

# Web Metrics Applied to Hotel Web Sites: The Case of Croatia

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*Abstract:* - The Internet is a powerful tool for providing product or service information to consumers. Effectiveness of Web site will determine further consumer actions. But is it Web site effective and how to measure effectiveness of Web site? The successful performance of a hotel Web site, in this research, was determined by a set of criteria for hotel Web site evaluation. These criteria were applied to Croatian hotel Web sites.

*Key-Words:* - Hotel Web sites, Web metrics, Web site evaluation, criteria, measurement, quality

## 1 Introduction: Web Metrics – Recent and Related Research

Internet-based technologies offer benefits that make them a valuable asset for all industries. They allow individuals and organisations to disseminate large volumes of information quickly and efficiently, share information with a global audience and they may be updated easily. They also provide benefits for those who demand information allowing greater access to a greater volume of product/service information. While internet-based technologies offer these benefits to all industries and consumers, they are particularly valuable to the travel/tourism industry because of industry specific characteristics [1].

Kim et al. suggest that design of Web sites becomes a critical success factor because Web sites are the main interface between business and customers. Design of Web site becomes as important as a store's layout and aesthetics. A poorly-designed Web site may actually hurt a business rather than help it [2].

The main question is: Is the Web site effective and how to measure its effectiveness? Sterne stands on point that measuring things is important but every company should not or cannot measure everything. What will be measured depends on the goals of the Web site and the available budget. [3]. Investments to the hotel Web site development and measuring can be returned in the form of increased room revenues and decreased commissions paid to third party travel agencies. [4] Therefore, managers should be well aware of the tremendous value of Web metrics.

Many authors present various Web metrics definitions and a number of studies suggest the design attributes of “successful” web sites. E.g., Cao et al. examine and integrate four sets of factors that capture e-

commerce Web site quality using IS success model: system quality, information quality, service quality, and attractiveness. They also propose guidelines for Web interface design. Users will redirect to another web site (e.g. a competitor's) if the homepage has not fully loaded within a tolerable length of time [5].

The metrics used in Mistic and Johnson [6] benchmarking study includes absolute and relative measures. Absolute measures are factors and variables related to the Web site which have more universal importance to people who visit a Web site and Web site assessment tools often focus on these types of measures. The relative measures consider the target audience when applying the metric. From their view, generally, the metrics can be broadly divided into three categories: (1) functional/navigational issues; (2) content and style; and (3) contact information.

Lee and Chung [7] define reference criteria that could be used by web site designers to determine the best web site design, given constraints and requirements. They suggest a systematic way of designing web sites using a cognitive map (CM). In traditional web site design, several factors are interleaved in a complicated manner via direct and indirect causal relationships. The CM rectifies this by incorporating causality into web site adjustments.

Cox and Dale [8] suggest that quality of the Web sites should be judged using four factors: (1) ease of use (design of the Web site); (2) customer confidence (trust by the customer); (3) on-line resources (capability to offer and deliver products or services); and (4) relationship services (to inspire customers loyalty).

Fink [9] aims to show how the usage of the decomposition technique enables development of electronic commerce metrics. He explains that values (constructs, variables and metrics) should be carefully

specified and that their interconnections should be controlled.

In their research [4], Law and Hsu examine following dimensions: (1) facilities information; (2) reservation information; (3) contact information; (4) Web site management, and (5) surrounding area information. Based on the findings, visitors of hotel Web pages are generally looking for the basics: (1) Reservation transaction information should be easily accessible and clearly displayed and information regarding room rates, availability, and policy should be built into the web site; (2) e-travellers should also be able to make reservations online, with the peace of mind that the transaction is secure; (3) Guests should also be able to view and revise reservations online with ease; (4) In terms of the tangible hotel facilities, web sites should take advantage of visual and audio capabilities of modern computing technology showing picture of the hotel facilities, location, guest rooms and other features when making reservations; (5) web site designers should pay attention to the download time, meaning that providing an information rich web site without over-packing the pages to slow down the access; (6) basic contact and access information, such as telephone number, address, e-mail, local transportation, the closest airport, and transportation options from airport to hotel, should be made available on the web site; (7) as hotels receive more international visitors, multilingual sites will become a necessity; and (8) web sites need to be updated regularly to provide current information.

Phippen et al. assert that there are two types of metrics: basic and advanced. Basic Web metrics are generally accepted as the start of the Web analytics concept and advanced web analytics aims to measure and understand relationships between the customer and the Web site. Through a variety of metrics companies are now able to understand customer behaviour, which helps co-ordinate and audit Web site design and other contributing factors to Web site success [10].

## 2 Research Methodology and Data Collection

A successful performance of a hotel Web site, in this research, was determined by a set of criteria for hotel Web site evaluation. These criteria were applied to the Croatian hotel Web sites.

All the data were collected from hotel Web sites covered by this research. Data were collected in the period from July 15, 2006 till July 23, 2006. A limitation of this research is its focus on Croatian hotel Web sites. The research results may not be indicative for other countries and cultures.

## 3 Criteria for Web Site Evaluation

Traditional management adage: You cannot manage what you do not measure. E-Business addendum: You cannot measure what you do not define [11]. There is a need for defining criteria for measuring Web site performance.

Research at Trinity College Dublin has led to the improvement of a Web site effectiveness review, originally developed by MCIL (Management Centre International Ltd.), which provides a structured way to establish how well Web site is performing. They have identified ten criteria that determine the success of the web as an information tool. These include: (1) first impressions; (2) ease of navigation; (3) content; (4) attractors; (5) findability; (6) making contact; (7) browser compatibility; (8) knowledge of users; (9) user satisfaction; and (10) other useful information. This website effectiveness review is conducted by examining a checklist of those ten criteria in intention to help in designing a effectiveness Web site.

*An effective Web site should strive to give an impression of usefulness, clarity, ease-of-use, efficiency and openness [12].*

Because not all those criteria were relevant and they cannot be directly applicable the checklist is tailored to suit requirements for evaluating hotel Web sites. Figure 1 shows a framework for evaluating hotel Web sites. It depicts a visitor's journey throughout hotel Web site. The main goal is to convince the visitor to make contact with hotel or, even better, to make a reservation.

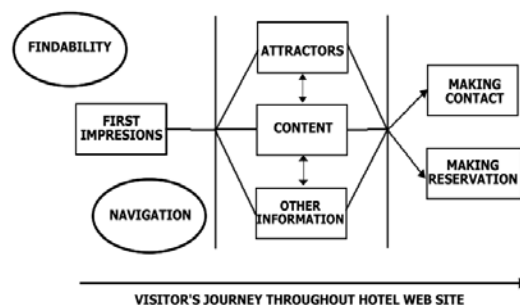


Figure 1 – A framework for evaluating hotel Web sites

But first of all, visitor must find hotel Web site. The question is how to attract visitors to hotel Web site. Web sites must be well-positioned in well-known global search engines such as Google, Yahoo, MSN, etc. It is necessary to advertise hotels on various Internet portals. Web address must be intuitive and in connection with hotel name. Designers must use intuitive keywords and metatags for search engine performance. Williams and Rattray say that simply being online is not all that is needed. Hotel Web site must be «visible». It must obtain

Web traffic. This might in part come from successful search engine and directory registration, which in turn requires an understanding of how the search engines and directories rank pages. Designers of Web site should be aware of the importance of key words and an understanding of key word density [1].

It is recommended to become connected with as many partners as possible, and to exchange links.

A Web site represents the identity of the hotel in the world of Internet so the first impression of the Web site will be the first impression of the hotel. Visitors must realise that the site is of potential use to them. It should give an impression of clarity and should be easy to use, easily readable, clear and easy to understand.

Download time is also important factor in conveying an efficient impression so it should be minimised. Contact details must be on visible place. Web sites need to be updated regularly to provide current information. A web site with a “fresh look” is an essential part of the service that potential guests can use to develop a first impression of the hotel [4].

Visitors should find information they need and access them easily, navigation must be logic, intuitive and easy to use, and it shouldn't confuse visitors. Sitemap is useful to show logical overview of the Web site as a whole and successfully navigate visitors through the site directing them to the desired location.

Web sites should offer useful information about hotel and service, presented through the appropriate use of text, graphics and animation. Most important aspect is Web site maintenance, since this continually enables access to new information and new contents. Good and accurate content is key to an effective website and main force on visitor's decision to make a contact or reservation. Empirical results indicated that respondents viewed reservation information as the most important dimension, and room rates as the most important attribute. The appropriate contents of a hotel web site thus can directly contribute to hotel managers' ability in achieving higher profitability [4].

Visitors should be attracted. There are many ways of attracting them to the Web site like: special hotel offer, free content like wallpapers, games or screensavers. Newsletters can be sent as a very powerful promotional toll for direct promotion.

#### 4 Research Sample: Review of the Hotel Web Sites in Croatia

As the basis for conducting this research, use was made of the list of categorised hotels in The Republic of Croatia published on the Web site of Ministry of the Sea, Tourism, Transport and Development (2006).

Categ.	No. of hotels	%	Sample
1 star	42	7,14%	3
2 star	185	31,46%	9
3 star	290	49,32%	12
4 star	58	9,86%	4
5 star	13	2,21%	2
<b>Sum</b>	<b>588</b>	<b>100,00%</b>	<b>30</b>

Table 1 - Research sample: Croatian hotels

Category	No. of hotels	Do Have Web site	Don't have Web site	Share of hotels with Web site
*	42	22	20	52,38%
**	185	147	38	79,46%
***	290	283	7	97,59%
****	58	58	0	100,00%
*****	13	13	0	100,00%
<b>Sum</b>	<b>588</b>	<b>523</b>	<b>65</b>	<b>88,95%</b>

Table 2 - Share of hotels with a Web site relative to the category

As noticed from Table 1, there are 588 hotels in Croatia. Table shows the share of hotels in each category. The sample of 30 hotels was selected by random-choice, so that the sampling rate was 5.10%.

Table 2 shows data on the share of hotels with a Web site relative to the each category. About 89% of hotels have a Web site. Only 52% of one-star hotels have Web site and 80% two-star hotels. Almost all high category hotels have Web site.

#### 5 Application of Selected Metrics to Croatian Hotel Web sites

The checklist was used in a comparative way. Scores was recorded concerning thirty different hotel Web sites every in each column. Adding up the total of the scores for each section for each column give us an approximate indication of the effectiveness of each hotel Web site relative to the other hotel Web site we compare it. This was a research how well hotel Web sites in Croatia are performing.

A grid was created listing criteria and hotels. Every hotel Web site was then scored using this grid given 0 or 1 according to the metrics.

#### 6 Research results

Situation in Croatia is described through 8 criteria. All results are presented in Table 3.

Criteria	Sum	Max	%
<b>1. FIRST IMPRESSIONS</b>			
URL	27	30	90,00%
Download time - size of home page	24	30	80,00%
Look and feel - readability	24	30	80,00%
Contact details	22	30	73,33%
Use of attractors	16	30	53,33%
<b>Total score for section</b>	<b>113</b>	<b>150</b>	<b>75,33%</b>
<b>2. NAVIGATION</b>			
Ease of use	24	30	80,00%
Site map	4	30	13,33%
Return to Home Page from any page	20	30	66,67%
Internal search engine	3	30	10,00%
Broken links	26	30	86,67%
Navigational links visible	27	30	90,00%
<b>Total score for section</b>	<b>104</b>	<b>180</b>	<b>57,78%</b>
<b>3. CONTENT</b>			
Useful information about hotel and services	28	30	93,33%
Use of valuable graphics	29	30	96,67%
Use of valuable animation	13	30	43,33%
Use of valuable sound	0	30	0,00%
Up-to-dateness	6	30	20,00%
FAQ's	0	30	0,00%
<b>Total score for section</b>	<b>76</b>	<b>180</b>	<b>42,22%</b>
<b>4. ATTRACTORS</b>			
Special offers	9	30	30,00%
Free games	0	30	0,00%
Breaking news	1	30	3,33%
Newsletter	3	30	10,00%
Other	11	30	36,67%
<b>Total score for section</b>	<b>24</b>	<b>150</b>	<b>16,00%</b>
<b>5. FINDABILITY</b>			
Intuitive URL	26	30	86,67%
Designed for search engine performance			
Intuitive keywords	13	30	43,33%
Use of metatags	13	30	43,33%
Advertising			
On-line advertising	5	30	16,67%
Off-line advertising (brochures)	1	30	3,33%
On-line recommend a friend	0	30	0,00%
On-line put in favorites	1	30	3,33%
Partner and affiliate sites (links)	7	30	23,33%
<b>Total score for section</b>	<b>66</b>	<b>240</b>	<b>27,50%</b>

<b>6. MAKING CONTACT</b>			
Email and other details visible	28	30	93,33%
Response time to enquiries			
Automatic email response	0	30	0,00%
Personal email response	30	30	100,00%
Use of online forms	10	30	33,33%
Telephone contact number provided	29	30	96,67%
<b>Total score for section</b>	<b>97</b>	<b>150</b>	<b>64,67%</b>
<b>7. MAKING RESERVATION</b>			
Visible pricelist	21	30	70,00%
Cards acceptance	9	30	30,00%
On-line reservation form	21	30	70,00%
CRS	2	30	6,67%
<b>Total score for section</b>	<b>53</b>	<b>120</b>	<b>44,17%</b>
<b>8. OTHER USEFUL INFORMATION</b>			
Additional services that hotel offers	21	30	70,00%
How to find hotel (description or map)	25	30	83,33%
Guestbook	5	30	16,67%
History of the hotel	8	30	26,67%
Information about destination	17	30	56,67%
<b>Total score for section</b>	<b>76</b>	<b>150</b>	<b>50,67%</b>

Table 3 – Research results

*First impressions.* The results obtained in this dimension confirm that hotel managers are aware of importance of first impressions that visitors attain visiting hotel Web site.

*Navigation.* Although only few of hotel Web sites have site map or internal search engine their navigation is consistent, innovative and easy to use.

*Content.* Content is crucial for hotel Web sites and most of them offer information about hotel and their services with graphic elements. The fact that there are no sounds on pages and none of them have frequently asked questions can be explained by fact that those elements are not are not important for evaluation hotel Web sites and in further research should be abounded. On the other hand, it is important to observe that the cells related to up-to-dateness have few scores indicating that only 20% of hotel Web sites continuously refresh their content.

*Attractors.* Only 16 percent of hotel Web sites focus on attractors to gain visitors to hotel Web site. This discomfoting statistic should be improved especially with hotel special offers, thus creating their own tourism products by combining their own offer with that provided by other tourism workers. Newsletters can be sent as a very powerful promotional tool for direct promotion.

*Findability.* This characteristic is also important for

visitor acceptance of hotel Web site. Most of them have intuitive URL but only half of them use intuitive keywords and metatags. We think that this result is not due to the negligence of hotel management, but to the lack of Web designers' knowledge.

*Making contact.* Almost all the hotel Web sites contains contact information like e-mail or telephone number.

*Making reservation.* Most of hotel Web sites have on-line reservation form with visible price list. Although according to the new regulations on hotel categorisation hotels must offer the opportunity for payment by card, only 30% actually offered this possibility on their Web pages. Finally, We must indicate that there are only 7 percent of hotel Web sites have computer reservation system. This low share is the weakest aspect of the hotel Web sites in Croatia.

*Other useful information.* About half of the hotel Web sites considered contains some other useful information for visitors like additional services that hotel offers, information how to find hotel or information about destination. Not too many hotel Web sites have a guestbook, which can be very useful. Positive impressions are good for hotel promotion and on the other hand, negative impressions can be used as a signal

to management what should be improved in order to obtain a better image in the eyes of the public.

## 7 Conclusions and recommendations

In this research we tried to find answers how to measure effectiveness of Web site. The successful performance of a hotel Web site was determined by a set of criteria for hotel Web site evaluation. These criteria were applied to Croatian hotel Web sites and some conclusions were made.

Another method to evaluate the quality of hotel Web sites is to investigate the perceptions of users so the planned follow-up research will include measurement of the assessment of Web site visitors.

Research results show that hotel Web sites in Croatia have main problems in findability and in attracting their visitors. Other criteria are satisfying.

The results of this evolution also show that quality of hotel Web site is not related to hotel categorisation.

The review should be repeated periodically to see how hotel Web sites continues to compare to others.

Hotel managers should always identify other strong hotel Web sites and tourist Web sites whose ideas and practices could be adopted to improve their hotel Web site even further.

Most important aspect is Web site maintenance, since this continually enables access to new information and new contents for visitors.

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