & Planning,* Volume 24, Number 1, (pp. 77 – 85) Emerald Group Publishing Limited

57. Timmer, J (2008) "Google's KML map mark-up language now an official standard" in *Arc Technica,* Veiwed 20 June 2008, at http://arstechnica.com/news.ars/post/20080414-googles-kml-map-markup-language-now-an-official-standard.html

58. Ulhøi, J (2004) "Open source development: a hybrid in innovation and management theory" in *Management Decision,* Volume 42, Number 9, (pp.1095 – 1114) Emerald Group Publishing Limited

59. Virtual World (2000) "Welcome to a Virtual World, e-commerce is only one aspect of a wider revolution" in *The Antidote from CSBC*, Issue 24, (pp. 6-8)

60. Von Hippel, E (2002) "Horizontal innovation networks - by and for users" in the *MIT Sloan School of Management Working Paper No. 4366-02* (pp. 1-27) sources:
http://web.mit.edu/evhippel/www/papers/UserInnovNetworksMgtSci.pdf

61. Weiber, R & Kolliman, T (1998) "Competitive advantages in virtual markets – perspectives of "information-based marketing" in cyberspace" in the *European Journal of Marketing,* Volume 32, Number 7/8, (pp. 603- 615)

62. Wellington, D & Zandvakili, S (2007) "Karl Marx and Milton Friedman: Bedfellows in thought" in the *International Journal of Social Economics,* Volume 34, Number 6, (pp. 425 – 432) The Emerald Group Publishing Limited

63. Wright, D & Burns, N (1998) "New organisation structures for global business: an empirical study" in the *International Journal of Operations & Production Management,* Volume 18, Number 9/10, (pp. 896 – 923) MCB UP Ltd

Websites

64. Cerf, V (2008) "Vint Cerf on the Internets future" on the Google channel viewed 30th April 2008, @ http://ie.youtube.com/watch?V=YvbigXryfsuv

65. Cultnat (2008) "The Archaeological Map of Egypt" viewed 20th June 2008 @ http://www.cultnat.org/download/Pdfs/part_2/C-3-Arch%20Map.pdf

66. Gates, B & Job, S (2007) "VIDEO: Steve Jobs and Bill Gates Highlight Reel" viewed 10th January 2008, @ http://d5.allthingsd.com/20070531/video-steve-jobs-and-bill-gates-highlight-reel/

67. Google (2008) "Geospatial Enterprise in partnership with Google Earth", viewed 3rd May 2008, @ http://www.google.com/enterprise/gep/directory_geospatial.html

68. GIS (2008) resource of all published specific papers, viewed 4th May 2008, @ http://www.gisdevelopment.net/application/index.htm

69. Green, C (2008) PACE University, "Green Maps" viewed June 14th 2008, @ http://www.greenmap.org/

70. Kelly, K (2007) "Talks; Kevin Kelly: Predicting the next 5,000 days of the web," viewed May 20th 2008, @ http://www.ted.com/index.php/talks/kevin_kelly_on_the_next_5_000_days_of_the_web.html

71. Laurentiu A. Vasiliu (2008) a PhD academic in Galway University, Digital Enterprise Research Institute, viewed 2nd May 2008, @ http: //www.deri.org

72. Munster University Germany, viewed 3rd May 2008, @ http://musil.uni-muenster.de/feed/

73. Obama, B (2008) "Barack Obama speech in Berlin" viewed 24th July 2008, @ http://jp.youtube.com/watch?v=OAhb06Z8N1c&feature=related

74. Perez (2008) "Duke University, creates 'Micro-blog' systems for mobile phones" in *Information Week,* viewed 20th June 2008, @ http://www.informationweek.com/news/mobility/messaging/showArticle.jhtml?articleID=208700780

75. Surveymonkey (2008) "Creation of effective web based surveys" viewed 12th February 2008 @ http://www.surveymonkey.com

76. "Some facts trends and predictions" in the government technology magazine viewed 30th April 2008, @ http://ie.youtube.com/watch?V=jPhZxht2Pre

77. Sustainable evolution of the Triple Bottom Line, viewed 18th June 2008, @ http://www.greeninnovation.com.au/images/SustainablityChart.jpg

78. M. Andrei, A. Berre, L. Costa, P. Duchesne, D. Fitzner, M. Grcar, J. Hoffmann, E. Klien, J. Langlois, A. Limyr, P. Maue, S. Schade, N. Steinmetz, F. Tertre, L. Vasiliu, R. Zaharia, N. Zastavni (2008) *"SWING: An Integrated Environment for Geospatial Semantic Web Services"* Demonstration paper at ESWC '08, viewed 4th May 2008, @ http://www.swing-project.org/publications/document/116

79. Mapping the past 200 AD, viewed 18th June 2008, @ www.gisdevelopment.net/history/pre200ad.htm

80. Mobile Mapping- Technology, viewed 18th June 2008, @ www.gisdevelopment.net/technology/mobilemapping/index.htm

81. Vella, M (2008) "Live from Lively, Google's New 3D Virtual World,"viewed 12th July 2008, in Business week, @ http://www.businessweek.com/innovate/gamesinc/archives/2008/07/live_from_livel.html

82. Yahoo! local maps, viewed 3rd May 2008, @ http://maps.yahoo.com/#mvt=h&lat=53.349963&lon=-6.253968&zoom=18&tt=&tp=1&bfkey=undefined

9.1 Appendix 1 – Surpluses being gained in equilibrium

POTENTIAL PARETO IMPROVEMENT FROM INTERNATIONAL TRADE

(a) United States   (b) Other Countries   (c) World

Film (millions of rolls)
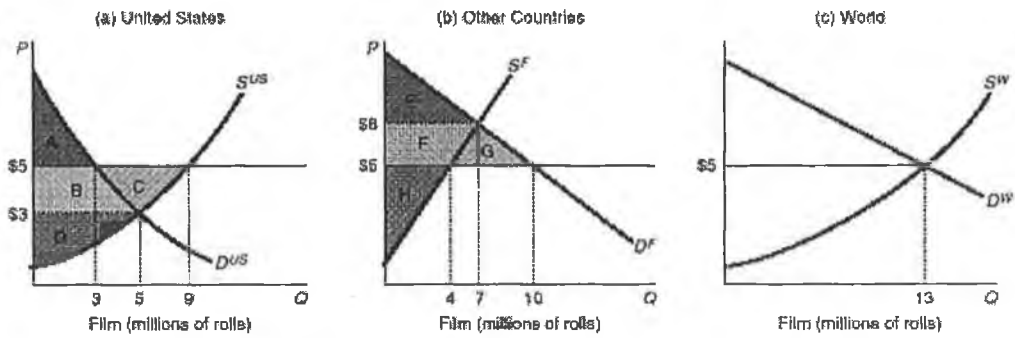
	Without International Trade		With International Trade	
	United States	Other Countries	United States	Other Countries
Consumer surplus	A + B	E	A	E + F + G
Producer surplus	D	F + H	B + C + D	H

The net gain from international trade is Area C + G.

(Friedman, 1976, p. 124)

9.2 Appendix 2 – Zip Car website

Source: http://www.zipcars.com

9.3   *Appendix 3 - Stages of Economic Development*

| Factor-driven economy | → | Investment-driven economy | → | Innovation-driven economy |

Input cost   Efficiency   Unique value

Source: http://www.saudincc.org.sa/About-National-Competitiveness/Stages-of-Economic-Development.aspx

9.4   Appendix 4- O'Reilly Media's Web 2.0

Source: O'Reilly (2007 pp.18)

Web 1.0		Web 2.0
DoubleClick	-->	Google AdSense
Ofoto	-->	Flickr
Akamai	-->	BitTorrent
mp3.com	-->	Napster
Britannica Online	-->	Wikipedia
personal websites	-->	Blogging
evite	-->	upcoming.org and EVDB
domain name speculation	-->	Search engine optimization
page views	-->	cost per click
screen scraping	-->	web services
publishing	-->	Participation
content management systems	-->	Wikis
directories (taxonomy)	-->	tagging ("folksonomy")
stickiness	-->	Syndication

9.5   *Appendix 5- Four stages of the Transactional Framework*
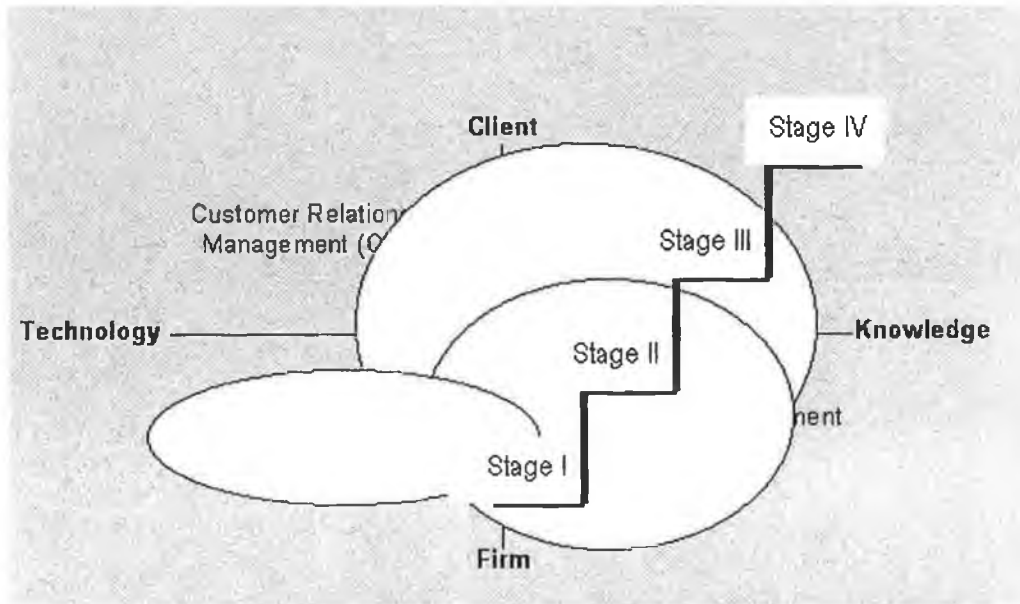
Source: Gottschalk (2007)
http://www2.warwick.ac.uk/fac/s
oc/law/elj/jilt/2002_2/gottschalk
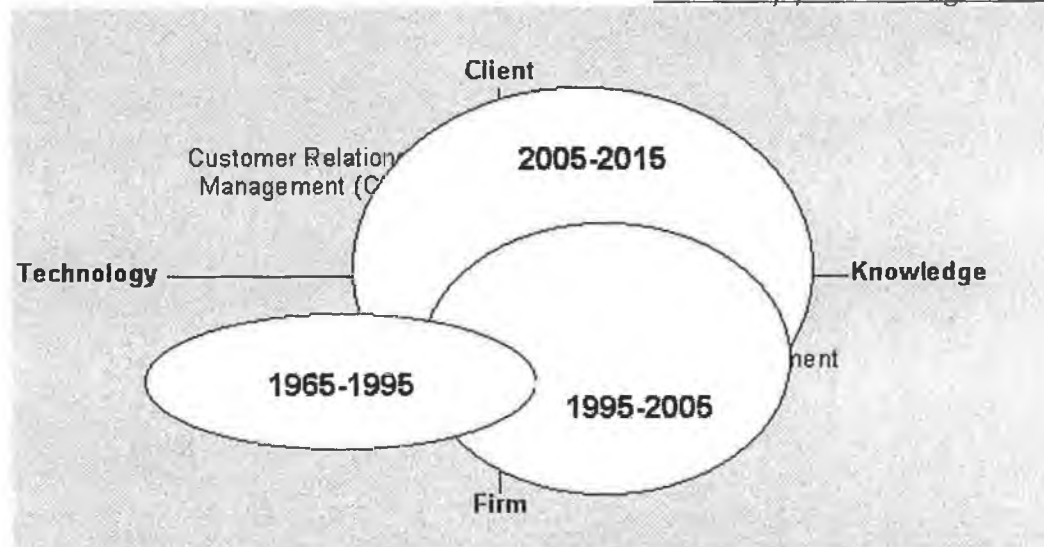
Source: Gottschalk (2007)
http://www2.warwick.ac.uk/fac/s
oc/law/elj/jilt/2002_2/gottschalk

9.6   Appendix 6- Virtual World Globes

The main players are as follows:

Virtual Worlds (Globes)

NASA World Wind

Google Earth

Microsoft's Virtual World

Mapping Systems

Google Maps

Yahoo Local Maps

Open Street Maps

MapQuest

Virtual Worlds

Second Life

World of Warcraft

MPK20: Sun's Virtual Workplace

9.7   *Appendix 7- 6 Stages of Marketing*

Source: http://www.londonschoolofmarketing.com/
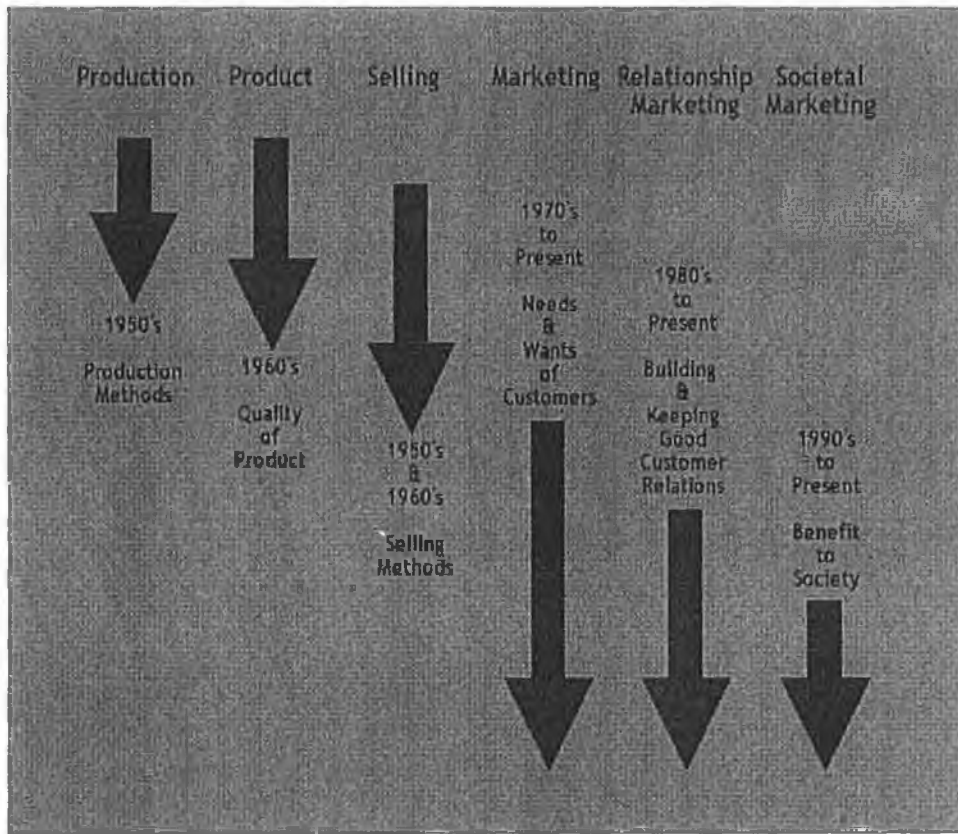
9.8   *Appendix 8- The Evolved Triple Bottom Line*

The 3 Key areas of Sustainable development -

Source:**http://www.greeninnovation.com.au/i mages/SustainablityChart.jpg**

9.9   Appendix 9- Nigerian GIS Tourism Stucture
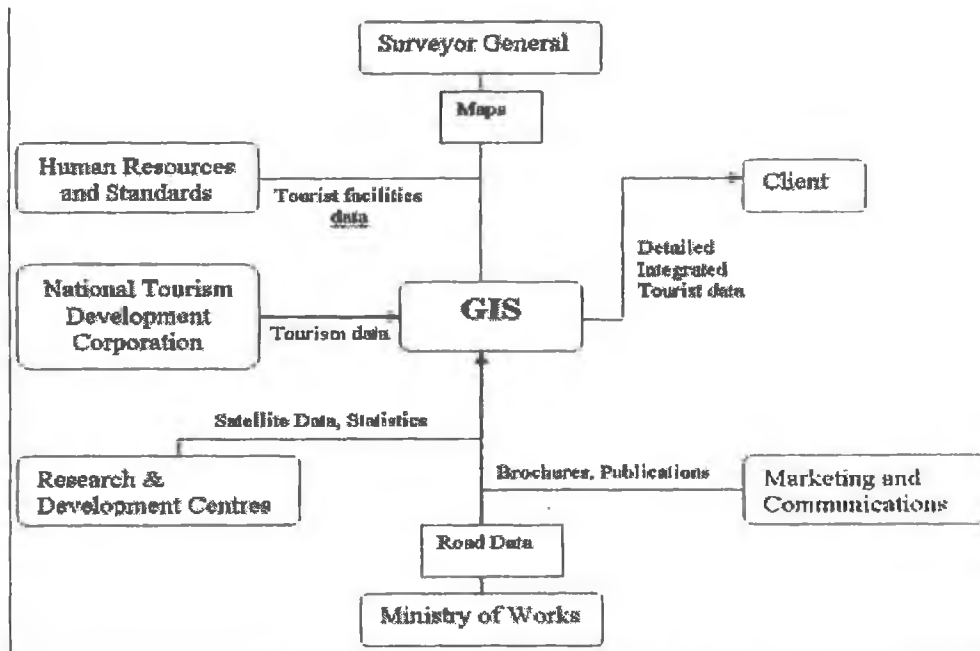
Source: http://www.fig.net/pu b/cairo/papers/ts_49/ts49_01_ onabajo_etal.pdf

9.10 *Appendix 10- Porters Five Forces*
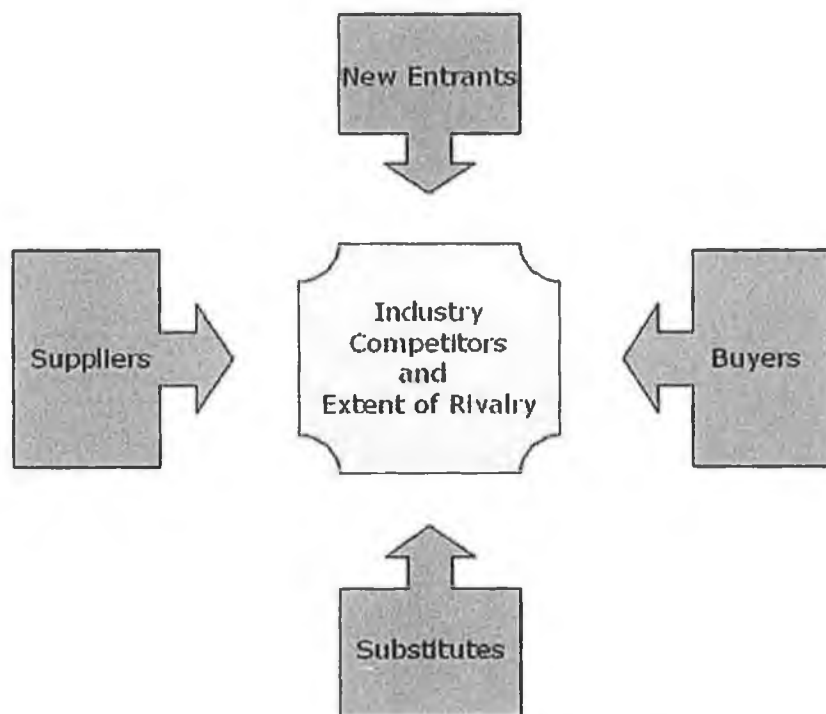
9.11   Appendix 11- Porters Value Chain (1985)
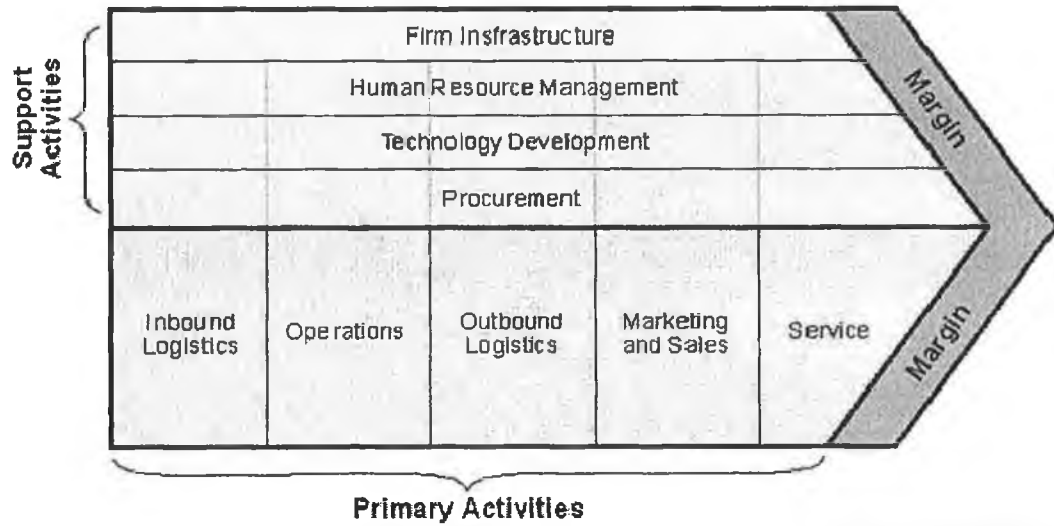
9.12   Appendix 12- OSI Questions

Questions for In-depth interview with Representative from Ordinance Survey

Ireland

1. What GIS programmes do OSI use in their daily activity?

2. Where does OSI get their funding?

3. What are the future plans for OSI?

4. Are they a advocate of the open source movement?

5. Does OSI use hand held GPS devices and if so how do they use them?

6. Does OSI collaborate with other businesses like the Green Box?

7. If so where do these forums meetings occur?

8. Is OSI going to have open access mapping applications?

9. Is OSI a monopoly at present in Ireland?

10. What future trends do you foresee for OSI?

9.13   Appendix 13- Green Box Questions

Questions for In-depth interview with CEO of the Green Box Ireland

1. Can you give me some background of the Green Box?

2. Where does the Green Box get their funding?

3. What are the future plans for the Green Box?

4. Is the Green Box a catalyst for development in the Region?

5. Does your members use Blogging or Web 2.0 applications?

6. How does the Partnership work?

7. What is the business angle of the Green Box and how does that effect your Strategic Plan?

8. Does the Green Box embrace Historic and Archaeological tours?

9. How successful has the Green Box been?

10. What future trends do you foresee for the Green Box?

9.14 Appendix 14- Survey A- Individual B-Business

Survey: A- Page 1

Survey: A- Page 1

Survey: A- Page 1

Survey: A- Page 2

Survey: A- Page 3

Public review of websites - Windows Internet Explorer

http://www.surveymonkey.com/s.aspx?sm=wXWBAzrY%2ftVRZipg1ozd%2fw%3d%3d

Public review of websites

Public review of websites   Exit this survey

3. What is your opinion on future trends?

Assessing the effects of Technology on Individuals daily life Internationally

1. How do you feel about your work life balance?

☐ Good

☐ Bad

☐ Other

Other (please specify)

2. Please identify any future technological trends over the next five years you foresee

Prev   Done

Survey Powered by:
SurveyMonkey.com
"Surveys Made Simple."

Survey B- Page 1

Questionnaire for the members of the Green Box - Windows Internet Explorer

http://www.surveymonkey.com/s.aspx?sm=1WEB7AVYuRBFyF0USCt_2b8w_3d_3d

Questionnaire for the members of the Green Box

Questionnaire for the members of the Green Box   Exit this survey

1. Green Box Partners' Survey

Thank you for taking the time to help me with my research

*1. Please tell me about yourself

Name:

Company:

City/Town:

Country:

2. Please answer the following question, Yes or No

	Yes	No	Don't Know	N/A
Do you use the Internet?	○	○	○	○
Did you use the Internet yesterday?	○	○	○	○
Have you experienced Google Earth?	○	○	○	○
Have you found information using Wikipedia?	○	○	○	○
Have you added information to Wikipedia?	○	○	○	○

3. Please rate the following websites (on personal ascetic appeal to you), take time out to look at the current versions as follows

	Poor	Adequate	Good	Very Good	Excellent
Westport Tourism- http://www.westporttourism.com/	○	○	○	○	○
Google Earth-					

start | What's a Scre... | SurveyMonke... | Audio Player -... | Questionnaire... | Layout and se... | page 2 - Part | EN 15:22

Survey B- Page 1

Questionnaire for the members of the Green Box - Windows Internet Explorer

http://www.surveymonkey.com/s.aspx?sm=1WEB7AVYuRBFyF0USCt_2b8w_3d_3d

Questionnaire for the members of the Green Box

	Poor	Adequate	Good	Very Good	Excellent
Westport Tourism- http://www.westporttourism.com/	○	○	○	○	○
Google Earth- http://earth.google.com/	○	○	○	○	○
National Geographic- http://www.nationalgeographic.com/	○	○	○	○	○
The Green Box- http://www.greenbox.ie/	○	○	○	○	○
Green Consensus- http://greenconsensus.org/	○	○	○	○	○
Green Map- http://www.greenmap.org/	○	○	○	○	○
Coca Cola Corporation- http://www.coca-cola.com/	○	○	○	○	○
TED Innovative Ideas- http://www.ted.com/	○	○	○	○	○
You Tube- http://www.youtube.com/	○	○	○	○	○
Wikipedia- http://www.wikipedia.org/	○	○	○	○	○
Answers.com- http://www.answers.com/	○	○	○	○	○

4. Do you own a mobile phone?

○ Yes

○ No

If yes, please state model and type

start | What's a Scre... | SurveyMonke... | Audio Player -... | Questionnaire... | Layout and se... | page 2 - Part | EN 15:23

Survey B- Page 1

5. Who is your mobile phone service operator?
- ○ Vodafone
- ○ O2
- ○ Meteor
- ○ 3G
- ○ Other

Other (please specify)
[_____]

6. Please rate your current abilities

	1- Basic	2	3- Intermediate	4	5- Expert
Rate your Internet Proficiency	☐	☐	☐	☐	☐
Rate your Computer Literacy	☐	☐	☐	☐	☐

7. Does your business have a website(s)?
- ○ Yes
- ○ No

If yes how do you monitor your website(s)?
[_____]

8. How effective is your website(s)?
- ☐ 1- Ineffective

Survey B- Page 1

7. Does your business have a website(s)?
- ○ Yes
- ○ No

If yes how do you monitor your website(s)?
[_____]

8. How effective is your website(s)?
- ☐ 1- Ineffective
- ☐ 2- Somewhat effective
- ☐ 3- Moderately effective
- ☐ 4- Effective
- ☐ 5- Very effective

9. Where does the majority of your business come from?
- ○ Ireland
- ○ U.K.
- ○ Europe
- ○ America

Other (please specify)
[_____]

10. Please identify any future trends over the next five years that will be important in your life
[_____]