CROATIAN HOTEL WEBSITES AS PROMOTIONAL AND DISTRIBUTION CHANNELS: IDENTIFICATION OF WEBSITE DIMENSIONS AND DIFFERENCES BETWEEN DIFFERENT GROUPS OF HOTELS

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IMR 2020

INTERDISCIPLINARY MANAGEMENT RESEARCH XVI
INTERDISZIPLINARE MANAGEMENTFORSCHUNG XVI

THE JOSIP JURAJ STROSSMAYER UNIVERSITY OF OSIJEK
FACULTY OF ECONOMICS IN OSIJEK - CROATIA
POSTGRADUATE DOCTORAL STUDY PROGRAM IN MANAGEMENT
HOCHSCHULE PFORZHEIM UNIVERSITY - GERMANY
CROATIAN ACADEMY OF SCIENCES AND ARTS

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Opatija, 2020

Published by:
Josip Juraj Strossmayer University of Osijek, Faculty of Economics in Osijek, Croatia
Postgraduate Doctoral Study Program in Management
Hochschule Pforzheim University, Germany
Croatian Academy of Sciences and Arts

For the Publisher:
Boris Crnković, Ph.D., Dean, Josip Juraj Strossmayer University of Osijek, Faculty of Economics in Osijek, Croatia
Thomas Cleff, Ph.D., Dean, Hochschule Pforzheim University, Germany

Design:
Krešimir Rezo, graf.ing.
Krešendo, Osijek

Print:
Studio HS internet d.o.o. Osijek

ISSN 1847-0408

Conference Proceedings is indexed in databases which are listed at the official web conference page: http://imr-conference.com

This publication is partly financed by Ministry of Science and Education of the Republic of Croatia.

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CROATIAN HOTEL WEBSITES AS PROMOTIONAL AND DISTRIBUTION CHANNELS: IDENTIFICATION OF WEBSITE DIMENSIONS AND DIFFERENCES BETWEEN DIFFERENT GROUPS OF HOTELS

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Abstract

The objectives of this study are (1) to review the characteristics and identify dimensions of the hotel websites in Croatia to evaluate the extent to which they effectively execute their marketing communication and distribution function, and (2) to determine if there are significant differences in the rating of their characteristics depending on the categorization of the hotel, size of the hotel and hotel type. The characteristics of 629 hotel websites in Croatia were analyzed by a combined method of content analysis: counting and automated software analysis. Out of the 27 observed variables, 5 dimensions of the hotel website were identified through the principal component analysis: corporate communication layer, marketing communication layer, multimedia presentation, social media integration, and interface personalization. Significant differences were found between the hotel groups in specific website dimensions. Theoretical and practical implications of the study were presented, and suggestions are made for future research.

Keywords: *digital marketing, tourism, hotel, website, Croatia*

JEL Classification: M31, Z32

1. INTRODUCTION

1.1. Tourism and hotel industry

Tourism is helping build better lives for millions of individuals and transforming whole communities. Growth in international tourist arrivals and receipts continues to outpace the world economy and both emerging and advanced economies are benefiting from rising tourism income. For the seventh year in a row, tourism exports grew faster than merchandise exports, reducing trade deficits in many countries. Global hotel value sales reached € 525bn at a fixed exchange rate in 2018. Over the period 2018 – 2023, hotel value sales are expected to register a CAGR of 4% at constant 2018 prices. In 2019, the total market for overnight accommodation amounted to more than € 700bn (Tui Group, 2019). With 710 million international tourist arrivals in 2018 and USD 570 billion in international tourism receipts, Europe remained the largest and most mature tourism market in the world, accounting for 51% of international tourist arrivals and 39 % of tourism receipts in 2018 (UNWTO, 2019).

According to the Croatian National Bank (2019), tourism revenue in the Republic of Croatia amounted to EUR 10.1 billion in 2018, representing a 19.6% share of GDP. In the same year, the number of employees in the provision of food, lodging and preparation services amounted to 101,000, of which 71,000 were in legal entities, which is 5.4% of the total number of employees in legal entities of all forms of ownership (Croatian Bureau of Statistics, 2019). According to a report by the Croatian National Tourist Board (2019), there were 731 hotels in Croatia in 2018, of which the most were 3-star (44%) and 4-star (43%) hotels and the least were 5-star (6%) and 2-star (8%). In the same year, 20,436,000 overnight stays (22.8%) were spent in hotels and aparthotels, while in private rooms 43,382,000 overnight stays or 48.4% of the total nights spent. Overnight stays of foreign tourists prevailed in hotel accommodation (89%) compared to overnight stays of domestic tourists (11%).

Digitalization, innovation, greater accessibility, and societal changes are expected to continue shaping this sector. Artificial Intelligence is transforming tourism, from virtual assistants to companies being able to offer hyper-personalized customer experiences and improve business performance. An increasing number of destinations are measuring tourism in real-time for better management of visitor flows. Both destinations and companies will need to adapt to remain competitive (UNWTO, 2019).

1.2. Changes in the distribution and importance of the web site as a direct channel

HOTREC (2018) study shows some changes in the distribution market. Between 2013 and 2017 the dependency of hotels on Online Travel Agencies (OTA) was rising and the share of direct bookings was declining. The share of direct bookings has decreased across Europe by over 4 percentage points from 57.6% in 2013 to 52% in 2017 (weighted results including data from hotel chains). Direct bookings include use of offline (phone, mail, fax, walk-in reservations) **23.1%,** and online web site contact forms (contact form on web site without of availability check, direct e-mail, real-time booking over web site) **28.9%.** The share of OTAs in hotel room bookings increased by over 6% points, i.e. from 19.7% in 2013 to 26% in 2017, while the share of global distribution systems (GDS) and social media channels in 2017 was 2.5% and 0.5% respectively. This study shows that especially the small hotel segments (with less than 20 rooms) are significantly more dependent on OTAs (29.3%) than the average hotel, and hotel cooperation is significantly less dependent on OTAs (22.5%) than the average of all hotels. However, dependency increased between 2013 and 2017 both in the case of smaller hotels and bigger hotels, as well as in the case of individual and branded hotels.

Hotel industry, characterized as customer-oriented and information-intensive, is in an ideal position to take advantage of the potential the Internet can provide (Baloglu and Pekcan, 2006; Schmidt et al., 2008; Shuai and Wu, 2011; Wu et al., 2013). Internet erases boundaries created by time and distance and makes it dramatically convenient for guests to search for and purchase products and services. On the other hand, the Internet can help hotels identify guests' needs, improve operational efficiency, enhance service quality and thus create a great impact on hotel performance (Díaz and Koutra, 2013; Hashim et al., 2010; Schmidt et al., 2008).

Website, as a main digital marketing channel, and many-to-many communication tool, enables direct contact between organizations and consumers. Its function is to support any marketing activity related to elements of the marketing mix (7Ps) and building customer relationships. Considering that HORECA survey from 2018 it becomes clear that evaluation and continuous improvement of the hotel website are becoming a strategic issue. Companies in the hotel

industry need to empower and use this direct channel for better communication and distribution of their products and services.

The emergence of new technologies, as well as new patterns of consumer behavior, must also be taken into account. The hot fast-growing channel is mobile (tablets and smartphones), which is displacing desktops for searching and booking hotels. Almost 4.54 billion people were active internet users as of January 2020, encompassing 59% of the global population. At the same time, 4.18 billion users are mobile Internet users (Statista, 2018). The rise of mobile has prompted Google to change its search algorithm, making mobile compatibility a priority for hotels and chains (HOTREC, 2018). According to eMarketer estimates for 2019, of the total number of online bookings in the US, 69.8% of bookings were made via smartphones or tablets, and 86.4% of the total number of mobile users made at least one reservation of accommodation during the year (HOTREC, 2018). These facts indicate the importance of adapting web sites to mobile devices, that is, the need to apply modern responsive design techniques and optimize web sites in terms of improving usability (ease of use, quality of content and technical optimization).

Digital analytics is very important for every digital marketing strategy. Measuring effectiveness aims at minimizing the cost of digital marketing and maximizing return on investment in various areas, such as attracting visitors to a website, converting visitors to buyers, or encouraging customers to make repeated purchases. Analysis of website visitor activity can be done through the server logs analyze or through the use of specialized web analytics tools, such as Google Analytics. The advanced capabilities of Google Analytics are revealed by linking companies' CRM databases to a Google Analytics database, which enables custom dimensions and metrics analysis. It helps hotels better understand their customers, makes it easier for them to segment the market and makes positioning decisions, as well as to better tailor their offer and make better decisions about promotional budget allocation. In short, the application of digital analytics is necessary for the effective and efficient use of the hotel website in achieving marketing goals. Therefore, we can conclude that this characteristic is very important in evaluating hotel websites.

The objectives of this study are (1) to review the characteristics and identify dimensions of the hotel websites in Croatia to evaluate the extent to which they effectively execute their marketing communication and distribution function,

(2) to determine if there are significant differences in the rating of their characteristics depending on the categorization of the hotel, size of the hotel and hotel type.

2. LITERATURE REVIEW

During recent years academics have introduced different website evaluation approaches. To evaluate websites, they have measured different outcomes like website usability, content quality, user acceptance, and user satisfaction.

Morrison et al. (2004) proposed a modified Balanced Scorecard (BSC) method for tourism and hospitality website evaluation. This approach combines user perceptions with website performance to help owners identify the strengths and weaknesses of their websites and in comparison with those of their competitors and the best practice examples in the industry.

Schmidt et al. (2008) constructed and validated an instrument for the measurement of website characteristics and relating those characteristics to website performance, using structural equation modeling. The results indicate that small and medium-size hotels are using their websites as mass media tools; ignoring the potential for interactivity and one-to-one communication. It is suggested that hoteliers should adopt a more strategic approach to the Internet, preparing the ground for direct contact with customers. They have concluded that prior website evaluation studies can be classified into three categories based on their research methods: (1) evaluation by phases, (2) evaluation by characteristics, and (3) evaluation by characteristics and effectiveness. Evaluation by phases presumes that the richness of a website's characteristics is proportional to the company's experience in electronic commerce. Evaluation by characteristics bases its analysis on the presence of website characteristics or functionalities. Evaluation by characteristics and effectiveness has been undertaken in a limited number of studies. Authors that have adopted this approach have understood the construct "website effectiveness" in different ways: financial results, customer satisfaction, consumer intentions, etc.

Hashim et al. (2007) reviewed articles about website design frameworks published from the 1990s to 2006 and extracted five dimensions of website quality based on the most researched online features of tourism and hospitality websites: information and process, value-added, relationships, trust, and design

and usability. They found that the most popular attributes of hotel websites were reservations, contact information, promotions, and products and services.

Chiou et al. (2010) have developed a strategic framework for website evaluation based on a review of the literature from 1995-2006. Through the literature review they classified articles into tree sets: IS, marketing and combination of the two. IS-approach articles included mostly technology-oriented factors like usability, accessibility, navigability and information quality, while marketing approach articles included mostly marketing related factors such as promotion, online transaction, order confirmation, and customer service. The combined frameworks were a mixture of using IS and marketing factors. After classification, authors have condensed each study's dimensional factors into the 12 unified factors suggested by Park and Gretzel (2006): ease of use, information quality, responsiveness, visual appearance, security/privacy, interactivity, trust, fulfillment, personalization, advertising/persuasion, playfulness, and technology integration.

Law et al. (2010) reviewed 75 tourism studies published from 1996 to 2009 that directly pertained to the issue of website evaluation in the tourism and hospitality field. They divided prior research into five evaluation approaches: counting, automated, numerical computation, user judgment, and combined methods. A counting method is used to evaluate a website's performance or to determine its content richness. Studies adopting user judgment methods evaluated user satisfaction or perceptions. Automated methods involve the evaluation of websites using software systems.

Xu Li and Youcheng Wang (2011) adopted the ICTRT model to assess the effectiveness of US official state tourism websites through content analysis by expert evaluators. The proposed model suggests that an effective DMO's website should be composed of five dimensions (i.e. information, communication, transaction, relationship, and technical merit) and each of them contains multiple items. The importance of each item/application on the website was also taken into consideration in measuring the effectiveness of the website in this study. The effectiveness score of each item was calculated by using the product of the rated value of performance and importance (i.e. effectiveness = performance x importance).

Ting et al. (2013) evaluated the top 100 independent hotel websites on four continents using advanced content analysis end eMICA model. The study as-

sesses the presence of fifty-nine website features on the hotels' websites grouped according to the three eMICA stages of promotion, provision, and processing and also grouped in seven dimensions determined by the content analysis, namely, functionality, innovation, interactivity, marketing, navigation, online processing, and service. Authors suggested that the European hotels need to improve their websites by adding the following features: newsletter, RSS (Rich Site Summary), video, itineraries information, travel tips, awards, virtual tours, travel schedules, and plans, and Web 2.0 tools.

Liu and Zhang (2014) were investigating how product-related factors and channel related factors will affect online hotel bookers and compare the perceptions of online hotel bookers toward two types of channels: hotel websites and online travel agent websites. Results show that there is a positive effect of different factors toward information search intention and purchase intention, and the positive effect of search intention on purchase intention. Comparing hotel websites and OTA websites, website quality which includes information quality, service quality, and privacy protection, is discovered to be a competitive advantage of hotel websites over OTA websites, but OTA websites perform better in other aspects from customers' perspective.

Bilgihan and Bujisic (2014) develop a theory-based model of utilitarian (e.g. comparing the prices, looking at the location of the property) and hedonic (e.g. taking the virtual tour of the hotel room, looking at the pictures of the amenities offered by the hotel) website features, customer commitment, trust, and e-loyalty in an online hotel booking context. Findings highlight the importance of creating loyalty by focusing on both hedonic and utilitarian features, as well that that web design features are important for online relationship marketing. Both commitment dimensions (affective and calculative) were found to be precursors of trust whereas affective commitment is the precursor of e-loyalty.

Liang et al. (2015) were investigating the impact of hotel website quality on online booking intentions. This study proposed that a trusting relationship with customers could be developed by investing in hotel website development. Results demonstrated that hotel website quality is a strong predictor of eTrust, which then also mediates the relationship between website quality and consumers' online booking intentions. Statistical results suggested that hotel website quality has three underlying dimensions, namely usability, functionality, as well as security and privacy.

Ladhari and Michaud (2015) have investigated the effect of comments generated on Facebook (eWOM) on hotel booking intentions, attitudes, trust, and website perceptions. They have confirmed that the comments generated on the Facebook network influence hotel-booking intentions, the attitude toward a hotel, the trust in a hotel, and the perceived quality of the hotel website.

Faizan Ali (2016) investigated the relationships between hotel website quality, perceived flow, customer satisfaction, and purchase intentions. Empirical findings of this study validate that hotel website quality is a second-order complex construct with three primary dimensions including hotel website usability, hotel website functionality and hotel website security and privacy. Also, findings confirm that hotel website quality influences customers' perceived flow, which in turn, influences their satisfaction and purchase intention. Moreover, perceived flow also mediates the relationships between hotel website quality, customer satisfaction, and purchase intentions. As consumers become more technologically savvy, they partake more in an online purchase and have higher requirements for hotels' online presence. Therefore, to capture the lucrative online business, hotel managers should allocate more resources to develop websites into multifunctional platforms that would meet consumer needs for information, design, and relationships (Hsu et al., 2012).

Kim et al. (2017) were interested in the effects of perceived value, website trust and hotel trust on online hotel booking intention. They developed a research model which consist of perceived value, trust toward a third party online booking site, and trust toward hotels, and tested it by using partial least square techniques on a sample of 307 individuals in South Korea who have prior experiences on making a reservation using third-party online booking sites. The research model of this study addresses that perceived value, trust toward third-party online booking sites and trust toward hotels all have a direct influence on customers' intention to book a hotel. In addition to the direct relationships, while both price and quality influences directly the perceived value, online reviews have direct effects on trust toward hotels.

3. METHODOLOGY

3.1. Content analysis

Content analysis is a research technique that quantitatively describes the content of an aspect of communication (Milas, G., 2005). In the present study, we use a combined method of content analysis of hotel websites in Croatia that includes: counting and automated software analysis.

The unit of analysis (code unit) represents the smallest segment of content that is observed and evaluated in content analysis (McMillan, 2000). Specific characteristics of hotel websites were observed as code units in this study. By analyzing the content of the hotel website, based on the code table, the presence or absence of relevant content (characteristics) on the hotel website was evaluated. The code table is used as a measuring instrument and it is made up of several code units. The code table was created based on the literature review in this field. Each code unit (item) is identified in the form of a research question. Items are presented in Table 4.

The list of hotels in Croatia was created by collecting data about categorized hotels from the website of the Ministry of tourism. As there were no hotel website addresses in addition to company name and categorization, the web addresses of each hotel were first identified through a google search engine, and the final list served as a basis for further content analysis.

According to the report of company W3Techs (2020), 35% of the websites use none of the traffic analysis tools and Google Analytics is used by 55.2% of all the websites, which is a traffic analysis tool market share of 84.9%. This is the reason why we decided to use content analysis to determine the presence of the Google Analytics code on the hotel web sites, which indirectly indicates whether or not the hotel uses digital analytics. To determine the existence of Google Analytics code on the hotel website we have used the web scraping method. Web scraping, or data scraping, is the process of importing information from a website into a spreadsheet or local file saved on your computer. It's one of the most efficient ways to get data from the web, and in some cases to channel that data to another website. For web scraping, we have developed a script for Scrapy[1] - an open-source and collaborative framework for extracting the data from websites. The scraper uses a list of URLs of hotel websites as input, it vis-

[1] https://scrapy.org/

its the home page of every website, check source code of that page and check if google analytics code exists on a web page or not. Finally, a .csv format report is produced as an output of the program, which lists all URLs and indicates does Google Analytics exists or not on the page.

Technical optimization of the website, which determines website load speed, as well as the adaptation of the website to mobile devices is essential functional characteristics that affect website usability. The online tool "Pingdom Website Speed Test"[2] from company SolarWinds Worldwide LLC, was used to analyze website optimization and loading speed. For each analysis, the testing server in Frankfurt was used. To test whether the website has a responsive design, we used an online tool https://responsivetesttool.com. To test how easily a visitor can use a website on a mobile device (whether the website is mobile-friendly), we have used the Google Mobile-Friendly online test available at https://search.google.com/test/mobile-friendly. As a result, performance grade, load time, page size, number of requests (number of web page elements), design responsiveness, and mobile-friendly status were recorded for every hotel website.

3.2. Sample Profile

The total number of 629 hotel websites have been found using the hotel name as a search keyword on the google search engine. Content analysis has been performed on all 629 cases, and descriptive statistics have been calculated using IBM SPSS 26 statistical package. The profile of the analyzed hotels is presented in Table 2 and Table 3. From the total number of 629 hotels, 432 are independent hotels, and 197 are part of hotel groups.

Table 1. Hotels by categorization

Category	Frequency	Percent	Cumulative percent
2-stars	42	6.7	6.7
3-stars	260	41.3	48
4-stars	291	46.3	94.3
5-stars	36	5.7	100
Total	629	100	

[2] https://tools.pingdom.com

Table 2. Hotels by size (number of rooms)

No. of rooms	Frequency	Percent	Cumulative percent
0-24	245	39	39
25-99	204	32.4	71.4
100-299	146	23.2	94.6
300-	34	5.4	100
Total	629	100	

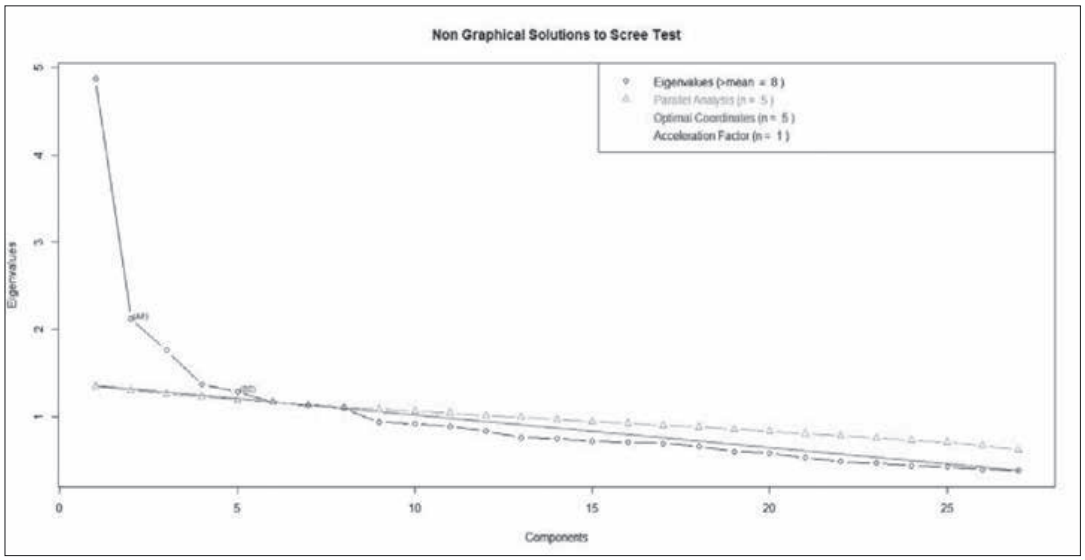
For further analysis, we decided to perform principal component analysis (PCA) to identify dimensions of hotel websites based on website characteristics.

3.3. Principal component analysis (PCA)

PCA appears to be one of the most frequently used multivariate data analysis methods in exploratory data analysis and data mining. The PCA method aims to extract the main orthogonal contributors (principal components) which explain most of the variance of the data matrix analyzed (Cozzolino et al., 2019). According to Guttman (1954) and Kaiser (1960), when a correlation matrix is factorized, it makes no sense to retain components that explain less variance than the original standardized variables. So, principal components eigenvalues equal or less than 1.00 are excluded from the analysis and the number of factors to retain are determined accordingly.

We have used the R statistical program and nFactors package for R for non-graphical solutions to the Cattell's scree test to determine the number of components to retain. The value has to be superior or equal to 1.00, by the Kaiser-Guttman rule, or to location statistics criterion, by a parallel analysis (Raîche et. al., 2013). The result presented in Image 1 suggested retaining 5 components. Because the result of our content analysis is a numeric binary dataset, as suggested by Starkweather (2014) we have used a function called 'hetcor' from 'polycor' package for "R" to calculate the correct matrix of association (for the factor analysis) using the appropriate polychoric correlation (for when both variables being correlated are binary) statistic for each pair of variables in our data. First, numeric data have been recoded as a factor, and then we computed the appropriate correlation matrix for further PCA.

Image 1. Non Graphical Solutions to Scree Test



3.4. Testing differences in characteristics between different groups of hotels

To tests whether the frequencies of website characteristics differ across different groups of hotels, we performed multiple Chi-Square tests. Groups are defined by hotel categorization, hotel size (number of rooms) and ownership type (individual or hotel group), and independence of every website characteristics (categorical data) has been tested against mentioned groups. The null hypothesis for the test is that there is no significant association between specific website characteristics and the type of group ($p < .05$). We use Phi Coefficient as a measure for the strength of an association between two categorical variables in a 2×2 contingency table, and Cramer's V for tables bigger than 2×2 tabulations. In Table 3 interpretation of Phi and Cramer's V coefficients are presented, and in Table 7 results of Chi-square tests are presented.

Table 3. Interpretation of Phi and Cramer's V.

Phi and Cramer's V.	Interpretation
> 0.25	Very strong
> 0.15	Strong
> 0.10	Moderate
> 0.05	Weak
> 0	No or very weak

4. RESULTS

In Table 5 the results of PCA are presented with additional descriptive information (percentages) about website characteristics.

Table 4: PCA results

			Principal Component Analysis (PCA) results							
Dimension	**Item**	**%**	**RC1**	**RC2**	**RC5**	**RC3**	**RC4**	**h2**	**u2**	**com**
Corporate Communication Layer	PR - press releases	**27.0**	**0.86**					0.67	0.328	1.1
	Special offers and discounts	**58.2**	**0.68**					0.5	0.499	1.5
	Employment information	**17.8**	**0.64**					0.6	0.396	1.3
	News section	**41.7**	**0.64**					0.36	0.641	1.2
	Info about services	**79.3**	**0.61**					0.5	0.5	1.1
	Events info	**57.7**	**0.61**					0.54	0.463	1.8
	Answers to FAQ	**26.6**	**0.58**					0.6	0.4	1.6
	About hotel info	**86.2**	**0.56**					0.41	0.592	1.3
	Guest reviews	**31.8**	**0.51**			**0.41**		0.52	0.476	2.2
	Newsletter subscription form	**37.2**	**0.37**					0.33	0.668	2.4
	Destination info	**72.2**	**0.43**		**0.36**	**-0.44**		0.57	0.435	3.3
Marketing Communication Layer	Online payment option	**57.2**				**0.68**		0.57	0.425	1.2
	Website search engine	**27.8**	**0.38**			**0.66**		0.63	0.374	2.1
	Online contact forms	**63.9**				**0.55**		0.41	0.588	1.3
	Online booking	**83.6**				**0.53**		0.77	0.228	3
	Links for sharing with social. m.	**44.5**				**0.5**		0.49	0.513	2.4
Multimedia presentation	Virtual tours of rooms	**15.6**			**0.84**			0.73	0.269	1.4
	Photos presentation of rooms	**90.3**			**0.74**			0.95	0.055	1.8
	Video presentation of rooms	**29.7**			**0.67**			0.58	0.416	1.5
	Live webcam streaming	**24.8**			**0.64**			0.54	0.464	1.8
Social Media Integration	Link to Instagram page	**40.4**		**0.9**				0.76	0.241	1.1
	Link to twitter channel	**26.6**		**0.88**				0.74	0.258	1.1
	Link to YouTube channel	**29.4**		**0.87**				0.77	0.231	1.1
	Link to Facebook page	**75.4**		**0.81**				0.76	0.24	1.3
Interface Personalization	Responsive design	**84.1**					**0.92**	0.83	0.167	1.1
	Google mobile-friendly	**82.2**					**0.88**	0.81	0.186	1
	Multilingual website	**88.1**					**0.32**	0.32	0.682	2.6

The root mean square of the residuals (RMSR) is 0.07. Fit based upon off-diagonal values = 0.95.

Table 5. CPA statistics

		RC1	RC2	RC5	RC3	RC4
SS	loadings	4.57	3.68	2.84	2.98	2.19
Proportion	Var.	0.17	0.14	0.11	0.11	0.08
Cumulative	Var.	0.17	0.31	0.41	0.52	0.6
Proportion	Explained	0.28	0.23	0.17	0.18	0.13
Cumulative	Proportion	0.28	0.51	0.68	0.87	1

Table 6. Component correlations

	RC1	RC2	RC5	RC3	RC4
RC1	**1**	0.35	0.43	0.26	0.03
RC2	0.35	**1**	0.41	0.25	0.33
RC5	0.43	0.41	**1**	0.28	0.19
RC3	0.26	0.25	0.28	**1**	0.14
RC4	0.03	0.33	0.19	0.14	**1**

A chi-square test of independence was performed to examine the relation between every website characteristic and hotel group defined by hotel categorization, hotel size, and hotel type. The results are presented in Table 8.

Table 7. Chi-Square statistics – the test of independencies between characteristics and groups

		Hotel categorization (4x2)			Hotel size (4x2)			Hotel type (2x2)		
Dimension	Item	Pearson Chi-Square	p	Cramer's V	Pearson Chi-Square	p	Cramer's V	Pearson Chi-Square	p	Phi
Corporate Communication Layer	PR - press releases	7.406	0.060		**15.641**	**0.001**	0.158	**17.469**	**0.000**	0.167
	Special offers and discounts	**29.256**	**0.000**	0.216	**36.162**	**0.000**	0.240	**33.330**	**0.000**	0.230
	Employment information	4.632	0.201		**8.675**	**0.034**	0.117	**21.532**	**0.000**	0.185
	News section	1.127	0.771		**12.016**	**0.007**	0.138	0.110	0.740	
	Info about services	3.219	0.359		**15.245**	**0.002**	0.156	**4.299**	**0.038**	0.083
	Events info	**9.810**	**0.020**	0.125	**16.341**	**0.001**	0.161	**11.754**	**0.001**	0.137
	Answers to FAQ	**25.806**	**0.000**	0.203	**16.853**	**0.001**	0.164	**41.907**	**0.000**	0.258
	About hotel info	7.791	0.051		3.977	0.264		**7.682**	**0.006**	0.111
	Guest reviews	**14.644**	**0.002**	0.153	3.264	0.353		0.389	0.533	
	Newsletter subscription form	**13.129**	**0.004**	0.144	**48.961**	**0.000**	0.279	**54.906**	**0.000**	0.295
	Destination info	2.893	0.408		7.545	0.056		3.730	0.053	
Marketing Communication Layer	Online payment option	6.521	0.089		**10.254**	**0.017**	0.128	3.103	0.078	
	Website search engine	6.246	0.100		0.496	0.920		**9.402**	**0.002**	0.122
	Online contact forms	21.841	**0.000**	0.186	0.457	0.928		1.177	0.278	
	Online booking	**18.274**	**0.000**	0.170	**8.013**	**0.046**	0.113	**13.406**	**0.000**	0.146
	Share to social media links	**11.714**	**0.008**	0.136	**17.328**	**0.001**	0.166	**7.588**	**0.006**	0.110
Multimedia presentation	Virtual tours of rooms	**7.866**	**0.049**	0.112	4.659	0.199		1.048	0.036	
	Photos presentation of rooms	**16.386**	**0.003**	0.161	5.542	0.136		11.523	0.001	0.135
	Video presentation of rooms	**10.933**	**0.012**	0.132	4.106	0.250		3.437	0.064	
	Live web cam streaming	**13.884**	**0.003**	0.004	**9.020**	**0.029**	0.120	**6.676**	**0.010**	0.103

Social Media Integration	Link to Instagram page	**20.242**	**0.000**	0.179	**71.142**	**0.000**	0.336	**55.148**	**0.000**	0.296
	Link to twitter channel	**26.007**	**0.000**	0.203	**71.282**	**0.000**	0.337	**49.520**	**0.000**	0.281
	Link to YouTube channel	6.519	0.089		**114.829**	**0.000**	0.427	**79.372**	**0.000**	0.355
	Link to Facebook page	**16.747**	**0.001**	0.163	**12.791**	**0.005**	0.143	**6.440**	**0.011**	0.101
Interface Personalization	Responsive design	**22.423**	**0.000**	0.189	3.634	0.304		**6.510**	**0.011**	0.102
	Google mobile friendly	**18.931**	**0.000**	0.173	7.278	0.064		**19.944**	**0.000**	0.178
	Multilingual website	5.130	0.163		**20.869**	**0.000**	0.182	**17.163**	**0.000**	0.165

4.1. Differences between the hotel groups based on categorization

A chi-square test of independence $\chi 2$ (3, N = 629, $p < .05$) showed that there is a significant association between hotel categorization and 17 (63%) websites characteristics.

A significant association exists between hotel categorization and all variables within the "Multimedia presentation" dimension. There are 45% of variables within "Corporate Communication Layer" dimension, 60% of variables within "Marketing communication Layer" dimension, 75% of variables within "Social integration" dimension, and 67% of variables within "Interface Personalization" dimension that has a significant association with hotel categorization. Based on the interpretation of Phi and Cramer's V. coefficients, we can conclude that associations are moderate to strong.

4.2. Differences between the hotel groups based on the hotel size

A chi-square test of independence $\chi 2$ (3, N = 629, $p < .05$) showed that there is a significant association between the hotel size and 17 (63%) websites characteristics.

A significant association exists between the hotel size and all variables within the "Social Media Integration" dimension and based on Cramer's V. coefficients, we can conclude that those associations are strong to very strong.

There are 73% of variables within the "Corporate Communication Layer" dimension with moderate to strong, and 60% of variables within the "Marketing communication Layer" dimension with a moderate significant association with the hotel size.

Only one variable (live webcam streaming) within the "Multimedia Presentation" dimension and one variable (multilingual website) within the "Interface Personalization" dimension have a significant association with the hotel size, and these associations are moderate to strong.

4.3. Differences between the hotel groups based on the hotel type

A chi-square test of independence $\chi 2$ (1, N = 629, $p < .05$) showed that there is a significant association between the hotel type and 19 (70%) websites characteristics.

The significant association exists between the hotel type and all variables within "Social Media Integration" (very strong association) and "Interface Personalization" (moderate to strong association) dimensions.

There are 73% of variables within the "Corporate Communication Layer" dimension with moderate to very strong, and 60% of variables within the "Marketing communication Layer" dimension with a moderate significant association with hotel type.

Only one variable (live webcam streaming) from the "Multimedia Presentation" dimension has a significant moderate association with hotel type.

4.4. Google Analytics as an estimate of the application of digital analytics

Through the web scraping process, we have collected information about the integration of Google Analytics on the websites of Croatian hotels. A total number of 541 hotels (86%) use Google Analytics on their website. Detailed information per different group of hotels is presented in Table 8.

Table 8. Use of Google Analytics tool on the hotel website

Row N %		Do not use	Use
		Row N %	
Hotel size	small	13.00	87.00
	average	19.00	81.00
	above average	10.00	90.00
	large	6.00	94.00
Type of hotel	independent	16.00	84.00
	hotel group	10.00	90.00
Categorization	2-stars	26.00	74.00
	3-stars	12.00	88.00
	4-stars	15.00	85.00
	5-stars	6.00	94.00

A chi-square test of independence $\chi 2$ (3, N = 629, $p < .05$) showed that there is a significant and moderate association between the hotel categorization and use of Google Analytics on the hotel website, and the hotel size and use of Google Analytics. Same test $\chi 2$ (1, N = 629, $p < .05$) showed a significant and small association between type of the hotel and the use of Google Analytics on the hotel website.

4.5. Technical optimization of web sites as an estimate of user experience and SEO optimization

In Table 9 results of testing website optimization are presented. Four scores from an online testing tool were collected.

Table 9. Website optimization test results for all hotels

	N	Minimum	Maximum	Mean	Std. Deviation
Performance grade	629	47.00	100.00	**71.05**	7.22
Load time (ms)	629	121.00	28270.00	**2375.10**	2625.44
Page size (kb)	629	111.70	43008.00	**4538.04**	4940.43
Requests	629	10.00	477.00	**92.58**	49.04

Table 10. Performance grade and load time for different groups of hotels

		Performance grade		Load time	
		Mean	Standard Deviation	Mean	Standard Deviation
Stars	2-stars	74	8	2331	2370
	3-stars	71	8	2504	2835
	4-stars	71	6	2286	2586
	5-stars	67	6	2219	1409
Class. by rooms	small	72	8	2195	2226
	average	71	7	2707	3600
	above average	70	6	2138	1604
	large	67	3	2702	1492
Type of hotel	independent	72	8	2326	2707
	hotel group	70	6	2461	2479

We decided to test the significance of reported differences in means for "performance grade" and "load time". Shapiro-Wilk test for normality showed significant departure from normality for "Performance grade", W(629)=0.961, p

< 0.001, and for "Load time", W(629)=0.531, p < 0.001, so non-parametric Kruskal Wallis test has been selected to test if there is a significant difference in means among the groups. The results of the test are presented in Table 11.

Table 11. Kruskal Wallis test for differences in means among the groups of hotels

	Categorization by number of stars		Categorization by hotel size		Categorization by type of hotel	
	Performance grade	Load time	Performance grade	Load time	Performance grade	Load time
Kruskal-Wallis H	20.826	3.400	19.251	8.390	11.965	1.801
df	3	3	3	3	1	1
Asymp. Sig.	**0.000**	0.334	**0.000**	**0.039**	**0.001**	0.18

Kruskal Wallis test shows significant differences in means for "performance grade" for all three types of categorizations, and significant differences in mean for "load time" for categorization by hotel size.

5. DISCUSSION AND CONCLUSIONS

5.1. Theoretical and managerial implications

The first objective of this study was to review the characteristics and identify dimensions of the hotel web sites in Croatia. Principal component analysis returned five components. All observed variables (website characteristic) are loading only one component, except "guest reviews" and "website search engine" that are loading two components, and "destination info" that is loading three components.

The first principal component (RC1) explains 17% of the variance. It includes the following website characteristics: press releases, special offers, and discounts, employment information, news, info about services, events info, FAQ, info about hotel and newsletter subscription. Variables "guest reviews" and "website search engine" load this component, but they also load one more component, while variable "destination info" load this component, and two more components. All factor loadings on this component are mostly moderate (0.50-0.75), with exception of variables "newsletter subscription form" that has weak (0.30-0.49), and variable "press releases" that have strong (>0.75) factor load-

ing. We note that a common feature of all variables within the first component is communication with different stakeholders in terms of providing basic information about a hotel and its services. Mujić and Mahmutović (2008) point out that websites differ in content and purpose and divides them into corporate and marketing websites. The corporate website is intended to respond to communication initiated by consumers and other stakeholders, to answer their most common questions and to provide information support to consumers. The purpose of the marketing website is to bring the consumer closer to the decision to buy the product and service, and this type of communication is initiated by the company. In that sense, we named the first component (dimension) "**corporate communication layer**" given that all of the website characteristics within the first component fit the definition of a corporate website.

The second principal component (RC2) explains 14% of the variance. This component describes the connection of a website to social media channels and includes the following variables: link to the Instagram page, link to the Twitter channel, link to the Facebook page, and link to the YouTube channel. We named this dimension "**social media integration**". All factor loadings on this component are strong (>0.75).

The third principal component (RC3) explains 11% of the variance. We named this dimension "**marketing communication layer**" as it includes website characteristics that help and encourage consumers to buy hotel services. Those characteristics are online payment options, website search engine, online contact forms, online booking, and links to share content to social media. All factor loadings on this component are moderate (0.50-0.75). Variable "guest reviews" that loads the first component, also load this component but weakly (0.41), which makes sense, because reviews are an instrument for sales promotion, so it makes sense that they are included in the marketing communications layer as well.

The fourth principal component (RC5) explains 11% of the variance. This dimension explains the extent to which a hotel uses multimedia on its website to present the hotel and the tourist destination, and we named it "**multimedia presentation**". It includes the following website characteristics: virtual tours of rooms, photos presentation of rooms, video presentation of rooms, and live webcam streaming. "Virtual tours" and "photos" load this component strong

(>0.75), while "video presentations" and "webcam streaming" load this component moderate (0.50-0.75).

The fifth principle component (RC4) explains 8% of the variance and includes three variables: responsive design, google mobile-friendly, and multilingual website. The first two variables load this component strongly (>0.75), while the third one loads it weakly (0.32). Common to all three variables is that they allow personalization of the user interface and content according to the device being used and the language that visitor understands, so we named this dimension "**interface personalization".**

Our second objective was to evaluate the extent to which hotels in Croatia effectively execute their marketing communication and distribution function using the website, and to determine if there are significant differences in the rating of their characteristics depending on the categorization of the hotel, size of the hotel and hotel type

To analyze the frequency of particular characteristics of hotel websites in Croatia, we will classify all characteristics into four categories: rarely used (0-25%), the medium used (25-50%), frequently used (50-75%) and very frequently used (75-100%).

Within the *corporate communication layer* information about the hotel (86%), and hotel services (79%) are very frequently used characteristics of Croatian hotel websites, while info about special offers and discounts and events info (58%) are frequently used. News section (42%), newsletter subscription form (37%), guest reviews (32%), press releases (27%), FAQ section (27%) are medium used characteristics, while employment information (18%) is rarely used. Using cross-tables and results of test for differences in means, we find that hotels with more stars are using special offers, events info, guest reviews, and newsletter subscription forms more than hotels with lower rating, while FAQ sections are mostly used on 4-star and 2-star hotel websites, and less on 3-star and 5-star hotel websites. Similar comparisons between hotel groups of different sizes showed that larger hotels more frequently publish special offers, employment opportunities, FAQ and event information, and use the newsletter subscription form than the hotels with a lower rating. Website of hotel groups (corporations) more frequently use press releases, special offers, employment information, newsletter subscription forms, FAQ, events info, and info about services, than the independent hotels.

Within the *marketing communication layer,* online booking (84%) is a very frequently used characteristic, while online contact forms (64%) and online payment options (57%) are frequently used. Links for sharing content to social media (44%) and website search engine (28%) are medium used characteristics on the hotel websites in Croatia. Using cross-tables and results of the test for differences in means, we find that hotels with more stars are using online contact forms and links for sharing content to social networks more frequently than hotels with a lower rating. The frequency of using online booking increases from 2-star hotels (78%) to 4-star hotels (90%), but it is lowest in the 5-star segment (75%). Similarly, larger hotels more frequently use online booking, online payment, and links for sharing content to social networks, compared to smaller hotels. Website of hotel groups (corporations) more frequently use the website search engine, online booking, and links for sharing content to social networks, than independent hotels.

When it comes to *multimedia presentation*, it is evident that photos are very frequently used (90%), while video (30%) and webcam streaming (25%) are medium used characteristics. The use of virtual tours is present in only 16% of hotel websites. Using cross-tables and results of the test for differences in means, we find that hotels with more stars are using more advanced forms of multimedia (virtual tours and webcam streaming) more frequently than hotels with a lower rating. Photos and videos are most commonly used on the websites of 3-star and 4-star hotels and less frequently on the websites of 2-star and 5-star hotels. The larger hotels more frequently use webcam streaming on their websites, than smaller hotels. The same finding applies to hotel group websites compared to those of independent hotels.

Within the *social media integration* dimension, linking to the hotel Facebook page (75%) is very frequently used characteristic, while linking to an Instagram channel (40%), YouTube channel (29%), and Twitter channel (27%) are medium used features on the hotel websites. This is partly in line with Eurostat (2020) statistics, which reported that in 2019 in the accommodation sector in Croatia, 98% of enterprises employing 10 or more persons used social networks to build their corporate image or market products, while 74% of them used social networks to obtain or respond to customer opinions, reviews and questions. Using cross-tables and results of the test for differences in means, we find that hotels with more stars are linking to their Facebook, Instagram and Twitter channels more frequently than hotels with a lower rating. Similarly, larger ho-

tels and hotel groups are more frequently linking to their social media channels than smaller hotels and independent hotels.

A significant number of hotels in Croatia have realized the importance of optimizing websites for mobile devices as well as the need to secure multilingualism. Within the *interface personalization* dimension, all three observed characteristics: multilingual website (88%) responsive design (84%), and mobile-friendly optimization (82%) are very frequently used characteristics. In 2018, commercial accommodations generated 18.7 million arrivals and 89.7 million overnight stays in Croatia, of which foreign tourists generated 16.6 million arrivals and 93% of total overnight stays (DZS RH, 2019), so, understandably, multilingualism is one of the most common features for hotel websites in Croatia. Using cross-tables and results of the test for differences in means, we find that there is a larger percent of websites of hotel groups that are mobile friendly and multilingual, compared to independent hotels. Also, hotels categorized with more stars, and larger hotels, are more frequently multilingual than websites of hotels with a lower rating, and smaller hotels.

Google deep neural network, a computer system modeled on the human brain and nervous system, found that as page load time goes from one second to three and five seconds, the probability of a mobile site visitor bouncing increases to 32%, and 90% respectively. Similarly, as the number of elements—text, titles, images—on a page goes from 400 to 6,000, the probability of conversion drops 95%.[3] The average performance grade of hotel websites in Croatia measured with online tool https://tools.pingdom.com was 71, with a standard deviation of 7.22. The average load time was 2.4 seconds with a standard deviation of 2.6 seconds. Although there are no strict rules for technical optimization, the golden rule says "faster is better and less is more". In Table 11 is visible that hotels with more stars and larger hotels have slightly better performance grades. Also, the websites of hotel groups outperform independent hotel websites in loading speed. Test for differences in means has shown that the mentioned differences are significant.

As we explained in the methodological section, we used an innovative technique for checking the application of google analytics measurement tools on hotel websites, as an indirect indicator of the application of digital analytics in

[3] https://www.thinkwithgoogle.com/marketing-resources/data-measurement/mobile-page-speed-new-industry-benchmarks/

hotels. The result showed that 86% of the analyzed hotels use google analytics on their websites. This result is in line with W3tech's[4] research which states that "Google Analytics is used by 84.9% of all the websites whose traffic analysis tool we know". Also, there is a significant and moderate difference in the use of Google Analytics between higher and lower-rated hotels in favor of higher-rated hotels. The same conclusion applies to larger hotels versus smaller hotels.

Finally, we can conclude that both objectives of the study were achieved. Out of the 27 observed variables, 5 dimensions of the hotel websites were identified through the principal component analysis: corporate communication layer, marketing communication layer, multimedia presentation, social media integration, and interface personalization. The identified dimensions should assist researchers as well as practitioners in evaluating the effectiveness of hotel websites using more advanced models and analytical techniques like SEM.

The corporate communications layer is most commonly used to provide visitors with information about the hotel and its services. It is noteworthy that only 37% of hotels have newsletter sign-up forms, which potentially indicates that this is the percent of hotels that use the newsletter as a form of direct marketing. Similarly, only 27% of websites are having FAQ section, so we can conclude that there is plenty of room for improving customer relations, by enhancing the quality of website content and improving communication with guests. The use of FAQ sections increases visitor confidence, and direct email marketing enables personalized communication with guests, all of which contribute to improving e-trust, which in turn affects online booking intentions.

The most common role of the marketing communication layer is to provide transactional support to guests and enable them to find the service they want and quickly book and pay for it online. It should be noted that only 64% of hotels offer guests the possibility of contact through online contact forms, and only 28% of hotels have a search engine on their website. Besides only 57% of hotels have an online payment option on their websites. Several of the studies we have presented in the literature review have shown that usability and functionality are two essential characteristics of hotel website quality that affect booking intent, which suggests that hotels should improve this segment.

[4] https://w3techs.com/technologies/details/ta-googleanalytics

When it comes to multimedia presentation, the findings indicate that a large number of hotels in Croatia do not follow technological trends and that they are still at the level of using photographs as the primary medium. More intensive application of video, webcam streaming, and virtual tours can help hotels to reduce the customer fear of intangibility, which is a common occurrence in the service sector. As Bilgihan and Bujisic (2014) stated in their research, the use of multimedia (hedonic website features) will positively affect visitor trust and loyalty.

The analysis showed that 75% of hotel websites have a link to their Facebook page, while Instagram (40%), YouTube (29%) and Twitter (27%) are less represented. As the website is supposed to support all marketing activities, hotels must develop integrated digital marketing strategies that will integrate all available channels and send consistent messages. Less frequent use of other social networks may indicate a lack of ideas and knowledge about how the same channels can be used in business.

The differences identified between different hotel groups should be further explored. It is noticeable that generally larger hotels and multi-star hotels have more features on their websites. One explanation could be that the same hotels have more resources and more digital marketing knowledge. Digital marketing is a fairly new area for many managers who completed their college education years ago. Therefore, the Croatian Ministry of Tourism and the agencies responsible for tourism promotion in Croatia should invest more in the education of hotel marketing staff to better understand the possibilities of new innovative digital marketing approaches, to increase the number of tourists and achieve better financial results.

5.2. Study limitations and future research directions

There are a few limitations regarding this study that need to be highlighted so that it can be considered for future research. First, we should indicate that our content analysis has been performed on the sample frame (hotels whose websites we were able to find using Google search engine), and not the total population of hotels in Croatia. We have observed 629 of 731 hotels in Croatia, however, even if this is a large sample (86% of the population), it was not randomly selected. Second, not all features of hotel websites are included in the analysis. For example, features like best price guarantees, refund guarantee, and

safe purchase guarantee are initially designed to be part of the model. However, due to the inability to easily record the presence or absence of these features on websites, due to the different ways of promoting these guarantees on websites, to ensure the validity of the measuring instrument, it has been decided to exclude them from the analysis. Third, the use of the Google Analytics service, recorded through the presence of appropriate code on the website, tells us nothing about the extent to which this service is used for analysis. Also, Google Analytics is not the only statistical service for website traffic, so these findings should be checked with additional research. However, we think this method is a good basis for getting a picture of the use of digital analytics because it avoids the possibility of making mistakes by intentionally or unintentionally giving the wrong answers in surveys. Finally, we should note that our analysis did not take into account the importance of a particular feature of the website, either from a user perspective or from a managerial perspective. Therefore, we suggest that in future research the model should be tested by using a survey method in addition to content analysis, which will give a better picture of the importance of all five identified website dimensions, as well as the ability to test their impact on hotel business performance.

Despite these limitations, we believe that this paper helps to fill some important gaps in the understanding underlying components of hotel websites from a marketing perspective, providing additional empirical support to the relevant literature and suggesting useful directions for future research.

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