Benchmarking CVB website performance: Spatial and structural patterns

Svetlana Stepchenkova a,*, Liang Tang b, SooCheong (Shawn) Jang c,1, Andrei P. Kirilenko d,2, Alastair M. Morrison e,3

a Department of Tourism, Recreation, and Sport Management, College of Health and Human Performance, University of Florida, PO Box 118208, Gainesville, FL 32611–8208, USA
b Department of Hospitality and Tourism Management, College of Consumer and Family Sciences, Purdue University, Stone Hall, Room 154, 700 W. State Street, West Lafayette, IN 47907-2659, USA
c Department of Hospitality and Tourism Management, College of Consumer and Family Sciences, Purdue University, Stone Hall, Room B1-C, 700 W. State Street, West Lafayette, IN 47907-2659, USA
d Department of Earth System Science and Policy, University of North Dakota, Clifford Hall, Room 328, 4149 University Avenue Stop 9011, Grand Forks, ND 58202-9011, USA
e Department of Hospitality and Tourism Management, College of Consumer and Family Sciences, Purdue University, Stone Hall, Room 111A, 700 W. State Street, West Lafayette, IN 47907-2659, USA

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A B S T R A C T

This study evaluated 967 U.S. CVB websites using a modified Balanced Scorecard (mBSC) approach which assesses website performance with respect to overall technical functionality, customer friendliness and usability, effectiveness of marketing the destination, and information content. Spatial maps were constructed for these four dimensions and overall CVB website performance using ArcMap v.9.2 GIS software. A structural pattern of CVB website performance was obtained using Structural Equation Modeling (SEM). It was concluded that CVB websites primarily need improvement in marketing the destination product. The analysis revealed significant differences in website performance between members and non-members of Destination Marketing Association International (DMAI) as well as regional differences. Study implications for destination marketing organizations and CVB website designers are discussed.

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1. Introduction

Marketing cities and other locations as tourist destinations has been one of the major trends in the U.S. tourism in the past three decades. Convention and Visitor Bureaus (CVBs) have acted as destination marketing organizations and have been responsible for attracting pleasure visitors and meeting groups to their respective locations (Yuan, Gretzel, & Fesenmaier, 2003). Most CVBs operate as independent, not-for-profit organizations, and their organizational structures vary depending on the character of the destination, i.e., a single city, a metropolitan area, a county, or regional destination comprised of several counties (Gartrell, 1988). CVBs provide opportunities for local businesses to promote their products in communications with their travel markets and, at the same time, help tourists and potential visitors to form expectations, create destination images, and assist in purchasing tourism products (Buhalis, 2003; Pike, 2004; Shanshan, Buhalis, & Law, 2007). CVBs enhance the economic growth and development of their respective regions, making them a desirable location for meetings, conventions, and tours, and increase the environmental well-being of destinations through promotion and comprehensive marketing. Thus, CVBs play several important roles at once: an economic driver creating new income, employment, and a more diversified local economy; a community marketer communicating the most appropriate destination image and positioning destination appropriately in the marketplace; and an industry coordinator encouraging less industry fragmentation (Morrison, Bruen, & Anderson, 1998; Presenza, Sheehan, & Ritchie, 2005; Wang, 2008).

With the development of tourism offers and services, there is an intensive competition for visitors between destinations, and an appealing presentation of a destination to potential markets is a crucial success factor. As part of their marketing strategy, CVBs widely use Internet technology, especially destination websites, as this approach offers new distribution channels for destination product, reaches people in faraway locations, and provides richer information and less expensive means of communication. It also
allows establishing and developing new relationships with members and other cooperative partners. Therefore, regular evaluations of CVB website performance are needed to effectively facilitate continuous improvements, i.e., customer retention and return on investment, and judge site performance against competitors and industry peers (Fesenmaier, Leppers, & O'Leary, 1999; Tierney, 2000). Xiang, Kothari, Hu, and Fesenmaier (2007) argue that benchmarking performance of the destination marketing organizations websites should be considered as a regular and continuous instrument that contributes to development of CVBs’ winning management strategies. However, the multi-dimensional nature of website performance, the variety of approaches to performance evaluations, and the time consuming evaluation process often prevent regular and comprehensive monitoring of CVB website performance.

The purpose of this exploratory study was to evaluate performance of all U.S. CVB websites using a standardized measure, a modified Balanced Scorecard (mBSC) approach, thus getting a picture of CVB website performance across the whole country. Such a comprehensive survey allowed aggregated comparisons of CVB websites by different variables, such as Destination Marketing Association International (DMAI) membership, state, or geographic location (using the Geographical Information System ESRI ArcMap GIS), thus casting light on the leadership within the competition. In addition, the motivation for the study was to understand how different CVBs approach the website design task and to what website features they pay most attention, i.e., obtaining the current model of CVB website design. Such information was thought to be helpful in understanding whether CVBs in practice follow academic research recommendations and marketing theory. The data collection was conducted in 2006 as a benchmarking project for the Certified Destination Management Executive (CDME) program of the DMAI. The contribution of this study is in completeness of the evaluation data, which can be considered as nearly a census of U.S. CVB websites, as well as in applying spatial statistics and spatial maps to visualize the wealth of evaluation data and compare performance on a large scale. Practical relevance of the study was attested by participants of CDME training program over the past 10 years.

2. Study background

Benchmarking is as a continuous systematic process for evaluation of organizational performance in order to assist in developing organizational strategies (Spendolini, 1992; Xiang et al., 2007; Yasin, 2002). Benchmarking allows improvement of business practices by building upon “performance comparison, gap identification, and change management process” (Kozak, 2002: p. 499, referring to Watson, 1993). Scholars distinguish external and internal benchmarking; the former refers to comparisons against other organizations in the industry, while the latter is concerned with organizational units comparing against other units within the same organization (Watson, 1993), or against itself over time (Bogan & English, 1994). In the benchmarking literature, the classification of benchmarking by its objective into (1) process benchmarking; (2) performance benchmarking; and (3) strategic benchmarking was first proposed by Bogan and English (1994). Process benchmarking evaluates work processes (e.g., recruitment process) in order to establish the most effective business practices. Performance benchmarking focuses on the company’s competitive position by assessing such product/service elements as price, quality, reliability, and other performance characteristics. Finally, strategic benchmarking is looking for successful strategies which would allow the company to obtain a winning position in the marketplace. Past research has highlighted the value of benchmarking in aiding firms and organizations in assessment of their strengths and weaknesses, identifying best practices, and setting realistic goals in their strategic planning (Evans & Lindsay, 1993).

To improve the effectiveness of a tourism website as a destination marketing tool, evaluation of website performance has been a growing concern among tourism scholars since late 1990s. According to Li and Petrick (2007), there are two major trends in tourism website evaluation studies; the same trends were noted in non-tourism fields, e.g., management information systems or Internet marketing and electronic commerce literature, by Aladwani (2006). One line of research concentrated on the design, content, effectiveness, and other quality issues that make websites more attractive to visitors and facilitate stickiness and retention (e.g., Cai, Card, & Cole, 2004; Kim & Fesenmaier, 2007; O'Connor, 2004). The other stream of website studies paid more attention to how visitors interact with websites and examined such quality aspects as consumer purchase decisions (e.g., Liang & Lai, 2002), website reuse (e.g., Loiacono, Watson, & Goodhue, 2002), and willingness to e-shop (e.g., Heijden & Verhagen, 2002). Studies from the second group relied heavily on the adaptation of the SERVQUAL instrument by Parasuraman, Zeithaml, and Berry (1988) to assess website quality; however, tourism-related websites are rarely the focus of evaluation (Park, Gretzel, & Sirakaya-Turk, 2007). In the most recent qualitative meta-analysis of success factors for destination marketing websites, Park and Gretzel (2007) surveyed 153 academic articles which dealt with the assessment of website quality, the term that they chose to refer to the construct which was studied in those articles under a variety of names: usability, e-satisfaction, e-service quality, website performance, e-loyalty, etc. These authors identified 38 dimensions along which website quality was evaluated, and further extracted nine key factors critical for both tourism and non-tourism website success, as viewed by most scholars. They labeled these factors as information quality, ease of use, security/privacy, responsiveness, interactivity, visual appearance, personalization, trust, and fulfillment. Their research highlighted the fact that the website quality construct still lacks a conceptual definition, which hinders large-scale benchmarking of tourism websites, notwithstanding its practical importance.

A variety of approaches were explored by researchers aiming at analyzing website features and designing evaluation benchmarks. However, in a survey of practice, Morrison, Taylor, and Douglas (2004) concluded that the evaluation of website performance in tourism and hospitality literature lacked a unified standard, a finding consistent with the situation in a broader marketing field (Wolfinbarger & Gilly, 2003). Perhaps one of the best known uniform instruments for tourism and hospitality website evaluation is the modified Balanced Scorecard (mBSC) by Morrison, Taylor, Morrison, and Morrison (1999), which was roughly modeled around Kaplan and Norton’s (1992) Balanced Scorecard (BSC) approach accepted in management science. BSC could be defined as a series of selected measures stemming from the organization’s vision and strategy. The BSC measures company performance from four perspectives: customer, financial, learning and growth, and internal business processes. The four perspectives are balanced to achieve organizational goals. Since its creation, there have been numerous adaptations of the BSC approach to compare organizational performance in various industry sectors (Sterne, 2002). The mBSC is to satisfy the evaluation needs of tourism and hospitality websites by emphasizing such perspectives of website performance comparison as technical functionality, customer friendliness and usability, marketing effectiveness, and the level of information presented. In 2002, Mills, Morrison, and Ismail (2002) further edited the mBSC by adding more aspects of comparison in each of the four
perspectives to reflect changes in tourism website development. The mBSC approach has been employed in a number of hospitality and tourism studies (e.g., Douglas & Mills, 2004; Feng, Morrison, & Ismail, 2002; Ismail, Labropoulos, Mills, & Morrison, 2002; Kim, Morrison, & Mills, 2004; Kline, Morrison, & John, 2004; Myung, Morrison, & Taylor, 2005) and has also been used for more than seven years to evaluate CVB websites as a part of the Certified Destination Management Executive (CDME) program.

3. Methodology

Research design includes several stages: (1) data collection; (2) visualization of the data using GIS mapping software and comparison of CVB website performance by DMAI membership and geographical region; (3) operationalization of variables suitable for Structural Equation Modeling (SEM) from the original data in order to see structural patterns of CVB website design; and (4) modeling patterns of CVB website design using Exploratory and Confirmatory Factor Analyses (EFA and CFA).

3.1. Instrument and data collection

The data were collected by using the survey tool based on mBSC methodology described in Section 2, which is below referred to as WebEVAL®, since it was specifically developed for evaluation of CVB website performance. The WebEVAL® questionnaire consists of 99 evaluation criteria from four performance perspectives, as defined by the mBSC methodological approach: customer friendliness and usability (Customer), marketing effectiveness (Marketing Effectiveness), the level of information presented (Destination Information), and technical functionality (Technical). Questionnaire items related to the Customer, Marketing Effectiveness, and Destination Information perspectives are “yes–no” questions on the presence (value “1”) or absence (value “0”) of a particular website feature. Items related to the Technical perspective are measured on the scale 0–5, as explained below.

3.1.1. Customer perspective

With a focus on user friendliness and site attractiveness, the Customer perspective examines the website from a potential visitor’s viewpoint. WebEVAL® uses 22 survey items to assess (1) level of accessibility of the website and the ease of website reach; (2) ability of visitors to navigate within the website; (3) attractiveness of the website, its overall look and feel; (4) currency of information presented on the website; and (5) ease of locating contact information of CVB representatives and members. Example of the items reflecting ease of navigation and website attractiveness would be: “Is a site map or index available?” and “Does the use of color improve the visual appeal of the site?”

3.1.2. Marketing Effectiveness perspective

WebEVAL® items related to the Marketing Effectiveness perspective estimate how the website reflects major principles for effective strategic destination marketing. WebEVAL® has 35 survey items to assess (1) website usability for visitors outside the U.S.; (2) ability to target or segment specific groups of travelers; (3) position or brand represented by the website; (4) capacity of the website to tangibilize the destination product; (5) creation of a relationship or database marketing scheme; (6) level of partnership that has been developed with the CVB; and (7) how much ‘value added’ material is offered. Examples of the items reflecting added value and market segmentation aspects of the Marketing Effectiveness perspective would be: “Are special packages available on the site?” and “Is specific information for pleasure or vacation travelers provided?”

3.1.3. Destination Information perspective

This perspective reflects information needs of the full range of CVB customers, including general destination information needs, as well as requirements of specialized groups such as convention-meeting planners. WebEVAL® uses 37 criteria to evaluate whether or not information is present concerning: (1) attractions, events, and festivals; (2) facilities; (3) transportation and infrastructure; (4) general travel information; (5) legal compliance; (6) meetings and conventions information; (7) specific information for travel professionals; and (7) information for the media. Examples of the items reflecting presence of general travel information and facilities would be: “Is information on the history of destination included?” and “Is information on lodging/accommodation facilities provided?”

3.1.4. Technical perspective

To assess website performance along the Technical perspective, the WebEVAL® tool employs two external services located at NetMechanic.com and LinkPopularity.com. NetMechanic checks the number of broken links, HTML code for bad tag usage and language errors, compatibility of website with various Internet browsers, and overall load time. The software randomly chooses a sample of five pages from the website to be tested and assigns rating scores on a five-point scale. LinkPopularity scores are based on measures of the total number of websites linking to the destination website as estimated by Google, MSN, and Yahoo.

CDME constantly updates its database of U.S. CVB websites. Within this study, 1019 websites were evaluated using the WebEVAL® questionnaire by the first two authors of this paper during an 11-week period in the summer of 2006. Each researcher evaluated about 500 unique websites and 100 websites from the other researcher’s list to ensure that evaluations produced by both raters were consistent and accurate. Pre-evaluation training was conducted, in which the raters assessed the same randomly chosen websites. The results showed that the raters were in need of detailed instructions for about 20–30 survey items in order to synchronize evaluations. Evaluation guidelines that specified how to interpret the WebEVAL® questions were written and thoroughly discussed to ensure common understanding. Two hundred websites to be evaluated by both raters were divided into four sets of 50, and their evaluation was spaced across the whole length of the data collection process to closely monitor the consistency of evaluations (Krippendorff, 2004). Raters used the CORREL function built into Excel, which is essentially a variation of Pearson’s correlation coefficient, to calculate the agreement rate. For example, on a battery of 94 questions, a correlation of .81 means that only 8 items on average were evaluated differently; that is, there was a ~91.5% agreement. The guidelines were expanded to include virtually all survey items and “tuned up” with every consequent inter-rater reliability check. Reliability results for mean agreement rate and standard deviation were .78 and .14 for the second week; .81 and .10 for the fourth week; .82 and .07 for the seventh week; and .81 and .04 for the ninth week.

After the evaluation process was completed, the CVB database contained 967 unique cases; duplicate entries (when different addresses provided links to the same website) and non-existing cases (addresses without actual websites) were removed. A number of websites employed protection from being browsed by robots alike to NetMechanic; thus, 50 out of 967 cases, or 5.17%, had missing values for at least one technical perspective variable. It was reasoned that such a protection strategy indicated a certain level of technical sophistication, and mean values were imputed for missing data. The other 94 variables had less than 1% of missing values. The researchers agreed that missing values most likely were due to the absence of a feature and treated them as “0.”
Scores obtained in Customer, Marketing Effectiveness, Destination Information, and Technical perspectives were scaled to 100%. It means that if, for example, a particular website got “1” for each of 22 survey items belonging to the Customer perspective, its score on this perspective would be 100. The mBSC approach gives equal weights to each of the four perspectives of overall performance; thus, scores on separate perspectives were summed up and divided by four. The resulting score was named PERFORM and was interpreted as an indicator of the overall website performance. The calculation ensured that same measurement scale was obtained for each of the four website performance perspectives and for the total performance variable. The PERFORM variable, as well as performance scores on each of the perspectives, exhibited an approximately normal distribution (see Table 1). t-Tests were conducted to compare scores of DMAI members and non-members in every performance perspective and for the PERFORM variable (see Table 2). They indicate that websites of DMAI members demonstrate higher performance in each of the four perspectives, as well as higher overall performance.

3.2. Data visualization and spatial analysis

Spatial analysis is one of the most rapidly growing areas in both natural and social sciences, where it is used to study spatial patterns of data with known geographical locations, such as the data obtained in this CVB study. For this analysis, ESRI ArcMap v.9.2 GIS, together with ESRI Spatial Analyst and Geostatistical Analyst extensions, were used. Evaluated websites were associated with the geographical locations of their respective CVBs. These locations were identified in the ESRI Populated Place Points database (www.esri.com), which includes 23,435 census designated places, consolidated cities, and incorporated places in the United States as specified by the U.S. Bureau of the Census (Fig. 1A). Every identified website location was assigned a 5-digit Federal Information Processing Standards (FIPS) code. When a website represented a county, the FIPS code of the county administrative center was assigned. In few cases, when it was impossible to find a match in the Populated Place Points database, an alternative FIPS code was assigned in the following manner. When a counterpart to the website location was not found due to the small population of the place, the GoogleMaps engine (www.googlemaps.com) was used to substitute this location with another one in a 20-mile radius with a known database match, and the FIPS code of this counterpart was used. For “umbrella” websites representing several counties, one of the central counties was chosen, and the FIPS code of its administrative center was assigned to the website. Altogether, 43 (4.4%) evaluated CVB websites were assigned an alternative FIPS code.

The data fields of the 967 website locations were joined to the ESRI Populated Place Points database and stored as an ESRI point shape file. To study the variation of the number of websites per area unit, the kernel density of selected point features was computed. The highest density of sampled websites is observed in two wide belts stretching from Boston to Washington, DC and from New York to Chicago, in Florida, and also in Dallas, Atlanta, San Francisco, and Los Angeles metropolitan areas. The pattern differs for DMAI members and non-members, as DMAI member websites tend to be located at the major metropolitan areas, while non-member sites tend to demonstrate a wider distribution.

Distribution of PERFORM variable demonstrates high variability. The Inverse Distance Weighting (IDW) method was employed to interpolate the PERFORM values obtained as a result of this study (Fig. 1B). The IDW method is sensitive to the density of interpolated features, which partially explains higher variability of PERFORM variable in the regions with higher density of websites (compare Fig. 1A and B). It also seems that the overall performance of websites hosted in the Western part of the country tends to be higher. Separation of the websites into DMAI member and non-member sites demonstrates that this spatial trend is probably due to higher performance of non-DMAI member websites in the Western part of the country, as DMAI member websites are distributed more uniformly. It should also be noted that the sampled Alaskan and Hawaiian CVB websites are few and geographically clumped together, which precluded spatial variability from being revealed on the maps.

The overall website performance PERFORM (Fig. 1B) can be disaggregated into four performance perspectives: Technical (Fig. 1C), Customer (Fig. 1D), Marketing Effectiveness (Fig. 1E), and Destination Information (Fig. 1F). The Technical perspective distribution tends to demonstrate a wider distribution.

### Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>S.D.</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFORM</td>
<td>2.38</td>
<td>8.78</td>
<td>5.60</td>
<td>1.00</td>
<td>.099</td>
<td>-.448</td>
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<tr>
<td>Technical</td>
<td>32.00</td>
<td>100.00</td>
<td>68.61</td>
<td>10.00</td>
<td>-.19</td>
<td>.203</td>
</tr>
<tr>
<td>Customer</td>
<td>18.10</td>
<td>100.00</td>
<td>73.94</td>
<td>11.56</td>
<td>-.63</td>
<td>.697</td>
</tr>
<tr>
<td>Marketing Effectiveness</td>
<td>8.67</td>
<td>91.43</td>
<td>36.04</td>
<td>14.28</td>
<td>.16</td>
<td>-.058</td>
</tr>
<tr>
<td>Destination Information</td>
<td>2.70</td>
<td>91.89</td>
<td>45.52</td>
<td>17.60</td>
<td>.14</td>
<td>-.63</td>
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</table>

### Table 2

<table>
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<tr>
<th>Perspective</th>
<th>DMAI membership</th>
<th>Mean</th>
<th>S.D.</th>
<th>Test for equality of variance</th>
<th>t-Test for equality of means</th>
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<tr>
<td>PERFORM</td>
<td>Yes*</td>
<td>62.09</td>
<td>8.65</td>
<td>.030</td>
<td>21.55 92.82 .000</td>
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<td></td>
<td>No</td>
<td>56.70</td>
<td>7.85</td>
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<td>Technical</td>
<td>Yes</td>
<td>70.27</td>
<td>9.72</td>
<td>.47</td>
<td>.492 4.92 965 .000</td>
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<tr>
<td></td>
<td>No</td>
<td>67.13</td>
<td>10.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer</td>
<td>Yes</td>
<td>77.93</td>
<td>10.62</td>
<td>.223</td>
<td>.135 10.75 965 .000</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>70.37</td>
<td>11.20</td>
<td></td>
<td></td>
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<tr>
<td>Marketing</td>
<td>Yes</td>
<td>44.11</td>
<td>13.16</td>
<td>.148</td>
<td>.000 19.50 891.86 .000</td>
</tr>
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<td></td>
<td>No</td>
<td>28.81</td>
<td>10.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destination</td>
<td>Yes</td>
<td>56.06</td>
<td>15.45</td>
<td>.003</td>
<td>21.25 913.80 .000</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>36.07</td>
<td>13.59</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* DMAI – 457 websites.  
** Non-DMAI – 510 websites.
Oregon, Utah, Washington, and Arizona). The lowest performance of websites is observed in Montana and West Virginia, and the highest in Washington, DC. Almost universally, the website performance of DMAI members is higher than that of non-members, a finding supported by formal statistical tests (see Table 2).

3.3. Performance dimension variables

Guided by the nature of the WebEVAL® instrument and findings of Park and Gretzel (2007), semi-continuous variables, as composites of original dichotomous survey items, were constructed to represent website performance dimensions. For example, WebEVAL® contains nine items which evaluate visual appeal of a website; thus, the maximum number of points that any particular website can score on this dimension is nine. The "appeal" variable was operationalized as the actual score divided by nine; consequently, all its values lie within the [0, 1] segment. All other performance dimension variables were operationalized in the same manner, which ensured a comparable measurement scale and close magnitude of variance, properties desirable in CFA analysis. By analogy with the Likert scale, the values of new variables need to have at least five equally spaced points; therefore, four original items or more were included in every semi-continuous variable. The list of performance dimension variables is given below, with the figure in parentheses indicating the number of the original items which comprised the variable:

- **Ease of use:**
  - TECH (5) – unbroken links, HTML code, browser compatibility, load time, link popularity.
  - NAVIGATE (4) – effective navigation tools, home button on all pages, site map, and search engine.
  - LINKING (5) – hyperlinks to websites of local attractions, hotels, meeting centers, restaurants, etc.

- **Visual appearance:**
  - APPEAL (9) – clear and readable text, uncluttered page layout, sufficient contrast between text and background, use of colors and imagery, effective use of space.
Information quality:
- CURRENT (4) – current and timely information.
- SEGMENT (6) – information for different groups of visitors: pleasure travelers, meeting planners, tour operators, etc. Also reflects website structure and organization.
- ACTIVITY (4) – information about local attractions and activities.
- FACILITY (6) – information about local area hotels, restaurants, shopping and entertainment facilities.
- DESTINFO (6) – weather, directions, maps, travel tips, time zones, etc.
- MPLANNER (5) – special information for meeting planners.

Responsiveness:
- CONTACT (5) – CVB contact information.
- FEEDBACK (7) – FAQ, online inquiry forms, discussion forum, chat room, or live question-answer with CVB personnel.

Personalization:
- PERSONAL (6) – web pages in more than one language, translation service, interactive trip planner, opportunity to send an e-postcard, sign up for visitors, etc.
- RELATION (6) – sign up for CVB members and partners, ideas for media.

Fulfillment:
- VALUE (5) – options of online booking of accommodations or attractions, special offers and deals.

Trust:
- BRANDING (7) – brand logo and slogan, as well as attributes tangibilizing the destination product – photographs, virtual tours, and texts about uniqueness of a destination.
- ASSURE (5) – information about “Us”, CVB mission statement, privacy policy, testimonials, awards and recognitions.

Four items from the WebEVAL\textsuperscript{5} instrument were not included in any variable. As can be seen from Table 3, new variables do not severely violate the normality assumption. In Table 3, the variables are arranged in the descending order of the mean, which makes it easy to see that APPEAL, ACTIVITY, FACILITY, and CONTACT variables, that reflect the visual appeal of the website and presence of basic destination information, have the highest performance score, while marketing effectiveness variables VALUE, RELATION, ASSURE, and PERSONAL are placed at the bottom of the table. The variables were checked for multicollinearity: VIF for all variables was below 3.0, and Pearson correlation coefficients were less than .59. Cronbach’s alpha for all 17 performance dimension variables was obtained in order to see whether the variables indeed belonged to one underlying construct, that of CVB website performance. The alpha was .88, which is a good reliability value (Nunnally, 1978). Item-to-total correlations for variables TECH (.13), APPEAL (.26), and CONTACT (.31) indicated that these variables were further from the rest; they were the only variables which removal would slightly increase the overall reliability. The performance dimension variables were judged adequate for further analysis.

4. Results of SEM analysis

4.1. Exploratory Factor Analysis (EFA)

One of the objectives of the study was to obtain the most current “blueprint” of structural patterns of CVB website design in order to understand how various CVBs approach the website design task and to what features they pay most attention. The data collected during this benchmarking project were considered as nearly a census of all U.S. CVB websites. Since the researchers were primarily interested not in predictive but explanatory power of the model, i.e., wanted to obtain the best fitting structural pattern for the available census data, they decided to conduct EFA and CFA analyses on the same sample rather than to split it into two separate parts. It was decided to apply the data trimming procedure to remove the websites with the low scores from further consideration, since they were poor in many aspects – aesthetical, structural, and content. It was difficult to evaluate such websites, and higher than average measurement errors were likely. Sheskin (2004) lists several methodologies for data trimming in studies involving large amounts of data. Based on the nature of the data collection, the authors selected the data trimming approach which “involves removing a fixed percentage of extreme scores from each of the tails of the distributions that are involved in the data analysis... common trimming levels are the top and bottom deciles” (Sheskin, 2004: p. 403). However, the procedure was modified by trimming 5% of the bottom scores only, since highly scored websites were not expected to have a higher rate of measurement error. Forty eight individual websites with the lowest PERFORM scores were excluded, and the reduced dataset was also examined for influential cases. The leverage statistics and Cook’s distance (\(D\)) were calculated. All leverage and \(D\) statistics were well below the “rule-of-thumb” values of .2 and 1.0, respectively (Garson, 2008). The trimmed dataset contained 921 cases. The range of the PERFORM variable was 40.06–87.38.

Principal Component Analysis (PCA) with Varimax rotation was conducted at the EFA stage of the research in order to reduce the dimensionality of the model by classifying 17 performance dimensions into a smaller number of factors. The KMO measure of sampling adequacy (.92) and Bartlett’s test of sphericity (\(p = .000\)) indicated the appropriateness of PCA for the given data. Items with

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>S.D.</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPEAL</td>
<td>.87</td>
<td>.24</td>
<td>-.49</td>
<td>1.95</td>
</tr>
<tr>
<td>ACTIVITY</td>
<td>.70</td>
<td>.27</td>
<td>-.33</td>
<td>.07</td>
</tr>
<tr>
<td>FACILITY</td>
<td>.70</td>
<td>.25</td>
<td>-.95</td>
<td>.69</td>
</tr>
<tr>
<td>TECH</td>
<td>.69</td>
<td>.10</td>
<td>-.02</td>
<td>.20</td>
</tr>
<tr>
<td>CURRENT</td>
<td>.68</td>
<td>.18</td>
<td>-.21</td>
<td>4.85</td>
</tr>
<tr>
<td>LINKING</td>
<td>.64</td>
<td>.29</td>
<td>-.48</td>
<td>-.70</td>
</tr>
<tr>
<td>BRANDING</td>
<td>.63</td>
<td>.18</td>
<td>.21</td>
<td>-.13</td>
</tr>
<tr>
<td>NAVIGATE</td>
<td>.61</td>
<td>.23</td>
<td>.02</td>
<td>-.18</td>
</tr>
</tbody>
</table>

\[ N = 967. \]
were considered for removal (Kline, 1994). Five items were deleted: CURRENT on the basis of low communalities and PERSONAL, BRANDING, MPLANNER, and FEEDBACK on the basis of high cross-loadings. Variable TECH moved from factor to factor and was removed; it was decided that the nature of its measurement was way too different from the rest of performance variables. As a result, a three-factor solution was obtained from the remaining 11 quality dimension items, which explained 54% of the total variance. The factors were named Destination, Marketing, and Ease of Use. The DESTINFO variable with communality .33 was kept in the dataset as fitting well into its respective Destination Product factor. Cronbach’s reliability alphas were .79, .51, and .39. Nunnally (1978) has indicated .7 to be an acceptable Cronbach’s reliability alpha for the items within a given construct; however, lower thresholds are sometimes used in the literature, since the magnitude of the coefficient also depends on the number of factors comprising it. The EFA results are given in Table 4.

### 4.2. Confirmatory Factor Analysis (CFA)

Using the three-factor solution indicated by the EFA analysis, the authors tested first-order correlated factor model of CVB website performance (Fig. 2), and then second-order single factor model where Ease of Use, Marketing, and Destination Product factors comprised a unifying construct of CVB website performance. CFA was conducted using maximum likelihood estimation procedure with covariance matrix, as implemented in Analysis of Moment Structure (Amos 4.0). In assessing the “goodness-of-fit” in the modeling process, the following fit indices as recommended by Hoyle and Panter (1995) and Brown (2006) were employed: (1) the model χ² with the related degrees of freedom and p-value, and χ²/df ratio (the value between to 2.0 and 3.0 is desired); (2) GFI (the goodness-of-fit) and AGFI (a variant of GFI adjusted for the number of degrees of freedom in the model) indices that reflect the relative amount of the observed variances and covariances accounted for by a model; (3) TLI (Tucker–Lewis Nonnormed fit) index, compares the amount of the observed variances and covariances accounted for by a model to nonnormed; (4) CFI (the Bentler comparative fit) index, compares the existing model fit with a null model which assumes the latent variables in the model are uncorrelated; and (5) RMSEA (the root mean square error of approximation) with its 90% confidence interval (CI) and test of close fit (CFit). Both GFI and AGFI by convention should be equal to or greater than .90 to accept the model. Monte Carlo simulations by Hu and Bentler (1999) showed that using a combination of indices such as CFI and RMSEA achieves a good balance between Type I and Type II error rates when assessing model fit. According to their simulations, a CFI greater than or equal to .95 and an RMSEA less than or equal to .06 (90% CI .04–.06, CFit non-significant) are indicative of a good fitting model.

First-order correlated factor model indicated by the prior EFA obtained the following result: \( \chi^2(41) = 137.6, p = .000, \chi^2/df = 3.36, \text{GFI} = .973, \text{AGFI} = .956, \text{TLI} = .941, \text{CFI} = .956, \text{RMSEA} = .051 (\text{CI} = .041–.060, \text{CFit} = .440). \) All standardized estimates were highly significant \((p < .000).\) Modification indices (MIs) indicated that the “facility” and “linking” variables had high covariance. It was considered feasible to correlate the errors of these variables, since information about hotels, restaurants, shops, and attractions on CVB websites very often includes hyperlinks to websites of these establishments. The result of the revised measurement model was: \( \chi^2(40) = 108.2, p = .000, \chi^2/df = 2.71, \text{GFI} = .979, \text{AGFI} = .965, \text{TLI} = .957, \text{CFI} = .969, \text{RMSEA} = .043 (\text{CI} = .033–.053, \text{CFit} = .873). \) The drop of 29 chi-square points for one degree of freedom difference between the nested models is highly significant \((p < .000).\) There were only two MIs greater than 10 \((10.04 \text{ and } 10.10),\) and all standardized residual covariances were less than 2.56 \((\text{Brown, 2006}).\) Correlations between Ease of Use and Marketing, Marketing and Destination Product, and Destination Product and Ease of Use factors were .52, .77, and .48, respectively. The solution was checked for discriminant validity between factors using the method proposed by Gerbing and Anderson (1988). The method involves checking bivariate correlations between the three factors of the CVB website performance construct to see whether 95% confidence intervals calculated as “1.96 times standard error of estimate” contained 1. The confidence intervals did not include 1; thus, the result was accepted as reasonable evidence that each factor measures a unique dimension of CVB website performance. The second-order single factor model of the CVB website performance was estimated, all indices were below the established cutoff values and all path estimates were highly significant: \( \chi^2(41) = 108.2, p = .000, \chi^2/df = 2.71, \text{GFI} = .979, \text{AGFI} = .965, \text{TLI} = .957, \text{CFI} = .969, \text{RMSEA} = .043 (\text{CI} = .033–.053, \text{CFit} = .873). \) The model was accepted, see Fig. 3.

### Table 4

EFA: CVB website performance.

<table>
<thead>
<tr>
<th>Variable, communality</th>
<th>Destination Product</th>
<th>Marketing</th>
<th>Ease of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACILITY</td>
<td>.770</td>
<td></td>
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</tr>
<tr>
<td>LINKING</td>
<td>.743</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTIVITY</td>
<td>.705</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEGMENT</td>
<td>.657</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VALUE</td>
<td>.548</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DESTINFO</td>
<td>.518</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASSURE</td>
<td>.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTACT</td>
<td>.47</td>
<td>.722</td>
<td></td>
</tr>
<tr>
<td>RELATION</td>
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<td>.672</td>
<td>.592</td>
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<tr>
<td>APPEAL</td>
<td>.64</td>
<td>.802</td>
<td>.728</td>
</tr>
<tr>
<td>NAVIGATE</td>
<td>.60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Rotation converged in 5 iterations.
5. Discussion

This study evaluated the status of website performance for nearly all U.S. CVB websites as of summer 2006, which allowed their ranking based on the performance (PERFORM) variable, as well as in each of the four performance perspectives: Customer, Marketing Effectiveness, Destination Information, and Technical. The results of the evaluating project exposed spatial and structural patterns of the performance variable and its dimensions. As far as the authors know, this type of project has not been done before on a national scale. As can be seen from Fig. 1A, CVBs of evaluated websites are concentrated on the West and East Coasts and in the Midwest, i.e., in the most populated areas of the U.S. One of the study conclusions is that website performance is not randomly distributed: performance tends to be higher in major metropolitan areas, and websites with higher performance cluster together (Fig. 1B). DMAI members have websites of higher performance than non-members. This result is universal for Customer, Marketing Effectiveness, Destination Information, and Technical perspectives.

As follows from Fig. 1C, websites generally do well on the Technical perspective. However, it should be kept in mind that this result is attributed to a somewhat simplistic evaluation made by NetMechanic and LinkPopularity that checked performance on just five criteria: the number of broken links, html code, browser compatibility, load time, and number of links. Therefore, the striking technical prowess and sophisticated technical features displayed by a number of websites were not registered by the WebEVAL® instrument. With respect to the Customer perspective, CVB websites obtained very good results, the highest among all perspectives as indicated by Fig. 1D. It was concluded (see Table 3) that CVBs universally pay attention to visual appeal (APPEAL) and navigation structure (NAVIGATE) and to providing such basics as CVB contact information (CONTACT) and currency of information (CURRENT). While t-tests indicate significant differences between DMAI member and non-members on the Technical and Customer perspectives, the differences in means and variances are not large, and statistical results can be partially attributed to the fairly large sample sizes.

Fig. 1E reflects a somewhat less than adequate CVB website performance on the Marketing Effectiveness perspective, with a better situation on the East and West Coasts and in the Southwest. The Marketing Effectiveness performance displayed the lowest mean score and the second largest differences between DMAI members and non-members, as shown in Table 2. As can be seen from Table 3, the means of variables reflecting relationship marketing (RELATION), assurance (ASSURE), and level of personalization (PERSONAL) are low, which indicates that a small number of websites pay attention to these important aspects of effective marketing. Websites of DMAI members and non-members significantly differ on the Destination Information perspective as well (Table 2). Evaluation results indicated that CVB websites almost universally received high scores on information about destination activities (ACTIVITY) and facilities (FACILITY). The situation is rather different with such aspects as information for meeting planners and travel professionals (MPLANNER), as can be seen from Table 3. To some extent, it can be explained that small destinations might have chosen not to compete as places for meetings and conventions. Thus, further data analysis is needed to decide whether the differences between DMAI and non-DMAI member in Destination Information perspective can be attributed to a “meeting planner” set of evaluative criteria.

The structural pattern of CVB website performance depicted in Fig. 3 reflects how the construct is understood by CVB website designers. The three clearly emerged components of CVB website performance are an adequate description of the destination product (Destination Product), effective marketing (Marketing), and ease of website use (Ease of Use). It should be noted that these three components have many aspects common with the original mBSC perspectives: Destination Information, Marketing Effectiveness, and Customer. They do not coincide completely, which is understandable: the CVB website evaluation was conducted from the theoretical/researchers’ point of view, while the SEM model shows how various performance features are grouped within the websites, i.e., from the CVBs’ point of view. The Technical perspective was not incorporated into the structural pattern due to extremely different nature of its measurement from the other three perspectives.
Destination Product factor explains the largest amount of variance (see Table 4). Performance variables comprising this factor such as FACILITY, LINKING, ACTIVITY, DESTINFO, and SEGMENT have relatively high means (see Table 3), which reflects acceptance of these dimensions as important components of the overall CVB website performance by CVBs and website designers. In contrast, means of the variables ASSURE and RELATION included into the Marketing factor are low, meaning that websites incorporating these dimensions have larger overall performance score and a better chance of outperforming competition, as indicated by the largest path coefficient (.91). Exclusion from the model variables BRANDING, PERSONAL, and FEEDBACK reflecting primarily the Marketing dimension of overall performance signals that overall website performance is less dependent on these variables. It is suggested that the pattern shown in Fig. 3 should be viewed as a benchmarking level at which any new entity entering the field needs to perform. To stand out and perform above the average level a benchmarking level at which any new entity entering the field Marketing dimension of overall performance signals that overall BRANDING, PERSONAL and FEEDBACK reflecting primarily the means of the variables ASSURE and RELATION included into the website performance by CVBs and website designers. In contrast, these dimensions, but were not measured.

The scope of this study, which can be considered as nearly a census of all U.S. CVB websites, is also a source of research limitations. The study on such a scale needed a highly standardized evaluation tool, and the only instrument the researchers were aware of was WebEVAL® based on the mBSC theoretical approach and designed specifically for CVB website performance assessment. WebEVAL® assesses a presence of a particular website feature in the CVB website. It needs to be made clear, however, that while the presence of certain website features can be equated with performance (for example, the raters gave “1” if they thought that “the pages were clear and uncluttered,” or “there was a standardized logo on all pages,” or “suggested tour itineraries were provided”), presence of more complicated features cannot be automatically equated with performance. To give an example, let us look at the items “Is a sign-up for visitors provided?” and “Can site visitors opt to send an e-postcard?” Presence of each of these features signals that website designers thought about presenting visitors with personalization opportunities and websites with these features received “1” on the corresponding survey items. The raters, however, did not evaluate whether or not these features were in a workable condition. There were three reasons for that. First, evaluation of whether a particular feature works would inevitably lead to the question “works how well?” This would negatively affect reliability of evaluations. Second, it would delay evaluation tremendously, and third, evaluation of the technical perspective by NetMechanic was thought to be able to capture, at least partially, faulty HTML code, broken links, or browser incompatibility associated with malfunctioning design features.

Applicability of the WebEVAL® instrument for assessing performance of CVB websites belonging to destinations which dramatically differ in size and travel offer needs to be discussed as well. While all destinations are unique, their presentation and promotion in a form of the CVB website have many things in common. For example, websites should be aesthetically appealing, have convenient navigation, present visitors with basic destination information, highlight various aspects of the destination to different groups of visitors, tangibilize the destination product, establish long-term relationships with visitors and partners, etc. For instance, with respect to segmentation, a large destination can target various groups of leisure and business travelers, while a small destination can target only local families and wine lovers. However, as long as there is a clear organization of information for various groups of visitors, the number of these groups does not affect the website score on the respective survey items. Therefore, websites of small destinations can outperform those of the larger destinations, and many of them did. At the same time, a few survey items have different degrees of applicability for different kinds of destinations, most notably, items related to convention and meeting planners. While this is a very common feature of modern CVB websites, it is not universal. Further research is recommended to estimate how survey items which reflect the “meeting planner” aspect of the CVB website performance influence the results of this study.

With respect to the “human factor” involved in the evaluation process, while evaluation of all websites by only two researchers provides better consistency of evaluations compared to that made by a larger number of people, the results in lengthy evaluation studies are prone to measurement errors due to researchers’ fatigue (Krippendorff, 2004). To combat this issue, the study was completed in an 11-week period when the researchers did not have any other engagements. Reliability standards in the form of evaluation guidelines were developed and were strictly adhered to during the whole length of the project. Reliability checks were conducted four times and spaced evenly along the whole duration of the project to ensure consistent application of evaluative criteria by the researchers.

Applicability of WebEVAL® instrument to the purposes of Structural Equation Modeling is also an issue in this study. The researchers operationalized the performance dimension variables based on finding by Park and Gretzel (2007) using relevant survey items contained in the WebEVAL® instrument. While some dimensions had enough items for operationalization, others, like NAVIGATE or ACTIVITY, were based on only four items, which weakened the measures. Operationalization of semi-continuous variables out of a few dichotomous ones might have led to a scale which was not particularly well accommodated by SEM procedure. Different operationalization approaches are also possible and should be tested as well; the problems of weights for various website performance dimensions is one of the directions which research should explore. In addition, evaluation process can be and should be improved in terms of its effectiveness in assessing the technical perspective. Relatively simple computer programs can be written to automatically feed website addresses for evaluations by NetMechanic and LinkPopularity and collecting the results. Moreover, there is an emerging stream of research which deals with automatic performance evaluations (e.g., Chan & Law, 2006). While this solution for higher speed and reliability is entirely feasible, more thought should be given to how to assess the technical, and any other for that matter, perspective of website performance, and what criteria should be included for this purpose. The nature of the Internet allows collection of hit statistics, number of visitors, and other types of click stream data, and consideration should be given to feasibility of methods incorporating these numbers into website evaluation matrix. With rapid technological advancements in CVB website development establishing and creating adequate performance evaluation instruments is a current challenge for the marketing and tourist researchers.

Acknowledgement

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References


