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# IDENTIFYING THE DESTINATION IMAGE AND ITS ATTRIBUTES: THE CASE OF CENTRAL AND EASTERN EUROPEAN CITIES

# IDENTYFIKACJA ATRYBUTÓW WIZERUNKU WYBRANYCH MIAST EUROPY ŚRODKOWO-WSCHODNIEJ

**Summary:** The aim of the work is to identify the unique attributes of Central and Eastern European cities in the reviews posted on TripAdvisor. These attributes can determine the competitive advantage on the tourism market. The research data were downloaded from the English-language TripAdvisor website [https://www.tripadvisor.co.uk]. The reviews concerning tourist centres of selected cities ("Things to do…" category) were collected. These concerned the areas where tourism is concentrated in the cities: historic centres, old towns or old market squares. The most popular tourism cities in Central and Eastern Europe were selected: Poznan, Wroclaw, Cracow, Warsaw, Prague, Bratislava and Vienna. A total of 28,794 reviews were downloaded. The most common words appearing in the reviews were counted using the text mining procedure. The analysis of frequency revealed 76 unique words. Then the correspondence analysis was performed. Among the examined cities, Bratislava has the largest number of unique attributes (words), and Prague the least. The similarities in terms of image attributes occur in Poznan, Wroclaw and Prague, and in the second group – Warsaw and Bratislava. Vienna and Krakow do not show any similarities towards the other cities.

**Keywords:** TripAdvisor, text mining, attributes, image, cities.

**Streszczenie:** Celem pracy jest zidentyfikowanie unikatowych atrybutów wybranych miast Europy Środkowo-Wschodniej obecnych w opiniach zamieszczonych na portalu TripAdvisor [https://www.tripadvisor.co.uk]. Pobrano opinie dotyczące centrów turystycznych wybranych

miast (kategoria *Things to do*…) – obszarów, w których koncentruje się ruch turystyczny w miastach: w zabytkowym centrum, na starym mieście, na starym rynku. Do badań wybrano najpopularniejsze pod względem turystycznym miasta Europy Środkowo-Wschodniej: Poznań, Wrocław, Kraków, Warszawę oraz Pragę, Bratysławę i Wiedeń. Łącznie pobrano 28 794 opinie. Procedurą *Text Mining* zliczono najczęstsze wyrazy pojawiające się w opiniach. Analiza wariancji ujawniła 76 unikatowych słów, które poddano analizie korespondencji. Wśród badanych miast najwięcej unikatowych słów-atrybutów ma Bratysława, najmniej zaś Praga. Zbliżone do siebie pod względem atrybutów wizerunku są: Poznań, Wrocław i Praga, a w drugiej grupie – Warszawa i Bratysława. Wiedeń i Kraków nie wykazują podobieństwa z pozostałymi miastami.

**Słowa kluczowe:** TripAdvisor, *Text Mining*, atrybuty, wizerunek, miasta.

## 1. Introduction

In the literature covering the aspect of destination marketing and the promotion of cities, including cities that are tourist destinations, there is a discussion about the ranges and relations of concepts such as image, brand, reputation and even urban icons [Gunn 1972; Gartner 1993; Szromnik 2007, Proszowska-Sala, Florek 2010; Florek, Augustyn 2011; Nawrocka 2013; Niezgoda 2017; Nowacki 2017; Nowacki, Niezgoda 2019; Cardoso et al. 2019]. The starting point in the discussion is the significance of the unique features of cities that determine their competitive edge on the markets of internal recipients (residents, institutions), as well as the recipients of external markets (investors, tourists). The issue of features that distinguish the given city in the tourists' perception is complex, because their perception is influenced by messages controlled by the subject city as well as messages sent by tourists.

Due to the specifics of the social media that make evaluations possible the tourists' opinions are of special significance as they can influence the image of the places in the general perception, and thus influence their selection and decide on their competitive advantage.

Hence the aim of this work is to identify the unique attributes of the selected Central and Eastern Europe cities in the opinions posted on TripAdvisor.

## 2. Image, brand and the unique features of the cities

A. Szromnik defines the image (in relation to a city) as "the whole shape of subjective images of reality that were created in human minds as the effect of perception, media influences and informal messages" [2007, p. 134]. According to P. Kotler, the image of a place is "the summary of beliefs, ideas and impressions that people have about this place" [Kotler et al. 1999, p. 161]. In to this concept, images are a simplification of a huge number of links and extracts of information related to a specific place. The image is a mental creation which tries to select the relevant

information about the place from many others that reach it [Florek 2014, p. 126; Stylidis, Cherifi 2018; Stepchenkova, Li 2014].

Information about a tourist city can be transmitted by various senders and their reception is uncontrolled because it exists in the receivers' minds. A. Figiel [2015, p. 12] based on the concept of G.R. Dowling, suggests that there is no need to indicate whether a "homogenous collective" or a "heterogeneous community" is involved in shaping the image. The image consists in knowledge about the place, the idea of it, prejudices and emotional attitude [Griszel 2015, p. 37], therefore it can vary from person to person. The image arises in the minds of people who come into contact with the object not only directly but also indirectly [Nawrocka 2013, p. 21; Cardoso et al. 2019; De Nisco, Papadopoulos, Elliot 2017]. There are researchers who limit the scope of research, analysing only the imagination about the place's image created by people who have never actually visited that destination. They define the image as a mental reflection of the environment in the minds of people who never visited there [Kangas 1998; Griszel 2015]. In the Internet era such an approach is possible, but for the analysis it would have some limits. From the point of view of the research objective presented in this paper, it is necessary to take into account the opinions of people who visited the analysed cities and thus they influence the shaping of their image. This is in line with the territorial brand function (loyalty and attachment to the city), which means that people who have visited the city and are satisfied will return soon and are likely to be good ambassadors of that place [De Nisco, Papadopoulos, Elliot 2017; Griszel 2015, p. 34].

In the literature covering the field of tourism economics, the image is examined mainly in the context of the attributes of a tourist destination, which include elements of the natural and cultural environment, material resources of tourism, aesthetics of the place, entertainment, residents' attitudes and the local atmosphere, infrastructural amenities and services [Vinyals-Mirabent 2019; Nawrocka, 2013]. These attributes affect the quality and standard of the services provided, however the image's formation is more complex because it affects emotional elements, impressions and experiences [Niezgoda 2017]. A. Figiel [2015] examined various approaches to the image and concluded that for the organization the image may be intentional (what the organization wants the outsiders to think about it), presumed (what the organization assumes that people from the outside think about it) and actual (what people actually think about it). The above-mentioned author describes the "actual" image as reputation. The recognition of the attributes and recognizable features that shape the image becomes essential for tourist cities. Analysing the perception of people from outside about the city, one can agree with the statement that "in every set of people, unanimity as to the perception of the organization is unlikely." Therefore one should examine the strength of reputation that is unanimity, regarding the perception of the city and its attributes [Figiel 2015, p. 16].

The perception of a place can be an element motivating people to take a specific action related to a given destination [Stepchenkova, Shichkova 2017; Griszel 2015].

A tourist trip may be such a measure, provided that these associations prevail in the process of making consumer decisions (choosing a place for a tourist trip). The network of associations in the consumers' minds based on the visual, verbal and behavioural image of the locality that is achieved by goals, value communication, the general culture of the site's stakeholders, and the design of the place can be defined as a territorial brand [Griszel 2015, p. 34]. According to M. Florek and A. Augustyn [2011], one can talk about a city brand when it is the result of the branding process, i.e. planning and communication of the identity of the region in order to build and manage its image. The branding process can also be defined as the process of transforming the original (existing) image into the assumed target image [Florek, Augustyn 2011, p. 13]. Image is the central idea in the concept of branding. However when the destination brand becomes known to consumers, the image moves to the dimensions of the brand and is obscured by it [Konecnik, Gartner 2007].

In the branding process the references to the existing identity, historical and cultural heritage should be its basis. It is a guarantee of uniqueness which facilitates the differentiation in the global market [Foroudi et al. 2016; Vinyals-Mirabent 2019; Zdon-Korzeniowska 2012]. By adopting a consumer-oriented approach it can be assumed that a brand is a bundle of attributes that provides the buyer with satisfaction. These attributes can be real or iconic, rational or emotional, tangible or invisible [Florek 2014, p. 13].

The attributes of the image (brand) of the city can be divided into unique and common [Glińska, Florek, Kowalewska 2009, p. 80; Echtner, Ritchie 1993]. Common attributes are repeated in many cities and allow their comparison, while unique attributes are exceptional and do not occur in other territory than the given city. The unique attributes of cities are also known as their icons [Proszowska-Sala, Florek 2010, p. 49). They are very clear symbols that identify the city, and additionally they cause specific associations and locate the city in the customers' consciousness.

For the purposes of the paper, research was conducted on the associations reflected in the opinions of TripAdvisor's users on selected cities of Central and Eastern Europe. These associations can be the basis for branding the analysed cities and indicate unique features which may affect the competitive advantage.

## 3. Methods

The research data were opinions available in the English language website TripAdvisor [https://www.tripadvisor.co.uk]. The opinions concerned the tourist centres of selected cities (the category *Things to do…*), areas where tourist traffic in cities concentrates (in the historical centre, old town, old market square) were selected. The researchers selected the most popular tourist cities in Central and Eastern Europe: Poznan, Wroclaw, Cracow, Warsaw, Prague, Bratislava and Vienna. This list leaves out, among others, Budapest, but its inclusion was not possible as

Budapest does not have an 'old town', an old market square or a historical district category on TripAdvisor. In Poznan, Wroclaw and Prague, opinions about old city market squares were analysed (Rynek, Staromestske namesti). In Warsaw, Krakow and Bratislava, opinions about the 'old town' and in Vienna about the historical city centre were analysed (Table 1). The reason for this was the lack of uniform categories – "Old Town" – in every city, and sometimes a very small number of opinions (e.g. in Wroclaw in the category "Old Town" there are only 425 opinions).

All the opinions were downloaded in February 2019, using the Web Scraper application [https://www.webscraper.io/]. In total, 28,794 reviews for all the cities available online were downloaded. For Wroclaw, Poznan, Cracow, Warsaw and Bratislava, all the opinions with the titles concerning the analysed areas were collected (1,715, 1,039, 4,566, 5,599 and 4,395 respectively). For Vienna, the latest 5,900 and for Prague the latest 5,580 opinions were downloaded (28,794 opinions in total).

**Table 1.** Opinions collected by city and category of the analysed area (N = 28.794)

| City | Category | # | % |
|------|----------|-----|-----|
| Wroclaw | Old Market Square (Rynek*) | 1,715 | 5.96 |
| Prague | Old Market Square (Staromestske namesti) | 5,580 | 19.38 |
| Poznan | Old Market Square | 1,039 | 3.61 |
| Warsaw | Old Town | 5,599 | 19.45 |
| Cracow | Old Town (Stare Miasto) | 4,566 | 15.85 |
| Vienna | Historic Centre of Vienna | 5,900 | 20.49 |
| Bratislava | Bratislava Old Town | 4,395 | 15.26 |
| TOTAL | | 28,794 | 100.00 |

\* The original spelling of the category "Things to do…" in TripAdvisor.

Source: own research from: [https://www.tripadvisor.co.uk].

At the first stage of the analysis, the data were analysed with the text mining procedure using the Statistica 13.0 software. The frequency of individual words in all opinions were calculated (the titles of the opinions and the opinions themselves were analysed together). The words included in the set EnglishStopList.txt, i.e. such words as 'a', 'the', 'and' etc., were excluded from the analysis. The procedure of lemmatization was also done, which is the process of grouping inflected forms of words to the dictionary form. Thus, different grammatical forms of the same word were combined into one category, e.g. 'travelling', 'travelled', 'travel', etc. As a result of the text mining procedure, 121 words were obtained. Then, as a result of semantic analysis, insignificant words were manually removed, such as: also, back, can, every and the names of cities, countries and places. In this way, 78 words remained in the analysis.

Then a one-way ANOVA analysis was carried out, aimed at identifying words that significantly differentiate between the examined cities, due to their average

number per one opinion. It turned out that all the 76 words significantly differentiate the examined cities between themselves at the level of $p < 0.05$.

However, the analysis of variance gives information of whether there are statistically significant differences between the seven cities, yet it cannot say which of the examined cities differ from each other. Therefore for each set of words, Scheffe's post-hoc test was carried out [Kenneth, Bordens, Abbott 2008, p. 432]. As a result, only words that significantly distinguished one or two cities from the others were left in the analysis (Table 2). The largest number of unique words were identified for Bratislava (16), Vienna, Wroclaw (14 each) and Krakow (13). The least number for Prague and Warsaw – 10.

**Table 2.** Unique words for each city (in brackets average frequency of a word in opinions)

| Wroclaw | Prague | Poznan | Warsaw | Krakow | Vienna | Bratislava |
|---|---|---|---|---|---|---|
| atmosphere (.13) | busy (.10) | attract (.06) | feel (.07) | church (.14) | amaze (.15) | cafe (.13) |
| bar (.21) | christma (.20) | bar (.24) | like (.10) | europ (.07) | architecture (.25) | castle (.10) |
| beauty (.55) | clock (.24) | drink (.09) | look (.11) | fantastic (.05) | build (.36) | charm (.13) |
| best (.08) | crowd (.14) | eat (.08) | old (.95) | friend (.07) | clean (.09) | enjoy (.12) |
| drink (.09) | food (.14) | good (.18) | rebuilt (.16) | guide (.05) | coffee (.06) | explore (.06) |
| eat (.09) | people (.16) | night (.10) | stroll (.05) | plenty (.10) | easy (.11) | interest (.12) |
| full (.10) | stunned (.06) | place (.53) | visit (.32) | recommend (.05) | histor (.34) | little (.12) |
| great (.33) | surround (.06) | pretty (.07) | war (.15) | shop (.24) | history (.18) | local (.06) |
| live (.06) | tourist (.16) | restaur (.49) | world (.09) | stay (.05) | much (.13) | love (.28) |
| lot (.28) | watch (.10) | surround (.06) | worth (.12) | tour (.14) | museum (.15) | nice (.39) |
| many (.19) | | watch (.10) | | wander (.06) | see (.29) | street (.22) |
| market (.41) | | | | well (.11) | stunned (.06) | stroll (.05) |
| night (.10) | | | | wonder (.11) | walk (.45) | tour (.13) |
| place (.54) | | | | | wonder (.11) | trip (.10) |
| | | | | | | wander (.06) |
| | | | | | | worth (.11) |

Source: own research.

In the next step an analysis of correspondence was made. This is an exploratory and descriptive technique that provides information about the structure of connections between variables (columns) and cases (rows) in a contingency table [Hill 1974; Stanisz 2007]. The input data was a contingency table with 532 cells (76 words × 7 cities). Then the Chi-square Pearson test was performed for a 95% confidence level. It showed the existence of a statistical relationship between words and cities at the level of $p < 0.001$:

$$\text{Chi}^2 = 42{,}140.6; \quad df = 444; \quad p < 0.001.$$

The result of analysis of correspondence were six dimensions, of which the first two were statistically significant and explained 70% of total inertia.

**Table 3.** Results of correspondence analysis

| Dimensions | Singular value | Eigen value | % of inertia | Cumul. % of inertia | Chi-square |
|---|---|---|---|---|---|
| 1 | 0.256 | 0.065 | 36.94 | 36.94 | 15,569.9* |
| 2 | 0.240 | 0.058 | 32.70 | 69.65 | 13,783.1* |
| 3 | 0.160 | 0.026 | 14.43 | 84.09 | 6,083.8 |
| 4 | 0.141 | 0.020 | 11.32 | 95.41 | 4,771.4 |
| 5 | 0.079 | 0.006 | 3.55 | 98.96 | 1,496.2 |
| 6 | 0.043 | 0.002 | 1.03 | 100.00 | 435.8 |

Note: * – statistically significant values at $p < 0.05$.

Source: own research.
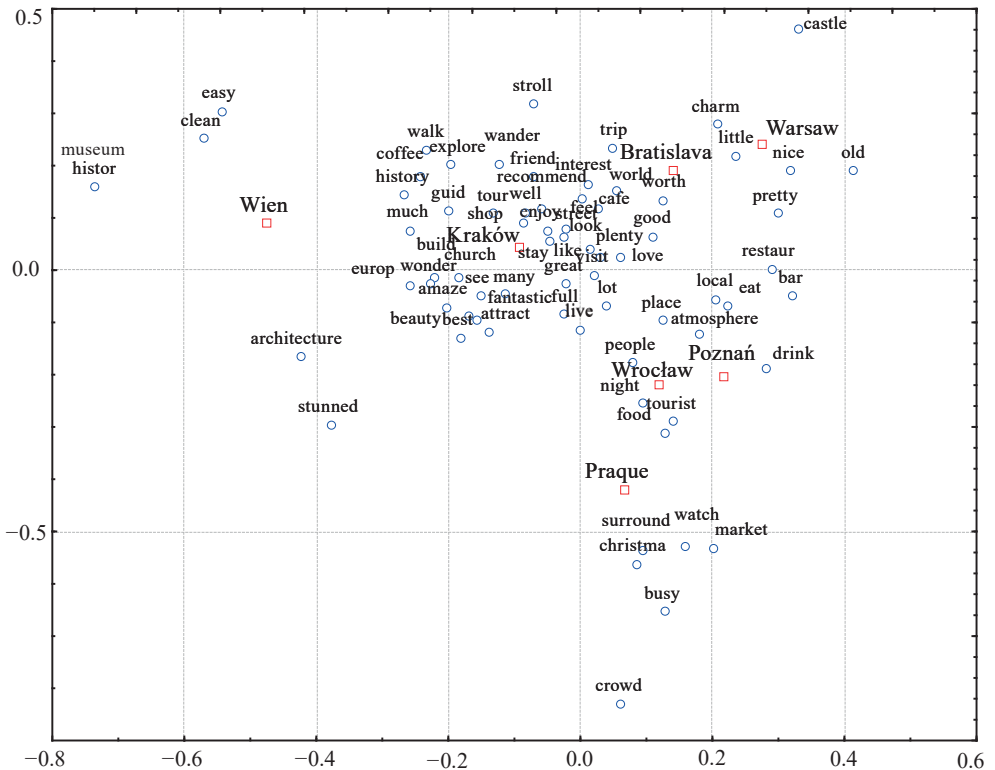


**Fig. 1.** Graph 2W coordinates of rows (cities) and columns (words)

Source: own research.

The results of the analysis are presented graphically in a two-dimensional chart of rows and columns (Figure 1). Two cities clearly stand out from the others, namely Prague and Vienna. The words characteristic for Prague are: surround,

christmas, watch, market, bus. For Vienna these are: easy, clean, museum, history and architecture. The next two cities are located very close to each other: Poznan and Wrocław. This means that they have very similar attributes of images. These are words like: people, night, tourist, food, drink and atmosphere. The next two cities also lie on the chart quite close together. These are Warsaw and Bratislava, characterized by such attributes as: little, charm, nice, pretty, worth, old, castle and world. An isolated place on the chart is occupied by Krakow, which means that it has the most unique set of attributes, which include such words as: shop, tour, church, guide, fantastic and amaze.

## 4. Conclusions

One can agree with the opinion that the promotion of a city can bring success, providing that it is possible to manage the branding process [Proszowska-Sala, Florek 2010, p. 40]. The conscious creation and subsequent management of the brand is the result of deliberate actions, and not merely the effect of chance, geographical location, attractions, events, etc. [Florek, Augustyn, 2011, p. 12]. The study showed that the analysed cities, despite their similar geopolitical location in Europe, may differ in terms of image attributes. These attributes can form the basis for creating a destination brand.

The following conclusions can be drawn:

1. Among the cities surveyed, Bratislava has the most unique image attributes in online reviews, while Prague has the least. It can therefore be assumed that Prague's attributes have been 'widespread' and that unique attributes should be used to build Bratislava's competitive advantage.

2. Similarities between the batch of words characteristic for the examined cities have been noted. Cities similar in relation to each other are: Poznan, Wroclaw and Praque, and in the second group – Warsaw and Bratislava. Vienna and Krakow do not show any similarities with other cities. The similarities noted in the research can be used for market segmentation.

3. The image of cities that emerges from the words characteristic of Poznan, Wroclaw and Prague are: crowded, busy, full of tourists, with the atmosphere of nightlife, full of bars and restaurants with a local menu. Bratislava and Warsaw are distinguished mainly by the following attributes: castles, charming and nice, worth going on trips, with good cafes. Vienna is described as a clean city, rich in history and museums, and interesting architecture, able to dazzle tourists. Finally Krakow is described as: wonderful, rich in shops and churches, fantastic, friendly and worth recommending. These formulations can be used in city branding, and in particular in creating direct marketing campaigns.

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