International Conference on Strategic Innovative Marketing, IC-SIM 2014, September 1-4, 2014, Madrid, Spain

Obtaining the efficiency of Tourism Destination website based on Data Envelopment Analysis

Aurkene Alzua-Sorzabal[a], Mikel Zurutuza[a], Fidel Rebón[a]*, Jon Kepa Gerrikagoitia[a]

[a]CICtourGUNE, Donostiako Parke Teknologikoa,Mikeletegi Paselekua 71 – 3 Solairua. E-20009, Donostia-San Sebastián, Spain

Abstract

Internet is an important marketing channel for destinations as it makes a lot of information available to potential tourists; and at the same time, it has allowed tourists and resident population to amplify their traditional channels of influence as opinion makers. This fact has forced the destinations to invest many resources: time, effort and money; but very few of them have made a real effort to quantify the efficiency of its communication channel. This article presents a novel system to verify the efficiency of the channel, with this objective, the use of a nonparametric model is studied, Data Envelopment Analysis, based on a regional destination and the study contains the comparative with the main cities of the region. For the correct operation of the system a series of input and output variables are suggested in order to obtain the efficiency outcome. Finally, the result is presented in a ranking list that allows the analysis of variables that should influence the destination with the aim of improving the communication channel.

1. Introduction

The real world is opening the way to a new and attractive digital and virtual world that is adapting quickly to the needs of society (Amboage, 2010). We live in a society that responds to the phenomena of globalization and

---

* Corresponding author. Tel.: +34-943-010-885; fax: +34-943-010-846.
   E-mail address: fidelrebon@tourgune.org

digitization and where the *Information and Communication Technologies* (ICT) represent one of the basic pillars in the new knowledge economy (Castells, 2006).

This new paradigm facilitates the creation, the acquisition and the effective usage of the knowledge (codified and tacit) by businesses, organizations, individuals and communities in order to achieve a further economic and social development (Carl, Thomas, & others, 2001). Additionally, it has brought a new fast, direct and economic media of communication (Pérez, Rodríguez, & Rubio, 2003) named Internet; in which the information exchange is independent of their geographical location (Kahn et al., 1997).

It must be remarked that the digital media is getting a vast importance in the construction and dissemination of the tourist image of a place due to the growth of the tourism market in Internet. One might add that the development of mass communication media allows tourists to describe the image of a particular destination prior to their arrival, implying that they visit touristic places in order to "*reconfirm*" the images they had in advance (Daniel, 1964). In fact, a traveller never looks at the destination with a neutral perception of the territory, his/her perception is preceded by a cluster of earlier images that determine the way a visitor relates to the visited place, providing at the same time, the parameter of confrontation to assess the reality (Talavera, 2002).

For this reason, Internet constitutes an important e-marketing channel for institutions and the business sector of the destinations, providing a vast volume of information available to potential tourists (Stienmetz & Fesenmaier, 2013). The spread of Internet as intercom environment has allowed the tourists and the resident population to amplify their traditional channels of influence such as prescribing updated and detailed information to their cultural heritage and tourism concerns (Naval & Perosanz, 2012; Valdés, del Valle, & Sustacha, 2011; Buhalis & Law, 2008; Garces, Gorgemans, Martínez Sánchez, & Pérez Pérez, 2004). Moreover, the traditional chain is replaced by webpages that allow access to all the information (Abou-Shouk, Lim, & Megicks, 2012), becoming transparent and dynamic. This fact provides agencies an excellent way to boost tourist activity which plays a crucial role in the development of the regions (Wanhill, Baum, Mudambi, & others, 1998).

Once known this and focusing the attention about *Destination Management Organizations* (DMOs), it can be observed that they invest many resources: time, effort and money to have presence in Internet is contemplated, but very few of them carry out a further study on management threads, improvement and maintenance of their web presence (Y. Wang & Fesenmaier, 2006). Although new disciplines have emerged in the last decade; none of them has stood out in the measurement of the efficiency of the web as a DMO e-marketing channel. This is the case of Web Mining able to facilitate the discovery and analysis of useful information from websites (Agarwal, Bharat Bhushan Dhall, 2010) but it has not deepened on the analysis of the efficiency as a communication channel. This discipline involves areas and technologies related to the management and recovery of information, artificial intelligence, machine learning, natural language, network analysis and integration of information processing (X. Wang, Abraham, & Smith, 2005).

In this context, this paper presents a case study on the efficiency evaluation by means of *Data Envelopment Analysis* (DEA) based on the website of three main cities of the Basque Country's region and the region itself. For this purpose, firstly some previous piece of works are analysed, afterwards, the methodology will be described. Then, the results will be discussed, and finally, the work's main conclusions will be shown.

2. Related work

The evaluation of the efficiency is an issue that has raised a great interest within the scientific community. This interest is driven by the fact of living together in a highly competitive environment in which the first proposal to improve the profitability is to optimize the efficient use of resources (Tavares, 2002; Seiford, 1997).

The publications in this field focus mainly on two methodologies: a) parametric methods that use a statistical language based on little sensitive to fluctuations in data units, which estimates best and allows the measurement of errors and, b) non-parametric methods that provide more accurate estimates of the relative efficiency levels and objectives, identifying the sources of inefficiency as it shows the resources being overused. Additionally, these require less assumption on the efficiency frontier.

As it can be seen, both methods have their advantages and disadvantages (Mortimer, 2002) but DEA has emerged as the most used tool, this is often motivated by the flexibility, easy handling and the ease when submitting results (Martínez, Gallego, Cárceles, & García, 2012).