

## Digital Mapping as a business opportunity: Exploring Albania

**Author:** Medjon Hysenaj, Rezarta Barjami, University of Shkodër, Shkodër, Albania, University of Durrës, Durrës, Albania, medjonhysenaj@hotmail.com, rezartabarjami@hotmail.com

---

*Albanian economy is strictly connected to the fluctuations economies of its neighbor countries. The conducted research aim at creating a web based GIS platform working as a communication and information source to the prospective of managing a future potential category of investors. The paper outlines the importance of digital mapping technology as a powerful tool which can lead into interesting solutions. We are introducing a set of models regarding specific sector categories explaining how integration of GIS technology can result a perfect liaison bridge between this group of businessman's and their new terrain of investment, mitigating their hesitancy due to the lack of information and recognition. GIS technology serves as a mirror to evaluate options, opportunities and probabilities. Through GIS tools they can get involved into the economic situation in the country by tracking customers and competitive businesses. Geographic data must be considered as the basic framework of entire organizations.*

**Keywords:** GIS, analyze, business, organization, information, database, digital mapping

---

### Introduction

Albanian economy is very sensitive to the European market fluctuations. Since 1991 with the fall of the regime Italy and Greece have become the main partners in Albanian developing economy. Without going into deep approach in the investments these countries have made, must be mentioned a

considerable number of Albanian citizens working in these countries, around 1.2 million which is a considerable number compared to the total population number. It is obvious that the economic crisis that affected these countries will have an inevitable effect on the Albanian economy, not only in the investments but also in the number of Albanian emigrants forced to interrupt their working arrangements or business activities due to the lack of market demand, causing this way a constrained return in the country.

According to statistics more than 66% of the emigrants declared a possible return in Albania in case they found suitable conditions to develop an economic activity. This mass of population will make efforts to integrate into the Albanian market primarily through establishing small businesses. In this case information is of vital importance for succeeding. The long period away from the country creates a great handicap to understand and organize the way to manage their activity. We will concentrate our research considering this category which we are going to call “new” potential businessmen’s and their possible approach to the Albanian market.

“Business intelligence” is a business management term that refers to applications and technologies that are used to gather, provide access to, and analyze data and information. A Geographical Information System (GIS) is a business intelligence tool comprised of a collection of computer hardware, software, data, methods and key personnel that help create, manipulate, analyze and present information that is tied to a spatial location (Karen A., 2007).

Digital mapping consist of a substantial part of GIS technology. A GIS takes the traditional map to new heights and may be described by its process, data, and analytical capabilities. The GIS process involves encoding, storage, processing and display of computerized (digital) maps (Grant M., 2000).

Experience refers to some of the most serious companies in the world that changed their business policy into a deeper approach toward GIS technology with the scope of maximizing the use of available resources (that a company has) to supporting more analytical and complicated decision making. It is very important to understand that by using GIS technology business managers or administrators have the opportunity to go into a higher step of just analyzing information, it is about integrating geographic data (distance, location, direction, etc.,) into the series of tools which can be helpful for future decisions.

**FedEx:** is one of the leading companies in the world that provides

customers and businesses worldwide with a broad portfolio of transportation, e-commerce and business services. FedEx Express is known for its widely usage of GIS technology with the aim of solving complex business problems during the delivery process regarding both planification and execution (Conger R., 2009).

**Nike:** is one of the leading companies in the shoe market. Nike sportswear company through the implementation of GIS technology succeeded to gain a lot of valuable information about the demographic distribution of population, history of sales, distribution (location) of schools and colleges which have popular sports teams in their organic or study areas where the average age of the population was relatively young (Esri, 2010).

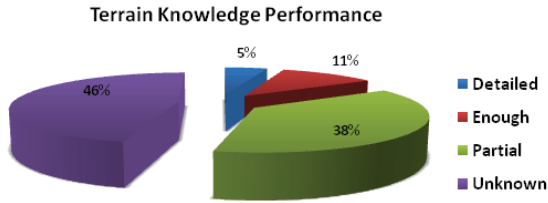
**Levi Strauss & Co.:** encompasses the company's largest region and employs approximately 3,100 people throughout the United States, Canada, and Mexico. LS&CO. wanted a tool that would geographically display its existing authorized retailers, potential retailers, and the customers the distributors serve. Through digital mapping the company would ensure that new stores would not adversely impact the sales opportunities of existing stores (Esri, 2007).

## Framework, Web Based GIS Platform

GIS technology brings every business one step forward towards the others. This group of "new" businessmen which could possibly share a considerable part of the Albanian market may turn in the near future unvalued with their investments and experience. Most of them after several efforts to perform any research about the potentialities of the mart still remain in great disadvantage due to the lack of digital information compared to analogue business competitors which compense this handicap with years of active terrain experience.

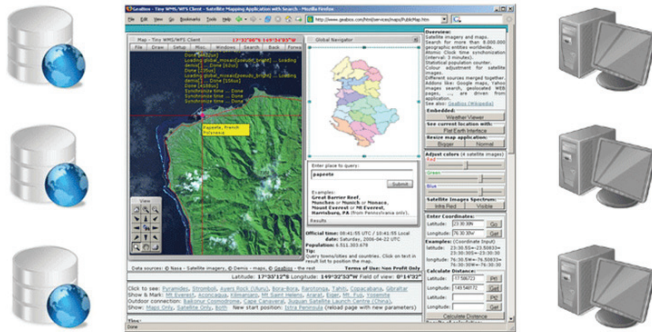
A survey (figure 1) was performed with the goal of understanding the reaction and terrain knowledge this new source of investors have about the Albanian territory. Taking into account that the major part declared a possible return in case of a well organized and managed reintegration process primary based through opened possibilities for terrain investments, the results of the questionnaire turn decisive for their future decision. As we can see from the results most them have less or unkonwn knowledge about the Albanian market terrain in a vast range of aspects. This shows there is much work to do and

much efforts to accomplish.



**Figure 1.** Survey, terrain knowledge performance of new investors

Integration of GIS technology into E-commerce in Albania is strictly connected to the basic problematic the economy situation is facing. Still remains determinant the increasing role the government is playing through substantial reforms which aim to develop internet utilities in a large scale environment in Albania. According to statistics the last five years have been followed by a substantial increase of internet usage in Albania. During 2005 for the first time more than 5% of the population was using internet. Now after 5 years we have reached over 43,5% of the population which is a sustainable and rapid increase (ODA, 2012). Now we have the necessary tools to aim at developing GIS image in the market and institutional levels. Terrain for GIS technology expansion in the Albanian market is already in a mature point.



**Figure 2.** Web Based GIS Platform acting as a communication and information guidance; (Data Source Units: Government structures, Private organizations, University Institutions, etc; Web Users: Business entities, profitable and non-profitable organizations, researchers, etc)

The developed research focus on structuring a GIS platform (figure 2) working as a communication and information bridge, managing multiple source entities providing updated and reliable data such as universities, private institutions or governmental units in order to lead a visionary and forecasting perspective for future potential investments.

This platform should work as a regulatory and guidance mirror able to persuade and disseminate a positive clima not only for this new category of Albanian businessmen but for any other foreign investor.

## Business Opportunities

Important sectors in Albania like construction, tourism, energy, media, agriculture, transport (INSTAT, 2011) are eager to benefit from GIS utilities (figure 3). Analyses due to several developed surveys lead to the creation of mapping forecast for different scenarios.

A guidance through offered possibilities or indexed evaluations is the missing step for a successful business policy (Hysenaj, 2011). Through management of updated data with mapping layout this new category will be able not only to catch the integration process but also start a new cicle giving a strong development to the economic procedures in Albania.

GIS is a problem solver in many areas of business such as marketing, business process optimization and segmentation analysis also GIS works as a great predictive tool for making recommendations about future business decisions (R.K.Sahoo 2008).

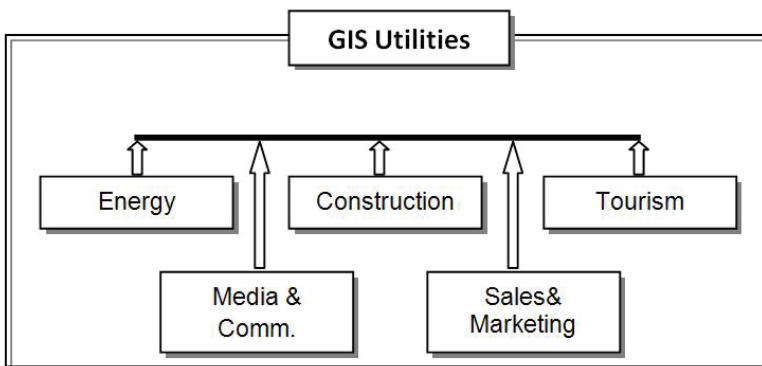


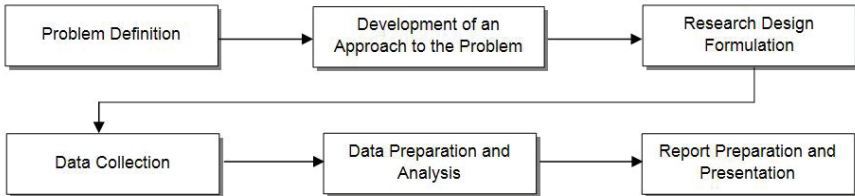
Figure 3. Basic Development Fields

Following we are going to present a set of digital maps, surveys and statistical diagrams according to their specific business sector, with the goal of creating a set of information acting as a future source for the web based GIS platform.

### ***Sales and Marketing***

Shortening of distances, time saving, large scale control of the territory are among the basic columns the research market process requires. All of them are strictly connected to mapping. Every businessman is trying to retrieve the largest amount of data through the implementation of the above mentioned factors. Marketing research process is a set of six steps (figure 4) which defines the tasks to be accomplished in conducting a marketing research study.

These include problem definition, developing an approach to the problem, research design formulation, field work, data preparation and analysis, and report generation and presentation (Malhotra, Naresha K., 2002). The market research process in Albania is in its initial phase of development based primarily through interviewer network.



**Figure 4.** Stages of the Market Research Process (SMRP)

Due to the lack of dynamic mapping the last two steps, data analysis and presentation, require additional features to complete the cycle. These two categories strongly reflect the absence of updated data and most of all integration of these data into geospatial softwares. Benefits from the statistical point of view will be partially perceived unless connected to geographic entities.

“Albania in the age of internet” is the latest reform the government is implementing, which aims to inform young people in rural areas, developing ICT infrastructure basically in public schools and state offices. After that the online transaction sector recognized an immediate development. In Albania there are more than 120 web pages acting as an informative product guidance

including a vast range of products as terrains, houses, cars, etc.

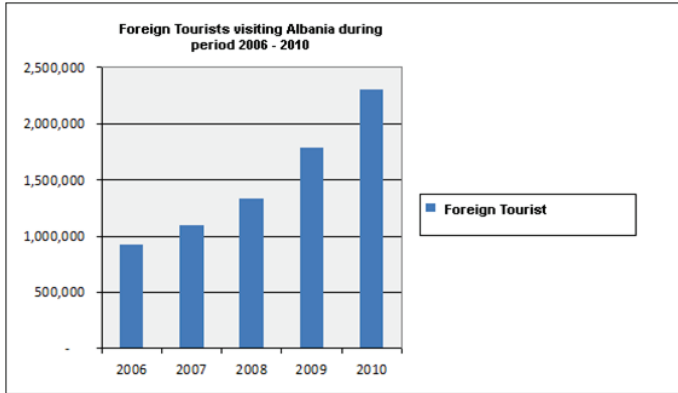
Still their database function tend to be more as a repository data rather than connected to a digital map which would complete the informative process. That's why the next step consist in collecting these data, integrating them into a GIS software able to show not only the statistical point of the request but also the geographical connection. This way we benefit from the visual description of the query. Calculate distances, directions or implement comparisons, pan or zoom on the map to discover more information about the area are only some of the utilities we can take advantage.

### *Tourism*

In many countries of the world tourism activity is considered more important than manufacturing activity both economically and socially. Albania has a great potential in the sector of tourism. Especially the last years tourism in Albania has developed vigorously. According to statistics (figure 5) during the year 2010, more than 2.3 million tourists visited Albania which is quite significant compared to the 2.8 million (PHC, 2011) of the contry population.

The hotel industry recognized a rapid development. The number of hotels increased by 19% from last year. Based on these data, the capacity of hotels in Albania are not adapted to the increasing influx of foreign visitors. For this reason it can be deduced that accommodation for part of the visitors is made in private homes in an unregistered way. This means that there is a high demand for a powerful development in the hotelier sector.

All this scenario shows us the great potential Albanian market reserves vigorous investments for the future. On the other hand due to the lack of a detailed study we miss the presence of a categorizing structure expressing an indexed list on dynamic maps according to the areas and their possible potential of development and investment. Detached data exist on formats like Excel, about visitors number, origin, destination, expenditure but not a real inventory database connected to a digital mapping system which will offer a detailed management plan of the territory's resources and capabilities. The most usual tactic relays on personal surveys and queries, collecting data and trying to support decision-making through inconsistent information.



**Figure 5.** Tourism Performance, foreign visitors (2006-2011)

Source: Open Data Albania

Due to this situation it is difficult to create an exact policy action. Mapping quering is missing and fast-logic actions delayed. Investing in tourism sector is as profitable as delicate because it requires detailed analysis of the territory, climate, distances and movements. Digital mapping is essential in performing all these tasks in the fastest and reliable way.

### *Energy*

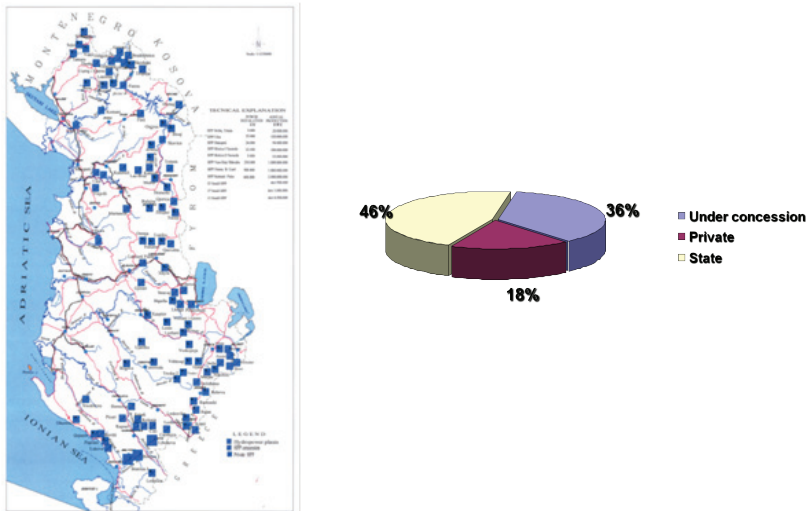
Albania gets 95% of its electricity from hydroelectric plants, but has exploited only about a third of its potential hydro resources that means there are huge reserves of renewable energy in the country. The Albanian hydrographic territory is about 44,000 km<sup>2</sup>, that is about 57% more than the national country area (NANR, 2008). Albania is considered a country with great potentialities in the investment of new energy infrastructure.

One of the best examples is the Ashta hydropower plant which is Albania's first major hydropower plant construction in 30 years and the Government's first large public-private partnership in the energy sector (IFC, 2009). Until now only 35% of Hydro-Energetic potential of the country has been utilized (figure 6), this means that there is a considerable percentage of exploitation possibilities for new potentially hydropower areas.

Using dynamic mapping and remote sensing technology able to analyse natural resources, physiographic characteristics and socio-economic indicators, and most of all the hydrographic network of a certain area will allow us to make a detailed analysis of which are the most appropriate areas to



build the future hydropower plants in Albania. GIS plays an important role in every stage of planning, development and implementation. In Albania many of the conventional projects are characterized by an unclear structuring process where geospatial data is poorly managed, maps lack the updated information, data retrieval and sharing run into technical problematics. Using GIS, we can manage all variables with reference to location, and can provide a clear picture about the hydropower project area and its impact zone (Pathak. M., 2008).



**Figure 6.** Administrative status and geographical distribution of HPP in Albania

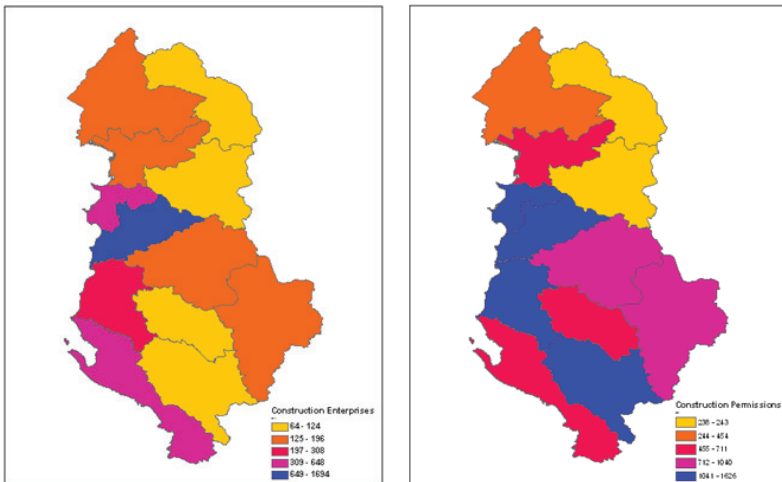
### ***Construction***

Perhaps one of the most interesting aspects of GIS is its ability to integrate diverse data sets, databases, and applications, also it's an appropriate technology for many engineering related projects (Howes D., 2009). Construction sector is one of the most important pillar of the Albanian economy. During communism more than 80% of the population lived in the rural areas. After 1991 Albania faced a demographic boom of population settlement living in remote areas of the country, to more developed areas of the country, and the trend of abandonment of rural areas to move into central developed urban areas, a process which was associated with economic and social consequences. Construction in the urban areas developed rapidly. The last decade has faced a vigorous increment of the statistics regarding construction. In Albania in 2010

were given 1,845 building permissions, or 21% more than the previous year.

An auxiliary factor to better understand construction trend is to make a parallelism (figure 6) between construction enterprises acting in a specific area and construction permissions granted by responsible authorities. Through digital mapping it is possible to highlight the difference or uniformity of these two issues, increasing the possibility of a well organized decision-making process .

Another important issue is the Albanian population and Housing census closed on October 2011 which has been held after ten years from the last one (2001). The overall objective of the project is to contribute to the strengthening of the Albanian statistical system with the implementation of a Population and Housing Census. In Albania the need for a census is perhaps greater than anywhere else calculating dynamic changes that characterized Albania in the recent years. The outcome of the census will answer many important questions the category of “new” businessman’s have, regarding the construction sector. Updated information about demographic movements, population density, tendency are only some of the reference points for business developing.



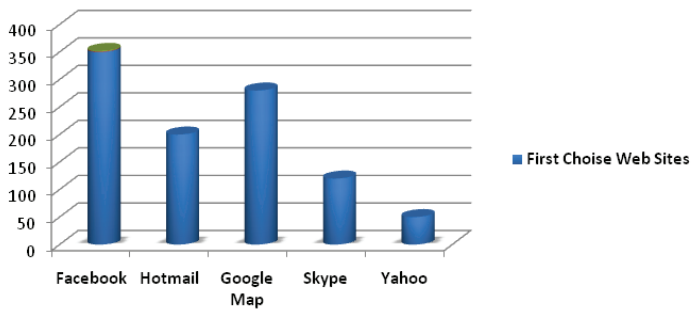
**Figure 6.** Construction Enterprises acting in Albania, 2010; Construction permissions, interval period 2005-2010 - Comparative level; Data organized at district level.

All these data combined with statistics showing the construction trend during period of times or districts are of great importance to delineate the right policy to follow. Through satellite images we can benefit updated maps which combined with the above mentioned information will show us the areas with the highest potentiality in the construction sector. Businessmans can define which are the most suitable zones to invest their money according to the profile of construction. Cadastral maps also can vastly benefit from the usage of GIS utilities presenting updated data, increasing this way the effectiveness of the information.

### ***Media and Communication***

The fact that GIS communicates geographical information in digital form merely illustrates its consistency with contemporary media, which now make widespread use of digital encoding at various stages (Daniel S., Michael G., 2001). The fact is that geospatial technology must be considered as part of a communication process since we deduce our results from the presented paper or screen. On the other side there is a symbiotic connection since mass media relies potentially on GIS utilities. A survey involving 1000 students was made (figure 7).

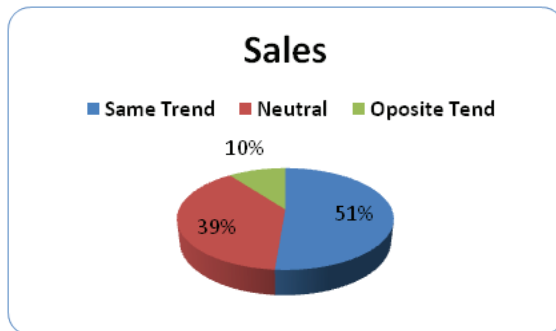
The outcome of this survey intended to define the relation between their approach toward GIS technology. Students were asked to mention their most interactive web sites in the sense of communication and learning opportunities. The top five were ranked. Interestingly “Google Map” is among these web sites. Which means that students are looking forward to interact with dynamic maps and not just navigate in the internet.



**Figure 7.** Survey, Approach toward GIS Technology

Albania is widely known as a country with a developed media sector compared to the total number of population, including a large number of newspapers, private television companies and radio stations. It is easily conceived the importance of geographic data in this case. Through surveys and queries we can benefit from GIS utilities to manage data related to the density of population, the average age for each of the districts and the trends for the type of media chosen. The population behaviour incline in reflecting vigorously their political views toward their everyday habits and actions.

Statistics show up that the factor of impact that specific media have related to specific districts varies to a large extend. Due to this phenomenon their sales data are geo-dependent. Through mapping surveys we can combine the political trends of the population with their density producing indexed mapping showing the possible potential market of a specific media in that district. As a descriptive example of the situation we can utilize data retrieved from one of the newspapers (figure 8) which has the highest printing copies in the market. We present interesting data showing the strong relation between sales inventory and the political trend of a specific area.



**Figure 8.** Impact factor (political) influence toward newspaper sales

## Conclusions, discussion and summary of results

Experience has told that businesses that relied their strategy on GIS usage have been much more successful than their similar. The world is growing fast and “information is power”, and this is what GIS does best “analyse information in order to improve decision-making” (Hysenaj M., 2011).

In this research, we have tried to initiate the first steps in developing a GIS platform through the participation of several source entities such as

government structures, university institutions or private organizations. The platform must be object to continuous updates with the scope of positioning itself as a reliable and accurate source of information.

Source entities especially government units must work as prime actors in the population awareness process. GIS allows us to better understand and evaluate the data by creating graphical presentation through information derived from geodatabases.

A set of business opportunities fields have been presented. Meanwhile through maps, surveys, statistics and a number of outlined examples, the analyse carried out intended to highlight the importance of digital mapping technology as a reliable and effective solution to business management.

Although the research was conducted based on a wide spectrum of business opportunities taking advantage of digital mapping technology still there is specific work to be done. As a perspective for the future a further enrichment of the web based GIS platform is needed. A larger set of indexed digital maps, surveys, diagrams and statistical data should be exploited.

The platform should serve as a communication and information bridge not only for a specific category but for a large scale of population acting as a standart regulatory with general rules. Simplicity and readability should be primary issues for further development followed by periodically efforts in enlarging the information source entities.

The scope of this research was to outline the importance of integrating GIS technology as digital mapping as a business opportunity, but in the same time as e future and prospective vision it aims at developing GIS technology in Albania for a vast range of issues such as natural hazards, advanced research methodology, knowledge management and organizational strategy.

## References

- [1] Hysenaj, M., 2011, Geographical Information Systems, Shkoder, Albania.
- [2] Open Data Albania, January 15, 2012, <http://www.open.data.al>.
- [3] Population and Housing Census Statistics, December 16, 2011, <http://www.census.al/>.
- [4] Institute of Statistics Albania, January 23, 2012, <http://www.instat.gov.al/>.
- [5] National Agency of Natural Resources, May 15, 2008, Albania.
- [6] International Finance Cooperation IFC, May 2009, Ashta Hydropower-Turning a Doubtful Concept into a Technological Trailblazer.

- 
- [7] Pathak. M., Hydro Nepal, July 2008, Application of GIS and Remote Sensing for Hydropower Development in Nepal, Issue No. 3.
- [8] Daniel Z. Sui, Michael F. Goodchild (2001), 2001, "GIS as media?", Int. j. geographical information science, vol. 15, no. 5, 387-390.
- [9] Howes David, IGIS, 2009, <http://www.integralgis.com>.
- [10] Mark R. Leipnik, Sanjay S. Mehta & Rose Seidel., 2002, *Global Geo-Demographic Data and GIS for E-Business*, Journal of ICEB.
- [11] Malhotra, Naresha K., 2002, *Basic Marketing Research: A Decision-Making Approach*, Upper Saddle River, NJ: Prentice Hall.
- [12] K. Laudon and C. G. Traver, 2010, *E-commerce*, 6th ed. New Jersey: Prentice Hall, pp 8-59.
- [13] Internet World stats, June 2010, Albania: Internet Usage Stats and Telecom Reports, <http://www.internetworldstats.com/euro/al.htm>.
- [14] R.K.Sahoo 2008, *Gis Tools in Business Analysis*.
- [15] Rodney Conger, 2009, ESRI, FedEx Services, *Using GIS in Strategic Planning and Execution at FedEx Express*, pp. 20-22.
- [16] ESRI, ArcNews Summer 2010, [www.esri.com/news/arcnews/summer10articles/nike-learns.html](http://www.esri.com/news/arcnews/summer10articles/nike-learns.html).
- [17] ESRI, February 2007, *GIS for Customer and Market Analytics*.
- [18] Grant M., 2000, *Understanding GIS*, <http://www.innovativegis.com>.
- [19] Karen A. Armstrong, 2007, *Using GIS Technology for Document and Asset Management*.