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Editors

Analysing International City Tourism

2nd Edition

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Analysing International City Tourism

Second Edition

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Introduction

This book is a successor to 'International City Tourism: Analysis and Strategy' published by Pinter, London, in 1997. It has not been drafted as a second edition, though the team of authors build on some of the ideas brought forward in the preceding publication. All except two chapters updated from earlier versions are new contributions. As indicated in the title the authors emphasise the role of analysis throughout the text. They make any effort to provide convincing evidence of the information gain achieved with resourceful processing of empirical data. Each report or case study encourages the readers to figure out how to tailor the individual working steps to their specific needs and apply them in their own environment of study or management.

Chapters 1–4 deal with city tourism management and trends. Karl Wöber and Daniel Fesenmaier, in their opening chapter about the management of city tourism in Europe, elaborate on the roles, functions, services, and responsibilities of city tourism organisations in Europe. Substantial changes in the management of city tourism are revealed by their longitudinal study among city tourism managers. Johanna Ostertag and Karl Wöber recognise the difficulties and limitations in measuring volumes and directions of travel flows into European cities. The authors compare the strengths and weaknesses of different forms of compiling visitor numbers and make recommendations for building a harmonised system of city tourism statistics. The team of authors consisting of Ulrike Bauernfeind, Irem Arsal, Florian Aubke, and Karl Wöber assess the significance of city tourism in Europe. Building on the most comprehensive database of European city tourism statistics they calculate and present market volume and market share information and perform forecasts for the development of city tourism in Europe. In Chapter 4 Valeria Croce and Karl Wöber demonstrate that cities are not necessarily year-round destinations, resistant to seasonality effects. They are examining the forces shaping demand seasonal fluctuations in city tourism and present tools which help tourism managers to better understand seasonal patterns.

The six following contributions report on new instruments for monitoring demand and competition. In their joint contribution (Parts One and Two of Chapter 5) on generating and profiling city tourist types Josef Mazanec and Andreas Zins compare different methodologies and show how to build trust in classification results. Clemens Költringer and Karl Wöber focus on the information needs of city travellers and their implications on actual travel behaviour. Three different forms of unobtrusively measuring travel demand by tracing the information search behaviour of internet users

are presented and discussed. Sara Dolnicar and Twan Huybers elaborate a case study in destination image measurement. Particularly, the authors use novel methodology known as Perceptions-Based Market Segmentation to account for the fact that travellers apply distinct perceptual patterns for judging a city like Canberra.

Christian Buchta and Josef Mazanec update and extend the analysis of guest-mix data presented in the 1997 book. A similar composition of the tourist nationalities in two urban destinations is likely to intensify competitive threat among the pair of cities and CTO managers should be aware of this. Valeria Minghetti and Federica Montaguti present a methodology for measuring tourism competitiveness of urban destinations and apply this approach in a study where they compare the three most famous art cities in Italy with eight other cities in Europe. Josef Mazanec demonstrates how tourism-related content of the World Wide Web may be exploited for portraying European urban destinations in the space of emotionally positive connotations. The working steps outlined are easily adjusted and modified to cover any other grouping of tourist cities which are assumed to rival with each other in terms of connotative profile.

Chapters 11 and 12 focus on city tourists' behaviours and visitors' usage and assessment of tourist services when exploring an urban destination. Tim Freytag outlines the case of the city of Heidelberg which is one of the most popular urban tourism destinations in Germany. The author demonstrates how to monitor and evaluate changes in visitor activities and how to assess inner-city visitor mobility in time and space. Claudia Krösbacher and Josef Mazanec choose historic museums as an attraction typical for city tourism. The authors develop a latent variable model for capturing the visitors' perceived authenticity, its antecedents, and its consequences for visitor satisfaction. Empirical evidence from case examples in Dublin and Vienna supports the relationships hypothesised.

Vienna, May 2009
J. Mazanec and K. Wöber

City Tourism Management and Trends

The Management of City Tourism in Europe

1

Karl Wöber and Daniel R. Fesenmaier

1.1 Purpose and objective

Tourism has become a major source of employment, revenue, international awareness and opportunity in European cities. As competition among cities grows for visitors as well as for public and private financial support, the efficiency of management in city tourism organizations becomes increasingly important. This chapter aims to examine the nature of European city tourism organizations in terms of their roles, functions, responsibilities and the services they provide. In this investigation two surveys with identical design were conducted among European city tourism managers in 1995 and 1999. Based upon this data, this study identifies the functions that have changed during the given period of time and assesses relationships between these functions. The findings indicate that the emphasis of European city tourism organizations changed considerably during time in five functional areas: 1) hotel booking service, 2) commerce, 3) conventional information dissemination, 4) advanced information product, and 5) relationship management. It is argued that information technological and role change are the main driving forces of these changes.

1.2 Introduction

In recent years many urban communities have come to recognize that tourism is more important to the local economy than originally thought (Morrison, Bruen, and Anderson, 1998). This increased awareness of tourism's potential to create employment, stimulate the economy and generate wealth was not noticed solely by any single organization or authority. In most cities the various tourism functions are performed by a number of municipal, not-for profit and private enterprises (e. g. chambers of commerce, local tourist councils, voluntary organizations, local authorities and agencies which have become involved in tourism). These organizations fulfil a variety of different tasks including the marketing and development of new attractions, the coordination between tourism products and the provision of facilities and services for tourists (Ford and Peeper, 2008). They can also initiate projects and mobilize others to commit resources for effective marketing. As a consequence of the multi-layered structure of city tourism organizations, it is argued that destination marketing and management if often too fragmented, leading to inefficient use of scarce resources and ineffective promotions which serve to confuse

rather than attract tourists (Ford and Peeper, 2008; Magee, 1995; Wang and Xiang, 2007; Paskaleva – Shapira, 2007).

Research on city tourism has increased substantially over the last decade (e. g., Greene Belfield-Smith, 1991; Law 1993; Morrison et al., 1998); however, the organizational structures supporting the promotion of city tourism (e. g., convention and visitor bureaus in the US or city tourism boards/offices in Europe) and the services and functions they provide to the visitors and the local industry have not been well investigated. Indeed, the majority of research in this area have been case studies (e. g. Bramwell and Rawding, 1994; Buckley and Witt, 1989; van den Berg et al., 1995; O'Neill, 1998) and therefore, offer a limited basis upon which to derive generalizations about the nature of tourism organizations (Page, 1997:113).

1.3 Services and functions of city tourism organizations

Tourism research has largely ignored the study of city tourism organizations and only recently have there been serious attempts to study city tourism and their management (Ashworth, 1988; Ashworth and Voogd, 1990; Greenberg, 2006; Greene Belfield-Smith, 1991; Law 1993; Morrison et al., 1998; Murphy, 1997; O'Neill, 1998; Page 1995, 1997; Tyler et al., 1998; van den Berg et al., 1995; Wöber, 1997; Wöber et al., 2003). In 1978 the first survey among city tourism managers was carried out by the U. S. Travel Service covering 142 U. S. cities with populations over 100,000. Page (1995) found that half of the city tourism managers contract out their tourism activities to agencies, 16 percent dealt with tourism activities directly through their offices, and another 16 percent claimed not to be involved in promoting urban tourism. According to his findings, a substantial amount of tourism promotional activity was conducted in partnership with the private sector.

In Europe, Greene Belfield-Smith (1991) and the Tourism and Leisure Consultancy Division of Touche Ross conducted a survey of 39 city tourism offices covering issues such as funding, cooperation with other cities and private industry and the monitoring of productivity in terms of tourism generated. While 80 percent of city tourism offices in their study monitored the performance of the industry, only two cities monitored their own performance as a marketing organization. At the national level providing coordination of these entities can be a difficult task. In European countries national tourism offices assume these roles and often are the most crucial office in implementing governmental tourist policy. Their study indicated that many European cities do not have these 'coordinators' and a large amount of planning and policy implementation is done at the local level by various interested enterprises and/or authorities involved in tourism.

City tourism organizations are known to play diverse roles and take different responsibilities. The general goals of convention and visitor bureaus in the United States are to: 1) manage and provide destination attractions; 2) manage and plan infrastructure on which tourism depends; and, 3) facilitate tourism promotion and marketing research. He also identified different management functions for bureaus; organizational, membership, facilities/equipment management, financial, personnel, events, and communications (Gartell, 1992). More recently, Morrison et al. (1998) developed an instrument to evaluate the roles of convention and visitor bureaus in the United States and identified five primary functions. The first function as 'economic driver' reflects the city tourism office responsibility for generating new income, employment, etc. in order to contribute to a diverse economy. The second function, 'community marketer,' has the main purpose of communicating the destination's

image, attractiveness, and facilities to the consumer. The third role as industry coordinator is to encourage the joining of sectors of the industry and share the benefits of tourism while the role as 'quasi-public representative' is to protect visitors and add legitimacy for the industry. Finally, the function as 'builder of community pride' has the main goal of enhancing the quality of life for its residents and visitors (Morrison et al., 1998). This study found that tourism offices assume many different roles and provide the community and visitor population with a variety of different services and products.

In 1992, European Cities Marketing (ECM), the main association of European city tourism organizations, conducted a survey among managers of their 43 members which focused on levels of funding, evaluation of tourism policy, resources and city tourism statistics. Similar to the US results reported by Law (1993), the results of the European study indicated that large tourist-oriented cities commanded generous promotional budgets. For example, Vienna was one of the best-financed and most aggressive cities with an annual budget of 10.7mn to operate its tourist and convention department; on the other hand, Paris had a budget of 5.4mn followed by Amsterdam (4.3mn) and Zurich (3.4mn). The high variation in annual budgets raised questions regarding the reasons for these differences in terms of services and tasks undertaken by European city tourist offices. With the large amount of functions and roles a tourism office may offer, no two organizations could be the same; comparability, however, is an important issue when a city tourism organization is being evaluated (Morrison et al., 1998). For instance, the assessment of internal strengths and weaknesses of an organization by comparing its resources and achievements with other organizations (i. e., benchmarking studies) can be completely misleading if the organization's objectives are not the same.

In a different study, Wöber (1997) ranked the most frequently observed services provided by 45 European city tourism offices and categorized different prototypes of city tourism management strategies. These prototypes were further investigated according to city size, the importance of tourism, and the characteristics of the guest-mix structure. The results indicated that Eastern European cities have a higher involvement in typical management/consultancy services and tasks than other cities, particularly German cities. Maintaining a modern booking office with extensive electronic facilities was found to be a privilege of city tourism offices in major cities and federal capitals. Furthermore, Wöber (1997) found a strong negative correlation between the tourism intensity in a city and the number of guest-oriented services offered by a city tourism office was reported. The Wöber study revealed that European city tourism offices in tourism development areas first start with strong visitor-oriented functions, basically covering informational and promotional tasks, and then move to more industry-oriented management tasks and services.

This last observation is particularly interesting when considering two significant changes in society that have effected city tourism management in the last twenty years. Arguably, the most important change has been the development of information technology that enables the bureaus to focus more on booking and information provision. According to Yuan et al. (1999, 2005) the implementation of Internet technology can significantly influence a bureau's value chain in a number of important ways including inbound logistics, operations, outbound logistics, marketing and sales, and the improved responsiveness and effectiveness of service. New technologies such as smart cards are perceived as important management tools to achieve higher levels of efficiency in city tourism organizations. Indeed, in several European cities where smart cards were used in customer retention programs, tourism managers experienced a significant improvement in the level of cooperation between cultural and tourism entities as the card made the services

offered by the tourist office more evident to the cultural organizations (Piller, 1999). Another important change affecting the mix of services and functions provided by tourism organization relates to the privatization policies of many European countries. Supporters of privatization argue that the competitive nature of the private sector leads to better products and standards of service than was the case under state control. As many European governments thought public agencies were not efficient, the tourism organizations were converted into private companies during 1995 and 2005. Obviously, this has a strong impact on the way city tourism offices are run and resulted in a decrease in services that were normally provided by the government such as the distribution of certifications and/or capital grants and an increase in the number of attractions or products supported by a city tourism organization. Thus, it is believed that the substantial environmental (i. e., economic, social, technological and environmental) changes between 1995 and 1999 have resulted in equally significant change in the services and functions offered by European city tourism offices.

Case study

Visit York: A tourism office has a vision for tourism

Visit York has in consultation with partners and stakeholders created a vision for the development of tourism in York and the surrounding area. The vision identifies key areas for potential development as well as detailing strengths and assets of continuing growth and future prosperity.

There are several foundations on which Visit York builds this vision. York offers leisure and business visitors a unique and highly distinctive experience: a quintessentially English city with a rich heritage reflecting all periods of European history; ideally situated between two capital cities with high-speed rail access; and contemporary shopping in a pedestrian-focused historic environment. Four million visitors experience this each year, creating a thriving and opportunity-rich industry worth £ 364 m and supporting 10,600 jobs.

York's vision for tourism is to deliver long-term and sustainable growth in the value of the visitor economy, for the benefit of visitors, businesses and residents by: i) Building on York's distinctiveness; ii) Enhancing the quality of the visitor experience; iii) Promoting York as a world-class visitor destination. These three key areas have been identified as those most likely to contribute to the successful and cost-effective growth of York's visitor economy. Together, they'll form the basis of a wide range of activities, developments and initiatives that will build on York's already impressive offering and worldwide reputation for excellence. The goal is to deliver a minimum of 5% average annual growth in visitor expenditure.

Visit York proposes a framework of seven exciting but realistic ambitions to deliver this new vision in partnership with the whole community:

1) Improve quality, service and access at every point of the visitor journey
2) Widen and deepen the partnership of businesses, stakeholders and residents
3) Develop York's position as a leading European cultural centre, combining a unique heritage with a modern outlook
4) Enhance York's public realm so it becomes the most special in England

5) Secure additional resources for sustainable investment in tourism
6) Develop York's role as a gateway, helping to grow the value of tourism in Yorkshire
7) Promote York worldwide, with a single, confident voice, as a leading business and leisure destination

Visit York is the city's new tourism organisation – a non-profit making company charged by its stakeholders to respond to challenge and change by helping achieve sustainable, long-term growth of York's tourism industry and visitor economy. The principal activities of the company are:

- Leadership of the tourism sector
- Marketing and promotion
- Business Engagement
- Training and Employment
- Visitor Information
- Investment in the tourism product
- Developing cultural events
- Working with Yorkshire partners
- Promoting a quality visitor experience
- Research and evaluation

1.4 A longitudinal study of European city tourism offices' functions and services

The questionnaire used for the identification of European city tourism offices' services and functions was developed based upon a 1992 survey among ECM members and follow-up focus group interviews with eight executives located in different European countries (Amsterdam, Barcelona, Budapest, Dublin, Heidelberg, Nice, Prague, and Vienna) where they were asked to list the functions and services they felt to be important tasks of tourism organizations. The resulting questionnaire was mailed during May 1995 to executive managers of 77 European cities which were considered to be leading European cities in tourism. A city was included in the study if it was of sufficient size (based on city population), tourism intensity (measured by the number of overnights divided by population, if available), and if the official city tourism organization was a member of ECM.

In 1999, the survey was repeated using the same questionnaire in order to evaluate the potential impacts of environmental changes and to investigate the underlying trends in the industry. This study targeted the same group of executive managers of European cities included in the previous survey; only cities that participated in both surveys were used for the analysis, hence 50 cities remained in the data set.[1] The respondents were not informed about their previous answers. Analyses followed a three step process in examining the changes in functions provided by European city tourism offices. First, the individual function items were compared in terms of the percent of organizations that provided corresponding functions in 1995 and 1999. Second, factor analyses were conducted using those items that have significantly changed from 1995 to 1999 in order to examine the changes from the view of overall functional structure of city tourism offices. In the third and final set of analyses the underlying structure of those items that actually changed was extracted and further investigated at individual city tourism office level using cross-tabulation and correlation analysis.

1 Those readers who interested in the analysis of the data set including all participating cities are referred to Wöber (1997).

1

1.5 Comparing city tourism offices' responsibilities between 1995 and 1999

Table 1 displays the comparative frequencies of the functions and services of city tourism offices in 1995 and 1999 where the responsibilities are listed in decreasing frequency for 1999. As can be seen, the average number of services supplied by the city tourism offices was 22.5, almost the same for both years. City tourism office's main task is to provide information to prospective tourists and to visitors who have already arrived in the city. The provision of information via phone or fax and the distribution of print media, brochures, pamphlets, etc. within traditional information offices are the two highest modes for distributing information to visitors in the city. Issues including the availability of accommodations, events, attractions, places to eat, prices of services and modes of transportation all are important aspects in the delivery of information. The large majority of city tourism offices design and produce the print media themselves. The regular distribution of information material to tour operators and the international, national press is also very common among city tourism offices in Europe. Free dispatch of print media is found in 76 percent of the city tourism offices, which is 14 percent less than in 1995 ($t = 2.447$, $p < .05$). Also, publications sent by mail dropped from 48 percent in 1995 to 46 percent in 1999, while information services provided electronically increased from 44 percent to 64 percent during the same period ($t = -2.475$, $p < .05$). This suggests a move from the traditional 'snail mail' forms of distribution to ones that are more mature, an important trend to be noted throughout the tourism industry in general (Yuan et al., 1999, 2005).

Two-thirds of all city tourism offices invite tour operators, travel agents, journalists, and other media representatives to visit their cities in order to demonstrate what they have to offer. Because these are hands-on representations of cities, incentive tours must be well organized and comprehensive in order for them to have an impressive experience. The objectives of this marketing activity is to raise the awareness of the attractiveness and incentives of the destination so that participants will leave with an increased interest in selling (or reporting about) the city. In 1999, 74 percent of city tourism offices provided this type of service to travel agents and journalists which is considerably less than in 1995 (78%).

One of the two largest segments to which tourism organizations promote is the convention and meeting market, the other being to pleasure travellers (Rubin, 1992). An awareness of the growth in the convention and exhibition industry seems to have raised among city tourism offices as an increasing number provided convention services, up from 42 percent in 1995 to 58 percent in 1999. Another function that increased over the four year period was research planning and the maintenance of tourism statistics (from 48 percent in 1995 to 60 percent in 1999). 'Like most newly developing research and management areas, this surge of interest in the urban tourism domain has demonstrated a wide range of viewpoints and potential ramifications' (Murphy, 1997). As Murphy points out, research interest in urban tourism has increased and an increasing number of city tourism offices are now involved in evaluations of their offices, markets, competition, etc.

These findings also indicate that relatively few city tourism offices have changed to accommodate the needs of smaller tourism enterprises. The evaluation and certification of quality awards to accommodations or restaurants is performed by only 18 percent of the city tourism offices surveyed, the regulation and supervision of tourism enterprises is performed by 14 percent, and the distribution of capital grants to tourism enterprises decreased to 8 percent of city tourism offices in 1999.

Table 1 Functions and services of European city tourism offices

Variables	Frequency in % 1995	1999	Diff.	Paired-t test t-value[1]	sig.[2]	
Participation in international fairs or exhibitions	0.96	0.96	0.00	0.000	1.000	
Participation in national fairs or exhibitions	0.98	0.96	–0.02	1.000	0.322	
Help for visitors in information offices	0.82	0.94	0.12	–2.585	0.013	**
Information by phone or fax	0.94	0.92	–0.02	0.573	0.569	
Design and production of printed media	0.94	0.90	–0.04	1.429	0.159	
Regular info-material to intern. press and tour operators	0.94	0.86	–0.08	2.064	0.044	**
Press conferences	0.82	0.84	0.02	–0.330	0.743	
Regular info-material to national press and tour operators	0.90	0.82	–0.08	1.661	0.103	
Sightseeing tours	0.66	0.78	0.12	–1.950	0.057	*
Selling of souvenirs	0.62	0.76	0.14	–2.189	0.033	**
Selling of printed media, books	0.70	0.76	0.06	–0.903	0.371	
Free dispatch of print media	0.90	0.76	–0.14	2.447	0.018	**
Guided walking tours	0.70	0.74	0.04	–0.704	0.485	
Incentives for journalists (e. g. invitations)	0.78	0.74	–0.04	0.629	0.533	
Development of packages	0.78	0.72	–0.06	1.000	0.322	
Hotel bookings in the city after arrival	0.64	0.68	0.04	–0.573	0.569	
Electronic information services (e. g. Internet, kiosks, etc.)	0.44	0.64	0.20	–2.475	0.017	**
Research planning and statistics	0.48	0.60	0.12	–1.769	0.083	*
Convention bureau services	0.42	0.58	0.16	–2.064	0.044	**
Selling of concert, theatre tickets	0.56	0.56	0.00	0.000	1.000	
Bus tours	0.58	0.56	–0.02	0.330	0.743	
Selling of tickets for public transport in the city	0.54	0.52	–0.02	0.375	0.709	
Hotel booking services in the city's region after arrival	0.58	0.50	–0.08	1.159	0.252	
Encouraging cooperation among different sectors	0.54	0.48	–0.06	0.724	0.472	
Development of tourist facilities, attractions	0.40	0.46	0.06	–0.829	0.411	
Hotel booking services in the city before arrival	0.46	0.46	0.00	0.000	1.000	
Sale of publications by mail	0.48	0.46	–0.02	0.275	0.785	

1

Sequel to **Table 1**

Variables	Frequency in % 1995	1999	Diff.	Paired-t test t-value[1]	sig.[2]	
Booking services of packages (accomm. and transport)	0.38	0.40	0.02	–0.299	0.766	
Hotel booking services in the city's region before arrival	0.46	0.38	–0.08	1.159	0.252	
Training, business advice	0.24	0.34	0.10	–1.941	0.058	*
Electronic booking services (via Internet, kiosks, etc.)	0.28	0.34	0.06	–0.903	0.371	
Booking services of other accomm. facilities before arrival	0.40	0.34	–0.06	0.829	0.411	
Booking services of other accomm. facilities after arrival	0.38	0.32	–0.06	0.903	0.371	
Maintenance/management of attractions	0.18	0.22	0.04	–0.814	0.420	
Selling of tickets for trains	0.20	0.22	0.02	–0.444	0.659	
Booking services of hotels nationally after arrival	0.32	0.20	–0.12	2.201	0.032	**
Quality certification of accommodations or restaurants	0.18	0.18	0.00	0.000	1.000	
Regulation and supervision of tourism enterprises	0.10	0.14	0.04	–0.814	0.420	
Booking services of hotels nationally before arrival	0.28	0.14	–0.14	2.447	0.018	**
Car rentals	0.18	0.12	–0.06	1.137	0.261	
Capital grants to tourism enterprises	0.12	0.08	–0.04	1.000	0.322	
Booking services of hotels internationally before arrival	0.10	0.04	–0.06	1.353	0.182	
Selling of air-travel tickets	0.02	0.02	0.00	0.000	1.000	
Employment services	0.02	0.02	0.00	0.000	1.000	
Booking services of hotels internationally after arrival	0.12	0.02	–0.10	2.333	0.024	**
Average number of services offered by a CTO	22.52	22.48				

Note: [1] Paired t-test analysis for 50 city tourism offices participating in both surveys: [2] ** $p < .05$ * $< .1$.

Training and business advice is provided by 34 percent, and employment services in the field are provided by only 2 percent of the city tourism offices.

Serving as a travel agent and booking for international, national and local travellers traditionally has not been a major function of city tourism offices. Booking services are supplied either by running electronic reservation tools (e. g. Internet, information desks, and kiosks) or by traditional communication channels (e. g. fax, phone, face to face). The services vary according to the type of products (e. g. accommodation, tickets), destinations (e. g. for the city, for the surrounding area, for other regions in the country, internationally), and target groups (e. g. visitors before or after they have arrived to the city). Most of the bookings performed by the offices are for hotels in the city and surrounding region before or after the arrival of the guests. Considering the different products which are sold, booking services for other regions, particularly for services abroad, appear to be less commonly supplied in 1999 than in 1995 (with a significant drop of international hotel bookings from after arrival from 12 to 2 percent and national bookings before arrival from 28 to 14 percent). Interestingly, the use of electronic forms of communication increased between 1995 and 1999 from 28 to 34 percent, but still lag behind the development of other general, non-interactive types of information services.

Case study

Restructuring of the Hungarian National Tourist Office

At its Meeting held on 13th December, 2006, the Board of the Hungarian National Tourist Office approved plans for the reorganization of the Hungarian National Tourist Office.

The aim of the plans, which are in accordance with the government's tourism policy, are the more efficient utilization of resources in 2007, refocusing of budgets in favour of marketing, and general efficiency savings. The plans also aim to reduce the levels of decision-making, the number of departments and the amount of duplication. The Tourist Office will thus be able to function more efficiently as well as more professionally, and at the same time adapt more easily to changing circumstances and expectations.

Thus, from 1st January, 2007, the number of departments will be reduced from the previous nine to five, as follows: Marketing, E-commerce, Networking, Financial and Human Resources. In a significant change from previous practice, the work of both the international and the domestic networks of tourist offices will be coordinated by just one department, the Networking Department. The work of the slimmed down Tourist Office will continue without disruption, despite the restructuring, since it will now be considerably more efficient. Naturally, the principal aim of the Tourist Office remains, as ever, to support growth in the number of visitors, the number of visitor-nights, and the amount of money spent by visitors.

1.5.1 Structure of functions provided by European city tourism offices

In order to examine the structure of functions provided by European city tourism offices, factor analyses were applied to both 1995 and 1999 data. A correlation matrix of all items was first examined to determine the factorability of results. Services provided by almost all city tourism offices were removed from the analysis as

they are treated as a constant within the respective analyses. There were 188 correlations (24.9%) in 1995 and 200 correlations (24.6%) in 1999 of 0.3 or higher and consequently the matrix was deemed factorable. The appropriateness of the data for factor analysis was confirmed by using the Bartlett's test of sphericity (Stewart, 1981) for both surveys (1995: 627.3; 1999: 766.3) and the associated significance levels are less than .001. This decision was also supported by the use of Kaiser's measure of sampling adequacy. Values of .60 and above are required for good factor analysis (Stewart, 1981) and the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) for both data sets was well above the recommended requirement (1995: 0.662; 1999: 0.619).

Principal component analysis (PCA) using orthogonal rotation (VARIMAX) was employed because it is particularly suited to determining the minimum number of factors to account for the maximum amount of variance in the data. For the 1995 data eight factors were identified based on eigenvalues, the shape of the scree plot, and the quality of interpretation of the loadings. These eight factors explained 68.6 percent of the total variance; communality estimates ranged from 0.53 to 0.84. The final factor solution with the factor loadings for 1995 is presented in Table 2. The final factor solution for the 1999 data contained seven interpretable factors accounting for 66.0 percent of the common and unique variance. The communalities ranged from 0.43 to 0.84. Although the 1999 factor model showed less favourable confidence values in terms of KMO, Bartlett criteria and communalities, all indicators were still clearly above the acceptable range. The final factor solution with the factor loadings for 1999 is presented in Table 3. The factors for both data sets proved to be relatively easy to interpret, owing to the strong variable loadings. The factors were viewed as three distinct categories of CTO functions: 1) Consumer/tourist orientation, 2) Tourism industry orientation, and 3) Activities strongly related to booking services.

In 1995, the consumer orientation category was represented in two separate factors. The first was labelled as 'Sales organization of supplementary tourist services' (factor 1) and is the main type of functions provided by city tourism organization as it explains large proportion of the variance (11.6%) in the data set. This captured not only basic information services through tourist offices, but also supplementary services including sightseeing, bus and walking tours, selling of souvenirs, print media, and tickets for public transportation in the city. The second factor of city tourism services related to the consumer category is a 'Sales organization of more general services' identified as factor 2 in the 1995 analysis (see Table 2). This factor explains 9.8 percent of the total variance and reflects the sales of ticket services for concerts and theatres, electronic booking services, and car rentals. Services with high factor loadings in this group appear to be less tourism oriented than those listed in factor 1, as these services are also offered to the citizens of the city.

Analysis of the 1999 data also resulted in two strong consumer orientated factors. Factor 1 clearly belongs to this category and to some extent factor 6, which captures some of the items of factor 1 in the 1995 survey. In both analyses the factors with the largest proportion on explained variance are also very similar in the type of services they represent. However, not all of the sales services that had high loadings for this factor in 1995 also appear in 1999. Some of the items moved to factor 6, which was identified as 'Ticket office and provider of quality awards for the tourism industry'.

The tourism industry orientation category also contained two separate factors for 1995 and 1999, respectively. In 1995 the first factor was labelled 'Public relations office and tourism industry advocate' and was identified as factor 6 in Table 2. This factor accounts for 7.8 percent of the total variance and refers to a series of industry-related services like regulation and supervision of tourism enterprises, electronic information services, encouraging

Table 2 Structure of city tourism offices' functions and services in 1995

Variables	Factor Loading	Variance explained	Variance cumulated
Factor 1. *Sales organization of supplementary tourist services*		11.6	11.6
Selling of printed media, books	0.740		
Guided walking tours	0.672		
Sightseeing tours	0.655		
Sale of publications by mail	0.642		
Selling of souvenirs	0.562		
Bus tours	0.519		
Selling of tickets for public transport in the city	0.436		
Factor 2. *Sales organization of general services*		9.8	21.4
Selling of concert, theatre tickets	0.772		
Electronic booking services (via Internet, kiosks, etc.)	0.684		
Car rentals	0.545		
Factor 3. *Booking office for the city's region*		8.7	30.1
Hotel booking services in the city's region after arrival	0.874		
Hotel booking services in the city's region before arrival	0.854		
Factor 4. *Booking office for the city*		8.2	38.3
Hotel booking services in the city before arrival	0.783		
Hotel booking services in the city after arrival	0.756		
Factor 5. *Professional travel agency*		8.1	46.4
Booking services of hotels internationally before arrival	0.770		
Booking services of hotels nationally after arrival	0.603		
Booking services of hotels nationally before arrival	0.561		
Factor 6. *Public relations office and tourism industry advocate*		7.8	54.2
Regulation and supervision of tourism enterprises	0.760		
Electronic information services (e. g. Internet, kiosks, etc.)	0.647		
Encouraging cooperation among different sectors	0.548		
Selling of tickets for trains	0.529		
Research planning and statistics	0.510		
Factor 7. *Incoming and congress and convention services bureau*		7.4	61.6
Booking services of packages (accomm. & transportation)	0.768		
Development of packages	0.735		
Convention bureau services	0.569		

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Table 2 (*cont.*)

Variables	Factor Loading	Variance explained	Variance cumulated
Factor 8. *Management and booking office for small- and medium sized accommodation providers*		7.0	68.6
Booking services of other accomm. facilities before arrival	0.781		
Maintenance/management of attractions	0.637		
Booking services of other accomm. facilities after arrival	0.523		

Table 3 Structure of city tourism offices' functions and services in 1999

Variables	Factor Loading	Variance explained	Variance cumulated
Factor 1. *Sales organization for visitors to the city*		13.2	13.2
Selling of souvenirs	0.810		
Sightseeing tours	0.794		
Selling of printmedia, books	0.785		
Guided walking tours	0.722		
Factor 2. *General booking office for the city's region*		12.6	25.8
Booking services of other accomm. facilities before arrival	0.774		
Hotel booking services in the city's region before arrival	0.762		
Booking services of other accomm. facilities after arrival	0.705		
Hotel booking services in the city's region after arrival	0.697		
Bus tours	0.526		
Factor 3. *Professional travel-agency with national focus*		9.8	35.6
Booking services of hotels nationally after arrival	0.772		
Booking services of hotels nationally before arrival	0.745		
Car rentals	0.596		
Incentives for journalists (e. g. invitations)	0.518		
Encouraging cooperation among different sectors	0.516		
Factor 4. *Information and booking office for leisure and business travelers to the city*		8.9	44.5
Hotel booking services in the city before arrival	0.800		
Electronic information services (e. g. Internet, kiosks, etc.)	0.698		
Hotel bookings in the city after arrival	0.682		
Convention bureau services	0.445		

Table 3 (*cont.*)

Variables	Factor Loading	Variance explained	Variance cumulated
Factor 5. *Management, consultancy, and development bureau*		7.4	51.9
Maintenance/management of attractions	0.800		
Capital grants to tourism enterprises	0.733		
Regulation and supervision of tourism enterprises	0.624		
Selling of concert, theatre tickets	0.385		
Factor 6. *Ticket office and provider of quality awards for the tourism industry*		7.3	59.2
Quality certification of accommodations or restaurants	0.738		
Sale of publications by mail	0.645		
Selling of tickets for trains	0.604		
Selling of tickets for public transport in the city	0.524		
Factor 7. *Development and sales organization of tourism products*		6.9	66.1
Development of packages	0.519		
Booking services of packages (accomm. & transportation)	0.507		
Electronic booking services (via Internet, kiosks, etc.)	0.473		

cooperation among different tourism industry sectors, and research planning and statistics. The second type of organization with strong industry orientation in 1995 is best represented by factor 7 and was labelled 'Incoming and congress and convention services bureau'. Services with high factor loadings here are typical bundling services as the development and sales of combined accommodation and transportation products ('packages'), and congress and convention services.

In the analyses of the 1999 data, the industry-oriented categories were represented by factor 5 and factor 7. Factor 5 accounted for 7.4 percent of the total variance and captured typical consultancy services (e. g. management of attractions, the provision of capital grants for the tourism industry, the regulation and supervision of tourism enterprises) and, therefore, was labelled as 'Management, consultancy, and development bureau'. This factor was relatively unique as compared to the 1995 survey and difficult to explain. Factor 7 in the 1999 survey ('Development and sales organization of tourism products') has a strong resemblance with factor 7 in the 1995 study, except for congress and convention services which was replaced by electronic booking services; this factor also explains considerably less of the total variance than in the 1995 study.

A number of factors fall into the category with activities associated with various booking facilities. In 1995 this category consists of four different factors which predominantly vary only by the regional scope of their services. Factor 4 captures booking services for the city, factor 3 for the city's region, and factor 5 for national and international travellers. Each of these factors explains about 8 percent of the total variance in the data set. Factor 8 combines typical management operations like the maintenance of public tourist attractions in the city

with booking services for small- and medium sized private accommodation providers and, as the last factor extracted from the data set, accounts only for 7 percent of the total variance. In the 1999 analysis, three factors were obtained and appear to suggest a reorganization of factors in the booking services category. Factor 4 in the 1999 survey is basically consistent with factor 4 in the 1995 study but included electronic information services and congress and convention services. Hence, factor 4 was named 'Information and booking office for leisure and business travellers to the city'. Factor 3 is clearly associated with factor 5 in the 1995 survey; however, additional services were included in the item list and international booking services disappeared and therefore, the label was refined to 'Professional travel-agency with national focus'. Last, factor 2 accounts for 12.6 percent of the total variance and captures all the items formerly represented by factors 3 and 8 in the 1995 survey; in addition, the factor includes the provision of bus tours, suggesting a strong focus on tourism to the city and its neighbouring region.

1.5.2 Structure of changed functions

The percent of city tourism offices that support each of the functions was compared for the 1995 and 1999 data. As can be seen in Figure 1, the percent of city tourist offices that provide all three booking services has decreased from eight percent in 1995 to two percent in 1999. The same is true for conventional information dissemination. In 1995, 86 percent of city tourism offices surveyed regularly provided information material to press and/or tour operators and dispatched printed media. This figure, however, has decreased to 68 percent in 1999. On the other hand, the number of city tourism offices that provide full function of commerce, advance information product, and relationship management has been substantially increased from 28 percent to 46 percent, from 26 percent to 48 percent, and from 22 percent to 34 percent, respectively.

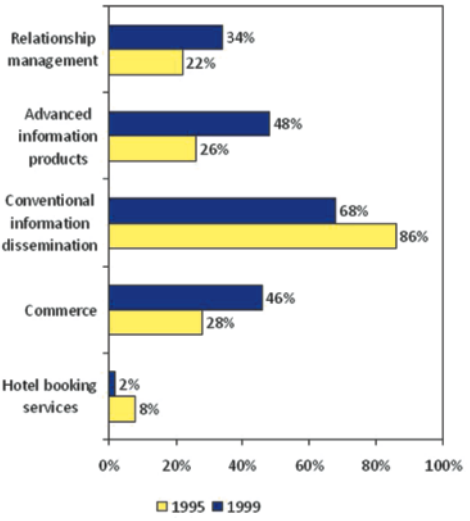

Fig. 1 Change by factors for city tourism offices that provide full functions and services

In order to further clarify the changes of functions provided by city tourism offices during the given period of time, the 10 functions that changed significantly ($\alpha = 0.05$) were selected and used for a factor analysis. In this analysis the data were stacked by year (resulting in 100 observations) and PCA using orthogonal rotation (Varimax) was applied. Five distinctive factors were identified that explain about 69 percent of the variance (see Table 4).

The first factor appears to be clearly related to hotel reservation service, and explains about 21 percent of the total variance. The second factor represents commercial activities that are most likely to be revenue-generating activities. Items that represent traditional ways of disseminating tourism information comprise the third factor. It includes regular dissemination of information material and free dispatch of printed media. Providing research statistics and electronic information service consist of another distinctive factor and was summarized by the label 'Advanced Information Products'.

Table 4 Change in factor structure of functions and services between 1995 and 1999

	Factor	Variance	
	Loading	Explained	Cumulated
Factor 1. *Hotel booking services*		20.8	20.8
Booking services of hotels nationally before arrival	0.892		
Booking services of hotels nationally after arrival	0.866		
Booking services of hotels internationally after arrival	0.562		
Factor 2. *Commerce*		15.0	35.8
Sightseeing tours	0.875		
Selling of souvenirs	0.831		
Convention bureau services	0.573		
Factor 3. *Conventional information dissemination*		13.8	49.6
Regular info-material to international press and tour operators	0.749		
Free dispatch of print media	0.541		
Factor 4. *Advanced information products*		11.0	60.6
Research planning and statistics	0.828		
Electronic information services (e. g. Internet, kiosks, etc.)	0.719		
Factor 5. *Relationship management (industry and tourists)*		8.4	69.0
Training, business advice	0.812		
Help for visitors in information offices	0.596		

The last factor describes the focus on industry and consumer relationship management.

1.5.3 Nature of the changes in functions provided by European city tourism offices

The nature of the changes in services provided by individual city tourism office was further examined by investigating dominant changes as measured by the number of function items that are serviced by individual city tourism office in each year. Change scores were then obtained by subtracting the functional intensity of 1995 from that of 1999. Since the analysis was focused on change, it is important to take into account the starting point. That is, an increase in a specific service of a city tourism office that did not provide this service at all in 1995 needs to be interpreted differently from the increase of a city tourism office that has provided it, at least partly, in 1995. Thus, services and functions were defined as either 'declining', 'unchanged', or 'increasing', and were cross-tabulated according to their status in 1995 (Table 5).

European city tourism offices that did not provide hotel booking services at all appear to be dominant in 1995 (64%). However, the dominant change in booking services functions during the given period of time appears in those who did provide this service in 1995. While the majority of those who did not provide booking services in 1995 stayed same in 1999, a substantial proportion of those who did provide booking services in 1995 (50%) down-

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Table 5 Dominant changes in city tourism offices' services between 1995 and 1999

Factors of functions and services	1995		1999		
			Reduced	Same	Increased
Hotel booking services	Yes	18	**9** (7)	9	–
	No	32	–	31	1
Commerce	Yes	38	4 (0)	25	**9**
	No	12	–	6	6
Conventional information dissemination	Yes	49	**10** (2)	38	1
	No	1	–	1	–
Advanced information products	Yes	33	6 (3)	17	**10**
	No	17	–	9	8
Relationship management (industry and tourists)	Yes	42	1 (0)	36	5
	No	8	–	3	**5**

* Dominant changes are in bold font.
* Figure in parenthesis represents the number of city tourism offices that cease to provide service.

sized their functionality in 1999. Among the nine city tourism offices that reduced functionality in 1999, seven city tourism offices ceased to provide hotel booking services completely. The result seems to suggest that the importance of hotel booking service has been diminishing during this period of time. This could be due to the fact that city tourism offices are now reconsidering their position as a service provider for their city. Other reasons could be attributable to the prevalence of new communication channels such as the Internet. New communication channels, especially the Internet, enable individual hotels to manage their own booking inquiry instead of relying on local tourism representation. Even for those offices who continue to maintain hotel booking services, technical complexities involved in the development and maintenance of a new booking system, which is beyond the capacity of a tourism organization most of times, hinder city tourism offices from directly involving in the whole process.

Similar trends can be observed in the case of conventional information dissemination. The majority of city tourism offices (98%) played a role in disseminating conventional information either by providing information material to press and tour operators or by dispatching printed materials, or both in 1995. Among those, ten offices reduced its conventional information dissemination functions in 1999 while only one office did increase this functionality. This trend obviously indicates that the traditional forms of information dissemination became less important for European city tourism offices between 1995 and 1999.

On the other hand, interesting trends emerged in commerce, advanced information products, and relationship management functions between 1995 and 1999. The number of city tourism offices providing commerce related activities increased from 38 in 1995 to 44 in 1999 and 15 offices reinforced or initiated commerce activities to generate revenue whilst only four offices reduced but kept at least partially commerce activities. This result strongly suggests that city tourism offices generally recognize themselves as self-supported organizations and therefore need to develop revenue generating businesses. A similar pattern of activity can be detected in the case of advanced information products related activities.

Table 6 Correlation coefficient between change scores of factors

	Hotel booking services	Commerce	Conventional information dissemination	Advanced information products
Commerce	.060	–		
	(.340)			
Conventional information dissemination	.168	–.092	–	
	(.121)	(.263)		
Advanced information products	–.032	.273	.066	–
	(.411)	(.027)	(.326)	
Relationship management	–.293	–.140	–.040	–.022
	(.019)	(.167)	(.392)	(.439)

Note: 1-tailed significance levels are in parentheses.

A total of 18 city tourism offices strengthened or commenced to provide information-related products either by research or by electronic information services, or both while six offices reduced their role in this area of support.

Relationship management of both tourists and industries is another area that has been substantially increased in its recognition by European city tourism offices. The number of offices that involved, at least partly, in relationship management increased from 42 in 1995 to 47 in 1999. It is noteworthy to mention that these increasing trends are not limited to those who had already recognized the feasibility of those functions and have already, at least partly, implemented in 1995, but applied to tourist offices in the sample that did not provide those functions at all in 1995. A substantial proportion of city tourism offices who did not provide commerce, advanced information-products, and relationship management related activities in 1995 (50%, 47%, and 63%, respectively) started to provide these functions in 1999. This implies that these factors and their related services became standard strategies for European city tourism offices during this time period.

In order to examine the relationship between changes of the functions, bivariate correlation analyses were conducted using the change scores of identified factors (Table 6). Since any causal links have not been imposed to the relationship between factors, the coefficients need to be understood as concurrence measures. That is, non-significant coefficients indicate changes in two factors are more or less independent, while significant coefficients indicate that changes have occurred in the same or opposite direction, depending on the sign of the coefficient.

The results shown in Table 6 reveal that most of bivariate relationships between the five factors are not significant ($\alpha = 0.05$), suggesting that changes in one function does not meaningfully occur at the same time with changes in another function. However, two exceptions appear in the relationships between hotel booking service and relationship management and between advanced information product and commerce; it appears that changes in hotel booking service tend to co-occur with changes in relationship management in opposite direction, while changes in commerce tend to occur when advanced information products are implemented within the organization.

1.6 Summary and conclusions

City tourism organizations offer various and different functions in response to diverse demands from tourists as well as tourism industry (Morrison et al., 1998). At the same time, they have to adapt to environmental changes and idiosyncratic situations with which each one of them faces in order to efficiently perform their job. This study examined the changes in functions provided by European city tourism offices during the time period between 1995 and 1999. Analyses reveal that substantial changes occurred during this period of time in terms of hotel booking services, commerce activities, conventional information dissemination, the development of advanced information products, and relationship management related services.

Two general explanations may explain the changes in the functions provided by European city tourism organisations. First, new communication channels, especially the Internet, appear to have influenced almost all aspects of tourism offices' services. That is, the Internet facilitates a new and very different way tourists' access to tourism products, especially hotels, and therefore brings about the development of new systems that can respond to this significant change (Gretzel, Yuan, and Fesenmaier, 2000; Poon, 1993; Werthner and Klein, 1999; Yuan, et. al., 1999, 2005; Yuan and Fesenmaier, 2000). And, as suggested by Poon (1993) and Werthner and Klein (1999), the Internet enables city tourism offices to communicate directly with potential visitors thereby offering new opportunities for marketing and selling individualized products and services. This response is clear in that European city tourism offices have aggressively added advanced information products such as electronic information services and expanded their efforts in relationship management. These "new" multi-channel marketing strategies, however, require an expansion in relationships between tourism offices and the rest of the tourism industry (Poon, 1993; Yuan and Fesenmaier, 2000). For example, the development and maintenance of booking systems requires close cooperation between the tourism office and other organizations or companies; thus, the role of city tourism offices in hotel booking service becomes significantly more decentralized than when using conventional communication channels and alleviates the burdens of conventional information dissemination. A second important driving force for change is the need of the city tourism offices to respond more aggressively to the needs of their stakeholders (Gretzel, et. al., 2000; Wöber, 1997). That is, it seems that more and more city tourism organizations are influenced by privatization policies in many European countries and claim themselves as 'self-supported' organizations instead of 'quasi-public' organizations. The results of this study clearly show that most European city tourism offices reinforced their commerce-related activities, added many industry-oriented functions necessary to generate additional revenue and built new partnerships within the industry. Thus, these findings suggest that most city tourism organizations have recognized the new economic and social environment and will continue to adapt. An important challenge to city tourism officials, however, is to integrate the capacity to change within the fabric of the organization when the economic and social realities/threats facing the industry are so severe.

Web sites of interest

www.europeancitiesmarketing.com – ECM website
www.visityork.org – Visit York (case study)
www.hungarytourism.hu – Hungarian National Tourist Office (case study)
Official tourism offices web sites of the ten leading city tourism destinations in Europe:
www.visitlondon.com – London
www.parisinfo.com – Paris
www.turismoroma.it – Rome
www.barcelonaturisme.cat – Barcelona
www.wien.info – Vienna
www.visitberlin.de – Berlin
www.prague-info.cz – Prague
www.esmadrid.com – Madrid
www.iamsterdam.com – Amsterdam
www.visitdublin.com – Dublin

Review questions

(1) What are the main activities city tourism offices undertake? Which of these activities are exclusively provided by city tourism offices? Identify the activities that are also provided by other governmental and non-governmental organizations!
(2) According to the study presented in this chapter, how did city tourism management change between 1995 and 1999? Are these trends still valid today? Think about the new trend and how they may influence the portfolio of services and functions of city tourism organisations.
(3) How would you measure the performance of a city tourism organization? Explain what the terms 'effectiveness' and 'efficiency' mean in relation to each of the services listed in Table 1.

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European City Tourism Statistics

2

Johanna Ostertag and Karl Wöber

2.1 Purpose and objective

City tourism is an increasingly important area of economic activity and should as such have a commensurate level of statistical development. This chapter concentrates on European city tourism statistics, revealing the statistical gaps between theory, practice and reality. It gives tourism managers information concerning differences and problems existing in European city tourism statistics and defines the strengths and weaknesses of the various methodologies and definitions.

Common problems are discussed based on an extensive literature review and a survey among city tourism organisations. The survey is complemented by an investigation of the definitions and methodologies used for the compilation of city tourism statistics available in the tourism marketing information system TourMIS (www.tourmis.info). In summary, this chapter provides insights on existing standards and discloses the limitations of comparing European city tourism statistics.

2.2 Introduction

Tourism marketing is becoming increasingly sophisticated as a result of greater importance attached to the reliability of information, and the competent analysis of that information, for the effective planning, monitoring and management of tourism enterprises (Bar-On, 1989).

Decisions concerning tourism related investments in tourism developments such as infrastructure for major new tourist regions or individual resorts, transportation facilities, accommodation facilities including new hotels, self-catering apartments and campsites, museums or theme parks are crucial because they are very cost intensive. In the planning phase of such new tourism investments, a careful consideration of potential customer benefits, technological expertise and identification of a unique competitive positioning is necessary. To avoid investment failures the target market has to be clearly defined and its potential estimated and forecasted.

Without doubt, the greatest commitment to tourism by the government and private sector is the promotion of tourism. Every tourism organisation on a national, regional or city level spends considerable amounts of money on promotion.

In general, this involves four types of activities: advertising, publicity, public relations and incentives (Gunn, 1988). Decisions on promotional activities include the selection of geographical markets in which to promote, the selection of segments within those markets, the image to portray about the tourism destination or product, the medium to be used for the message and the optimal timing and frequency of the campaign. Comprehensive budget allocation models are available to support the promotional planning process (Mazanec, 1986, Moutinho et al., 1995). To feed these models extensive data input is necessary, and regular use is impossible unless these systems are combined with a continuously maintained database (Wöber, 1994).

Governments and other official organisations and major enterprises in the tourism and transportation industry need statistical data on the present structure of the industry as well as on historical and future trends. Based on reliable information, strategies and operational plans are implemented, monitored and where necessary, modified in response to feedback from the market. However, the social, economic and environmental impact of tourism is an international issue, which does not stop at national borders. For example, when the number of visitors to a city exceeds the number of residents, some social response is likely to be aroused, both negative and positive. Each community has developed it own agencies, policies, practices and traditions to monitor indicators which measure the environmental impact of travel and tourism. Obviously, such indicators must be comparable at national and international levels if the global impact of tourism is to be quantified and corresponding policies and safeguards are to be developed. Location specific variations measuring the impact of tourism must be removed if tourism is to progress.

At the management level, planning processes for marketing projects are determined by specific objectives. These objectives should be both comprehensive and precise enough to be measured (and accomplished) within a given time frame. Statistical data on successes and failures of projects needs to be collected and analysed.

In the reconciliation phase of a market planning process, tourism managers require data on the size and characteristics of different market segments and on the tourist requirements and profile.

2.3 Sources and users of tourism statistics

Although the statistical measurement of tourism is a relatively recent activity, a considerable amount of data on tourism movements is already available at the national level. Mostly public organisations, including national tourist administrations, governments and other statistical offices are evaluating tourism statistics for their own countries.

A broad literature base is available on the various methodologies for collecting tourism statistics and the planning, design and management of tourism surveys. The historical development of the statistical measurement of tourism is described in detail by Burkart and Medlik (1974) and by Chadwick (1987).

The main users of tourism statistics are governments, tourist offices, tourist organisations at national, regional and local levels and providers of tourist services. The nature and form of the existing databases vary in accordance with differing interests of users. Burkart and Medlik (1974) identify governments mainly interested in immigration control, in travel as an item in the balance of payments, in tourism as a source of employment and as a user of resources. Tourist organisations, on the other side, are more concerned with the marketing of their destinations and with their physical planning and development. The fundamental interest in tourism statistics of tourist offices coincides

with that of the governments. The measuring of traffic flows enables tourism managers at the national level to assess the magnitude and significance of tourism. Information requirements not covered by government surveys are often gathered by additional sample surveys.

As governments and national tourist offices are traditionally well organised and have similar interests in the scope of tourism statistics, the need for uniformity and comparability has been generally recognised by these two user groups.

Since the collection of tourism statistics is an element of state responsibility, in most countries official statistics at the national level are collected by public statistical offices. The international compilation of these sources is organised by international organisations like the World Tourism Organization (UNWTO), the United Nations Statistical Office and the International Air Transport Association (IATA), regional organisations such as the Organisation for Economic Co-operation and Development (OECD), the Statistical Office of the European Communities (EUROSTAT) and associations such as the Pacific Area Travel Association (PATA). They attempt to highlight differences in the data collection procedures and definitions, and they group the countries accordingly. Annual publications offered by some of them represent the main 'official' sources of international tourism statistics:

- The World Tourism Organization (UNWTO) Yearbook of Tourism Statistics, has been published since 1947 under the titles 'International Travel Statistics', 'World Travel Statistics', 'World Travel and Tourism Statistics' and its present title.
- The Organisation for Economic Co-operation and Development (OECD) publishes 'Tourism Policy and International Tourism in OECD Member Countries', sometimes referred to as the 'Blue Book'.

Latham and Edwards (2003) point out, that the Yearbook of Tourism Statistics (two volumes) provides a summary of the most important tourism statistics for about 190 countries and territories; and is supplemented by the UNWTO's Compendium of Tourism Statistics (published annually since 1985), a pocket-book designed to provide a condensed quick reference guide on the major tourism statistical indicators. The OECD 'Blue Book' is more restrictive in the sense that it covers only the 25 main generating and receiving countries.

The collection and analysis of detailed statistics requires commitment of resources. The lack of comparability in the reported data is not only caused by differing survey methodologies but also by the measures themselves. The UNWTO has organised activities as a response to this situation in the last twenty years and has published recommendations for reducing the variations in gathering practice and terminology (UNWTO, 1981a, 1981b, 1983a, 1983b, 1983c, 1984a, 1984b, 1985a, 1985b, 1994, 1995a, 1995b, 1995c, 1995d, 1995e, 2008a). Figure 1 is a basic presentation advanced by the UNWTO (UNWTO, 2008a) and widely accepted, to show the overall classification of inbound travellers, visitors and tourists.

The United Nations Statistical Commission adopted the recommendations on tourism statistics prepared by the UNWTO at its twenty-seventh session in 1993. This was a first step in establishing internationally recognised standards in tourism statistics. The Statistical Office of the European Communities (EUROSTAT) takes the UNWTO recommendations as its basic reference and adapts them to the European context. During a joint EUROSTAT/DG XXIII meeting with professional associations on January 19th, 1996, in Brussels, a comprehensive reference document for the elaboration of comparable statistics was presented (EUROSTAT, 1996).

With respect to city tourism, many problems arise when UNWTO and EUROSTAT definitions and recommendations are applied by national authorities and statistical offices.

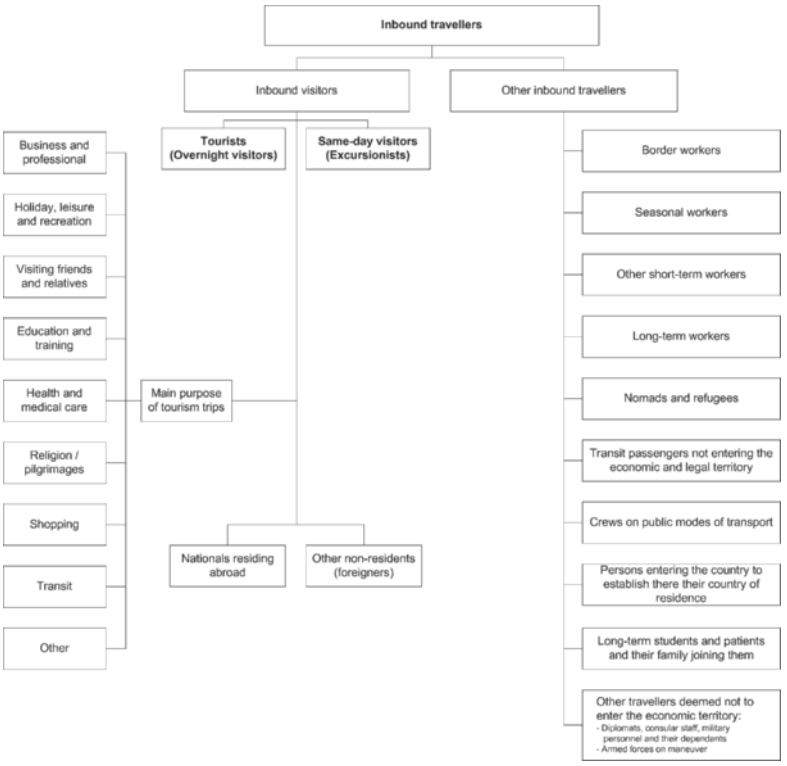

Fig. 1 UNWTO classification of inbound travellers

2.4 City tourism statistics

According to the World Tourism Organization (UNWTO), 'The metropolis is one of the most important parts of a tourist destination. It has always attracted more and more visitors all around the world [...] in both developing and developed countries. However until recently, with the exception of capital cities like London and Paris, the tourist industry's contribution to the economy of metropolitan areas vis-à-vis other sectors has not been perceived as a significant one.' (UNWTO, 2008b, p. 7).

The advantages of having city tourism statistics that provide information on the state of tourism in cities do not seem crucial, even though the benefits of having prospering tourism and statistical data to prove it are obvious.

The currently existing, varying importance perceived and assigned to city tourism statistics sometimes results in either shallow, or in the worst case, non-existing city tourism statistics. This is underlined by the rather low number of available city tourism statistics in Europe, albeit the harmonisation of city tourism statistics would be particularly relevant for European city tourism management facing an increasingly large number of highly mobile people living in close proximity and constantly entering, leaving and transiting neighbouring cities by car, train or plane.

The statistical measurement of city tourism has many shortcomings, and as a result, even elementary tourism data such as number of nights, arrivals, beds, accommodation establishments as well as occupancy ratios and length of stay varies significantly among cities. The major problem that tourism managers face

is twofold: lack of availability and lack of comparability of data.

The reasons for this lack of data for basic performance measurement and strategic marketing planning are manifold. The most obvious reason is that most of the destinations see no point in changing their existing systems of tourism statistics. Since city tourism still lacks credibility among government circles and institutions, there are insufficient regulations (UNWTO, 1999). If there were a binding legal framework that would authorise the compilation of city tourism statistics as well as regulations on how detailed they have to be, the problem of unavailability and incomparability would literally vanish (UNWTO, 1999). The only legal base for European tourism statistics is the Council Directive 95/57/EC on the Collection of Statistical Information in the Field of Tourism, which dates back to the year 1995. According to the Statistical Office of the European Communities (EUROSTAT) Working Group on Tourism Statistics, the experience of more than ten years working with the Council Directive 95/57/EC has revealed several strengths but also some problems and weaknesses of the current system of data collection of tourism statistics. In particular, the comparability and the comprehensiveness of the data are not satisfactory. Consequently, EUROSTAT has submitted proposals to the Member States for an update of the tourism statistics legislation, which have been discussed. In 2008, the statistical office of the European Union was still in the process of updating the legal basis. Even though the new regulation will possibly – different from the directive – consider city tourism by taking into consideration the different 'types of destinations' on the demand side, it will unfortunately only provide this information on a national basis and not on the individual city level. In addition, EUROSTAT proposed to include 'type of localities' based on the population density as a new characteristic of the data collection from the supply side to describe geographical aspects of the various regions. The introduction of this characteristic would allow separately depicting the evolution of tourism in urban areas on one hand and in rural areas on the other hand on a national basis. However, until the new regulation comes into force, there is no legal framework considering city tourism statistics. Because of this lack of international guidance and coordination, some governments and statistical authorities have developed their own guidelines on how to measure city tourism in their region.

Another problem that cannot be left out is the challenge of insufficient knowledge. This problem is threefold:

- Why should urban statistics be compiled?
- What type of variables should be collected?
- How can the information be gathered?

Tourism managers, politicians and other decision makers are commonly not aware of the benefits of reliable city tourism statistics. This lack of awareness is often accompanied by the problem of inadequate knowledge on what type of data can or could be compiled. Assuming tourism management knows what could be collected, there still remains the repeatedly observed problem that it is often not clear how to compile statistics that cover the full complexity of tourism activities. User-friendly statistical software and their increasingly common, but often careless use have gradually led to more misuse of statistical methods. Insufficient procedural and factual know-how also results in incorrect conclusions when interpreting and comparing statistics.

The varying interpretation of terms used in city tourism statistics is another problem. The challenge starts when considering the definition of the term 'city'. The word has distinct meanings: Either it may refer to an entity, which offers functions, activities and an atmosphere, or it may refer to quite specific services or facilities. In turn, there is no clear – or at least accepted – definition of what a city is. However, there are different approaches available on how to decide what a 'city' is:

- The *visitor's perception* in which local users with the readiness to consume urban travel facilities (guests with typical travel motives such as shopping, culture, congress, etc.) decide on a particular destination; Nice, for instance, a typical French sea resort, may not be regarded as a typical city break destination in Europe, whereas Salzburg, which has about 60% fewer inhabitants, clearly is perceived as a city break destination.
- The *city's self-image* or the attempt of the local tourism management to portray the city; Genoa, for example, a former industrial city with an historic harbour, is reviving its cultural heritage. This is an effort by the local tourism management to project the city as an important part of European city tourism.
- Finally, *objective criteria* like community size, accommodation capacity and typical urban facilities have to be considered for defining the city tourism market.

When considering city tourism statistics, the importance of the definition of territorial boundaries is self-evident. However, the spatial borders of the tourism product purchased by the consumer may not correspond with the administrative boundaries of the city. Therefore, cities have to make a decision if their statistics cover an area

- identical to the political city limits,
- defined by the responsibility of the local tourist office,
- defined by its population density,
- defined by the volume of visitors or
- defined by being accessible by public transportation within a certain period of time from the city centre.

All the listed possibilities of defining the territorial boundaries for measuring city tourism statistics have their strengths and weaknesses. While the area defined by the political city limits would probably be the easiest and best comparable, unfortunately it is often not tourism relevant. The very interesting approach of linking the territorial boundaries with criteria concerning public transportation also has its shortcomings when considering that the territorial boundaries would have to be changed every time a new train- or subway station is opened. Linking the territorial boundaries to population density and the volume of visitors that visit that area is unfortunately also no easy undertaking. Since the local tourist offices are the primary users that need statistics for strategic planning purposes, linking the boundaries to the responsibility of the local tourist offices seems to be a reasonable approach. However, more frequently, tourist offices have become responsible for the rural area surrounding the city.

The different approaches used for compiling city tourism statistics and the fact that it is often not possible to retrace which areas the statistics actually cover create misunderstandings among actors in the industry. Moreover, defining and measuring tourism are two independent issues as pointed out by Law (1993, p. 169): '… it is often very difficult to measure the flow of tourists, even when a definition has been agreed.'

Notable organisations have dealt with these problems and challenges for years, and many recommendations have been published on how to improve tourism statistics (e. g. EUROSTAT, 1998, 2000; EUROSTAT, OECD and UNWTO, 2001; UNWTO, 1994, 1995a, 1995b, 1995c, 1995d, 1995e, 2008a). The fact that there are still severe problems concerning the availability and comparability of city tourism statistics shows, that none of the theoretical recommendations have proved to work so far. There is a clear deviation of interest. Cities compile statistics customised to their own needs with no concern for harmonisation. Thus, in most countries, the collection of tourism statistics is made of a great variety of sources, which in most of the cases stand back to back without any major effort to look for consistency and harmonisation. Not all categories of sources

exist in a country, not all are generated by supervision of public administration and not all have the same reference in time and periodicity. Countries have data on non-resident visitors entering the country and of the same non-resident visitors leaving the country, and this data does not coincide. Additionally, in most cases, there is an unexplainable systematic difference appearing over time (UNWTO, 2004). Much tourism activity goes unreported because of the way some statistics are collected and aggregated. Indeed, it is possible to measure tourist activities in several ways, some of which will be appropriate for one purpose but not for another. In order to understand the differences, an overview will now be provided on the different types of statistics and the various collection methods.

2.5 Methods for measuring city tourism statistics

Tourism statistics can stem from private or public initiatives. When tourism statistics are controlled by governmental regulations, studies are usually carried out by public organisations like statistical offices. As national tourism statistics frequently lack information on city tourism trends, many regional authorities and tourism industry representatives have organised private market research initiatives for generating statistics on the development of tourism in their destinations.

There are three important types of tourism statistics that are generated by these initiatives (see Figure 2). Statistics of human flows often deal with the measurement of arrivals, trips and tourist nights on the demand side (often split into categories such as country of origin or business versus leisure travel), plus capacities on the supply side, whereas tourism statistics of monetary flows focus on the income

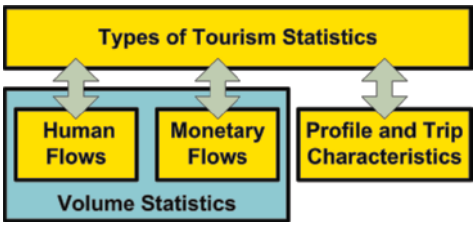

Fig. 2 Types of tourism statistics

and expenditure of tourism. While these two categories commonly deal with the macroeconomics of tourism, the statistics generated by visitor or travel surveys provide further information on the profile of visitors and trip characteristics. Statistics relating to the profile of the visitors and trip characteristics include details of age, sex, occupation, income, origin, purpose of visit, mode of transport, type of accommodation and details of activities engaged in (Latham, 1989).

All three types of statistics serve important purposes along with helping tourism marketers to improve the information basis on which they make their decisions.

When focusing on statistics of human flows in general, there are four main ways to measure tourism demand at the destination in question: Observation, sample survey (among visitors or suppliers), registration and estimation. Each of these methods has its advantages and disadvantages. Moreover, differences occur when these measurement techniques are applied in an environment where participation is voluntarily organised or if federal regulations provide a legal framework where suppliers and visitors are forced to collaborate. The strengths and weaknesses of techniques for measuring tourism demand available to private organisations and companies are summarised in Table 1.

For selecting the appropriate technique for measuring tourism demand, the accurateness and reliability of information as well as the simplicity of measurement and the costs become important.

Table 1 Strengths and weaknesses of techniques for measuring tourism demand by private organisations and companies

Observation: Counting Visitors at Tourist Sites, Airports, Train Stations, Highways, etc.	
Strengths	Weaknesses
• Reasonable costs	• Difficult to segregate visitors from travellers • Only estimation on number of visitors • Not amenable for aggregation since population is unknown

Survey Among Visitors: Interviews at Tourist Sites, Conference Facilities, Airports, Train Stations, Main Entry Points to City and Accommodation Suppliers	
Strengths	Weaknesses
• Highly informative information amenable for all kinds of analysis • Estimation of visitors including same-day visitors, people staying with friends and relatives and domestic travel • Segregation possible (e. g. business vs. leisure travel)	• Very expensive • If survey instruments vary, the information is difficult to compare • Difficult organisation (know-how intensive) • Not amenable for aggregation since population is unknown • Chance of interviewer bias and low response rate • Inaccurate information caused by faulty memory of visitors (or plans that change after the interview)

Survey Among Professional Accommodation Establishments	
Strengths	Weaknesses
• Commonly used methodology in Europe • Amenable for aggregation (information on basic population usually available) • Easy to implement even for small regions • Allows estimation of tourist nights and average occupancy ratio • Information on domestic travel can be generated • Reasonable costs	• Does not yield estimates of total movement (omits e. g. people staying with friends and relatives and same-day visitors) • Participation and cooperation of accommodation suppliers necessary • Errors due to tax evasion possible • Multiple counting of visitors possible • Difficult to include small accommodation providers in the survey • Identification of the appropriate sample cumbersome

Measuring Tourism Demand by Estimation on the Basis of Regional/National Statistics	
Strengths	Weaknesses
• No separate data collection necessary • Reasonable costs	• Inaccurate • Not comparable and not reliable • Requires highly professional staff

Counting visitors at tourist sites and main entry points to the city (observation) is a very basic form of data collection, which usually does not yield enough information for assessing tourism demand in a particular city. Moreover, no distinction between travellers and visitors can be made when just 'observing' tourism flows. Estimations based on this data compilation technique are often too inaccurate to be used for market analysis.

More rich information can be compiled with surveys among visitors at tourist sites, conference facilities, airports, train stations and other main entry points to a city. However, the disadvantages of this data compilation technique are the high cost and the highly professional and knowledgeable staff required for organising and operating the survey. Due to the cost and complexity of such approaches, only a limited number of city tourism organisations in Europe are in a position to undertake and maintain such surveys. Moreover, for the purpose of comparison, unstandardised surveys among visitors are not the best method of data collection. Aside from the fact that many cities do not have the necessary monetary and human resources, sampling and non-sampling related effects (e. g. the problem of recall) need to be considered. The scarce time availability of visitors and the resulting interviewing time constraints constitute another issue. Especially business tourists often have no time for interviews, but also vacationers usually do not want to be bothered. Language barriers might comprise another problem.

When weighing the advantages and disadvantages of all methods, it becomes obvious why the registration of visitors at professional (paid) accommodation providers is the preferred methodology by many tourism destinations in Europe. This method is conceptually easy to understand and when carried out properly, delivers accurate information. Furthermore, it is relatively easy to organise, does not leave wide margins for errors and generates valuable information on the number of arrivals, nights spent, length of stay and occupancy ratios at professional accommodation establishments. The more visitors stay at professional forms of accommodation establishments, the more useful collecting visitor statistics from accommodation establishment records will be. Many continental European countries are using data compiled at professional accommodation establishments. This widespread use provides a relatively good base for comparisons in Europe.

In some countries, there are federal regulations on the implementation of tourism statistics, which require visitors to register when staying with professional accommodation providers. Table 2 lists the most frequently found collection methods when federal regulations are in place. At this point, it should be emphasised that all operators who do not disclose complete fiscal and statistical obligations make it impossible to register tourism consumption. This constitutes a phenomenon frequently referred to as 'hidden tourism' which none of the collection methods can reveal. 'Hidden tourism' refers to voluntarily unreported tourism consumption activity and should be distinguished from 'ignored tourism' which refers to deficiencies in statistical reporting systems (Volo and Giambalvo, 2008).

As Table 2 illustrates, census studies can provide managers with estimates of domestic and outbound trips, including information on people staying with friends and relatives. From a tourism manager's perspective, census data is extremely valuable if it is available for the main generating markets. Therefore, the data must be compiled at the visitor's country of origin. Such data can also be consulted to check the plausibility of data ('mirror statistics'). Partner countries usually provide data at no or low costs. However, time lag, lack of information on the quality of the data as well as varying collection methods and definitions frequently create problems when comparing this data.

Table 2 Strengths and weaknesses of techniques for measuring tourism demand by statistical offices when governmental regulations exist

Census	
Strengths	Weaknesses
• Yields estimates of domestic trips and people visiting friends and relatives • Yields estimates of expenditure and economic contribution • Amenable for all kinds of analysis	• Sophisticated sampling and survey methodology

Embarkation or Debarkation Forms or Information Recorded by Border Control Officials	
Strengths	Weaknesses
• Highly controlled and therefore consistent information • Information on nationality or country of origin can be evaluated • Yields information on people visiting friends and relatives • Relatively inexpensive	• Not amenable for city tourism statistics • Information may change between entering and leaving the destination • Not much information can be collected due to the limited time when a visitor is crossing a border

Governmentally Regulated Registration of Tourists at Professional Accommodation Establishments	
Strengths	Weaknesses
• Same strengths as privately organised surveys among professional accommodation providers but with the advantage that active participation is legally assured	• Same weaknesses as privately organised surveys among professional accommodation providers but with the problem that errors due to tax evasion ('hidden tourism') are more probable

Official governmentally regulated registration of visitors staying at professional accommodation providers, on the other hand, provides the same valuable information as privately organised surveys among accommodation establishments. Here the major advantage is that the supplier's participation is legally assured.

Data generated by embarkation or debarkation forms or information recorded by border control officials provides valuable information on arrivals by nationality. Aside from the fact that the information may change between what is stated when entering the destination and what is actually experienced during the trip, the data is only available at centres having entry and exit restrictions. The simplification or elimination of documentations and of border controls inside the European Community, though highly desirable for the travellers and the governments, reduced the data sources available to tourism statistics. Registration by embarkation or debarkation forms or information recorded by border control officials is therefore only applicable for very small and isolated destinations (for example, the island cities Dublin and Reykjavik compile their statistics in this manner). In general, the implementation of embarkation or debarkation forms is not amenable for all cities, since it cannot be used in cities where people come and go without registration.

The major advantage of being able to use data generated from census studies or official

governmentally regulated registration of visitors at professional accommodation establishments is that no separate data collection is necessary if the tourism managers settle with the information provided by these sources. This results in reasonable costs and manageable organisation. Another benefit of using these officially generated statistics is that the tourism managers can profit from the statistical knowledge and experience as well as from the highly controlled consistent information. When participation is obligatory, the problem of statistical representativeness diminishes.

If multiple sources of tourism statistics are available, it is up to the tourism managers to select the most appropriate source that best fits their needs. However, it should be remembered that city tourism statistics are grossly in need of re-evaluation because:

- a majority of destinations are not able to distinguish between overnight visitors and same-day visitors, even though day-visitors or excursionists generate a significant share of tourism in cities,
- only a few European destinations measure the number of people staying with friends and relatives,
- many destinations do not measure tourists staying in very small places of accommodation and
- not all destinations measure domestic tourism, involving residents travelling only within the area.

Some weaknesses might be acceptable for one city but not for another. In contrast to US and Canadian cities, most European cities base their tourism statistics on data generated from the suppliers' side. Greater insight into the status of European city tourism statistics is indispensable. The results of an analysis of city tourism statistics available in the database of TourMIS and a survey, which was targeted at tourism relevant European cities, provides information on which standards exist and how comparable European city tourism statistics actually are.

2.6 European city tourism statistics

The status of European city tourism statistics was investigated by using two approaches for the two main topics of interest, namely availability and comparability:

- Analysis of city tourism statistics available in the database of TourMIS
- Survey among city tourism managers about their statistics, targeted at members of European Cities Marketing (ECM) and tourist board representatives of other European cities

By analysing the availability of city tourism statistics on one hand, and by revealing the current incomparability of city tourism statistics on the other, differences between definitions and methodologies in use by European cities were studied. The analyses revealed the statistical gaps between theory, practice and reality.

2.6.1 Availability of European city tourism statistics

In order to gain greater insight on the availability of European city tourism statistics, the investigation was based on the data entered in TourMIS in fall 2006. Since the number of cities reporting data varies from one year to another, in order to study underlying trends, it was reasonable to only analyse 'consistent reporters' (ETC and UNWTO, 2005). The analysis was targeted at 66 cities. The investigation of the availability of the city tourism statistics in TourMIS showed some interesting results. An important result of the analyses is that statistics covering only the city area are far more in use than those, which refer to a greater area around the city. In addition, figures concerning all paid forms of accommodation establishments are entered the most.

What is suggested by the data available is, that there is a dependency between the number of definitions used by a city and its probability to use definitions that concern data available from all paid forms of accommodation establishments in the city area only. Due to the positive correlation, it can be deduced that the higher the number of definitions used, the higher the probability that data concerning all paid forms of accommodation establishments in the city area only is entered. This in turn means that a city that compiles this data has many cities with which it can compare itself. When using other definitions, it becomes more difficult.

Misleading rankings

Rankings like in Figure 3 are often published in the media even though the figures are misleading.

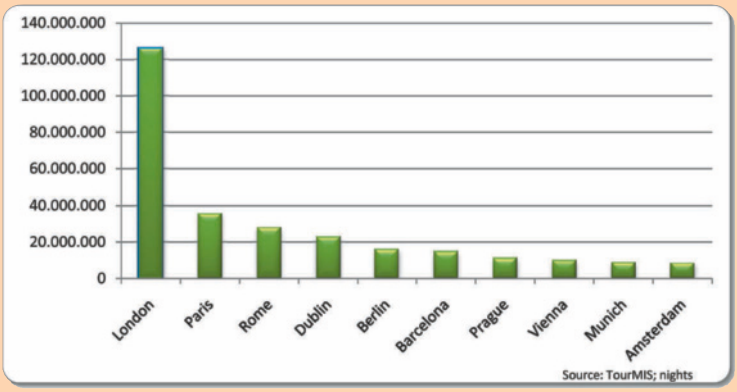

Fig. 3 Top 10 city destinations in 2006

The bednight figures of the British and Irish cities London and Dublin are an excellent example of how interpretations of statistics result in misreading of the data, when the data is compiled by following different definitions and methodologies. Surprisingly, both capitals always had much higher bednight numbers than other continental European cities. The reason for this is that both cities include private non-commercial visiting friends and relatives (VFR) bednights in their officially reported tourism statistics, and that the statistics also cover a much larger region than other European cities. But the figures for London and Dublin are not the only figures in the ranking that are not comparable with the other destinations. The figures for Amsterdam, Munich and Paris, for example, only include bednights in hotels and similar establishments in the city area, while the figures for Barcelona, Berlin, Prague and Rome consider bednights in all paid forms of accommodation establishments in the city area. The figure for Vienna covers all paid forms of accommodation establishments in the greater city area.
The consequences of unreflected rankings are that the findings are questioned by experts and misinterpreted by non-experts in the field. The credibility of the relevance of city tourism suffers from this.

2.6.2 Comparability of European city tourism statistics

The 2006 ECM Survey on City Tourism Statistics was aimed at filling the information gap concerning the comparability of European city tourism statistics. In order to collect the valuable information, primarily ECM and/or TourMIS members but also other European cities tourism managers were asked to fill out a questionnaire. Sixty-eight cities representing 50% of all invited cities participated in the survey.

In general, the analysis of the data underlined the statement by Verma (2002, p. 3) that 'Comparability is a relative concept: We can only have 'degrees of comparability', not absolute comparability'. It showed that the best-case scenario of absolute comparability is not achievable, since the different methodologies and interpretations of definitions currently in use as well as the different areas covered by statistics, are creating severe problems that have to be considered in comparative studies.

Of course, when comparing figures of various cities, the data is more valuable when based on a similar territorial area. More than half of the cities (39 cities) answered that their statistics include data generated within the historic centre or downtown area and another area within the official city limits. Twenty-four cities stated that their statistics cover a different area. Three cities (Birmingham, Corunna and Metz) stated that their statistics cover the historic centre or downtown area only, and two cities (Basel and Tarragona) stated that they include data generated within an area larger than the historic centre or downtown area but smaller than the official city limits. In addition, thirteen cities compile data covering an area, which also includes surrounding suburbs, and six cities cover an area even greater than that.

The results of the survey also showed that most cities equate the term 'City Area Only' with an area within the official city limits and the term 'Greater City Area' with an area also including surrounding suburbs. About 80% of the cities stated that they compile data for these two definitions. The analyses showed, however, that some cities equate the term 'City Area Only' with the area covering only the historic centre or downtown area or an area, which is larger than that but smaller than the official city limits. On the other hand, there are cities, which equate the term 'Greater City Area' with an area including suburbs and rural areas. The spatial concepts 'City Area Only' and 'Greater City Area' are often misinterpreted and lead to confusion among tourism managers.

The analysis of the responses demonstrated that the managers also had major difficulties in interpreting some of the other definitions. For instance, the definitions concerning all accommodation establishments often were mixed up with the definitions related to hotels and similar establishments. Overall, it confirmed that the definitions are often not used as intended. Despite the misinterpretation of definitions, interestingly, the analysis revealed that only 15% of the cities think that their currently used definitions do not meet their managerial needs. Twenty-four percent on the other hand, stated they would be revising their city tourism statistics within the next few years.

The survey indicates that 45% of the European cities compile their figures on nights and/or arrivals with the help of official registration of visitors at the place of accommodation. The majority of the cities (46) tend to use only one collection method. Thirty-five of these cities rely on data from official registration of visitors at the place of accommodation. Seven cities, however, base their figures solely on surveys among professional accommodation suppliers and one city (London) only uses estimation based on surveys among visitors. City tourism statistics in Gijón, Malmö and Paris rely on estimations based on regional or national statistics. It is very encouraging that no city bases its data solely on own estimations but uses this technique only in combination with other col-

lection methods. Birmingham, Bologna, Bonn and Copenhagen, for example, use all five of the stated methods to compile their statistics. Hamburg, Metz and Valencia compile their statistics by combining different forms of estimations. While Hamburg combines estimations based on interviews with visitors and estimations based on regional or national statistics, Metz and Valencia further include their own estimations. In general, however, a strong tendency towards collection methods focusing on accommodation suppliers is obvious. Therefore, it is interesting to see if all units of professional accommodation establishments are included in the statistics or if smaller units are excluded. The analysis revealed that in some European countries all cities use the same thresholds. For example, Finland excludes accommodations establishments smaller than ten rooms/bedspaces in their statistics. Similarly, German cities do not include accommodations with less than nine rooms/bedspaces. On the other hand, there are countries where tourism statistics in cities include all paid forms of accommodation establishments, these countries are: Austria, Croatia, Czech Republic, Italy and the United Kingdom. While some cities stated that they only cover hotels, youth hostels and camping (Berne, Malmö), others stated that they only cover hotels, youth hostels as well as bed and breakfast places (e. g. Brussels). Paris claimed that they only include 'classified' hotels and Lisbon stated that they only include 'registered' hotels and similar establishments.

In general, it can be said that cities either only include hotels and similar establishments or that they exclude establishments with less than a minimum number of rooms or bedspaces.

Adjusting figures for increasing the comparability of city tourism statistics

In order to adjust figures to increase the comparability of city tourism statistics, external information can be taken into account. For instance, the figures for London in Figure 3 are based on estimations from visitor surveys. The basis for the 126mn nights from the ranking is the London metropolitan area, which has 33 boroughs and covers an area of more than 1,500 km².[1] According to Visit London, the official visitor organisation for London, the share of visits to friends and relatives (for arrivals) in London is approximately 23%. These 23% include visits to friends and relatives no matter where the guests spend the night. In order to derive figures for the number of nights spent in commercial accommodation establishments, the room occupancy can be taken into account. According to Visit London, the total hotel room capacity in London is about 100,000 and according to industry reports, there is a room occupancy of 85% in this area. Assuming that all establishments are open 365 days a year, and that roughly two individuals share one room, we can estimate 62mn commercial bednights for London. In fact, Visit London estimates about 65mn bednights in commercial establishments in this area. That implies that approximately half of the bednights published are estimated to take place in commercial establishments, which is inline with information, by the International Passenger Survey data from the Office for National Statistics.[2]
Another issue concerning the London figures is the area covered by the statistics. Because the area covered spreads out about 1,500 km² it is often published as 'London greater city area'.

1 'London' should not be mixed up with 'the City of London'. 'The City of London' is only the historic core of London. It is often referred to as the 'Square Mile', as it is almost exactly one square mile (2.6 km²) in area (Source: Wikipedia).

2 The International Passenger Survey data refers to international nights.

But even when comparing London only with other cities that also include suburban regions in their tourism statistics, big differences can be found. For instance, the greater city area of Vienna consists of seven communities, which add just 245 km² to the city area of Vienna. The inclusion of the greater city area in Vienna only amounts to approximately 7% of the total number of bednights.[3]

2.7 Conclusion

Given that reliable comparisons require identical survey designs and definitions, the main message emerging from this chapter is that data collected from accommodation statistics is the most available data and is therefore a good reference point for comparative analyses of city tourism in Europe. The minimum standard on city tourism statistics appears to be the collection of capacity data and data of arrivals and bednights in all paid forms of accommodation establishments or in hotels and similar establishments by means of accommodation statistics.

The analysis also showed that aside from compiling data from accommodation suppliers, other collection methods are in use. Therefore, the data should not be compared directly and it should not be generalised. Absolute figures should only be compared when other destinations provide figures for exactly the same category. In order to overcome comparison problems due to differing definitions and collection methods, comparative analyses and rankings based on the monitoring of relative changes rather than absolute values are essential. Furthermore, the median instead of the arithmetic mean should be used when aggregating data, since it is a measure that is more robust against outliers.

For further insight into the status of European city tourism statistics refer to 'The Definition and Compilation of European City Tourism Statistics' (Ostertag, 2007).

Websites of interest

http://www.unwto.org/statistics/index.htm – UNWTO statistics
http://ec.europa.eu/eurostat – EUROSTAT
http://www.oecd.org/home – OECD
http://www.tourmis.info – Tourism Marketing Information System TourMIS
http://www.statistik.at – Austrian Statistical Office
http://www.austria.info – Austrian National Tourist Office
http://www.wien.info – Vienna Tourist Board
http://www.visitlondon.com – Visit London
http://www.tourismtrade.org.uk/MarketIntelligenceResearch/default.asp – VisitBritain's Insight and Market Intelligence Pages
http://www.statistics.gov.uk/ssd/surveys/international_passenger_survey.asp – UK International Passenger Survey (Office for National Statistics)
http://www.europeancitiestourism.com – European Cities Marketing

3 (Source: Statistics Austria)

Review questions

(1) What are the benefits for a city tourism organisation using comparable city tourism statistics for strategic marketing planning?
(2) What are the main differences in European city tourism statistics concerning definitions and survey methodologies?
(3) Who are the primary and secondary users of city tourism statistics?
(4) What are the main problems in applying the UNWTO's International Recommendations for Tourism Statistics (IRTS 2008) in general and for city tourism statistics in particular? What are the gaps between theory, practice and reality?

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Assessing the Significance of City Tourism in Europe

3

Ulrike Bauernfeind, Irem Arsal,
Florian Aubke and Karl Wöber

3.1 Purpose and objective

This chapter continues the focus on city tourism, by assessing the significance of city tourism in Europe compared to European tourism overall. In doing so, the focus is not only on the current situation but also on possible future developments, thus the chapter follows two distinct objectives. Firstly, to provide a comprehensive analysis of the role city tourism played in Europe in past and present, and secondly, to provide some outlook into the future development of European city tourism. In particular, the chapter attempts to provide an answer to the question: Based on past and present experience, how is the share of city tourism likely to develop in the years to come? For this purpose, a number of common forecasting methods are briefly introduced and their applicability to city tourism forecast is analysed. At the end of this chapter, the reader shall have a critical understanding of a) the challenges attached to European city tourism data, b) commonly applied forecasting methods and their appropriateness, and c) the role city tourism plays in Europe relative to overall tourism.

3.2 Introduction

The popular voice often states that tourism is a significant – if not the most significant – industry sector for most European countries, in addition city tourism is often viewed as a major contributor. For example, a study commissioned by the German Federal Ministry of Economics and Technology viewed city tourism as the largest growth sector for the past 10 years with a growth rate of more than 40 % (German Federal Ministry of Economics and Technology, 2006). Although city tourism is certainly estimated to have a significant contribution to the overall importance of tourism in Europe, hardly any study is reporting on the total volume of city tourism in Europe and comparing it to overall tourism (Page and Hall, 2003; van den Berg, van der Borg, and von der Meer, 1995).

The previous chapters introduced some more generic concepts and sources of city tourism statistics and TourMIS as a marketing information system. This chapter builds on the previous, and thus readers are encouraged to review the challenges of compiling and using city tourism statistics. The rationale behind measuring the significance of city tourism in

Europe is mainly to critically question the popular voice stated above.

The remainder of the chapter is organized as follows: First, the sources of data for the current analysis are described, and the methods of data compilation and cleaning are outlined. Then, the status quo of European city tourism is portrayed, firstly on an aggregated level, then with a focus on the top 20 city destinations in Europe. Before the share of European city tourism is forecasted until 2020, most commonly applied forecasting methods are introduced and their appropriateness is determined. The chapter closes with an outlook of the future of European city tourism, for the first time including the present economic crisis as a factor.

3.3 Quantifying European city tourism

First, European city tourism is outlined in terms of arrivals, bed nights, average length of stay and the development of these key figures during the past years will be given. The aim is to provide an overview about the significance of European city tourism compared to tourism overall. Additionally, the top 20 European cities will be the focus of an analysis.

For the following comparisons, the data sources primarily used are TourMIS, Eurostat, the statistical office of the European Union, and tourism figures provided by the United Nations World Tourism Organization (UNWTO). However, only a limited number of cities enter their data into TourMIS and therefore, additional sources and data compilation were required. Currently European Cities Marketing (ECM) compiles data for around 80 European cities on a regular basis. These data can also be downloaded from TourMIS. The criteria of being a 'city' proposed by ECM include having more than 2,000 rooms in commercial accommodations, one congress centre with at least 1,000 seat capacity, an international airport within one hour's reach of the city's centre, an important historical heritage, a minimum CTO budget of 250,000 ECU, regular important cultural events, and a population of more than 100,000. Among these criteria only the latter was considered in this study to cover as many European cities as possible regardless of e. g. their importance in convention and meetings tourism. However, in Europe, there are more than 400 cities that fit to this criterion. Although the cities reporting in TourMIS are probably the most important ones in city tourism, the figures for all other cities still need to be estimated for the purpose of completeness and comparability. Therefore, in spring 2004 more than 30 students participating in a tourism forecasting class at the Vienna University of Economics and Business started compiling information for the 400 cities. Data searched by the students included figures for bed nights, arrivals, bed spaces, hotels, passengers at airports, the area of the city in square kilometres, population, various indicators of attractiveness, etc. Information was obtained from a number of data sources including TourMIS, consulting Internet resources (e. g. statistical offices) or contacting City Tourist Offices' (CTOs) managers and government representatives. In principal, bed nights and arrivals for the European countries and cities are measured in all forms of accommodation including hotels and similar establishments plus other collective accommodation such as campsites or holiday dwellings (Eurostat, 1995). If information for this definition was unavailable, then data for hotels and similar establishments were used. If only few data points in the time series were missing, the data was estimated by all different sources of information using well approved imputation and extrapolation methods. However, in cases where the complete time series was unavailable, the cities were excluded from the analysis. The following European cities with a population of more than 100,000 are currently not covered by this study (not enough infor-

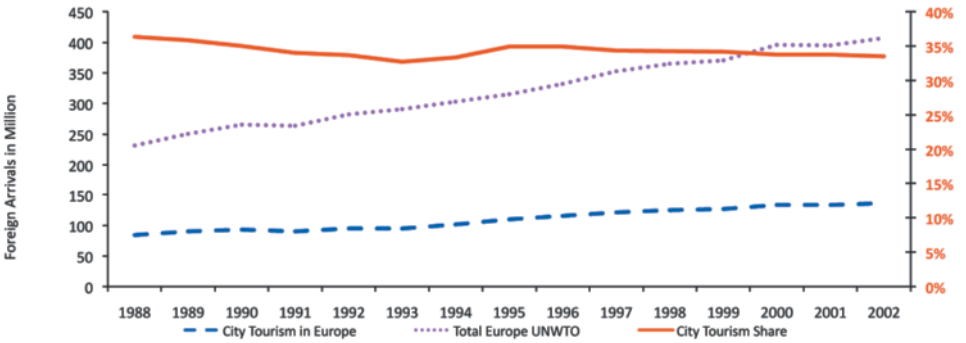

Fig. 1 Comparison of foreign arrivals in all forms of accommodation establishments in European cities to European tourism in general

mation was found allowing for a reasonable estimation): Namur (Belgium); Stara Zagora, Pleven, Sliven, Dobric (Bulgaria); Liberec, Hradec Králové (Czech Republic); Tartu (Estonia); Oulu (Finland); Gaziantep, Merzifon, Kayseri, Eskisehir, Diyarbakir, Urfa, Samsun (Turkey); Leeds, Kirklees, Wigan, Sunderland, Bolton, Plymouth, Stoke-on-Trent, Southampton (Great Britain). Nevertheless, 379 cities remained and were analysed according to their city tourism development between 1988 and 2002. Additionally, estimates for the cities were produced applying different forecasting methods.

As far as the figures for tourism in Europe on a countrywide level are concerned, the standards of the UNWTO were used. The UNWTO includes the European Union member countries, as well as Norway, Switzerland, Armenia, the Russian Federation, Liechtenstein, Andorra, Bosnia & Herzegovina, the Former Yugoslav Republic of Macedonia, Israel, Montenegro, Turkey, Croatia and Serbia. However, Bosnia & Herzegovina, Andorra, the Former Yugoslav Republic of Macedonia, Israel, Malta, Montenegro and Serbia were not covered by this study since no city time series were available. Only foreign arrivals were considered excluding domestic tourism from this analysis.

3.3.1 European city tourism compared to overall tourism – the status quo

City tourism is often seen as a significant or even major part of overall European tourism. Some indication of volume and direction of travel flows in European city tourism exists, yet the scope and impact remains largely unknown. There is little doubt that a high percentage of tourism volume and a much higher percentage of European business and professional travel volume were absorbed by European metropolises; however, these assumptions have not yet been empirically confirmed. This chapter demonstrates the significance of European city tourism by using data from 379 cities. This data series is available from 1998 until 2002. Furthermore, for 67 European cities the time series covering the period 1991–2006 is available. The analysis will also compare the top 20 city destinations (in terms of the highest bed night volume for the year 2006) to the other 67.

European tourism overall increased by 76% from 231.6 million arrivals in 1988 to 407 million in 2002. Although development of city tourism was similarly favourable in this time period (85 million arrivals in 1988 and 137 million in 2002) the rise in demand was only 61%, thus significantly lower than for tourism

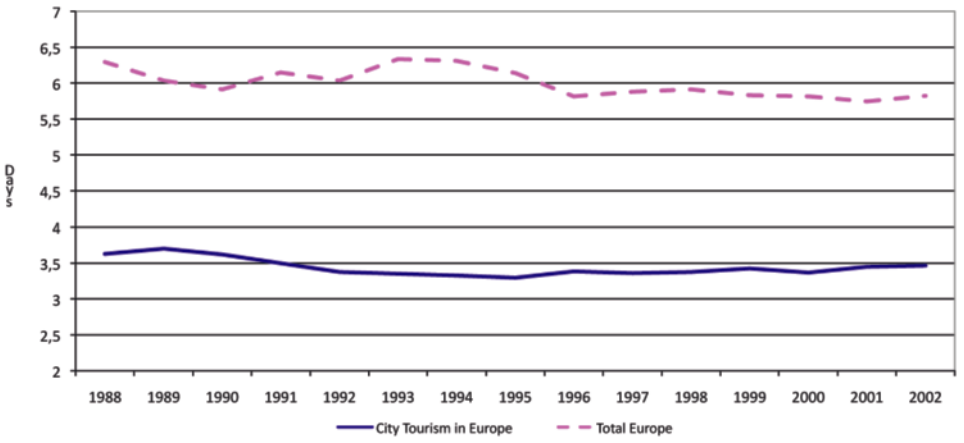

Fig. 2 The average length of stay in city tourism compared to tourism overall

overall (see city tourism share in Figure 1). In 2002, 379 cities generated 137 million arrivals which accounts for 33.5% of overall tourism in Europe.

City tourism traditionally experiences shorter length of stays than other forms of tourism, which is illustrated in Figure 2 (3.4 days in cities whereas 5.8 days in overall Europe in the year 2002). The average duration of stay decreased from 1988 until 2002. The average length of stay dropped from 6.3 in 1988 to 5.8 in 2002 when looking at tourism in Europe overall. The average duration of city trips has decreased by 0.2 days (from 3.6 days in 1988 to 3.4 days in 2002).

For the more recent years until 2006, the data for this large sample of almost 400 cities is not yet available. Therefore, a smaller sample was analyzed with a focus on recent developments of tourism bed nights in the respective destinations. Bed night data compiled by the Eurostat, the European Cities Marketing (ECM) and statistics available on TourMIS were used to compare the changes in the performance of European city tourism to European tourism in general for the time period 1990 until 2006. Data for both, domestic and foreign tourism was considered in this comparison. The city sample includes 67 cities[1] and the country sample comprises 32 countries (the 27 European Union member countries as well as additional five countries, i. e. Switzerland, Norway, Croatia, Liechtenstein and Iceland). The outcome is shown in Figure 3 which illustrates the changes in the performances of one year compared to the previous year. The country peak in 2000 was mainly due to major bed night increases in Spain and Italy. Figure 3 also demonstrates how different the city and country performance may be from each other.

Next, the top 20 European urban destinations are investigated. The TourMIS data entered by the cities themselves or provided by

1 Amsterdam, Antwerp, Augsburg, Barcelona, Berlin, Bilbao, Bologna, Bratislava, Bregenz, Bruggen, Brussels, Budapest, Cagliari, Copenhagen, Dijon, Dresden, Dublin, Dubrovnik, Eisenstadt, Florence, Genoa, Gent, Gijón, Göteborg, Graz, Hamburg, Heidelberg, Helsinki, Innsbruck, Klagenfurt, Linz, Lisbon, Ljubljana, London, Luxembourg City, Malmö, Milan, Munich, Münster, Naples, Nuremberg, Olomouc, Oslo, Palermo, Paris, Prague, Reykjavík, Rome, Salzburg, Santa Cruz de Tenerife, St. Pölten, Stockholm, Tallinn, Tampere, Tarragona, Triest, Turin, Turku, Valencia, Venice, Verona, Vienna, Weimar, Würzburg, Zagreb, Zurich

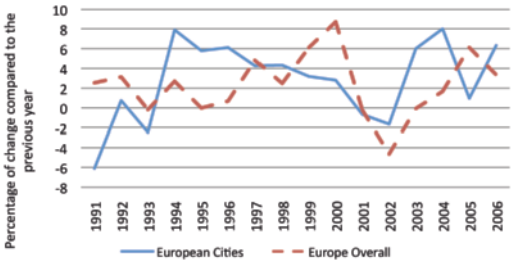

Fig. 3 Changes of total European bed nights compared to European city bed nights

Fig. 4 Comparison of the performance of the top 20 city destinations to the 67 cities sample (in terms of bed nights)

the ECM served as the data basis for a further comparison between the development of the top 20 and the other 67 cities included in the TourMIS sample.

3.3.2 Development of the top 20 European tourism cities

First, the arrivals data from 2006 are compared to the bed night data from the same year for the top 20 cities and comparatively ranked. London, Paris and Rome lead the table in both measures, bed nights and total arrivals, yet the further down in the ranking one goes, differences become apparent e. g. Dublin is better performing when looking at the bed nights, the same is true for Prague or Budapest. Remarkable in total numbers is London, accounting for more than triple the bed nights of Paris, its unofficial competitor in European city tourism. Eight of the 20 big players have bed night figures of more than 10 million a year (Table 1).

When the performance of the 67 cities sample is compared to the top 20 European city destinations (Figure 4), the trend is very similar. City tourism had increased, but experienced a decline in 2001 and 2002, possibly due to September 11. The other earlier decline in 1991 may have certainly been caused by the Gulf crisis. Another remarkable observation is that it seems that the gap between the two samples seems to grow, suggesting the city tourism destinations' overall sample is registering slightly higher increases than the top 20 cities. Nevertheless, the proportion of the top 20 to the overall sample is quite impressive with the top 20 cities accounting for 86% of the bed nights of the 67 cities.

3.4 Forecasting European City Tourism

The objective of this chapter is not to convey the fundamentals of statistical forecasting; instead we refer the reader to the seminal work on statistical forecasting in tourism "Forecasting Tourism Demand, Methods and Strategies" by Douglas C. Frechtling for a refresher. None-

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Table 1 Top 20 arrival and bed nights ranking based on TourMIS data for 2006

City	Bed nights 2006 (in thousands)	Bed nights ranking	Arrival Ranking
London	126,000	1	1
Paris	35,505	2	2
Rome	28,174	3	3
Dublin	22,974	4	6
Berlin	15,901	5	5
Barcelona	14,771	6	4
Prague	11,278	7	10
Vienna	10,088	8	8
Munich	8,859	9	9
Amsterdam	8,587	10	7
Hamburg	7,177	11	11
Milan	6,765	12	12
Budapest	6,009	13	15
Lisbon	5,742	14	14
Florence	5,697	15	16
Venice	5,388	16	18
Stockholm	5,348	17	13
Brussels	4,836	18	–*
Copenhagen	4,627	19	–*
Dresden	3,499	20	21

* For Brussels and Copenhagen no data were available for the arrivals 2006

theless, in order to provide a logical entry into the chain of arguments made in this chapter, a brief overview of purpose and practices of forecasting tourism demand is made.

Forecasting is an attempt to foresee the future by examining the past. Naturally, historical data is the basis for forecasting, yet what distinguishes a forecast from a mere manipulation of numerical functions is a judgmental component. Any quality forecast, however, is derived in an objective and systematic fashion and combines objective data with subjective guesses and hunches of the analyst. Forecasts are generally classified into two general categories, qualitative and quantitative forecasting. Sometimes, a third category is used in addition, in which a combination of both is termed "forecasting for decision making" (Choy, 1984).

Qualitative methods are based on individuals' judgements e. g. the often used and widely known Delphi method relies on experts' opinions as data basis. The World Tourism Organisation uses in its UNWTO World Tourism Barometer a panel of tourism experts not only for rating current performances but also for giving opinions on future developments. The qualitative method of the jury of expert opinions relies on experts meeting and reaching consensus on a certain forecasting question (Frechtling, 2001, p. 213). Another qualitative method would be a consumer intention survey asking consumers whether or not they are planning a trip (Frechtling, 2001, p. 227).

The combination of objective and subjective forecasting methods goes in line with the view that a mere extension of historical data into the future alone does not yet constitute forecasting, but that a judgmental component is necessary to create meaningful and worthwhile forecasts. A preference for combined forecasting methods (i. e. improved forecasting accuracy) is repeatedly expressed in the literature (Song and Li, 2008). In this chapter, the focus lies on assessing the significance of city tourism, therefore the decision making component of the study is relatively minor. In consequence, the chapter will focus on quantitative forecasting methods and will leave the subjective interpretation of results to the stakeholders of this book.

As for the quantitative forecasting methods, one commonly distinguishes between time series, or extrapolative methods and causal methods. Causal methods establish a cause-and-effect relationship by identifying the explanatory variable and building a mathematical expression that explains the effect on the forecast variable. For example, tourism managers who consider expanding the transport network to a city may wish to first establish a causal relationship between transport options to the city and number of arrivals. Once such a causal effect has been positively established, the decision makers can forecast the total number of arrivals by adjusting the transport variable. Extrapolative methods, on the other hand, do not focus on the predictive power of external variables, but instead utilize historic data to draw an objective picture of the future.

As far as the forecasting methods are concerned there is no common conclusion in the research community on which models are optimal in which situations, not even on whether to use complex models or just stick to naïve models and exponential smoothing (Frechtling, 1996). In practice, the problems faced by tourism managers are so complex that simple heuristics are applied, following the philosophy of rather being 'approximately right' than being 'precisely wrong'. In general, the concept of parsimony prevails, meaning the simplest model with the best predictive power is likely to be applied (Nikolopoulos, Goodwin, Patelis, and Assimakopoulos, 2007). Therefore, the forecast accuracy is considered the ultimate basis of decision on which forecast method is to be applied.

Questions

Which are the two broad categories of forecasting? Why does forecasting have such high importance in tourism?

3.4.1 Assessing Forecast Accuracy

Forecasting tourism data is of considerable value to tourism managers as well as policy makers, thus making the accuracy of forecast models the most important criterion. Due to its clarity and intuitiveness, the most commonly applied measure of forecast accuracy relates to the forecast error, i. e. the arithmetical difference between the forecasted and the eventually observed value. Forecast errors can be expressed in absolute terms (i. e. absolute difference between forecasted and observed international tourist arrivals), however measuring percentage errors relative to the absolute values allows the forecaster to compare forecasting models across different time series (Frechtling, 2001). The Mean Average Percentage Error (MAPE) is a sum of the absolute errors for each time period divided by the actual value for the period and is expressed as:

$$MAPE = \frac{1}{n} \times \left(\frac{|e_t|}{A_t} \right) \times 100$$

Where: n = number of periods
e = absolute forecast error
A = actual value of the variable being forecasted
t = some time period

Table 2 Forecasting Methods Applied in this Study

Model	Description
Naïve 1	Forecast value for the period is equal to the observed value of the proceeding period
Naïve 2	In addition to the most recent observation, the upward or downward change that occurred towards the proceeding observation is used to predict future values
Single Moving Average (SMA)	Forecasts are obtained by averaging the most recent periods excluding older numbers (also called "smoothing")
Single Exponential Smoothing (SES)	A higher weight is given to more recent values when conducting the forecast, applies one smoothing factor
Double Exponential Smoothing (DES)	Exponentially reducing weights are applied to past values like in SES but DES uses two smoothing factors and allows handling trends
AutoRegressive Integrated Moving Average (ARIMA) or Box-Jenkins Approach	Two forecasting methods, autoregression and the moving average, are used to predict future values

The interpretation is intuitive, the smaller the MAPE value, the more accurate the forecast, thus methods with lower MAPE values outperform forecasting methods with higher MAPE values. Lewis's (1982, in Frechtling, 2001, p. 26) interpretation of the MAPE values is a means to judge the forecasting accuracy – less than 10% is highly accurate, 11–20% is considered a good forecast, 21–50% is a reasonable forecast and more than 50% is an inaccurate forecast.

The remainder of this chapter applies extrapolative methods on European tourism arrivals data. Without debate, causal models of city tourism are informative but (a) would not provide any insight into the significance of city tourism and (b) often suffer from a complex and ill-defined array of explanatory variables. For a review of econometric forecasting models, see Witt and Witt (1995). The possibilities for extrapolative methods have clearly increased enormously in the past decades, mainly due to the quick advances in computational power and the analytical programs that came with it. While the complexity of extrapolative methods is clearly recognized, the authors focus on the most commonly applied extrapolation methods (Armstrong, 2001) as explained in Table 2.

The above outlined forecasting methods were applied to the city tourism arrival figures. Calculations were either done with Excel or SPSS. First a brief description of the applied methods is given followed by sample calculations with the tourism arrival data. The methods will then be assessed on the basis of the MAPE. The best performing model will be used to demonstrate a forecast of city tourism figures until 2020. Finally, this forecast will be compared to the UNWTO European tourism arrivals predictions in order to give an estimate whether the significance of European city tourism will increase or decrease when compared to tourism overall.

3.4.2 Naïve Forecasting

Naïve forecasting methods are based solely on the most recent information available, arguing that the most recent observation is the most accurate approximation of future occurrences (Hanke, Wiechern, and Reitsch, 2001). They are obtained with minimal effort and data

manipulation (Shim, 2000), but although naïve forecasting may be perceived simplistic, it can be suitable when little data is available and the object of forecast is relatively stable. Several naïve forecasting methods are possible, yet the two most common are the Naïve 1 and Naïve 2 forecasting methods.

The Naïve 1 forecast method simply states that the forecast value for the period (t) is equal to the observed value of the proceeding period (t-1) (Makridakis, Wheelwright, and Hyndman, 1998). It is expressed in algebraic terms as:

$$\hat{y}_t = y_{t-1}$$

The Naïve 2 forecasting methods assumes that in addition to the most recent observation, one should also include the change that occurred towards this proceeding observation, that is, if the final observation led by a decrease, one should include this decrease in the forecast (Makridakis et al, 1998, Newbold and Bos, 1994). Again in algebraic terms, the Naïve 2 forecasting methods reads:

$$\hat{y}_t = y_{t-1} + P\,(y_{t-1} - y_{t-2}), \text{ where}$$

P is the proportion of change between period t–2 and t–1 that was chosen to be included in the forecast. The Naïve 2 method is considered a useful tool for a series that trends upward or downward (Frechtling, 2001).

According to Hanke, Wiechern and Reitsch (2001), naïve forecasting methods are frequently applied since they are not costly, easy to implement and easy to understand. Particularly for short-term forecasts, naïve methods are often the tools of choice (Heizer and Render, 2001). Table 3 shows figures of a Naïve 1 and Naïve 2 forecast and its MAPE when applied to the European tourism arrivals numbers.

Furthermore, extrapolative forecasting methods were applied to have a look at how city tourism could develop in the future. The implications of forecasting are of direct effect to tourism businesses. Airlines might plan their routes accordingly when the demand for a city destination is estimated to increase or decrease. It has to be noted that demand for destinations may also be created by the carrier, something that could be observed with the growth of low-cost airlines. Large international hotel chains may base their decision whether to build or buy new hotel complexes in a certain city on forecasts for the upcoming periods. Tour operators can decide on offering packaged tours to certain cities by considering estimates for the future. However, here it is important to distinguish between short-term amendments to supply (such as additional routes or planes on popular routes) and long-term investments such as the acquisition of hotel properties or improvement of infrastructure. Each of these certainly has substantially different forecasting requirements.

3.4.3 Single Moving Average (SMA)

The single moving average (SMA) uses the numbers of the most recent periods to predict future figures. The important assumption of the single moving average method is that, the more recent the data, the higher their relevance is. However, all values included have the same weight; older values are just excluded from the calculation of the single moving average. The more periods are chosen to be included in the calculation of the single moving average, the higher will be the smoothing effect. The next step would be to assign weight to periods, e. g. if there was a crisis in a particular period, the results of this period might receive a lower weight to distort the predicted values not too much. The equation for the single moving average is:

$$F_t = \frac{A_{t-1} + A_{t-2} + \ldots + A_{t-n}}{n}$$

F represents the forecast value, A the actual value, t is some time period and n the number of time periods (Frechtling, 2001). Figure 5 compares the forecast with the actual data and

Table 3 Results of Naive Forecasting

Year	Actual	Naive 1	Naive1_MAPE	Naive 2	Naive2_MAPE
1988	84194832	n. a.	n. a.	n. a.	n. a.
1989	89955199	84194832	18.98	n. a.	n. a.
1990	93077232	89955199	18.75	97068764	9.12
1991	89840299	93077232	18.32	98299729	16.60
1992	95172703	89840299	24.56	88382836	25.18
1993	95212281	95172703	17.50	102463871	15.70
1994	101218306	95212281	14.08	96865486	14.87
1995	109971517	101218306	17.98	108559590	12.62
1996	116007721	109971517	18.68	125714400	30.49
1997	121183618	116007721	13.93	125306846	12.04
1998	125027109	121183618	13.05	127801893	12.39
1999	126592871	125027109	15.36	129889981	12.34
2000	133813605	126592871	14.06	130461349	11.48
2001	133483351	133813605	16.71	145480742	47.99
2002	136304776	133483351	11.65	135509859	9.93
2003	n. a.	136304776	n. a.	140236458	n. a.

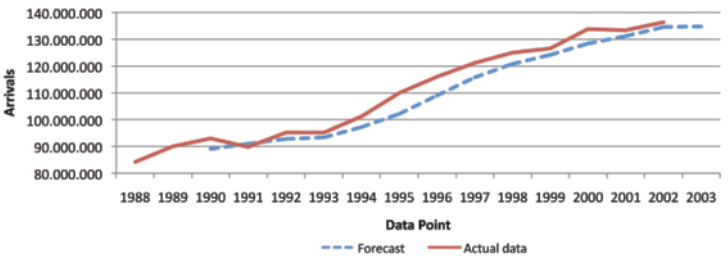

Fig. 5 Application of Single Moving Average (SMA)

shows that the forecast was less optimistic than the actual performance was.

3.4.4 Exponential smoothing

Exponential smoothing is the next level in complexity and double exponential smoothing can handle linear trends (Frechtling, 2001). In general, exponential smoothing is attaching weights to the values, higher weights to the more recent data and lower weights to the older ones. Thus, while simple moving average is excluding older values, exponential smoothing includes them but is weighting them with lower importance than the more recent ones. Therefore, exponential smoothing allows varying the significance of older values. Single exponential smoothing applies one smoothing factor on stationary time series. The following formula is used to calculate forecasts with the SES method:

$$F_t = F_{t-1} + \alpha\,(A_{t-1} - F_{t-1})$$

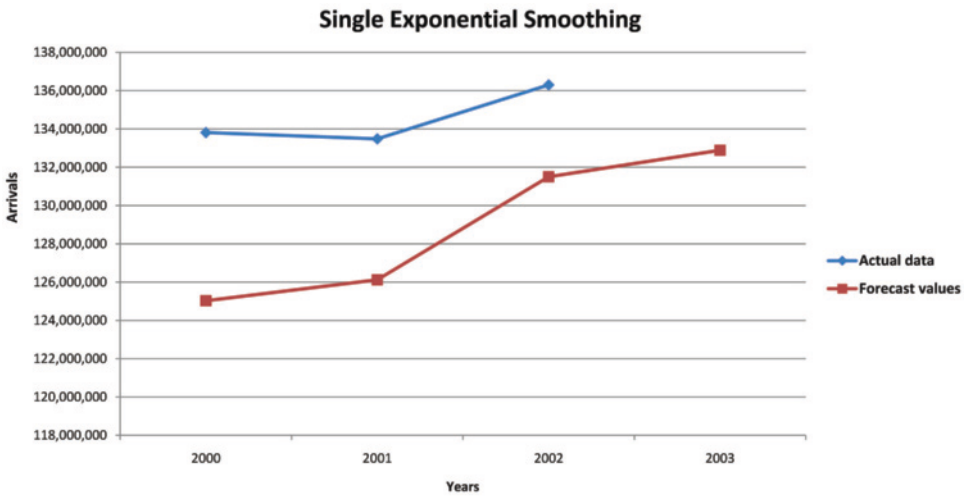

Fig. 6 Application of Single Exponential Smoothing (SES)

F being the forecast value, α = the smoothing constant between 0 and 1, A = actual value and t = some time period (Frechtling, 2001). Alpha (α) is the smoothing constant which can have values between zero and one. It determines the weight of the previous values in the time series. Zero would mean all values would be weighted the same; the higher the α value is, the higher the most recent values are weighted.

In our example SES allows forecasting one period ahead like the SMA. The smoothing parameter was 0.3. Figure 6 shows the forecasts resulting from SES compared to the actual city tourism data for the years 2000 until 2003. Forecasts are less optimistic than actual arrival numbers.

In this study double exponential smoothing (DES) and the Holt model were applied enabling the consideration of trends and using two smoothing factors (Schröder, 1994). The formulas behind double exponential smoothing are briefly outlined (Frechtling, 2001).

The Levels or values are calculated by
$\alpha A_t + (1 - A)(L_{t-1} + b_{t-1})$
The Trend of the series is obtained by
$b_t = \alpha (L_t - L_{t-1}) + (1 - \alpha) b_{t-1}$

The Forecast is computed by
$F_{t+h} = L_t + hb_t$

(L = level of the series, α = level and trend smoothing constant between 0 and 1, A = actual value, b = trend of the series, t = some time period, h = number of time periods to forecast)

Table 4 compares the forecasts of DES and ARIMA to the actual tourism arrival numbers. For double exponential smoothing forecast, the smoothing parameter was 0.1. Again, predictions are more cautious than the actual data values were. Furthermore, forecasts up to the year 2020 are indicated.

3.4.5 AutoRegressive Integrated Moving Average (ARIMA)

The autoregressive integrated moving average or Box-Jenkins approach is an advanced extrapolative method using two forecasting methods, the autoregressive and the moving average component (Frechtling, 2001). The complex ARIMA method requires five

3

Table 4 DES and ARIMA Forecasting Results

Year	Actual	DES	ARIMA
1988	84194832	83957458	n. a.
1989	89955199	87589848	87899267
1990	93077232	92711766	93516274
1991	89840299	97156036	96772230
1992	95172703	95598297	93866614
1993	95212281	98776915	98285059
1994	101218306	100073250	98723986
1995	109971517	106246215	104657821
1996	116007721	114008411	113762097
1997	121183618	120872404	120804545
1998	125027109	123894569	124873397
1999	126592871	127502873	128288078
2000	133813605	131124311	130323189
2001	133483351	136811883	136950594
2002	136304776	137255256	137993377
2003	n. a.	139250626	139775917
2004	n. a.	142417309	143589637
2005	n. a.	145583991	147116651
2006	n. a.	148750674	150923971
2007	n. a.	151917356	154530611
2008	n. a.	155084039	158300103
2009	n. a.	158250721	161951959
2010	n. a.	161417403	165695002
2011	n. a.	164584086	169371934
2012	n. a.	167750769	173099521
2013	n. a.	170917451	176790224
2014	n. a.	174084133	180509135
2015	n. a.	177250816	184207381
2016	n. a.	180417498	187921436
2017	n. a.	183584181	191623818
2018	n. a.	186750863	195335124
2019	n. a.	189917546	199039773
2020	n. a.	193084228	202749495

Table 5 MAPEs for the Forecasting Methods Applied

	Naïve 1	Naïve 2	SMA	SES	DES	ARIMA
MAPE	11.65	9.93	3.37	5.20	10.94	11.38

steps to obtain a forecast. First, the data series is checked whether seasonality and non-stationarity are found. If so the data needs to be transformed. The next step is to identify the appropriate model which is followed by the estimation. Only if the diagnostic checking of the models is passed, the best model is chosen to perform the forecasting (Frechtling, 2001). Table 4 outlines the forecasting results for the ARIMA and the DES.

ARIMA is slightly more optimistic than double exponential smoothing showing higher values for European tourism arrivals forecasts. According to ARIMA, in 2020, European tourist arrivals will amount to more than 200 million whereas DES predicts 193 million arrivals. Next, the MAPEs of the different methods applied are compared for the year 2002 (Table 5). The goal is to use the best performing method's forecasts for a comparison to tourism arrival forecasts provided by the UNWTO for Europe. This will help in estimating whether European urban tourism is predicted to increase or decrease its share when compared to tourism overall forecasts.

The SMA and SES MAPEs would be the best; however, these methods do not allow a long-term forecast (similarly to the naïve methods). Therefore, DES forecast figures will be applied because its MAPE was best for long term forecasting.

3.4.6 Forecasts of European urban tourism compared to tourism overall

The year 2020 will be the focus for the comparison of European urban tourism and its forecasts (according to the best performing model) to UNWTO predictions for tourism overall. According to UNWTO predictions tourism in Europe will account for 717 million tourist arrivals in 2020 (527 million in 2010). DES forecasts 193 tourist arrivals in European cities for 2020. Thus, the share of urban tourism when compared to tourism overall would be 26.9% in terms of arrivals. When looking at the city tourism share in 1988 it was still 36.4% whereas in 2002 it was almost 3% less with a share of only 33.5%. The forecasts for 2010 predict a share of 30.6% In conclusion, predictions show a significant decline in the share of city tourism when compared to European tourism arrivals overall. The share of city tourism will decrease by almost 10% from 1998 until 2020.

Discussion Point

Combination of forecasting methods

Forecasting is an attempt to foresee the future by examining the past. In this chapter, we discussed and demonstrated quantitative forecasting methods. Any quality forecast, however, is derived in an objective and systematic fashion and combines objective data with subjective guesses and hunches of the analyst. Qualitative methods are based on individuals' judgements e. g. the often used and widely known Delphi method relies on experts' opinions as data basis. However, the combination of objective and subjective forecasting methods goes in line with the view that a mere extension of historical data into the future alone does not yet constitute forecasting, but that a judgmental component is necessary to create meaningful and worthwhile forecasts. The judgmental component may include political, economical, and social status quo such as wars, terrorism and economic crisis that may influence future travel decisions. A preference for combined forecasting methods (i. e. improved forecasting accuracy) is repeatedly expressed in the literature (Song and Li, 2008) and would give more accurate forecasting results than applying only one method by itself.

Table 6 Predictions of DES with and without crisis

Year	DES values considering crisis	DES values without crisis
2008	155457224	155084039
2009	150338185	158250721
2010	154290352	161417403
2011	157761248	164584086
2012	161232144	167750769
2013	164703040	170917451
2014	168173937	174084133
2015	171644833	177250816
2016	175115729	180417498
2017	178586625	183584181
2018	182057521	186750863
2019	185528417	189917546
2020	188999314	193084228

3.4.7 Effect of economic crisis on tourism forecasts

Furthermore, an outlook will be given on how the above forecasts change when considering the current economic crisis and its effect on tourism. Tourism Economics (2009) forecasts in their report about the financial crisis and its implications for European tourism a 3.8% decline for Europe. However, a decrease of only 3.8% for city tourism would be rather optimistic since city tourism usually suffers more from crises than tourism overall (e. g. because of less business trips or a reduced number of short city breaks). Therefore, a decrease of 5% is estimated and this drop is considered in an additional forecast showing predictions until 2020. Table 6 outlines the expected lower level of tourism arrivals.

Additionally, the predictions considering the crisis are visualized in Figure 7. The forecasts show that city tourism will continue on a slightly lower level, thus, it will take some time until tourism is back to its growth levels experienced before.

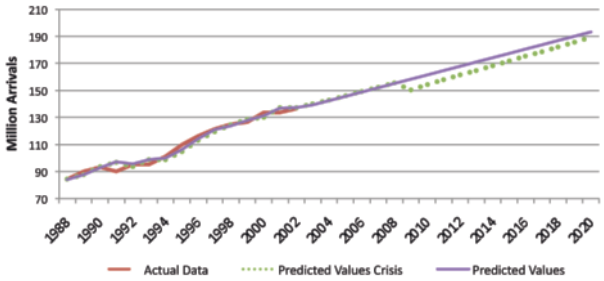

Fig. 7 DES Forecasts including a 5% decrease of city tourism in 2009

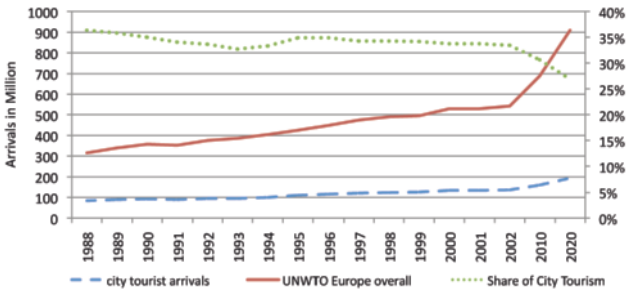

Fig. 8 The Share of City Tourism

3.5 Conclusions

Tourism, as one of the most important industry sectors in Europe, is the focus of many research endeavours. However, the scope and importance of city tourism has hardly been researched empirically. A reason might be that when trying to assess the significance of city tourism, several difficulties, such as data availability or comparability, appear. In an attempt to assess the significance of city tourism in Europe, data for almost 400 European cities with a population of at least 100,000 was collected for the time period 1998–2002. Based on these figures, the aim was to apply different forecasting methods to be able to give predictions for city tourism in Europe. While forecasts on a continent level are provided by the UNWTO, no estimates for European city tourism are available. This study was an attempt to fill this gap. When looking at the sample for a time period of almost 15 years (1988–2002) and 18 years of forecast, it appears that the share of city tourism is decreasing. While the share of city tourism was 36.4% in 1988, estimates show a decreased share of 26.9% for 2020 meaning a loss of almost 10% (Figure 8).

Future studies could try to find out whether this will be true solely for European city tourism or if this negative prediction applies to city tourism around the world. Furthermore, future research could concentrate on particular cities to find out which urban destinations will lose their significance to be able to implement counter-actions.

Web sites of interest

European Cities Marketing (ECM): http://www.europeancitiesmarketing.com
Eurostat – Statistical Office of the European Communities: http://epp.eurostat.ec.europa.eu
WTO – World Tourism Organization (UNWTO): http://www.unwto.org
UNWTO World Tourism Barometer: http://www.unwto.org/facts/eng/barometer.htm

Review questions

(1) How might a qualitative forecasting approach look like?
(2) Name some examples of quantitative forecasting methods and outline their differences.
(3) How would you describe the performance of city tourism in the past and future years?
(4) How would you assess the importance of European city tourism compared to tourism overall in Europe?

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Seasonality in City Tourism: Concepts and Measurements

4

Valeria Croce and Karl Wöber

4.1 Purpose and objective

This chapter intends to provide a conceptual basis to understand the forces shaping demand seasonal fluctuations. The most recent developments of research in this area are proposed as stimulus for discussion on the topic. It also offers an overview of the measurements most widely used to assess seasonality in tourism and proposes a methodology suitable to observe changes of seasonal patterns, illustrated with an empirical example on city tourism destinations.

4.2 Introduction

The analysis of seasonality patterns in urban tourism destinations is not a common practice. Cities are usually regarded to as year-round destinations, whose attractions, including museums, galleries and similar all-weather facilities, can attract visitors any time of the year. Their role as the "heart" of the social, political and economic life of a country makes them attractive to different types of tourists, such as business travelers and a variety of leisure segments, as well as package-tourists and independent travelers with special interests. Such dynamism and complexity makes the overall tourism demand for urban areas less dependent on climatic and seasonal factors.

As a matter of fact, urban areas are not immune to seasonal fluctuations of tourism demand. In Europe, the city tourism market presents a different degree of seasonality, whereby destinations with a single peak of demand compete against cities with a smooth, year-round distribution of visits. The motivation for variety in the pattern of monthly visits founds its roots in the complex system of factors underlying seasonal variations, which goes beyond the climatic seasons' rotation. Market mix characteristics, as well as marketing activities and product differentiation, also act in determining the attractiveness of a place in a specific time of the year (Butler and Mao, 1997; Baum and Hagen, 1999; Butler, 2001).

Seasonality has long been the object of tourism studies, but is still one of the most distinctive characteristics of the industry (Butler, 2001). Tackling seasonality is one of the common goals of strategy plans developed by tourism policy-makers and marketers (Baum and Hagen, 1999), mainly because of its impact on a destination's economic fabric, as well as on its socio-cultural and ecological environ-

ment. From a micro-economic perspective, the major problems are connected with the off-peak period, when the underutilization of inflexible facilities results in a loss of profits. This is especially true for the accommodation sector, where short-term responses to changes in the demand level are difficult to put into action. From a macroeconomic perspective, congestion of public places and infrastructure are the most frequent drawbacks (Koenig and Bischoff, 2005). A deep understanding of the causes underlying this phenomenon is required to correctly approach this problematic. At the same time, the availability of appropriate tools to assess seasonality and analyze the market is a desirable support to enhance the effectiveness of anti-seasonal strategies.

4.3 A conceptual framework of tourism seasonality

Seasonality is the regular, intra-year variation of visits to a destination, a concise definition, which entails the most distinctive features of this phenomenon. Seasonal variations occur every year and tend to manifest more or less in the same period and with the same magnitude (Bar-On, 1975). The characteristic of regularity discerns the seasonal component from accidental changes in the number of visits, due for example to sporadic events or non-recurrent conditions. The temporal frame of one year distinguishes the seasonal from the cyclic component – a phenomenon repeating regularly but over a longer period of time.

On a global level, seasonality is probably the most distinctive feature of the tourism industry (Butler, 2001). The seasonal nature of tourism derives from a few characteristics of the activity itself: holidaymaking requires a minimum amount of free time, which can typically be enjoyed at specific times of the year; holidays are by definition shorter than one year; holidaymakers predominantly practice outdoor activities, such as sightseeing, excursions and sunbathing, which they reasonably prefer to do under favorable weather conditions. Climate and natural conditions therefore play a determining role in understanding temporal variations of visits, though the spectrum of factors generating seasonality in tourism is in fact broader and more complex. Festivals, celebrations, destination marketing, local legislation and even habits produce effects on demand distribution over the twelve months. The comprehensive list of causes of seasonality is widely recognised (Butler and Mao, 1997; Baum and Hagen, 1999; Butler, 2001) and is illustrated in Table 1.

Natural factors refer to temporal variations of natural conditions, such as the temperature, sunlight, rainfall or snowfall. Among the natural factors, climatic aspects are stable and unchangeable conditions (Butler and Mao, 1997), although climatic changes will inevitably affect the shape of seasonality, as we know it today, in many of the world's regions (Smith, 1990), making them less certain and predictable. Predictable seasonal variations influence visitors' expectations about the destination climate prior to their visit when the decision about the holiday destination is made. Instead, weather changes during the day impact the *in situ* activities. On a global level, seasonal climatic differences are greater on higher latitudes than on the equator (Butler, 2000).

Institutional factors refer to human-made decisions affecting society and are enshrined in norms or legislation (Koenig and Bischoff, 2005). As far as tourism is concerned, the institutional factors that have an impact on travel have to be identified within those norms affecting the temporal pattern of work and leisure time, such as the legislation on industrial and school vacations or the calendar of public holidays. Calendar effects significantly have an impact on the seasonality of the series of tourism visits. Differences in the length of months,

Table 1 Factors generating seasonal patterns in tourism by type

Factors category	Category definition	Pull factors	Push factors
Natural	Temporal variations of natural conditions	Hours sunlight, snowfall, etc.	Temperature, rainfall, etc.
Institutional	Human-made decisions affecting the collectivity	Hotels opening season, sport season, etc.	School holidays, industrial holidays, etc.
Cultural/social	Human-made decisions affecting the individual	Cultural and religious celebrations, festivals, events, etc.	Fashion, tradition, inertia, etc.

leap years and moving holidays may produce a regular increase in the demand for a destination (Frechtling, 2007). These factors are predictable, but their occurrence may vary from year to year, such as moving holidays. The relevance of institutional factors may vary consistently across segments. Industrial and school holidays historically dominate the tourism industry and are still highly relevant for specific segments, such as families and industrial workers (Butler and Mao, 1997), but no longer significant for pensioners or DINKY (Double Income No Kids Yuppies). Growing trends such as the ageing population in western countries (the predominant tourists generating markets) and working time flexibility decrease the dependency of travel decisions on specific periods of the year, offering a fertile ground to concretely extend the main season(s). This is particularly true for urban areas – ideal destinations for a short break in addition to the main holidays. This habit became a successful product *per se* in Europe with noticeable results. Visitors' increased propensity to spread holidays in shorter and more frequent trips instead of consuming them in bulk can be easily exploited by urban areas to even out the distribution of visits.

Socio-cultural factors refer to human-made decisions concerning the individual and are therefore more closely connected with the travel motivation. Several forms of special interest tourism, such as cultural and religious tourism, are subject to the factors in this category. Pilgrims travelling to attend a religious celebration or football fans' trips to matches during the season are two examples of seasonal visits connected to special interests. Fashion and industry trends also have an impact on the association of a destination with a specific time of the year since the origins of tourism. It is renowned that the habit of spending winter holidays in mountain destinations started at the beginning of the last century when the practice of snow sports became a recreational activity.

Since the activity of tourism interests at least two locations, the origin and the destination, factors can alternatively act as an attractive (pull) or repulsive (push) force (Lundtorp, Rassing et al., 1999). This aspect is known as the spatial component of seasonality. For each specific origin-destination pair, the final pattern of visits results from the specific, concurrent manifestation of influencing factors at the two locations. The presence of each factor, as well as its strength and the type of impact, may consistently vary for each combination of origin-destination. The mismatch of climate conditions between the origin and the destination, for instance, opens up to opportunities for season extensions. As a typical example for European destinations, the difference of climate conditions makes Mediterranean regions more attractive to Northern Europe markets in the spring and autumn when the climate is mild and not too hot.

4

Questions

Several factors may produce seasonal variations of demand. Which are the main factors causing seasonality in tourism? Which are the three main forms of seasonality affecting city tourism destinations?

The forces shaping the flow of visits do not act in isolation, and the external environment also influences their impact. Firstly, all of the factors may be constrained by supply-side conditions (for instance, hotels' closing period), which alter the availability of services at the destination or the availability of labour force. In some urban areas, whole industrial sectors close for a one- or two-week period with consequent desertification of the area. For these cities, the effect of holidays in their source markets would be nullified by the lack of services. Secondly, demand patterns are shaped by the action of these demand- and supply-related factors both directly and through the mediation of modifying factors, reflecting the conditions of the competitive framework, such as relative prices or market diversification (Butler and Mao, 1997; Butler, 2001). These factors modify the seasonal patterns of demand *mutatis mutandis* the conditions in the origin and in the destination mentioned above.

Patterns of destination demand are shaped by the system of causes described above and typically assume one of the following three forms:

1. No peak destinations, which are characterised by a smooth distribution of international arrivals at the destination with no significant difference between peak and non-peak periods, such as for the city of Brussels;
2. One peak destinations present a concentration of arrivals in one specific period of the year; the peak may take the shape of a pyramid with a steep rise and decline in visits, as in the case of Nice, or be accompanied by shoulder seasons, such as the city of Copenhagen; a shoulder season may be present before and (or) after the peak;
3. Two peaks destinations present a bimodal distribution of visits, which are concentrated in two distinguished periods of the year. The magnitude of the peaks may be equal (as for Milan) or different. In this case seasons can be defined as 'major' and 'minor'.

The no peak distribution is the shape generally attributed to cities (Hall and Page, 2003), though it is evident from Figure 1 that urban destinations cover different degrees of seasonality. For Brussels seasonal variations are indeed negligible, while for destinations like

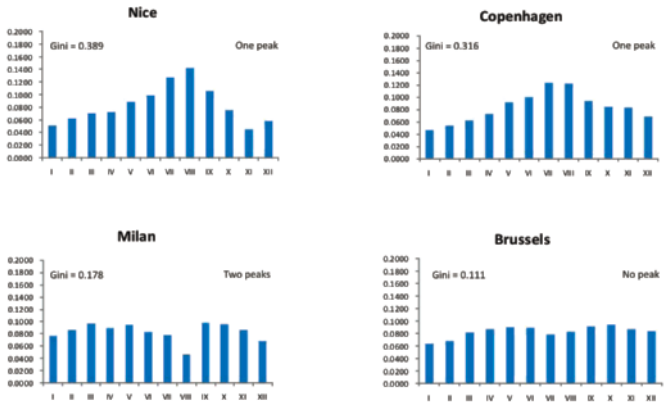

Fig. 1 Seasonal patterns of European cities

Nice and Copenhagen seasonal extension is a goal. Destinations with an unusual pattern like Milan, with a trough in August, benchmarking the distribution of visits against competitors may be helpful to support the development of appropriate marketing strategies. To enhance the efficiency of anti-seasonality strategies, the impacts and the possibilities of a season extension need to be accurately evaluated (Lundtorp, 2001). The measurement of the phenomenon and of its central characteristics is a valid support to provide a first understanding of seasonality intensity, but more sophisticated tools are also applicable to efficiently tackle the problem, as illustrated in the next chapters.

Discussion Point

The determinants of seasonal patterns

Most of the studies in tourism seasonality focus on longitudinal studies involving time series decompositions with the aim of modelling demand with or without the seasonal component. Relatively few authors have examined methods to quantify and compare the degree of seasonality or to assess the importance of factors generating seasonal patterns (Koenig and Bischoff, 2005). Recent research in tourism seasonality focuses on identifying the factors determinant in shaping seasonal demand patterns. Jeffrey and Barden (2001), for example, performed a Principal Component Analysis (PCA) relating the characteristics (location, service quality, management and market aspects) of a sample of hotels in England to their monthly occupancy rates, and found that hotel occupancy performance mainly depends on the type of market served (Jeffrey and Barden, 2001). Rosselló et al. (2004) performed a regression analysis in a study investigating the relationship between a set of economic indicators (per capita Gross Domestics Product, relative prices, exchange rates and consumer price index) and the development of seasonality, finding that when a fall in relative prices occur, seasonality tends to be less acute, while an exchange rate benefiting the tourists results in an increase of demand in the peak season (Rosselló, Riera et al., 2004). Similarly, Capó et al. (2006) used regression analyses to identify which accommodation-related factors determine fluctuations in hotels' opening period for the Balearic Islands. Their findings suggest that the higher the quality category of the hotel, the longer the opening period will be (Capó, Riera, et al., 2006).

4.4 Measuring and analysing seasonality

Depending on the aim of the analysis, a range of different units can be used to analyze the seasonal pattern of a destination. Reflecting the effective data availability, most of the studies on seasonality analyze tourism demand patterns using statistics on the arrivals or overnights of visitors, the former expressing tourists' demand for a location and the latter the load of tourists staying at the destination. Visits can be measured as flow (visitors per time unit) or stock (visitors at a certain point in time). Flows are generally preferred both for statistical and practical reasons, the most straightforward being that stocks can be derived from flows through aggregation (Lundtorp, 2001).

In statistics, seasonality refers to the series component characterizing a distribution (V_t) with movements recurring similarly during a particular time of the year (Frechtling, 2007). In a classical decomposition approach, the seasonal component (S_t) can be isolated from the

others, namely the trend (T_t), the cycle (C_t), together with the error term (e_t) (as in 1). The trend-cycle component is generally estimated by the means of smoothing techniques, such as the moving average (Balladori, 1994).

(1) $V_t = T_t \times C_t \times S_t \times e_t$ where $t = 1, 2, ..., 12$

If the time series model is an additive, the seasonal component for a time period is simply calculated as the difference between the actual value of visits (V_t) and the non-seasonal value ($T_t + C_t$) for each month *t*. If the model best fitting the data series is multiplicative, a widely used method to extrapolate the seasonal component is the ratio-to-moving-averages decomposition method, whereby the seasonal ratios are computed dividing the actual observations by the corresponding moving average values (2): a value of the ratio greater (lower) than one suggests the presence of a seasonal component.

(2) $S_t \times e_t = \frac{V_t}{T_t \times C_t}$ where $t = 1, 2, ..., 12$

In a Box-Jenkins approach, seasonality should be identified examining the autocorrelation coefficients, whereby a high correlation indicates seasonality for the corresponding period (for a more detailed description see Frechtling, 2007).

Yacoumis (1980) suggests the use of the peak-to-average ratio (*R*), which is obtained by dividing the highest peak of the distribution of visits (Max V_t) by the average value (3), as synthetic measure for the amplitude of the seasonal component within the year. The seasonality ratio range is restricted to one and 12: the lower the value, the more equal the distribution of visits.

(3) $R = \frac{MAX\, V_t}{\overline{V}}$ where $t = 1, 2, ..., 12$

Lundtorp (2001) instead suggests the calculation of an index of homophily (4), obtained by inverting the terms of formula (3) to emphasise the similarity between observations. Taking MAX V_t as an indicator of a destination's total capacity, it renders a measurement of the average occupancy rate for a specific year.

(4) $\omega = \frac{\overline{V}}{MAX\, V_t}$ where $t = 1, 2, ..., 12$

Measures of dispersions can also be used to describe central characteristics of a seasonal distribution. Yacoumis (1980) also suggests the use of a coefficient of seasonal variation, which synthesises the dispersion of monthly visits around a non-seasonal value. The coefficient is calculated as the standard deviation of seasonal indices. For each period, for instance a year, seasonal indices are expressed as the ratio between the monthly value and the annual average. The lower the standard deviation, the less seasonal the distribution is.

As a common feature, these indicators assess the amplitude of seasonality based on the central moments of the distribution, but do not provide any information concerning changes in the distribution. Changes in the seasonal pattern have a two-fold nature: they may consist of a 'pure change' when an increase in the visits amplifies the existing seasonal pattern, or a 'pattern change' when visits shift from one month to another (Sutcliffe and Sinclaire, 1980). The analysis of pattern changes is of particular relevance in tourism, since they can be directly the target of specific policies as well as the indirect effect of a strategy aimed to changes in the product or guests mix. The next paragraphs present two methodologies suitable to observe changes of demand's seasonal patterns, illustrated with an analysis of the monthly demand for 20 major cities in Europe.

4.5 Assessing seasonality in city tourism demand

The 20 destinations selected for the analysis account altogether for approximately 180 million[1] bed-nights a year, and represent the most relevant tourism destinations in the European city break market (see Table 2). The focus of the analyses describe later in this paragraph is to observe and compare the typical seasonality of these cities. A 'typical' year is rather difficult to identify, since most of the destinations in exam hosted non-recurrent events in the reference period, which biased the distribution of visits. Vienna and Amsterdam, for instance, celebrated the Mozart and the Rembrandt year in 2006, respectively. Though such celebrations consist in a calendar of themed activities throughout the whole year, the events in the calendar are not all of equal importance and impact. Thematic years therefore produce the same effects as one-time events like the FIFA World Championship, hosted by German cities in July 2005. To smooth the impact of non recurrent events, the series of monthly bed-nights have been averaged over the period 2003–2007[2]. The averaged series of monthly bed-nights have been used as basis for the analyses described in what follows. The data series have been retrieved from TourMIS, the online information system for tourism statistics[3].

1 Average value for the period from 2003 to 2007.

2 The averaged monthly series of bednights have therefore been calculated on a different number of observations, according to data availability in TourMIS. For the majority of the cities, average values result from five (56%) or four (18%) observations. The remaining quota (26%) is equally shared within cities for which the average is calculated on a three- or two-year basis.

3 The data for the city of Madrid have been retrieved from the database of the Spanish national statistics office (www.ine.es). For the other cities, the data have been retrieved from TourMIS (www.tourmis.info).

Software

TourMIS is a Marketing-Information-System for tourism managers whose major aim is to provide information and decision support for tourism managers and scholars. TourMIS not only provides on-line tourism survey data, but also various tools to transform data into precious management information. In its aim of supporting the decision-making and planning process of tourism managers (see www.tourmis.info).

4.5.1 Measuring and benchmarking the amplitude of seasonality

For its sensitivity to distribution skewness, the Gini coefficient is sensitive to both pure and pattern changes and can correctly classify different seasonal patterns (Tsitouras, 2004). Named after the Italian statistician Corrado Gini who first developed the formula in 1912, the coefficient was first used to measure the degree of income inequality across countries and later adopted by a wide range of study areas, among which tourism (Sutcliffe and Sinclair, 1980; Yacoumis, 1980; Wöber, 1997; Lee and Kang, 1998; Rosselló, Riera et al., 2004). The coefficient renders a measurement of the area lying between a uniform distribution and the Lorentz curve, which is the curve connecting the cumulative percentage of the individual monthly shares ranked ascendant according to their size. To analyze the seasonality in visits to a destination, the coefficient can be formally expressed as:

$$(5)\ G = 1 - \frac{2}{n}\left[\sum_i X_i - \sum_i Y_i\right] \text{ where } i = 1, 2, \ldots, n$$

where X_i is the cumulative relative frequency of monthly visits ranked ascendant, Y_i is the rank

4

Table 2 Average bednights and values of the Gini coefficient in 20 European cities and the country where they are located

(a) City	(b) Average bednights (***)	(c) Gini (city)	(d) Country	(e) Gini (country)	(f) Difference (c – e)
Amsterdam	8,233,380	0.157	The Netherlands (*)	0.220	–0.063
Barcelona	11,361,518	0.151	Spain (**)	0.698	–0.547
Berlin	15,421,408	0.217	Germany	0.182	0.035
Brussels	4,967,870	0.111	Belgium	0.225	–0.114
Budapest	5,979,762	0.308	Hungary	0.274	0.035
Copenhagen	4,183,104	0.316	Denmark	0.430	–0.113
Florence	5,665,838	0.224	Italy	0.304	–0.080
Hamburg	6,719,143	0.174	Germany	0.182	–0.008
Lisbon	5,292,236	0.232	Portugal	0.211	0.021
Madrid	12,276,088	0.114	Spain (**)	0.698	–0.584
Milan	6,866,792	0.178	Italy	0.304	–0.126
Munich	8,294,250	0.187	Germany	0.182	0.005
Nice	6,923,115	0.389	France	0.145	0.243
Paris	33,145,429	0.118	France	0.145	–0.027
Rome	16,120,370	0.214	Italy	0.304	–0.090
Stockholm	4,992,124	0.247	Sweden	0.137	0.109
Valencia	3,048,269	0.158	Spain (**)	0.698	–0.540
Venice	5,627,561	0.245	Italy	0.304	–0.059
Vienna	9,391,701	0.244	Austria	0.255	–0.012
Zurich	3,046,190	0.155	Switzerland	0.152	0.003
Average		0.207		0.303	
St. Dev		0.072		0.185	

(*) source: CBS
(**) source: EUROSTAT
(***) average calculated on the monthly bednight series 2003–2007

of fractals and *n* is the number of fractals. The Gini coefficient is terminated in the range from 0 to 1, whereby the lower the value, the more equal is the distribution. One property of the coefficient is indeed to return a value of zero in presence of a uniform distribution, regardless of the number of observations. This can lead to misinterpretation when using the coefficient for benchmarking purposes, since the Gini would return the same value for destinations having an equal distribution of the visits over the whole year or just a short season. Given that tourism series are typically observed at monthly frequencies, this shortcoming can be removed adopting the twelve-month rectangular distribution as fix reference (Tsitouras, 2004).

Each destination is then benchmarked against the ideal uniform distribution over the twelve months. Another desirable property of the Gini coefficient is that it takes into account all the points of a distribution, and is therefore sensitive to changes in its skewness both in case of additional demand and share transfers. If the share of visits increases in the lower-ranked shares (the off-peak months) both because of a 'pure change' (additional demand) or of a 'pattern change' (visits swap from the higher to the lower season, for instance because of an event), the value of the Gini coefficient decreases. Thirdly, a coefficient calculated on shares is less influenced by extreme values, and to be preferred to indicators based on measurements of the standard deviation (Lundtorp, 2001).

The values of the coefficient for each city and the average value for the whole group of destinations are listed in column *c* of Table 2. The values of the coefficient can be used to assess the relative amplitude of seasonality for one destination against its main competitors and the market (in this exercise the group of city). The values of the Gini range from a maximum 0.389 to a minimum of 0.111 (standard deviation = 0.072), denoting overall a low concentration of visits at specific periods of the year. A few important exceptions can be discussed. Figure 2 shows the differences calculated between each city's value and the group average (Gini = 0.207), and with the Gini coefficient of the country where the city is located (calculated on average monthly shares for 2003–2007). In both series, the city is the main object of comparison, therefore a positive (negative) value means that the value of the Gini for the city is higher (lower) than that of its term of comparison. For most cities, the difference lies between ±0.05 points. For the outliners, namely Nice (+0.182), Copenhagen (+0.109) and Budapest (+0.101), seasonality can be seen as an issue to tackle, since the distribution of the visits is rather concentrated. In Brussels (–0.096), Madrid (–0.093) and Paris (–0.089) tourism authorities may prioritise other issues, since the demand for these destinations is almost independent from specific times of the year.

Questions

Which are the main properties of the Gini coefficient which make it a suitable measure of the amplitude of seasonality? Why is it important to use a fix reference when applying the Gini coefficient for measuring tourism demand seasonality?

Different regional levels may be affected by different degrees of seasonality (Yacoumis, 1980). The Gini can also be used to compare the degree of seasonality within the 20 cities and the country where they are located. In four

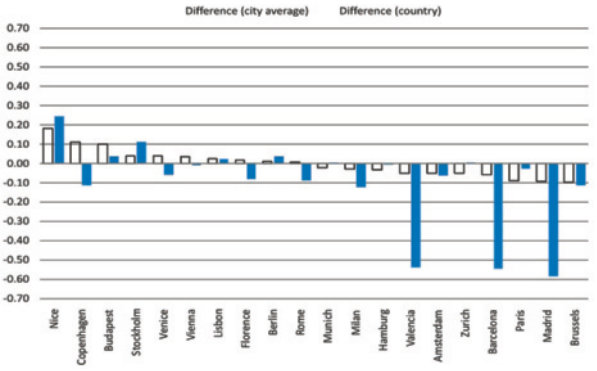

Fig. 2 Differences based on the Gini coefficient values (cities and countries)

cases (Hamburg, Munich, Vienna and Zurich) the amplitude of seasonality in the urban center matches that of the whole country. For most of the remaining cities the monthly series of bednights are more evenly distributed than that of the respective countries. The picture provided by this group of cities reinforces the idea that tourism in urban areas is less seasonal than visits directed towards peripheral areas.

For some destinations, the analysis of seasonality in relative terms provides a more realistic understanding of the phenomenon. Copenhagen for instance scores as the second most seasonal destination among this group. Within the national context, the series of bednights in the capital city is much less seasonal than that of the whole country, as the coefficient value for Copenhagen is approximately one point lower than value for Denmark. Similarly, the Spanish cities' performances, which are rather good in comparison to the group of cities, are outstanding if compared with the highly seasonal national context. These results suggest that in a national context the problem of seasonality should be approached with appropriate measures at each level.

Analyzing city tourism seasonality with TourMIS

The analysis of destination's seasonality has also been implemented in TourMIS (www.tourmis.info). The function can be found in the 'City tourism in Europe' menu. The link 'monthly data' on the top of the page has to be selected to access the section concerning the monthly series of arrivals and bed-nights. A click on the 'Assessing seasonality' link gives access to a drop down menu where selecting the destination for which the analysis has to be performed. The type of time series (arrivals or overnights), the source market and the year of reference can also be specified at this stage. This last step is particularly important to obtain target-oriented results. In fact, investigating the aggregate flow of visitors to a destination over one year is more appropriated to make a resolution about the allocation of an event in the calendar, while the analysis of the overnights distribution for a specific market is more meaningful if a decision about a marketing campaign must be made. The outcome of the query is presented in a tabular form (see below) where the absolute and relative value of the variable selected and the Gini coefficient are displayed. The value of the Gini coefficient for all the destinations in the system is displayed in the table at the bottom of the page to facilitate the benchmarking of the amplitude of seasonality among competitors in the city tourism market.

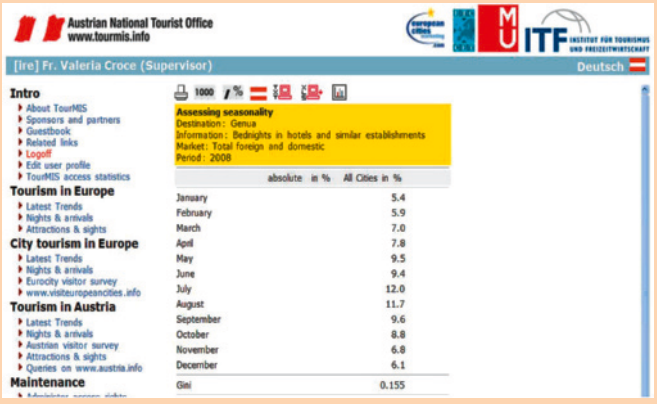

Fig. 3 Assessing seasonality in TourMIS (www.tourmis.info)

4.5.2 Benchmarking seasonal demand patterns

At the operational level, the analysis of seasonality should also provide insight about the temporal ordering of the bed-nights distribution which effectively enables decision-makers to design appropriate anti-seasonal policies. The next analysis is intended to compare the demand for the same 20 European cities, and assess how similar their seasonal patterns are. The aim here is to capture the dynamics of demand concentration over time, to identify groups of cities competing for the same markets, in the same periods. The similarity structure has been investigating using multidimensional scaling (MDS), a method widely used in marketing studies.

MDS analyses are based on proximity measures which are used as input for the algorithm. In this study, Pearson's bi-variate correlation coefficients have been used to assess the similarity between each pair of destinations. The coefficients render a measurement of the degree of association between two distributions, whereby a value of 1 means a strong correlation (-1 stands for a strong negative correlation) and 0 means no correlation at all. The output is a square, symmetric table (see Table 3), where the cities are both the object of the analysis (row) and the element of comparison (column). The result is an appropriate measure of the similarity of series' monthly behavior for each pair of destinations.

To investigate similarities in a systematic way, the Alternative Least Square Scaling (ALSCAL) algorithm (Takane, Young et al., 1977) has been performed on Euclidean distances derived from the correlation coefficients matrix. In general, multi-dimensional scaling algorithms serve to configure a set of objects, each defined in terms of *n* attributes, as a point in a space with lower dimensions. Iterations of the algorithm minimise the differences so that the distances between points in the space have the strongest possible relation to the observed proximities. Using correlation coefficients as input, two close points on the multidimensional map represent two objects with a similar demand pattern, and *vice versa*. The adequate number of dimensions for the perceptual map depends on the Stress, a measure assessing the goodness of fit, whereby the lower the value of the Stress, the better the fit is (Backhaus 2000). The orientation of the axis is instead arbitrary and should provide the best visual support to the interpretation of the configuration. The identification of the "meaning" of objects' positioning can be supported by external information, such as additional objects' properties, or using the inputs as stimuli for interpretation. Hints on the interpretation of the maps were derived from the same input data.

The first analysis is based on the average series of bed-nights for the domestic and international demand. The scaling process was performed with a highly satisfactory fit[4]. The outcome is visualized in Figure 4. The configuration shows a concentration of cities in the center left area of the diagram and a few points spread around the figure. The cities in the main group (Zurich, Amsterdam, Vienna, Budapest, Lisbon, Valencia, Hamburg, Berlin, Barcelona, Venice, Paris and Florence) are typified by a bi-modal distribution of bed-nights, where the importance of the two peaks tends to be remarkably different for the destinations positioned higher on the vertical axis. Within this group, the demand pattern of Zurich, Amsterdam, Vienna, Budapest, Lisbon, Valencia and Hamburg presents a major season (typically around August) and a minor season (around April), while in the remaining cities (Berlin, Barcelona, Venice, Paris and Florence), the two seasons are of equal magnitude and tend to merge into one extended season (from spring to autumn).

4 For the 2-dimensions plot the S-Stress = 0.07 and the Stress = 0.03. For the 3-dimensions model the values were respectively 0.04 and 0.02.

Table 3 Similarity of the distribution for 20 European cities (Pearson's bi-variate correlation coefficients)

Correlations										
City	Paris	Rome	Berlin	Madrid	Barcelona	Vienna	Munich	Amsterdam	Nice	Milan
Paris	1	.800**	.930**	.636*	.858**	.908**	.903**	.791**	.618*	.095
Rome	.800**	1	.844**	.848**	.844**	.653*	.712**	.675*	.392	.55
Berlin	.930**	.844**	1	.563	.947**	.940**	.941**	.910**	.740**	.042
Madrid	.636*	.848**	.563	1	.561	.371	.462	.327	–.063	.720**
Barcelona	.858**	.844**	.947**	.561	1	.825**	.901**	.919**	.750**	.133
Vienna	.908**	.653*	.940**	.371	.825**	1	.917**	.868**	.782**	–.223
Munich	.903**	.712**	.941**	.462	.901**	.917**	1	.828**	.781**	–.046
Amsterdam	.791**	.675*	.910**	.327	.919**	.868**	.828**	1	.798**	–.179
Nice	.618*	.392	.740**	–.063	.750**	.782**	.781**	.798**	1	–.397
Milan	.095	.55	.042	.720**	.133	–.223	–.046	–.179	–.397	1
Hamburg	.889**	.800**	.981**	.522	.963**	.923**	.922**	.955**	.749**	–.022
Budapest	.885**	.773**	.985**	.44	.947**	.936**	.929**	.948**	.818**	–.073
Florence	.891**	.912**	.899**	.661*	.911**	.774**	.782**	.812**	.623*	.301
Venice	.891**	.870**	.955**	.589*	.984**	.841**	.906**	.897**	.752**	.151
Lisbon	.868**	.782**	.978**	.467	.937**	.916**	.893**	.955**	.762**	–.059
Stockholm	.741**	.493	.819**	.183	.834**	.844**	.876**	.866**	.868**	–.316
Brussels	.836**	.829**	.799**	.851**	.722**	.741**	.698*	.630*	.253	.301
Copenhagen	.746**	.481	.808**	.155	.804**	.864**	.855**	.859**	.878**	–.338
Valencia	.824**	.749**	.861**	.552	.941**	.784**	.827**	.854**	.689*	.082
Zurich	.858**	.613*	.903**	.307	.896**	.908**	.930**	.881**	.878**	–.199

Correlations										
City	Hamburg	Budapest	Florence	Venice	Lisbon	Stockholm	Brussels	Copenhagen	Valencia	Zurich
Paris	.889**	.885**	.891**	.891**	.868**	.741**	.836**	.746**	.824**	.858**
Rome	.800**	.773**	.912**	.870**	.782**	.493	.829**	.481	.749**	.613*
Berlin	.981**	.985**	.899**	.955**	.978**	.819**	.799**	.808**	.861**	.903**
Madrid	.522	.44	.661*	.589*	.467	.183	.851**	.155	.552	.307
Barcelona	.963**	.947**	.911**	.984**	.937**	.834**	.722**	.804**	.941**	.896**
Vienna	.923**	.936**	.774**	.841**	.916**	.844**	.741**	.864**	.784**	.908**
Munich	.922**	.929**	.782**	.906**	.893**	.876**	.698*	.855**	.827**	.930**
Amsterdam	.955**	.948**	.812**	.897**	.955**	.866**	.630*	.859**	.854**	.881**
Nice	.749**	.818**	.623*	.752**	.762**	.868**	.253	.878**	.689*	.878**
Milan	–.022	–.073	.301	.151	–.059	–.316	.301	–.338	.082	–.199
Hamburg	1	.980**	.870**	.950**	.976**	.874**	.787**	.857**	.910**	.918**
Budapest	.980**	1	.877**	.946**	.989**	.861**	.709**	.850**	.856**	.935**
Florence	.870**	.877**	1	.939**	.863**	.667*	.747**	.676*	.847**	.802**
Venice	.950**	.946**	.939**	1	.929**	.817**	.733**	.805**	.911**	.886**
Lisbon	.976**	.989**	.863**	.929**	1	.807**	.736**	.788**	.843**	.888**
Stockholm	.874**	.861**	.667*	.817**	.807**	1	.497	.983**	.835**	.946**
Brussels	.787**	.709**	.747**	.733**	.736**	.497	1	.494	.745**	.597*
Copenhagen	.857**	.850**	.676*	.805**	.788**	.983**	.494	1	.804**	.933**
Valencia	.910**	.856**	.847**	.911**	.843**	.835**	.745**	.804**	1	.880**
Zurich	.918**	.935**	.802**	.886**	.888**	.946**	.597*	.933**	.880**	1

N = 12
** $p < 0.01$ level (2-tailed)
* $p < 0.05$ level (2-tailed)

4

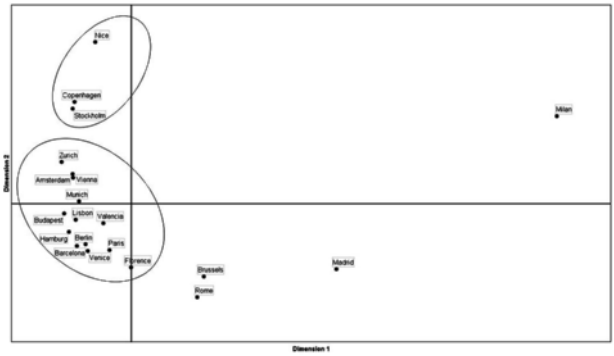

Fig. 4 Configuration of destinations' demand patterns similarities (total average bed-nights)

A second, smaller group comprises the three destinations in the top left area of the plot for which tourism demand is concentrated in few months a year. These cities are associated with a distribution with one single peak in the month of August. The presence of a shoulder season explains the distance between Nice and the two Scandinavian destinations. The demand pattern for the French city presents a stark increase and decrease, while that of Copenhagen and Stockholm presents a more gradual increase since the first months of the year.

The remaining points are associated with cities (Milan, Madrid, Brussels and Rome), where the month of August regularly happens to be one of the off-peak months. The reason of this reversed trend can be due to the predominance of business tourists, but also to climatic reasons (especially for Madrid and Rome).

In general, the vertical axis can be interpreted as discriminating destinations in terms of modality of the distribution (uni- versus multi-modal distribution), while the horizontal axis provides hints concerning the importance of the summer season. The results can be used to identify groups of destinations competing in the tourism market at the same times of the year. Interpreting the series of average monthly bed-nights as tourists' preferences to visit a destination in a specific time of the year, the perceptual map reveals the benchmarking partners based on travelers' seasonal behavior rather than on destinations' physical attributes. Within this group, it is evident that Nice's main competitors are not Barcelona and Valencia, which are also located on the shores of the Mediterranean sea, but the two Scandinavian destinations, which attract tourists' at the same period of the year. A similar conclusion can be drawn for Italy's most popular destinations, Venice, Florence and Rome. The capital city of Italy very likely attracts more business visitors than the other two cities of art, which shifts its positioning closer to the country's second largest center for business, Milan.

The same analysis can be performed on bed-night series for individual markets. Such an analysis provides a valid support for country-specific strategies, such as drawing the timeline of marketing activities. As an illustration, the same comparative exercise as above has been performed for two of Europe's most relevant source markets – Germany and the USA. For these countries, the monthly series of bed-nights for the period 2003 to 2007 were available respectively in 13 and 16 of the 20 cities analyzed before. In both cases, the stress values[5] for the two-dimensional configurations were highly satisfactory, and no significant

5 For the German market: 2-dimensions: S-Stress = 0.04, Stress = 0.06; 3-dimensions: S-Stress = 0.01, Stress = 0.02. For the USA market: 2-dimensions: S-Stress = 0.02, Stress = 0.04; 3-dimensions: S-Stress = 0.01, Stress = 0.02.

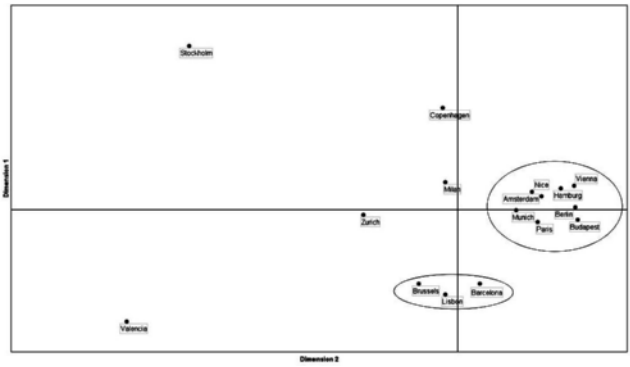

Fig. 5 Configuration of destinations' demand patterns similarities (German average bed-nights)

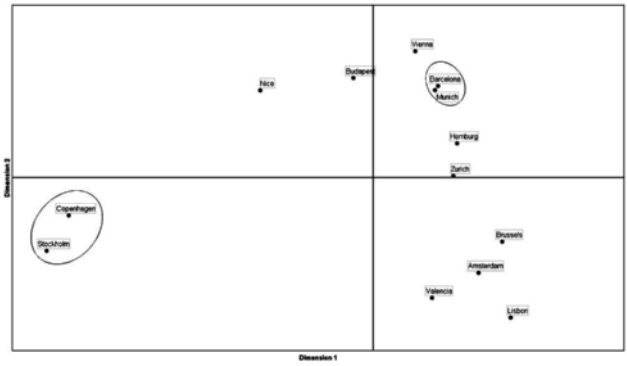

Fig. 6 Configuration of destinations' demand patterns similarities (USA average bed-nights)

improvement could be achieved with an additional dimension.

The outcome of the analysis for the German market is portrayed in Figure 5. In general, German tourists tend to visit the destinations positioned towards the top of the diagram in the summer months, which represent the off-peak period for the cities on the opposite side of the map. The cities in the centre right region of the map (Amsterdam, Berlin, Budapest, Munich, Nice, Paris and Vienna) are characterised by a bi-modal distribution of bed-nights. Among these cities, Berlin, Hamburg and Vienna present a remarkably similar distribution with two seasons, one in month V and a second around month IX.

In the area at the bottom of the map, a second, small group of destinations (Barcelona, Brussels and Lisbon) is also characterised by a bi-modal distribution with the off-peak season in months VI and VII. Not surprisingly, the distribution of bed-nights reveals German's preference for the Scandinavian cities in the summer months, and for the Mediterranean destinations in spring and late summer with the exception of the city of Nice. This comparative exercise highlights a potential for the tourism managers on the French Riviera to consider an increase of the share of the German market[6] as part of a season-extension strategy.

Another interesting example is the analysis of USA demand towards European cities, which is marked by a higher variety of seasonal patterns. The diagram in Figure 6 displays the scattered points representing the USA demand for 13 European cities, which leaves little room for the analysis in isolation of patterns' simi-

6 The German market represents approximately 5% of the total visitors to Nice in the period of reference.

larities. Interpreting the map in the light of the previous results provides more useful, complementary information on destinations' competitive positioning. The positioning of the Scandinavian cities is consistently isolated from the other destinations, which suggests that the major causes of seasonality should reside in pull factors. The cities in the top right panel (Vienna, Barcelona, Munich, Hamburg and Zurich) are characterised by a bi-modal distribution with a peak in June and a second high season around month IX. Among them, Barcelona and Munich present an almost identical pattern in the first 2/3 of the year. In the German market, the situation is significantly different with the two destinations having the demand pattern in the last quarter of the year in common.

4.6 Conclusions

In the analysis of tourism seasonality, two aspects are of particular importance: the "intensity" or amplitude of the phenomenon and the shape of the demand pattern. The assessment of the amplitude of seasonality is relevant for decision-makers in order to prioritise anti-seasonality policies against other types of interventions. The analysis of similarity of demand's pattern is particularly helpful in identifying competitors and interesting markets for season expansion strategies. Instruments suitable for monitoring and benchmarking analysis are a desirable analytical support for developing strategies and policies accounting for the seasonal behavior of the demand.

Seasonality is almost univocally presented as an undesirable facet of tourism, ascribed as the main cause for limited returns on investments, high prices, volatile quality of the service and labour force (Baum and Hagen, 1999). To some extent, seasonality is a manageable aspect, since tourism policy makers and marketers can undertake a set of actions to overcome the monthly fluctuations of demand. Season extension is also a primary goal for city tourism managers and marketers, since a rise in seasonality affects the utilization of resources. Baum and Hagen (1999) identify market and product differentiation and events as destinations' most largely used responses to seasonality in peripheral areas, which are also suitable for urban areas.

Market and product diversification are two very closely related responses, since an effective market differentiation must acknowledge that different seasons create demand for different products. In identifying new markets, which can be attracted by the destination, the benchmarking with competitors is fundamental to tailor effective penetration strategies. The needs and interests of segments capable to travel in off-peak seasons have to be investigated to design the product, the package, price and distribution accordingly. When data on visitors' preferences and attitudes are available, segmentation analyses accounting for seasonal differences can be performed (Calantone and Jotindar, 1984; Snepenger, 1987). Since such information is rarely available for a large number of destinations, competitive analysis based on visitors' past behavior can produce satisfactory results, just as in the examples illustrated in this chapter. Market diversification must be directed to identify new demand for existing products and facilities. Cities rely on a diversified portfolio of attractions, which can be used to develop a seasons-differentiated product mix. The availability of indoor (e. g. museums, galleries or shops) next to outdoor activities (e. g. parks, gardens or markets) needs to be exploited to attract travellers in periods of the year without a good-weather-guarantee. For a product development strategy, cities can also take advantage of the collaboration with peripheral areas marked by a reversed seasonal pattern, exploiting their role as hub for the main forms of transportation.

Events are largely used by cities in the attempt of attracting additional demand. A first coarse distinction can be made between business and leisure events. The potential of the conventions and meeting industry, a fast growing sector, has been recognized by tourism managers, and in Europe, noteworthy investments have been made in conference centers and halls, not only in the capital cities, but also in minor centers. In the area of leisure events, the celebration of theme years is a valuable instrument to generate additional demand in the off-peak periods. Two programs of the European Commission – the Cultural Capital of Europe and the European Destinations of Excellence project (EDEN) – have amongst their objectives that of sustaining European destinations to combat seasonality and rebalance the tourist flows. A joint effort of tourism boards and convention bureaus in promoting the destination is obviously required to avoid the overlapping of the two segments in the same periods, nullifying the effort of implementing anti-seasonal strategies. It is critical for destinations policymakers and marketers to know where to go on a long term basis in order to direct development and marketing strategies towards the achievement of the segment mix that will bring it about (Jang, 2004). A full understanding of the seasonal mechanism and objective assessments of destinations' seasonal profile are a desirable prerequisite of an efficient collaboration.

Web sites of interest

TourMIS – The Marketing Information System for tourism, providing online tourism survey data and decision support for the tourism industry.
http://www.tourmis.info

The European Destinations of Excellence – An initiative of the European Commission to draw attention to the value, diversity and shared character istics of European tourist destinations, and to promote destinations.
http://ec.europa.eu/enterprise/tourism/major_activities/eu_tourist/index_en.htm

European Capitals of Culture – A series of events, scheduled over one year, through which European cities can promote their cultural richness and diversity. The programme is supported by the European Union Culture programme.
http://ec.europa.eu/culture/our-programmes-and-actions/doc413_en.htm

Vienna Convention Bureau – The Vienna Convention Bureau was set up in 1969 as a department of the Vienna Tourist Board to promote Vienna as Central Europe's leading conference city.
http://www2.vienna.convention.at

Nice Tourism – The official web site of Nice Convention and Visitors Bureau.
http://www.nicetourisme.com

Visit Copenhagen – The official tourism site of Copenhagen and the surrounding area
http://www.visitcopenhagen.com

4

Review questions

(1) The municipality of Nice is planning the enlargement of two infrastructures, the 'Promenade des Anglais' (the famous promenade on the seaside) and the airport. The goal is to enlarge the capacity in order to carry tourism demand at its highest value. Which unit of measurement is more appropriate to measure the carrying capacity for (a) the Promenade and (b) the airport?

(2) The factors generating seasonal variations in demand can be classified as 'pull' or 'push' factors. This aspect of tourism seasonality is referred to as the 'spatial component of seasonality'. Is this aspect peculiar for the tourism industry only, or could this aspect affect other industries too?

(3) Cities as tourism product present specific characteristics, which make them attractive year round. Can these characteristics be reproduced in other types of destinations?

(4) Destinations can provide several responses to the problem of seasonality. Market and product diversification are two measures which are to some extent interdependent. Taking a city destination of your choice, think of a strategy of product differentiation for the destination which would allow attracting one or a few specific market segments in an off-peak period.

(5) In year 2008 the value of the Gini coefficient for the city of Copenhagen was 0.146. Visit the web site www.tourmis.info and compare the result for this city with other city destinations in Europe. How would you evaluate the result of the Scandinavian city?

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Monitoring Demand and Competition

Managing the Heterogeneity of City Tourists

5

Josef A. Mazanec and Andreas H. Zins

Part One
Generating City Tourist Types

Josef A. Mazanec

5.1
Purpose and objectives

When the first edition of this book appeared in 1997 it contained a chapter on segmenting city tourists by their vacation styles. While the conceptual foundations did not change much the following decade has seen noticeable progress regarding tourist researchers' command of analytical methodology and computing instruments. This chapter takes account of the recent developments and moulds them into a digestible format for managers and students alike. Its overall purpose is to provide a template of working steps to cope with psychographically and behaviourally heterogeneous city tourists.

The objectives may be stated in greater detail: Readers are expected (i) to realise the difference in the two paradigms of 'detecting' versus 'generating' tourist types, (ii) to gain a deeper understanding of a multivariate approach to typifying tourists, (iii) to adopt a hands-on attitude in actually implementing a typology, and (iv) to learn how to critically assess typology results and exploit them for tourism marketing planning. To minimise potential bias in choosing one result the two authors proceed strictly independently in two parts: Part One elaborates alternative solutions for city tourist classes; Part Two assesses them and makes a choice.

5.2
Heterogeneity in terms of what?

Explaining and predicting tourist behaviour is one of the fundamental concerns of tourism research. It entails analyses on various levels of aggregation ranging from travel behaviour of the whole population in tourism generating

markets to individual trip patterns. Monitoring tourists' choice decisions on the intermediate level of group-specific behaviour is where heterogeneity comes into play. This is also the domain of major managerial relevance. Despite the progress in micro-marketing and trip product customisation (cf. the Web-based counselling and dynamic packaging systems) tailoring travel products according to the needs of sizeable market segments is still the ordinary workhorse of tourism marketing strategy.

Managers and analysts are particularly challenged in those cases where the causes of heterogeneity are far from obvious. Assuming, e. g., that first-time and repeat visitors are likely to differ in many respects is straightforward. As a typical a-priori criterion the number of visits lends itself to cross-tabulation with various other personal characteristics (the analyst's point) and it entails separate marketing programs (the manager's point) for the sub-groups already known. In this chapter we want to cover the much more intricate situation where managers and/or analysts expect heterogeneity but lack the specific hypotheses on the reasons why. This means that the groups of (internally) homogeneous city tourists are not yet known. Hence, in marketing parlance, this task is named a-posteriori (or post-hoc) segmentation[1] and it will become evident shortly that it offers plenty of opportunities for establishing competitive advantage.

The tourism-related literature in the social sciences has treated the issue of hidden or unobserved[2] heterogeneity under a variety of headings. The common aspect is a classification of tourists into subgroups named types, life styles or vacation styles, segments, or even roles (Yiannakis and Gibson, 1992). The raw material used as classification criteria refers to motivational, perceptual (see the Chapter by Dolnicar and Huybers in this volume), preferential and attitudinal (benefits sought, satisfaction items, values) or behavioural (activities) attributes. The classification requires multivariate processing as the a-posteriori criteria always represent multidimensional constructs. On observational level (e. g. in a questionnaire) they are easily recognised as multi-item lists. The analyst hypothesises that tourists' reactions to these items occur in symptomatic patterns. Each such pattern then defines a tourist type. The variables making up the patterns are called 'active', while additional 'passive' variables will be employed for further profiling the tourist types in terms of other demographics, psychographics, socioeconomic or behavioural attributes.

The theory-guided selection of type-defining variables is a major quality indicator of any tourist typology. The classification exercise is not an end in itself but embedded in an explanatory model of city tourist behaviour. A highly sophisticated interpretation of this principle is the concept of 'response-based segmentation' in marketing research (Wedel and Kamakura, 2000). Under the response-based philosophy the consumers are classified in terms of the direction and strength of their (past or expected) response to behaviour-influencing stimuli. Uncovering these group-specific reactions can be achieved with advanced mixture modelling in a single estimation step. But the principle, of course, also holds for computationally simpler sequential methods. For the active variables, the typology reflects a classification into homogeneous subgroups according to one or more underlying multidimensional constructs (e. g. satisfaction types); the passive variables are either antecedents (e. g. city trip experience) or consequences (e. g. repeat visitation) of the type-defining constructs or just correlates (e. g. country of origin) where no causal assumptions are made.

1 It was also called 'data-driven segmentation' (Dolnicar, 2008). This may seem to imply absence of theory. But the analyst should have a 'theory' on which to base the typology while the precise number and composition of segments is not yet known.

2 For an in-depth treatment of theory-guided vs. data-driven analysis of unobserved heterogeneity see Mazanec (2000).

5.3 Analytical tools and techniques

This section may be skipped by readers not seriously interested in analytical intricacies. The demonstration example outlined in the next section will be sufficient for replicating results under similar data conditions. For those aiming at a deeper understanding of what happens when they are creating city tourist types the reading exercise is strongly recommended. It provides an introduction bridging the gap to more technically oriented literature. Readers who feel being somewhere in between may go through this chapter and skip the details encapsulated in text boxes.

Four methods for generating city tourist types will be used. Three of them are closely related as they originate from the neurocomputing tradition based on Kohonen's Self-Organising Map (SOM). Each of the three methods has its merits and shortcomings, but in conjunction with each other they provide meaningful results the analyst can justify by more than one argument. Note that the functioning of the quantisation methods based on the SOM and its derivative, the Topology Representing Network (TRN), do not depend on the presence of a distinct (spatial or density) cluster structure in the data. From the city marketing manager's point of view we do not play cluster-analytic games. However, we want to homogenise our city tourist target groups for all sorts of data conditions. Method #4 represents an example of an exchange algorithm for optimising a data partition already known to social scientists long before the neurocomputing devices were brought to their attention. It will be used not just for nostalgic reasons but as an example of a largely different algorithmic approach. Comparing the partitions of city tourists gained by the various techniques assists in examining the extent of method bias in the results.

City tourists' attributes such as destination perceptions or benefits sought are a manifold in multidimensional data space. The SOM (Kohonen, 1982) approximates such a data manifold by a number of principle points (prototypes; class centres; tourist types) arranged in a two-dimensional grid. The quality of the approximation improves through iterative updating ('training') with a learning rate which gradually decreases with the number of iterations. The grid connections are fixed and the approximation assures that adjacent grid points are more similar to each other than those farther apart. For the tourism marketing analyst this offers an opportunity to merge neighbouring types to achieve a classification into subgroups sizeable enough to warrant separate promotional treatment. The idea is further extended in the PSOM diagnostic instrument (Mazanec, 2007). It combines the ParameterLess version of the Self-Organising Map (PLSOM) according to Berglund and Sitte (2006) with a merging procedure. Training in the PLSOM does not follow a gradually decreasing learning rate parameter. Instead, the amount of update depends on the current value of the quantisation error (i. e. the quality of approximation). The diagnostic tool named PSOM contains two analytical steps. First it lets the analyst train a SOM grid to approximate a manifold in input data space. Then it performs a stepwise merging of class centres (types) based on statistical neighbourhood and the Simple Structure Index (SSI; Mazanec, 2001). The statistical neighbourhood describes the 'closeness' of two class centres (types) by the number of data points lying in between. In each step the pair of types with the highest number of data points in between becomes the candidates for merging. This is executed on condition of an improvement in the SSI. The SSI is a heuristic indicating the number of types that maximises ease of interpretation. It facilitates the substantive interpretation of the typology by rewarding the addition of new types as long as markedly distinct and contrasting attribute profiles emerge.

5

Software download information

The PSOM tool is freely available via the website of the Institute for Tourism and Leisure Studies, Vienna University of Economics and Business, http://www.wu.ac.at/itf/downloads/software/psom.
It is written in Matlab and runs under the Matlab Runtime Machine V7.6.

Software download information

The TRN install setup routine is freely available via the website of the Institute for Tourism and Leisure Studies, Vienna University of Economics and Business, http://www.wu.ac.at/itf/downloads/software/psom.
TRN32 is a stand-alone Visual Pascal program and runs under Windows 2000/XP/Vista.

The Topology Representing Network (TRN) is another extension of the SOM family. It was introduced by Martinetz and Schulten (1994) and tailored to analyse tourism marketing data by Mazanec (1999). Its novel feature is the flexible system of relationships among the prototypes. They are no longer squeezed into a fixed grid structure as the connections among the nodes may be learned and unlearned during training. As a consequence, the TRN grid structure can get rid of connections which are weakly supported by data. The resulting neighbourhood graph tends to reflect the topological properties of the data. The TRN32 implementation (Mazanec, 1997) offers a number of add-ons such as reproducibility indicators for replicated runs.

Generating a typology with TRN32 requires – as is also the case with all conventional partitioning cluster procedures – a predetermined number of types; the analyst will of course vary the number and evaluate alternative results. Another extension of the TRN philosophy was introduced under the name of Dynamic TRN. It automatically increases or decreases the number of types during training depending on the value of a (pre-specified) vigilance parameter. Though it seems that the number-of-types problem now gets shifted into another user-determined parameter, the setting of the vigilance threshold often turns out to be fairly uncritical. The DTRN is another opportunity for the analyst to learn more about the properties of their data. Some readers may wish to find a more rigorous abstract of the DTRN; it is given below as one example of the SOM/TRN family of vector quantisers.

Sketch of the DTRN quantiser:

The DTRN was proposed by Si, Lin and Vuong (2000). A simplified explanation of its working principles is elaborated here. Like its non-dynamic counterpart, the TRN, the DTRN encodes a data manifold $\mathbf{X}$ with probability distribution P (x) into a finite set of reference vectors ('prototypes' in neural networks jargon; centroids in the clustering literature; tourist types in social science terminology) while respecting the topological properties of the observed data. The quantisation techniques which are topologically sensitive are characterised by monitoring the neighbourhood structure of their prototypes. This information is stored in an adjacency matrix with zero/one entries and gets updated in each training iteration. Unlike

the popular K-means cluster procedure the neighbourhood structure in the DTRN permits indirect updates of the centroids. In analogy to the fuzzy K-means or overlapping K-centroids clustering (Chaturvedi, Carroll, Green and Rotondo, 1997) this increases the robustness of the quantisation results.

The similarity between a data point and a prototype is measured by the Euclidean distance d between the i-th prototype's co-ordinates ('weights') vector $\mathbf{w}_i$ and an input data vector $\mathbf{x}$ with values $x_1, \ldots, x_V$

$$(1) \qquad d_i \, \|\mathbf{x} - \mathbf{w}_i\| = \left(\sum_{v=1}^{V} (x_v - w_{iv})^2\right)^{\frac{1}{2}}$$

The TRN and DTRN were inspired by the Self-Organizing Map (Kohonen, 1982; 1997) which employs stochastic approximation ('training') to adapt its weight structure according to the distribution pattern of the input data. Each of the prototypes thus learns to represent a homogeneous subset of data vectors. In the DTRN the number of such prototypes is not predetermined as the training starts with just one prototype equal to an input vector randomly selected from the data set $\mathbf{X}$. Another randomly chosen data point $\mathbf{x}$ is compared to this first prototype $i = 1$ according to (1). If d_i fails to drop below the vigilance threshold ρ, the $\mathbf{x}$ becomes a second prototype $\mathbf{w}_g$.

Once there are three or more prototypes they begin to compete with each other such that the winner i^* with

$$(2) \qquad \|\mathbf{x} - \mathbf{w}_{i^*}\| < \|\mathbf{x} - \mathbf{w}_i\|, \quad \forall i,$$

and the co-winner i^{**} with

$$(3) \qquad \|\mathbf{x} - \mathbf{w}_{i^{**}}\| < \|\mathbf{x} - \mathbf{w}_i\|, \quad \forall i \neq i^*$$

become eligible for a weight update. Before that the winner is subject to the vigilance test. If it fails a new prototype indexed g is introduced and takes the values of the current data point $\mathbf{x}$. The adjacency matrix $\mathbf{S}$ indicating the connectivity among the prototypes is then updated in the following manner:

$$(4) \qquad s_{gj} = \begin{cases} 1 & if\, j = i^* \\ 0 & else \end{cases}$$

$$(5) \qquad t_{gj} = \begin{cases} 1 & if\, j = i^* \\ \infty & else \end{cases}$$

where:

t_{gj} is an age counter denoting the number of iterations covered since the creation or last refreshment of the connection s_{gj}.

If the winner i^* passes the vigilance test i^* and all its neighbours get updated by the following 'winner-takes-quota' learning rule:

$$(6) \qquad \Delta w_{i^*}(k) = s_{i^*,i}\, \lambda(k) \frac{\exp(-\eta(k)\|\mathbf{x}(k) - \mathbf{w}_{i^*}(k)\|^2)}{\sum_{j=1}^{L} s_{i^*,j} \exp(-\eta(k)\|\mathbf{x}(k) - \mathbf{w}_{i^*}(k)\|^2)} (\mathbf{x}(k) - \mathbf{w}_{i^*}(k)), \quad i = 1, \ldots, L$$

5

where:
$0 < \lambda(k) < 1$ is the learning rate that decays with the growing number of iterations
$k = 0, 1,...;$
$\eta(k)$ is an annealing factor that increases during the training.

The last two steps in the DTRN procedure take care of updating the connection lifetime record and the removal of superfluous prototypes. Age correction occurs via $t_{i^*,j} = t_{i^*,j} + 1$ and the removal of outdated connections, i. e. setting $s_{i^*,j} = 0$, happens for an age counter exceeding the lifetime limit, i. e. $t_{i^*,j} > \tau$. A prototype i becomes redundant and is abolished if all its connections s_{ij} are zero.
The crucial parameter is the vigilance factor which controls the dynamic creation and demolition of prototypes. Si et al. suggest a schedule such as

$$\rho = \rho_0 \left(\frac{\rho_1}{\rho_0}\right)^{k/k_{\max}} \quad (7)$$

with $\rho_0 > \rho_1$
and a maximum number of kmax iterations; this makes ρ gradually decrease from ρ_0 to ρ_1.
The authors also provide ample evidence of the DTRN performance on synthetic data with known properties and thereby offer advice on choosing meaningful parameter settings.

Software download information

The DTRN tool (Mazanec, 2006) is freely available via the website of the Institute for Tourism and Leisure Studies, Vienna University of Economics and Business,
http://www.wu.ac.at/itf/downloads/software/dtrn.
It is written in Matlab and deployed with the Matlab Runtime Machine.

Finally, a typology solution will also be sought by employing a conventional partitioning method. A partition into exhaustive and mutually exclusive clusters is constructed by sorting respondents according to their pair-wise similarity. Similar cases become members of the same cluster (type), dissimilar ones are attributed to different clusters. The procedure named BINCLUS is based on Späth (1975; 1976; 1977). It offers four options to compute dissimilarity measures for binary data: (i) the matching coefficient and distance, (ii) the Tanimoto coefficient and distance; (iii) the Dice coefficient and distance, and, (iv) the binary Euclidean distance. For a number of n respondents there are $n*(n-1)/2$ pair-wise distances $d_{i,j}$. One obtains an overall measure of heterogeneity of a typology by accumulating the sum of distances over the types. Average distances may be used for comparing between different cluster solutions. The objective function seeks to minimise the overall heterogeneity:

$$\sum_{s=1}^{q} \frac{1}{n} \sum_{i \in C_s} \sum_{j \in C_s, j>i} d_{i,j} \rightarrow \min!$$

where n_s is the number of elements in cluster (type) C_s ($s = 1, \ldots, q$).

Software download information

The BINCLUS routine is part of the BinCom software (Mazanec, 2008) and freely available via the website of the Institute for Tourism and Leisure Studies, Vienna University of Economics and Business,

http://www.wu.ac.at/itf/downloads/software/bincom.
BINCOM is a VB4 user interface that invokes the FTN programs PATCLU and BINCLUS and runs under Windows 2000/XP/Vista.

The application example of the next section emphasises one central message: Given a theoretically meaningful dataset a city visitor typology is still more than a matter of feeding data into some partitioning software and hoping for a (locally) optimal solution in terms of fit or quantisation error. From the city tourism marketer's point of view it is particularly clear that the typology has to serve a purpose. The types are considered to be potential market segments. Hence, a typology will be chosen that exhibits highly contrasting types (with at least some of them) showing perceptual and preferential affinity with what the city will be able to offer them. This principle nicely reflects the basic 'matching paradigm' of marketing thought (McDonald, 2002).

5.4 Practical application

5.4.1 Study objectives and data

Imagine a CTO manager pondering on these questions. (i) City tourists are likely to differ in terms of preferences, and (ii) the preferences are expected to occur in symptomatic patterns. If the patterns are group-specific and sizeable they may be considered as tourist types and hence as 'natural' travel market segments. The whole endeavour is motivated by improving the effectiveness of managerial intervention. To warrant the analytical effort it is further hypothesised that the tourists' association with a preferential type acts on their intention to repeat visit.

The database of the Austrian National Guest Survey (summer season 2004) contains a sub-sample of approximately 2,300 personal interviews with visitors who declare themselves to be 'city tourists'. Actually, they are visitors of Vienna or one (or more) of the capital cities of the other eight Austrian Provinces. From the tourism marketing point of view one must not forget that the unit of analysis are the individual visitors. They represent actual guests and may not be indicative of the structure found in potential visitors. In other words, we are focusing on the share of the market already penetrated and turned into CTO customers. Also note that the typologies will be generated with unweighted data. The guest sample is slightly disproportionate in terms of tourist nationalities. The database, of course, includes correction weights for accurate extrapolation and the effects will be examined later.

There are many ways of measuring tourist preferences. CTO managers are inquisitive about the tourists' preferred characteristics of a city. Therefore, they are likely to favour a multidimensional approach based on a list of preference-determining destination attributes. As, in this case, we deal with guests already staying at their destination, the questionnaire addresses the subjective importance of attributes for having chosen the particular destination. Therefore, we apply a combination of measuring stated (i. e. referring to explicit attributes) and revealed (destination already chosen) preferences. The response is dichotomous with symmetric information ('important' for coming to this place, or not).

On average the respondents named six to seven out of the 23 attributes as important for having chosen their destination. The analyst expects the importance judgments to emerge in typical combinations. How do they look like and how many should be considered?

5

Table 1 Subjective importance of destination attributes (items abridged)

Important …	… for % of cases*
City architecture	70
Culture, art & entertainment event	57
Landscape, nature	53
Weather, climate	39
Overall quality of accommodation	38
Comfort & cleanliness of accommodation	36
Reachability of the region	34
Social life	34
Friendly service staff	34
Quality of hiking and walking paths	33
Friendliness of the local population	33
Quality of food & beverages	32
Communication with locals	27
Low-priced accommodation	26
Peace and quiet	25
Public transport within the region	17
Low-priced package with transport & accommodation	17
Low-priced transport	15
Offerings for children	11
Sports facilities	10
Bad weather facilities	9
All-inclusive package	8
Fairs & exhibitions	4

* $n = 2{,}286$

5.4.2 Results

A DTRN run provides the first orientation regarding the amount of heterogeneity in the city tourists' importance patterns. The squared Euclidean distance is employed as a dissimilarity measure. It is consistent with the symmetric information in the important/unimportant judgments, computationally robust, and applicable for each of the four analytical approaches. The vigilance parameter is determined as a fraction or multiple of the median of all pair-wise distances. DTRN runs with 50 training epochs for three vigilance values, .3, 1.0, and 1.7, produce very similar solutions with eight or nine tourist segments, their size varying between 6% and 20%. Take Figure 1 as an example for the eight-classes solution with vigilance = median*1.0. Types #3 (20.3% of the cases) and #6 (14%) rate many trip ingredients as important. The other segments – ignoring #1 (11.3%) of marginally involved tourists – exhibit highly selective importances. According to the statistical neighbourhood matrix there are three pairs of types where one may consider merg-

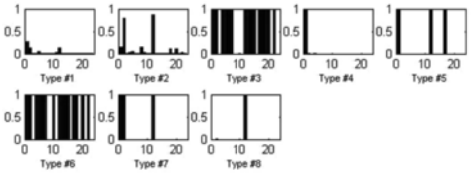

Fig. 1 Importance percentages for eight city tourist types

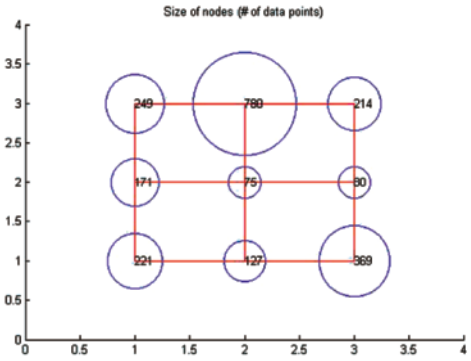

Fig. 2 Size of segments arranged in a 3 × 3 SOM

ing. This indicates that a practically appealing solution will consist of fewer types.

To further explore the consequences of merging smaller types into larger segments we apply the PSOM tool. Starting with a SOM grid of 3 × 3 nodes delivers the results shown in the idealised map of Figure 2.

Figure 3 demonstrates that there are good reasons for merging some of the types. The thickness of the connections in Figure 3 indicates the strength of the statistical neighbourhood based on the number of cases lying in between a pair of class centres. The grid does not portray the idealised arrangement seen in Figure 2. It shows a Sammon projection (Sammon, 1969) of the class centres from the high-dimensional input data space (23 importance values) into two dimensions; from Figure 3 one gets an impression of how the map twists and folds to accommodate the observed manifold in the 23 importance dimensions.

To put the merging of types on a sound footing the PSOM procedure sequentially com-

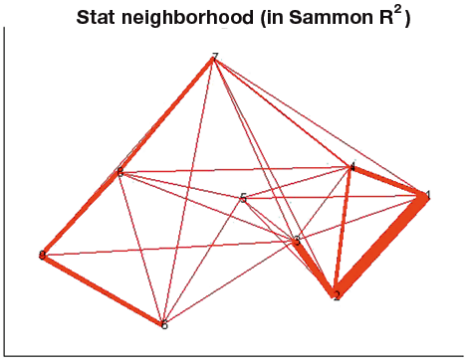

Fig. 3 Statistical neighbourhood in the 3 × 3 SOM

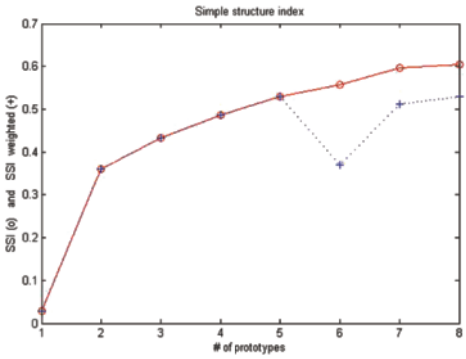

Fig. 4 Development of the weighted SSI

bines the pair of types most similar to each other. While doing this it monitors the development of the weighted Simple Structure Index. The dotted line in Figure 4 tells us that five city tourist types represent the best compromise between the number of segments and ease of interpretation because of highly contrasting importance patterns. A glance at the bar charts of the importance percentages gained within the segments confirms the differential in the patterns (Figure 5). Contrary to one's first impression, types #4 and #5 are no close statistical neighbours (see the thin connecting line between 4 and 5 in Figure 3).

Taken for granted that five types are a promising number for splitting the city tourist market into markedly contrasting segments it

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Fig. 5 Percentages of importance judgments within five segments (PSOM)

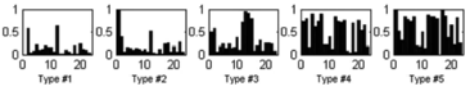
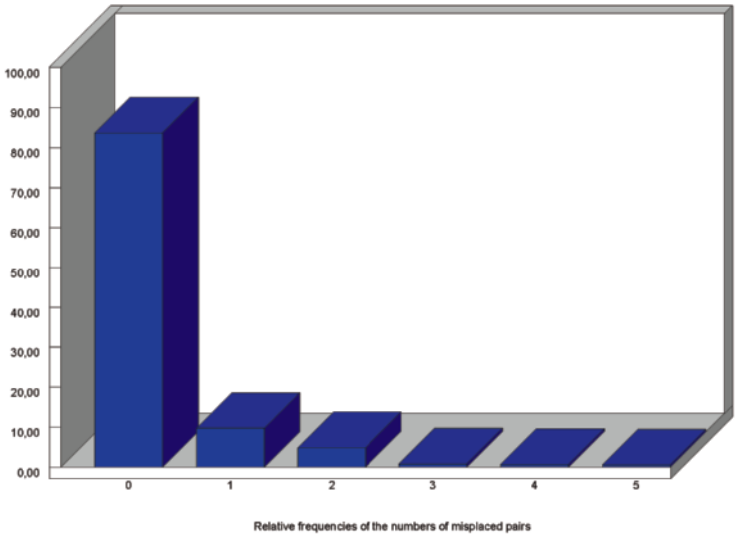


Fig. 6 Relative number of misplaced pairs in 10 replications



is recommended to verify the reproducibility of such a typology. This task is comfortably fulfilled with the TRN32 software. It lets the analyst generate a number of, say, 10 replicated results and examine whether a pair of tourists pops up persistently in the same type. The bar chart in Figure 6 reveals that 83.6% of all pairs of tourists are never misplaced in the 10 replicated runs. 9.7% are misplaced once and 4.9% twice. Accordingly, the reliability indicator named 'percentage of uncertainty reduction' (%UR) amounts to 94.7% and the five segments typology appears to be highly robust over replicated runs. Thus we are led to accepting a typology with five classes of city tourists. Table 2 exhibits the importance percentages of the trip attributes for this solution where the smallest class comprises 15% and the largest amounts to 26% of the respondents. For each trip attribute there is at least one segment weighting it enormously higher than the remainder of the tourists. If correction weights for proportionalising the distribution by guest nationality are introduced the percentages only change marginally. Type #1 is an exception as it tends to get slightly higher values for most attributes. As type #1 resides on a generally low importance level the effect is negligible.

Finally, the readers were promised a comparison with a conventional clustering procedure based on iteratively exchanging data points to make the partition converge into a (local) maximum of homogeneity. Treating our importance data with the twin programs in BinCom tells us that the most frequent patterns occur 87, 53, 49, 44, and 41 times. In total, the 2,286 respondents produced 1,499 response patterns. The absolute frequencies of tourists (and different patterns) in the five resulting classes of the partition are 610 (211), 585 (322), 295 (255), 462 (404), and 334 (307). So far, we are facing three alternatives of a city tourist ty-

Table 2 Importance judgments for five city tourist types (TRN typology)

Attr. Nr.	Important … for % of casees* in type	#1	#2	#3	#4	#5
1	Landscape, nature	33	53	94	98	0
10	Culture, art & entertainment events	32	60	62	40	72
11	Offerings for children	3	5	26	12	5
12	Quality of food & beverages	5	27	89	26	10
13	Social life	24	23	73	14	16
14	Communication with locals	7	14	75	16	9
15	Friendliness of the local population	7	27	89	25	14
16	Low-priced package with transport & accommodation	7	14	19	13	22
17	Low-priced transport	7	14	19	10	19
18	Low-priced accommodation	14	40	47	15	19
19	All-inclusive package	6	6	11	7	3
2	City architecture	0	68	87	85	99
20	Comfort & cleanliness of accommodation	4	98	86	4	1
21	Friendly service staff	2	89	89	3	1
22	Overall quality of accommodation	5	81	87	14	13
23	Fairs & exhibitions	5	6	2	1	4
3	Peace and quiet	1	20	73	39	0
4	Weather, climate	8	34	83	40	28
5	Bad weather facilities	0	7	35	8	0
6	Reachability of the region	11	36	68	25	25
7	Public transport within the region	8	31	32	7	12
8	Quality of hiking and walking paths	7	30	81	39	9
9	Sports facilities	2	8	22	12	4
	Size (Σ = 100%)	22.2	15.2	21.3	15.2	26.1

* $n = 2{,}286$

pology with the same number of classes. (The first solution by the DTRN suggested eight classes which were considered an upper limit for practical reasons.) We want to choose the most feasible result and utilise it for segmenting the city tourism market as far as it becomes apparent in the importance judgments of actual guests.

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5.5 Comparison and method bias

This Section paves the way for more refined analyses in Part Two. Before making a final decision in Part Two of this Chapter we want to learn more about how much and how the typology candidates differ from each other. The PSOM and the TRN partitions are cross-tabulated in Table 3. Recall that the former solution gets constructed via sequential merging of types while the latter is created in a single step. Table 3 confirms that two of the five types are unaffected by the quantisation method (#3 in PSOM/#2 in TRN and #2/#4). Tourists in TRN type #3 are mainly PSOM type #5 members and partly recruited from PSOM type #4. They appear to be the most demanding guests. By contrast, the least demanding tourists collected in a large PSOM type #1 are assigned to two different TRN types (#1 and #5). As it turns out (Table 2) the separation coincides with a maximally distinctive importance judgment for 'city architecture' (0% in #1, 99% in #5). Without doubt, this is highly relevant for CTO managers and a strong argument in customised trip packaging and targeting.

As an intermediate conclusion one may state that the PSOM procedure recognises ease of interpretation. Thereby, it massively assists in determining a feasible number of types to extract. The TRN, guided by minimising intra-class variability, does not explicitly care about the substantive interpretation of its quantisation results. Without the hint provided by PSOM the analyst would have to generate a range of TRN solutions and to evaluate their interpretive properties.

The TRN and the BinCom solutions originate from entirely different partitioning methods. However, they share the common goal of maximising homogeneity. The TRN classifies data points depending on their vicinity to class centres. The BINCLUS exchange algorithm

Table 3 Cross-classification of the PSOM and TRN typologies (abs. frequencies)

		#1	#2	TRN #3	#4	#5	
	#1	324	0	0	0	583	907
	#2	178	3	0	304	3	488
PSOM	#3	5	296	0	1	2	304
	#4	1	39	135	22	9	206
	#5	0	10	351	20	0	381
		508	348	486	347	597	2,286

Table 4 Cross-classification of the TRN and BinCom typologies (abs. frequencies)

		#1	#2	BinCom #3	#4	#5	
	#1	483	18	7	0	0	508
	#2	1	2	14	1	330	348
TRN	#3	0	0	23	461	2	486
	#4	39	60	247	0	0	347
	#5	87	505	4	0	1	597
		610	585	295	462	334	2,286

Table 5 Intention to repeat visit within types (TRN typology)

	Intention to spend a holiday in this place							
Type	1 = "very certain"	2	3	4	5	6 = "definitely not"	"don't know"	Size (abs. frequ.)
#1	35.0	9.6	6.8	3.0	2.2	6.0	37.4	500
#2	35.6	7.8	10.3	3.2	2.0	5.2	35.9	348
#3	52.2	11.1	6.2	1.4	1.9	2.5	24.7	485
#4	37.8	10.1	9.8	3.2	4.0	5.8	29.4	347
#5	27.1	13.4	15.7	5.5	4.2	2.8	31.2	597
Total	37.1	10.7	10.0	3.4	2.9	4.3	31.6	2,277

within BinCom needs no such centres but employs pair-wise dissimilarities only. Cross-classifying these two findings as done in Table 4 may now (un)settle our faith in the type structure.

The absolute frequencies in Table 4 speak for themselves. All types are nicely recaptured by both algorithms. This validates the reproducibility diagnosis prepared earlier with the %UR heuristic.

The major question remaining pertains to the practical usefulness of the typology. Referring back to what was hypothesised in Section 4.1 the city tourist types are expected to differ in terms of their intention to repeat visitation. Put simple, different mixtures of subjectively important trip attributes are likely to lead to variations in the plans for repeat visitation. Table 5 offers evidence for investigating this assumption.

The empirical researcher is well aware of the fact that rating scales measuring satisfaction items use to be extremely skewed. The same applies to behavioural intention, particularly if it gets measured during or after the consumption situation and, therefore, carries an implicit satisfaction rating. In Table 5, one is advised to focus on column #1 expressing the strongest commitment to repeat visit. And here, while types #1, #2, and #4 exhibit inconspicuous values, #3 and #5 significantly deviate. This finding prompts further analytical efforts to explore the reasons why.

The types have not yet been labelled to address them in a convenient manner. And, above all, the practical implementation and tractability of the typology is still unquestioned. This task is strongly tied to successful profiling and its consquences for seletive targeting.

Questions

1. How do you explain the advantages of the new pro-active concept of 'generating' tourist segments to a CTO manager in charge of strategic marketing?
2. What do you think you can gain by applying two or more classification methods in parallel?

Part Two
Profiling and Assessing City Tourist Types

Andreas H. Zins

5.6
Identifying distinct city tourist types

The different data mining algorithms employed for detecting some common patterns among the sampled city tourists delivered different numeric segmentation solutions. The direct cross-classification of the typologies highlights some convergence. However, some mismatches are apparent between the TRN and BinCom classification and even stronger ones between the PSOM and TRN solutions. Hence, no clear recommendation could be derived so far from the numeric assessment of the segmentation results for which typology should be used for marketing purposes. It is therefore the objective of this second part to further investigate three (omitting the auxiliary PSOM) segmentation proposals. Criteria such as sharp and distinct profiles and segment identification together with accessibility will be considered to arrive at a final recommendation. For the subsequent analyses the weighted data structure will be used incorporating the correct proportions of tourism demand patterns along accommodation types, nationalities and regional distribution.

5.6.1
Typology based on the DTRN solution

The following typology identification is purely based on the segment generating attributes: i. e. importance statements or benefits sought by the travellers. This approach focuses on the outstanding characteristics of each segment relative to each other segment and relative to the significance within the own profile.

The first segment shown in Figure 7 is clearly characterised by two major elements: city architecture and the cultural offer including entertainment and events. Compared to the average city tourist low-priced packages covering transport and accommodation appear to be very important. All other components are not outstanding. As a consequence, this segment got the label "Cultural value-for-money tourist".

The next type demonstrates low expectations in many respects. Even the cultural offer

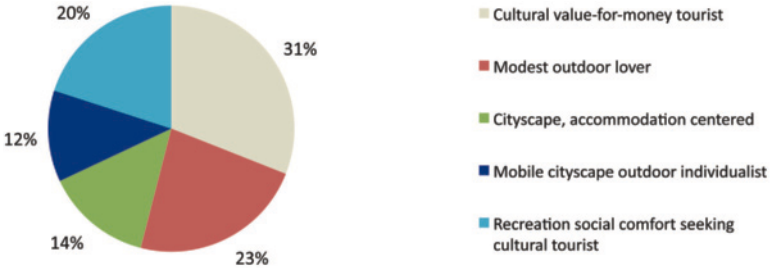

Fig. 7 DTRN Segments and their shares

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Table 6 Attraction profile of the DTRN traveller types

Attraction	Cultural value for money tourist	Modest outdoor lover	Cityscape, accommodation centred	Mobile cityscape outdoor individualist	Recreation social comfort seeking cultural tourist
City architecture	63%	60%	70%	74%	87%
Culture, art & entertainment event	61%	32%	51%	70%	53%
Landscape, nature	0%	100%	58%	77%	99%
Weather, climate	18%	23%	35%	71%	84%
Overall quality of accommodation	9%	12%	85%	81%	80%
Comfort & cleanliness of accommodation	2%	3%	95%	78%	86%
Reachability of the region	22%	17%	22%	69%	65%
Social life	22%	12%	15%	50%	77%
Friendly service staff	0%	1%	92%	78%	85%
Quality of hiking and walking paths	11%	31%	26%	60%	85%
Friendliness of the local population	10%	14%	22%	87%	85%
Quality of food & beverages	8%	18%	22%	87%	85%
Communication with locals	10%	7%	11%	73%	72%
Low-priced accommodation	12%	10%	29%	29%	43%
Peace and quiet	0%	44%	49%	4%	98%
Public transport within the region	10%	7%	21%	46%	16%
Low-priced package with transport & accommodation	20%	14%	20%	20%	16%
Low-priced transport	13%	4%	13%	17%	13%
Offerings for children	3%	5%	5%	15%	31%
Sports facilities	3%	6%	9%	14%	24%
Bad weather facilities	1%	10%	19%	17%	39%
All-inclusive package	5%	4%	7%	17%	11%
Fairs & exhibitions	8%	5%	15%	7%	0%

receives the least attention compared to all other segments. However, landscape and nature play the single dominant role. These travellers seem to be atypical city tourists. Hence, they are denominated as "Modest outdoor lovers".

The third segment is predominantly focused on accommodation: comfort, cleanliness, friendly service staff and the overall quality. City architecture and other cultural offers are important issues, though, not superior compared to some other types. This segment is labelled as "Cityscape accommodation centred".

The fourth type in this typology has higher aspirations in general. City tourists belonging to this segment exhibit the highest need for cultural experiences. Their wishes go together with high expectations regarding the reachability of the destination and a convenient public transportation infrastructure at the destination. Furthermore, the quality of food and beverages, of walking paths and above average expectations with regard to the accommodation are expressed. Communication with locals and their friendliness are among the highest expectations. This segment is therefore identified as the "Mobile cityscape outdoor individualist".

The last type represents tourists with even higher aspiration levels for about all aspects compared to the previous segment. However, they want to find peace and quiet, bad weather and sports facilities, offerings for children and low-priced accommodation. Cultural offering are not their primary concern. They are labelled, consequently, as "Recreational, social comfort seeking cultural tourists".

5.6.2 Typology based on the TRN solution

The second typology has some parallels but not a full congruence with the previous one. The first segment exhibits no single dominant criterion. Cultural offers, landscape, social life and fairs and exhibitions are the single elements with a somewhat elevated level of aspirations. They got the label "Modest social city tourist".

The next segment is comparable with the third one of the DTRN typology. However, the emphasis on low prices for accommodation, transport (or all-inclusive packages) is somewhat stronger. Therefore, this segment is denominated as "Price conscious accommodation centred". The third segment displays the same and comprehensively higher expectation levels like the fifth one of the previous typology. With "Cityscape accommodation centred" it receives the same label.

A different type seems to be covered by the next segment. For these travellers landscape and city architecture range highest among the components of the city trip. Peace and quiet plays an outstanding role. Cultural offers, in contrast, are secondary. Finding low-priced package deals are important to them. Hence, this type is labelled as "Cost conscious scenery seeker". This latter trip element is even more

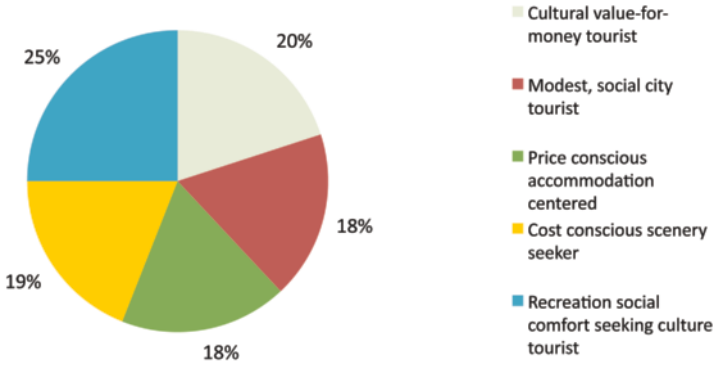

Fig. 8 TRN Segments and their shares

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Table 7 Attraction profile of the TRN traveller types

Attraction	Modest, social city tourist	Price conscious accommodation centred	Recreation social comfort seeking culture tourist	Cost conscious scenery seeker	Cultural value-for-money tourist
City architecture	0%	63%	87%	87%	99%
Culture, art & entertainment event	29%	53%	58%	39%	77%
Landscape, nature	38%	61%	96%	99%	1%
Weather, climate	7%	41%	83%	34%	25%
Overall quality of accommodation	5%	86%	85%	14%	14%
Comfort & cleanliness of accommodation	3%	96%	89%	4%	1%
Reachability of the region	10%	32%	68%	22%	29%
Social life	24%	16%	75%	18%	18%
Friendly service staff	2%	91%	90%	2%	1%
Quality of hiking and walking paths	11%	31%	82%	39%	13%
Friendliness of the local population	7%	30%	90%	26%	13%
Quality of food & beverages	4%	32%	87%	30%	12%
Communication with locals	6%	19%	76%	17%	12%
Low-priced accommodation	12%	30%	42%	9%	11%
Peace and quiet	4%	43%	87%	65%	0%
Public transport within the region	3%	24%	26%	9%	15%
Low-priced package with transport & accommodation	11%	19%	16%	19%	24%
Low-priced transport	5%	12%	16%	5%	15%
Offerings for children	2%	6%	28%	9%	4%
Sports facilities	2%	10%	21%	10%	4%
Bad weather facilities	1%	17%	39%	13%	3%
All-inclusive package	4%	11%	10%	6%	5%
Fairs & exhibitions	15%	14%	9%	1%	5%

important for the fifth segment of this typology. However, city architecture and other cultural offerings are the most typical items in their basket of trip expectations. This type is labelled as "Cultural value-for-money tourist" similar to the first segment of the previous typology.

5.6.3 Typology based on the BinCom solution

The typology based on the BinCom solution has some analogies to the previous ones. The first segment has an apparent similarity to the first one of the TRN typology. Hence, it is given the same label (Figure 9). The next type has the same characteristics as the fifth of the previous typology. It is labelled analogously. The third segment shows strong parallels to the second type of the DTRN typology. However, these city travellers have even stronger aspirations towards city architecture, peace and quiet, and the quality of walking paths. Hence, they are denominated as "Modest outdoor seekers".

The next segment is congruent to the last one of the DTRN and the third one of the TRN typology. Therefore, it is labelled in the same way: "Recreational social comfort seeking cultural tourist". The last segment shows also parallels to the previous typologies. Hence the label is almost alike with "City scenery accommodation centred".

5.7 Evaluation

5.7.1 Comparison based on demographic and travel characteristics

The previous investigation basically revealed that all three segmentation algorithms generated similar traveller types that show a high degree of overlap once the typologies are cross-tabulated. Yet, the size of the identified segments varies. It is therefore reasonable to move to the next step by raising the question whether the identified segments show distinct characteristics which help the marketer in describing and targeting the segment members in the market. For this task a limited number of descriptors will be used according to Table 9.

All three typologies are subject to chi-square-based automatic interaction detection (CHAID) analysis investigating the sequential impact when splitting each of the five traveller segments in a stepwise manner. The characteristics described in Table 9 are taken as the pool of available split criteria which are only employed if the contribution in explaining the typology structure is maximal at the respective split stage. The number of possible steps of splitting the whole sample further is limited to the 12 characteristics in the starting pool. Nevertheless, from a statistical point of view the split progress is limited due to the available

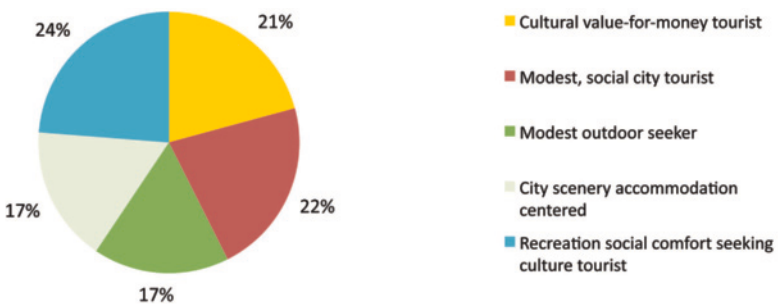

Fig. 9 BinCom segments and their shares

Table 8 Attraction profile of the BinCom traveller types

Attraction	Modest, social city tourist	Cultural value-for-money tourist	Modest outdoor seeker	Recreation social comfort seeking culture tourist	City scenery accommodation centred
City architecture	20%	96%	74%	89%	67%
Culture, art & entertainment event	21%	90%	33%	59%	55%
Landscape, nature	40%	14%	97%	96%	60%
Weather, climate	5%	28%	41%	84%	42%
Overall quality of accommodation	4%	17%	17%	88%	87%
Comfort & cleanliness of accommodation	3%	1%	11%	93%	97%
Reachability of the region	6%	35%	27%	69%	30%
Social life	21%	18%	22%	77%	16%
Friendly service staff	2%	0%	7%	92%	95%
Quality of hiking and walking paths	10%	11%	57%	82%	27%
Friendliness of the local population	5%	15%	34%	90%	31%
Quality of food & beverages	3%	13%	40%	87%	33%
Communication with locals	4%	13%	23%	77%	18%
Low-priced accommodation	11%	11%	16%	42%	28%
Peace and quiet	4%	0%	75%	87%	38%
Public transport within the region	3%	16%	11%	27%	24%
Low-priced package with transport & accommodation	8%	30%	16%	16%	19%
Low-priced transport	5%	16%	4%	17%	12%
Offerings for children	2%	4%	15%	26%	5%
Sports facilities	2%	3%	13%	22%	10%
Bad weather facilities	1%	2%	15%	40%	16%
All-inclusive package	4%	6%	7%	10%	11%
Fairs & exhibitions	15%	3%	2%	9%	14%

Table 9 Marketing descriptors for targeting the traveller types

Type of characteristic	Description	Categories
Demographic attributes	Gender	Male Female
	Age	14 to 30 years 31 to 40 years 41 to 50 years 51 to 60 years 61 years and more
	Nationality	Austria (domestic) Germany, Switzerland Other countries
	Household income	Up to 2,000 Euro 2,001 to 3,000 Euro 3,001 Euro and more
Travel related attributes	Previous destination experience	First time Second time Repeat visitor
	Length of stay	Up to 3 nights 4 to 7 nights 8 nights and more
	Type of accommodation	5-star hotel 4-star hotel 3-star hotel All other types
	Travel party	Alone With partner Organized group Other family members With friends/relatives With children < 14 years
	Intention to repeat visit	Sure Unsure or does not know Definitely not

sample size. Hence, only two to four splits are justified to inspect with some acceptable degree of confidence.

The CHAID analysis for the DTRN typology results in the following hierarchy: The first and strongest split characteristic is the length of stay using all three duration categories. Depending on the duration different secondary criteria apply to further improve the segment description. In the case of short term visits (up to three nights) the best differentiation is offered by the given age groups. Interestingly, almost each age group identifies one typology segment best. In the case of medium term visits (four to seven nights) the next criteria is related to the travel company, i. e. the fact if children below the age of 14 years are member or not. If not, then the next best descriptor is represented by the chosen type of accommodation. In contrast, for travellers staying longer than one week the secondary split criterion is the past experience with the destination. Only two groups seem responsible for this further step: first time visitors vs. repeaters. First time

Table 10 Target profiles for the DTRN traveller types

Avg.*)	Segment	Identification	Share
27%	Cultural value-for-money tourist	Short trips (1 to 3 nights), 14–40 years	51%
		4–7 nights stay without children < 14 years in other accommodation types	36%
		4–7 nights stay without children < 14 years in 4 or 5-star hotels	39%
		Longer stays, repeat visitors travelling without partner	36%
24%	Modest outdoor lover	Short trips (1 to 3 nights), 14–30 years	31%
		4–7 nights stay without children < 14 years in 3-star hotels	31%
		Longer stays, first-time visitors travelling with friends or colleagues	77%
15%	Cityscape, accommodation centred	Short trips (1 to 3 nights), 51–60 years	28%
12%	Mobile cityscape, outdoor individualist	Short trips (1 to 3 nights), 41–50 years	26%
		4–7 nights stay without children < 14 years in 4 or 5-star hotels	20%
22%	Recreational, social comfort seeking cultural tourist	Short trips (1 to 3 nights), 61 years and more	30%
		4–7 nights stay with children < 14 years	52%
		Longer stays, repeat visitors travelling with partner	59%

*) These shares deviate from the overall distribution in the sample since only a subset of cases could be used in the CHAID analysis.

visitors may be even better identified by the fact whether they are travelling together with friends or colleagues or not. On the other hand, repeaters can be better characterised considering if they are travelling together with their partner or not.

Table 10 identifies the strongest compound descriptors for each of the five types of the DTRN typology. It helps to assess the gains of better identifying the target segments by knowing more about their distinct socio-demographic and travel characteristics. A correct classification based on the used descriptors is difficult to achieve. On average, the ratio is not higher than 45%. The "Cultural value-for-money traveller" (69%) and the "Recreational social comfort seeking cultural tourist" (64%), though, show the most impressive gains.

The closer inspection of the TRN types employing the whole range of descriptors depicted in Table 9 arrives at different results. The response to the intention of a re-visit is responsible for the primary split. Those travellers who are sure to come back to the city can be further differentiated by the fact of travelling with or without a partner. For those who did not make up their mind so far a better identification of the typology can be achieved by differentiating their preferred accommodation type. For the four- and five-star travellers the next best split is achieved with length of stay. For those choosing a three-star hotel the profile is strongly dependent on household income. For all other accom-

Table 11 Target profiles for the TRN traveller types

Avg.*)	Segment	Identification	Share
18%	Modest social city tourist	Certain repeat visit intention travelling without partner	38%
		Declining repeat visit intention	50%
19%	Price conscious accommodation centred	Unsure repeat visit intention, favouring other accommodation than 3- to 5-star hotels, travelling alone	41%
		Unsure repeat visit intention, favouring 3-star hotels	32%
		Unsure repeat visit intention, favouring 3-star hotels, household income between 2,000 and 3,000 Euro	42%
16%	Cultural value-for-money tourist	Certain repeat visit intention travelling with partner	47%
		Unsure repeat visit intention travelling not alone, preferring other accommodation types than 3- to 5-star hotels	44%
		Unsure repeat visit intention preferring 3-star hotels with household income between 2,000 and 3,000 Euro	40%
		Unsure repeat visit intention preferring 4- and 5-star hotels with more than 1 week length of stay	25%
27%	Recreational, social, comfort seeking culture tourist	Unsure repeat visit intention preferring 3-star hotels with household income either up to 2,000 or higher than 3,000 Euro	32%
20%	Cost conscious scenery seeker	Certain repeat visit intention travelling without partner	30%
		Unsure repeat visit intention travelling alone, preferring other accommodation types than 3- to 5-star hotels	24%
		Unsure repeat visit intention preferring 4- and 5-star hotels with less than 1 week length of stay	40%

*) These shares deviate from the overall distribution in the sample since only a subset of cases could be used in the CHAID analysis.

modation types the additional identification depends on the fact of travelling alone or not.

Table 11 highlights the best profile descriptors for each of the five TRN types. On average, the rate of correctly classified travellers is no more than 43%. The "Recreational social comfort seeking culture tourist" is the only exception of this poor result with a ratio of 68%.

The hierarchy of impact factors improving the segment identification for the BinCom typology follows a similar pattern like that for the DTRN structure. The first split criterion is the length of stay. For travellers up to

Table 12 Target profiles for the BinCom traveller types

Avg.*)	Segment	Identification	Share
21%	Modest social city tourist	1 to 3 overnights, 60+ years of age	28%
		1 to 3 overnights, up to 30 years of age	46%
		1 to 3 overnights, all types of accommodation except 4-star hotels and Austria, Germany or Switzerland	24%
18%	City scenery accommodation centred tourist	4 to 7 overnights, 1- and 2-star hotels and other types of accommodation, no children below 14 years as travel companions	25%
		4 to 7 overnights, 4- or 5-star hotels, income above 3,000 Euro	47%
		1 to 3 overnights, up to 30 years	29%
		1 to 3 overnights, 31 to 60 years, other than 4-star hotels, non-German speaking origin	25%
		1 to 3 overnights, 31 to 60 years, 4-star hotel	44%
18%	Cultural value-for-money tourist	4 to 7 overnights, 1- and 2-star hotels and other types of accommodation, with children below 14 years as travel companions	24%
		4 to 7 overnights, 3-star hotels, females	31%
		More than one week, unsure about repeat visit, friends as travel companions	70%
		1 to 3 overnights, 31 to 60 years, other than 4-star hotels, Austria, Germany or Switzerland	21%
26%	Recreational social comfort seeking cultural tourist	4 to 7 overnights, 1- and 2-star hotels and other types of accommodation, with children below 14 years as travel companions	47%
		4 to 7 overnights, 3-star hotels, males	52%
		4 to 7 overnights, 4- or 5-star hotels, household income below 3,000 Euro	36%
		More than one week stay, certain intention to visit again	54%
		More than one week, unsure about repeat visit, without friends as travel companions	29%
		1 to 3 overnights, 60 years plus	37%
18%	Modest outdoor seeker	4 to 7 overnights, 3-star hotels	22%
		4 to 7 overnights, 4- or 5-star hotels, household income below 3,000 Euro	27%
		More than one week, unsure about repeat visit, without friends as travel companions	24%
		1 to 3 overnights, 31 to 60 years, other than 4-star hotels, non-German speaking origin	47%
		1 to 3 overnights, 31 to 60 years, 4-star hotels	22%

*) These shares deviate from the overall distribution in the sample since only a subset of cases could be used in the CHAID analysis.

three overnight stays the next step is a split-up by age groups. However, these groups are clustering together in a more pronounced way. The youngest (up to 30 years) and the oldest (60 years plus) are separated from the rest of the sample. The middle-agers can be further divided by the chosen accommodation type. Only the four-star customers are distinguished from others. The latter ones are further differentiated by their nationality.

For travellers with an average length of stay between four and seven overnight stays the primary split criterion is again the type of accommodation chosen. This splitting process continues with either children in the travel group or gender or household income. For those staying longer than one week the intention to repeat visit is responsible for the next split. Table 12 highlights the best profile descriptors for each of the five BinCom types. On average, the rate of correctly classified travellers is no more than 42%. The "Recreational social comfort seeking culture tourist" is again the only exception of this poor result with a ratio of 73%.

5.7.2 Recommendation

A final conclusion about the appropriateness of one of the three typologies cannot be derived without ambiguity. Hence, it is the objective of this sub-chapter to demonstrate potential approaches and guidelines to identify the best matching solution from the perspective of the CTO marketing manager. First of all, there is the average ratio of correctly classified cases. Applying this criterion the DTRN typology counts for the highest share of 45%. Unfortunately, the case base did not suffice to establish the goodness of classification by means of a real hold-out sample. So, it has to be assumed that the power of the three CHAID trees is even slightly inferior when facing new unknown travellers. In addition to the global goodness of classification, it can be observed that the inspection of the DTRN typology resulted in a tree hierarchy with two segments (the "Recreational social comfort seeking culture tourist" and the "Cultural value-for-money traveller") being identified with a substantially higher degree of certainty (69% and 64% respectively). For the other two typologies only one segment (the "Recreational social comfort seeking culture tourist") achieved an above average classification ratio. Hence, the marketing manager can consider the risk involved in selectively identifying and finally addressing all segments and/or the specific segments to be targeted.

Another perspective is opened by the criteria responsible for the tree hierarchy. In terms of frequency (considering only up to three split levels) the chosen type of accommodation is most relevant followed by the length of stay and finally the intention to visit the destination again. Travel party in general is important for all kinds of typologies: in some cases it depends on the partner, friends or other relatives or children below the age of 14 years. Household income is relevant only as a third-tier criterion and not in all trees. Age has a medium potential to describe differences among the given typology. Interestingly, gender and nationality have both only light weight in this process. The marketing manager has to reckon now if their preferred segmentation criteria show up in the list of important factors discussed so far. Some of these will not qualify as easily as others. The primary split factor for the TRN typology is the intention to repeat visit. This information is, of course, interesting to know to better describe the tourist segments in the market. For pro-active marketing purposes, though, it does not seem to be the most appropriate and effective characteristic. In this respect, the TRN approach rather disqualifies from further consideration.

Finally, taking the so-called gains into account (the information of the last columns in Tables 10 to 12) that are feasible through the CHAID profiles, the marketing manager, for each of the given segments, can judge the effectiveness of knowing more about them. Since

these gains are not symmetric it depends on the selected target segments which typology approach the marketing manager should rely on. If, e. g. only city tourists with a dominant interest in cultural experiences are to be addressed (about 50% of the current DTRN city tourists) the DTRN solution offers the better and more promising approach. The gains using the descriptors length of stay, age and the travel company (children below the age of 14) are substantial. The BinCom solution is not as stable nor promises such a broad coverage by only these two segments. However, if not only culturally interested travellers but also accommodation-centred visitors are within the scope of regular marketing activities the BinCom approach may be more promising. The gains are substantial for all three types. The typology offers a more balanced portfolio of segments in terms of risk involved and accessibility (length of stay, type of accommodation, age, gender, and household income).

In conclusion, the three different numeric segmentation solutions (DTRN, TRN, and BinCom as demonstrated in the first part of this chapter) generate very similar typologies with partly varying shares among the study population. For a final assessment of the operability of the established segmentation perspective from a marketing point of view Part Two of this chapter considered a limited number of sociodemographic and travel-related characteristics to ascribe more meaningful profiles to the city traveller types. By means of CHAID analyses the stepwise impact of split criteria could be identified. The appropriateness of these solutions can be partly ascertained by statistical ratios such as risk and gains involved relying on a specific CHAID-tree hierarchy. However, the marketing manager has to take the current or future segment selection and targeting decisions into account to finally evaluate which typology is more suitable and actionable for pursuing the city's marketing strategy.

Case example

If you have access to the results of a travel or guest survey, or your instructor provides it for you, do the following:

(1) Put yourself in the position of a CTO marketing manager. Decide on an appropriate basis for generating a-posteriori tourist segments. Typically, these will be groups of tourists homogeneous in terms of benefits sought, travel motives, or activities. Name the reasons of your choice. Try to relate it to an explicit strategic goal of your destination.

(2) Create segments by applying software offered in the demonstration study or any other classification programs you are familiar with. You may generate alternative solutions. Be candid in justifying the number of classes for each of your typologies.

(3) Perform the profiling and targeting step that assists you in selecting a final result for your segmentation scheme. Give a priority ranking of segments to be targeted. Think of the basic paradigm of strategic marketing, i. e. matching your customers' requirements with your destination's potential of satisfying specific tourist needs.

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Information Needs of City Travellers

6

Clemens Költringer and Karl Wöber

6.1 Purpose and objective

This chapter focuses on the information needs of city travellers and their implications on actual travel behaviour. Three different online travel information sources – Visiteuropeancities.info, Salzburg.info and Google.com – are used to demonstrate the temporal relationship of online information search and travel behaviour over time. Based on log file analyses, the relationship between the information retrieval process and the actual arrivals (representing tourism demand) will be examined. A longitudinal approach applying time series analyses is used to compare and analyze decomposed seasonal patterns. The chapter provides additional insights in the analysis of seasonality and the relationship between the time of online information enquiries and arrivals in the European city break destinations of Stockholm, Salzburg and Barcelona.

Findings indicate the importance of online information search during the travel planning process and its impact on actual travel behaviour. City (tourism) managers can use the outcomes to revise their marketing and communication strategy in order to i) optimise scheduling online marketing activities, ii) identify seasonal patterns in the information search process for different markets and segments, and iii) learn about state of the art online information sources and the power of log file analysis as a basis for research and development processes.

6.2 Consumer information search behaviour

Theory about consumer information search behaviour has a long history in the social sciences. Since information search is a significant part and impacting factor in the purchase decision process (Jang, 2004), special attention from tourism researchers and practitioners has been drawn to the field.

Planning a vacation is a complex, information intensive and involving activity for tourists. The information search process is particularly important in tourism contexts, given the intangible nature of tourist destination information. Thus, trip planning includes a number of perceived high-risk, high-cost, and high-involvement choices. It also includes consequences in a higher amount of information search and processing than the planning and purchasing of other types of goods or services (Bonn et al., 1999; Hwang et al., 2002; Öörni,

2004). Fodness and Murray (1997) found, however, that information search is perceived as an effective tool to enhance travellers' vacation quality by reducing uncertainty and perceived risk. At the same time, it is perceived as a function of utility and cost.

Search theory suggests at least three distinct strategies for information search involved in a purchase situation: spatial, temporal and operational (Fodness and Murray, 1997; 1998). The fundamental *spatial* classification is internal (scanning the long-term memory for relevant product knowledge, using personal experiences as the basis for planning a repeat visit to a destination) versus external search (acquiring information from the environment, which is predominantly the case in vacation travel once internal search cannot provide sufficient information). The *temporal* dimension distinguishes between timing of search activity, since search might be ongoing (building up a knowledge base for unspecified future purchase decisions) or pre-purchase (responding to current purchase problems). Several researchers have even proposed that tourist search behaviour is separated into three sequential and interrelated stages – namely the pre-trip, during trip and post-trip phase (Stewart and Vogt, 1999; Fesenmaier and Jeng, 2000; Woodside and King, 2001) – and is following goals and sub-goals (Pan and Fesenmaier, 2006). The *operational* dimension describes the sources used and their relative effectiveness for problem solving and decision making. However, there are significant differences in the information sources tourists use to plan their vacation (Lee et al., 2007). In summary '… tourist information search strategies are the result of a dynamic process in which travellers use various types and amounts of information sources to respond to internal and external contingencies in vacation planning' (Fodness and Murray, 1999, p. 229).

Zins (2007) points out that only recent scientific publications have integrated the new media of the Internet and particularly the World Wide Web as a source of information. The latest detailed investigation of typology of tourist information seeking strategies by Fodness and Murray in 1998, however, did not identify the Internet as a potential information source along eleven state-of-the-art information sources. This is particularly interesting, since the Internet was already recognised as the world's largest archive of on-line digital information (Williams et al., 1996). However, it hadn't been accepted at that point in time.

6.2.1 Online search theory

These days, information technology in general, and particularly the Internet, has become one of the most effective means for travellers to search for information and purchase travel related products (Werthner and Klein, 1999). It has changed the socioeconomic context of tourism and is expected to stimulate further development (Rayman-Bachhus and Molina, 2001). Today, about 95 percent of all web surfers use the Internet to gather travel-related content. Furthermore, when planning their vacations, about 93 percent indicate that they visited tourism websites when planning for vacations (Pan and Fesenmaier, 2006). The uncertainty about travel products prior to the trip underlines the great affect and applicability of the advent information repository for the product/service industry (Weber and Roehl, 1999).

The process of online information search usually refers to information search activity through the Internet, which is accessible via various devices during all trip phases. More specifically, it refers to the part of the Web related to the tourism industry and destinations. The Internet makes it possible for travellers to search and compare different types of information provided by different stakeholders at one place.

Unlike other channels, however, the Internet supports many different forms of communication, and to a certain degree, parallels offline sources. Online search enables users to

assert their need for information that is framed within their personal context rather than marketer controlled information of the promoter (Dann, 1996; 2003; Pan and Fesenmaier, 2006; Zins, 2007). The information can be retrieved directly from an intermediary, online word of mouth (blogs, travel communities) or other third-party providers such as media or non-profit organisations instead.

Since the Internet offers comprehensive information and resources to travellers, it becomes increasingly important to both travellers and tourism professionals (Susskind et al., 2003; Jang, 2004). Especially the tourism marketers and suppliers can gain useful insights from tracking online travellers' search and purchase behaviour to apply market segmentation and one-to-one marketing activities. Hence, highly customised content can be delivered to users based on their individual preferences. At the same time, the high level of interactivity enables marketers to constantly update the provided content online. Jang (2004) found that online information search is more directly connected with purchase as opposed to other traditional sources. Tourism-related websites usually offer the possibility of online reservation or purchase, which adds up to the strengths of the medium.

Considering the importance of the Internet, research on online search behaviour is increasingly necessary, particularly in a travel and tourism context, since there has not been given much attention to this discipline (Jang 2004).

Conducted research in the field of Hypertext (Conklin 1987), which is the basis for the later developed Internet, investigated already users' adoption of the first basic search strategies. Further research has shown that online travellers use a surprisingly large number of different keywords to search for, or describe the same concept (Furnas et al. 1987). More recent studies examined the planning horizon as a key characteristic for the information search process (Fodness and Murray, 1999; Decrop and Snelder, 2004). It was shown that travel products are purchased in a timely sequence (Morrison et al. 2001; Card et al., 2003) and that an increase in length of stay is positively associated with increases in the amount of time and the number of sources used in the search process. Tourists who visited more destinations used more time and sources to plan (Fodness and Murray 1997). Whereby, the number of options considered was found to be significantly higher for those tourists who used the information sources of electronic markets compared to traditional channels (Öörni, 2003).

Since search theory suggests that the majority of travellers are using a combination of more than one source of information (Snepenger, 1990; Fodness and Murray 1998), one should not neglect the bundle of interacting sources that shape the overall search strategy. There is a significant difference in the use of the Internet for search and purchasing in the different stages of a trip. Especially during the pre-trip phase, travellers' emphasise merely on information search rather than on purchase. Despite that, Jun et al. (2007) and Machlis (1997) found that many online information searchers tend to switch to offline channels for the actual trip purchase and accordingly use online as well as offline channels to search and purchase their travel products.

Pan and Fesenmaier (2006) along with Pirolli and Card (1999) suggest that searchers generally use information hubs or clusters (convention & visitors bureau website, domain specific search engines, etc.) containing or allowing the retrieval of many links to other authoritative websites regarding the designated destination.

The importance of the Internet as an external travel information source has been confirmed by many researchers as outlined above. Next the authors provide an approach to study a hypothesised, timely relationship in the pre-trip phase between the phase of online travel planning and actually going on a city trip.

6

Discussion point

Which sources does one use to search for travel information and has this behaviour changed? Which online sources could one use to gain more insights into consumer behaviour?

6.3 Examining the relationship between online information search and city tourism

Cities are the most popular tourist destinations within tourist demand. They are not just recognised as year-round destinations attracting visitors with all kind of all-weather indoor and outdoor facilities, they have the capability to attract a variety of tourist segments, and furthermore serve as travel hubs managing tourism flows.

Even though, cities are usually regarded to as year-round destinations, seasonal variation in demand is a reality for most urban tourism destinations, challenging city managers throughout the world. By analyzing the historical series of demand data (arrivals), the seasonal pattern or 'seasonality' which '… refers to movements in a time series during a particular time of year that recur similarly each year' (Moore, 1989, p. 49) can be revealed.

Seasonality, as also discussed in Chapter 4 in this book, is not solely a distinctive feature of tourism. Also the Internet usage follows distinctive patterns which can be tracked with state-of-the-art website analyses tools. These tools are providing insights into website usage consequently revealing online user behaviour/patterns which are predominantly determined by time and content.

It is a very intuitive assumption that the interest of the traveller in a destination is expressed by i) the visit of a city specific website, or ii) the keywords used when searching online for a particular city during the pre-trip phase. Knowledge on significant relationships and the time lags between information retrieval and arrivals can assist managers to optimise the schedule, placement and customisation of online marketing activities. Consequently the question under study is, whether there is a significant relationship between the online information search and the actual travel behaviour and how this is portrayed to confirm the importance of online information search.

To investigate this relationship we can apply log file analysis of (tourism-specific) websites/information hubs relevant in the search process of city travellers. The three information sources under investigation are the i) European Cities Marketing (ECM) web portal www.visiteuropeancities.info, for prospective visitors interested in information about Stockholm, ii) the website of the Salzburg Tourist Office www.salzburg.info, to analyse the search behaviour of US internet users interested in Salzburg, and iii) the general-purpose search engine Google www.google.com, exploring the search behaviour for travel related keywords for Barcelona. In addition, the publicly available online analytical tool, Google Trends, is used to extract usage data from Google's search engine, about the search behaviour of information about planning a city trip. The development of arrivals (in all paid forms of accommodations) is used for describing the demand side in each of these destinations.

The following figure shows the seasonal variation in online search as well as tourism demand at a glance. The presented (raw) data give an idea of the resembled seasonality in both, the information search patterns as well as the tourism demand patterns expressed by the number of arrivals analysed in this study.

Online market research per se is still in its infancy even though it offers great opportunities. By applying log file analysis users can be unobtrusively observed but within the borders

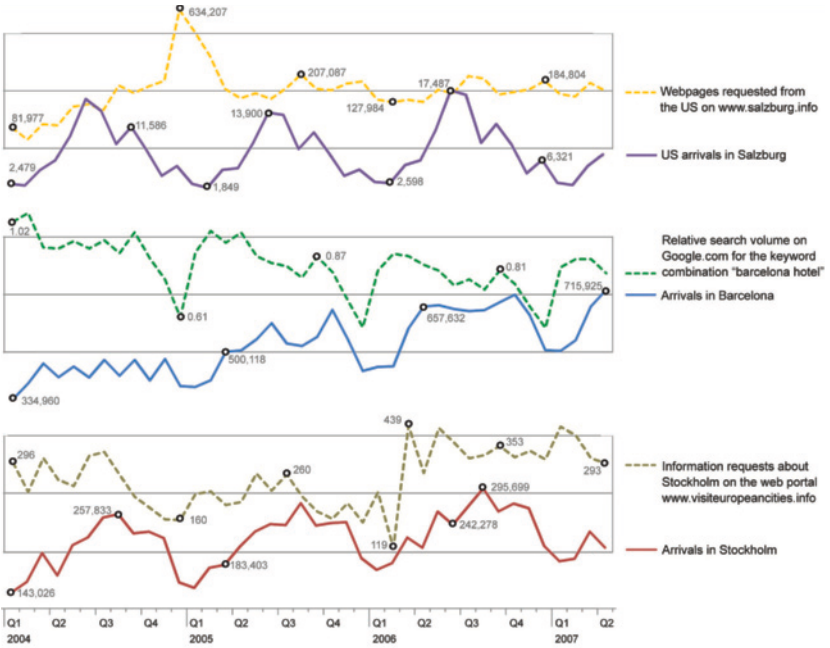

Fig. 1 Seasonal variation of demand data (arrivals, solid lines) and information retrieval data (volume of information search, dotted lines) over time (Note: This figure is based on raw data and combines multiple scales.)

of their privacy. A log file or a transaction log is described by Rice and Borgman (1983) as a data collection method that automatically captures the type, content, or time of transactions made by a person from a terminal with that system. Peters (1993) views log files as electronically recorded interactions between on-line information retrieval systems and the persons who search for the information found in those systems. For Web searching, a log file is 'an electronic record of interactions that have occurred during a searching episode between a Web search engine and users searching for information on that Web search engine' (Jansen, 2006, p. 408). Based on these log files, automated web site analysing tools can be used to obtain information about navigation, interactivity, layout and textual features (Scharl et al., 2004, p. 264).

In this case, three different types of log file analysis methods and tools are used to retrieve monthly data expressing information search behaviour as a basis for the comparison to tourism demand. Unfortunately, web space providers tend to offer access to some very basic types of log file analysis tools. However, there are numerous alternative log analysis programs freely available like the powerful open source software AWStats (http://awstats.sourceforge.net) or the free and easy to use Google Analytics service (http://analytics.google.com).

Discussion points

What are the advantages and disadvantages of log file analyses?
From a customer point of view, what are the advantages and disadvantages of the automated user tracking ongoing on the World Wide Web?

6

To analyse the temporal relationships between information retrieval data and tourism demand data extracted from the log files, time series analyses can be performed. These methods are widely used in the field of forecasting and thus are applicable to investigate longitudinal effects.

To analyse seasonal patterns over time, the classical decomposition of time series approach, namely the 'ratio-to-moving-averages classical decomposition method' has been chosen. This method uses a moving average to extract the seasonal component from a multiplicative time series and attempts to decompose a time series into four constituent parts (Frechtling, 1996; Makridakis et al., 1998; Lim and McAleer, 2001). In addition, this procedure removes the influence of outliers that tend to be atypical. The components of the model are described as follows: i) the trend component is the long-term movement of the time series and is often linear; ii) the cyclical component is a wave-like movement around the long-term trend that varies in amplitude and duration, but normally lasts for several years or more from a peak to the following peak; iii) the seasonal component represents patterns in a time series that are repeated over fixed intervals of time up to a year in length; and iv) the irregular component is the error term and is usually assumed to be random with a constant variance. The model expresses, that the effect of one component is dependent on the values of the other components (MacGregor, 2001).

$$A_t = T_t \times C_t \times S_t \times I_t \quad (1)$$

A = actual value in the time series
S = seasonal component
T = trend component
I = irregular component
C = cyclical component
t = some time period less than one year (e. g. a month or quarter)

The survey methodology applied here, constantly follows a three step process for all use cases. The first step is to isolate the seasonal and irregular factors through the ratio-to-moving-averages method. Since a monthly series is examined, it is necessary to compute a 12-month moving average representing the trend-cycle ($T_t \times C_t$) components. They do not include any seasonal effects by definition and there is little or no randomness, since the irregular component period tends to cancel itself out when averaged over a number of periods. The next step is to calculate the 12-month centred moving average; hence each monthly value is at its centre. The third and last step to derive the ratios representing the seasonality pattern of the monthly data is gained by dividing each value by his centred 12-month moving average resulting in a seasonal factor.

$$\frac{A_t}{T_t \times C_t} = S_t \times I_t \quad (2)$$

Logarithmic transformations are applied to each of the monthly seasonal factors for arrivals and enquiries. Calculating the natural logarithm ($\log_e$) for all values smoothes the seasonal patterns further and reduces the influence of remaining outliers.

Since the number of tourist arrivals as well as the number of enquiries of the examples in this chapter increased considerably over the examined years, there is evidently a (linear) time path in the data for which the seasonal effects are being examined. As the number of Internet users itself, the visitors of the examined websites as well as the arrivals in the observed city tourism destinations have increased significantly, it is essential to ensure that the relationships under study are not purely a function of time. Hence, residuals from linear regression analyses were calculated to exclude any linear trend and produce stationary seasonality patterns.

Finally, after preparing and cleaning the data set, correlation coefficients are being calculated to examine timely relationships be-

tween the time series under study. To identify significant time lags, the time series expressing demand is shifted towards the fixed time series expressing information retrieval behaviour. All correlations were computed for the data points of the time lags zero to twelve. By calculating Pearson's correlation coefficients, significant correlations are taken as indicators for timely relationships at the $*p < 0.05$ and $**p < 0.01$ level of significance, for certain time lags.

6.4 Findings from the three use cases

The presented log file and time series analysis techniques can be applied to the three use cases. Each use case focuses on a different perspective of information retrieval. The first example provides data about a multitude of different user actions performed on a travel information portal allowing even qualitative analyses. The second example deals with analysing a combined log file of a tourist office's website that is accessible to every city tourism manager. The third use case is analysing the information search process more holistically by using a basic search engine log.

6.4.1 The demand for Stockholm on the ECM web portal

The source of information for the first use case is the European Cities Marketing (ECM) web portal (www.visiteuropeancities.info). The ECM web portal allows access to a database of tourist-relevant information retrieved from more than 200 official tourist offices' websites. The underlying database is automatically updated by a web crawler (web robot) in regular intervals. Thus, the portal functions like a domain-specific search engine that serves not only tourists in finding their most preferred city break destination in Europe, but also tourism managers in understanding information needs of potential visitors (a full description of the system is provided by Wöber, 2006).

The core component of the portal is the search function which requires the online tourist to either enter a keyword (or phrase) or select a predefined city from a list, or both. Each search result features a page link, the name of the city the page is associated with, a rating that indicates the relative number of times the term was found on the page (compared to the number of other terms that appear on the page), as well as an abstract. Despite the focus on the tourism domain, using www.visiteuropeancities.info is similarly easy to use as any of the main, well-known global search engines like Google, MSN Search, and Yahoo (Wolk and Wöber, 2007).

This use case focuses on visitors retrieving information about the city tourism destination Stockholm on the domain specific search engine during their search process. In particular the use of the search function for querying Stockholm or a specific keyword in the city, and accessing Stockholm's webpage within the portal indicate a specific interest in the city break destination (Mitsche, 2005). This type of information is comparable to the unaided response frequently applied in travel surveys that ask customers where they want to spend their vacation (Grabler and Zins, 2002; Gretzel et al., 2004).

The portal monitors all user activities in a user log file including the text and/or city the user has selected or entered into the system. In addition, the portal provides a highly advanced tool on the application side that tracks and preprocesses individually selected processes as well as log file data to provide highly customisable analyses beyond the capabilities of the standard log.

The log file under investigation consists of information on all activities of users of www.visiteuropeancities.info from June 2003 until March 2008. Detailed analysis of the user

log file helps to identify interest in the city break destination Stockholm indicated by three examined user actions carried out: i) searching a particular city, ii) searching a particular keyword/phrase in a particular city, and iii) visiting a city's server homepage by the use of the city selection mechanism, which avoids the necessity of any form of natural language processing (NLP). The sum of these three user actions are furthermore referred to as 'enquiries'.

For the analysis, the application sided database consisting of 1,921,540 performed city specific enquiries has been queried. This information includes the time stamp of the action to derive monthly data, the kind and number of tasks executed on the portal to identify actual search behaviour, as well as the city code for the conducted search task referring to a particular city. Since the influence of robots and spiders on the performed actions is quite substantial, the user agent identification was used to exclude all web robots and crawlers by applying the filter terms 'crawler', 'bot' or 'spider', and variants.

The second part of the data set consists of the monthly arrivals from foreign and domestic visitors in all paid forms of accommodation establishments in city area of Sweden's capital gathered from TourMIS. Since the number of arrivals per city is exclusively available on a monthly basis, the daily available number of enquiries from the log file had to be merged to monthly intervals as well.

The final data set contains data of 48 continuous monthly data points for both variables

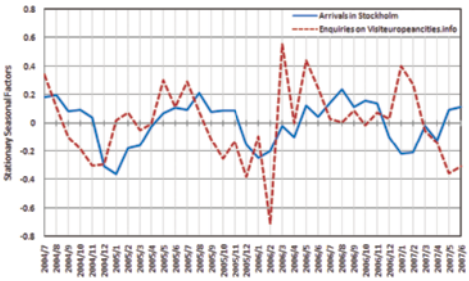

Fig. 2 Comparison of seasonal patterns: Enquiries on www.visiteuropeancities.info versus arrivals in Stockholm

from 2004 to 2007. In the next step, the 'ratio-to-moving-averages classical decomposition method' is applied to decompose the seasonal patterns shown in Figure 2.

The seasonal pattern in the arrivals shows a peak from May to November with the zenith in August, characterising the main summer season. In contrast, the winter season from December to February is characterised by a trough. Overall the seasonality pattern is quite stable over years supported by drawing a comparison between the raw number of arrivals for Stockholm and the decomposed seasonal pattern. The dotted line represents the seasonal pattern of enquiries on www.visiteuropeancities.info. One can observe that the seasonal pattern shows similarities, however, there are still some outliers in the time series left after the process of smoothening. The stability of the time series suffers somewhat from the available amount of data ranging between 119 and 700 observations

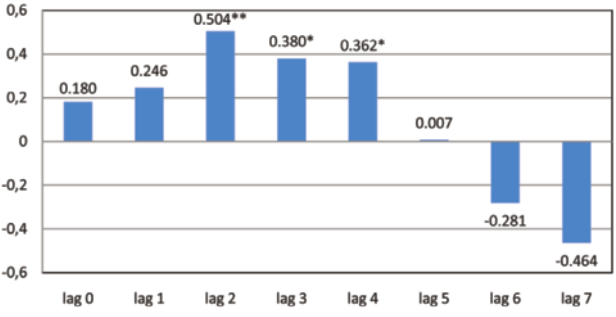

Fig. 3 Time lag between enquiries on www.visiteuropeancities.info and arrivals in the city of Stockholm (Note: The values represent Person's correlation coefficients (r), identifying the significant time lags of two, three and four months. The higher the number of enquiries, the higher are the number of arrivals (for positive values) and vice versa.)

per data point (∅ 280), which are vulnerable to constraint occurrences. Since the relationship between these two time series is of particular interest, the correlation's coefficients are calculated to derive statistical significant results indicating a temporal relationship. Figure 3 shows this assumed relationship.

The highly significant correlation coefficient of r=0.504** indicates a time lag of intensified information enquiries occurring two months prior to an intensified amount of arrivals in Stockholm. Furthermore, significant results for information retrieval three (r=0.380*) to four (0.362*) months prior to the travel are shown. Even though the applied model does not consider any causal relationship, the results indicate an increase in online information demand four to two months prior to an increase in arrivals, whereby the shorter the distance, the more significant are the results.

6.4.2 Market-specific enquiries on Salzburg's tourist office website

The second use case is the official website of the tourist office of Salzburg in Austria (www.salzburg.info). The website is one of the major information sources for travellers planning their trip to the city and is available in 11 different languages. Despite comprehensive English and German versions of the website, the other nine languages are provided in a simplified version with the most important content in the respective language, whereby the remaining sites are in English. The website presents information about Salzburg's core competences: Mozart, the Salzburg Festival, the World Heritage and The Sound of Music. Despite that, one can find the characteristic information for a tourist office such as information about sights and attractions, events, accommodation, wine and dine or shopping. Moreover, it is possible to directly book a room online on the website. The average number of website visitors per month increased from 174,000 in 2005 to 278,000 in 2007 – almost 60 percent. The total arrivals of all foreign and domestic markets show an increase from 1,05 million in 2005 to 1,17 million arrivals in 2007, which amounts to approximately a 12 percent increase. These data demonstrate an above-average growth that is mainly based on one special event that took place in 2006. Austria and the city of Salzburg in particular celebrated the 250th anniversary of Wolfgang Amadeus Mozart (later on referred to as the Mozart Year), which led to these results.

Since consumers travel for a multitude of reasons such as relaxation, visiting friends and relatives, outdoor recreation, sightseeing, business trips and more, tourists are travelling with vastly different motives and resources. Different trip purposes may, of course, show different patterns over time and be affected by different factors. A forecasting study by Turner, Kulendran and Pergat (1995) found more accurate results were obtained by distinguishing data series by the purpose of the trip and independently forecasting them. The same applies for geographic segmentation for reasons like social customs and holidays, business customs, and the calendar typically influencing seasonality. This use case is focusing on the information demand of city travellers from a specific country of origin, namely the United States (US).

Hence, the aim is to examine the relationship between the information retrieved from the websites of the Salzburg tourist office and the actual arrivals in the city of US visitors. The tourism demand data is the monthly arrivals of US citizens in all paid forms of accommodation establishments in the city of Salzburg. As a matter of fact, there is a variety of languages spoken in the US. This is reflected in the information retrieval process from US website visitors not only on the English language version of www.salzburg.info, but also on all language variants. To analyse this relationship, a log file analysis is performed using the open source software AWStats, which processes all 11 language versions.

6

In contrast to the analysis of www.visiteuropeancities.info, this use case relies on standard log files from the web server, as there are no similar sophisticated or powerful protocols on the application side available. Thus, it is not possible to track the reasons for the search, the searcher's motivations or other qualitative aspects (Jansen, 2006) from these standard logs. The study is focusing on the number of pages requested by US visitors on the website of Salzburg over time (later on referred to as enquiries). The term 'page' is defined by AWStats (AWStats.Sourceforge.net, 2008) as the number of pages logged. The analytical tool solely counts HTML files and CGI requests as pages, but not images and other files like JavaScript, and CSS files. The country of origin is derived by the AWStats's integrated GeoIP detection – a tool that determines the user's location from their computer's IP Address. With full access to the log files, it will be possible for city tourism organisations to retrieve the number of (unique) visitors for a specific country, which would even improve the data quality. Since it is not possible to exclude user actions performed by web robots or spiders out of the available data, they do have an influence on the results. The current figures include page requests by an average of 40 monthly identified robots and spiders visiting the website. Due to their periodic return and the minimal share on the overall visitors of 226,000 per month, the impact can be neglected, as they are almost equally distributed and only have a minor influence on the requested pages.

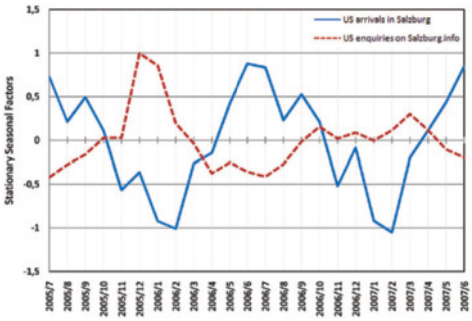

Fig. 4 Comparison of seasonal patterns: Enquiries on www.salzburg.info versus US arrivals in Salzburg (Note: The enquiries refer to all 11 language versions of the website and comprise 'logged pages').

The derived data set consists of 42 data points each for the arrivals and visitors from January 2005 to June 2008 (3.5 years). The decomposition and extraction of the seasonal component from the time series resulted in the stationary seasonal patterns shown in Figure 4, which represents 24 data points.

The illustration portrays the seasonal pattern of US visitors' arrivals in Salzburg as well as the corresponding time series of US enquiries. As mentioned before, the present use case contains a special event reflected mainly in the time path expressing the enquiries. A heavy concentration of enquiries can be observed for the months of December 2005 and January 2006. Since the strategic focus of Salzburg Tourist Office's marketing campaign's schedule for the Mozart Year was December 2005, a sin-

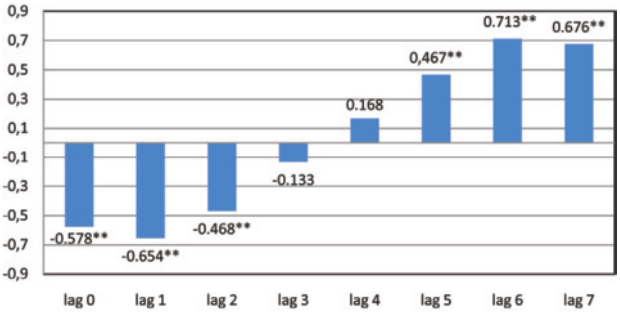

Fig. 5 Time lag between enquiries on www.salzburg.info and arrivals from US citizens in the city of Salzburg (Note: The values represent Person's correlation coefficients (r), identifying the significant time lags of five, six and seven months. The higher the number of enquiries, the higher are the number of arrivals (for positive values) and vice versa).

gle peak can be observed. The arrivals path, on the other hand, is not embodying such a prominent peak and seems to be quite stable. Tourism statistics show that the anniversary year led to an increase of arrivals for all months of 14.4 percent on average. The biggest increased in arrivals was measured in February (+20.2%), March (+26.7%), April (+19.6%) and May (+22.6%). From a first visual examination, the time series show anti-cyclical patterns. Figure 5 presents the test of this interpretation.

By computing the correlations, significant time lags of five (0.467**), six (0.713**), and seven (0.676**) months are revealed. This result confirms the estimated anti-cyclical relationship in the two time series, meaning that five to seven months prior to an increase in information retrieval from US inhabitants, an increase in tourist arrivals from the US in Salzburg follows. These findings are in line with recent studies, claiming the need to differentiate travel behaviour for different trip purposes. The findings further support Turner, Kulendran and Pergat (1995), since they claim that different trip purposes may show different patterns over time and be affected by different factors. The time series analysis of the aggregated visitor data from all countries on www.salzburg.info in a single tourism demand series, did not lead to significant or even accurate results in a conducted pre-study. Since an overseas trip implies a surpassing amount of uncertainties, it could have been expected that tourists start their search process quite early, at least earlier than for short domestic trips or city breaks within Europe.

6.4.3 Barcelona on 'Google Trends'

The third use case has been chosen because Google, like global search engines in general, plays an essential role in creating traffic to travel websites. According to the Travel Industry Association of America (2005), two-thirds of online travellers (64 percent) are using search engine websites for planning their trip online. Hence, online information search has become increasingly important in travel and tourism supported by the Hitwise's US Travel Report (Prescott, 2006), indicating that search engines account for about 30 percent of upstream traffic to travel websites.

The online service Google Trends provides a more holistic overview about the users' search behaviour compared to the previously presented use cases. Google allows comparing the interest of users by different keywords entered on their general-purpose search engine broken down by geographic regions. Besides the presentation of the results in comprehensible graphs, it is also possible to export these data (search volume indices) for further research.

The latest feature 'Google Trends for Websites' allows exploring the audience of specific websites and the benchmarking of up to five sites. Besides the number of unique visitors per day, the percentage of visitors per geographic region as well as data about websites users have also visited and keywords users have also searched for can be examined. Even though, the service misleadingly appears to still be in its infancy, it provides great opportunities for research and impressively demonstrates the power of Google's knowledge repository.

Nevertheless, limitations which need to be addressed are that the service contains sampling issues and a variety of approximations that are used to compute results (Google, 2008). Google furthermore normalises the data to cancel out the variable's effect on the data and presents results on a relative but constant basis, providing at least standard errors. The importance of the search engine domain and the tremendous amount of accessible cases the analysis is based on, however, lead to encouraging results.

This use case utilises the most advanced method provided by Google to analyse users' search behaviour for specific keywords related to the city tourism destination Barcelona. Barcelona has been selected for meeting the

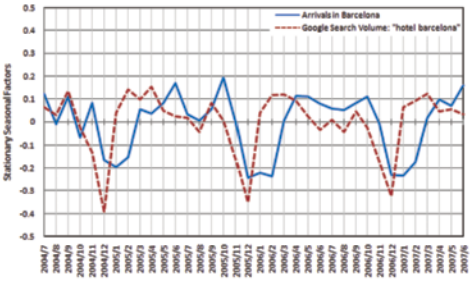

Fig. 6 A Comparison of seasonal patterns: Performed search queries for the keyword combination 'hotel barcelona' on the Google search engine versus tourists' arrivals in Barcelona.

following criteria: being attractive, having diverse attractions, possessing a variety of images, almost equal spelling in different languages and even being accessible via Google Trends. Although Google Analytics provides the 10 most frequently searched terms for a specific website, it is not possible to extrapolate the most important keywords for the city tourism office's website, for example, to the whole destination, as they are directly connected to the content provided on the specific site. Thus, the terms used for the analysis are provided by the analysts.

Considering the tremendous amount of search queries performed on the Google Search engine, the authors chose the travel specific search term combination 'hotel barcelona' to estimate the overall tourism related search volume of Barcelona. Out of a sample of 23 mainly used referring keywords provided by the Barcelona Tourism Office, sufficient data for the keyword combinations 1 to 5 presented in Table 1 could be retrieved from Google Trends. Figure 6 presents the analysis about the keyword combinations for the derived time series of 235 data points in 48 months from 2004–2007. The second variable for the analysis is again the 48 monthly number of arrivals in Barcelona from 2004–2007 derived from TourMIS. By applying the time series analysis to the variables, the following seasonal patterns can be observed:

Even though there are a number of limitations related to the data derived from Google Trends, the seasonal paths clearly show related patterns over time from a first visual analysis. The seasonality in arrivals shows a periodic trough in the off-peak period from December to February. The peak period is furthermore characterised by two pinnacles in the middle and end of the summer. The seasonality pattern within the time series of arrivals consists of some fluctuation compared to the example shown before. It is interesting to see how well the results of the search volume analysis reflect the seasonal patterns of the arrivals. There seems to be a time lag of one to two months between the phase of information retrieval and arrivals. To analyse this relationship from a statistical perspective, the time series analysis technique has been applied once again to seek significant results.

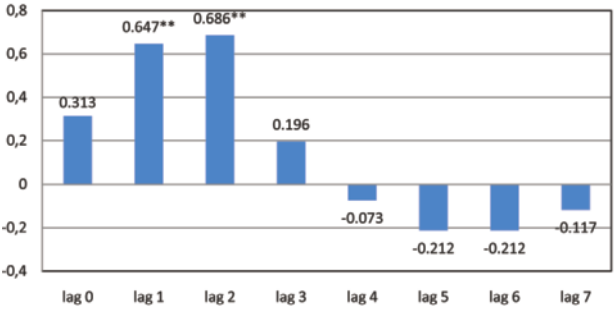

Fig. 7 Time lag between tourists' arrivals in Barcelona and performed search queries for the keyword combination 'hotel barcelona' on the Google search engine (Note: The values represent Person's correlation coefficients (r), identifying the significant time lags of two and three months. The higher the number of enquiries, the higher are the number of arrivals (for positive values) and vice versa).

Table 1 Time lags between performed search queries for selected keyword combinations on the Google search engine and tourists' arrivals in Barcelona (Note: The results are based on data from Google Trends, containing sampling issues and a number of approximations).

	Time Lag							
Search Terms	**lag 0**	**lag 1**	**lag 2**	**lag 3**	**lag 4**	**lag 5**	**lag 6**	**lag 7**
1. barcelona	0.455**	0.530**	0.404*	−0.540	0.720	0.052	0.104	−0.197
2. hotel barcelona	0.313	0.647**	0.686**	0.196	−0.073	−0.212	−0.212	−0.117
3. hotels barcelona	0.004	0.477**	0.688**	0.328	−0.057	−0.208	−0.293	−0.093
4. barcelona hotels	−0.055	0.424	0.684**	0.354*	−0.057	−0.216	−0.253	−0.064
5. barcelona bus	0.676**	0.662**	0.472**	0.097	−0.258	−0.717**	−0.73**	−0.54**
6. barcelona spain	0.370*	0.712**	0.797**	0.417*	0.093	−0.199	−0.399*	−0.458*
7. barcelona hotel	0.308	0.650**	0.683**	0.193	−0.051	−0.184	−0.195	−0.121
8. barcelona travel	0.192	0.592**	0.822**	0.550**	0.130	−0.261	−0.501**	−0.451*
	n = 36	n = 35	n = 34	n = 33	n = 32	n = 31	n = 30	n = 29

The correlations reflect the significant time lags between the two series of one (r = 0.647**) and two (r = 0.686**) months. This means that, if there is a raise in enquiries, up to two month later there is an increase in tourists' arrivals as well. However, as no causal relationship can be claimed, the importance of online information demand prior to the trip can be observed. To further support this observation, the remaining keywords provided by the Barcelona Tourist Board for which sufficient data could be retrieved have been analysed as well. Table 1 presents Pearson's correlation coefficients for the provided keywords 1 to 5 as well as additional keywords provided by the authors focusing on a travel specific combination.

One can clearly see that not all keyword combinations correlate in the same way. Search terms with travel related terms ('hotel barcelona', 'hotels barcelona', 'barcelona hotels', 'barcelona hotel', 'barcelona travel') present a concentration of significant results for the time lags of one, two and three months. Furthermore, it is interesting to observe that the results slightly differ when the sequence of the keywords is changed or a plural expression is used instead of the singular form. The terms 'barcelona' and 'barcelona bus' are keywords successfully leading visitors to www.barcelonaturisme.cat, however, these keywords are not necessarily/or exclusively related to tourism. Reams of keyword combinations can be formed, looking for a multitude of information from any field of interest related to Barcelona from the past, present and future. The information demand in the late pre-trip phase seems to be dominant.

The analysis indicates abreast to up-to-date information search models that website visitors use a chronological approach to search for different parts of the travel value chain. Since different keywords lead to different results, one might argue, that there is a difference in information demand and purchase for different information phases. Considering the keyword combination under study, one might argue that tourists are starting their information retrieval process with the general idea to travel to the destination of choice ('barcelona travel'), followed by the search for accommodation ('hotel barcelona') and finally organizing transportation within the city ('barcelona bus'). However, this hypothesised relationship needs to be investigated in more detail in further research work. In addition, it might be interesting to analyse whether the relationships over time are stable or underlie high fluctuations.

At the same time, all keyword combinations explicitly expressing travel related search terms do not show a correlation at the time lag 0. Therefore, it seems that the information search process really starts one month prior to the trip at the latest and underlines the importance of providing online information.

6.5 Conclusions

The chapter was based on the very intuitive assumption that the interest of the user is expressed by the visit of a city specific website, or the keywords used when searching for a particular city during the pre-trip phase. For city tourism management, it is important to understand the information demand of consumers concerning their city in order to provide the appropriate information at the appropriate place at the appropriate time and furthermore develop effective marketing campaigns. This study demonstrates how to use log file analysis to find out about the time lags between the information search process and tourists travelling to the destination under investigation by examining the usage of three different web portals.

The authors applied the ratio-to-moving-averages classical decomposition method to examine seasonal relationships in time series retrieved from log file analyses. The chosen approach to use access log data to perform time series analysis that is frequently applied in forecasting introduces a new interesting field of research and offers a multitude of further research opportunities. The results from three different use cases provide insights into the power of log file analysis and online analytical tools. At the same time, however, additional studies will be necessary in order to better understand the causality in the relationships between information retrieval and actual travel behaviour.

The three use cases – www.visiteuropean cities.info, www.salzburg.info and www.google.com – underline the importance of online information search in the pre-trip phase, since a timely relationship can be observed. At the same time, the findings show that it is important to track different segments of customers as well as search behaviour for different parts of the travel value chain, since the analysis of different segments and keywords leads to different results. Even though online search is one of the most important aspects in search theory, there are multiple sources of information for visitors besides. The findings suggest that there are different patterns for information needs based on country of origin, city tourism destination and search topic.

The chapter essentially provides guidance for city tourism managers on how to use additional sources of information as well as to further understand the value of data collected automatically through their homepage. City managers can use these findings to revise their marketing and communication strategy in order to i) optimise scheduling online marketing activities, ii) identify seasonal patterns in the information search process for different markets and segments, and iii) learn about state-of-the-art online information sources and the power of log file analysis as a basis for research and development processes. It should stimulate research & development teams to keep the opportunities of log file analysis in mind. The ideal case would be, to consider the data collection process for analytical processes already in the initial phase of designing, or re-launching a website. Even within existing frameworks, it is easily possible to integrate analytical processes to continuously collect data and thereby learn about the travellers' user behaviour on the website.

Besides log files and the applied free online analytical tool Google Trends (which is already integrated in the promising Google Insights for Search Service), there are numerous sources of information available on the web that can

be used to gain further insights about users' perceptions on the web. Services like Technorati.com, Blogpulse.com, News.Google.com, search.twitter.com (earlier known as summize.com), Compete.com, Quantcast.com are worth keeping up with.

Log file analysis in general, as well as the use of programs to access and analyse the logged information, provides great opportunities for city tourism managers to monitor and learn about the actual online consumer's behaviour and understand the information needs of their customers. It furthermore offers a number of interesting opportunities and advantages compared to traditional forms of marketing research. Due to the great number of users, a remarkable amount of data is available. Since the software and storage are the only costs for collecting the data, the approach is quite inexpensive. The computer supported method of measuring customers' information search behaviour is an unobtrusive method of data collection and reduces the biases that frequently result from the intrusion of the measurement instrument. According to Jansen (2006) the 'interactions represent the unadulterated behaviour of searchers since the user is not forced to give his opinion, as the test person does not know about his actual participation in a study'.

The findings of this study should motivate city tourism managers to further improve the data collection process in terms of quality and quantity. Since effective market segmentation is one of the key success factors of a DMO, their own website could easily be used as a source for marketing research, which clusters and investigates segments' online behaviour.

However, there are also problems related to log file analysis and online marketing research per se, which need to be mentioned. One problem about the Internet in general and log files in particular, especially for data analysts, is that there is very little information about the actual user. In many cases, the IP address is the only information that describes the origin of the user. However, this information does not make any indications about the actual user and his/her environment – for instance, if it is a household, a company or a public Internet access point. In addition, there is a lack of demographic details such as gender, age or citizenship (Wolk and Wöber, 2007). Thus, background information for the analysis is poor, and it is difficult to tell if the sample of users is representative for a particular population, since, in many cases, there is no sampling frame (listing of the accessible population) available that is restricted to online population at the same time.

Log files are furthermore vulnerable to adulterating visits by web robots or spiders performing a multitude of actions on websites. Since this behaviour does not reflect a user's action, it is important to consider or furthermore exclude all entries caused by these programs from the analysis in advance. By applying advanced techniques of log file analysis, it is possible to overcome some of these limitations. Literature gives a good overview about the dos and don'ts in analysing log files. However, analysing unique visits might already be a good starting point, since they are not as vulnerable to adulterating external factors as the number of hits or page views.

Some aspects of the data could not be taken into account in this study, but are suggested topics for further research. It would be interesting to analyse the search behaviour for one specific tourism destination in all presented information sources. Google Trends, for instance, solely tracks keywords with a minimum of performed queries most non-capitals would not achieve. Destination management organisations tend to be rather restrictive in granting externals access to their log files or solely use standard logs. Considering the implementation of additional, more advanced website tracking applications to collect more extensive data about visitors, it would be possible to apply more sophisticated models. Working on a causal model or investigating the influence of the type of content requested or even produced on the actual travel behaviour are promising fields of research.

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Additionally, it would be interesting to compare seasonal patterns between different cities to find similarities on either the demand side (investigating online search strategies for a defined target group with different trip purposes) or the supply side (are there destinations with similar profiles, requiring information search in similar stages?).

If more were known about these aspects of tourists' information search, tourism managers would have a better idea about the types of information that should be placed in the various available sources and it would be possible to efficiently interact with particular market segments through the Internet.

Web sites of interest

http://www.visiteuropeancities.info – European Cities Marketing B2C Portal
http://trends.google.com – Google Trends
http://www.tourmis.info – TourMIS
http://awstats.sourceforge.net – AWStats
http://analytics.google.com – Google Analytics
http://www.google.com/insights/search/ – Google Insights for Search
http://www.salzburg.info – Salzburg Tourist Office
http://www.technorati.com – Technorati
http://www.blogpulse.com – Blogpulse
http://news.google.com – Google News

Review questions

(1) What is the concept of a domain specific search engine?
(2) Which are the basic problems related to log file analyses?
(3) What is considered as a search strategy?

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7 Different Tourists – Different Perceptions of Different Cities

Consequences for Destination Image Measurement and Strategic Destination Marketing

Sara Dolnicar and Twan Huybers[1]

7.1 Introduction

A destination marketing organisation is charged with the task of convincingly appealing to potential visitors and so attracting them to their destination. Destination image plays a central role in this process and the effect of destination image on destination choice decisions has been well established in the tourism literature (see, for instance, Tapachai and Waryzcak, 2000). It is also known that visitors generally do not constitute one homogenous group. Another key challenge of a destination marketing organization, consequently, is to identify sub-markets of visitors. The uncovering of separate target markets, captured by the concept of market segmentation, is well recognized by practitioners and researchers in the fields of marketing, and in applications related to tourist destination choices (Dolnicar, 2004).

Hence, the notion of heterogeneity within markets extends to destination image measurement: different tourists may not only seek different benefits from a destination, they might have different perceptions of the same destination which will affect their evaluation and the probability of them visiting the destination. Yet, while benefit segmentation has become a standard approach in tourism research, the possibility that destination image heterogeneity, or perceptual heterogeneity, may exist, is not always explored as an integral part of a destination study. If tourists have different views on particular aspects of a destination, it is equally important that destination marketing organizations appreciate the differences in destination image between customer market segments as it is to segment tourist based on behavioural or psychographic characteristics. The challenge then is to derive a destination image profile for each identifiable sub-group.

Discussion point

What is the difference between benefit segmentation and image segmentation and why is it important that city marketing organisations appreciate that difference?

1 Authors listed in alphabetical order. The authors are grateful to Clifford Lewis for his research assistance in the preparation of this chapter. This chapter is based on an article originally published in 2007 in the journal *Tourism Analysis* under the title 'Different tourists – different perceptions of different places: Accounting for tourists' perceptual heterogeneity in destination image measurement'. Permission to use this article is gratefully acknowledged.

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SYDNEY

An excellent, yet unusual, example of market segmentation by a city destination is provided by Sydney (http://www.sydneyaustralia.com/en/, see also Illustration 1). Sydney not only differentiates between different kinds of tourists, it also acknowledges that the destination image is crucial for attracting international students to enrol in an Australian university, to attract business and to attract skilled migrants as well as unskilled migrants on working holidays. Clearly, these market segments are making their decisions to come or not to come to Sydney on the basis of very different destination choice criteria. It is therefore important to make the required information as easily accessible to them as possible rather than making them search through generic web pages and collect the needed information bit by bit.

The market segmentation approach illustrated on this webpage indicates that Sydney takes an extremely broad perspective on city destination branding. Each section targeted at one of the four segments enables members of the target group to click further to obtain additional information of specific interest (and particularly attractive) to them.

Although Sydney uses one single slogan 'There is no Place in the World like Sydney' for all market segments, the use of different images on the segment-specific web pages already indicates that Sydney is well aware that market segmentation and product positioning have to work hand in hand for the overall marketing strategy to be successful.

Source: http://www.sydneyaustralia.com/en/

In this chapter, a typology of destination image measurement approaches with respect to the exploration of heterogeneity is proposed as a framework to investigate past image measurement methodology and to identify directions for future development thereof. The emphasis lies on the first dimension, the subject dimension, as defined by Mazanec (1994). The object dimension is not the central focus, but it does enter the typology for the case of multiple destination measurement, whereas the attribute dimension is not discussed at all as it can be assumed as constant for the purpose of the discussion of heterogeneity. The perceptions based market segmentation (PBMS) approach is put forward as a technique that implicitly accounts for unobserved heterogeneity in destination image measurement.

VIENNA

A second example is provided by Vienna. This example is chosen because, as opposed to Sydney, Vienna does not attempt to attract segments such as skilled migrants, but focuses on a range of market segments within the tourism market (http://www.vienna.info/article.asp?IDArticle=10071, see also Illustration 2). Among the targeted segments are very traditional ones (children, cultural tourists), but also less traditional ones such as disabled visitors, wedding couples and gay and lesbian travellers. As in the case of the Sydney webpage a click on the respective section brings the tourists to a whole world of pictures and information customised specifically to their primary interest of visiting Vienna. Again, pictures are used to almost present 'different Viennas' to different people. So while the key strategy underlying the webpage presentation is market segmentation, the use of different pictures partly leads to an integration of market segmentation and destination positioning strategies, the importance of which will be discussed later. In fact, Vienna goes one step further by also offering a slogan describing Vienna specifically for some of the targeted market segments. For instance, 'Vienna for Children – Action for Everyone', 'Sports and Nature – Feel Vienna. Feel well.'
Source: http://www.vienna.info/article.asp?IDArticle=10071

7.2 Destination image measurement

There is a vast literature on the broad topic of tourist destination image. The contributions to that literature can be divided into theoretical/conceptual analyses of the notion of destination image and empirical studies of the measurement of (comparative) destination image. While this chapter focuses on the latter, it is worthwhile noting that the image notion has been conceptualised in different ways. For instance, Echtner and Ritchie (1991) divide the concept of destination image into a range of individual attributes and holistic destination impressions. Similarly, Baloglu and Brinberg (1997) distinguish between cognitive and affective dimensions of destination image. In addition to these two destination image dimensions of beliefs and emotions, respectively, White (2004) identifies a behavioural component. While it is important to acknowledge the various elements within the complex destination image construct, the current study deals with the cognitive aspect of destination image only; that is, it is concerned with tourists' perceptions of destination attributes.

Image heterogeneity in the context of such destination-attribute associations as the basis

for brand image measurement research can be handled in different ways. One approach is to adopt the implicit assumption of image homogeneity; that is, all tourists are expected to have the same perception of a tourism destination. This approach is reflected in a destination image measurement study by the use of sample means. The image homogeneity assumption is appropriate when tourists do indeed associate the same attributes with a destination. However, this may not necessarily be true and requires investigation before conclusions about destination image are drawn. A destination image presented as a profile consisting of sample means of various image dimensions can distort the picture of differing images held by submarkets. Hypothetically speaking, if half of respondents in a destination image study rate a particular destination as extremely family–friendly and the other half rate it as extremely family-unfriendly, the overall image profile based on sample means would yield an image of that destination being seen as neutral in terms of family-friendliness while none of the respondents would actually hold that image.

Although descriptive statistics in a study based on sample means can reveal the distribution of the responses, and the measures of dispersion can be used to test differences in means and to provide an indication of tourist heterogeneity, the crucial issue is how to deal with the heterogeneity in an analytical sense and which recommendations to make to a destination marketing organization.

Overall, we identify four different approaches with a view to dealing with image heterogeneity: (A) the average profile is presented as it is, with dispersion levels not being discussed or taken into consideration for interpretation purposes; (B) the average profile is presented taking dispersion levels into consideration (for instance by interpreting only attributes with low levels of dispersion); (C) destination image is analyzed at segment level for known *a priori* segments (Mazanec, 2000) or commonsense segments (Dolnicar, 2004); and (D) destination image is analyzed at segment level even if no clear *a priori* segments are known to exist.

Pike (2002) and Gallarza et al (2002) comprise reviews of the literature on tourist destination image in terms of both conceptual and empirical aspects. Pike (2002) categorizes 142 papers along various dimensions including the data analysis technique used and the focus of the study. In the context of image heterogeneity, an analysis of the study interest reveals that twelve studies investigate issues of segmentation while eight studies deal with image differences between different groups. The image heterogeneity issue is reflected in Gallarza et al (2002) by way of the 'relativistic nature' of the destination image concept; that is, the notion that destination image varies across segments. The picture that emerges from the above two comprehensive reviews of the destination image literature is that studies of type A and C are most common.

A review of some more recent findings in the field of tourism research (articles published in the Journal of Travel Research, Annals of Tourism Research and Tourism Management between 2000 and 2005) appears to confirm the continuing prevalent use of approaches of types A and C in destination image measurement studies. Examples of types A and C are O'Leary and Deegan (2005) and Beerli and Martin (2004), respectively.

With respect to the above type A studies that employ sample means for the purpose of image measurement, the statistical information on the dispersion of sample data is generally reported. Indeed, the variance is also used to test for statistical differences in the means of destination image, for instance between previsit image and post-visit image. However, the scope for enrichment of the study findings by accounting for heterogeneity is not explored and a type B study design is not considered for items which are perceived very differently among the respondents. It should also be noted that the assumption of image homogeneity might well be true for the above studies and

that this fact might just not have been explicitly stated in the articles.

While the type C studies above account for image heterogeneity, they distinguish between sub-groups in the sample on the basis of *a priori* segmentation criteria; that is, the heterogeneity analysis is based on segmentation variables that are pre-determined (known in advance). This approach is the best choice if the *a priori* segmentation criteria are the optimal ones to account for the destination image heterogeneity in the data. However, this is not always the case. For instance, in the area of market segmentation, *a posteriori* (Mazanec, 2000) or data-driven (Dolnicar, 2004) psychographic approaches appear to generally outperform a priori socio-demographic approaches. This is where the value of type D approaches becomes clear. Type D studies are suitable when differences in perceptions between tourists are expected even without knowing clearly in advance which groups of tourists may perceive destinations in a different way. They could also be applied to check whether the *a priori* criterion chosen in a type C study was indeed the optimal one.

CANBERRA

A 2006 study on the perceptions of Canberra, Australia's national capital city, contains an example of a type D approach to dealing with image heterogeneity. A socio-demographically representative sample of Australians was asked to indicate their perception of a number of Canberra's attributes. The list included image items each ranging from a positive perception to a negative perception such as clean – dirty, safe – unsafe, quiet/laidback – hectic/busy, multicultural – monocultural, vibrant – exciting, and cosmopolitan – provincial. On the basis of these responses, a cluster analysis revealed three groups of people characterised by distinct images of Canberra. The first group, coined "The Misinformed", view Canberra mostly negatively (it has a political focus, is boring and conservative, but is also clean, laidback and safe) while the second group, "Capital Enthusiasts", have a generally positive image of Canberra (it is vibrant, has a pleasant climate, is friendly, multicultural and tolerant). "The Uninformed" is the third group and, like the first group, has largely negative views of Canberra (it is unsafe, dirty, hectic and a place of conflict). A further analysis produced a profile of each of the three groups in terms of socio-demographic variables such as age, marital status and income. Overall, this study highlights the presence of image heterogeneity, i. e. different groups of people have different images of the same city.
Source: http://www.nationalcapital.gov.au/downloads/publications/national_perceptions_survey.pdf

Discussion point

Compare the strengths and weaknesses of each of the four approaches to measuring and analysing destination image.

Gallarza et al (2002) report that a limited number of type D studies have been undertaken in the past, typically using cluster analysis to investigate the destination image heterogeneity (for a recent example see Leisen, 2001). We propose the perceptions-based market segmentation (PBMS) method as an alternative type D approach to investigate image heterogeneity when both heterogeneity of respondents and destination is investigated. In addition to accounting for perceptual differences between people (the 'subject' dimension of Mazanec's (1994) classification), the PBMS method also

allows for the identification of the differences in how multiple destinations are evaluated (the 'object' dimension). These two sources of image heterogeneity are potentially confounded and their separate elements need to be identified. This is important since more than half of the destination image studies in tourism include more than one destination (Pike, 2002), thus complicating type D studies by additionally adding object heterogeneity. The PBMS approach proposed here allows researchers to undertake studies of type D while accounting for differences between destinations as well.

How are market segmentation and product positioning implemented by city destinations?

While it is clear that studies of type A and C are the most common in academic research, it is not quite as easy to determine which model is underlying the work of city destinations. In order to learn about industry practice, we conducted a small empirical study including eleven city destinations from four continents (Europe, North America, Australia and Asia). After ensuring that the respondent – typically the marketing manager – shared the same understanding of the key strategic marketing terminology, we asked them the following questions: Do you use market segmentation in your city destination marketing? Does any empirical market research form the basis of your market segmentation strategy? What kind of market research? Do you use product positioning in your city destination marketing? Does any empirical market research form the basis of your positioning strategy? What kind of market research?

The results indicate that all city destinations included in the survey undertake segmentation of tourists in one way or another. Common segments across the city destinations include 'culture tourists', 'adventure tourists' and 'sports tourists'. Only around two thirds (64%) stated that their segmentation strategy is based on market research. Only slightly more than one third (36%) stated that their positioning efforts are segmentation based with the same cities also indicating that these segment-based positioning strategies are based on either primary or secondary research.

It can be concluded, therefore, that there is substantial room for improvements in the area of strategic marketing for city destinations. First, segmentation strategies should be backed by research and, second, positioning should be viewed as an integral part of the segmentation strategy in that the optimal aspect of the true city image is conveyed selectively to target segments. While rare in academic work, such approaches are even more uncommon in practice. Also, it should be noted that in those cases where positioning for segments occurs, the underlying segments are *a priori* segments in nature. Consequently, even the third of city destinations who do develop positioning strategies for segments currently do not consider an integrated approach of optimising both segmentation and positioning simultaneously.

7.3 PBMS-based destination image measurement

The original idea of PBMS was introduced by Dolnicar, Grabler and Mazanec (1999). PBMS was introduced as an exploratory and non-parametric technique for integrated market structure analysis. An extension to combine exploratory analysis with permutational tests of inferential statistics was added later (Mazanec and Strasser, 2000). PBMS investigates market structure in an integrated manner, accounting for heterogeneity among tourists (market segmentation), heterogeneity of destination image

Table 1 Required data structure for PBMS

Destination	Person	Attribute 1 (e. g. family-friendly)	Attribute 2 (e. g. clean)	Attribute 3 (e. g. lively)	Attribute 4 (e. g. fancy)
Canberra	1	1 (yes)	0 (no)	1	1
Vienna	1	0	1	0	0
Washington D. C.	1	1	0	0	0
Rome	1	0	0	1	0
Paris	1	1	0	0	1
Canberra	2	0	1	1	1
Vienna	2	1	1	0	0
Washington D. C.	2	1	1	1	1
Rome	2	1	1	0	0
Paris	2	1	0	1	0
Canberra	3	0	0	0	1
	…	…	…	…	…

perceptions (product positioning) and competition simultaneously to derive perceptual competition between products. The usefulness of PBMS for strategic marketing decision support has been demonstrated in prior studies (Dolnicar, Grabler and Mazanec, 1999; Mazanec, 2005, 2006).

PBMS requires three-way data: each respondent has to evaluate each tourist destination with respect to all attributes included in the study. This structure reflects precisely the dimensions discussed by Mazanec (1994): the subject, the object and the attribute dimensions. At first, this appears to represents a major restriction. On closer inspection, however, three-way data turns out to be the typical format for destinations studies including more than one destination. If only one destination is included, the researcher deals with two-way data including the subject and attribute dimensions only. In this case, PBMS is not needed, as a type D study can easily be undertaken using classical cluster analytic techniques.

PBMS follows four stages. Firstly, data is ordered such that the attribute evaluations represent variables and the destination information is ignored. If, for instance, four attributes were used in the questionnaire to describe the destination image, and five brands were listed for evaluation, the number of variables would not be 20, but only four. Table 1 illustrates the structure of the required data for a binary data set. Every row thus represents the evaluation of one destination by one person along the four attributes. Only the last four columns of Table 1 are used in stages one and two of the PBMS analysis. The information about which destination was evaluated and by whom is thus ignored during the clustering part of the PBMS analysis.

In the second stage, the data is grouped, with one case representing one row in Table 1. Any algorithm of the researcher's choice can be used for this purpose including hierarchical clustering procedures (such as Ward's method), partitioning clustering procedures (such as k-means), ensemble techniques (such as bagged clustering, Dolnicar and Leisch, 2003) and model-based segmentation algorithms (such as finite mixture models, Wedel and Kamakura, 2000). Stage two results in a grouping in which

each case is assigned to one group. Each group of destination image patterns represents one image position. These image positions can be interpreted by management: they represent 'generic' destination images which exist in the tourists' minds. At this stage, however, it is not clear yet which of these image positions is occupied by which destination. This information becomes available after stage three has been completed.

In stage three, destination information is revealed which shows how strongly each one of the destinations is associated with each one of the generic image positions. The higher the concentration of a destination at one position, the stronger and less heterogeneous is the brand image. The more the destination is spread across all generic destination image positions, the more different destination images are associated with this destination by different people. Stage three yields information about the extent of heterogeneity in the destination image.

Finally, in the fourth stage, it is investigated how frequently single tourists place more than one destination at the same brand image position. The more unique a destination's image, the less frequently will the same respondent locate more than one destination at the same position. Stage four reveals information about the extent to which respondents view a destination as unique.

We propose to use the PBMS approach to explore destination image. PBMS implies, as opposed to type A and B destination image studies, that different tourists have different destination images and, as opposed to type C studies, that it is not known in advance what characterizes groups of people who share a more similar destination image. Consequently, high average agreement of respondents on attributes is not necessarily the aim. A possible aim could be to create a highly unique, distinct image for a destination in the minds of a smaller segment of tourists.

This criterion can easily be operationalised on the basis of PBMS results for any given destination, for instance Canberra. After the generic positions associated with Canberra are determined, a 'uniqueness value' is computed for those identified positions: the number of respondents who assign only Canberra to the selected generic positions divided by all respondents who assign Canberra and at least one more destination to each generic position. The uniqueness values for all positions are added up (total uniqueness value) and divided by the number of generic positions if a total uniqueness value is required. The resulting uniqueness index thus lies between 0 and 1, with 1 indicating the maximum level of destination image uniqueness and 0 indicating the minimum. Furthermore, a correction can be computed taking into consideration the 'segment size' where the segment is defined as all respondents placing Canberra in the generic position under study. Clearly, this same computation could be undertaken for one single generic position as well. For instance, Canberra might not want to be perceived as unique at the generic position associated with "the power capital of the world"; it might only be concerned about the uniqueness at the generic position associated with being a "relaxed, laid-back capital offering a wide range of entertainment options".

If the destination marketing organisation were to adopt such a differentiated segmentation strategy (and assuming that the position is favourable and in line with destination management's image aims), its objective would consequently be to enhance the uniqueness value by increasing the proportion of tourists who perceive Canberra uniquely as a "relaxed, laid-back capital offering a wide range of entertainment options". In particular, segment members who already perceive Canberra to be unique in this way would have to be reinforced in their perceptions while members of segments who either have non-unique perceptions or unique perceptions of the wrong nature have to be targeted with a message customised for the desired generic position. That message may even have to be customised to

differentiate from competitors who are seen to be similar.

Discussion point

PBMS is a research technique that investigates image heterogeneity in an *a posteriori* manner. Which other research technique(s) could be used for that purpose and what are the (dis)advantages compared to PBMS?

7.4 Empirical illustration

7.4.1 Data

The data was collected by way of a survey of prospective short-break tourists from Sydney, Australia, in August 2001. Potential respondents were randomly selected at four geographically dispersed shopping malls across Sydney (on weekdays and weekends). To ensure that all respondents would be drawn from the correct sampling frame of likely short-break tourists, people were screened on the basis of two criteria: their intention to take a short-break holiday within the next three months, and their position as a major decision maker within their travel party. Those that passed the screening test, were given a questionnaire, a show card with information about destination attributes, and a map depicting Sydney and six short-break holiday destinations. Interviewers were available for help while respondents completed their questionnaires. The survey was part of a broader study on the effect of destination attributes on holiday destination choice (details of that study are provided in Huybers, 2003).

In the preceding exploratory research stage, focus groups had been employed which comprised a broad cross-section of the target population of potential short-break holidaymakers from Sydney. The focus group discussions produced a set of relevant short-break destinations and a number of destination attributes. The destination regions comprise Canberra, the Central Coast, the Central West, the Hunter, the Mid North Coast, and the South Coast. All six destinations are within the New South Wales/Canberra region which attracts approximately 65 percent of all Sydney short-break tourists (Bureau of Tourism Research, 1999). Table 2 shows the relative importance of each of the six destinations as shares within the New South Wales/Canberra region. The six destinations make up 58 percent of overnight visitors from Sydney within that region.

Five key attributes, as identified in the focus groups, are shown in Table 3 in alphabetical order. One other attribute – 'Season' – was also singled out in focus groups and included in the broader destination choice study. However, it is not included in the current investigation since the timing of the holiday is not an attribute for which respondents could give destination perceptions. The labels attached to each attribute as well as the determination and wording of each of the attribute levels had been investigated carefully during focus group discussions. The attribute 'Price per day' is continuous and

Table 2 Sydney residents' short-break destinations within New South Wales/Canberra

Region	Share (%)
Canberra	4
Central Coast	8
Central West	4
Hunter	11
Mid North Coast	15
South Coast	16
Other New South Wales regions	42
Total	100

Source: Bureau of Tourism Research (1999)

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Table 3 Destination attributes studied

Crowdedness
This tells you how busy it is at the destination and its attractions during your visit.
- *Quiet* (there are not many people around, so you have a lot of personal space)
- *Moderately busy* (there are quite a few people around, but it does not feel overcrowded)
- *Very crowded* (there are vast numbers of people around)

Nightlife
This describes the availability of nightlife at the destination.
- *Active* (a wide variety of nightspots – plenty of restaurants, bars and nightclubs)
- *Moderate* (a limited level of nightlife is available – some bars and restaurants)
- *Hardly any* (destination "closes down" after hours – the odd pub or restaurant)

Price per day
This is the average *all-inclusive* price per adult person per day. This price includes transport, accommodation and food/drinks/entertainment.

Travel time
This is the time it takes to reach the destination. The difference in time is related to the distance but also depends on factors such as the mode of transport (e. g. car vs plane), the amount of traffic, and the quality of road infrastructure (e. g. single-lane road vs freeway).
- *Two hours*
- *Three hours*
- *Four hours*

Type of attraction
This is a broad indicator of the major attraction at the destination.
- *Natural* (e. g. national park, animal park, beaches, general natural beauty and scenery)
- *Cultural/historical* (e. g. museum, architecture, wineries)
- *Mix* (even mix of both natural and cultural/historical attractions)

the other four attributes are of a categorical nature (each defined at three levels). Four of the five attributes are related to the situation at the destination itself while the attribute 'Travel time' refers to the travel time between place of origin and the destination.

Discussion point

The empirical study explores a limited number of destination attributes. Discuss other attributes that might be useful for city marketing organisations with a view to image segmentation.

The brand image measurement literature has produced a vast amount of studies aiming at optimizing measurement aspects. For instance, selecting attributes to be included in a brand image study has been known to be a very essential and crucial task in the process of brand image measurement. Joyce (1963) recommends the use of a wide variety of exploratory data collection techniques to extract a list of attributes for the actual brand image study, which is then reduced by removing duplicates or using factors emerging from factor analysis instead of single items. This market-driven and product category specific way of determining relevant attributes is still being postulated many decades after Joyce's publication (Boivin, 1986; Low and Lamb, 2000). Specific recommendations for elicitation of best-suited attributes based on empirical studies have been made by Myers and Alpert (1968) and Alpert

(1971). Although direct questioning, indirect questioning, observation and experimentation all represent feasible techniques, Alpert's research indicates that direct questioning leads to significantly better results for collecting choice-relevant brand image attributes. The focus group method adopted for this study is consistent with this approach.

A further issue that has been discussed in the literature is the number of attributes used in brand image studies. That number varies significantly among the studies published in academic journals. For instance, Low and Lamb (2000) use only five attributes to measure the image of one single product while Castleberry et al (1994) exposed respondents to 10 brands, 10 attributes and 5 product categories, which requires 500 answers to complete the questionnaire. Wilkie and Weinreich (1972) conclude that 'attitudes can be efficiently described with fewer attributes than are typically gathered in marketing research'. We recognize that the number of attributes included in the current study is limited. However, this is not deemed problematic since the aim of this chapter is to illustrate a way of measuring destination image and of operationalising the uniqueness of a destination image.

Respondents were asked to provide their perception of the five attributes for each destination as best as they could. For the four categorical attributes, they were given the choice between the three designated levels while for the 'Price' attribute, they were given a free choice. In each case, they were given the option to indicate a question mark if they did not have a perception of a particular attribute for a particular destination. Within the brand image measurement literature, the issue of the optimal question format has been subject of investigation. The first study of this kind – to our knowledge – was conducted by Joyce (1963), who compared various sorting and scaling techniques and found that free-choice attribute-by-attribute questioning produced the best results. Mohn (1989) reports on an empirical study conducted by Coca-Cola, which investigated whether free-choice or rating scale questioning was superior, finding that free-choice format had a number of advantages when sample sizes exceed threshold values. However, Barnard and Ehrenberg (1990) re-investigate the matter comparing free-choice, scaling and ranking techniques and conclude that the attitudes derived were robust and not strongly influenced by the data collection technique, with free-choice, however, being quicker and easier to use. Further studies, comparing ranking, rating and pick-any procedures, support the findings by Barnard and Ehrenberg (1990) of a high level of similarity between procedures.

The total number of questionnaires completed by respondents was 575. A selection of respondent characteristics is included in Table 4. The average age of respondents, as calculated from the original metric data, was 35, while the table also shows the distribution across four age categories. Just of over half of respondents were female. Most respondents indicated that they used hotel/motel facilities as their preferred type of accommodation, while their own vehicle was the main mode of transport used for short-breaks. The latter result is consistent with the majority of Sydney residents' short-break destinations being within a relatively short driving distance from Sydney. Most income categories were reasonably well represented in the sample.

For the purpose of this illustration, four out of the five variables described above were chosen and transformed into binary format. The type of attraction was excluded due to its nominal – as opposed to ordinal – nature. (Alternatively, that variable could be recoded into three binary variables if the attraction type were essential to destination marketing.) The data set for this illustration was partitioned using topology-representing networks, a form of unsupervised neural network. As opposed to the classic *k*-means algorithm in its online version, self-organizing neural networks not only aim to find a good grouping to represent the den-

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Table 4 Respondent characteristics (sample proportions)

Accommodation	
Caravan park	15%
Friends/relatives	18%
Guest house/B&B	19%
Hotel/motel	46%
Other	1%

Age	
Mean (years)	35
15–24 years	34%
25–44 years	43%
45–64 years	18%
65 years or over	5%

Gender	
Female	58%
Male	42%

Household income	
< $ 15,599	13%
$ 15,600–$ 25,999	12%
$ 26,000–$ 36,399	11%
$ 36,400–$ 51,999	20%
$ 52,000–$ 77,999	16%
$ 78,000–$ 104,000	15%
> $ 104,000	12%

Transport	
Air	13%
Bus/coach	8%
Own vehicle	73%
Rail	7%

sity structure of data, they also try to align the groups into a grid that allows topological insight into the data structure. The usefulness of neural networks for market segmentation research in tourism was first demonstrated by Mazanec (1992) and while all clustering algorithms have their limitations, topology-representing networks were chosen in this study as they outperformed other partitioning algorithms in an extensive Monte Carlo simulation based on a series of artificial data sets modelled after typical tourism data sets (Buchta et al, 1997). Solutions with three to ten clusters were computed 50 times each to determine which number of groups results in the most stable grouping. This was the case for six image positions.

7.4.2 Results

Before discussing the findings of the PBMS analysis, the image measurements that would most likely follow from the traditional approach to destination image are presented. Type A study results assuming image homogeneity among tourists are depicted in Figure 1 for each of the six destinations. As can be seen, there is hardly any difference between the perceived image profiles for the studied destinations. The only attribute that seems to discriminate a little bit is the price level. In sum, however, the conclusion drawn from such an investigation would be that the destinations under study are not profiled and, hence, that potential tourists do not perceive any major differences between them. However, as will be shown shortly, this conclusion is inaccurate as it is based on the assumption of a homogeneous group of potential tourists.

Figure 2 shows the profiles of the six generic destination image positions derived from the PBMS analysis. The grey lines indicate the total sample average of all respondents' perceptions across all destinations, while the black lines represent the perception at each particular destination image position.

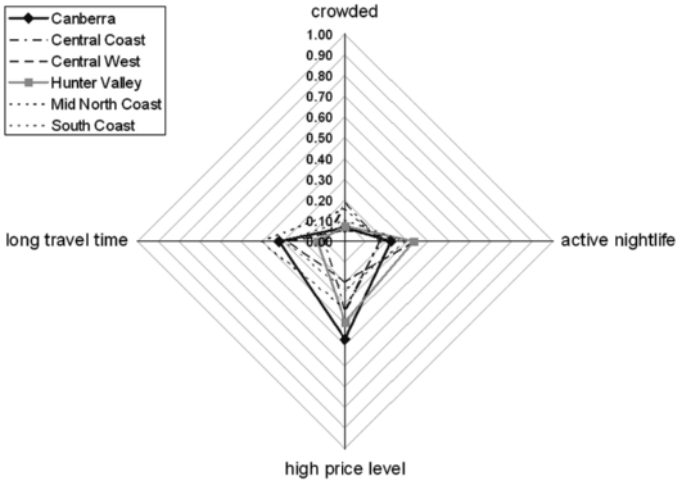

Fig. 1 "Destination images derived in the traditional way"

Position 1 represents tourist destinations that are perceived as being located rather far away from home as well as being expensive. A total of 364 image patterns (11 percent of the patterns) were assigned to this position. Position 2 (559 patterns, 16 percent) evokes the association of very active nightlife destinations. Regarding the evaluation of expensiveness no clear picture can be deducted. Long travel time is the single distinct brand image characteristic of destinations located at position 3 (452 patterns, 13 percent), while position 4 (186 patterns, 5 percent) is dominated by the perception of being very crowded. Regarding the distance from home and the nightlife activity, no homogeneous view is displayed. The brand image at position 5 (547 patterns, 16 percent) is associated with expensive destinations, and, finally, position 6 acts as a collection point for zero values. The latter is not a position that should be interpreted in a managerial sense. It represents a methodological artefact that is especially strong when three-way data structure is required where many respondents are unable to evaluate all brands, thus leaving the attributes for some brand unevaluated.

Discussion point

What key conclusion do you draw from a comparison of Figures 1 and 2?

Revealing the destination information leads to the insight shown in Figure 3. It basically represents the values of the cross-tabulation of generic brand image positions and destinations (the Chi-square test is significant with a *p*-value of lower than 0.001). It can be seen that Canberra is strongly perceived as being located in positions 1 and 5, which both convey expensiveness. The Central Coast image is strongly dominated by position 5 (expensive) as well. The Hunter Valley is very frequently located in the active nightlife position 2. From this chart, it seems that Canberra, the Central Coast and the Hunter Valley have distinct destination brand images, with very high proportions of assignments to one or two brand image positions.

However, Figure 3 represents an aggregated view of the position-destination associations. It could well be that the respondents who see these destinations in their particular positions of strength also see competing destinations in the same way. That would, of course, weaken

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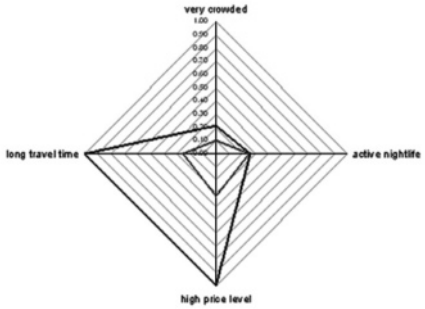
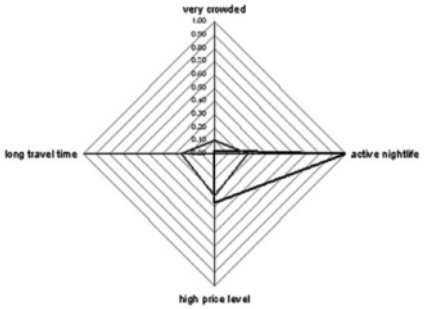
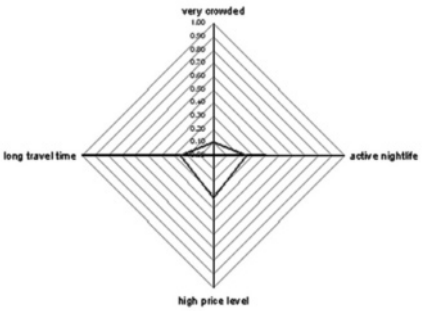
Fig. 2 Generic destination brand image positions



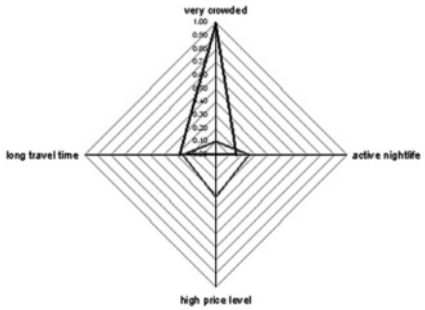
1 – expensive and far awa



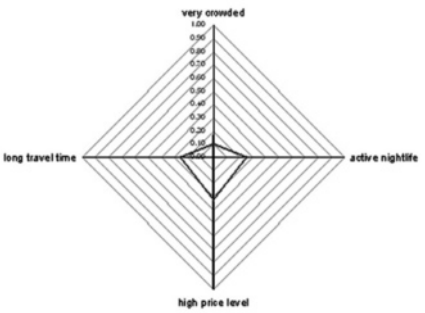
2 – active nightlife



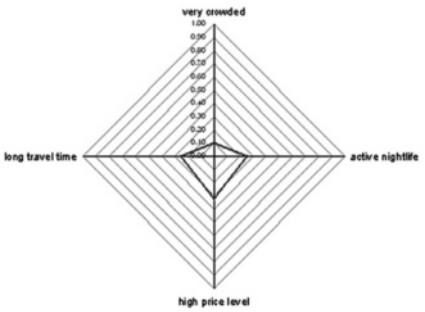
3 – long travel time



4 – very crowded



5 – expensive



6 (answer pattern)

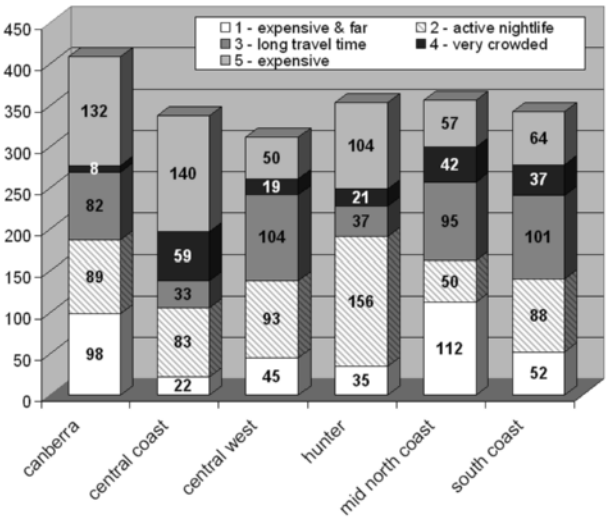


Fig. 3 Destination representation at generic destination brand image positions

their competitive position. To eliminate this potential cause of misinterpretation, uniqueness values are presented with a special focus on Canberra and the Hunter Valley. These two destinations are chosen as examples because they – based on the aggregated analysis – seem to be associated with different things: Canberra as being expensive and the Hunter Valley as offering excellent night life.

Table 5 contains all uniqueness values for generic position 1 (characterized by perceptions of long travel time and a pricy desti-

Table 5 Uniqueness values of all destinations at generic position 1 (GP1)

	Canberra	Central Coast	Central West	Hunter Valley	Mid North Coast	South Coast
(1) Sole assignment of destination to GP1	52	7	10	15	65	23
(2) Multiple assignments of destinations to GP1	46	15	35	20	47	29
(3) Total assignments of destinations to GP1	98	22	45	35	112	52
(4) Position = Total uniqueness at GP1	0.53	0.32	0.22	0.43	0.58	0.44
(5) Percentage of respondents seeing destination in GP1	0.17	0.04	0.08	0.06	0.19	0.09
(6) Total uniqueness weighted by number of respondents seeing destination in GP1	0.09	0.01	0.02	0.03	0.11	0.04

7

Table 6 Uniqueness values for Canberra at generic positions 1 and 5

	GP 1	GP 5
(1) Sole assignment to GP	52	39
(2) Multiple assignments to GP	46	93
(3) Total assignments to GP	98	132
(4) Position = Total uniqueness at GP	0.53	0.30
(5) Percentage of respondents seeing Canberra in GP		0.83
(6) Total uniqueness weighted by number of respondents seeing Canberra in GP		0.41

nation). The first row contains the absolute number of *sole* assignments to this generic position for each destination, while the second row contains the number of respondents who assigned this and at least one other destination the label of generic position 1. The third row is the total of the first two. The uniqueness value in row four is the ratio of the values in rows one and three. As can be seen, the position uniqueness of Canberra at generic position 1 is very high: more than half of the respondents who perceive Canberra in this way (53 percent), do not assign any other of the remaining five destinations to this generic position. The last two rows correct the uniqueness value by the total segment size. Row five is the proportion of respondents assigning the destination to generic position 1 as a proportion of the entire sample, and the last row multiplies this value with the uniqueness value. On the basis of this measure, Canberra, indeed, demonstrates a high uniqueness value at generic position 1 in comparison with other destinations. Only the Mid North Coast reaches an even higher value.

Discussion point

What is the crucial additional insight of the figures in Table 5 compared with the results in Figure 3?

Table 6 shows how multiple generic positions can be evaluated. Two positions are included for Canberra: generic position 1 and generic position 5. The values in the first column correspond to those in Table 4. While Canberra's uniqueness value at generic position 1 is high, the uniqueness value at position 5, which signifies an expensive destination in the segment members views, is relatively low; 70 percent of the respondents who see Canberra that way also see at least one other destination like that.

For the Hunter Valley generic position 2 was studied, which mainly represents the perception of respondents that a destination offers opportunities for active nightlife. Figure 3 above indicates that nightlife might represent an important image dimension for the Hunter Valley marketing activities, as many respondents have assigned the destination to this particular image position.

However, the uniqueness values provided in Table 7 initially paint a different picture. Although the highest proportion of all respondents have indeed associated this destination with the nightlife image (see segment share in row 5), the uniqueness value is not very high and only slightly above the Canberra value (see row 4). This indicates that – taking heterogeneity of tourists into account and using distinctiveness as a criterion for destination image – nightlife does not distinctly discriminate the Hunter Valley from other Australian destinations. If the perceptual segment size, however, is considered, the Hunter Valley does have the highest value. This demonstrates the potential of this particular image dimension for further focused marketing activities.

Table 7 Uniqueness values of all destinations at generic position 2

	Canberra	Central Coast	Central West	Hunter Valley	Mid North Coast	South Coast
(1) Sole assignment of destination to GP2	33	25	31	60	16	24
(2) Multiple assignments of destinations to GP2	56	58	62	96	34	64
(3) Total assignments of destinations to GP2	89	83	93	156	50	88
(4) Position = Total uniqueness at GP2	0.37	0.30	0.33	0.38	0.32	0.27
(5) Percentage of respondents seeing destination in GP2	0.15	0.14	0.16	0.27	0.09	0.15
(6) Total uniqueness weighted by number of respondents seeing destination in GP2	0.06	0.04	0.05	0.10	0.03	0.04

7.5 Conclusions, limitations and future work

The aim of this study has been to draw attention to the importance of tourists' perceptual heterogeneity when destination images are studied. A typology of destination image studies with respect to the subject dimension is proposed to investigate the typical approaches presently used. Destination image studies of type A draw conclusions about destination images on the basis of average evaluations of respondents, thus essentially assuming destination image homogeneity for each of the included destinations. Type B studies use averages as well, but use the heterogeneity information derived from dispersion measures when reporting results. Type C studies investigate destination images separately for segments which are known to exist in advance, thus assuming image heterogeneity with regard to predefined market segments. Finally, type D studies investigate heterogeneity of destination images for groups of tourists whose distinguishing characteristics are not known in advance.

A review of prior studies indicates that studies of types A and C occur most frequently. Most of the type A studies report measures of dispersion, such as standard deviations, but do not screen attributes based on the extent of dispersion. Instead, they use the average values to determine destination image, which can lead to wrong conclusions if the tourist population studied is not homogeneous with respect to their destination image perceptions. Studies of type B do not appear to exist. Among the studies that incorporate heterogeneity, type C studies dominate the area, with socio-demographic characteristics being typically used for *a priori* grouping of individuals.

We believe that type D studies should be undertaken more frequently in destination image measurement; either for the purpose of exploring whether unobserved heterogeneity impacts on the results or to check whether the *a priori* criterion chosen for a type C study is indeed the optimal segmentation criterion with respect to the destination image investigated.

Because the majority of destination image studies include more than one destination, which leads to additional object heterogeneity in the data, the PBMS approach is put forward as an analytic tool for the simultaneous exploration of subject and object heterogeneity in

destination image studies. The usefulness of PBMS in this context has been illustrated using real destination image data of Sydney residents' perceptions of six short-break destinations. It is evident from the illustration based on the Sydney data that a traditional destination image analysis (type A) would lead to inaccurate managerial conclusions in this particular case. The tourism destinations would have appeared as having very similar image profiles, with the possible exception of differences in the price attribute. PBMS analysis generates a number of distinct profiles across the destinations as a direct result of dropping the assumption that all tourists share the same perceptions (type A analysis) as well as the assumption that it is known in advance which socio-demographic groups will have different image perceptions (type C). The PBMS approach is used to derive uniqueness indices which provide detailed insight into how unique each destination is perceived at each generic position. It reveals distinct destination images which form a good basis for communication images of a particular nature to particular segments of the market. This represents essential strategic marketing knowledge to a destination marketing organization.

Discussion point

While socio-demographic and other *a priori* characteristics of the sample are not employed in the PBMS technique, how can these characteristics be used in conjunction with the PMBS results?

It needs to be emphasized that the data has a few limitations which are not necessarily present in all destination image studies. The number of attributes is limited to four, and the data set includes three items that are unfavourable in terms of destination perceptions. Consequently, the emerging generic positions are necessarily negative in nature. Furthermore, the destinations in this study are regions rather than single destinations, which is likely to blur the image as perceived by the tourists as these regions would, in themselves, be potentially heterogeneous.

The limitations of the PBMS approach are that three-way data is required and that PBMS is not a single-step procedure. The advantages are that it represents a non-parametric framework, thus not requiring any data assumptions which may not be met and providing a powerful tool for market structure analysis integrating all aspects of marketing strategy: market segmentation, product positioning and competition. The PBMS-based approach to destination image measurement as illustrated here can be extended by including tourists' actual destination choices in the past (see original PBMS publications for examples).

To further evaluate the usefulness of the proposed PBMS procedure for destination image measurement, it would be very interesting to conduct comparative studies across numerous different data sets. Such empirical investigations would shed light on the relative validity of the assumptions of image homogeneity and image heterogeneity and to demonstrate the differences in managerial conclusions drawn on the basis of the four types of studies in the typology suggested in this chapter.

Questions

1. Is market segmentation necessarily always better for a city destination than a mass marketing strategy? Please think of at least one example of a city destination which – judged by their promotions material – makes use of a market segmentation or mass marketing strategy.
2. Which are the typical criteria tourism researchers and destination managers use to split tourists into homogeneous market segments? Please give your point of view about

how successful you think each of these criteria are and whether or not they have potential to lead to competitive advantage.

3. To implement a market segmentation strategy at a city destination, which steps would you take? Which role would market research play in the development of your strategy?
4. What is brand image? What is destination image? Why is destination image important for city destination managers?
5. Do you think that it is best for a city destination to have a branding/destination image strategy that conveys one image to all tourists? Under which circumstances would such a strategy be good and under which circumstances do you think it would be good to communicate different image aspects to different market segments? Why?
6. Please provide examples of city destinations which are largely perceived the same way by most tourists and city destinations which are viewed very differently by different market segments.
7. Many destinations that use market research to inform their strategy development and monitor their success regularly measure how the city destination is perceived by tourists, typically asking tourists to state whether or not the city destination can be described by a number of listed attributes. How would you suggest that such data should be interpreted? Which mistakes can destination managers make when interpreting such data?
8. You are working as a consultant for a city destination. You are asked to develop a guide for conducting a destination image survey. Please outline step by step how destination management should go about implementing this project. Please give recommendations about how you would develop the survey, what the survey would look like approximately (in structure), how it should be analysed and, finally, what conclusions can be drawn from it that will inform strategy.

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A Guest Mix Approach to Analysing City Tourism Competition

8

Christian Buchta and Josef A. Mazanec

8.1 Introduction

Chapter 8 builds on previous results published in the first edition of this reader. Section 4.1, Part IV, of the first edition presented 'A guest mix approach' to assessing and visualising the competitive relationships among 16 European tourist cities as reflected in the guests' distribution by nationalities. If two cities A and B exhibit very similar proportions of their guest nationalities it is likely that the CTO managers of A pay the same attention to each of these guest nations as the managers of B. In other words, the analysis rests on the assumption that the CTOs base their marketing effort on a geographical segmentation approach. This does not seem to be a severe restriction as it corresponds to customary strategy guidelines followed by many tourist organisations.

In the following the authors demonstrate how bednight statistics may be exploited to classify and position city destinations in a competitive space defined by tourism generating countries. Particular emphasis is on tackling the missing data problem. International organisations such as the UNWTO or the EU, the European Travel Commission or European Cities Tourism have made great efforts to harmonise and complement the international statistics on arrivals and bednights. Despite all these initiatives international tourism statistics are still plagued by inconsistency and/or lack of data. Tourism researchers as well as managers are constantly challenged by how to overcome these insufficiencies. In this case example they will find advice on data pre-processing steps that may turn out to be instrumental when facing incomplete data. If a limited amount of missing data is tolerated or replaced the analyst is particularly responsible for drawing cautious conclusions. When interpreting results we will remind ourselves of this principle and sort out spurious effects likely to be attributable to missing values.

8.2 The city database

Let us initially point out that we intend to compare our findings with previous results. Therefore, we use the same destinations and markets as analysed in Mazanec (1997). This may come at the price that markets and destinations that were not important back then could be important now but are not included in the study and vice versa. However, as will be shown below, the present data are incomplete. As the previ-

Table 1 Number of observations by destinations and type of accommodation for 17 markets of origin in 1995–2007

	Type of accommodation					
City	NA	NAS	NG	NGS	NZS	Total
AMS (Amsterdam)	0	0	198	0	0	198
BER (Berlin)	221	0	34	0	0	255
BRU (Brussels)	219	0	0	0	0	219
BUD (Budapest)	217	0	0	0	0	217
HEL (Helsinki)	221	0	0	0	0	221
LIS (Lisbon)	0	0	207	0	0	207
LON (London)	0	0	0	0	187	187
MAD (Madrid)	0	168	0	45	0	213
OSL (Oslo)	202	0	0	0	0	202
PAR (Paris)	0	0	179	0	0	179
PRG (Prague	179	0	0	0	0	179
ROM (Rome)	156	0	149	0	0	305
STO (Stockholm)	219	212	0	0	0	431
VIE (Vienna)	153	221	34	0	0	408
ZAG (Zagreb)	199	0	0	0	0	199
ZUR (Zurich)	181	0	0	0	0	181
Total	2,167	601	801	45	187	3,801

Table 2 Summary of NAS/NA ratios for Vienna in 1995–2007

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
1.007	1.029	1.039	1.056	1.071	1.261

ous study was kept free of missing values we also regard it as a reference for validating current results. Changing the definitions of markets or the set of destinations would not alter the methodology and is therefore left to future work and the reader's own exercise.

The city bednight data were obtained from the TourMIS database available online at www.tourmis.info in 8/2008 (and cross-checked for missing values again in 3/2009). As the previous study ended in 1994 we retrieved data from 1995 to 2007. Data based on different definitions of the city area as well as the type of accommodation are available. See Table 1 for a summary for the period 1995–2007. For example, 11 of the 16 cities report figures for 'Type' equals 'Bednights in all paid forms of accommodation establishments in city area' (abbreviated 'NA' in TourMis) amounting to a total number of 2,167 observations across 17 markets of origin for 1995–2007.

For cities where we had a choice we decided to use the category most complete in terms of observations, as in the case of Stockholm (NA), or Vienna ('Bednights in all paid forms of accommodation establishments in greater city area' = NAS). Note that although the latter definition is widening, i. e. encompasses the former, Vienna's market position will not be overstated as evidenced by Table 2.

For Rome it turned out that the data for NA and 'Bednights in hotels and similar establishments in city area only' (= NG) are identical up to 2002. As there were fewer missing observa-

Table 3 Number of missing observations by cities and years for 17 countries of origin

	Year													
City	95	96	97	98	99	00	01	02	03	04	05	06	07	Total
AMS	2	2	2	3	3	3	2	2	2	1	1	0	0	23
BER	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRU	0	0	0	0	0	0	0	0	0	1	1	0	0	2
BUD	0	0	0	0	0	1	1	1	1	1	0	0	0	5
HEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIS	3	3	5	3	1	1	0	0	0	0	0	0	0	16
LON	0	0	0	16	0	0	0	0	0	0	0	1	17	34
MAD	1	1	0	0	0	0	0	0	0	10	17	17	17	63
OSL	0	0	0	0	0	0	0	0	0	9	0	0	10	19
PAR	7	6	5	5	5	1	1	1	1	1	1	1	7	42
PRG	0	0	0	0	0	17	0	15	0	0	0	0	10	42
ROM	0	0	0	0	0	0	0	0	0	0	0	11	10	21
STO	1	1	0	0	0	0	0	0	0	1	0	0	0	3
VIE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ZAG	2	2	1	17	0	0	0	0	0	0	0	0	0	22
ZUR	8	8	8	8	8	0	0	0	0	0	0	0	0	40
Total	24	23	21	52	17	23	4	19	4	24	20	30	71	332

tions for NG after 2002 we settled for NG and filled in the missing values from 1995 to 1997 with the figures from NA.

For Madrid we decided not to use the 'Bednights in hotels and similar establishments in greater city area' (= NGS) figures to complement the NAS category as the latter are on average 9% higher and therefore its use might introduce spurious effects over time.

For the cities Amsterdam, Lisbon, and Paris only the hotel categories are reported, so we have to assume that they represent the dominant part of a destination's market. Finally, London reports on 'Bednights in all accommodation establishments including visiting friends and relatives in greater city area' (= NZS), which means that unpaid forms of accommodation are included. Therefore, its definition is wider than NAS.

Despite the fact that the database we compiled for further analysis is based on partly different definitions the important point to note is that for each destination the data are consistent over time. Thus, a city's market position may be biased overall but changes in relative positions over time, if any, can be expected to be consistent indicators of true shifts in market structure.

As a result based on the selections discussed 3,801 available observations were reduced to 3,204 observations. However, as we need a total of $16 \times 17 \times 13 = 3{,}536$ observations there are 332 observations missing (or 9.4% of the data). Table 3 shows the distribution of missing observations across cities and years. The maximum total number per year occurs in 2007. This suggests dropping the year 2007 from further analysis. For Madrid, London,

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Table 4 Number of 1, 2,... consecutive periods with missing values in a market series by cities for 1995–2006

	Runs												
City	1	2	3	4	5	6	7	8	9	10	11	12	Total
AMS	0	0	0	0	0	2	0	0	0	0	1	0	23
BER	0	0	0	0	0	0	0	0	0	0	0	0	0
BRU	0	1	0	0	0	0	0	0	0	0	0	0	2
BUD	0	0	0	0	1	0	0	0	0	0	0	0	5
HEL	0	0	0	0	0	0	0	0	0	0	0	0	0
LIS	2	0	0	2	0	1	0	0	0	0	0	0	16
LON	17	0	0	0	0	0	0	0	0	0	0	0	17
MAD	0	8	10	0	0	0	0	0	0	0	0	0	46
OSL	9	0	0	0	0	0	0	0	0	0	0	0	9
PAR	1	1	0	0	4	0	0	0	0	0	0	1	35
PRG	32	0	0	0	0	0	0	0	0	0	0	0	32
ROM	11	0	0	0	0	0	0	0	0	0	0	0	11
STO	1	1	0	0	0	0	0	0	0	0	0	0	3
VIE	0	0	0	0	0	0	0	0	0	0	0	0	0
ZAG	16	1	0	1	0	0	0	0	0	0	0	0	22
ZUR	0	0	0	0	8	0	0	0	0	0	0	0	40
Total	89	24	30	12	65	18	0	0	0	0	11	12	261

Prague, and Zagreb we observe years where no data at all are available. In total, Madrid shows the highest number of missing values, followed by Paris and Prague. Whereas for Prague the missing values accumulate in the years 2000 and 2002, for Paris they are scattered over all periods. Similarly, Amsterdam shows only a single period without a missing value. Zurich comes in third place missing 40 observations up to the year 2000.

To learn about the temporal structure of missing observations we computed so-called runs statistics. These are counts of the number of consecutive periods a missing value occurs in a time series for a city's country of origin. Table 4 shows the figures for the reduced dataset 1995–2006. For example, among the Madrid series there are ten runs with three consecutive periods of missing values. Going back to Table 3 we see that no data were reported in 2005–2007. Note that a series may be counted more than once, e. g., for Prague there are 32 single-period runs, 17 in 2000 and 15 in 2002. The row totals show again the total number of missing values for a city and the column totals the total number corresponding to a run, i. e. the column sum times the length of a run.

For Paris there is not one observation for the Australian market and for further five markets (Finland, Greece, Norway, and Sweden) observations are missing for 1995–1999. Zurich did not report data on eight markets (Australia, Belgium, Canada, Finland, Greece, Netherlands, Norway, and Spain) up to the year 2000 (see Table 4).

In sum, 66% of the missing values pertain to consecutive instances of missingness and, therefore, most likely have to be attributed

Table 5 Sum of median bednights, total market share and percentage of missing values (PM) by cities for 1995–2006

	Bednights	Share	PM
AMS	6,400,350	3.65	10
BER	10,098,254	5.76	0
BRU	3,503,169	2.00	1
BUD	2,869,911	1.64	2
HEL	1,939,898	1.11	0
LIS	2,744,018	1.56	7
LON	79,377,500	45.25	8
MAD	9,460,248	5.39	21
OSL	2,286,094	1.30	4
PAR	26,780,746	15.26	16
PRG	4,919,282	2.80	14
ROM	12,056,062	6.87	5
STO	3,596,378	2.05	1
VIE	6,942,307	3.96	0
ZAG	258,566	0.15	10
ZUR	2,206,420	1.26	18

Table 6 Robust trend estimates and medians for Madrid and Zurich 1995–2006

	Trend		Median	
	MAD	ZUR	MAD	ZUR
AT	815	1,324	34,756	51,450
AU	3,578	3,092	45,340	33,846
BE	4,290	–496	81,766	21,957
CA	5,613	ns	47,994	40,148
CH	2,398	32,366	52,113	709,008
DE	12,240	17,292	318,136	390,238
ES	301,227	4,323	6,170,039	62,574
FI	2,402	ns	14,211	11,186
FR	22,225	2,423	370,290	74,156
GR	–1,061	ns	46,887	16,594
IT	14,751	1,342	466,342	75,120
JP	–13,421	–3,771	326,042	107,908
NL	5,206	ns	102,287	51,303
NO	2,420	ns	22,150	12,258
SE	1,628	ns	46,266	28,076
UK	32,440	6,757	468,195	187,304
US	80,372	ns	847,434	333,293

to structural problems in the data acquisition process. Note that with the elimination of 2007 the total percentage of missing observations drops to 8%.

How do we deal with such structural deficiencies in a dataset? Possible routes to take will be discussed step by step in Section 3. Let us first introduce a practical approach to computing the overall market shares of the cities. The median is a robust statistical measure of the central value of a collection of data points. With missing values we have varying numbers of observations available, making the estimates more or less reliable. Further, the statistics could be biased. For example, if values are missing at the ends of a series with a trend the estimates would be biased up- or downwards. E. g., assume a positive trend. Then the values at the beginning are lower and, if missing, the estimate will be biased upwards and vice versa. A robust measure can only ease the problem but not eliminate it.

Table 5 shows the sum of the median number of bednights across all markets, the total market share, and the percentage of missing values (PM). We see that London and Paris dominate the market. Disregarding the systematic concerns raised above the London figures are not less reliable than those of the lower end destinations Lisbon or Zagreb. Although Paris has double the percentage of missing values its share is more than double the share of Rome. The numbers for Madrid and Zurich could be biased down- and upwards as the missing values are substantial. Table 6 shows robust (linear regression) trend estimates and medians for both cities, where 'ns' indicates that an estimate (model) was insignificant at the 5%

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Table 7 Market shares of 17 countries of origin and diversification index (entropy) by cities 1995–2006

City	Market																	
	AT	AU	BE	CA	CH	DE	ES	FI	FR	GR	IT	JP	NL	NO	SE	UK	US	DI
AMS	1	2	2	2	2	8	6	1	6	1	6	3	14	1	1	27	17	2.28
BER	1	0	1	0	2	78	1	0	1	0	2	1	2	0	1	3	4	1.08
BRU	1	0	12	1	2	11	6	1	14	2	6	4	9	1	2	19	9	2.44
BUD	5	1	2	1	3	23	8	3	6	2	12	5	4	2	4	9	13	2.48
HEL	1	1	1	1	2	6	2	51	2	1	3	4	2	3	7	8	6	1.89
LIS	2	1	2	2	3	13	23	1	10	1	12	3	4	2	2	10	10	2.37
LON	1	5	1	3	2	7	4	1	7	1	5	2	2	1	2	38	17	2.14
MAD	0	0	1	1	1	3	65	0	4	0	5	3	1	0	0	5	9	1.42
OSL	0	0	0	0	1	4	2	1	1	0	2	2	1	68	6	5	5	1.37
PAR	0		2	1	2	5	5	0	39	1	7	7	2	0	1	11	16	1.99
PRG	3	1	2	1	2	27	8	2	6	1	13	3	4	2	3	11	9	2.40
ROM	1	2	1	1	1	7	4	0	3	1	36	11	1	1	2	6	21	2.03
STO	0	0	1	1	1	4	2	3	2	0	2	2	1	3	66	6	6	1.45
VIE	22	1	1	1	4	27	4	1	4	1	10	5	2	1	1	5	9	2.24
ZAG	9	2	3	4	2	21	3	1	8	1	12	3	4	1	3	11	13	2.47
ZUR	2	2	1	2	32	18	3	1	3	1	3	5	2	1	1	8	15	2.15

level. Overall, the trends are positive except for Japan (Belgium). For Zurich six of the series with missing values (Canada, Finland, Greece, Netherlands, Norway, and Sweden) have insignificant estimates. However, the share of the sum of the median values of these markets in the overall market share value is only 7 %.

Let us finally take a look at the median market shares of the countries of origin by destinations. The market shares in Table 7 denote the generating countries' relative contributions to a city's inbound tourism. In nine of the destinations the home market is dominant: Berlin (78 %), Helsinki (51 %), London (38 %), Madrid

(65%), Oslo (68%), Paris (39%), Rome (36%), Stockholm (66%), and Zurich (32%). Keep in mind that the home markets of Budapest, Lisbon, Prague, and Zagreb are not represented in the database. Germany (DE) is particularly dominant in the destinations Budapest (23%), Prague (27%), and Zagreb (21%). Spain (ES) is dominant in Lisbon (23%). Amsterdam draws visitors mainly from the United Kingdom (27%); Vienna does equally from Germany (27%) but has a strong home market (22%) too. According to the diversification index DI (measuring entropy across the cities' market shares) Budapest has the most balanced guest mix, followed by Zagreb and Brussels. Note that the dominant home market cities have the lowest index values.

Hint

The computational steps used to prepare the database can be found in the scripts *prepare.R* and *trend.R* available from http://www.wu.ac.at/itf/downloads/software/guestmix.

8.3 The missing value problem

How to deal with incomplete data? In the best case we might use some statistical model of missing observations. However, the analysis of the structural defects in our data led to the conclusion that this is not recommendable. What distributional assumptions should we make? Do we at least have reliable information on the minimum, maximum, or expected values? Such information does not come from incomplete data. Nevertheless, as predicting from existing data is a common practice we take a closer look at some of these methods. The interested reader will appreciate the overviews given in Lemieux and McAlister (2005), Allison (2001), or Schafer (1997).

There are two broad categories of data-driven models we could use, univariate or multidimensional time series models and multidimensional cross-sectional models. In the first category, once data are missing over an extended period of time, predictions from a time series model without exogenous variables become too unreliable or even infeasible. On the other hand, we could exploit correlations across or within destinations. This is more involved but again has its limits if either the target or explanatory series contain missing values over an extended period of time. At the other extreme, modelling each missing value separately, possibly using expert knowledge on the destination or market, is not an option either as we have a total of 261 missing values (see Table 3; recall that 2007 was excluded).

In the second category, we must assume that the destination profiles hold information about each other. First we have to determine which profiles to use for prediction. In other words, we have to identify the neighbours of a multidimensional data point. Note that we therefore must decide on some concept of proximity, too. Then we can compute the averages across the neighbours for prediction. Depending on how we define a neighbourhood this imputation method provides both local and global predictions. A local model uses only close neighbours assuming that similar profiles provide more reliable information on missing values than less similar ones. However, the less information a profile provides due to missing values, the less reliably it can be assigned to a neighbourhood. Information here means the relevant information as quantified by market share. Thus, information on important markets should not be missing. But there is a fundamental catch: with increasing dimensionality 'close' neighbours becomes a scarce commodity. This is one aspect of what is known in the literature as 'the curse of dimensionality' (Hastie, Tibshirani and Friedman, 2001, p. 22).

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Recall Table 3 and verify that only eight city profiles are missing more than half of their market values. Therefore, a cross-sectional approach would be viable. However, as mentioned above, important differences between a profile and its neighbours might exist. As the analysis of the competition among destinations depends on this information we might not gain more insight. On the contrary, due to the averaging, we might blur the picture. Therefore, if we fill in missing values we have to determine the possible influence the size of the neighbourhood has on the analysis. So why fill in missing values at all? Unfortunately, some class of models, for example linear regression, do not work with missing values. Cases with missing values must be excluded entirely even if a single component is missing. Clearly, for such models there is a trade-off to accept between either dropping a case or possibly biasing the available information with inaccurate predictions of missing values. Unfortunately, the multidimensional-scaling models we are going to use do not allow for excluding missing cases (although they are linear models) implying that we must predict missing values.

The concept of locality provides the basic ideas for pursuing a simple approach. Local estimators are typically obtained with k nearest-neighbour methods, where the optimal k can be determined by minimizing the prediction error. However, we cannot determine k as we cannot compute the prediction error of missing values, and further, a uniform k may not be appropriate. Therefore, we suggest using cluster analysis: it provides neighbourhoods (i. e. the clusters) but it does not rely on prediction errors. Also, the optimal k, the proper number of clusters, can be based on various measures of information of a solution. The information is contained in the representatives of the clusters which are vector-based measures known collectively as centroids, for example, the vector of means or medians. They are local estimators and using all the available information to compute them is the best we can do. In short, what we suggest is to modify a clustering method's proximity and summation functions to omit missing values instead of omitting data points. As the former measures use pairs of values both observations must be available to be taken into account. City profiles that do not provide sufficient information should be collected in a separate cluster.

The 1997 study used market share profiles to represent a destination's guest mix. As the database of the present study is incomplete and we prefer a methodology that does not fill in missing values we cannot use market share profiles. If a single market value is missing the total cannot be computed. Therefore, we need a proximity measure that is appropriate for market share data but does not depend on missing values. The cosine similarity is such a measure and it is well known in the classification and neurocomputing literature (Caudill, 1993, p. 18 f.). It maps equally directed vectors to the same value but does not take the lengths of the vectors into account. Thus, if two market share profiles are the same the cosine similarity is maximal, i. e. attains the value 1, irrespective of whether the data are in absolute or relative terms. In other words, differences in destination market size are ignored. Missing values may be handled by mapping vectors into a common subspace. Consider an example with one missing value. The vectors (2, NA, 2) and (1, 1, 1) map to the common subspace with dimensions 1 and 3 (NA indicates 'not available'). In this subspace both have the same direction. Note that the first vector has the same direction as the vector (1, 2, 1) but for any real value of NA both cannot be true. This approach is equivalent to removing cases from the input data as indicated above.

Another approach is to make most use of the available data and compute the numerator and denominator in the cosine similarity formula separately (see Meyer and Buchta, 2008). This is similar to setting NA = 0 except for special cases. The intention of this approach is to factor in the unreliability due to missing values:

the similarities in the above example decrease to .82 and .58 respectively as the lengths of the vectors increase. We expect that this will assist a clustering algorithm in assigning profiles with missing values to lower-dimensional clusters.

In whatever way we tackle the missing value problem we should keep in mind that there are only likely neighbourhoods and, therefore, we must be careful when interpreting results.

Question

For which value of NA is the vector (2, NA, 2) equally similar to both of the complete vectors (1, 1, 1) and (1, 2, 1)?

8.4 Clustering guest mix profiles

The data matrix consists of the guest mix profiles for 16 European cities. As the profiles range over a time period of 12 years (1995–2006) each city contributes 12 repeated measurements yielding a total of 16 × 12 = 192 data records. The working step outlined in this section seeks to identify typical guest mix patterns in this database. Having generated a number of such guest mix prototypes we may ask which city is represented by which pattern in which calendar year.

Cluster analysis is a very mature but complex field (Aldenderfer and Blashfield, 1984; Tan et al. 2006). Among the well-known approaches are hierarchical and partitioning methods. The former have the advantage of producing deterministic results while the latter usually do not. For example, the *k*-centroids algorithm improves a solution in two steps: first it computes the centroids of the current partition, e. g., the mean vectors of the clusters. Then it computes the new partition by assigning each data point to its closest centroid. The algorithm stops if there is no further change in partition. *K*-centroids is simple and fast and it can deal with large data sets, but there is no guarantee a solution is a global optimum. Therefore, it is recommended to try different initial solutions and retain the best. If the initial solutions are chosen randomly this amounts to performing random search and therefore the final solution may be random too. That is, if we repeat the procedure we may obtain considerably different results. This could complicate interpretation.

On the other hand, the hierarchical methods are limited by the necessity to compute the proximities for all possible pairs of data points and the number of pairs is a square function of the number of data points. Here, we use the two approaches in combination: we compute an initial solution for *k*-centroids by a hierarchical clustering method. This turned out to provide more stable results than an extensive random search.

R function for computing *k*-means with missing value data[1]

For readers interested in computational details the listing at the bottom of this box shows a code snippet for computing *k*-means with missing value data with the statistical software *R*. The first input argument, *x*, is a data matrix with market profiles in the rows. The second, *k*, is a vector of cluster labels corresponding with the rows of *x*. Now, we apply the function *tapply* to each column (by setting MARGIN = 2) of *x*; *tapply* partitions a column (vector) according to *k* and applies the function on lines 3 to 6 to each subset. On line 4 we compute the mean,

1 *R* is an open source system available via http://cran.r-project.org/.

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mandating that missing values be removed from the computation (by setting na.rm = TRUE). On line 5 we test if the result is not a number (NaN) which will be obtained if the removal of missing values results in a vector of zero-length, which in turn results in a division by zero. In that case we return *R*'s missing value code NA, as we don't know what the result is and otherwise the mean. *R* pieces the results from the (nested) function calls together and returns a vector or a matrix with the centroids in the columns and the markets in the rows.[2] For example, try *mean.k(as.matrix(c(1,NA,1,NA)), c(1,1,2,3))* and verify the result.

```
1 mean.k ← function(x, k)
2       apply(x, MARGIN = 2, tapply, k,
3             function(x) {
4                   x ← mean(x, na.rm = TRUE)
5                   if (is.nan(x)) NA else x
6             }
7       )
```

2 Note that this adaptation is essential, as setting NA = 0 would underestimate the mean. In other words, we cannot just set NA = 0 to work around an implementation of a clustering algorithm that cannot handle missing values.

Question

What needs to be changed in the code for computing k-medians?

We determine the number of clusters by a combination of visual inspection of the cluster dendrogram and goodness of fit measures of partitions. A dendrogram is a tree. At the bottom each data point is in a separate cluster and at the top all the data points are in the same cluster. The interior nodes represent the merging steps of the clustering algorithm. The height of a node quantifies the homogeneity of the corresponding cluster. We use the average within-cluster similarity for the height. The loss in detail that comes with merging can be seen from the changes in height, which therefore provide the basis for the decision where to cut the tree. Figure 1 shows the dendrogram of the guest mix data. Note that the heights represent average cosine distances instead of similarities. Cutting the tree at a height of less than .1 results in a partition with 17 or more clusters. The rectangles at the bottom represent a partition with 17 clusters. From a practical point of view we must consider the possibility that the destinations could be quite distinct and therefore using less than 16 clusters does not seem appropriate. An additional cluster may be needed to collect profiles with missing values.

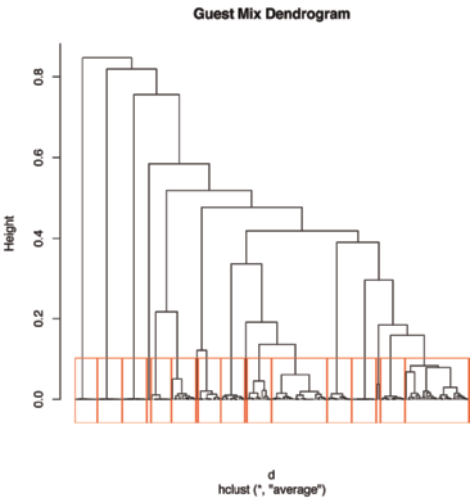

Fig. 1 Hierarchical clustering results for the 192 guest mix profiles

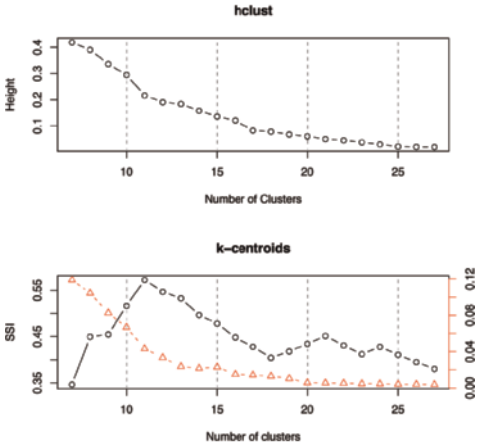

Fig. 2 Goodness-of-fit measures for solutions with 7 to 27 clusters by clustering methods, hierarchical (top) and centroid-based (bottom)

However, from a quantitative point of view, fewer clusters may be recommended.

Figure 2 (top) shows the height for solutions with between 7 and 27 clusters. Overall, the height decreases with increasing numbers of clusters. As indicated above, it is recommended to look at the differences, where adding a further cluster (adding more detail to the picture) does not lead to a significant reduction in average within-cluster distance. Thus, solutions with 11 and 17 clusters are possible candidates.

The average within-cluster distance is also the optimisation criterion of the *k*-centroids method. However, with cosine distances the procedure described earlier is not guaranteed to maximise this measure. Without elaborating the details (see Leisch, 2006), we assume that it produces good results. After all the whole approach we suggest is heuristic in nature. We used the simple structure index (Mazanec, 2001) as a further measure to assess the proper level of detail to use in our market analysis. That is, the average dimension range across the cluster profile adjusted for the number of profiles that contain an extreme value on at least one dimension (guest nationality). For example, for the hypothetical profiles (1, 0) and (0, 1) the index is 1 (maximal) but with (1, 1), instead of the first or second, it drops to 1/2 as this set of profiles does not provide distinctive information on the first dimension. Further, if we added (1/2, 1/2) to a solution with (1, 0) and (0, 1) the index would drop to 2/3 as the additional profile does not provide any distinctive information.

Figure 2 (bottom) shows the figures for the average within-cluster distance (triangles) and the simple structure index (circles). According to the former, the 13, 15, and 20 cluster solutions are possible candidates for further analysis. The simple structure index, on the other hand, attains a global maximum at the 11 cluster solution, and has two further local maxima at 21 and 24 clusters. Note that the index values are never close to 1, which indicates that the cluster profiles contain redundant information.

Now, if we are interested in less detail we could use 11 clusters and if we are interested in more fine-grained results we could use 17, 21, or 24. However, fewer clusters also means bigger clusters (larger neighbourhoods), and vice versa, and therefore more reliable predictions.

Closer inspection of the city market maps of the candidate solutions reveals that the 21 and 24 cluster solutions are too detailed and that the 11 cluster solution is too coarse. Therefore, we present the solution with 17 clusters as it nicely illustrates the trade-off to be made between quantitative criteria and the necessities of missing value analysis. Table 8 shows the distribution of guest mix profiles across clusters. For example, Amsterdam and London are represented with 12 and 11 profiles in cluster 1. The remaining London profile is separated out into cluster 15. 10 of the profiles of Prague are in cluster 4, together with 12 of the profiles of Budapest. One of its profiles is singled out into the uninformative cluster (last column) and another can be found in cluster 2, together with the 12 profiles of Berlin. Besides for London, profiles are singled out for Oslo (1), Rom (1), Zagreb (2 and 1), and Madrid (1). Zagreb

Table 8 Distribution of cities across clusters

	Cluster																	
City	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	NA
AMS	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BER	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRU	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BUD	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEL	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0
LIS	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0
LON	11	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
MAD	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	2
OSL	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	1	0	0
PAR	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0
PRG	0	1	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	1
ROM	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	1	0
STO	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0
VIE	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0
ZAG	0	0	1	8	0	0	0	0	0	0	0	0	0	2	0	0	0	1
ZUR	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0
Total	23	13	13	30	12	12	10	11	12	11	12	12	12	2	1	1	1	4
Cities	2	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	3

also occupies cluster 4 with 8 of its profiles. Remember that each profile has a year tag and that the profiles of a cluster are more similar to their own centroid than to any other. Thus, cluster 4 indicates that Budapest, Prague, and Zagreb provide a similar guest mix across almost all periods of the study, and cluster 1 indicates this for Amsterdam and London. The remaining destinations seem to provide a unique guest mix.

Before we proceed to analysing the relationships among clusters we first have to secure that the profiles of a cluster are not too heterogeneous and their representatives are not too biased by missing values. Of course, the uninformative cluster and the single destination clusters, 14, 15, 16, and 17 serve a different purpose and therefore cannot be judged by these criteria. Table 9 shows the proportion of profiles with a missing value. First, observe that clusters 5, 8, 10, and 12 are unbiased, i. e. contain no missing values. As these are the exclusive positions of Helsinki, Oslo, Rome, and Vienna, their guest mixes are unbiased too. Second, only three of the single-profile clusters capture low-dimensional profiles as half or more of the values are missing. Cluster 14 representing Zagreb can be assumed to indicate a true shift in market position as neither Canada nor Greece can be expected to contribute significantly to its guest mix (see Table 7). Except for the Canadian market in cluster 9, the exclusive position of Paris, less than 50% of the values are missing at the worst. Further examination confirms that the affected markets are not the important ones. Especially, for any single-destination

Table 9 Proportion of profiles with a missing value × 100 by markets and clusters (rounded)

	Cluster																
Market	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
AT	0	8	0	0	0	33	10	0	17	0	0	0	0	0	100	100	100
AU	48	8	15	17	0	0	30	0	100	0	0	0	42	0	100	100	100
BE	26	8	0	0	0	0	10	0	0	0	8	0	42	0	100	100	100
CA	0	8	8	0	0	8	10	0	8	0	0	0	42	50	100	100	100
CH	0	8	0	0	0	0	10	0	0	0	0	0	0	0	100	100	100
DE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
ES	26	8	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
FI	0	8	0	0	0	33	10	0	42	0	0	0	42	0	100	100	100
FR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
GR	4	8	8	0	0	0	10	0	42	0	17	0	42	100	100	100	100
IT	0	8	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
JP	0	8	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
NL	0	8	0	0	0	0	10	0	0	0	0	0	42	0	100	100	100
NO	0	8	0	0	0	50	10	0	42	0	0	0	42	0	100	100	100
SE	0	8	0	0	0	0	0	0	42	0	0	0	42	0	100	0	100
UK	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
US	0	8	0	0	0	8	10	0	0	0	0	0	0	0	100	0	100
Size	12	7	7	16	6	6	5	6	6	6	6	6	6	1	1	1	1

cluster the affected profiles are still closer to this cluster than to any other thus implying that the missing information is indeed not relevant.

Table 10 shows the average and maximum within-cluster distances. Clusters 1 and 4 have the largest values and therefore are less homogeneous than the single destination clusters. Overall, the values are low, so the clusters are well represented by their mean profiles. But are the clusters well separated, too? The nearest neighbour of a data point need not be in the same cluster. The decision rule of *k*-centroids does not imply that. Therefore, we computed for each cluster the frequency distribution of the cluster indexes of the nearest neighbours of the data points. For clusters 1 to 13 the proportion of same-cluster indexes is 100% and therefore the clusters are well separated.

Question

How can the concept of separation be further tightened?

Let the joint neighbourhood of a pair of centroids consist of the data points that are closer to both than to any other pair of centroids, i. e. closest to one and second closest to the other centroid. We use the proportion of the number of data points in a neighbourhood in the union of the pair of clusters to quantify the similarity of the clusters. To avoid spurious relationships we suggest putting a threshold on the distance to the second closest centroid. Asymmetric relationships can be quantified by the proportion of the number of data points in the intersec-

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Table 10 Average and maximum within-class distance × 100.

Cluster													
1	2	3	4	5	6	7	8	9	10	11	12	13	14
4.79	0.28	1.82	3.25	.05	0.87	0.13	.04	.34	0.60	.03	.25	0.52	1.00
10.34	3.28	7.46	9.35	.10	4.88	1.00	.09	.69	1.21	.07	.58	1.08	1.20

	Market																		
Cluster	AT	AU	BE	CA	CH	DE	ES	FI	FR	GR	IT	JP	NL	NO	SE	UK	US	DI
1	1	8	2	3	2	6	5	1	7	1	5	3	3	1	2	36	16	2.19
4	4	1	2	1	2	23	8	2	6	2	12	4	4	2	3	13	11	2.45
14	7	1	3	3	2	19	2	2	5	NA	9	1	4	2	2	8	30	2.24

Table 11 Selected cluster centroids × 100 and diversification index

tion of a neighbourhood with a cluster (in that cluster). For example, 70% of the data points of cluster 1 are in the neighbourhood with cluster 3, but for the latter 54% of its data points are closer to cluster 4, only 46% are closer to cluster 1. However, as we want to depict overall relationships in a market map we prefer the symmetric measure for drawing lines linking the cities' guest-mix positions.

Figure 3 shows a Sammon projection (Sammon, 1969) of the clusters computed from between-centroid Euclidean distances. The size of a bubble corresponds to the size of a cluster (= number of guest-mix profiles). It is coloured by the dominant market of the centroid and the label indicates the city or cities represented by a cluster. The large-font number labels indicate total market volume relative to the maximum (among all clusters). The width of a line corresponds with the symmetric link measure and the colon-separated numbers indicate the asymmetric link ratio. For example, cluster 1 corresponds to the position of Amsterdam and London, which is dominated by visitors from the UK. The total average market volume of cluster 1 is the largest among all clusters and therefore provides the basis. The neighbouring London cluster, number 15, consists of a single profile for 1998 with values missing in all markets except the UK. The high total market volume, relative to cluster 1, indicates that the centroid of cluster 1 is biased downward by the Amsterdam profiles as there the average share of the UK market is around 36% (see Table 11). The support of the neighbourhood of clusters 1 and 15 is 8/24 = 33% as indicated by the line width. The link ratio is 1:7 meaning that 7 profiles of cluster 1 are second closest to the

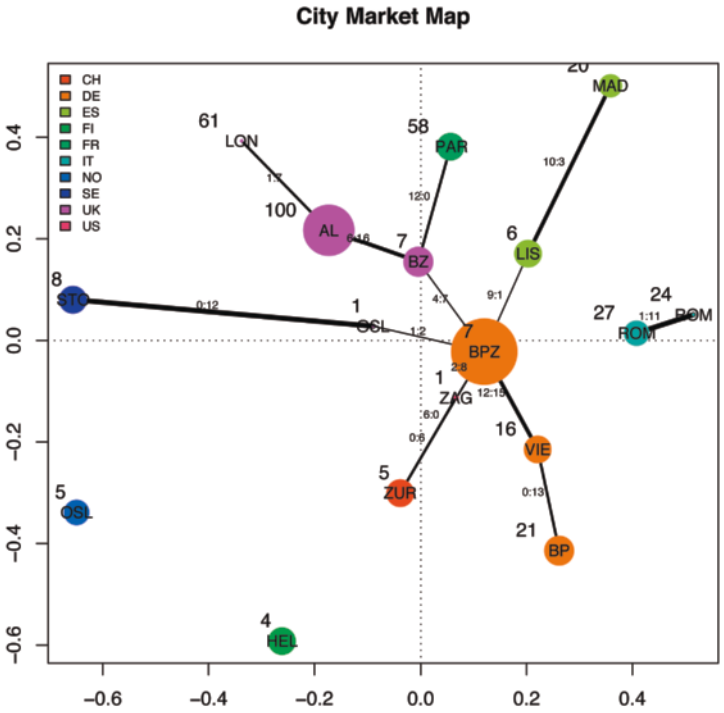

Fig. 3 Sammon projection of clusters based on between-cluster distances

centroid of cluster 15 and vice versa. However, cluster 3 with Brussels and Zagreb ('BZ') is closer to cluster 1, both in terms of map distance and support of the neighbourhood (61%) or link ratio (6:16). Note that for Zagreb there is only a single profile for 1995. From 1996 to 1997 Zagreb occupies cluster 14 ('ZAG') with a dominant share of the US market (see Tables 8 and 11), with the value for 1996 being two- and three times the values of 1995 and 1997 respectively. Here the UK market is no longer important as in fact it decreased to half the value of 1995 by 1997.

Table 12 provides a summary of the city positions. A blank in the year column indicates the set 1995 to 2006 and a minus sign indicates exclusions from this set. Columns 'Market' and 'Share' show dominant markets (in cluster centroids) and the corresponding market shares (in average city profiles). Note that these figures may be biased upwards due to missing values. Column 'NAs' exhibits the number of missing values. Column 'Volume' shows the total market share of a city (in a cluster). Note that aggregate profiles with missing values were omitted from the computations, thus biasing the figures for the remaining cities upwards. Column 'DI' shows the diversification index of the average city profile. In case of missing values these figures are biased downwards.

Continuing where we paused above we see that the 1998 profile of Zagreb is in the uninformative cluster and all profiles after 1998 are in the central cluster 4. Note that a single Prague profile with 15 missing values was assigned to cluster 2. Most likely the market share in the German (DE) market is not as high as that of Berlin. In fact, our best guess would be around 24% as reported in cluster 4 (see also Table 7). Remember from the analysis of cluster separation that the nearest neighbour of the Prague profile must be one of the Berlin profiles. So neither the cluster (centroid) nor the nearest-neighbour (profile) can be used to

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Table 12 Summary of city positions

	Cluster	City	Year	Volume	Market	Share	NAs	DI
1	1	AMS	7	UK	26.6	0	2.30	
2	1	LON	–1998	93	UK	39.0	0	2.13
3	2	BER	100	DE	76.1	0	1.16	
4	2	PRG	2002	NA	DE	78.9	15	0.51
5	3	BRU	100	UK	19.5	0	2.44	
6	3	ZAG	1995	NA	UK	16.7	2	2.43
7	4	BUD	35	DE	22.0	0	2.49	
8	4	PRG	–2000,–2002	62	DE	23.8	0	2.40
9	4	ZAG	–1995:1998	3	DE	17.3	0	2.50
10	5	HEL	100	FI	50.7	0	1.91	
11	6	LIS	100	ES	23.5	0	2.38	
12	7	MAD	–2005:2006	100	ES	65.0	0	1.42
13	8	OSL	–2004	100	NO	67.1	0	1.39
14	9	PAR	100	FR	37.8	1	2.04	
15	10	ROM	–2006	100	IT	36.9	0	2.03
16	11	STO	100	SE	66.6	0	1.45	
17	12	VIE	100	DE	27.8	0	2.25	
18	13	ZUR	100	CH	30.3	0	2.17	
19	14	ZAG	1996:1997	100	US	29.9	1	2.24
20	15	LON	1998	100	UK	100.0	16	0.00
21	16	OSL	2004	100	UK	22.5	9	1.93
22	17	ROM	2006	100	IT	52.7	11	1.44
23	NA	MAD	2005:2006	NA	<NA>	NA	17	NA
24	NA	PRG	2000	NA	<NA>	NA	17	NA
25	NA	ZAG	1998	NA	<NA>	NA	17	NA

predict the missing values. The map position of cluster 16 ('OSL') and the tie with cluster 11 ('STO') is explained by the fact that data on Oslo's home market NO is missing. Thus, the UK and the SE markets are biased upwards with the former being the dominant market. Cluster 17 ('ROM') does at least not give that kind of false impression although the indicated shift in the share of Rome's home market IT is an artefact of missing values. The remaining clusters confirm the initial picture: a clear separation between home market destinations such as Madrid, Rome, Helsinki, Oslo, and, disregarding spurious ties, Stockholm. Berlin is a home market city, too. Its asymmetric relationship with Vienna (13:0 profiles) is not stable as solutions with more clusters show. On the other hand the tie between the 'VIE' and the 'BPZ' cluster is almost symmetric (12:15 profiles). The weak link between 'BPZ' and 'LIS' is asymmetric (1:9) and most likely reflects commonalities in the IT, UK, and DE

markets that are important in cluster 4 (compare Tables 11 and 7).

Note that the asymmetric link between 'ZUR' and 'BPZ' (6:0) is shadowed by the link with 'ZAG' (0:6). Thus, if we merged 'ZAG' and 'BPZ then the link with Zurich would be symmetric. Nevertheless, Zurich is a home market destination, albeit a less prominent one than others. The ES market has the highest share in both Lisbon and Madrid, but Lisbon's could be biased as its home market was not included in the analysis. Disregarding this, Lisbon has a diversified guest mix while Madrid has not and therefore their relationship is asymmetric (3:10). Paris is another home market destination with a one-sided relation to Brussels (12:0). Note that data on the AU market are missing in all years but, judging by the magnitude of its share in other destinations (see Table 7), it does not seem to be important. Paris is comparable to Madrid both in diversification and dominant market share. Zagreb, Budapest, and Brussels are most diversified and therefore have commonalities with more than one more-specialised destination. Thus, the least-specialised destinations (guest-mix clusters) are located in the centre of the map and the highly specialised are pulled out to the periphery.

Hint

The computational steps used in these cluster analyses are implemented in the *R* script named *cluster.R* (see http://www.wu.ac.at/itf/downloads/software/guestmix).

8.5 Longitudinal analysis of guest mix profiles

For the longitudinal analysis of guest mix profiles we use INDSCAL, a multidimensional scaling approach for repeated measurements originally developed by Carroll and Chang (1970). It maps the destinations based on their inter-profile distances into a two- or three-dimensional space (depending on our choice). The changes in distances over time are modelled as weights on the coordinate axes. Though the model has only limited capabilities of accommodating changes in city positions it seems to be a good choice given the stability of the markets we have identified earlier. However, INDSCAL can neither be adapted to handle missing values nor can we simply exclude problematic profiles. We choose the following approach:

(i) We recode problematic data profiles with too many missing values into an uninformative profile (with all values missing).
(ii) Then we compute the distances between all pairs of profiles of a year.
(iii) Finally, missing distances are replaced with the averages across years. Hence, we operate on the level of destination pairs.

Table 13 shows the number of problematic profiles for different thresholds on the number of missing values. Seven turned out to be a good choice as it does not result in erratic weight changes that we observed for higher thresholds. This means that we have to predict a total of 219 out of 120 × 12 (= 15%) missing distances.

The distribution of missing values across years is shown in Table 14. The highest numbers appear in 1998 (35%), 1995, 2004, and 2006 (24%), with Madrid and Zurich being the most affected destinations (see Table 15). Note

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Table 13 Cumulative number of destination profiles with 17, 16, … or fewer missing values

17	16	15	11	10	9	8	7	6	5	3	2	1	0
4	5	6	7	8	9	14	15	16	20	26	34	59	192

Table 14 Number of missing distances per year across pairs of destinations

1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
29	15	15	42	15	15	0	15	0	29	15	29

Table 15 Number of missing distances per destination across years

AMS	BER	BRU	BUD	HEL	LIS	LON	MAD	OSL	PAR	PRG	ROM	STO	VIE	ZAG	ZUR
15	15	15	15	15	15	27	55	28	28	43	28	15	15	27	82

that a missing profile leads to a missing distance between the destination that provides no information and any other destination (whether or not its profile is missing too). Hence, in order to not distort the relations between destinations we have to fill in the missing distances with destination-specific predictions.

We determined the number of dimensions to use for the mapping space by visually examining solutions in two and three dimensions. This is feasible as the model fit provides only limited information and determining the 'correct' model (see chapter 3 in Borg and Groenen, 1997) hardly justifies the effort. A three-dimensional solution seems to be appropriate as can be seen from Figure 4. The plane spanned by the first and second dimensions running through the centre of the map is shown as a grid. The axes of this plane are coloured red. Projections of city locations (indicated by text labels) onto this plane are drawn as points which are connected through a line parallel to the third dimension. For example, we find the projections of Zagreb and Helsinki near the first axis and that of London near the second. The map corresponding to this plane looks similar to the one we found with cluster analysis (see Figure 3). Oslo, Helsinki, and Stockholm are separated from the rest; Budapest, Prague, and Zagreb are closest to the centre; Berlin is located at the periphery at some distance from Vienna, and Zurich is now closer to the centre. In the opposite direction we find Rome, Brussels, Amsterdam, London, and Paris. Lisbon is again positioned close to Zagreb, but Madrid is close to Rome instead of being at the periphery of the two-dimensional plane. However, Madrid and Lisbon extend far into the third dimension, in opposite direction to all destinations but Oslo and Stockholm. Thus, Lisbon is in fact not close to Zagreb, nor is Madrid close to Rome, and, as we suspected earlier, Madrid and Lisbon do not have that much in common. This might explain Madrid's position, but be-

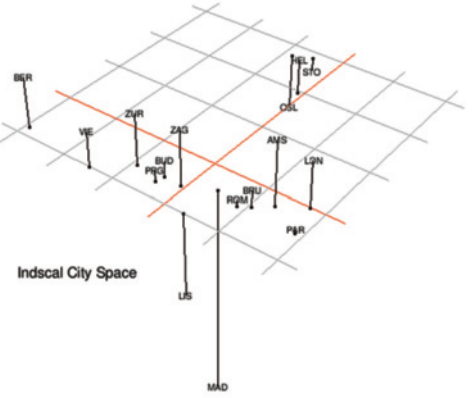

Fig. 4 Time-invariant and unweighted multidimensional scaling solution (1995 to 2006)

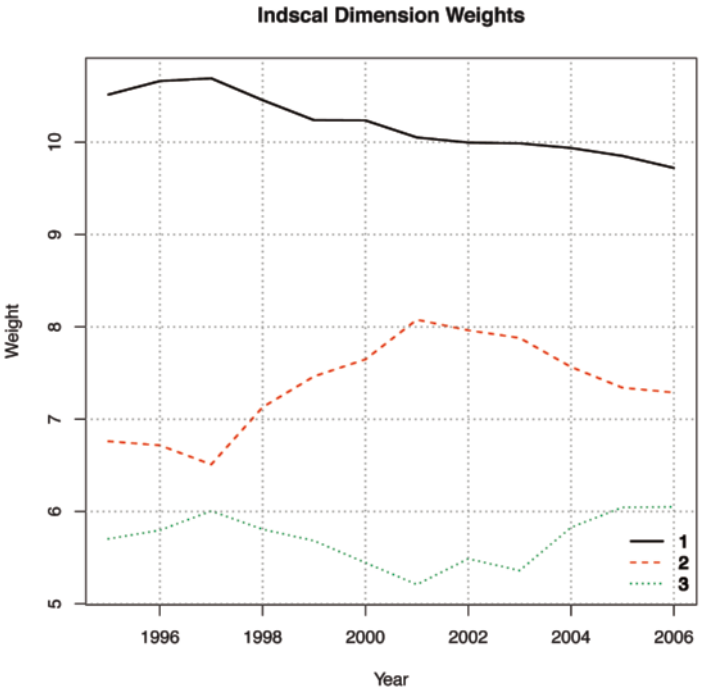

Fig. 5 Development of dimension weights (1995 to 2006)

ing second in terms of missing profiles (see Table 15) and the gap being systematic (see Table 4), biased predictions could be the cause as well. Note that the space in Figure 4 is not yet weighted; on average the weight ratios of axes 1:2:3 are 1.79:1.30:1.

Figure 5 depicts the development of the dimension weights over time. For dimension 1 there is a slight downward trend placing Oslo, Helsinki, and Stockholm closer to the centre. Note that this has no effect on the remaining destinations as they are lined up along the second dimension and, starting with 1997, the differences on this dimension become more pronounced until 2001. Over the same period the weight on the third dimension moves into the opposite direction, the net effect being that Lisbon wanders closer to Zagreb, and Madrid approaches Rome and Brussels. (The differences in the roots of the weights are relevant which are larger for the smaller weights; see Figure 6 for illustration). From 2003 to 2005 part of this development is reversed, with the weight on the third dimension returning to the level of 1997. Thus, we can qualify 1995 to 1997, 2001 to 2003, and 2005 to 2006 as the stable periods.

Table 16 demonstrates how the markets influence the coordinate values on each dimension; correlations that are insignificant at the 5% level are indicated by a left angular bracket. Note that correlations do not imply cause and effect but the mapping solution clearly reflects the data structure. Dimensions 1 and 3 are influenced by home markets such as Finland, Norway, Sweden, and Spain. The signs of the correlations are arbitrary as in total there are six equivalent solutions which can be obtained by changing each dimension's direction independently.

As Oslo, Helsinki, Stockholm, Madrid and Lisbon are each located in the negative hemisphere of the city space the signs are correct. With increasing market share these destinations move closer to the periphery of the mapping space. The signs are also correct for the second dimension: destinations with a large

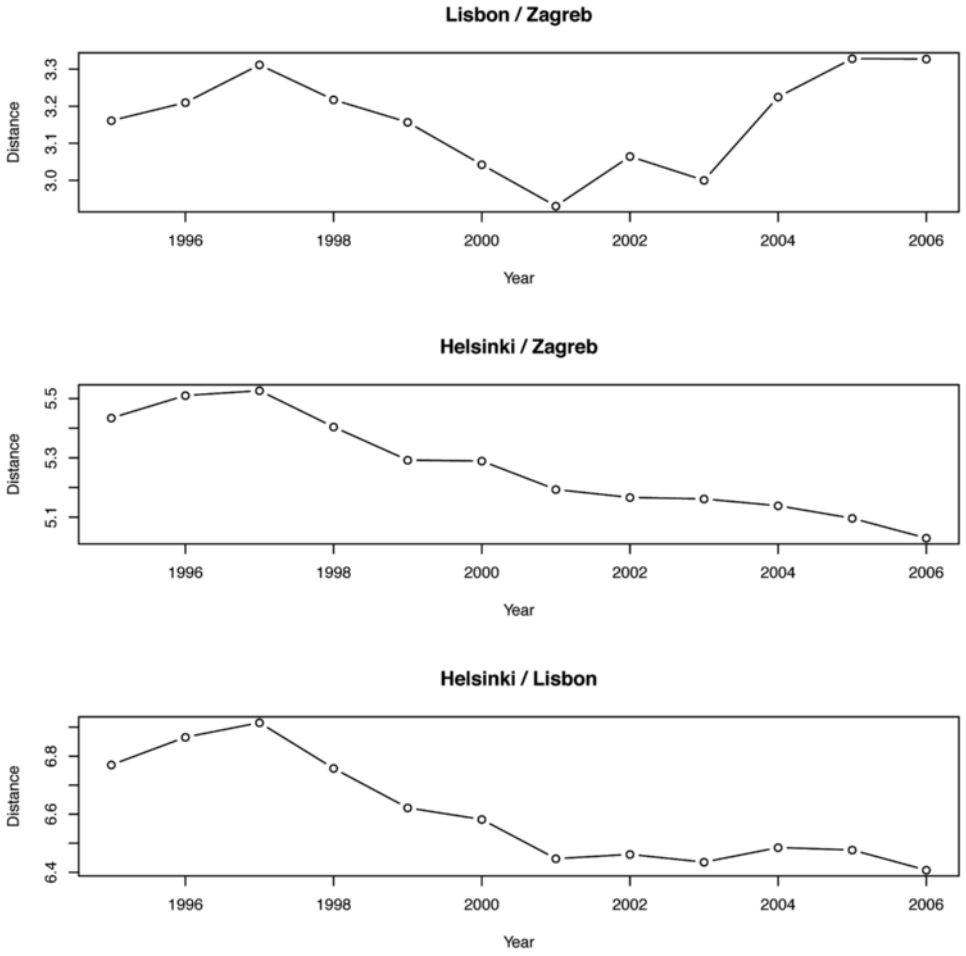

Fig. 6 Development of Euclidean distances between selected pairs of cities (1995 to 2006)

share of the German and/or Austrian market such as Berlin, Vienna, Budapest, Prague, and Zagreb are located in the positive hemisphere. On the negative side we find London, Amsterdam, and Brussels which have a large share of the UK market, or Paris with a large share in its home market France. Rome, Amsterdam, London, and Paris attain the largest shares across the US market which makes this market equally important. The Japanese market is most important for Rome and Paris. The dominance of the Italian market for Rome does not translate into a high correlation as this market is also important for Prague, Budapest, Zagreb, and Vienna (see Table 7). However, as evidenced by the figures for the small shares of the Canadian and Australian markets, correlations do not reflect the magnitudes of the market shares. Finally, on the third dimension, the high negative correlation for the Spanish market reflects the cause of the peripheral positions of Madrid and Lisbon.

For comparison with the previous study for the years 1975 to 1995 we fitted a three-dimensional INDSCAL model to this data. The results are shown in Figures 7 and 8. Note

Table 16 Correlations between market profiles and weighted map coordinates (stacked over time)

	Dimension		
Market	1	2	3
AT	0.36	0.33	0.23
AU	0.23	−0.48	0.37
BE	0.25	−0.31	0.09<
CA	0.37	−0.45	0.37
CH	0.18	0.16	0.20
DE	0.40	0.75	0.31
ES	0.24	−0.18	−0.88
FI	−0.43	0.02<	0.13<
FR	0.29	−0.57	0.01<
GR	0.51	−0.15<	0.18
IT	0.40	−0.24	0.04<
JP	0.28	−0.37	0.01<
NL	0.24	−0.33	0.32
NO	−0.58	0.17	−0.24
SE	−0.67	0.12<	−0.06<
UK	0.15	−0.62	0.34
US	0.41	−0.63	0.24

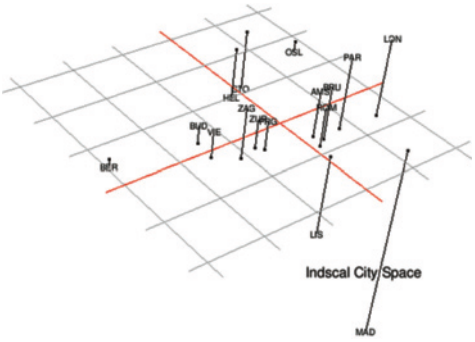

Fig. 7 Time-invariant and unweighted multi-dimensional scaling solution (1975 to 1995)

that this study used a different distance measure and therefore might not be fully comparable (see Mazanec, 1997). According to the positions of the cities in the map and the correlations between positions and markets (not shown) the axes correspond with the present solution. Overall, the picture is the same but with some differences in the local details for the Scandinavian, central-, and west-European groups of destinations. We do not further elab-

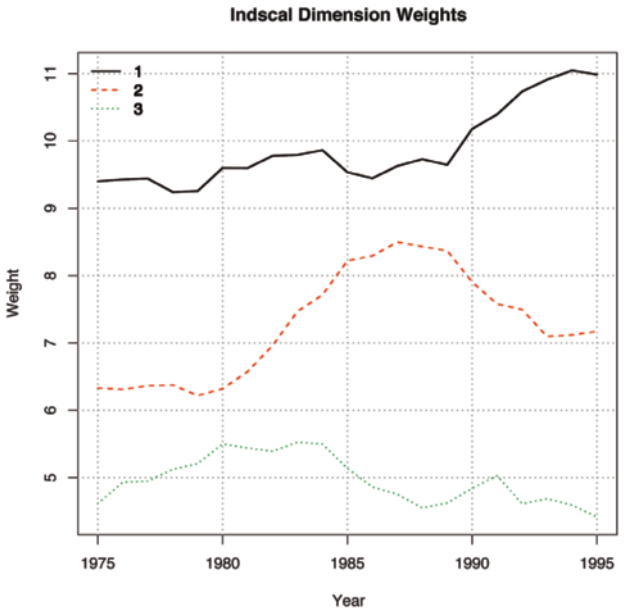

Fig. 8 Development of dimension weights (1975 to 1995)

orate these details as the periods spanned by the data are different and the data definitions do not match exactly. TourMIS provides sparse data for 1975 to 1995 and data definitions have changed. Therefore, we also refrained from fitting a model over the whole 30 year range. Nevertheless, the development of the dimension weights does not seem incompatible at the 1995 boundary and so it seems that dimensions 2 and 3 exhibit a cyclic pattern.

Hint

The computational steps of longitudinal analysis can be found in the *R* script *indscal.R*.

8.6 Conclusions

Applying two methods in parallel would not be worthwhile unless we tried to evaluate their strengths and weaknesses and spot the commonalities in the diagnostic findings. The lessons to learn refer to the substantive output and to the fine-tuning of the analytical tools.

Summarising the results of the cluster analysis we may draw the following conclusions:

(i) The city destinations exhibit a widespread dominance of the home markets.

(ii) The guest mix profiles of a city destination are remarkably stable over time. With the exception of Zagreb we did not observe changes in a destination's cluster membership that are time-related.

(iii) Too many missing values complicate the analysis as they may lead to erroneous conclusions. It is strongly recommended to go back into the raw data for examining their frequency of association with specific cities and/or time periods.

(iv) Cluster analysis manages to single out problematic profiles. In future studies we could help it along by using an information threshold beyond which we should assign a profile to the uninformative group thereby eliminating it from further analysis.

The multi-dimensional scaling analysis led to the following conclusions:

(i) The results gained from cluster analysis were confirmed.

(ii) There are temporary shifts in groups of city positions over time. This was not detected by the cluster analysis.

(iii) The correlations between map positions and markets are plausible. Especially, peripheral map positions are highly correlated with market specialisation and vice versa.

(iv) Filling in missing values on the level of distances did not distort the picture.

(v) The INDSCAL version of the multi-dimensional scaling analysis cannot handle missing values in the raw data and is sensitive to outliers but otherwise is less involved and more straightforward than cluster analysis.

Taking the gaps in the database into account and exerting all necessary caution the diagnosis of inter-city guest-mix similarity is conclusive. If a similar guest mix means anything for judging toughness of competition the cities of Budapest, Prague, and Zagreb, with Vienna and Zurich in their vicinity, must pay attention to each other's marketing strategies. A particularly large domestic market (as for Berlin) alleviates competitive stress. At least, it relaxes the need for taking care of too many generating countries all at once. If you serve a quasi-domestic region (Nordic countries) you may get company but still reap the benefit of a highly familiar marketplace (Helsinki, Oslo, Stockholm).

The guest-mix derived city positions prove to be remarkably stable. Neither changes in

the business cycle nor a steady political evolution like the progress in European unification persistently disturb the guest-mix structures. There seems to be pretty strong inertia in the tourist cities' market ties as far as markets are conceived in simple terms of guest nationality.

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Cities to Play: Outlining Competitive Profiles for European Cities

9

Valeria Minghetti and Federica Montaguti

9.1 Purpose and objective

Visiting cities is an ever-growing tourism activity in Europe. Also thanks to the enlargement of the European Community, urban tourism flows are expanding at a faster rate than tourism in general (ETC, 2008). Traditional cities are cities that were not created for tourism development and where tourism has established itself within the changing economic, social and cultural environment. Tourism activities interact with other urban functions as part of a system of overlapping flows and relationships (Laws, 1993). Besides, cities are places in motion, nodes of dynamic networks of different physical and virtual mobilities (tourists, residents, businesses, capitals, investments, culture, knowledge, etc.) that constantly reshape the urban space, the organisation of tourism and non-tourism practices and the city image and brand.

From this point of view, not only the tourism competitiveness of a city depends on the attractiveness of core resources and the quality of tourism-related facilities, but also on the evolution of these networked mobilities. Analysing the tourism competitiveness of a modern city requires a model that explicitly considers all these aspects. This Chapter presents a methodological approach and the results obtained from a competitiveness study carried out by CISET, on behalf of the Tourism Department of the Italian government. The aim of the study was to develop a benchmark analysis, by comparing the competitiveness of the three most famous Italian art cities (Florence, Rome and Venice) with other eight European cities (Barcelona, Bruges, Istanbul, London, Paris, Prague, Seville and Vienna).

9.2 Introduction

According to recent studies, cities and destinations are transforming themselves from 'spaces of places' to 'space of flows' (Castells, 2000; see also Manente, 2000), in nodes of a complex network of relationships among different kinds of spatial and virtual mobilities at local and global level (see Figure 1). Spatial mobility is determined by a variety of factors, such as increasing/decreasing population, migrations, growth in transport services and travels, changes in urban economic structure and visitor flows, etc. Its evolution also implies that cities themselves are constantly 'on the move': infrastructures, business and service centres,

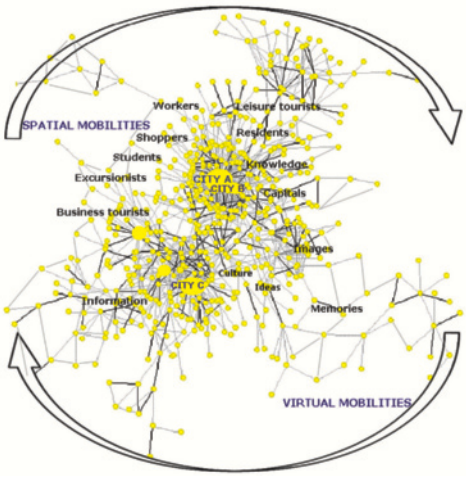

Fig. 1 Cities: from 'space of places' to 'space of flows'

hotels, etc. are created or closed down as a consequence of this transformation. How residents, workers, tourists, etc. move within the city is also evolving, according to the spatial reorganization of the city, the location of old and new points of interest, etc. Besides physical mobilities, cities are also characterised by "virtual" mobilities, i. e. capitals, investments, information, knowledge, but also ideas, memories, images (Figure 1). The growth of these mobilities is accelerated by the spread of information and communication technologies (e. g. Internet, email and satellite connections).

Tourism is a component of this complex system of mobilities. In the last decades, the dramatic development of tourism flows and practices has heavily affected the pattern of urban growth as well as the internal geography of destinations. In this and other ways, tourism mobilities, both physical and virtual, influence the dynamic development of other mobilities. At the same time, non-tourism mobilities (e. g. growth of foreign investments, settling down of creative industries, reorganization of the urban space, success of books or films set in the city, etc) impact on the development of city tourism (emerging of new leisure segments, expansion of business tourism, etc.). They affect how tourists – or potential tourists – move in the city, how they perceive it, what they do and see there (Bærenholdt et al., 2004).

Consequently, cities can be seen as a dynamic 'place of movement' (Hetherington, 1997; see also Crouch, 2000). They are not fixed and immobile objects, but 'places to play', whose evolution 'depend in part upon what happens to be practiced within them' (Sheller and Urry, 2004: 5; see also Coleman and Crang, 2002, and Haldrup, 2004). They can be considered as 'produced through the multiple networked mobilities of capital, persons, objects, signs and information' (Sheller and Urry: 6; see also Coleman and Crang, 2002). Therefore, the challenge to become a 'city to play' – or to hold this role – and then a 'city in play' relies on the continuous and evolving interaction among tourism and other kind of political, economic, social, cultural, professional, etc. activities.

From this point of view, the performance of a city and then its tourism competitiveness depends on the evolution of this system of diverse intersecting mobilities. How the city moves or is mobilized through various global networks of economic, cultural, fashion, tourism, etc. relationships, affect its competitiveness. The mobilities of people, investments, knowledge, memories, etc. define the image of the city (see also Ritchie and Crouch, 2003: 245) and this has a major impact on 'people's decisions to visit the city, to buy its products and services, to do business or relocate there' (Anholt, 2006: 2). On the other side, the growth of the tourist interest in the city and the strengthening of the urban tourist brand affects its attractiveness as a place where to live, work, study, invest and so on.

What stated about the role of mobilities interplay has some important consequences when dealing with the measure of tourism competitiveness. As places are continuously 'made and remade by the performances of tourists and workers, image and heritage, the latest fashions' (Sheller and Urry, 2004: 1), capital and

information, etc. it is very difficult to assess the role of each mobility and of a single factor in determining the destination competitiveness.

9.3 Targeting the tourism competitiveness of cities to play

Given all these elements, the main issue is how to measure the tourism competitiveness of a city to play and assess whether it is or can become – or remain – a *city in play*, 'while new places to play appear on the global stage' (Sheller and Urry, 2004: 8).

Building a model for monitoring the competitiveness of a urban destination that takes into account the shifting configurations of tourism and non-tourism mobilities requires that some basic conditions are satisfied. These conditions originate from the nature of the destination competitiveness itself, on the one side, and from the dynamic effects of mobilities, on the other.

First of all, the model should have a future perspective. From a managerial point of view, 'it is the future performance we are really interested in' (Ritchie and Crouch, 2003: 26).

Secondly, the model should allow researchers to define a dynamic competitive profile of each city, based on a number of quantitative and qualitative indicators. This profile is not given once and for all, but changes according to the competitive set the city faces. 'Specific tourism destinations are not competitive or uncompetitive in the abstract, but versus competing destinations' (Enright and Newton, 2004: 781). Consequently, it is necessary to establish which destinations are included in the competitive set (Kozak and Rimmington, 1999). Moreover, 'it is necessary to specify the purpose towards which the competitiveness is directed' (Ritchie and Crouch, 2003: 26). For example, a destination can appeal to a wide range of tourist segments, while another can be very competitive on few segments.

This implies that the indicators used to draw the city competitive profile can change, and that the relative weight given to each indicator can be modified according to the competitive environment.

It also means that tourists' behaviour (activities done/experiences lived while in the city) and perceptions have to be taken into consideration. Furthermore, using a list of comparative and competitive factors is not sufficient to assess the competitiveness of a destination (Ritchie and Crouch, 2003: 26). It is also necessary to understand the relationship between these factors (e. g. the variety and significance of resources and attractors in relation to tourism demand) and then the *modus operandi* of the tourism system in its interplay with other urban systems, both within the destination and in relation to the global macro-environment.

Finally, the competitiveness of a city, seen as a complex system of flows and relationships, does not only depend on core resources and attractors, the quality of tourism-related facilities and prices, but also, as seen, on the dynamic interaction between different kinds of physical and virtual mobilities. Therefore, the effects of these interactions should be embedded into the model.

9.3.1 The destination competitiveness analysis: A review of the literature

Starting from these conditions, a review of the literature on existing models defining and measuring the destination competitiveness was conducted, in order to assess the approach and the methodology applied, the factors analysed and the list of items used. The most recently developed theoretical and empirical models were examined, such as: the price competitiveness models by Dwyer et al. (2000) and by Mangion et al. (2005); the destination competitive models and indicators developed by Ritchie

et al. (2001), Dwyer and Kim (2003) and Enright and Newton (2004); the Lugano Tourism Indicator, elaborated with specific reference to European cities (Maggi and Croce, 2005); the Competitiveness Monitor developed by the World Travel and Tourism Council (Goorochun and Sugiyarto, 2005); the Travel & Tourism Competitiveness Index built by the World Economic Forum (World Economic Forum, 2008).

Apart from price competitiveness models, which focus on exchange rates and price levels only, all the other models take into account a wide set of comparative and competitive factors, essentially based on the amount of core resources and attractors, the stock of infrastructure, communication and tourism-related facilities, etc.

Nevertheless, the review of these models suggests that none of them can completely fulfil the goal of analysing and measuring the competitiveness of a 'city to play' within a defined competitive set, taking into account the dynamic interaction between different factors and different tourism and non-tourism mobilities. Summarising, a number of critical aspects have been identified.

First of all, almost all models seem to apply a sort of 'absolute competitiveness approach'. Although they assume that the position of a destination should be determined in relation to a specific competitive framework, the indicators used tend to assess the absolute competitiveness of a city, a country, etc., despite the effects that the comparison with different groups of destinations can have on this evaluation. For example, the Lugano model tries to identify different competitive environments for European cities, but the result obtained allows researchers only to separate Paris and London from the other cities analyzed, though the last group of cities together do not necessarily compete on the same tourist markets (e. g. Zagreb and Barcelona).

Secondly, all models basically focus on analysing the impact of each competitiveness factor (e. g. the number of physical and cultural resources, the stock of infrastructure, etc.). On the contrary, the relationship among these factors is less studied (e. g. how tourists use resources to create their experiences, how these resources interact with each other or with other facilities, etc.). Even when destination image and brand are analyzed, they are usually considered just as performance indicators of destination marketing activities. Nevertheless, 'competition (between destinations) originates from the choices tourists make between alternative destinations, that is by their judgment on perceived similarities' (Wöber, 2006).

The qualitative aspects of core resources and attractors – such as their importance, their uniqueness, etc., which again define a relationship between the destination and tourism demand, are generally not or partially considered. The nature of the attractors is such that, whatever their typology (monuments, museums, etc.) their perceived significance is far more determinant for tourism competitiveness than the size of the stock: 'the mere counting of the number of museums and historical sites (…) may well mask the quality of these attractions- something that is often the primary appeal to visitors' (Ritchie et al., 2001: p. 6).

Tourism demand characteristics and behaviour are not considered as a determinant of the destination space. Quantitative indicators are included as a measure of destination performance or awareness (e. g. guest mix, market share, etc.), but less attention is paid to the fact that tourists' practices are essential in creating the destination and in defining which are the tourist markets where it competes. Ritchie et al. underline how a consumer perspective is essential to assess the destination competitiveness, but they do not fully explain how this perspective should be related to industry measures, which are part of the proposed model as well (Ritchie et al., 2001).

The use of a one-to-one competitive approach and the fact that models do not generally take into account the relationships among

different factors and their effects on destination competitiveness, also explains the methodologies adopted to weight the identified set of indicators and, in some cases, to build an overall competitiveness index. Theoretical models generally leave the definition of weights to empirical applications (see Ritchie et al., 2001 or Dwyer and Kim, 2003). Applied models make some experiments, e. g. assigning the same weight to each indicator (as in the WEF Competitive Index 2008) or using the judgments of some opinion leaders (as in the Lugano indicator) or through confirmatory factors analysis (Gooroochun and Sugiyarto, 2005). Nevertheless, a group of factors (e. g. infrastructure-related indicators) can be more or less important depending on the nature of the destination (a city vs. a beach resort), the tourism markets where the destination plays (e. g. cultural tourism vs. nautical tourism) and the competitive set considered. In addition, the models generally assess each factor separately, postulating a positive relationship between it and the destination competitiveness. This neglecting that the interactions between factors can generate opposite effects on competitiveness. For example, considering the impact of education level and cost of work, these factors can be interdependent from each other (the higher the education the higher the cost of work) and have a negative influence on competitiveness (see Mazanec et al., 2007: 93).

Finally, the destination as tourism attraction is viewed by almost all models as a separate object. Tourism is more or less independent both from any other kind of activity/mobility occurring in the same place and from various global networks of economics, culture, fashion, business, etc. This has important effects on the city competitiveness. Whether some models having a management perspective (Ritchie et al., 2001) acknowledge the role of non-tourism variables like safety, overall costs (qualifying determinants), educational establishments, infrastructures (supporting factors), other economic and social activities (business ties) and also of the global macro-environment (Dwyer and Kim, 2003), these aspects appear as 'supporting' or 'qualifying' factors and stay in the background of the model application.

Similar observations on these models have already been made by Enright and Newton in measuring Hong Kong competitiveness (Enright and Netwon, 2004). In particular, the authors argue that most studies assess the competitiveness of a destination without an appropriate context, and focus on a list of advantages and disadvantages against a set of criteria without any means of prioritizing the criteria themselves. Thus, the first step in developing their model was to design a relative space for Hong Kong competitiveness by establishing its main competitors. Secondly, in order to take into account the specific features of urban tourism, they have added a number of items to the list of core resources and attractors developed by Ritchie and Crouch (Ritchie and Crouch, 2003).

9.4 Towards a competitiveness model for cities to play: The methodology

As discussed before, the review of the literature on destination competitiveness shows how the methodologies available only partially provide the tools to analyse the competitiveness of a city to play and the conditions under which it can hold its role as, or become, a city in play. This depends both on the intrinsic characteristics of the models and the specific features of the destinations to be investigated.

Recalling briefly the conditions discussed at the beginning of this Chapter, a new competitiveness model should be implemented that adopts a multi-dimensional approach and integrates some important aspects, such as:

- the tourists' behaviour as a dimension of the destination (not only hard data on the com-

position of the customer mix, but also soft data regarding the range of activities/experiences tourists perform/live while they are staying in the city). This is important to understand what kind of tourist products are really produced and offered in the city and to define some functional attributes (e. g. a city for young people, for couples) and the way the demand is shaping the destination space and image;
- the significance and variety of core resources and attractors, instead of their amount;
- the relationships and interdependencies between comparative and competitive factors, e. g. focussing on the capacity of accommodation supply to be competitive on different budget segments, instead of its size only;
- the role of other mobilities and the city positioning in global networks of relationships as factors defining the city development and potential and then its capacity to attract qualified investors, professionals and tourists (OECD, 2006). Since these elements affect the city brand, this implies integrating traditional competitiveness models with models assessing features, brand equity, and strength of destinations/places brands.

The proposed approach has been applied to a benchmark analysis of eleven European cities: Barcelona, Bruges, Florence, Istanbul, London, Paris, Prague, Rome, Seville, Venice and Vienna. Although these cities represent a heterogeneous set of urban destinations – considering their position within the global political, economic, social, etc. networks and the stage in their urban and tourism life cycle – they in some way describe the evolution of urban tourism in Europe. The group includes both traditional art cities (e. g. Venice), big cities with a well-established international fame and a varied set of tourism markets/products (e. g. London), and emerging cities characterised, in the last years, by a dynamic growth, which are developing their own identity (e. g. Prague).

After having identified the main characteristics of the cities, a group of variables/indicators has been defined, which contribute to classify every city and frame different competitive profiles and the relative space of competitiveness (urban, tourism, economic, innovation and image & brand indicators). Starting from these variables, a meaningful set of indicators has been selected, through which grouping cities presenting similar characteristics in a number of competitive clusters. Then the competitiveness of each city within the clusters and the competition among clusters has been assessed.

The next paragraphs present the methodology and the results obtained from the first two steps, with a focus on the analysis of the competitive clusters and the competitive profiles of the cities. The questions addressed are as follows: are there any cities with a more balanced competitive profile in comparison to others, according to the set of indicators used? Which are the basic features defining each competitive profile with regard to brand, core resources, accommodation, markets, etc.?

9.4.1 The survey instrument

Various sources were checked to define the set of quantitative and qualitative variables and indicators to be used to design the different competitive profiles. The desk analysis of secondary sources (e. g. statistical data on tourism demand and supply, visitors' surveys, city development and marketing plans, etc.) was combined with an e-mail survey carried out with a group of about thirty international urban tourism experts and managers of city tourist offices. The purpose of this survey was to examine the perceptions they have of the whole group of cities analysed (for experts) or of the city they work for (for tourist office managers), from different point of views.

The adoption of an expert approach mediates between supply-side and demand-side measurements (Wöber, 2006). It can be de-

fined as a 'quasi supply-oriented' approach, where determinants of competition rather than its outcomes are investigated (Grabler, 1997). On the one hand, tourism experts and managers have professional knowledge of the cities analysed, the characteristics and potentialities of local tourism supply and the role of different mobilities. On the other, 'expert judgements are often applied because they indirectly represent the opinions of the consumers' (Gearing et al., 1974 in Grabler, 1997: 148). 'Respondents who are used to dealing with tourists have been observing actual behaviour and (…) hence may produce a more accurate picture of preferences' (Enright and Newton, 2004: 781).

In addition, since urban tourism experts are asked to judge each relevant aspect for all cities in a row, this methodology allow researchers to obtain a ranking of cities according to each aspect analysed and then to compare its performance.

In order to get the desired empirical data, an ad-hoc questionnaire was constructed itemising the factors that were postulated to influence the city competitive profile. This was done, in the first instance, by identifying the main aspects and the underlying factors characterising different competitive profiles and the relative space of competitiveness (urban, tourism, economic, innovation and image & brand factors). Then a set of specific items for each factor was generated.

In particular, experts and city managers were asked to give their opinions on the following aspects:

(1) the urban and economic profile of the city (current economic role and potential, quality of urban services and environment, level of traffic and tourism congestion, environmental policies);
(2) the profile and behaviour of tourism demand (importance of repeaters and same-day visitors for both domestic and international market; variety of socio-demographic segments in both markets; variety of activities done/experiences lived by tourists);
(3) the resonance and variety of core resources and attractors (monuments, museums, events, shopping facilities, etc.);
(4) the variety/quality of accommodation supply and its capacity to meet the needs of different expenditure profiles;
(5) the price competitiveness (tourist prices' perception and general cost of living)
(6) the city brand (pulse/vivacity, presence, outstanding attributes and personality)
(7) the use of technology in marketing and selling the city (how easy is for a tourist to arrange a stay in the city using the websites of the local tourist board and of private operators)

Table 1 details the aspects analysed, the underlying factors and the complete list of items used. More than 90 items were assessed in 13 questions. For each item, experts were asked to give a score to every city using a 5-point Likert scale. The meaning of each scale point was adapted according to the factors/items to be analysed.

9.4.2 The factors measured and the main features of the model

In developing the items to be assessed for each aspect analysed, the variety of indicators adopted by the different approaches reviewed in the literature were taken into account. In particular, those included in the basic layers Ritchie and Crouch use in their conceptual model (Ritchie and Crouch, 2003) and developed into indicators by Ritchie et al. (Ritchie et al., 2001). Other items have been derived by other empirical analyses or expressly created to address specific aspects of cities profile and competitiveness.

For example, factors and items regarding the urban and economic structure of the city (e. g. the level of traffic jam, the economic and political role of the city, and the quality of public amenities) were derived from the 'supporting factors and resources' layer.

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Table 1 The experts' survey: List of the main aspects, underlying factors and items analysed

Main aspect
Factors
Items/Indicators

Urban and economic structure
Current role and potential
Economic and political role of the city at national level
Economic role of tourism
Economic opportunities offered
Educational opportunities offered
Urban services and environment
Standard and quality of public amenities
Standard and quality of public transports
Overall quality of the urban environment (e. g. cleanliness of urban areas, buildings, etc.)
City congestion
Traffic jam and city overcrowding
Tourism congestion
Environmental management
Air pollution level
Attention to and measures against air, water, soil pollution

Demand profile and behaviour
Visitor mix
Weight of repeaters on total visitors on both domestic and international markets
Weight of same-day visitors on total visitors on both domestic and international markets
Importance of the following socio-demographic segments on both domestic and international markets:
- school trippers
- young people (18–24 years)
- pre-family (25–35) couples
- pre-family (25–35) travelling with friends
- pre-family (25–35) women travelling with women friends
- families
- over 60

Experience mix
Role of the following activities/experiences domestic and international tourists do/live when they visit the city:
- Visiting monuments and museums
- Visiting exhibitions
- Attending important sport events
- Attending folk festivals and religious celebrations
- Attending special events such as big concerts, music or other performing arts festivals
- Going to theatres, concert halls for the regular season
- Tasting of local wines and food
- Shopping
- Experiencing the nightlife
- Religion, pilgrimage
- Visiting business fairs
- Attending congresses and conventions
- Business meetings

Table 1 (*cont.*)

Main aspect
Factors
Items/Indicators
Core resources and attractors
Resonance
Perceived significance of the following categories of tourism resources and attractors:
- Monuments and historical buildings
- Modern/contemporary buildings and urban environment
- Museums and art galleries
- Dance, concerts, theatre etc. seasons
- Folk festivals, parades or religious celebrations
- Regular events (i. e. music, arts and performing arts festivals)
- Exhibitions (art, history, design, etc.)
- Night clubs, discos and other entertainment facilities
- Shopping
- Sport events (also upcoming events)
- Bars, pubs, café, etc.
- Restaurants/local wine and food
- Links to famous writers, musicians, designers, etc.
- Art, performing arts, design, etc. schools

Variety
Variety (differentiation) of the following resources/attractors in each city:
- Monuments and buildings
- Museums and art galleries
- Dance, concerts, theatre etc.
- Night clubs, discos and other entertainment facilities
- Shopping facilities
- Sport facilities
- Restaurants, bars, pubs, café, etc.
- Links to famous writers, musicians, designers, etc.
- Congress venues, fairs and business centres

Accommodation supply
Variety and value/cost
Capacity of accommodation supply to meet the requirements of tourists with different expenditure budget, such as:
- Luxury segment
- Upper market segment
- Average segment
- Budget segments
- Young people/Backpackers

Price competitiveness
Perceived cost
Perceived cost of the city for tourists
Perceived cost of the city for residents (cost of living)
City brand
Pulse
Residents‘ warmth and liveliness
Animation of the city life at daytime
Animation of the city life at night
Opportunities and info about things to do

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Table 1 (*cont.*)

Main aspect
Factors
Items/Indicators
City brand (*cont.*)
Presence in the past
Contribution of the city to the world in the past 30 years, according to the following aspects:
- Culture
- Design and architecture
- Lifestyle
- City management practices
- Politics (i. e. political role of the city at international level)
- Environmental management practices

Presence in the future
Contribution of the city to the world in the future, according to the following aspects:
- Culture
- Design and architecture
- Lifestyle evolution
- City management practices
- Politics
- Environmental management practices

Outstanding attributes
Main reasons the city is famous for:
- beauty of monuments and general urban environment
- role in the past history of Europe
- liveliness, trendiness
- links to famous people (e. g. writers, musicians, etc.)
- many different reasons, including most of the previous ones and many more

Personality
The two adjectives best describing the city
Use of technology in marketing and selling the city
How easy is it for tourists to arrange a stay in each of these cities through the Internet, using local websites
Effectiveness of the local tourist board website
Effectiveness of local private associations/companies websites
Effectiveness of incoming agencies websites

Items concerning the attractors and the accommodation supply were based on the 'core resources and attractors' layer. Other indicators referred to the 'qualifying determinants' layer, such as: the perceived cost of the city for tourists and the composition of visitor flows.

Some factors were not or partially included, since they were expected to be irrelevant (e. g. climate) or not significant in assessing the attractiveness of a group of top urban destinations (e. g. accessibility and location). In particular, transport infrastructures and tourist superstructures (hotels, restaurants, shops, etc.) are generally well developed in all these cities and therefore do not represent a discriminating factor in the tourists' choice.

Other aspects, like facilitating resources (e. g. education), were treated in a less detailed way than in Ritchie et al. model. This is due to the kind of destination to be analysed. As stated by Enright and Newton, 'no universal set of items exist' (Enright and Newton, 2004: 779). 'The relative importance of each factor and the interactions among them depend very much on

the unique circumstances facing each destination' (Ritchie and Crouch, 2003: 62).

The city potential and the city brand factors in terms of pulse and presence were derived from the Anholt City Brand Index (Anholt, 2006), an analytical ranking of the world's city brands based on a survey on 150,000 people worldwide.

Finally, specific items were created to address the competitiveness of cities to play, for example to analyse tourism demand behaviour and profile and the tourists' perception of local resources/attractors (e. g. importance of different socio-demographic segments).

Almost all these items have been built so as to measure not only the value of each factor in itself, but also the relationships between different factors. For example, considering accommodation supply, its capacity to meet the needs of tourists with different expenditure budget (luxury, upper, etc.) was analysed, instead of the number of available beds for each category and kind of accommodation.

From this point of view, this approach tends to combine both comparative and competitive dimensions into the same item/indicator. In a benchmark perspective, the main issue is to assess which city has a relative advantage in comparison to others and in which area(s) in order to build its competitive profile, leaving the analysis of the determinants of this advantage to a further step of the study. An approach starting from a mere listing of factors without investigating how they combine together to create this advantage can generate a risk of mixing-up determinants and outcomes, as underlined by Mazanec et al. (Mazanec et al., 2007).

The impact of other mobilities has been integrated into the model, directly through specific factors/items (the economic role and potential; the pulse and the presence of the city) or indirectly, as an implicit dimension contributing to determine the value of the item/indicator. For example, the resonance of an attractor (e. g. a monument) can be the result of its origin and history, of a good tourist promotion or of the fact that other networks (such as literature, business, medias, etc.) are mobilizing this particular resource. Here the issue is to understand the role of each kind of mobility in determining the competitiveness of the destination. Although in a management perspective non-tourism mobilities are considered as amplifying factors, in a benchmarking approach they have to be acknowledged as possible determinants of competitiveness.

In addition, since competitiveness has to be evaluated according to the competitive set identified, all indicators are generally relative measures, assessing the performance of every city on each indicator in comparison to that of other cities analysed.

For the same reason, no positive or negative effect on competitiveness has been attributed *a priori* to any factor. The role of each single variable can be evaluated only after the competitive profiles have been shaped. For example, considering a variable such as the level of traffic jam (see Table 1), it might be perceived as a positive determinant for a young trendy city (i. e. a sign of the city energy) in comparison to its assessment for a traditional, established city.

9.4.3 The set of summary indicators

Starting from the analysis of hard data collected from secondary sources and of soft data deriving from the experts' survey, a meaningful set of simple or weighted indicators has been constructed to identify the competitive profile of each city and then grouping them into competitive clusters, having similar characteristics. The indicators chosen:

- are representative of all the main aspects investigated (urban and economic structure, profile and behaviour of tourism demand, resonance of core resources and attractors, accommodation supply, prices and brand and image);

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Table 2 Competitiveness indicators for cities to play

Indicator	Meaning	Calculation
Role of international tourism demand	Importance of international tourists on total tourism demand in the city	% share of foreign arrivals on total arrivals (hard data)
Variety of socio-demographic segments	Capacity of the city to attract different demand segments (e. g. school trippers, 18–24 years old people, pre-family couples, etc.)	Weighted mean of scores given by experts (using a 5-point Likert scale) to the importance of each socio-demographic segments on both domestic and international markets. The mean value takes into account both the number of segments attracted and the intensity of their presence
Variety of tourist activities/experiences offered to tourists	Capacity of the city to offer a varied range of activities/experiences to tourists (i. e. how many activities offered are effectively done by tourists)	Weighted mean of scores given by experts (using a 5-point Likert scale) to the importance of each specific activity/experience offered to both domestic and international tourists. The mean value takes into account both the number of activities offered and the intensity of fruition
Significance of core resources and attractors	The most important resources/attractors which the city is famous for (i. e. the capacity of the city to promote its resources/attractors)	Simple mean of scores given by experts (using a 5-point Likert scale) to the significance of a number of resources/attractors listed. The average value takes into account both the variety of different kind of attractors and their resonance in each city
Competitiveness of accommodation supply	Capacity of accommodation supply to meet the requirements of clients having different expenditure budget (luxury, upper, average, budget, young people/backpackers)	Simple mean of scores given by experts (using a 5-point Likert scale) to the capacity of accommodation supply to satisfy each expenditure profile listed. The average value takes into account both the presence of all categories of accommodation and the judgment on price/quality ratio for each of them
Relative cost of the city for tourists	Whether the city is more expensive or cheaper for tourists than for residents (cost for tourists vs. cost of living)	Score obtained by comparing the scores given by experts (using a 5-point Likert scale) to the perceived cost of the city for tourists and for residents
Presence of the city	The city's international role and standing in the last 30 years	Simple mean derived from the scores given by experts (using a 5-point Likert scale) to the contribution the city has given to the world in the last 30 years, according to a number of aspects (e. g. culture, style, etc.)
Pulse of the city	The appeal of the city, i. e. the presence of a vibrant urban lifestyle as part of city's brand image	Simple mean derived from the scores given by experts (using a 5-point Likert scale) to vivacity of city life both at daytime and at night

Table 2 (*cont.*)

Indicator	Meaning	Calculation
Potential of the city	The city's future contribution and potential	Simple mean derived from the scores given by experts (using a 5-point Likert scale) to the contribution each city might give in the future in different areas (culture, design, lifestyle, etc.) and to the economic and educational opportunities it offers/will offer. The average value takes into account both the potential of the city to play a role in more than one area and the foreseen importance of the contribution in each area.

- provide a dynamic profile of the city (not only a picture of the 'state of the art' but also some future perspectives);
- are those that emphasize better the similarities and differences between cities and then help to identify the city profiles and to compare them within and among clusters.

Table 2 shows the nine indicators used, their meaning and how they have been calculated.

Three indicators are demand-related (international market, visitor mix and experience mix), three refer to local supply (resources, accommodation and prices), two to city image and brand (presence and pulse) and the last one to the economic structure and future development of the city (potential). In particular, presence, pulse and potential indicators embed the impacts of other mobilities on tourism and, in particular, the effects of the evolution of the urban space and structure and of local lifestyle on the city identity and the perceptions tourists have of the city.

One indicator out of nine derives from statistical data (the role of international tourism demand). The other indicators represent qualitative variables of city competitiveness, derived from the empirical analysis by elaborating, for each factor identified, the judgements given by experts on a number of correlated items. For each indicator identified, the list of items on which the simple or weighted mean were calculated, is shown in Table 1.

9.5 The cities' competitive profiles

Combining the selected indicators, a spider plot was used in order to describe each city competitive profile (see Figures 2–5). Normalised values (0–1) have been calculated in order to obtain a comparable range of values for all quantitative and qualitative indicators. The polygonal area derived by linking these values represents the city competitive profile.

The comparison of different profiles led to the identification of four common development and evolution patterns (clusters) grouping the eleven cities analysed. The distinguishing characteristics of each cluster and of each city within the cluster are briefly discussed herewith.

9.5.1 The 'ultimate' cities

The first cluster groups four cities, two global metropolitan areas (London and Paris) and two large cities (Rome and Barcelona). The shape of the polygonal area characterizing each of them shows how they have a more or less balanced competitive profile. These cities generally compete on many tourist markets (business, conventions, city breaks, cultural tourism, events, etc.) and are characterised by a wide range of significant resources and attractions (monuments, events, link to famous people, business centres, etc.).

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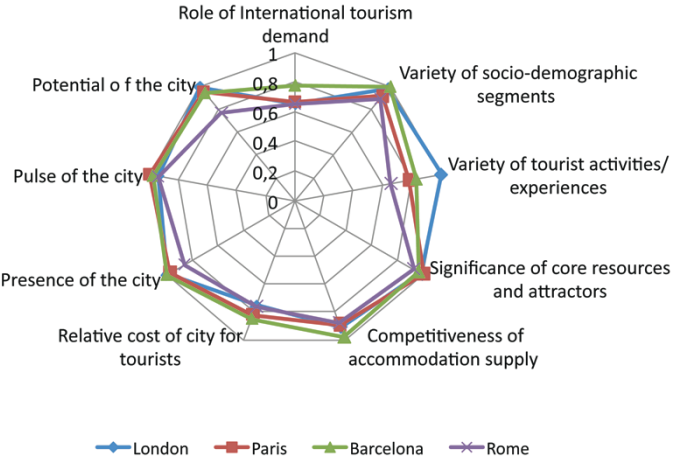
Fig. 2 The 'ultimate' cities



London and Paris are highly charismatic and lively cities and they will probably strengthen their role in the near future. They are places able to play any kind of tourism and non-tourism performance and drivers of different networks of mobilities at local and international level. Here, tourism and other activities are all components of a complex project of urban development.

Case study

London unlimited

London is a global multiethnic metropolitan city. It is the first European business city and the first world economic and financial stock market. However, tourism is one of the most important urban industries. In 2006, the London Development Agency with other public and private partners launched the London Tourism Vision 2006–2016. The main objective was as follows: 'by 2016, London will be recognised as the leading global city for tourism and as a constantly evolving destination. It will deliver a high quality visitor experience, continually surprising and exciting our visitors with a vibrant, contemporary, diverse offer in a historically and culturally rich environment. Tourism in the city will contribute to the economic success of the city and the quality of life for Londoners'. Starting from this vision, the brand 'London Unlimited' has been launched, with the aim to develop a global brand that positions London as the global most successful city, 'the best city in the world where to work, invest, do business, study and visit'. This brand has been developed by Visit London, the city tourism office, in co-operation with Greater London Authority, London Development Agency, Think London, London Higher and Film London.

Within this group, Rome presents a lower performance in comparison to others with regard to two indicators (potential of the city and variety of tourist activities/experiences). This might be due to the fact that only recently, after a not so brilliant period, the city has recovered its role as important social, cultural, economic, etc. centre and even as an international tourism destination, thanks to a number of initiatives taken by the city municipality (Causi and Attene, 2006). Therefore, the 'Eternal city' has now acquired a profile similar to London and

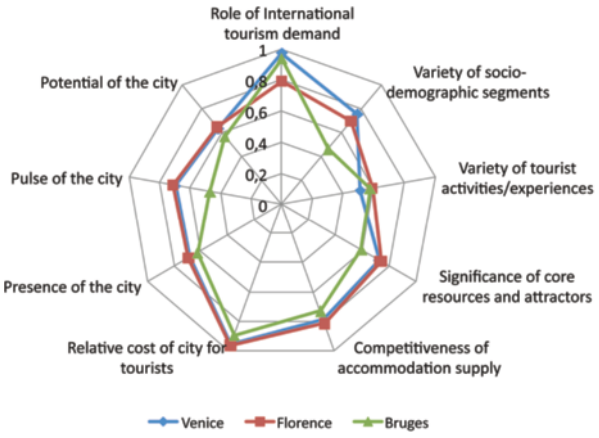


Fig. 3 The 'picture' cities

Paris, but the process is not complete yet. The issue is whether it will be able to maintain this new role in the near future (potential).

The presence of Barcelona in this cluster is interesting, since it is the result of a recent development, which has no roots in the past history or in a long established political, economic, tourist, etc. role, like the other cities in the cluster. The city appeared on the footlights more or less twenty years ago, benefiting from the strong cultural and economic regeneration and a vast scale re-organization of the urban space begun after the end of Franco regime. That rebirth was acknowledged internationally in 1992 and, since then, continuously fed and mobilised through tourism, economic, cultural, sport, fashion, etc. networks (see also Degen, 2004), which allowed the city to be ranked among the big capitals of urban tourism.

9.5.2 The 'picture' cities

The second cluster includes three traditional art cities (Venice, Florence and Bruges), which show a more stretched competitive profile.

These cities are generally specialized on few segments/products (basically, cultural sightseeing) and tourism seems to play a driver role in their profile in comparison to other urban mobilities. Although they are powerful tourist brands, strongly attracting international demand, their presence in other global networks has not been so significant in the last 30 years and this has probably affected the experts' perception of an almost 'static' urban lifestyle (pulse). Unlike the previous cluster, these are mainly cities able to play their tourist performance and experts don't foresee any change for the future. Their profiles seem to confirm the observations made by Minca and Oaks on Venice, when they say it can be described as a 'theme-park' (Minca and Oakes, 2006). Florence, of all, shows a slightly more balanced profile, probably due – as the analysis of the single variable demonstrates – to its role in the fashion network (e. g. Pitti Palace fashion show).

9.5.3 The 'new old' city

The third cluster includes Vienna only. The city appears characterised by an extensive transformation phase, which creates a unique competitive profile. While the behaviour of some indicators (variety of segments and experiences, pulse, role of international tourists) highlights a similarity with the profiles of cluster 2, the performance of others (competitiveness of ac-

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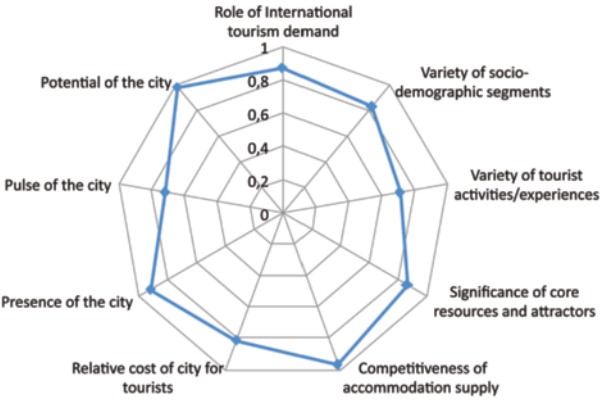
Fig. 4 The 'new old 'city



commodation, presence, potential etc.) suggests a development comparable to profiles of cluster 1. The 'potential' indicator is the key to understand the evolution of this profile. As underlined in the case study, its value represents the future role Vienna will possibly have in the new European economic, social, etc. scenario. The changes in non-tourism mobilities are expected to have direct effects on tourism competitiveness, and the city managers seem to be aware of that. Vienna is then evolving from a profile similar to cluster 2 to another profile, likely similar to cluster 1.

Case study 2

Vienna: nostalgia and creativity

Vienna, the capital of Austria, is one of the most famous art cities and one of the five richest business location areas in Europe. The city is the one that has benefited most from the enlargement of the European market. The rapid internationalisation of the economy, supported by the growth of foreign investments, has gone hand in hand with the spread of innovation and creative industries. In 2003, the Vienna Tourist Board together with the City of Vienna and representatives of the Vienna tourism industry launched the Tourist Concept Vienna 2010 to serve as a guide for an innovative development of the city in the coming years. The motto of this ongoing project was 'dynamics for a successful destination': promoting a dynamic evolution of the city, capitalising from history, tradition and past experience to build the future. This concept has also inspired the communication and advertising campaign 2007, with the leitmotiv: 'Nostalgia and creativity'. Nostalgia for the past combined with cultural fervour, creativity and new trends characterising the urban economic, cultural and social life.

9.5.4 The 'young trendy' cities

The fourth cluster includes three emerging urban tourist destinations (Istanbul, Prague and Seville), which present a varied competitive profile. The common points of their performances are low values for the variety of the tourist experiences offered, the significance of core resources and the city presence at international level – which highlight a similarity with cluster 2, but also the high value attributed to the pulse of the city, as for profiles in cluster 1.

The values assumed by other indicators are more erratic (e. g. the weight of international

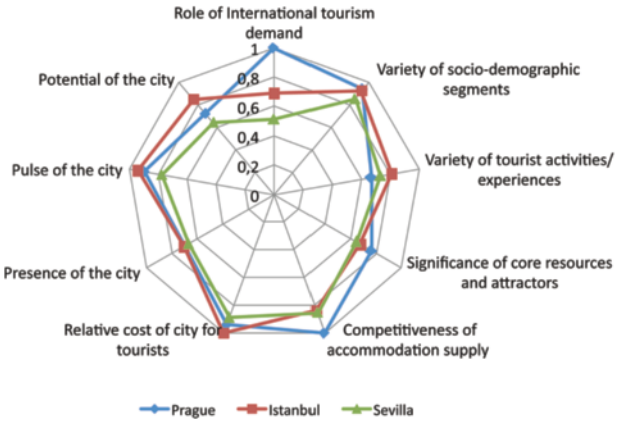


Fig. 5 The young 'trendy' cities

demand and the potential of the city). Generally, all these cities still have a less established role as global tourist destinations, in comparison to cities of cluster 1 and 2. Nevertheless, the rapid development of tourist flows in the last years seems to be the result of their perceived 'youth' and liveliness and, in the case of Istanbul, also of the growth of other urban mobilities. For example, it is acknowledged as one of the most important emerging business locations, according to the results of an international survey on leading business cities (Cushman and Wakefield, 2007).

Given these elements, the Istanbul profile has the potential to evolve towards a cluster 1 profile. As for Prague, its global performance is similar to 'picture' cities. The issue is whether it will be able to strengthen its advantage as young and trendy city, offering new opportunities and attractions to tourists.

9.6 Discussion and conclusions

Analysing the competitiveness of a tourism destination and of a city in particular, requires a systemic and relationship-focused approach that takes into account the complex shifting nature of the network of mobilities interacting within and around the destination.

In its experimental application to the set of eleven European cities analysed, the proposed methodology proved to be effective in designing a dynamic competitive profile of every city and identifying four competitive clusters. As the spider plots of Barcelona and Vienna demonstrate, this approach showed to be very sensitive to changes in one or more indicators, giving prompt feedbacks about the evolving impact of tourism and non-tourism mobilities. It also embeds a future perspective, since the performance of the indicators highlight the city's potential to evolve towards another profile within the same cluster or to a different competitive cluster.

However, this is not to suggest that, at this stage of development, the results obtained provide an unambiguous tool to analyse the destination competitiveness. Further research will be required to refine the approach and test it with a larger and/or different group of destinations. In addition, the determinants of competitiveness within and between the clusters should be identified, measuring the relative contribution of each mobility aspect in shaping the competitive profiles.

From the first point of view, a caveat concerns the use of the expert judgement. While assessing a group of destinations according to

a number of different features could be quite an easy task when top urban tourist destinations are considered, difficulties arise with less studied or visited cities or tourist resorts. This might require, for example, using a larger number of experts or selecting a different group of them according to each aspect investigated (e. g. the urban profile, the characteristics of core resources, etc.). The last solution might create some coherence problems when the results for each city have to be elaborated together.

A further note of caution should be added when considering the features of the methodology used. Unlike other models of tourism destination competitiveness, its non-deterministic and relative nature implies that no fixed list of factors and items has been given once and for all. Researchers have to adapt or redefine the set of indicators to be used according to the different kind of destinations, tourist markets, etc. they are analysing. This entails a longer scouting stage and deeper knowledge of the tourist market and the destinations to be studied.

Moreover, the purpose to study the relationships between factors and mobilities and their effects on destination competitiveness requires the adoption of a multidimensional and multidisciplinary perspective, not only from the experts' side, but even more from the researchers' side. This means the ability to identify a number of meaningful aspects and variables from several fields (economics, urban planning, social development, tourism, etc.) and to understand what the best indicator to measure each of them is.

Despite these caveats, the methodology represents the first step towards the development of a more systemic model of destination competitiveness, also applicable to non urban destinations. Postulating the relativity of the competitive space of a destination and the circular cause-effect relationships between tourists and destinations and between tourism mobilities and other mobilities, the model will be focused on:

- adapting the set of information used, not necessarily increasing the number of items/variables included, but changing their nature instead (e. g. including non-tourism aspects);
- studying the interactions among the variables in determining the competitiveness of the destination, i. e. the system rules rather than the factors only. The questions addressed are: how do the variables combine together in different competitive spaces? Are there more predictable behaviours or more constant relationships than others?

Outlined this way, the model has the potential to provide a better understanding of how the factors produced by the dynamic networking between tourism and non-tourism mobilities can combine together at a given moment to create a successful destination. It would also permit to foresee with higher likelihood how a given destination will evolve in a specific competitive space and therefore how much it is competitive.

Web sites of interest

http://www.lda.gov.uk/server/show/ConWebDoc.1513 – London Tourism Vision 2006–2016
http://b2b.wien.info/article.asp?IDArticle=1420 – Vienna: Dynamic Development
http://www.europeancitiesmarketing.com – European Cities Marketing
http://www.avecnet.com – Alliance of European Cultural Cities
http://www.atlas-euro.org – ATLAS
http://www.etc-corporate.org – European Travel Commission

Review questions

(1) Explain the difference between spatial and virtual mobilities in a context of urban tourism
(2) Compare the indicators used by the WTTC Travel & Tourism Competitiveness Index, the Lugano Tourism Indicator, and the set of indicators suggested by Ritchie and Crouch (2003). How do they differentiate? What are the main limitations and flaws of destination competitiveness studies nowadays?

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European Tourist Cities in Connotative Google Space

10

Josef A. Mazanec

10.1 Purpose and objective

The purpose of this Chapter is twofold. On conceptual level it makes the reader critically aware of the many-faceted definitions and interpretations of 'destination image'. Being a city manager or a student of tourism and leisure does not matter. Every reader is advised to carefully choose when commissioning or conducting an empirical study on destination images. Sometimes theoretical concepts are being broadened in scope up to a degree where they threaten to become meaningless buzzwords. On technical level the Chapter provides tools for exploiting the Web content offered in the roughly 2 billion pages of the domain characterised by one or more of the search items tourism, tourist, travel, or trip.

Effective destination branding is particularly dependent on evoking emotions and the national capital is likely to 'have higher meaning and brand potential' (Peirce and Ritchie, 2007, p. 70) in this process. Hence, it is the explicit objective of this Chapter to demonstrate that connotative verbal stimuli carrying emotional content can be effortlessly retrieved from the Internet and associated with the names of European capital cities. Data retrieval and the visualisation of results require specialised methodology. As a fringe benefit the readers may familiarise themselves with the tools employed and practise them in a connotative mapping case study of their own design.

10.2 Tourist cities on the Internet and the fuzzy concept of destination image

Our attempt to interlink two threads of research requires a double effort. First, we must make a decision regarding the interpretation of destination image. Second, we will have to assess the possibility of extracting destination attributes from Internet sources.

Given the topical and comprehensive review articles by Tasci and Gartner (2007) and Tasci, Gartner and Cavusgil (2007) we need not recapitulate the history of the image concept in tourism research. Acknowledging that the notion of image may incorporate cognitive, affective, and conative components this construct clearly describes a form of evaluative response of the individual to some object or stimulus. In a recent article Bigné Alcaniz et al. (2008) also review the image-related literature in tourism research and diagnose predominance of the cognitive component. (Then the authors

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themselves report on analyzing 'cognitive image'.) Conversely, an affect-centered interpretation of destination image is preferred here. It relates to social psychologists' concept of the 'stereotype' letting tourists take recourse to emotional attributes, non-factual and pseudo-knowledge, or hear-say when judging a destination. The image construct fulfills its explanatory function best where tourists are facing decision situations characterized by 'limited knowledge based on experience and reality' (Tasci and Gartner, 2007, p. 419). Once the full repertoire of cognitive, affective, and conative components comes into play social scientists will call the result of an evaluative response an attitude and there is no need for inventing a new tourism-specific construct.

Emphasis on affective criteria is particularly endorsed if destination image gets involved in self-image congruence theory (Sirgy et al., 1997; Sirgy and Su, 2000). This theory claims to predict consumer preferences by affinity between one's self-image with the perceived image of choice alternatives. Apparently, non-factual emotionally laden attributes of a destination such as "dynamic" or "cosmopolitan" are easily applied to personalities allowing for congruence measurement. Focusing on affect one may also benefit from using validated measurement instruments like Jennifer Aaker's (1997) Brand Personality Scale (see an application to measuring tourists' self-images by Murphy, Benckendorff, and Moscardo, 2007), Richins's Consumption Emotions Set or Plutchik's psychoevolutional theory of emotions (Han and Back, 2007).

If semi-structured interviews are employed for image measurement the instruction given to respondents is crucial. In Ryan and Cave's (2005) study of the New Zealand image the respondents generated highly emotional attributes from which two dimensions emerged: exciting vs. relaxing/quiet, and friendly vs. tense/frustrating/threatening. The study by Govers, Go and Kumar (2007a, 2007b) comprising seven destinations worldwide extracted 'meaningful words' from narratives about places not yet visited with the CATPAC content analyzer. Words were judged to be 'meaningful' if their relative frequency – with two exceptions – exceeded 2% (of all items mentioned for a destination) or 10% of respondents. The resulting list of words, ranging from 'sand' and 'oil' (Dubai) to 'hot' and 'Everglades' (Florida), lacks any common theoretical orientation, whether psychological or semantic. The same authors state that 'the interactive nature of the Internet can add whole new dimensions to the possibilities of projecting these destination images' (2007a, p. 16). This leads us to the role of the Internet and the images 'projected' by destination managers. We will shift the centre of interest from tourists' perceptions alone to image manipulation bearing in mind that Tasci and Gartner deplore 'the lack of case studies reporting this kind of supply-side image formation process' (p. 423). Searching the Internet will, of course, include blogs and other sorts of user-generated content. However, it will encompass all domain-specific pages of commercial suppliers, CTOs and other nonprofit organizations promoting European city tourism.

The destination image representation study by Choi, Lehto and Morrison (2006) is an example of a supply-side oriented approach. The authors selected 81 websites categorized as Travel Trade, Travel Magazines, Travel Guides, and Travel Blogs. The content then was subject to CATPAC text mining yielding the frequencies of words and phrases including the names of Macau attractions. Analysing the contingency table of words vs. site categories with correspondence analysis provides a pictorial representation of site-specific destination images. Also in this study, the semantic or psychological character of the word items remains arbitrary and undefined. Typically, the five most frequent items are Portuguese, Chinese, China, Hong Kong, and Hotel. You cannot say what the representation precisely measures in theoretical terms, unless you are willing to di-

lute the image construct up to a degree where it covers everything.

Discussion point

According to basic philosophy of science principles propagating a definition alone does not yet promote our knowledge about the world out there. The really important issue is how efficiently a term – a construct like 'destination image' – contributes to formulating hypotheses of strong information content. Puzzling at first thought, the information content of a hypothesis increases with the 'number of its potential falsifiers' (K. R. Popper). In simple words this means that a statement tells you more about the world if it runs a higher risk of encountering contradicting empirical facts. Demonstrate these ideas by narrowing or widening the scope of a hypothesis on the relationship between destination image and tourists' consideration sets.

10.3 Analytical tools for data capturing and similarity processing

This section introduces the instruments that will be applied in the ensuing case study. First, we need a tool for automatically launching queries in a search engine such as Google.

Hint

If you are tired of paying high licence fees to commercial software suppliers you may like to experiment with the *R* system. *R* is the open source equivalent of *S+* and offers you a powerful script language with hundreds of contributed packages. See http://cran.r-project.org/.

The *R* script language is convenient for tailoring a number of functions exactly serving this purpose. In particular, we will have to retrieve the number of Internet pages detected by the Google engine if supplied with specific combinations of keywords. There will be a function dealing with keyword vectors answering, e. g. the question how many pages exhibit city names like London, Paris, or Berlin. Another function looks for contingency information to fill a keyword matrix. A special form of this is co-occurrence frequencies counting the joint appearances of word pairs on a web page like London & excitement or Vienna & nostalgia. The co-occurrence matrices will have to be normalised. For example, you would not want to process incomparable frequency figures just because a city like London gives rise to 10 times as many web pages as the city of Athens. Hence, we need pre-processing functions for establishing fair conditions for comparison when computing dissimilarity values.

Software

You may freely download the collection of *R* functions named *gsfunctions.R* together with test data and available from the ITF website on http://www.wu.ac.at/itf/downloads/software/gsearch. At first, of course, you will have to install the *R* system hinted on in the panel above.

A refined means of calculating proximity values is the Google similarity distance (Cilibrasi and Vitányi, 2007). Its underlying idea is intuitively illustrated by means of Venn diagrams. Imagine that there are two keyword items, a frequent one, say L for 'large', and an infrequent one, S for 'small'. We want to determine their Google distance d_G based on their co-occurrence on the web pages in some Internet domain A (for 'all pages'):

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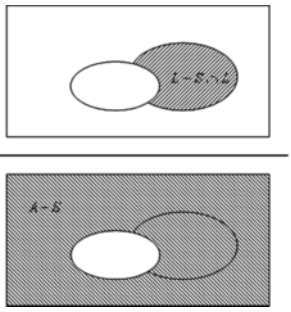

Fig. 1 Visualising the Google distance calculation

$$d_G = \frac{L - S \cap L}{A - S}$$

The diagram in Figure 1 visualises the principle. As the intersection of *S* and *L* is subtracted from *L* the distance increases if the terms co-occur less frequently. Also, an increasing frequency value for the smaller term *S* raises the distance. For a larger partner *S* it is not surprising that co-occurrence with *L* is more likely and hence the denominator would get smaller.

Metric and Nonmetric Multidimensional Scaling has been a standard analytical instrument for perceptual mapping in marketing research from the early 1970s on. Groundbreaking work on MDS and Unfolding was done by Warren Torgerson and Clyde Coombs during the 1960s and 1970s. Joseph Kruskal, the Bell Labs, and Forrest Young at the L. L. Thurstone Psychometric Laboratory prepared the first generation of widely used (N)MDS software. Within the engineering science community and independently of Kruskal's papers John Sammon developed his own mapping procedure still considered one of the classical techniques. Readers seeking an introduction and overview regarding (N)MDS and Unfolding are advised to turn to Borg and Groenen (1997).

In contemporary marketing science proximity (dis/similarity) data and (stated) preference data seem to have lost a lot of their fascination because of the preponderance of the discrete choice modelling paradigm that benefits from abundant scanner panel data collected at the point of sale. With the advent of Internet-based semantic computing the need for data visualisation has become stronger than ever and NMDS procedures are gaining popularity once more. We will apply the *mds* and *mds.sam* functions available in the *R* system. These methods have the common goal of portraying the dissimilarity relationships within a set of objects (cities in our case) by configuring them as points in a low-dimensional space. The positions of the city points are chosen in a way that the interpoint distances reflect the observed dissimilarities as closely as possible. A measure called *stress* expresses the degree of fit. Zero stress means perfect fit. Depending on the precise version of the stress measure chosen values up to .20 may be tolerated.

In the city tourism application to follow the analyst wants to portray the competitive relationships among major urban destinations. The strength of competition is measured in terms of similarity of city images. A geometric representation of cities as points in image space (as produced by MDS) is one convenient alternative, particularly, to demonstrate the results to CTO managers. The distances between the city points are considered to reflect competitive threat in terms of being more or less substitutable by each other. However, the map is a highly compressed result and some of the distances in the low-dimensional map may be poor indicators of the true distances in the raw data space. The raw data space is uncompressed and high-dimensional, each image attribute being responsible for one spatial dimension. Therefore, it is wise to apply an additional instrument for exploiting the original and full proximity information about the cities.

Hierarchical clustering is one of the candidates. It would illustrate how the competing cities may be sequentially assigned to subgroups of internally homogeneous destinations. The empirical studies in tourism, including the literature on destination competitiveness, so far have used hierarchical methods generating disjunctive clusters of destinations. But one may argue that building self-contained

groups of competitors oversimplifies the market reality. Think of a result of disjunctive clustering showing, say, two clusters of countries (Spain, Italy, Croatia) and (Greece, Turkey). You would learn nothing about similarity or rivalry between Turkey and Croatia and for the other pairs taken from different groups. As it seems more realistic that destinations – to a lesser degree, but still – compete also with destinations in different clusters a non-disjunctive method is required. Herewith you will be able to achieve a result exhibiting mutually overlapping groups like (Spain, Italy, Croatia, Turkey) and (Greece, Turkey).

Question

To simplify arguing assume that tourists evaluate a number of, say, seven rivalling city destinations in just two dimensions, "excitement" and "safety". Draw a sketchy configuration with the seven city points illustrating that forcing them into two disjunctive clusters does not correctly reflect the competitive situation.

One of the options for producing multiple cluster membership is rough clustering with genetic algorithms. Voges (2006) applies this approach for city image data of urban destinations in the Asia Pacific region. The objects for classification were more than 6,000 respondents who participated in an image study and, therefore, the clustering was non-hierarchical. In our case we want to classify the destinations, not the respondents. Given the small numbers of cities a non-disjunctive hierarchical method is preferred. We select the graph-theoretic procedure initially developed by Peay (1975) and implemented in the Clip clustering routine. A *Clip.exe* executable is available for download in conjunction with the package of *R* scripts mentioned above.

10.4 Practical application

10.4.1 How European cities position themselves on the Internet

Positioning studies often follow a naive research strategy. It is easily recognised by critically assessing the criteria characterising the entities under investigation (product brands, destinations, choice alternatives in general). The British American Tobacco funded *BAT-Stiftung für Zukunftsfragen* in Germany, for example, published results on how the German population in the ten largest cities evaluate their home town in terms of 20 assessment criteria. The list of criteria contains items such as 'good cultural offer', 'atmospherics', 'hospitable', 'many green sites', 'beautiful', 'tolerant', 'economically powerful', 'secure', 'clean', 'children-friendly', or 'wealthy'. Obviously, the citizens interviewed were expected to switch effortlessly among criteria requiring a varying amount of cognitive involvement. It is likely that the respondents mixed up these different evaluation mechanisms where some criteria were taken seriously and others rather playfully.

To answer the allegedly simple question raised in this Chapter in a principled manner one must set out with a theory about the concept of 'position'. Clearly, it may be considered equivalent to another evaluative concept – city image. But, given the fuzziness of the image construct in tourism research, this does not yet solve the problem of selecting the specific image criteria. For recourse to theory we make a long step back in the history of semantics and psycholinguistics. Since the pioneering work of Charles Osgood and his team we have known about the dimensions of the semantic space, viz. 'evaluation', 'potency', and 'activity' (Osgood, Suci and Tannenbaum, 1957, pp. 31–38). The

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Table 1 Emotionally positive connotations

Affection/ Friendliness	Amusement/ Excitement	Enjoyment/ Elation	Contentment/ Gratitude
01 Adoration	01 Amazement	01 Admiration	01 Appreciation
02 Affection	02 Amusement	02 Bliss	02 Comfort
03 Amorousness	03 Astonishment	03 Cheer	03 Contentment
04 Devotion	04 Eagerness	04 Delight	04 Gladness
05 Fondness	05 Enthusiasm	05 Ecstasy	05 Gratitude
06 Friendliness	06 Excitement	06 Elation	06 Hope
07 Infatuation	07 Exhilaration	07 Enjoyment	07 Peacefulness
08 Kindliness	08 Exuberance	08 Euphoria	08 Relief
09 Liking	09 Fun	09 Exultation	09 Satisfaction
10 Love	10 Glee	10 Happiness	10 Serenity
11 Lust	11 Hilarity	11 Joy	11 Thankfulness
12 Passion	12 Merriment	12 Jubilation	12 Well-being
13 Tenderness	13 Mirth	13 Pleasure	
14 Trust	14 Surprise	14 Pride	
15 Warmth	15 Thrill	15 Rapture	
16 Wonder			

semantic differential technique intends to index 'meaning' by revealing 'correlations between signs and organismic states'; note that one has to differentiate between 'denotative, designative, or referential "meaning" and what has been called connotative, emotive, or metaphorical "meaning"' (Osgood et al., 1957, p. 321).

Given the compelling arguments for a crisp interpretation of the image construct and building on the emotion-driving force of connotative meaning city images are conceived as connotative systems. Hence, the evaluative items to be used during measurement are connotations. As a codification device we will apply a list of 58 connotations arousing positive emotions. It was developed by Wayne Chase in his (US patented) computerised system for analysing connotative discourse, where '… a connotation is a subjective, affective meaning which refers to the emotive and associative aspect of a term' (Chase, 2001). Table 1 itemises the list; all these connotations are verbal stimuli in the form of nouns and ordered in four substantive domains. Wayne Chase's system contains a parallel list of emotionally negative connotations. The reader will agree that tourist cities would not position themselves with negative emotions, so they are not employed here.[1]

In a real-world study with physical respondents it would be prohibitive to let each of them attribute the connotations, i. e. those deemed to fit, to a series of city names. In our study we will derive the strength of association between the city destinations and the connotative evaluation items from Internet sources. Co-occurrence within Web pages is expected to express the associative strength. Recall that the study

1 There may be exceptions commonly referred to as 'black tourism' with destinations offering sites such as battlefields, serial murder locations, jailhouses or concentration camps.

aims at a supply-driven configuration of city positions in connotative space. This is evident as the large majority of Web pages about destinations originate from commercial sources. Of course, there is also user-generated content such as blogs or communications within Web-based social networks. Part of this (e. g. rating reports) is again incorporated in commercial sites for promotional purposes. In total, the content may be characterised as (i) cities' and service providers' projected image (the profile they want to communicate), and (ii) visitors' experience as far as encoded in accessible Web repositories.

The critical reader may object that the co-occurrence of a connotative noun and a city name in a Web document need not mean anything. At first glance this seems valid and even more plausible than the contrary. Actually, for a singular co-occurrence the reservation is fully justified. At second thought, however, some 'law of large quantities' comes to mind and then co-occurrence gets symptomatic. From the consumer behaviour point of view imagine the following: Web users are surfing city tourism sites. The emotionally laden connotations they encounter symptomatically frequently in the Web content related to a city name are likely to influence their experiential state, moods, and associations connected with the city.

10.4.2 Retrieving Google search engine data

The catalogue of criteria for evaluating the city positions is now ready. What about the cities themselves? The list in Table 2 shows 23 capital cities of EU member countries. Very small towns (e. g. Luxembourg City, La Valetta) were not considered; where disjoint the metropolitan centre was preferred over the administrative centre (Amsterdam, Den Haag). Brussels was excluded as the English and French name versions each generate about the same number of page hits, therefore, showing only half of the 'truth'.

Table 2 Major urban tourism destinations in Europe and their tourism-related Web pages in 1000[1]

Amsterdam	2960
Athens	2570
Berlin	6500
Bratislava	492
Bucharest	2690
Budapest	770
Copenhagen	630
Dublin	1230
Helsinki	652
Lisbon	568
Ljubljana	585
London	25 100
Madrid	1680
Paris	19 500
Prague	917
Riga	693
Rome	4570
Sofia	611
Stockholm	716
Tallinn	423
Vienna	1020
Vilnius	532
Warsaw	590

[1] as of 29 March, 2008

So far, 58 connotations and 23 city names are available as search items for extracting co-occurrence data from Web sources. A final decision is needed to make the Web search a tourism-related exercise. We are not interested in any indiscriminate co-occurrence of city names and emotive content. The keyword pairs should emerge in a tourism setting. There are several ways of implementing such kind of search restriction. With the Google engine the extension of the intended search domain was defined by one or more of four keywords viz.

tourism OR tourist OR travel OR trip.

Narrowing the search space in this manner brings the number of Internet pages from about 12 billion (at the time of analysis) down to roughly 2 billion.

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Steps 1 to 3 of a specifically tailored *R* script automatically launch a sequence of Google queries and data pre-processing measures. Let us assume that the reader already has installed the *R* system and copied the script into a text editor. The Google functionality of the Web browser should be configured to search pages in all languages (language restrictions are unreliable) and to output its results in English. The results page will be parsed and the absolute number of pages found will be extracted.

Take a closer look at the commands which may be highlighted and executed one by one. After loading the file *gsfunctions.R* the system must be told where to find the keywords. The row keywords for the co-occurrence table reside in *cities23.txt* and the connotations in *connotations58.txt*. The string *context* will be added to the Google queries to restrict the search process to tourism-related web pages. Then we define names for six text files to accept the results for the univariate (cities and connotations separately) and bivariate frequencies of occurrence (cities plus connotations). As we will see immediately the cities-by-connotations frequency table is stored in four versions: raw, row-normalised, cell-normalised, and Google-distance-normalised. Finally, three commands execute the search runs for the row and column keyword vectors and for the cities-by-connotations co-occurrence matrix and write the results to the text files specified.

R script: Preparation

```
# Script for performing Google search and
# saving frequencies of (co-)occurrence file.
# (c) 3/2008, J. Mazanec
# Note that, for ease of comprehension, commands are less condensed
# than they might be.

# load Google search functions
source("gsfunctions.R")

### organise your data for new analysis …
# define txt file for row keywords
rowfn ← 'cities23.txt'
# define txt file for col keywords
colfn ← 'connotations58.txt'
# define context for search
context ← "+tourism+OR+tourist+OR+travel+OR+trip"
# define txt files for row, col, and matrix frequency output, if desired
routfn ← 'cities23freq.txt'
coutfn ← 'connotations58freq.txt'
moutfn ← 'cities23connot58freq.txt'
nmoutfn ← 'cities23connot58freq_norm.txt'
NGDfn ← 'cities23connot58NGD.txt'
ncofn ← 'cities23connot58nco.txt'

### … or retrieve stored results with
# source("LoadCityData.R")
```

```
### capture row, col, and matrix keyword frequencies from Google
rowkwfreq <- gsearch.vec(rowfn, context, routfn)
colkwfreq <- gsearch.vec(colfn, context, coutfn)
matkwfreq <- gsearch.mat(rowfn, colfn, context, moutfn)
```

In Step 1 we convert the co-occurrences of cities and connotations into dissimilarities for each city pair. Because of the varying size of the cities and their number of web documents the absolute frequencies of the connotations found for each destination are not comparable over cities. Row normalisation expresses the frequencies in relative terms dividing the absolute frequency of each connotative keyword by the frequency of the city name in a tourism context. The size of the city now is neutralised leaving the city-connotation associations unperturbed.

Next, we want to learn more about the connotative and emotional similarity of the city destinations. For that purpose we will exhibit the similarity relationships among the tourist cities in a cluster dendrogram. Before that we must decide on how the similarities among cities should be precisely defined. Using a correlation measure would not change the results for the raw and the row-normalised data as only covariation is considered. The script demonstrates this by opening two windows and generating the dendrograms for both data versions. This is left as an exercise to the reader.

***R* script, Step 1: Produce results for row-normalised frequencies**

```
### STEP 1
### row-normalize co-occurrence matrix with (=divide by) row keyword frequencies
kwfreq_norm ← row.normalize(matkwfreq, rowkwfreq, rowfn, colfn, nmoutfn)

# Hierarchical clustering (complete linkage) may be applied to the
# dissimilarity matrix derived from dist or from (1 – corr(co-occurrence matrix)).
# Note that row-normalization makes no difference for corr
# but still ignores popularity of col keywords.
windows()
dendro.cor(matkwfreq, rowfn)                    # same as (kwfreqnorm, …
windows()
dendro.dis(kwfreq_norm, rowfn)
```

Row normalisation still ignores the frequency of each connotation. Clearly, these nouns differ in popularity in ordinary language. Some are very common and also used in colloquial language; others are rare and part of vocabulary found in exquisite pieces of literature. For example, ‘fun’ is found in about 32 million pages while ‘peacefulness’ appears in less than 400,000 Web pages. To remove this bias the co-occurrence data matrix may be cell-normalised. Step 2 demonstrates this procedure based on the intersection of a row and a column keyword (i. e. their number of co-occurrences) and the union of the row and column keyword frequencies. The reader may run these commands and find out that the large normalisation factor of the united row and column frequencies leads to many dissimilarities of very small size. Readability of the resulting dendrogram suffers from the crowding of the city names in the low-value portion of the diagram.

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***R* script, Step 2: Produce results for cell-normalized frequencies**

```
### STEP 2
### compute a cell-normalized co-occurrence matrix by dividing keyword
# intersection by keyword union of frequencies of co-occurrence
nco ← cell.normalized.prox(matkwfreq, rowkwfreq, colkwfreq, rowfn, colfn, ncofn)

# hierarchical clustering on nco distances and (1 – cor) among cities
windows()
dendro.dis(nco, rowfn)                    # too many small distances
windows()
dendro.cor(nco, rowfn)                    # cor on small profile variations
```

Step 3 applies Cilibrasi and Vitanyi's Normalised Google Distance outlined in Section 3 to the co-occurrence data. The NGD matrix may be further utilised for hierarchically clustering cities or for visualising the interrelationships of the cities in connotations space via MDS and Unfolding techniques (shown later in Step 5).

***R* script, Step 3: Produce results for Normalized Google Distances**

```
### STEP 3
### compute the NGD (Cilibrasi & Vitanyi, 2007)
# first we need a normalizing factor such as the overall frequency of the domain
# defined by the context
N ← gsearch.sca(context)
# now we've got everything needed for computing the NGD
NGDmat ← NGD(matkwfreq, rowkwfreq, colkwfreq, N, rowfn, colfn, NGDfn)

# NOTE: NGDmat may be transformed into inter-city distances and
# analyzed with Multidimensional Scaling methods (e. g. with procedures
# PROXIMITIES and ALSCAL of the SPSS Base System (square matrix,
# matrix-conditional).
# NGDmat may also be analyzed directly with Multidimensional Unfolding
# (e. g. with ALSCAL of SPSS for a rectangular matrix, matrix-conditional).

### apply hierarchical clustering to the dissimilarities derived from
# the correlations and distances among rows (cities)
windows()
dendro.dis(NGDmat, rowfn)
windows()
dendro.cor(NGDmat, rowfn)

# if desired corr and dist among columns (=connotations) may be analyzed too
windows()
dendro.cor(t(NGDmat), colfn)
```

```
windows()
dendro.dis(t(NGDmat), colfn)
```

Figure 2 exhibits the dendrogram erected from the NGD intercity distances. Note that the NGD matrix contains the semantic distances between each city name and each connotation. Transforming these distances into intercity dissimilarities involves distances between distances, e. g. the distance between 'Amsterdam' and 'delight' minus the distance between 'Athens' and 'delight'. This is what function *dendro.dis* implements. Alternatively, the connotative profiles may be compared for pairs of cities. In this case dissimilarities of 1 less correlation values are used for clustering the cities then based on the covariation (or amount of parallelism) of their profiles (see function *dendro.cor* in Step 3). In Wayne Chase's discourse analyser the 58 positive connotations represent a closed system of a connotative universe. And, as the correlation approach implements a more 'holistic' treatment of the city profiles, the *dendro.cor* diagram is selected for Figure 2. Examining the dendrogram the reader will detect groupings containing between four and eight city clusters of high face validity. Consider, e. g., the large European metropolitan cities, the southern-European capital cities, the Budapest-Prague-Vienna gathering, or the accumulation of Baltic States capitals.

The reader interested in the interrelationships among the column-defining connotations may flip the dissimilarity calculation and run the *dendro.cor* and *dendro.dis* functions for the transposed NGD matrix *t(NGDmat)*.

Recall the criticism brought forward against mutually exclusive city clusters in Section 3. With the Clip non-disjunctive clustering routine (also assumed to have been downloaded by the reader) we will be able to establish overlapping city clusters according to their connotative commonalities. The *run.clip* function in Step 4

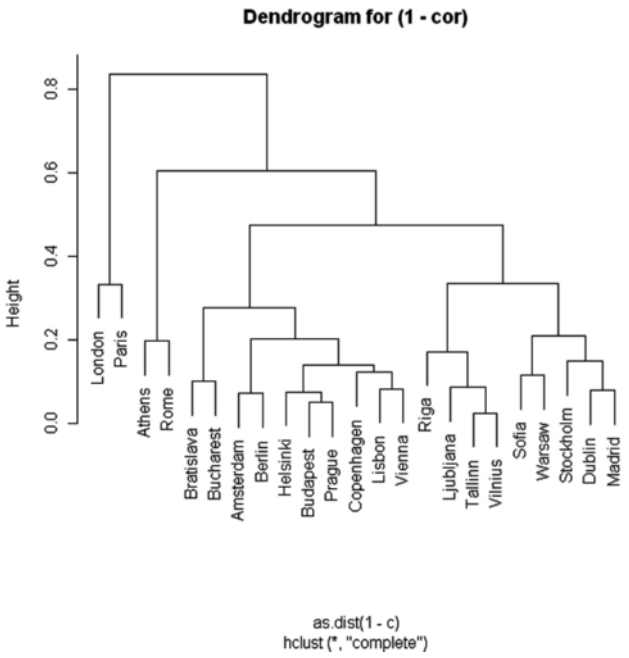

Fig. 2 Cities' dendrogram with Normalised Google Distance data

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prepares the input and evokes the Clip routine writing output to file *clip.out*. It also assists us in exploring now the consequences of choosing a distance-based dissimilarity measure.

***R* script, Step 4: Produce non-disjunctive clustering results**

```
### STEP 4
# apply non-disjunctive hierarchical clustering
# write input and run CLIP.exe
run.clip(NGDmat,rowfn)
```

Table 3 Non-disjunctive city clusters (extract of Clip output)

…
…
…
Dissimilarity: .756
** Athens Rome ** Ljubljana Tallinn Vilnius ** Amsterdam Berlin Helsinki **
** Bucharest ** Amsterdam Budapest Helsinki **
** Helsinki Madrid Stockholm Warsaw ** Copenhagen Lisbon Prague Vienna **
** Amsterdam Budapest Prague ** Bratislava **
** Amsterdam Helsinki Madrid Stockholm ** Amsterdam Madrid Prague Stockholm **
** Dublin Vienna ** Athens Madrid Warsaw ** London ** Riga ** Paris **
** Helsinki Madrid Sofia Warsaw **
…
…
…
Dissimilarity: .504
** Rome ** Ljubljana Vilnius ** Amsterdam ** Bucharest ** Budapest **
** Stockholm ** Prague ** Copenhagen ** Bratislava ** Athens ** Sofia ** Dublin ** Helsinki ** London ** Riga ** Paris ** Berlin ** Madrid **
** Tallinn ** Vilnius ** Lisbon ** Warsaw ** Vienna **
Dissimilarity: .491
** Rome ** Ljubljana ** Amsterdam ** Bucharest ** Budapest ** Stockholm **
** Prague ** Copenhagen ** Bratislava ** Athens ** Sofia ** Dublin **
** Helsinki ** London ** Riga ** Paris ** Berlin ** Madrid ** Tallinn ** Vilnius ** Lisbon ** Warsaw ** Vienna **

Table 3 offers city groupings for three selected levels of dissimilarity. The cities to enter a cluster on the lowest level of dissimilarity (.491) are the Estonian and the Lithuanian capitals (Tallinn and Vilnius). On the next level (.504) Ljubljana and Vilnius form a parallel two-cities group. Further up the hierarchy a major increase in dissimilarity occurs between the levels #31 and #32 (from .756 to .771). On this – still low level, as there are 235 in total – a rich pattern of cities closely neighbouring in connotative space has appeared. In particular, cities like Amsterdam or Helsinki develop strong connotative links to several others while a megalopolis such as London or Paris still stands aloof. Though the distance measure penalises differences in a few connotations stronger than the correlation measure the solutions of Figure 2 and Table 3 bear strong resemblance.

Software

Pajek is a powerful and easy-to-use program for Network Analysis. It is freely available for download via http://pajek.imfm.si/doku.php?id=pajek. For drawing the diagram in Figure 3 the multiple relationships within the city clusters in Table 3 were transformed into series of pair-wise connections. E. g. Amsterdam-Berlin-Helsinki becomes Amsterdam-Berlin, Amsterdam-Helsinki, and Berlin-Helsinki.

The tabular display of the connotatively similar cities is inconvenient. There is a more comforting way of visualising the results for a specifically interesting level of dissimilarity in a network diagram. For this purpose we apply the *Pajek* program normally used for Social Network Analysis. Figure 3 depicts the connotative similarity relations among the cities. There seem to be many; however, out of the 23*(23–1)/2=253 theoretically possible connections only 10%, viz. 25, are induced by

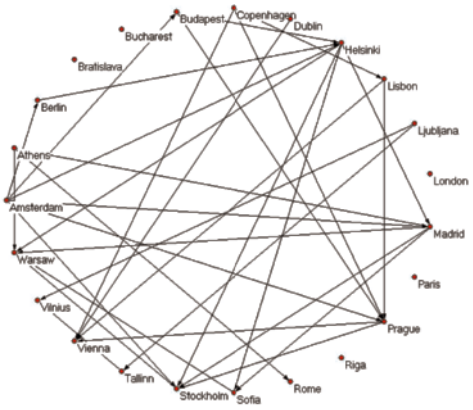

Fig. 3 Network visualization of connotative city clusters

the non-disjunctive clustering gained on dissimilarity level .756. A city being a member in several 'image' clusters (cf. Helsinki or Prague with six edges each) gives rise to more connections than a city with a rather unique connotative profile.

10.4.3 Connotative space maps

A spatial representation of the cities is desirable. It visualises the connotations space and greatly facilitates comprehension of results. Step 5 provides the commands for creating maps with classical MDS (not shown) and with Sammon mapping. The normalisation applied for the Sammon map helps creating a nicely spread out configuration shown in Figure 4. After 50 iterations a very satisfactory goodness-of-fit (Stress value of .031) has been reached. Again, normalised Google data and a distance measure underlie this solution. Admitting that the mapping requires an immense data reduction from the 58-dimensional input space into a two-dimensional approximation the inter-city relationships appear to be well preserved. The reader may feel tempted to seek for substantive interpretations of the horizontal and vertical axes based on the city positions and is encouraged to make such an attempt. CTO managers

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should recall that vicinity of positions in connotative space is indicative of two or more city names likely to arouse an emotionally similar spontaneous response.

***R* script, Step 5: Produce city maps in connotative space**

```
### STEP 5
### apply classical MDS to NGD distances among cities in R^2
windows()
mds.mds(NGDmat, rowfn, k=2)
### apply Sammon mapping (uses classical MDS result for initialization)
windows()
mds.sam(NGDmat, rowfn, k=2)

# graphics.off()
```

For the readers familiar with the standard application system SPSS appropriate syntax is provided. The ALSCAL procedure is part of the SPSS base system. It is a very general mapping tool capable of analysing square and rectangular input data for (N)MDS and Unfolding purposes. At first, think of the Google distance matrix with 23 rows and 58 columns as input data. The 23 cities represent the cases in SPSS data format and the 58 connotations are the variables or city attributes. This cities-by-connotations data matrix may be interpreted as the rectangular portion of a square and symmetric super-matrix of dimensionality (cities-by-connotations)-by-(cities-by-connotations) where the values in the square sub-matrices for cities-by-cities and connotations-by-connotations are missing. The ALSCAL procedure treats these incomplete data as input for an Unfolding Analysis trying to visualise both sets of points in the same 'joint' space of cities and connotations. Hence we get 23 city points

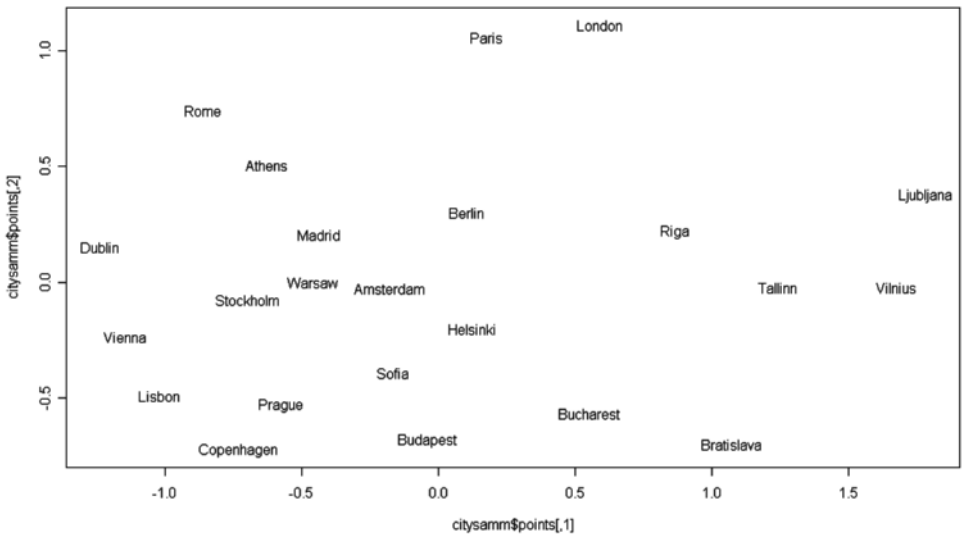

Fig. 4 Sammon map of cities in connotative space

and 58 connotative items in a heavily crowded map with poor goodness-of-fit. The map is not shown here but the reader may reproduce it with the first ALSCAL command of the SPSS syntax file.

SPSS syntax for producing ALSCAL maps (Unfolding and MDS):

```
* Read the cities-by-connotations data.

data list FILE= 'cities23connot58NGD.txt' FREE
/adoration affection amorousness devotion fondness friendliness
    infatuation kindliness liking love lust passion tenderness trust warmth
    amazement amusement astonishment eagerness enthusiasm excitement
    exhilaration exuberance fun glee hilarity merriment mirth surprise thrill
    wonder admiration bliss cheer delight ecstasy elation enjoyment euphoria
    exultation happiness joy jubilation pleasure pride rapture appreciation
    comfort contentment gladness gratitude hope peacefulness relief satisfaction
    serenity thankfulness well_being.

execute.

* Process the rectangular data matrix with Unfolding.

ALSCAL VARIABLES=adoration TO well_being
/SHAPE=RECTANGULAR
/LEVEL=interval(3)
/CRITERIA=DIMENS (2,3)
/PLOT.

* Produce a square matrix of proximities for ordinary MDS.

PROXIMITIES adoration affection amorousness devotion fondness friendliness
    infatuation kindliness liking love lust passion tenderness trust warmth
    amazement amusement astonishment eagerness enthusiasm excitement
    exhilaration exuberance fun glee hilarity merriment mirth surprise thrill
    wonder admiration bliss cheer delight ecstasy elation enjoyment euphoria
    exultation happiness joy jubilation pleasure pride rapture appreciation
    comfort contentment gladness gratitude hope peacefulness relief satisfaction
    serenity thankfulness well_being
/MEASURE EUCLID
/MATRIX OUT(*).

*/VIEW=CASES assumed.

* To label the points in the map replace the default var names
* VAR1 TO VAR23 automatically created in the proximities data sheet
* with the city names (do this for the rows and columns in the proximity matrix).
```

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```
ALSCAL VARIABLES=Amsterdam
Athens
Berlin
Bratislava
Bucharest
Budapest
Copenhagen
Dublin
Helsinki
Lisbon
Ljubljana
London
Madrid
Paris
Prague
Riga
Rome
Sofia
Stockholm
Tallinn
Vienna
Vilnius
Warsaw
/MATRIX=IN(*)
/LEVEL=RATIO(3)
/CRITERIA=DIMENS (2,3)
/PLOT.
```

The second ALSCAL command creates the ordinary MDS result derived from the inter-city proximity matrix. Euclidean distances are used throughout the analysis. With Young's Stress of .09 the goodness-of-fit for the solution in two dimensions is acceptable. MDS solutions are invariant to rotation of the coordinate system and reflection of the configuration of points around the axes. Therefore, imagining reflection around the vertical axis the ALSCAL map, by and large, confirms the Sammon result.

The reader may still be wondering what it means for a city to be positioned in some specific region of the map and what kind of connotative specialty its position implies. Table 4 provides interpretive orientation. It highlights the most conspicuous connotations associated with each city. Connotative items with (close to) minimum Google distance among all cities are listed. Outstanding co-occurrences are unevenly distributed among European cities. Dublin, Lisbon, Rome, and Vienna appear to arouse particularly frequent emotive content on Internet pages. Hence, the south-eastern cluster of Dublin, Lisbon, and Vienna in Figure 5 represents the peak region as far as emotionally positive connotations are concerned. The cities in the vicinity (Prague, Copenhagen, Sofia) underline the 'high-emotions' quadrant.

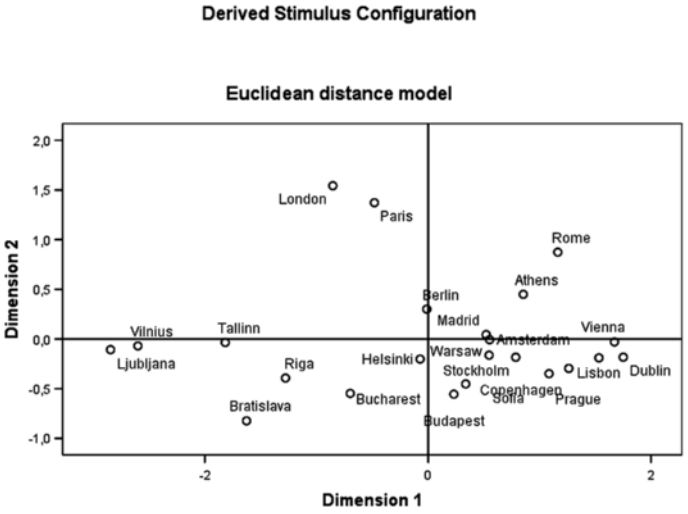

Fig. 5 ALSCAL map of cities in connotative space

The Irish, Portuguese, and Austrian people themselves and/or the rest of the world seem to be particularly prone to using colourful language when presenting or commenting on one of these cities.

10.5 Precautions and conclusions

City image was consistently interpreted as a position in the space of connotations conveying positive emotions. Attribution of connotative items to city names was based on the Google-detected frequencies of co-occurrence on Web pages. Lacking control of what the Google search engine actually does a bit of reservation is advised. An unknown number of nonsense associations cannot be avoided. If a web page comments on, say, 'Paris Hilton having a lot of fun on her trip to Las Vegas', the connotative item 'fun' will be associated with the Paris city name. The same happens if a person loving adventure stories expresses her admiration for the writer Jack London. One may figure out many more examples of erroneous co-occurrence data the search engine inadvertently counts as meaningful semantic information. The analyst must rely on the enormous number of pages screened and the bulk of data being reasonable and sound. Recall the assumed situation of a typical recipient: Web users reading about a city get symptomatically frequently exposed to verbal stimuli such as 'delight', 'fun', 'enjoyment' etc. favouring the arousal of specific emotional states.

The data collection is rightly restricted to verbal stimuli. In an empirical study tailored for a sample of respondents one would certainly consider nonverbal measurement tools. These would have to be carefully validated in terms of the emotional content reliably transmitted by the photos or abstract pictures used. As far as tourist cities on the Internet are concerned the pictorial representations are heavily biased toward denotative information and clichés (Paris's Eiffel Tower, London's Tower Bridge, or Vienna's Giant Wheel). Nothing more than commonplace would result from this.

The analytical results depend on the normalisation imposed on the co-occurrence data. The Normalised Google Distance has been found to effectively remove the bias of city size and popularity of connotations. Actually, the

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Table 4 Connotations most uniquely associated with a city

City	Connotations
Amsterdam	fondness, friendliness, lust, amazement, fun
Athens	fondness, trust, contentment, gladness
Berlin	lust
Bratislava	–
Bucharest	elation, serenity
Budapest	amusement, admiration, elation, jubilation
Copenhagen	fondness, friendliness, exuberance, bliss, ecstasy, elation, euphoria, comfort
Dublin	affection, friendliness, infatuation, liking, lust, tenderness, warmth, amusement, eagerness, excitement, hilarity, merriment, thrill, admiration, delight, exultation, happiness, pleasure, rapture, appreciation, gladness, gratitude, satisfaction, thankfulness
Helsinki	–
Lisbon	adoration, devotion, fondness, infatuation, kindliness, liking, lust, excitement, glee, merriment, thrill, admiration, delight, ecstasy, elation, jubilation, gladness, thankfulness
Ljubljana	–
London	–
Madrid	–
Paris	love, passion, fun, hope
Prague	lust, tenderness, elation, euphoria, exultation, well-being
Riga	fondness, fun
Rome	adoration, tenderness, trust, amazement, eagerness, enthusiasm, glee, merriment, mirth, cheer, joy, pride, contentment, gladness, thankfulness
Sofia	affection, infatuation, lust, tenderness, hilarity, rapture
Stockholm	devotion, lust, amazement, surprise
Tallinn	–
Vienna	affection, fondness, infatuation, tenderness, astonishment, eagerness, merriment, admiration, elation, enjoyment, euphoria, exultation, happiness, jubilation, rapture, appreciation, contentment, gladness, relief, thankfulness
Vilnius	–
Warsaw	liking, amusement, gladness

richness of associations with emotive content was shown to be independent of conurbation size. As an example, refer to London remaining a nondescript name with regard to strength of connotative links. The findings are inspiring in several repects. For CTO managers they should induce further in-depth study of the structure of emotional 'similarity competition' among city destinations. Monitoring the long-term development would be worthwhile. For students and academics lot of further research issues pops up: varying the semantic stimuli, changing the restrictions of the search doman, experimenting with established systems of emotions, or exploring other normalisation and data reduction methdos.

Case study

(1) Choose a list of destinations and a set of attributes (word items) and store them in the appropriate text files (*cities23.txt* and *connotations58.txt* in the demonstration study).
(2) Be sure that you can theoretically justify your choice of attributes. They should not be arbitrary but related to some explanatory construct in tourist behaviour research.
(3) Conduct the Google queries and apply the normalisations.
(4) Produce the hierarchical clustering results and the spatial representations.
(5) Ponder on the dendrograms and maps; look for commonalities and contrasts among the destinations, determine their strengths and weaknesses.
(6) Think of how you might present your findings to an audience of NTO or CTO managers.

10

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Tourists' Assessment of Typical City Offerings

Visitor Activities and Inner-City Tourist Mobility: The Case of Heidelberg

11

Tim Freytag

11.1 Purpose and objective

This Chapter has a focus on Heidelberg, a university town that traditionally stands for one of the most popular urban tourism destinations in Germany. The city is marked by a particularly high tourism density that is reflected by a ratio of approximately seven annual bednights per inhabitant, which brings Heidelberg into a leading position among all German cities with a size of at least 100,000 inhabitants. This Chapter will take Heidelberg as a case study to identify current trends in European city tourism. A second aim consists in exploring several methods and techniques to obtain tourism information and comparative data that allows evaluate the general destination performance based on key tourism indicators, get a better understanding of visitor activities and assess inner-city visitor mobility in time and space.

11.2 Introduction

An increasing demand for the consumption of urban environments has led to a rising popularity of city tourism. This trend holds for both, leisure oriented tourist mobility and professional business travel. Regarding the tourist consumer patterns we can observe a general shift from the classical mode of leaving only once per year for an extended summer holiday towards a series of short trips, which are undertaken throughout the whole year (Becker, 2000). Among the most favoured destinations are mainly greater cities and metropolises providing important sights, a wide range of leisure and cultural activities, entertainment and attractive shopping facilities (Jagnow and Wachowiak, 2000). Moreover, a specific urban air and a high level of publicity contribute to the success of tourism destinations (Law, 1993).

The ongoing growth dynamics underpin the importance of city tourism as a resource for the local economy. Consequently, we can observe more and more interurban competition that is reflected in considerable efforts in tourism and city marketing activities. However, a key factor for developing successful tourism marketing strategies consists in having a good knowledge about the individual profile of a city and the specific interests and characteristics of its visitors. Destination marketing has to be grounded on reliable information about tourism trends, visitor activities and tourist mobility within the city. One needs to understand urban tourism and related marketing activities as a proc-

ess which is driven by innovation and ongoing competition. Visitors tend to adopt new trends: They like to explore cutting-edge destinations and tourism attractions, and they are keen on trying novel types of visitor activities. For all these reasons, tourism professionals put much effort in constantly developing the local tourism infrastructure, providing innovative services and, for example, bringing forward major cultural or sporting events.

Discussion point

Urban tourism experienced rapid growth and increasing competition during the past few years. Discuss the economic potential of these dynamics and related challenges for urban planners and tourism professionals.

11.3 Tourism studies about the city of Heidelberg

The empirical grounding of this report is provided by substantial research activities that were carried out in Heidelberg over the past ten years. Applying both, quantitative and qualitative research methods, several tourism studies were conducted in the context of research projects and teaching courses at the Department of Geography at Heidelberg University. The guiding idea of these activities was to understand local tourism development through combining various perspectives in order to create a multi-faceted picture of Heidelberg as a tourism destination that is shaped by tourism professionals, urban planners and the visitors.

The major data sources include:

(1) Tourism statistics compiled by the Baden-Württemberg statistical office (Statistisches Landesamt),
(2) Heidelberg visitor survey 2000–07 with a total of 10,000 interviews,
(3) 200 tourist interviews and related mobility tracks recorded with GPS loggers,
(4) Additional data and information based on 25 expert interviews with local tourism professionals, pedestrian counting etc.

Empirical data from the official tourism statistics (Statistisches Landesamt Baden-Württemberg, 2009) was used to sketch out general trends in Heidelberg tourism development. The regularly published volumes contain data on accommodation facilities and overnight visitors. The existing variables include the number of arrivals and bednights, length of stay and country of residence. All available data is presented in aggregated format on the municipality level.

On behalf of the local convention and visitors' bureau and in cooperation with the Vienna University of Economics and Business Administration, the Heidelberg visitor survey was conducted by the Department of Geography, Heidelberg University. A total of 10,000 face-to-face visitor interviews were carried out during six annual data collection cycles between April 2000 and July 2007. The questionnaire was available in German, English, French, Italian, Spanish, Chinese (Putonghua) and Japanese versions. A random sample of travellers (at least 16 year-old overnight visitors or day-visitors that live and work at least 30 kilometres away from Heidelberg) was interviewed at several locations within the city of Heidelberg.

Plausibility checks on the basis of overnight stays, which are documented in the official statistics, confirm that the visitor survey provides a sample that roughly reflects the seasonal distribution of tourism and the travellers' countries of residence. With approximately five per cent of the interviewees, business travel is clearly underrepresented in the sample. Consequently, the Heidelberg visitor survey has to be regarded primarily as a data base for leisure tourism studies (Freytag, 2002).

In May and June 2008, a total of 200 visitor interviews combined with tourist mobility tracking were carried out in Heidelberg by the Department of Geography. The tracking was accomplished with GPS loggers. This innovative technique has a strong potential for mobility studies in tourism research and other fields of human geography and social science in general (Shoval and Isaacson, 2006). The Heidelberg sample was exclusively produced for day-visitors who started their visit in the tourist information office next to the central railway station. The collected spatial data was analysed with ArcGIS software.

On the tourism supply side a series of expert interviews were conducted by the Department of Geography, Heidelberg University, with 25 executive managers and decision-makers in hotel business, gastronomy and tourism marketing in Heidelberg in 2005. The composition of the interview sample reflects the existing variety of companies in terms of size, type of enterprise, range of accommodation prices and different locations within the city of Heidelberg. Semi-structured expert interviews with an average length between 45 and 60 minutes delivered some important insights, which are presented as quotations in the following paragraphs. Due to the confidential character of the conversations, interview quotations are anonymously presented. All interviews were recorded, transcribed and presented to the interviewees for optional specifications and additional remarks. MAXqda software was used for documenting and analysing the interviews.

Lastly, this report is supported by unpublished results from several teaching courses to explore tourism in Heidelberg, that were carried out by the Department of Geography at Heidelberg University between 2002 and 2007. The main aim of the teaching activities was to study inner-city pedestrian tourist mobility and to identify perspectives for a future tourism development beyond the old town area in Heidelberg.

11.4 Heidelberg as a tourism destination

The actual resident population of Heidelberg comprises roughly 140,000 inhabitants. A total of 30,000 students underpin the predominant role of the university that constitutes together with tourism the two key components of the city. Heidelberg owes its high popularity among international travellers to the long lasting reputation as a leading university town, which was often praised as perfect materialization of a beautiful and typically German landscape in harmony with the city's location on the river banks of the Neckar, delightfully embedded by the slopes of the Odenwald (see Figure 1). Heidelberg castle, which was destroyed by the French troops of Louis XIV during the war of Palatine succession (1688–97), was considered a major place of national memory and identity throughout the 19th and early 20th centuries. Starting with the work of poets and musicians during the era of German romanticism, the myth of romantic Heidelberg was created and perpetuated in various cultural productions, orchestrations and movies. The romantic image was used as a suitable basis to successfully promote Heidelberg as a tourism destination during the second half of the 20th century (Fink, 2002). Whereas the enchantment of a romantic Heidelberg meanwhile only fascinates a small proportion of the German visitors, it keeps being fascinating and to some extent exotic for long haul travellers whose time and travel budgets do not allow more than taking a few short impressions from Germany and Europe. In this sense, the city conveys the encounter with a typical historic German university town. This makes Heidelberg a suitable stopover on a round trip across Germany or Europe (Freytag, 2008).

Particularly beneficial for tourism in Heidelberg are the excellent transport connections. Being located at the edge of the upper Rhine

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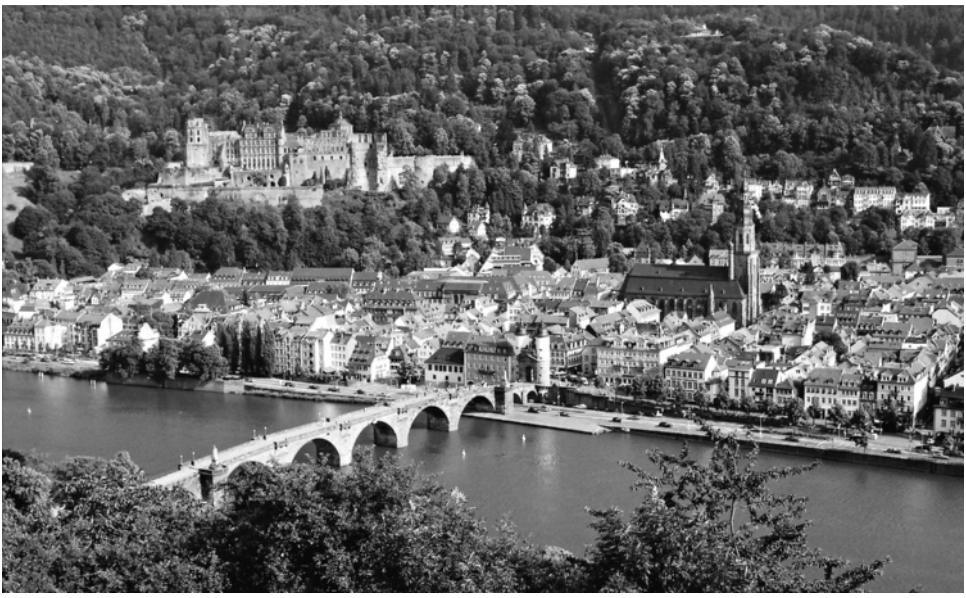

Fig. 1 Heidelberg castle and the old town (Source: Bienia, 2003, http://commons.wikimedia.org/wiki/File:Heidelberg.jpg, site accessed 17 February 2009, GNU Free Documentation License)

valley between Basel and Frankfurt near the A5 motorway, the city also disposes of a good connection with Frankfurt am Main International Airport, the largest passenger airport in Germany. In addition, Frankfurt-Hahn Airport has become an important air base for low cost carriers during the past few years. Heidelberg University and several greater international companies, which are based in the city or within the wider Rhine Neckar metropolitan region, tend to induce incoming travel. Moreover, the resident population of Heidelberg and its surroundings supports local tourism being visited by friends and relatives.

In the early 1990s, a general concept for sustainable tourism development was created in Heidelberg. Established with the help of experts and the local population, this concept contains strategies and recommendations for implementing a socially, economically and ecologically sustainable tourism (Stadt Heidelberg, 1993, p. 11). The main aim of the local agenda is to put more emphasis on qualitative than quantitative aspects of tourism development. Although the new concept has only limited power to serve as an efficient controlling and steering tool, it can be assumed that the local political actors try to balance the interests of resident population, retail business, tourism sector and the visitors in the city.

Discussion point

Heidelberg established a local agenda for sustainable tourism development in 1993. Discuss the key features of this planning strategy and the major challenges to put them into practise.

11.5 General trends for incoming tourism in Heidelberg

Heidelberg counts approximately three million visitors per year, which are mainly day-visitors (roughly 80 per cent). With more than one million admission tickets purchased per year, Heidelberg castle constitutes the uncontested tourism highlight in the city. The existing 74 hotels and eight other local accommodation facilities registered a total of 962,155 bednights and 527,509 arrivals in 2008. In general, Heidelberg is a tourism destination that is shaped by a particularly high proportion of foreign overnight visitors (39.7 per cent in 2008).

Heidelberg achieves the highest visitor frequencies in June, July and September, whereas the month of August is characterised by a slight decrease of bednights, which can be regarded as a general pattern in urban tourism. Overall the seasonal distribution shows a rather well-balanced picture which points out that the existing accommodation facilities are intensely used during the months of summer, but also attain a satisfactory occupancy level in winter time (see Figure 2).

The long-term development of Heidelberg as a tourism destination is revealed in Figure 3. Between 1984 and 2008 we can observe a considerable growth of accommodation facilities and bednights such as a slight increase of the length of stay. The rising number of overnight stays corresponds with a general trend in European city tourism, although the average annual growth rate in Heidelberg remains below the European average (Freytag, 2007). In terms of the registered bednights a first peak was achieved in 1990, when the broader context of the political unification in Germany led to increased travel activities for both, national tourism and incoming international tourism. At this time of particularly intense tourism activities, the Heidelberg concept for sustainable tourism development was created. In the following years, we can see a slight decrease of

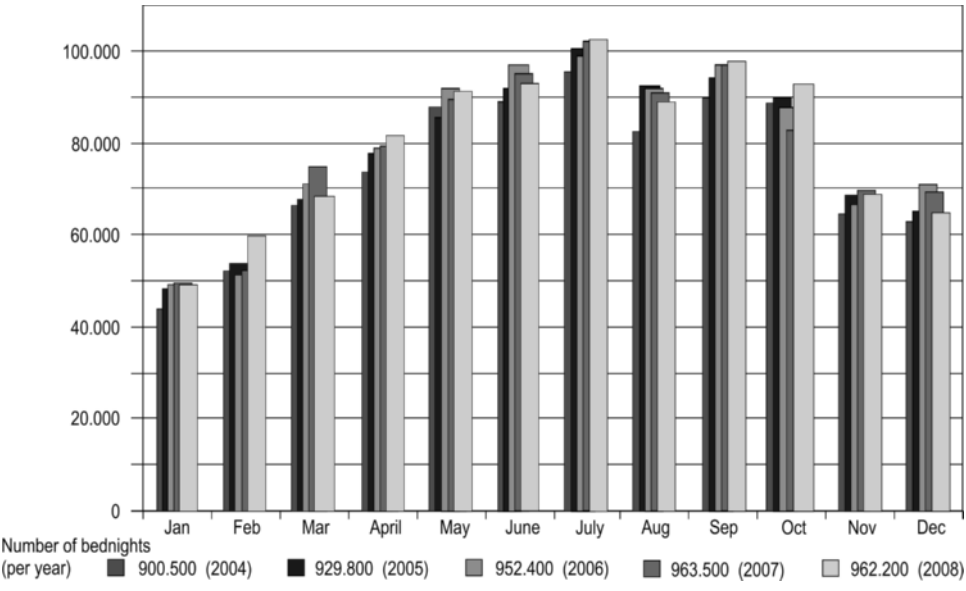

Fig. 2 Seasonal distribution of bednights in Heidelberg 2004–2008 (Source: Statistisches Landesamt Baden-Württemberg)

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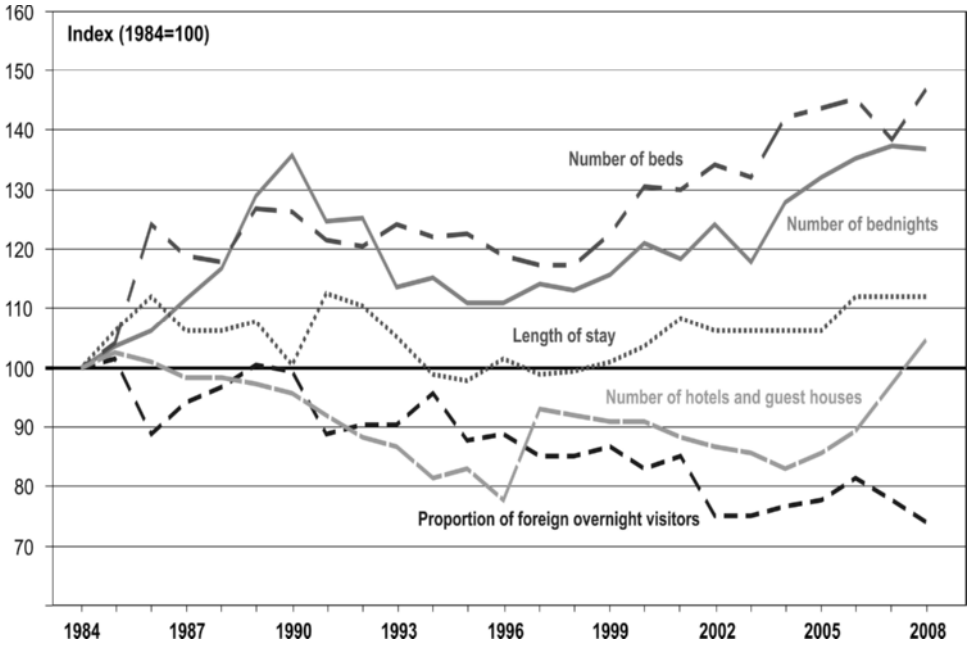

Fig. 3 Key indicators for overnight tourism in Heidelberg 1984–2008 (Source: Statistisches Landesamt Baden-Württemberg)

bednights. However, since 2003 a second period of growth started to emerge and reached its provisional peak in 2007. Figure 3 illustrates that the long term trend for bednights is paralleled by the amount of available accommodation facilities, which underpins a good balance of demand and supply sides in Heidelberg tourism.

The depicted increase of bednights suggests at first sight a rather steady growth process, but taking a closer look at this trend we can identify considerable shifts in the national markets that constitute the demand side of tourism in Heidelberg (see Figure 4).

The United States of America are the most important incoming market for tourism in Heidelberg with approximately 100,000 bednights per year. This is partly influenced by the US armed forces that are stationary at several military bases in Heidelberg and the Rhine Neckar metropolitan region. Many tourism professionals expected a significant decline in US travel as a consequence of the second Gulf war (1990–91), the terrorist attacks of September 11, 2001, and the US-Iraq war in 2003. However, the registered bednights in Heidelberg show only short-term effects of minor importance for US incoming travel.

Discussion point

Heidelberg has a very high proportion of long haul visitors compared with other major German cities (with at least 100,000 inhabitants). Discuss the specific advantages and possible risks of vulnerability that result of the international visitor profile in Heidelberg.

More than any other German city, Heidelberg can be regarded as a particularly important destination for Japanese visitors. Between 1992 and 1996, the Japanese completed more

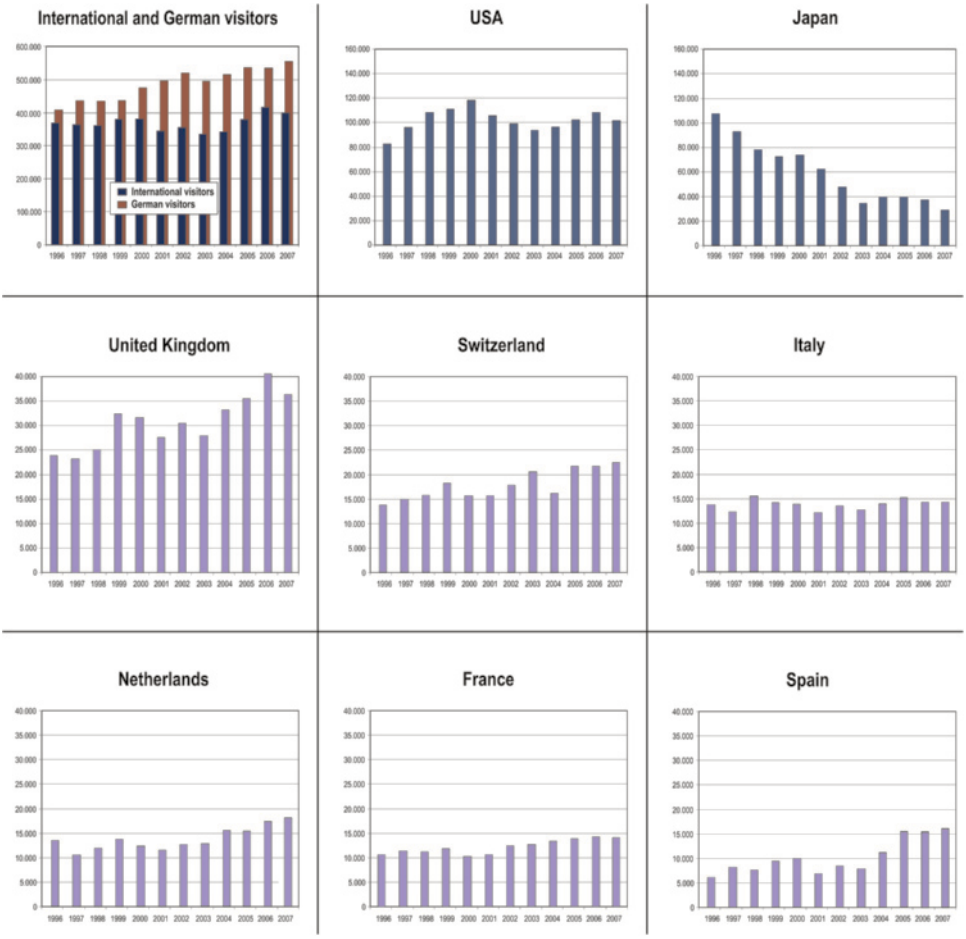

Fig. 4 Heidelberg tourism bednights by nationality of visitors 1996–2007 (Source: Statistisches Landesamt Baden-Württemberg)

bednights than any other foreign nation in Heidelberg. This was a result of, both, intensive Heidelberg tourism marketing initiatives that were carried out in Japan and, even more decisively, the boom of the Japanese economy that strengthened the yen compared to the US dollar and the European currencies and gave more buying power to Japanese travellers. A local gastronome and hotel manager critically reflects the heyday of Japanese tourists in Heidelberg during the 1990s. The manager states that he focussed sometimes too much on welcoming Japanese visitors instead of paying attention to other travellers, as well. 'This is not good, neither for the Japanese […] nor for the supply side of tourism. I remember that we had 200 Japanese guests here for lunch. So, the Japanese were surrounded by Japanese only, I mean, this is terrible' (interview no. 22).

Having reached a peak of more than 130,000 bednights in 1994, the number of Japanese overnight visitors experienced a significant decline since the mid 1990s. Consequently, Japan lost its leading position among the inter-

national visitors in Heidelberg. In 2006, Japanese bednights were ranked only at the third position after the US and the UK, and in the following year even less than 30,000 Japanese bednights were registered in Heidelberg. The decline of Japanese incoming tourism has to be seen in the wider context of the economic crisis that affected Japan in the second half of the 1990s. During this period the number of Japanese visitors dramatically declined all over Germany and presumably as well in the neighbouring countries. In the case of Heidelberg an additional factor plays in. Due to the fact that the local hotel prices clearly exceed the national average, Japanese travel groups changed their logistics and now rather tend to book less costly accommodations in the rural parts of the country and to visit Heidelberg as day-visitors. A local hotel manager complains that Asian 'groups travelling by coach [visit] the castle and a little bit of the old town before they have to' move on (interview no. 14).

During the past few years Heidelberg tourism was shaped by a slight diversification process with regard to the international visitors. Figure 4 depicts a growing number of German bednights, which can be seen as a result of increased business travel sustained by companies and institutions in the Rhine Neckar metropolitan region. Consequently, Heidelberg started to reduce its high level of dependency on incoming travel from the US and Japan. This trend is supported by rising numbers of bednights for travellers from several European countries, such as the UK and Spain (to be seen as a result of increasing low cost air travel) as well as the Netherlands and Switzerland. In the future, a key strategy for Heidelberg as a tourism destination consists in enhancing the current diversification process and fostering tourism cooperation within the Rhine Neckar metropolitan region.

11.6 Visitor activities

The majority of the travellers who come to Heidelberg tend to either combine several purposes in one trip (i. e. sight-seeing, visiting friends or relatives, professional travel) or to include Heidelberg as a stop-over to be visited on the way to or from another travel destination. In general, Heidelberg appeals to all kinds of visitor types, no matter of what age the tourists are, and no matter if they are travelling alone, with their partner or family and children, with friends or as part of an organised group. In general, the proportion of overnight visitors is comparatively small in Heidelberg. Most of the tourists do not spend more than four to six hours in the city. As a hotel manager puts it 'many travellers come here, do Heidelberg in a rush and drive on to the following destina-

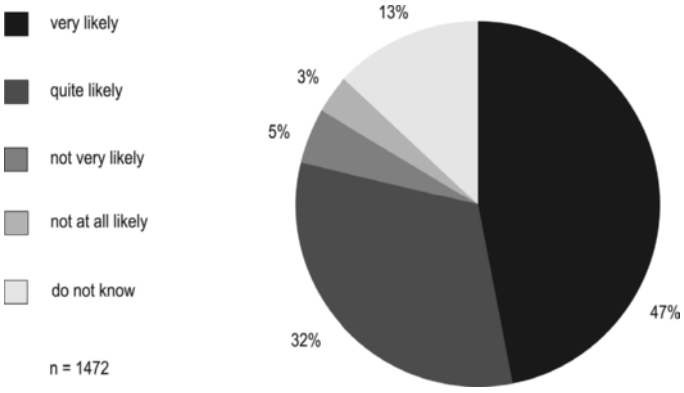

Fig. 5 Likelihood of a repeat visit in Heidelberg (Source: Heidelberg visitor survey 2006–2007)

tion – possibly Rothenburg, or they leave Heidelberg in the late afternoon to spend the night in Munich. This is what we call the classical programme' (interview no. 2).

Almost half of the interviewees know Heidelberg from a previous visit. This underlines not only that the city is particularly popular among tourists but also that former Heidelberg students from Germany and abroad like to return to their university town later in their lives. Almost four out of five interviewees stated that they are likely to renew their visit in the future.

Given the reputation of Heidelberg as a major tourist destination and the high proportion of repeat visitors, many incoming tourists dispose of a good local knowledge and should have rather specific plans for their stay in Heidelberg. A common source for travel advice and recommendation are friends and relatives of the visitors. Additional information is taken from travel guide books and the local tourism information office. During the past few years the internet has gained extraordinary importance as the leading source of information for the travellers. Three out of four visitors do use the internet on a daily basis. The most important web pages for preparing a trip to Heidelberg include the websites of the city of Heidelberg and the local tourism information as well as the Heidelberg entry in the wikipedia online encyclopaedia. The Heidelberg visitor survey 2006–07 revealed that more than one third of the travellers use the internet in order to prepare their trip. Their main aim is to get practical travel information, such as city maps and event notes. As a result of technological change a growing number of visitors would like to request internet services during their stay in the city. Location based services are becoming an increasingly important marketing tool for city tourism (Meng et al., 2004).

The more and more frequent use of online media is confirmed in the field of accommodation booking. Whereas in the year 2000, most of the travellers were rather reluctant towards this new technology and stated to be afraid of insecure websites, the acceptance of online booking systems has rapidly increased. User friendly and more secure websites and a rising familiarity with online shopping have led to a growing number of accommodation bookings on the internet. According to the Heidelberg visitor survey 2006–07 almost one out of two accommodation bookings were carried out either by e-mail (28%) or with an online booking system (21%). The telephone is still the most common booking media, but during the next years it will be continuously substituted by e-mail and the internet.

The proportion of privately accommodated overnight visitors was more than 30 per cent between 2000 and 2007. However, the majority of the overnight visitors stay in a hotel. In average, hotel guests spend roughly 70 euro per person per night in Heidelberg. Among the

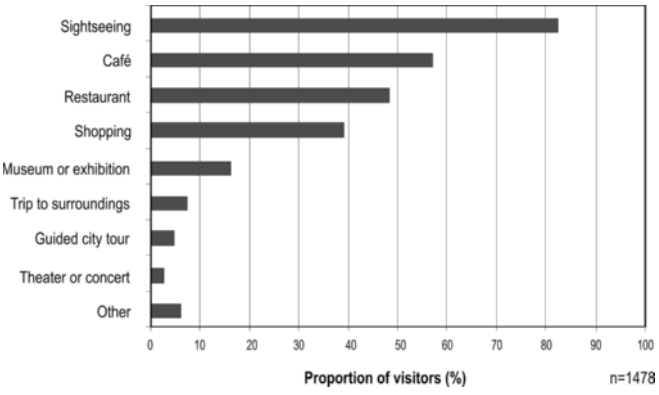

Fig. 6 Visitor activities in Heidelberg (Source: Heidelberg visitor survey 2006–2007)

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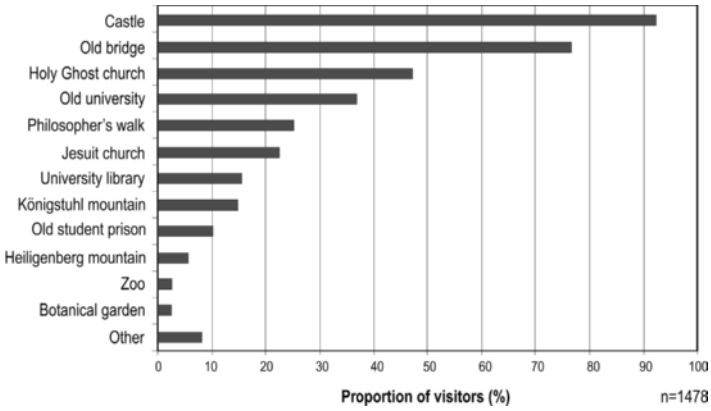

Fig. 7 Visited sights and attractions in Heidelberg (Source: Heidelberg visitor survey 2006–2007)

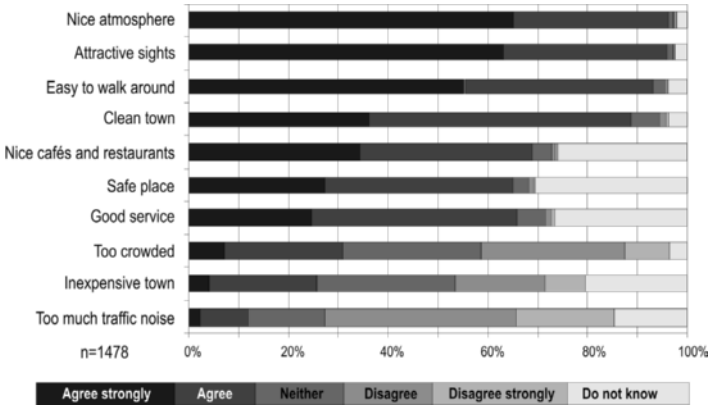

Fig. 8 Perception of the city by the visitors (Source: Heidelberg visitor survey 2006–2007)

low budget accommodation facilities the youth hostel is of particular importance.

In Heidelberg tourists tend to combine a sight-seeing walk with some shopping and sitting in a café or restaurant. These mixed activities are typical for urban tourism in general, and they can be observed in similar ways for example in Salzburg (Keul and Kühberger, 1997). In average, the visitors spend 24 euro for food and drink per person per day according to the Heidelberg visitor survey 2006–07. The budget for shopping is 18 euro per person per day. Guided city tours, cultural events and excursions into the city's surroundings only play a minor role among the tourist activities.

The majority of the interviewees do not know the HeidelbergCard which offers free use of public transport and free or reduced admission tickets for several tourist attractions including shopping facilities and restaurants in the city. Only one out of four visitors is aware of this special offer, and only 3 per cent of the interviewees purchased the HeidelbergCard for their actual visit.

During their stay in Heidelberg, most of the visitors like to enjoy the 'old town with its historic architecture and all the restaurants' (interview no. 17). Moreover they feel attracted by the charming and inspiring 'atmosphere when strolling through […] the old town and [feeling], that Heidelberg [has] its own particularly romantic air' (interview no. 5). The visitors are very much charmed by the nice and cosy atmosphere of the old town, which is

perceived as a safe and clean environment. The only inconveniences stated by the interviewees concern the comparatively high prices of gastronomy and hotel services. In addition, some of the major tourist attractions are temporarily overcrowded with visitors during the mass tourism peaks of the summer season.

Discussion point

The economic benefits of urban tourism can be measured by the expenses of the travellers during their stay in the city. Develop feasible strategies to enhance the visitors to spend more money in Heidelberg.

11.7 Tourist mobility in Heidelberg

The Heidelberg visitor survey points out very clearly that walking and strolling around is a key activity of the travellers who tend to spend most of their time in the old town. This pattern was confirmed by pedestrian counting that was carried out by the Department of Geography, Heidelberg University. Figure 9 depicts an area of approximately one square kilometre which is situated in the eastern part of the old town that is shaped by a concentration of visitors and tourism functions. Drawing upon the work of Duhamel and Knafou (2007) we can identify this area as the 'Central Tourist District (CTD)' of Heidelberg. This part of the city is characterised by tiny historic streets and charming squares that offer a variety of tourism services and eat and drink places. The key tourism attractions include the Old bridge, Heidelberg castle and University square (Freytag, 2002).

The CTD is limited to the north by the Old bridge, which primarily serves as a view point and lost its traditional function as the major gateway to the city. On warm and sunny days of summer roughly 2,000 visitors enter the bridge at the southern bridge head, but only five per cent of them cross the entire bridge and move on beyond the northern bridge head. All the other pedestrians step on the bridge and then return to the old town. They simply use the bridge as a view point and visitor attraction. The eastern demarcation of the CTD

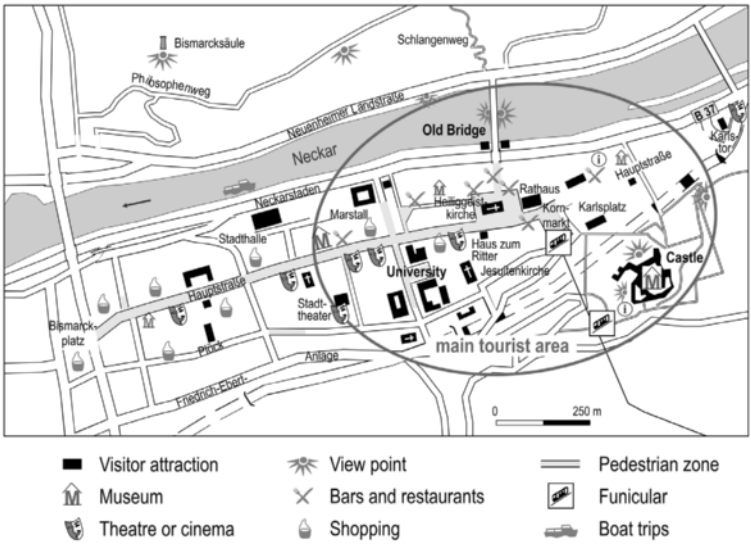

Fig. 9 Spatial concentration of tourist activities in the old town of Heidelberg (Source: modified after Freytag (2002, p. 216))

can be identified at Karlsplatz, the southern CTD limits are at the edge of the castle and its gardens, and to the west the CTD extends to Theaterplatz, where the pedestrian zone of Hauptstrasse starts to become more shopping-oriented and less dominated by tourism use. Approaching to Bismarckplatz the functional pattern of Hauptstrasse mainly consists of department stores and boutiques.

In summer 2008, the Department of Geography, Heidelberg University, conducted a pilot study on inner-city tourist mobility that was assessed by GPS loggers and subsequent face-to-face interviews of 200 day-visitors in Heidelberg. The GPS devices were distributed to incoming visitors at the local tourist information next to the central railway station. The interviews were conducted at the end of the stay, when the participants returned the GPS loggers at the tourist information. A basic analysis of the collected spatial mobility data reveals that almost all the day-visitors, who participated in the pilot study, went straight to the old town. The Hauptstrasse can be identified as a key mobility axis. Moreover, we can observe that the visitors tend to walk more slowly and spend more time in the eastern part of the old town. This pattern matches perfectly well with the concept of the Central Tourist District (see Figure 9). The tourism hot spots that are revealed by the visitor tracking include Heidelberg castle, Marktplatz located at the heart of the eastern old town, the Old bridge, and the public transport hub of Bismarckplatz at the western edge of the old town.

11.8 Conclusions

As a major urban tourism destination Heidelberg experienced a moderate growth of accommodation facilities and registered bednights during the past few years. A decline in Japanese overnight visitors that started in the second half of the 1990s was compensated by an ongoing increase of travellers from Germany and several European countries, notably the UK, Spain, Switzerland and the Netherlands. Neither the fear for global terrorist attacks nor the signs of upcoming economic crises significantly reduced the number of incoming visitors in Heidelberg. The development of the tourism destination corresponds fairly well with the strategic goals of the local agenda for sustainable tourism that was established in 1993.

Taking a closer look at the visitors and their tourism practices we can observe an increasing importance of the internet for gathering information and booking activities. This trend not only applies to the travel preparations, but it also becomes more and more common during the stay in the city. Visitors are closely connected with the virtual world of the internet and they use their mobile phones, SMS and e-mail communication to keep in touch with people in other places. Consequently, many tourists do no longer tend to escape from everyday life during their trip, but they rather integrate their everyday life in tourism practices and vice versa. Spatial and temporal distances from the work and home environment, which traditionally could be seen as key characteristics of leisure tourism, tend to be reduced or even abolished by the use of modern information and communication technologies.

Discussion point

Heidelberg is a well established destination in German city tourism. Make recommendations for tourism marketing strategies to be implemented in Heidelberg during the next decade.

The visitor activities to be observed in Heidelberg seem to be rather ordinary and show a very high level of spatial concentration. The travellers spend most of their time in the east-

ern part of the old town. They stroll around the visitor attractions, do shopping and sit in cafés or restaurants. Apart from the feeling to be surrounded by the setting of an old university town with tiny little streets and historic buildings, the travellers do not seem to be interested in more place-specific encounters and activities. On the contrary, the majority of the interviewees in the Heidelberg visitor survey state that they only spend a few hours in the city before moving on to another destination. This comes out very clearly in the inner-city spatial mobility pattern of day-visitors in Heidelberg. They are heading directly for the Central Tourist District in the old town and do not really come in touch with other parts of the city.

A perspective for future tourism development in Heidelberg can aim at cautiously integrating several parts of the city and its beautiful surroundings in a comprehensive tourism concept. This would allow to keep day-visitors concentrated in the Central Tourist District of the old town and, at the same time, let the tourism destination become more diverse and appealing for repeat visitors and overnight travellers. Being considered a city with high quality of life, Heidelberg disposes of charming urban quarters erected in Wilhelminian architecture of the late 19th and early 20th centuries, such as Weststadt, Neuenheim and Handschuhsheim. The river banks of the Neckar, the Philosophers' walk and numerous hiking trails in the Odenwald offer a great potential for tourism and leisure activities. Moreover, Heidelberg University with its student life and ongoing research activities could be given a more prominent place within tourism marketing. This would mean to encourage the travellers to attend public lectures and to considerably enlarge the existing Heidelberg University museum. Lastly, the local population needs to be very much integrated in tourism development and marketing. Since personal recommendations are the most convincing argument to visit a tourism destination, it is extremely important that the inhabitants perceive their city as an attractive place for tourism and leisure activities. The local population can widely contribute to successful tourism marketing if they encourage their friends and relatives to come to Heidelberg and to enjoy the city and its surroundings.

It can be assumed that the actual growth of European city tourism will hold on for the next few years. A general increase of mobility due to leisure and business travel gives tourism a more and more important place in the local economy. At the same time, we can observe an increasing interurban competition. Consequently, a main aim for tourism destinations consists in developing and successfully marketing specific local tourism profiles. On the one hand, it is necessary to be alert of overall trends and changes in urban tourism in order to rapidly adjust the local marketing and management strategies. On the other hand, local decision-makers should use the existing room for manoeuvre to implement innovative strategies and to stress specific strong points to successfully promote their tourism destination.

Web sites of interest

www.heidelberg.de – The official website of the city of Heidelberg
www.heidelberg-marketing.de – The website of Heidelberg Marketing GmbH
www.heidelberg-marketing.de/content/e566/index_eng.html – Heidelberg webcam showing the castle and the old town seen from the banks of the river Neckar
www.heidelberg-mobil.de – Heidelberg mobil offering personalised virtual tour guides

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Review questions

(1) What type of image serves as the basis for Heidelberg as a particularly successful destination for attracting long haul travellers from overseas?
(2) Since the mid 1990s the bednights of Japanese visitors considerably decreased in Heidelberg. What are the main reasons for this ongoing trend?
(3) More and more travellers use internet services during their stay in Heidelberg. How can tourism professionals take advantage from innovations in the field of information and communication technologies?
(4) Heidelberg is shaped by a spatial concentration of tourism in the old town. What are the main advantages and inconveniences of this usage pattern?
(5) A very large proportion of the visitors in Heidelberg are day-visitors. What are the underlying reasons? What are the major economic and organisational consequences of this situation which is common to many other destinations in urban tourism?

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Perceived Authenticity and the Museum Experience

12

Claudia Krösbacher and Josef A. Mazanec

12.1 Purpose and objective

The purpose of this Chapter is twofold. At conceptual level it introduces new explanatory constructs of perceived and experienced authenticity into modelling museum visitor satisfaction. Although a few studies have attempted to tackle the issue of authenticity not only theoretically but also empirically the experience of authenticity still lacks empirical investigation. The aim of this research was to measure the visitor experience of the Sisi Museum with a special focus on authenticity.

On methodological level this Chapter demonstrates how Structural Equation Modelling (SEM) should be practised in full agreement with elementary philosophy of science principles. Exploratory and inferential parts of the analysis are meticulously separated. There is no parallel tinkering with modification indices and other fit-enhancing instruments for model improvement. No model fitting and testing is executed in parallel with the very same data. Four subsequent working steps are presented: Step (i) elaborates a conceptual model of museum visitor satisfaction in a theory-guided manner. Step (ii) empirically tests this 'original' model with the first half of a random-split sample. Step (ii) is inferential. Thereby, we learn–what occurs in the vast majority of cases, but is suppressed by publication bias–that the model does not fit. Step (iii) applies Inferred Causation Theory to derive new hypotheses about the constructs included in the original model; the newly generated hypotheses are evaluated and modified in the light of past findings and service quality/satisfaction theory. The model fitting step (iii) is exploratory. It repeatedly exposes tentative changes in the model structure to the data of the analysis sample. The exploratory results are channelled into an improved 'final' model. Step (iv) again is inferential. It subjects the 'final' model to fresh hold-out data reserved from the master sample and also to sample data from a different cultural attraction and city. Consequently, it is entirely justified to state that the revised model has been empirically examined and the findings may claim out-of-sample significance.

12.2 Literature review

Authenticity is a term originating from the Greek term "authentes" which means originator or creator. By definition, something that is authentic is genuine, real or true in substance

as opposed to something imaginary, imitated, simulated or forged. In everyday language something that is authentic is often associated with being reliable and believable. With respect to an individual, to be authentic means to be true to one's own personality. Due to its complex nature the term 'authenticity' has been used differently by scientists from various disciplines resulting in a somewhat ambiguous meaning (Golomb, 1995).

The issue of authenticity has been investigated in different contexts, dimensions, and from different perspectives (supplier versus tourist). Table 1 provides an overview of studies concerning perceptions of authenticity and the authentic experience. As opposed to tangible forms, such as presentations of historical districts and cultural quarters, museums and heritage attractions, souvenirs, and themed bars and restaurants, ideas of authenticity have also been explored with respect to intangible forms of tourism products such as cultural performances and historical re-enactments. A further dimension of authenticity in tourism is of interpersonal nature and concerns the host-guest relationship and service encounters. Authenticity, however, is not bound to perceptions of tangible and intangible forms of tourism products or relationships between people; it also includes experiences resulting from participation in tourism activities such as dancing, hiking or pilgrimage.

The beginnings of the authenticity debate in tourism can be traced back to Boorstin (1964) and MacCannell (1976). With a critical voice, Boorstin (1964) argues that mass tourism commodifies cultures and generates 'pseudo-events', i. e. homogenised and standardised experiences in contrived tourist attractions. MacCannell (1973) noticed the everywhere appearance of 'touristic space'. By using such examples as the New York Stock Exchange and Disneyland he tried to demonstrate how more or less purposefully the display is worked up for sightseers. He approached the same facts as in Boorstin's studies deploying Goffman's (1959) concept of 'front versus back region'. For him, host populations, often bombarded with huge numbers of tourists, create back stage areas which they try to protect from the tourist gaze. For MacCannell (1973, p. 591) this division into a front stage, which is purposely set up for tourists, and a back stage entails that tourists desire to explore back regions for they are viewed as socially important places and taken to be intimate and more "real". The answer to tourists' fascination of looking behind the curtains has been that fronts are often decorated with reminders of back-regions to create a sense of "real". This, however, entails some mystification, often a 'strained truthfulness' or a 'little lie' as MacCannell (1973, p. 591) put it. Therefore, what tourists get presented at the 'front' and 'what is taken to be real might, in fact be a show (…)' (ibid., p. 593) – a 'staged authenticity' which differs from the real world behind it.

Though Boorstin and MacCannell have initiated the debate over authenticity, their views have been questioned by other authors (e. g. Moscardo and Pearce, 1986; Cohen, 1988; Bruner, 1989; Urry, 1990; Wang, 1999; Goulding, 2000; Jamal and Hill, 2002) because the concept of authenticity is seen to have much broader connotation. Wang (1999) as well as Jamal and Hill (2002) argue that in MacCannell's work the relationship between the authentic object and the authentic experience remains vague. MacCannell and Boorstin applied an objectivist and museum linked conception of authenticity when they referred to 'pseudo-events' or 'staged authenticity' and therefore have not captured the complexity of tourist experiences (Wang, 1999). Nevertheless, MacCannell's concept of 'staged authenticity' has up until today not lost in significance as staging has in many places been brought to an extreme where, to put it in Boorstin's (1964) words, 'the stage or the paramount copy can outshine the original' (p. 107). Today, we live in a world of 'hyper-reality' (Eco, 1998), in which authentic and inauthentic are no longer

Table 1 Overview of authenticity investigations

Topic	Authors
Destination	Graham, 2001; Kontogeorgopoulos, 2003; Mehmetoglu and Olsen, 2003; Damer, 2004; Tasci and Knutson, 2004; Yeoman, Brass and McMahon-Beattie, 2007
Presentations of historical districts and cultural quarters	Vesey and Dimanche, 2003; Naoi, 2004
Folk villages	Feifan Xie and Wall, 2003; Wang, 2007; Cole, 2007
Heritage tourism	Waitt, 2000; Halewood and Hannam, 2001; Chhabra, Healy and Sills, 2003
Heritage attractions	Handler and Saxton, 1988; Bruner, 1994; DeLyser, 1999; McIntosh and Prentice, 1999; Goulding, 2000; Boyd, 2002
Museums	Chhabra, 2008
Literature and literary tourism sites	Cohen-Hattab and Kerber, 2004; Herbert, 2001; Fawcett and Cormack, 2001
Historic theme parks	Moscardo and Pearce, 1986; Halewood and Hannam, 2001
Crafts and souvenirs	Littrell, Anderson and Brown, 1993; Asplet and Cooper, 2000; Medina, 2003; Revilla and Dodd, 2003
Accommodation	Salamone, 1997
Themed restaurants and bars	Lego et al., 2002
Food	Lu and Fine, 1995; Hughes, 1995
Performances and historical re-enactments	Crang, 1996; Bagnall, 2003; Chhabra, Healy and Sills, 2003; Kim and Jamal, 2007
Heritage festivals	Feifan Xie, 2004
Traditional music	Stevenson, 2003; Knox, 2008
Dance	Daniel, 1996
Pilgrimage	Belhassen, Caton and Stewart, 2008
Host-guest relationship/service encounter	Grandey et al., 2005

asymmetric counter-concepts (Mehmetoglu and Olsen, 2003).

In opposition to modernists, constructivists deny an objective reality that can be the standard against which to assess authenticity (Reisinger and Steiner, 2006). They regard authenticity as a socially constructed interpretation of the genuineness of observable things rather than an immanent feature of objects. For constructivists authenticity of an object is built depending on a number of factors such as context, ideology, expectations, and time (Reisinger and Steiner, 2006). A general constructivist perspective is applied by Cohen (1988) and Bruner (1994). Cohen (1998) supports the idea that authenticity is negotiable. This implies that what is taken as authentic is established in and through the process of negotiation. Cohen suggests that authenticity is a 'socially constructed concept and its social (as against philosophical) connotation, is therefore, not given (…)' (1988, p. 374). Furthermore, Cohen

(1988) points out that tourists and intellectuals might entertain different concepts of authenticity. For him the latter appear to apply more rigorous criteria than do ordinary members of the travelling public. In a similar vein, Bruner (1994) claims that ideas of authenticity are multilayered and apprehended differently by different groups. Hence, people hold different concepts of authenticity, i. e. they have different understandings as to what can be regarded as authentic or not.

Wang (1999) enriched the authenticity debate in tourism by providing an overall framework and emphasising the authentic experience. Selwyn's (1996) and Brown's (1996) notions of authenticity provided the basis for Wang's concept of 'existential authenticity' by which he claims to explain a wider spectrum of tourist experiences than the conventional concept of authenticity does. Selwyn (1996) differentiates between 'hot authenticity' – expressing the emotional experience, the feeling of the 'real self' – and 'cool authenticity' – expressing the experience of a 'real world'. The distinction between the 'authenticity of toured objects' and the 'authentic experience' is crucial for Wang (1999) for introducing 'existential authenticity' which he views as an alternative source of authentic experiences. Wang (1999) suggests the following three types of authenticity in tourist experiences: (i) objective authenticity; (ii) constructive or symbolic authenticity; and (iii) existential authenticity which will be elaborated in the following.

(i) Objective authenticity refers to the authenticity of the originals such as the toured objects. An absolute and objective criterion is used to measure authenticity. The authentic experience is caused by the recognition of the toured objects as authentic (Wang, 1999, p. 351).

(ii) Constructive authenticity refers to the authenticity projected onto toured objects by tourists or tourism producers in terms of their imagery, expectations, preferences, beliefs, or powers (Wang, 1999, p. 352). The key point here is that there are different perspectives of authenticity of the same object.

(iii) Existential authenticity refers to the feeling of the authentic self of the tourist activated by tourist activities (Wang, 1999, p. 351). Within existential authenticity Wang (1999) further differentiates between 'intra-personal authenticity' and 'inter-personal authenticity' where the former refers to bodily feelings and self-making and the latter to social authenticity and the collective sense of self.

Discussion point

Judging by the divergent opinions addressed in the literature survey, which concept of authenticity do you consider being appropriate for a historical museum?

12.3 Conceptual model and empirical test

The aim of this study was to develop a conceptual model that combines constructs for measuring satisfaction with sight attributes and sight authenticity, experience dimensions, and satisfaction with the sight. Furthermore, visitors' general idea of authenticity and previous knowledge about the sight were identified as important constructs to be included. The twelve constructs were unified and transformed into a causal model as illustrated in the path diagram of Figure 2.

The study was applied to analysing visitor's experience of the Sisi Museum, one of Vienna's most frequently visited heritage attractions, which can be jointly visited with the Imperial Silver Collection and the Imperial Apartments of Emperor Franz-Josef and his

Table 2 Operationalisation of visitors' Concept of Authenticity

1	I accept changes to the original site and modern parts as long as it looks credible.
2	Reproductions of objects are legitimate.
3	Reproductions of objects are as appealing to me as originals.
4	The commercial/business aspect of a museum is legitimate.

Table 3 Operationalisation of museum attributes

1	Tangibles	1. The design of the museum is aesthetically pleasing. 2. There are a lot of unique objects to look at. 3. The exhibitions' objects are arranged in an appealing way. 4. There is a special ambience in this museum.
2	Information/Communication	5. Signs/maps facilitate orientation within the museum. 6. The text panels are visually appealing and the scripts are easily readable. 7. Text panels provide an adequate depth of information. 8. Information on text panels is easy to follow.
3	Responsiveness	9. Staff is helpful and courteous. 10. The number of other visitors is acceptable. 11. There are enough seating possibilities in the museum.
4	Multimedia (Technical quality/ Communication/ Information)	12. The audio-guide worked properly. 13. The audio-guide is easy to use. 14. Information is easy to follow. 15. Information is detailed enough.
5	Perceived Authenticity	16. Reproductions are well/faithfully done. 17. The modern-type presentation of museum objects is credible. 18. Interpretation of history/objects is reliable. 19. Commercial/business aspect of the museum is unobtrusive.

wife Sisi (Elisabeth). Data were collected over a three weeks period in November 2007. Mplus 5.0 – Bengt Muthén's second-generation latent variable modelling software package (Muthén and Muthén, 2004) – was utilised for data analysis.

The Knowledge construct was operationalised by visitors' previous experiences with the sight and similar attractions as well as their level of knowledge (self-assessed knowledge) regarding existing themes of the museum (Silver Collection, Sisi and her life, Imperial Apartments). For previous experiences a simple yes/no scale was used whereas for knowledge a scale leading from "very little knowledge" to "some knowledge" and "extensive knowledge" was used.

Visitors' general Concept of Authenticity with respect to cultural attractions, i. e. what authenticity they demand, was operationalised by the items listed in Table 2.

Visitor's satisfaction with sight attributes was informed by Parasuraman et al.'s service quality dimensions and Grönroos' (1982) 'technical quality' dimension. Within sight attributes the Perceived Authenticity of the sight was included and operationalised as shown in Table 3.

Based on Wang's (1999) work the authentic experience was divided into experienced Object, Personal, and Social Authenticity. Figure 1 outlines the operationalisation of these concepts. Experienced Object Authenticity was operationalised by four items including

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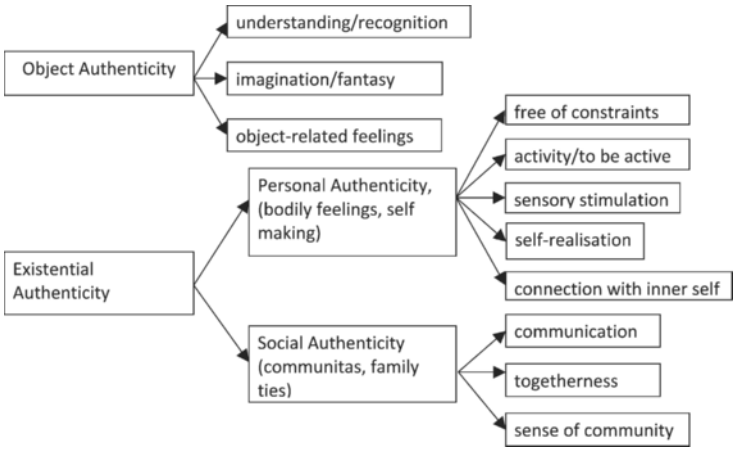

Fig. 1 Operationalisation of the Authentic Experience

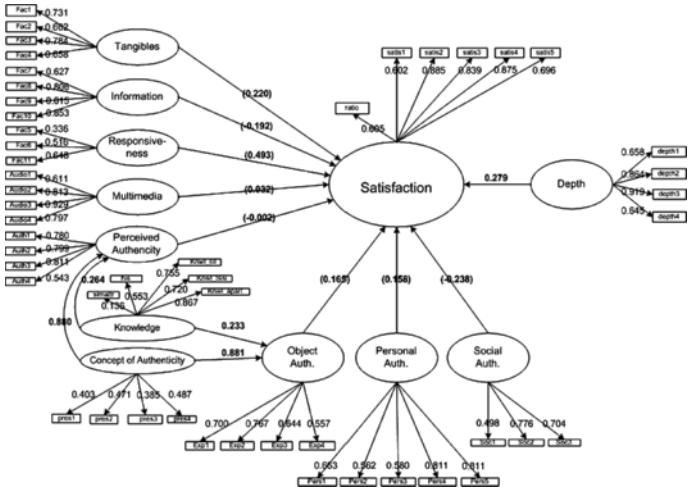

Fig. 2 Starting model with estimates

"understanding", "imagination/fantasy", and two items on "object-related feelings" (i. e. being amazed, being emotionally touched). Experienced Personal Authenticity included five items and experienced Social Authenticity three items as outlined in Figure 1.

Depth of experience was informed by Csikszentmihalyi's (1990) measurements of the flow experience. Emphasis was placed on the items looking at the extent to which visitors are immersed in the experience, loose the sense of time, and forget everything around them. Apart from these flow items a further item which focuses on the depth of the connection with the sight and people who lived there was included.

Finally, for measuring overall Satisfaction a reduced version of Oliver's (1997) 'universal' scale of satisfaction was applied. The original full scale included twelve domains which was reduced to five items and successfully applied by Bigné and Andreu (2004) in a study on satisfaction with theme park experiences and museums. The five items included "overall performance", "satisfaction anchor", "success attribution", "positive affect", and "success at-

tribution". Furthermore, an item on price/performance ratio was added.

For all constructs except previous Knowledge a five-point Likert scale was used ranging from 1 "strongly agree" to 5 "strongly disagree".

Question

The starting model stipulates five constructs that deal with authenticity. What are the reasons for decomposing the authenticity concept and differentiating between several instantiations of authenticity?

12.4 Exploring alternative models

12.4.1 Generating hypotheses with Inferred Causation tools

Inferred Causation researchers seek to reveal the conditions for safe causal inference from non-experimental data (Spirtes, Glymour and Scheines, 2000) and organise them in an axiomatic framework (Pearl, 2001). One of their instruments, the Build module of the Tetrad system (Spirtes et al., 1996) is employed for generating new hypotheses within the conceptual framework of the original model. As the measurement subsystems did not raise concerns the search is restricted to analysing potential relationships among the latents. Therefore, the latent scores are input for the inferred causation exercise. They get estimated by simultaneous confirmatory factor analyses for all constructs without specifying any structural relationships. Build/Tetrad typically works in a research environment of scarce and incomplete a-priori knowledge: The structural part of the original model is made up of twelve reflective constructs. Only one piece of prior causal knowledge is fed into the Tetrad analysis. As Satisfaction is considered a dependent-only construct all paths originating from this variable are forbidden. Satisfaction becomes a tier 2 construct in the causal chain. The Build algorithm is not permitted to retro-direct any causal path from Satisfaction to elsewhere (except its reflective indicators). All the other constructs are assigned to tier 1 and hence allowed to impact on each other as well as on Satisfaction.

Based on the data and the rudimentary prior knowledge the Build procedure reconstructs the causal pattern characterising the class of all models consistent with this input. Three additional assumptions are needed. The first one claims Causal Sufficiency for the twelve variables. This means that no association of any pair of variables is expected to be caused by an unmeasured third one. Given the large number of twelve variables and the fact that we are already operating with latents it seems fair to assume that no more secondary-level constructs are required. Two more but much weaker assumptions must be added for the Build procedure to deduce the causal pattern from the (conditional) independence relationships hidden in the data. Both the Markov and Faithfulness conditions are not very restrictive. The Markov condition (Spirtes, Glymour and Scheines, 2000; Pearl, 2001) postulates that each variable V in the causal graph is independent of any set of variables (not including the descendants of V) conditional on V's parents. In simple terms this means that one does not need to know the indirect ancestors of a variable if one knows its direct causes. E. g. learning something about X in the cause-effect chain $X \rightarrow Y \rightarrow Z$ when one already knows about Y does not convey further knowledge about Z. The Markov condition is a common requirement. It underlies all recursive structural equation models, which is the large majority of SEMs found in literature (Bollen, 1989). Finally, Faithfulness (or Stability in the

terminology of Pearl, 2001) is even less restrictive. It implies that the conditional independence relationships suggested in the graph stay invariant to changes in the parameters of the model. This is a necessary precaution against the (conditional) independence relationships being fulfilled for just a very special set of parameter values.

The Build routine implements a so-called causal detection algorithm (such as the PC and FCI procedures outlined in Spirtes, Glymour and Scheines, 2000 and Pearl, 2001). Table 4 itemises the reconstructed class of causal graphs entailing the set of (conditional) independence relationships prevailing in the scores data ($p = .05$). For 13 out of the 21 relationships the directional orientation is unambiguous; five may be bi-directed and three undirected or the direction cannot be verified. The data-driven findings must now become subject to conceptual evaluation. Five paths, i. e. #5, #9, #10, #16, and #21, already specified in the original model are confirmed. Asserting an indirect influence of Information on Satisfaction rather than a direct one is a valuable proposal. An effect of Information propagated through one or more Authenticity constructs is likely to be strengthened. The same applies to Multimedia. Also, the role of the Depth construct needs rethinking. It seems to be associated with the experience-related Authenticity constructs much more than with the technical Multimedia facilities as originally hypothesised. The possible relationships within the set of the service-quality inspired constructs (Tangibles, Information, and Responsiveness) and among the Authenticity variables will be examined in separate estimation runs with the analysis subsample.

A series of exploratory estimation runs (using Mplus; Muthén and Muthén, 2004) ends up in the revised structural model outlined in Figure 3. The diagram features the standardised path coefficients with standard errors in parentheses. The coefficients of the measurement models (not shown) are all significant ($p < .01$). Modification indices were considered for introducing correlated error terms within one and the same measurement model only. Multimedia, Concept of Authenticity, Perceived Authenticity, Depth, and Satisfaction each now produce one pair of error-correlated indicators. Among the five indicators of Personal Authenticity two pairs have correlated errors. No correlated error terms are allowed for indicators dependent on different latents. The intercorrelations within the set of exogenous constructs are free and their estimates ranging between .32 and .85 are all significant ($p < .01$).

Table 4 Potential structural relationships

#	Path
1	Tangibles → Responsiveness
2	Information → Object Authenticity
3	Tangibles → Object Authenticity
4	Tangibles ↔ Concept of Authenticity
5	Tangibles → Satisfaction
6	Responsiveness – Information
7	Responsiveness → Multimedia
8	Responsiveness → Perceived Authenticity
9	Responsiveness → Satisfaction
10	Multimedia → Perceived Authenticity
11	Multimedia ↔ Concept of Authenticity
12	Concept of Authenticity ↔ Perceived Authenticity
13	Personal Authenticity → Object Authenticity
14	Concept of Authenticity ↔ Object Authenticity
15	Object Authenticity ↔ Depth
16	Object Authenticity → Satisfaction
17	Personal Authenticity – Social Authenticity
18	Personal Authenticity – Depth
19	Social Authenticity → Depth
20	Knowledge → Concept of Authenticity
21	Depth → Satisfaction

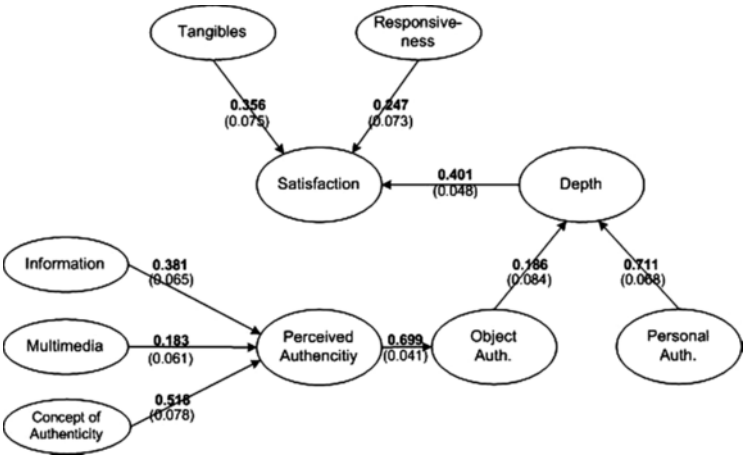

Fig. 3 The revised Authenticity Model (structural relationships)

Two constructs, Knowledge and Social Authenticity, had to be removed. In those cases where two modelling alternatives showed negligible differences in the goodness-of-fit criteria (BIC, RMSEA) Occam's Razor (or the Law of Parsimony) cut in and the simpler system was adopted. As an example imagine the decision regarding Object Authenticity. It might have an indirect–Depth mediated–effect only or an additional direct influence on Satisfaction. The overall fit indicators CFI, TLI, and RMSEA amount to .888, .877, and .056. The variance explained for the major endogenous construct Satisfaction reaches .72; the *R* squares for Perceived Authenticity, Object Authenticity, and Depth amount to .78, .49, and .62.

12.4.2 Testing the revised Authenticity Model with the hold-out sample

The crucial test of the revised model relies on the validation sample comprising 391 respondents. The values of the overall goodness-of-fit criteria confirm the values obtained for the final model with the analysis sample. The CFI (.871) and the Tucker-Lewis Index (.859) fail to exceed a commonly desired .9 level. But, with .059 and below .08 the RMSEA is satisfactory. Considering the recent doubts expressed vis-à-vis general cut-off criteria and substantiated in Monte Carlo simulation (Xitao and Sivo, 2007) these values are not overemphasised. 66% variance explained for the major dependent construct Satisfaction is encouraging if assessed with a view on comparable results of numerous satisfaction studies in tourism and leisure and the other service industries. The same applies to the newly introduced authenticity variables (Perceived Authenticity: 73%; experienced Object Authenticity: 44%) and the Depth construct (65%). All measurement models and the intercorrelations assumed among exogenous constructs (see Table 5) are confirmed ($p < .01$). The validation run supports the error-term correlations found in the exploratory analyses (six with $p < .01$, two with $p < .05$). All structural coefficients are statistically significant ($p < .01$) except the weakest relationship identified in the analysis sample, i. e. the directed path from Responsiveness to Satisfaction.

Figure 4 deploys the standardised path coefficients with their standard errors in parentheses. All are highly significant with the exception of the effect of Responsiveness. Think of Tangibles as an orthodox example of a service quality component acting on visitor satisfaction. Relative to the strength of this direct influence the experience-based impact of Depth

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Fig. 4 Validation results

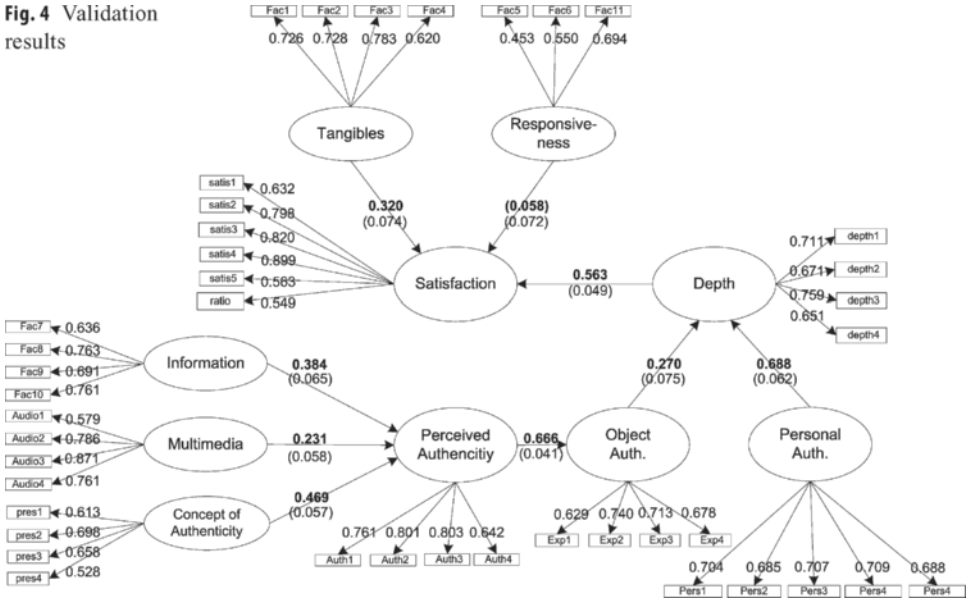

Table 5 Inter-correlations among exogenous constructs

	Resp.	Inform.	Multim.	C. of Auth.	Pers. Auth.
Tangibles	.64	.62	.57	.47	.58
Responsiveness		.80	.55	.50	.45
Information			.55	.38	.47
Multimedia				.31	.33
Concept of Authenticity					.39

turns out to be particularly important. Further, and at least from a historic museum's point of view, the role of authentic impression becomes obvious. There is fairly strong support for assuming an intricate cause-effect sequence translating high quality information display–from traditional plus multimedia sources–into perceived authenticity and its experiential consequences when being exposed to the artefacts on exhibition. Visitors seemingly have normative beliefs about what authenticity means (Concept of Authenticity) and use it in their judgments (Perceived Authenticity). Personal Authenticity is equivalent to an intense feeling of immersion and significantly promotes the state of Depth. The function of Social Authenticity, originally conceived as an inhibitor and later withdrawn from the model, is not yet well understood. It remains unclear whether it contributes negatively or positively to Depth if not to Satisfaction directly.

12.4.3 One step toward generalisation: Another attraction in another city

Testing the revised Authenticity Model with the hold-out portion of the randomly split Sisi sample transformed the hitherto exploratory analysis into an exercise of inferential statis-

tics. However, it does not yet expose the system of authenticity hypotheses to an environment characterised by entirely new application conditions. This will now be done. The new setting for applying the Authenticity Model differs in two major respects: The type of attraction changes from a historic museum to a visitor centre combining heritage with contemporary aspects; the scene moves from central Europe (Vienna) to western Europe (Dublin); the structure of the visitors sample in terms of nationalities is totally different as the majority of visitors to the Viennese sight came from Germany and other neighbouring countries such as Switzerland and Italy whereas visitors to the Dublin sight originated mainly from neighbouring Great Britain as well as the United States and Canada. The new test site is The GUINNESS STOREHOUSE situated in Smithfield Village about 20 minutes outside the city centre is – and among other features – famous for its multi-storey building constructed in the famous Chicago school style. The STOREHOUSE was shut down in 1988 and later converted into a visitor centre. Fieldwork with an identical questionnaire occurred in February 2008 yielding sample data for 484 respondents.

The model specification outlined in Figure 4 was subjected to parameter estimation with the Guinness data. Tables 6 and 7 summarise the results for the measurement and structural submodels. The overall fit criteria are on the same level as the values for the Sisi Museum application (CFI = .914; TLI = .906; RMSEA = .056).

In the structural model all path coefficients and the intercorrelations among the exogenous variables are significant on level $p < .05$. Of course, one must not expect that the strengths of the relationships follow the same pattern as in the Sisi case study. The overall structure of directed paths is fully recovered. The Authenticity Model appears to offer some notable amount of being generalised, at least for a class of historic museums and cultural heritage sites.

Table 6 Measurement submodels for The GUINNESS STOREHOUSE application

Constructs	Indicators (cf. Fig. 4)	Standardised coefficients (std. errors)
Tangibles	Fac1–4	.792 (.020) .808 (.018) .877 (.014) .772 (.021)
Responsiveness	Fac5, 6, 11	.268 (.044) .624 (.031) .702 (.027)
Information	Fac7–10	.781 (.020) .821 (.018) .823 (.019) .848 (.016)
Multimedia	Audio1–4	.741 (.023) .829 (.016) .937 (.010) .878 (.013)
Concept of Authenticity	pres1–4	.708 (.031) .784 (.027) .644 (.032) .771 (.025)
Perceived Auth.	Auth1–4	.865 (.014) .873 (.014) .862 (.015) .736 (.023)
Object Auth.	Exp1–4	.805 (.022) .812 (.021) .820 (.021) .555 (.037)
Personal Auth.	Pers1–5	.507 (.042) .644 (.035) .821 (.027) .679 (.033) .605 (.037)
Depth	depth1–4	.653 (.030) .847 (.023) .889 (.020) .772 (.023)
Satisfaction	satis1–5, ratio	.570 (.034) .875 (.015) .829 (.018) .902 (.012) .738 (.024) .528 (.036)

Table 7 Structural model for The GUINNESS STOREHOUSE application (standardised path coefficients and std. errors)

Row (Col.	Perceived Auth.	Object Auth.	Depth	Satisfaction
Tangibles				.241 (.120)
Responsiveness				.501 (.113)
Information	.469 (.054)			
Multimedia	.197 (.055)			
Concept of Authenticity	.387 (.040)			
Perceived Auth.		.741 (.028)		
Object Auth.			.262 (.053)	
Personal Auth.			.584 (.048)	
Depth				.178 (.038)
R^2	.82	.55	.49	.67

12.5 Conclusions

Regarding the role of perceived authenticity, many visitor attractions of late, which have been mushrooming all over the world, emphasise the "hyperreal" and simulations. For this type of attractions, object authenticity is no longer an issue. However, it can be argued that authenticity still matters (Belhassen and Caton, 2006) – at least in historical museums and related institutions. It is therefore recommended that decision makers in charge of managing a historical museum or cultural heritage site monitor visitors' perceived authenticity, its transformation into depth of experience, and its influence on visitor satisfaction. So far, satisfaction research concentrated mainly on tangible and intangible elements of various attractions largely ignoring experiential aspects of such visits. The combination of measuring visitors' satisfaction with sight attributes and experiential aspects can be taken as a promising basis for further modelling visitors' experiences and their influence on satisfaction in the attractions sector.

A major aim of this study was to measure the visitor experience with respect to authenticity based on Wang's (1999) differentiation. Experienced object and personal authenticity proved to be important concepts; however, the role of experienced social authenticity needs further investigation and validation through specific studies covering a wider scope of visitors' social interaction.

There is also an important lesson regarding methodology. A sample large enough for being randomly split into an analysis and a validation subsample greatly facilitates exploratory work without threatening inferential testing. Tourism research has seen a plethora of model fitting empirical studies where the authors at least implicitly, sometimes explicitly, claim to have confirmed an explanatory model. In most of these cases structural relationships are modified and/or the measuring instruments are calibrated with the same data set. The fundamental principles of inferential testing, however, require that new data are employed for validation. Otherwise the fitted model fully depends on the idiosyncrasies of the data utilised for exploratory modifications and refinements. The out-of-sample relevance remains questionable. Even the two subsamples of a split-half master sample are restricted to the same spatio-temporal data generating process. Success-

ful split-half validation does not yet warrant generalisability. Exposing the model to an application set-up with a number of slightly varied antecedent conditions is required to build confidence in its general usability.

Discussion case

(1) Choose one of the historical museums or cultural heritage sites of your home town that are popular among tourists.
(2) Do you think you will have to adjust the Authenticity Model to accommodate the specific needs of your application situation? Suggest changes and/or extensions in the set of latent constructs and their interrelationships.

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