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Applying City Perception Analysis (CPA) for Destination Positioning Decisions

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Typically, the image of a destination is studied by questioning a sample of tourists about their perceptions using a list of attributes and then condensing the data into average values for each individual destination. The city perception analysis (CPA) presented in this article, which is based on the perceptions-based market segmentation concept (PBMS, Dolnicar, Grabler & Mazanec, 1999; Mazanec & Strasser, 2000; Buchta, Dolnicar, & Reutterer, 2000), approaches the positioning task from a completely different perspective. The fundamental assumption is that different consumers harbor different perceptions of various destinations in their minds. Therefore, averaging the perceptions and ignoring inter-individual differences in city image perceptions dramatically distorts the results. The CPA approach uses a three-way data structure and identifies archetypal destination perceptions before revealing information on which cities they were associated with, thus avoiding the false assumption of homogeneous consumers. The information on which perception was classified with respect to which brand is disclosed afterwards, thus allowing specific destination image insights. On the basis of CPA results, destination management can analyze the destination images as perceived by the tourists, choose attractive image positions for the future and deduce strategic policies. For the final positioning strategy, segments underlying the single perceptual positions have to be studied in detail. The CPA approach is illustrated using an empirical image study of six European city destinations, followed by a discussion of the managerial implications and advantages over traditional methods.

Keywords

perceptual charting, city image analysis, positioning

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Sara Dolnicar & Klaus Grabler[1]

Abstract

Typically, the image of a destination is studied by questioning a sample of tourists about their perceptions using a list of attributes and then condensing the data into average values for each individual destination. The city perception analysis (CPA) presented in this article, which is based on the perceptions-based market segmentation concept (PBMS, Dolnicar, Grabler & Mazanec, 1999; Mazanec & Strasser, 2000; Buchta, Dolnicar, & Reutterer, 2000), approaches the positioning task from a completely different perspective. The fundamental assumption is that different consumers harbor different perceptions of various destinations in their minds. Therefore, averaging the perceptions and ignoring inter-individual differences in city image perceptions dramatically distorts the results. The CPA approach uses a three-way data structure and identifies archetypal destination perceptions *before* revealing information on which cities they were associated with, thus avoiding the false assumption of homogeneous consumers. The

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Introduction

The tourism industry is becoming more and more global and is seeing fiercer competition among different (city) destinations. If competition is defined as the perceived substitutability of products from the perspective of consumers (a common approach described in Day, Shocker and Srivastava 1979), all destinations compete with each other at different levels of intensity. In addition, travel experience among consumers has grown in the last few years, resulting in more specific expectations. This development makes destination branding an increasingly important competitive factor in the tourism marketplace. As a consequence, the relevance of image measurement for city destination management is rising, as a city's image heavily influences destination choices, creates destination brand value and serves as an indicator for the substitutability of destinations. For this reason, the main managerial emphasis is no longer placed on hard facts but on the perceptions of consumers or potential visitors, or the images in their minds when thinking of two destinations and choosing one for a holiday. This market

knowledge therefore forms the basis for strategic decision-making, for deciding which image should be reinforced in the minds of the consumers by means of advertising.

Since the late 80s, destination positioning has attracted a lot of attention (Calantone et al. 1989; Gartner 1989). Most applications base on the implicit hypothesis that favourable perceptions of a particular destination lead to higher preference for this city. This implicit hypothesis was found valid for regions (Goodrich 1978). The most popular traditional methods used in destination positioning studies include factor analysis, t-tests, perceptual mapping, analysis of means and cluster analysis (a detailed count is provided by Pike, 2002). Another technique that has been used in tourism studies of this kind that is designed for nominal data is correspondence analysis (one of the rare applications has been published by Calantone et al. 1989). All these techniques have advantages and disadvantages and produce perceptual and preference spaces with different meanings (Myers 1992). There is no technique that has proven superior for all purposes. The application of a specific technique heavily depends on the data structure and the managerial aim of the exercise. Despite the long tradition of image studies, they show a number of weaknesses:

- The typical approach taken is to design a questionnaire and ask respondents to state the perceptions they associate with a number of destinations or brands. Based on the answers, the mean values over all respondents are computed for each brand. These values are interpreted as the "image profile" or "semantic differential plot" and believed to mirror the tourists' opinion concerning a particular destination or brand. This process is perfectly suited to tackling the problem as long as all individuals agree with the image of the objects rated and share the same picture. As soon as different opinions exist, computing the mean value distorts the results and might lead to the conclusion that a destination or brand is not profiled, although very clear and precise yet different profiles can be revealed within certain subgroups of consumers. This assumption might be appropriate for the consumer goods

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industry with its high advertising budgets, as they can actively create images for products and brands easily and accurately. In the field of tourism, it is not that simple to construct "artificially engineered images," bearing in mind how consumer decisions are made in this particular industry (see Woodside and Lysonski 1989 for a frequently cited general destination decision model) and the strong 'organic' image of a destination. A number of factors such as travel distance, travel experience, etc. interfere with the destination image as defined, engineered and communicated by destination management. The image of destinations is thus unlikely to be homogeneous among tourists. Therefore the traditional approach of computing mean values is inappropriate and can easily lead to false conclusions and subsequent mistakes in managerial decision-making.

- The standardization of attributes and objects (destinations) in the data collection process does not account for the fact that respondents will differ in their knowledge of destinations and use different words to describe or differentiate them. Classical approaches implicitly assume that the same set of attributes is applicable to all consumers. The problem of asking for evaluations of objects which are irrelevant to the customer may be tackled by the family of 'pick-any' procedures (Holbrook, Moore and Winer 1982) where only destinations within one's consideration set are compared. This also accounts for the fact that alternatives are compared on an attribute level only after a general holistic pre-selection phase (DeSarbo and Jedidi 1995). The problem of using irrelevant and too many attributes was handled by applying self-selected idiosyncratic lists of attributes in the family of adaptive perceptual mapping (Steenkamp and van Trijp 1996; Huber 1988).

This paper does not further address weaknesses in the data collection process, nor does it investigate the nature of destination image: it deals with new ways of improving data analysis in the perceptual mapping of three-way data. The exploratory data analysis approach presented is

able to avoid the pitfall of aggregating heterogeneous consumers by using a three-way data structure (this implies that the image of more than one destination is measured questioning the same individuals, a situation not often reported in tourism literature as indicated by the fact that 53 percent of all publications on destination image in tourism only measure the image on one single destination: Pike, 2002). A perceptual chart based on the answers of 226 respondents regarding six European city destinations is constructed. The fundamental idea (comprehensively described in the perceptions based market segmentation concept (PBMS) by Mazanec & Strasser 2000 and Buchta, Dolnicar & Reutterer 2000) is to explore three-way consumer perceptions data and to extract both positioning and segmentation insight which can be used as a basis for strategic marketing decisions.

CPA is thus positioned at the crossroads of three very strong lines of strategic marketing research: positioning, segmentation and competition analysis. In contrast to market segmentation research (Frank, Massy, & Wind 1972; Myers & Tauber 1977; Wedel & Kamakura 1998), CPA does not focus on improving the partitioning task or recommending the most appropriate segmentation base. Instead, the emphasis lies on the integrated treatment of segmentation, positioning and competition, thus avoiding non-harmonized market structure analysis within the fundamental field of strategic marketing. Compared to the rich toolbox of positioning methods (mainly perceptual and preference maps), CPA does not make any rigid assumptions about the nature of the data. The partitioning task is purely exploratory and subsequent testing procedures can all be conducted in an entirely non-parametric way, making use of permutation testing. In addition, it automatically accounts for Myers' demand (1996, p. 232) that perceptual maps be constructed separately for *a priori* preference segments in order not to confound positioning and segmentation (consumer heterogeneity). An excellent example for this procedure is provided by Manrai & Manrai (1993). Furthermore, the relationship between the original space and the

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projected space is simpler than in the case of traditional methods. Brand positions are not profiled in a reduced space, but in the original space with as many dimensions as there are variables in the data set. As opposed to competition literature, this investigation goes beyond examining competition as interrelated to differentiation (under very rigid assumptions studied by Hotelling (cited in Moorthy 1985), d'Aspremont, Gabszewicz & Thisse (1979) and later extended by Hauser (1988) to account for consumer heterogeneity). Competition is investigated on a completely disaggregate level, simultaneously accounting for heterogeneity among consumers and the existence of different perceptual positions among brands in the marketplace. CPA thus represents a useful addition to the exploratory toolbox for market structure analysis which (1) integrates three major issues in strategic marketing, (2) provides insights into the data for subsequent model building, (3) avoids oversimplification in analysis, (4) allows for fully non-parametric testing, thus making minimal assumptions about the data, and (5) is characterized by a simple relationship between the original and projected space.

Illustrating CPA: Perceptually charting six European cities

A positioning analysis for a city tourist destination basically examines the perceptual positions of different and probably competing cities. When perceptual positions alone are examined, the information provided by three-way data is not exploited to its full potential. Ideally, a perceptual positioning approach should also convey information about the heterogeneity of consumer perceptions. CPA reveals various archetypal positions associated with different city destinations by tourists who do not necessarily share the same perception of the cities. In addition, the attractiveness of various image positions can be evaluated by integrating information about consumer preferences, if available.

The aim of this empirical application of the CPA approach is to demonstrate the managerial knowledge gained by applying this methodology. It gives insight into generic city destination images as well as the association of these generic images with particular European city destinations. In our CPA application, we have taken the perspective of Vienna destination management[2].

Methodology

Data Set

The data was not collected for the purpose of illustrating the usefulness of CPA; it was the result of a larger exploratory research project on European city tourism with special emphasis on decision-making and positioning. Therefore, it has not been optimized to provide all pieces of information a manager would certainly include in the survey in order to derive the maximum insight from CPA. But due to its three-way format (the most common format used in branded consumer goods industry to learn about image positioning) it is perfectly suited and was therefore chosen for this illustration. Respondents are a convenience sample of ferry trip travelers from the Netherlands to Great Britain who were questioned using standardized face to face interviews in summer 1996. The cities included were selected on the basis of the results of guest-mix analyses where these cities emerged as strongly competing destinations and 28 items (city attributes) were included (for details on the data set see Grabler, Mazanec & Wöber 1996). The respondents were asked to indicate how much they thought each city offered on a rating scale from 1 (the destination offers nothing with regard to the attribute) to 6 (the destination

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[2] This of course is an arbitrary choice. The perspective of any of the city destinations could be chosen for the purpose of illustrating the managerial usefulness of CPA.

offers the attribute to a very large extent). The variables / items used are attributes considered relevant in the process of a city tourist destination decision such as price level, accessibility or quality of accommodation. The final sample amounted to 226 respondents, revealing their attitude towards six European cities (Barcelona, Budapest, Paris, Prague, Venice and Vienna). This sample size is clearly too small for real CPA application in the segmentation-positioning task due to the typically large number of variables included in an image study[3]. Furthermore, the convenience sample makes it impossible to draw final conclusions on the cities. Thus the sample merely serves as an example of how CPA methodology is applied. In its elongated, stacked version, the final data set used for the CPA approach consists of 1356 rows (226 judgements on six cities) and 12 columns representing variable information (see Grabler 1997 for the typical pre-processing of three-way data before perceptual mapping by factor analysis and similar methods).

City perception analysis

The general CPA procedure is as follows: In the first step, respondents' perception patterns are grouped, disregarding brand information and using any appropriate partitioning algorithm. This means that the patterns of answers given by the respondents with regard to the cities evaluated are partitioned without taking the city judged by any particular answer pattern into account. This yields insights into generic city perceptions which exist in the marketplace. In the second step, brand information is revealed, thus allowing the analysis of city-specific images.

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[3] Although there is no rule that states how the proportion of data dimensions to sample size has to be it obviously improves the insights derived if there is sufficient data to fill the space in as many dimensions as variables are used. Therefore the sample size of 226 is considered sufficient to illustrate the usefulness of CPA, but the authors wish to avoid setting bad precedence for too small sample sizes.

The partitioning algorithm applied in this study is the self-organizing feature map (SOFM), an unsupervised neural network pioneered by Kohonen (1984). SOFMs not only compress the information by partitioning the data, they also arrange the resulting groups or clusters according to similarity (for earlier applications, see Dolnicar 1997; Mazanec 1994, 1995a, 1995b, 1999). This additional information is especially useful in the application of positioning, for example, if certain similar regions of perceptions can be revealed (However, neural networks do not represent an integral part of CPA; any partitioning algorithm could be used instead the SOFM procedure chosen here). The starting points for this iterative procedure are drawn at random. As SOFMs are not very strongly influenced by the starting vectors (Dolnicar 1996), pre-processing or a high number of random draws are the only means of preventing a very bad starting position for learning. Once a predefined number of starting points (prototypes, nodes, cluster representatives) is determined, each answer pattern from the data set is assigned to the starting point with the lowest Euclidean distance. After each case is presented to the network, the closest node is relocated towards the newly assigned case. This iterative procedure ends either when only minimal changes can be detected from one case presentation to the next or a predefined number of iteration steps has been completed. The final prototypes represent an entire group of city perception patterns. The unique feature of arranging the prototypes in a way which mirrors the similarity is achieved by updating not only these representing points but also the neighboring nodes to a lesser extent. The grid resulting from partitioning by means of SOFMs thus allows topological interpretation of the city images.

For the European city CPA, the starting point for the SOFM training run with 16 nodes (arranged in a four-by-four grid) was a random solution of the prototype vectors with 100 trials[4]. The SOFM was calculated using the SOMnia program (1995, available at http://charly.wu-wien.ac.at/software/).[5]

Results

The perceptual chart

The result of the partitioning task can be presented as a perceptual chart as shown in Figure 1. The 16 pies represent the 16 prototypes used in the self-organizing feature map. The perceptual chart enables management to both (1) analyze the present image situation on the city-destination market and (2) deduce positioning strategies for the future. The diameter of each pie indicates the number of city perceptions underlying each position. From a managerial standpoint, this can be interpreted as the frequency of city images perceived by tourists in general. Large pies represent commonly perceived generic city image positions, whereas small pies stand for very unusual images of city destinations. The perceptual chart thus enables the management to detect

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[4] In order to determine the optimal number of prototypes (groups), preliminary calculations with different grid sizes were calculated. The 4x4 grid rendered the best relative results in terms of both heterogeneity and simplicity. Heterogeneity is calculated as sum of squared Euclidean distances of each data vector to the best representing prototype, divided by the total number of data points. Lower values thus indicate better results. The simplicity of the SOFM is calculated by the sum of squared Euclidean inter-prototype distances between adjacent prototypes. In general it is recommended to choose a larger number of prototypes in order not to lose valuable distinctions. If the grid turns out to be too detailed, merging of prototypes is possible without any sacrifice.

[5] The authors are aware of the fact that computing Euclidean distance on the basis of ordinal data is a suboptimal choice, as it is not plausible to assume equidistant and equally equidistant representation of distances between the ordinally scaled values. The use of binary or metric data should be favoured when applying CPA for managerial decision making, a requirement which is best accounted for at the questionnaire design stage.

rather unique image positions (niches) easily by focusing on the small pies. The size of the slices indicates how many respondent perceptions within each pie concerned which one of the cities included in the questionnaire. The larger the slice, the higher the proportion of perceptions of one particular city. Larger slices can be interpreted by management as a strong association of an image position with a city. The stronger the association, the better the starting point for an image campaign supporting this particular picture of the destination in the tourist's' minds. On the other hand, a low level of association does not necessarily mean that this position should not be chosen as a future target if it is promising for other reasons (e.g., preference). Finally, the arrangement of the image positions within the SOFM reveals the similarity of neighboring prototypes. This knowledge can be of practical use if single positions turn out not to be supported by a sufficient number of consumers, which would make it necessary to merge positions. In this case, adjacent regions would represent candidates for merging.

Compared to traditional positioning charts, the position is not deduced from the coordinates of a product, brand or city destination in the two-dimensional representation of attribute space. Instead, the prototypes represent generic perceptual positions of city destinations in the respondents' minds. The answer to the question of which city is perceived in which manner is provided by exploring the distribution of brands over these generic positions. (The answer to the question of whether competition exists and how intense it is given by computing pairwise Kappa coefficients, assuming competition to exist between two brands if one person perceives two city destinations as located at the same generic perceptual position.) Thus the interpretation of the perceptual chart is more intricate than in the case of traditional perceptual charts, but it is less misleading, as (1) the distances which results from one of many possible projections of highly dimensional data in two or three-dimensional space are not over-interpreted, and (2) heterogeneity of perceptions among consumers is automatically accounted for.

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After the first interpretation of the chart, two further issues have to be investigated in a second step: (1) Which city images are "hidden" behind these prototypes (i.e., which generic images of cities exist in the respondents' minds)? (2) Which market segments / individuals hold this particular perceptions of the cities and are "hidden" behind these positions (i.e., which market segments could be targeted)?
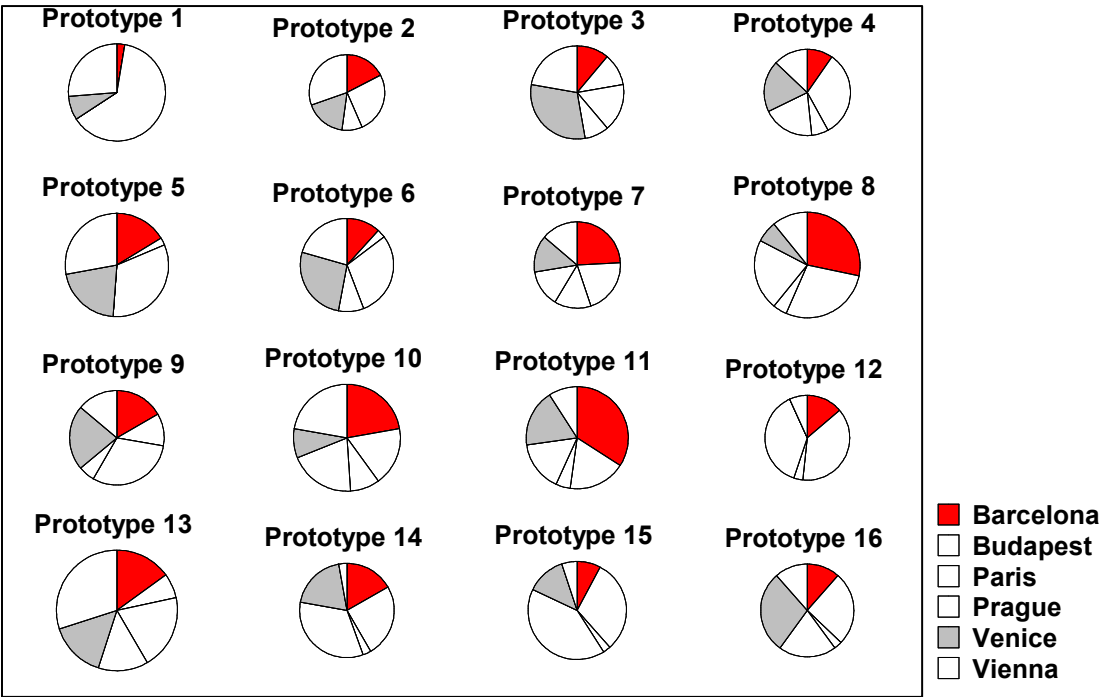
Figure 1: Perceptual chart of six European city destinations

Generic city images

Instead of inspecting all positions in detail, a rough pre-selection accounting for the attractiveness of specific positions was performed. This attractiveness may be due to a strong image position (reflected in the size of the specific city slice), competitive pressure (diameter as an indicator of poorly occupied positions) or the overall preference for a generic position. The last item is measured in this case study by the number of top rankings aggregated over all city perceptions in the specific prototype. Generally, there is a high correlation between the prototype number and the overall preference structure, which is mirrored in a contingency coefficient of

0.339 (sig. < 0.001). The favorite is number 13, with about 15% of top rankings, followed by prototypes 1, 5, and 9 (each at about 12%). The least preferred positions are numbers 4 and 16. From the Vienna destination management perspective, three image positions seem to be of relevance and are therefore studied in detail. These three positions are number 13 as the most typical Viennese position and the one enjoying the highest overall preference. Secondly, number one is inspected because of its high overall preference and its tough competitive position with Paris. For demonstration purposes, number 4 is inspected due to its low level of preference.

The one position that attracts the most attention from Vienna destination management is position or prototype 13, because its proportion of perceptions concerning Vienna is higher than at any other position (40 people, or 17.7%) and it is the most preferred generic city destination image. *Figure 2* provides the profile of prototype 13. The line indicates the average over all answer patterns (all cities judged by all respondents) and the bars represent the average over the answer pattern for the individual position.
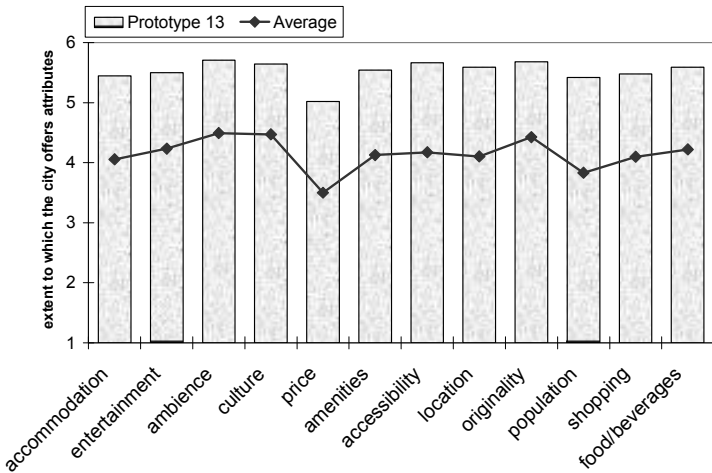

Figure 2: Profile of Active Variables (Segment 13)

Obviously, cities at this position are perceived to provide all the attributes presented to a very high extent. At the same time, profiles of this kind are suspected to include answer tendencies. In order to prevent such answer tendencies from distorting the interpretation of the prototypes

and consequently leading to inaccurate findings, it was assumed that - in the case of answer tendencies - one respondent would evaluate all cities in the same way (agreeing to all attributes). If the number of these individuals is high in prototype 13, it cannot be interpreted in a useful way. If however, the number of respondents with such answer tendencies is low, the position is relevant for deducing market structure insights. Seven individuals out of 134 in the complete sample were characterized by such answer pattern. They were excluded from the subsequent analysis of descriptive information in order to avoid distorting results. Thus position 13 actually does represent the image of all applicable attributes, making it a "perfect destination," which explains its highest preference value.

The second position of interest for Vienna is number 1. Actually, this interest could be extended to cover the group of prototypes 1, 2, 5 and 6, since this region indicates possible areas of competition with Paris. Please note that the grid represents a topological map which conveys information on similarity in neighboring regions. The average judgements of respondents grouped in prototype number one are shown in Figure 3.
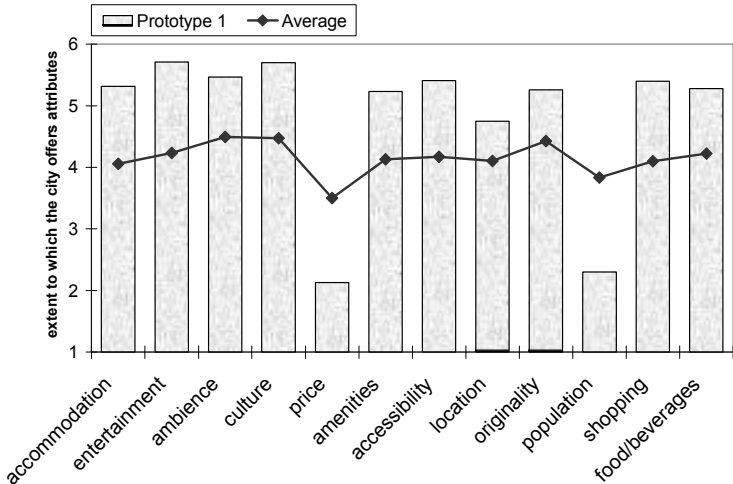

Figure 3: Profile of Active Variables (Segment 1)

This position is best characterized by generally associating a large number of attributes with the city, with only the typical negative attributes of mature destinations – high price level and unpleasant attitudes among local population - appearing as disadvantages.

The right-hand side of the perceptual chart (Figure 1) demonstrates the strong perceptual presence of Prague and Budapest. It is therefore worthwhile to take a closer look at these images as well, although preference for such cities is rather low. Position 4 (shown in Figure 4) indicates a generally low perception of the given attributes. The relatively high value concerning the price-level of these cities allows us to describe this position roughly as one that is not satisfactory in general, but nevertheless gets credit for its affordable price levels.
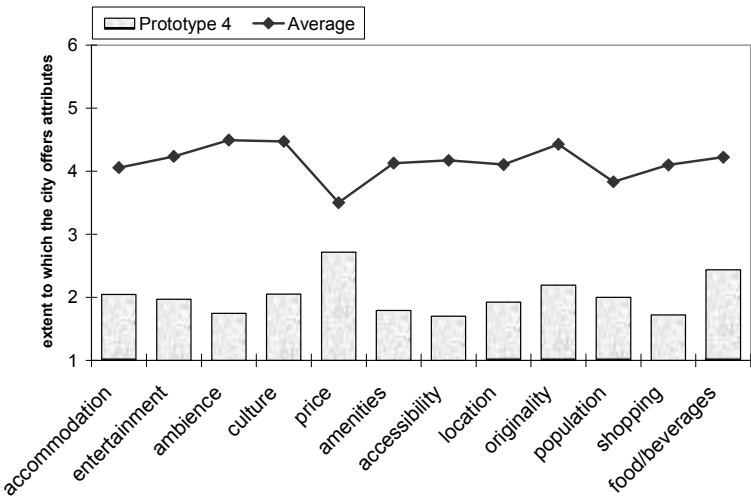
Figure 4: Profile of Active Variables (Segment 4)

Market segments derived

After identifying typical perceptions of the European cities under study and revealing interesting image campaign candidates for Vienna as a destination, the underlying individuals have to be studied as thoroughly as possible in order to customize marketing activities to segment, be it in a concentrated or differentiated manner. For the purpose of demonstrating the methodology, the focus of our segment description lies on preference and attitudes, as they convey important

information for targeting the right segments. The typical profiling of the segments using socio-demographic characteristics is not conducted, as this makes no difference to the classic segmentation process. Clearly this would be of great importance for practical applications.

As the sample is rather small (226 evaluations of Vienna) and further split up in 16 groups, which makes statistical tests impossible on a single position level, the following segment groups are constructed and subsequently described in detail: prototype 13 with 40 (17.7%) respondents, an additional group of prototypes forming a potential competition region with Paris and consisting of prototypes 1, 2, 5 and 6 (in sum: 78 answers, which is equal to 34.5% of the Vienna sample), and finally the group of Budapest and Prague-oriented segments numbered 4 and 8, consisting of 20 travellers (8.8%). With larger data sets, of course, the merging of segments according to SOFM regions is not necessary but may be useful for certain purposes such as campaign management, where a larger number of segments cannot be served economically.

"Vienna is fabulous" tourists: Vienna at perceptual position 13

The indicator used to evaluate the preference tourists have for city attribute profiles was a ranking order of attractiveness provided by each respondent for all cities. 42% of the members of this segment stated that Paris is their most preferred city, followed by 24% who voted for Vienna. Venice is ranked third with 21%, while Prague and Barcelona are both below 10% and Budapest was not mentioned by a single respondent. This indicates that the segment which perceives Vienna as "fabulous" has very similar feelings about Paris as well. A number of possible hypotheses can be formulated as to why the preference for Paris is higher in this segment (e.g., more prior experience with Vienna and thus more interest in visiting Paris in the future), but pinpointing the exact reason would call for further analysis. At this stage, disaggregate competition analysis would allow further insights, which is not the main focus of

this article and therefore not included (an example of this procedure is provided by Dolnicar, Grabler & Mazanec 1999).

These tourists are familiar with Vienna more than any of the groups compared (significance values and ranks are given in Table 1). They know what to expect, and we may expect them to have a fairly realistic view of Austria's capital as a city destination.

When questioned about the general importance of the aspects used as active variables, the "Vienna is fabulous" tourists placed the greatest emphasis on the ambience and the originality of the city compared to the segment clusters under study.

Segment 13 is the most concerned about possible negative surprises during their stay in Vienna: disliking the population's attitude, feeling that Vienna is too dangerous, feeling anxious about their health, and finally worrying about their friends having a bad impression of them / the city.

As far as activities during their stay in Vienna are concerned, the three segments under study vary in only two variables: visiting markets and going to museums and exhibitions. In both cases "Vienna is fabulous" tourists spend most of their time on these pastimes, followed by the "Vienna as a mass destination" tourists. When asked about the extent to which Vienna offers diverse activities, the former group feels that this city offers little, meaning that it ranks third in 10 of 13 variables.

"Mass destination Vienna" tourists: Vienna at perceptual positions 1,2,5 and 6

Members of this image position perceive Vienna in a more differentiated manner, including negative aspects of a mature city destination. The city preferences shift accordingly: Paris is still in the lead with 33%, followed by Vienna at 19%. The remaining four cities are ranked number one by more than 10% of group members. Obviously, some critical aspects associated with Vienna and Paris make alternative destinations appear more attractive to this segment.

In second place after the "Vienna is fabulous" tourists, these tourists still seem to be fairly experienced with Vienna as a city destination.

Among the theoretically possible problems occurring during the city trip, the 'lack of cultural resources' very much annoys the segment under investigation. When asked how likely it is for a number of other problems to occur in Vienna, the number of statements which significantly differentiate segments rises, with the "Mass destination Vienna" tourists most strongly feeling that the hostility of the population, excessive danger in the city and friends having a bad impression are unlikely.

"Mass destination Vienna" tourists take an in-between position on the importance of certain city tourism factors as well as the evaluation of whether Vienna actually provides sufficient leisure activities of interest. The term 'in-between position' is a defining characteristic of this group in general: they have fairly high prior experience with Vienna, few extremes in their city judgements, and they are open-minded as far as the choice of their next travel destination is concerned.

"Faceless Vienna" tourists: Vienna at perceptual positions 4 and 8

Segments which feel that Vienna offers only very few important vacation aspects have the most characteristic preference structure, with more than half of their votes ranking Paris number 1 (53%). Venice was chosen as the most preferred city destination by 26%, Budapest by 11%, Vienna and Barcelona by 5% each, and Prague was not mentioned as destination number one a single time. When judging Vienna, this group of tourists evaluate cognitive image more than experience, as the latter is fairly low for this segment.

"Faceless Vienna" tourists are hardly ever annoyed by a 'lack of cultural resources'. As far as their judgement of Vienna is concerned, they believe (more than any other segment) that it is unlikely that visiting Vienna would lead to a bad impression when discussing vacation

experiences with friends. The quality and type of accommodations are very important to this group, whereas the originality and ambience of the city are ranked lowest. This profile is almost the exact opposite of segment 13.

As mentioned above, the amount of time spent on 'visiting markets', 'museums and exhibitions' when visiting a city destination differs among the three segments. It turns out that the "Faceless Vienna" tourists demonstrate fairly little interest in these leisure activities. On the other hand, Vienna is given most credit for offering leisure-time opportunities, especially in the form of 'day trips to other amenities' and 'sightseeing of man-made attractions'.

To summarize the main characteristics of this group, interest in visiting Vienna is extremely low although the image of this city is very positive: a difficult problem for marketing managers.

Table 1 summarizes mean ranks and the p-value of the non-parametric, k-independent Kruskal Wallis test for the background information describing the segments in more detail. In an application of CPA with a particular managerial goal in mind, the number and kind of background variables could be extended.

Table 1: Test statistics for selected variables

Question	Segments	Mean Ranks[6]	p-value
How familiar are you with Vienna	segment 13 segments 1,2,5 and 6 segments 4 and 8	74.42 69.58 45.24	0.016*
How much would a lack of cultural resources annoy you ? (1=not at all)	segment 13 segments 1,2,5 and 6 segments 4 and 8	63.64 76.45 46.53	0.007*
How likely is it to occur in Vienna that you would dislike the population's attitude ? (1=unlikely)	segment 13 segments 1,2,5 and 6 segments 4 and 8	72.89 55.70 70.50	0.036*
How likely is it to occur in Vienna that the city would	segment 13	70.12	0.050

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[6] The mean ranks (Kruskal Wallis test) are calculated as the sum of ranks divided by the number of cases where ranks are used rather than means to account for the non-metric property of the data.

be too dangerous ? (1=unlikely)	segments 1,2,5 and 6 segments 4 and 8	54.28 68.37	
How likely is it to occur in Vienna that you would feel anxious about your health ? (1=unlikely)	segment 13 segments 1,2,5 and 6 segments 4 and 8	80.13 58.83 68.29	0.011*
How likely is it to occur in Vienna that friend would have a bad impression of the city? (1=unlikely)	segment 13 segments 1,2,5 and 6 segments 4 and 8	78.69 60.59 54.68	0.020*
Importance of quality and type of accommodations (1=not at all important)	segment 13 segments 1,2,5 and 6 segments 4 and 8	80.10 60.09 81.10	0.010*
Importance of the ambience of the city (1=not at all important)	segment 13 segments 1,2,5 and 6 segments 4 and 8	83.97 69.10 42.13	0.000*
Importance of the city's originality (1=not at all important)	segment 13 segments 1,2,5 and 6 segments 4 and 8	77.46 71.04 44.22	0.006*
Time spent on: going to museums and exhibitions (1=no time at all)	segment 13 segments 1,2,5 and 6 segments 4 and 8	70.21 68.25 48.06	0.063
Time spent on: visiting market visits (1=no time at all)	segment 13 segments 1,2,5 and 6 segments 4 and 8	71.93 68.50 45.50	0.029*
How much 'shopping' does Vienna offer ? (1=nothing)	segment 13 segments 1,2,5 and 6 segments 4 and 8	52.59 68.01 72.07	0.067
How many 'cultural events' does Vienna offer ? (1=nothing)	segment 13 segments 1,2,5 and 6 segments 4 and 8	55.54 64.11 78.59	0.085
How many 'day trips to other amenities' does Vienna offer ? (1=nothing)	segment 13 segments 1,2,5 and 6 segments 4 and 8	51.82 67.03 77.19	0.033*
How much 'sightseeing of man-made attractions' does Vienna offer ? (1=nothing)	segment 13 segments 1,2,5 and 6 segments 4 and 8	46.39 69.57 73.94	0.002*
How much 'going to museums and exhibitions' does Vienna offer ? (1=nothing)	segment 13 segments 1,2,5 and 6 segments 4 and 8	52.88 65.74 73.28	0.083

* significant at the 95 % level

Strategic recommendations for Vienna city destination management

CPA is introduced as a tool that aims at extracting the maximum amount of information relevant

for strategic positioning decisions from typical empirical three-way image data, thus providing

solid grounds for management decisions.

The findings from CPA support the city's destination management in two steps:

(1) Based on the perceptual chart, the attractiveness of different image positions can be evaluated. The criteria used are the strength of a brand's claim to a certain position (e.g., Vienna is perceived as being located at the top and bottom left-hand side of the perceptual map by many respondents, so these particular images are already strongly associated with the city and thus represent a strong claim), the uniqueness of positions (the smaller the pie in the perceptual chart, the more likely the position represent a niche that might offer future market potential) and the preference for each position, if available.

(2) Depending on a destination's general segmentation strategy (concentrated or differentiated), it is possible to formulate precisely the optimal image strategy for the segment(s) chosen (the individuals placing Vienna at the image positions to be targeted). This goal is achieved by analyzing the perceived city image attributes as well as segment characteristics.

These steps lead to a comprehensive strategic destination image plan, as illustrated in Table 2 for the Vienna example, assuming that a differentiated segmentation strategy is chosen.

Table 2: Positioning strategy plan for Vienna

Segment	Target tourists perceiving Vienna at position(s)	Central characteristics	Claim intensity of Vienna at this position	Attractiveness of the position (preference)	Communication (marketing) strategy
"Vienna is fabulous" tourists	13	Assign all attributes to Vienna, very familiar with Vienna, care about ambience and originality, like to go to markets, museums and exhibitions	High	High	Support existing image, build up relationship marketing
"Mass destination Vienna" tourists	1, 2, 5 and 6	Critical about value-for-money and friendliness of local population, fairly high prior experience with Vienna, open to other city destinations	High	High	Differentiation from Paris, point out value for money and friendliness of local population
"Faceless Vienna" tourists	4 and 8	No differentiated image of Vienna exists, interest in visiting Vienna is low, inactive visitors	Low	Low	Define as non-target segment or launch image campaign to build entirely new image of Vienna

The benefit to destination management is that interpretational mistakes are avoided that are typically made when analyzing market data in a sequential manner. In this example entirely different results would have been arrived at if – on the basis of attribute-wise destination evaluation – segments would have been formed in the first step and building on this segmentation solution a positioning decision would have been taken and finally competition would have been taken into account (or in any other order). The fundamental danger of this traditional step-wise procedure is that segmentation and positioning decision are made conditionally upon one another thus reducing space for optimization, whereas CPA assures simultaneous treatment of both issues. The practical value for destination management therefore lies in avoidance of fundamentally flawed interpretation of results in consequence leading to sub-optimal strategic marketing decisions.

Conclusions, limitations and future work

CPA provides a simple tool for the analysis of typical empirical three-way image data, allowing market structure analysis simultaneously from the segmentation and positioning perspective as well as deductive reasons for strategic positioning decisions without implying homogeneity among consumers or making excessively strong assumptions about the nature of the data. CPA is easy to handle and flexible in terms of the partitioning algorithm applied.

The CPA approach was illustrated using European city data: 16 image positions with unequal city distributions of tourist perceptions were constructed. Image positions / regions relevant from the Viennese point of view were revealed and described in detail, as were the underlying market segments. Two positions turned out to be particularly interesting for Vienna. One was position 13, which is perceived as highly attractive among segment members who have more prior experience with Vienna. This represents a good starting point for strengthening the image within

this group of tourists. In contrast, the market segments underlying the image positions which are dominated by perceptions concerning Prague and Budapest have no prior knowledge about Vienna. The map region strongly associated with Paris is similar to position 13, except for the perception of high prices. The underlying segment had a broad portfolio of alternatives in mind for the next city vacation, making these tourists very susceptible to changing their city destination the next time they travel, thus reducing their attractiveness for destination management to a certain extent.

The image positions constructed are highly profiled, and the market segments underlying the positions differ significantly in numerous characteristics, indicating that tourists' perceptions of European cities are far from homogeneous. The fundamental advantage of CPA as compared to step-wise procedures of market analysis is that sub-optimal decisions (sequentially dependent strategic marketing decision-making) are avoided.

Two limitations apply to using CPA: First, three-way data is required, a non-trivial condition requiring careful planning of the analysis for management decision support well in advance of the analysis itself (as early as questionnaire design). In addition, the number of objects that can reasonably be presented to the respondents is limited, calling for pre-analysis in selecting the stimuli. Second, the results emerging from CPA are not simple recipes. Instead, a large amount of market structure information is provided and subsequently has to be analyzed with care in order to arrive at analytically founded management decisions.

Besides the limitation of the CPA approach, the illustration provided in this article is not optimal because there was not a wide variety of background variables available to describe the segments underlying the perceptual positions in as much detail as would be required if CPA were used for managerial decision support. However, this is not a weakness of CPA but of the data set used for the real world application described.

Future work will include a systematic analysis of competition based on perceptual information as well as a systematization of segmentation possibilities emerging from this framework.

References

Buchta, C., Dolnicar, S. & Reutterer, T. (2000). *A nonparametric approach to perceptions-based market segmentation: applications.* Series: Interdisciplinary Studies in Economics and Management, Volume II. Springer-Verlag, Berlin.

Calantone, R.J., I. di Benedetto, A. Hakam & Bojanic, B.C. (1989). Multiple Multinational Tourism Positioning Using Correspondence Analysis. *Journal of Travel Research*, *28*, 25-32.

d'Aspremont, C., Gabszewicz, J. & Thisse, J. (1979). On Hotelling's Stability in Competition,. *Econometrica 47*, 1145-1150.

Day, G.S., Shocker, A.D. & Srivastava, R.K. (1979). Customer-Oriented Approaches to Identifying Product-Markets. *Journal of Marketing*, *43*, 8-19.

DeSarbo, W.S. and Jedidi, K. (1995). The Spatial Representation of Heterogeneous Consideration Sets. *Marketing Science, 14*, 326-342.

Dolnicar, S. (1997). *Erstellung einer psychographischen Taxonomie von Osterreich-Urlaubern unter Anwendung neuronaler Netzwerkverfahren.* Vienna: Service Fachverlag.

Dolnicar, S., Grabler, K. & Mazanec, J.A. (1999). A Tale of Three Cities: Perceptual Charting for Analyzing Destination Images, in: Woodside, A.G. et al. (eds.), *Consumer Psychology of Tourism, Hospitality, and Leisure*. New York: CAB International, 39-62.

Frank, R.E., Massy, W.F. & Wind, Y. (1972). *Market Segmentation.* Englewood Cliff: Prentice-Hall.

Gartner, W.C. (1989). Tourism Image: Attribute Measurement of State Tourism Products Using Multidimensional Scaling Techniques. *Journal of Travel Research*, *28*, 16-20.

Goodrich, J.N. (1978). The Relationship Between Preferences for and Perceptions of Vacation Destinations: Application of a Choice Model. *Journal of Travel Research*, *17*, 8-13.

Grabler, K., J. Mazanec & Wöber, K. (1996). Strategic Marketing for Urban Tourism: Analysing Competition among European Tourist Cities, in: Law, Ch.M. (ed.), *Tourism in Major Cities*, London: Mansell

Grabler, K. (1997). Perceptual Mapping and Positioning of Tourist Cities, in: Mazanec, J. (ed.), *International City Tourism. Analysis and Strategy*, Pinter, London und Washington, 101-113.

Hauser, J.R. (1988). Competitive Price and Positioning Strategies. *Marketing Science, 7*, 76-91.

Holbrook, M.B., Moore, W.L. and Winer, R.S. (1982). Constructing Joint Spaces from Pick-Any Data: A New Tool for Consumer Analysis. *Journal of Consumer Research, 9*, 99-105.

Huber, J. (1988). APM system for adaptive perceptual mapping, software review. *Journal of Marketing Research,* 119-121.

Kohonen, T. (1984). *Self Organisation and Associative Memory*. New York: Springer-Verlag.

Manrai, L.A. & Manrai, A.K. (1993). Positioning European countries as brands in a perceptual map: an empirical study of determinants of consumer perceptions and preferences. *Journal of Euromarketing*, 2, 101-129.

Mazanec, J. & Strasser, H. (2000). *A Nonparametric Approach to Perceptions-Based Market Segmentation: Foundations.* Series: Interdisciplinary Studies in Economics and Management, Volume II. Springer-Verlag, Berlin.

Mazanec, J. (1994). Image Measurement with Self-Organizing Maps: A Tentative Application to Austrian Tour Operators. *Revue de Tourisme*, *49*, 9-18.

Mazanec, J. (1995a). Competition Among European Tourist Cities: A Comparative Analysis with Multidimensional Scaling and Self-Organizing Maps. *Tourism Economics*, *1*, 283-302

Mazanec, J. (1995b). Positioning Analysis with Self-Organizing Maps: An Exploratory Study on Luxury Hotels. *Cornell Hotel and Restaurant Administration Quarterly*, *36*, 80-95.

Mazanec, J. (1999). Simultaneous Positioning and Segmentation Analysis with Topologically Ordered Feature Maps: A Tour Operator Example. *Journal of Retailing and Consumer Services, Special Issue on Marketing Applications of Neural Networks*, *6*, 219-235.

Mazanec, M. (1995). SOMnia 1.4.1, Revision A.

Moorthy, K.S. (1985). Using Game Theory to Model Competition. *Journal of Marketing Research*, *22*, 262-282.

Myers, J. H. (1996). *Segmentation and Positioning for Strategic Marketing Decisions.* American Marketing Association: Chicago.

Myers, J. H. & Tauber, E. (1977). *Market structure analysis*. American Marketing Association: Chicago.

Myers, J.H. (1992). Positioning Products/Services in Attitude Space. *Marketing Research A Magazine of Management & Applications, 4*, 46-51.

Pike, S. (2002). Destination image analysis – a review of 142 papers from 1973 to 2000. *Tourism Management*, *23*, 541-549.

Steenkamp, J.-B.E.M. & van Trijp, H.C.M. (1996). Task Experience and Validity in Perceptual Mapping. A Comparison of Two Consumer-Adaptive Techniques. *International Journal of Research in Marketing, 13*, 265-276.

Wedel, M. & Kamakura, W. (1998). *Market Segmentation - Conceptual and Methodological Foundations*. Boston: Kluwer Academic Publishers.

Woodside, A. G. & Lysonski, S. (1989). A General Model of Traveler Destination Choice. *Journal of Travel Research, 27*, 8-14.