

How Urban Sustainable Development Can Improve Tourism Attractiveness

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Abstract

■ This paper investigates the role of sustainable development in city tourism attractiveness. A tripartite theoretical model of tourism attractiveness was tested to verify the relevance of the economic, environmental, social and cultural aspects of urban sustainable development. The comparative analysis of Québec City and Bordeaux was based on visitors' perceptions established through a questionnaire survey conducted with 499 tourists in summer 2014. This analysis produced three main findings. First, four levels of city tourism attractiveness were revealed (context, belt, complementary attractions and nucleus) and variables related to the urban living environment stood out in importance. Second, visitors recognized four sustainable development dimensions, and proved most sensitive to cultural aspects, followed by environmental concerns. Third, the correlations between tourism attractiveness and sustainable development were stronger within the broader spheres of attractiveness. The study reveals that sustainability notions are most strongly internalized by tourists when tangibly reflected in the public space. By offering visitors new perspectives on urban living, sustainable development brings smart solutions to perpetuate the urban tourism industry while improving quality of life for residents.

Key Words:
Sustainable Development, Tourism Attractiveness,
Urban Tourism, Québec City, Bordeaux.

Resumen

■ Este artículo investiga el papel del desarrollo sostenible en el atractivo del turismo urbano. Se probó un modelo teórico tripartito de atractivo turístico para verificar la relevancia de los aspectos económicos, ambientales, sociales y culturales del desarrollo urbano sostenible. El análisis comparativo de la ciudad de Québec y Burdeos se basó en las percepciones de los visitantes establecidas a través de una encuesta realizada con 499 turistas en el verano de 2014. Este análisis arrojó tres conclusiones principales. Primero, se manifestaron cuatro niveles de atractivo para la ciudad (contexto, cinturón, atracciones complementarias y núcleos) y destacaron las variables relacionadas con el entorno urbano. En segundo lugar, los visitantes reconocieron cuatro dimensiones de desarrollo sostenible y demostraron ser más sensibles a los aspectos culturales, seguidos de las preocupaciones ambientales. En tercer lugar, las correlaciones entre el atractivo turístico y el desarrollo sostenible eran más fuertes dentro de las esferas más amplias del atractivo turístico. El estudio revela que las nociones de sostenibilidad están más fuertemente internalizadas por los turistas cuando se reflejan de manera tangible en el espacio público. Ofreciendo a los visitantes nuevas perspectivas sobre la vida urbana, el desarrollo sostenible brinda soluciones inteligentes para perpetuar la industria del turismo urbano al tiempo que mejora la calidad de vida de los residentes.

Palabras clave:
Desarrollo Sostenible, Atractivo Turístico, Turismo Urbano,
Ciudad De Québec, Burdeos.

Introduction

■ Simultaneously the main living spaces of the majority of the world's population (55%) and trendy tourist destinations (+ 14.2% bed-nights 2012-2016 in Europe), cities are evolving in a world marked by competition, in particular in the tourism sector (European Cities Marketing, 2016; Sassen, 2006; World Bank, 2017). Faced with the threat of climate change, policymakers and local actors are employing strategies to make their cities more livable, while at the same time taking into consideration their national and international reputations (Jan & Beesau, 2010; Law, 1992). Indeed, over the past twenty years in Québec and in France, there has been a redefinition of public policies oriented towards more sustainable urban development (Emelianoff, 2007a). This is reflected, for example, in the restructuring of public transit and in the renewal of public spaces (Kenworthy, 2006).

Beyond its ability to improve urban habitats, the notion of sustainable city raises questions regarding its potential for territorial differentiation, particularly in terms of tourism practices. Representing an important part of economic activities and generating various impacts, urban tourism requires multiple resources offered by the city (Edwards, Griffin, & Hayllar, 2008; Van den Berg & Braun, 1999). Visitors share the everyday life of citizens, occupy space, benefit from the facilities and use the various public and commercial services. But how is sustainable urban development perceived by tourists?

To date, some studies have combined sustainable development and urban tourism (Rigall-I-Torrent, 2008; Satterthwaite, 1997; Timur & Getz, 2008), but the literature on these themes still leaves many areas to explore (Ashworth & Page, 2011; Bramwell & Lane, 2008). Understanding the dynamics between these areas of research is the ambition and originality of this study's approach. As cities evolve towards sustainable development practices, what are the impacts on their tourism attractiveness? The specific areas questioned by this study were: 1) the recognition given by tourists to various attractions; 2) the consideration of the characteristics associated with the sustainable development of a city; and 3) the possible links between these themes. A theoretical model of tourism attractiveness was thus combined with the economic, environmental, social and cultural dimensions of sustainable development. Using a quantitative methodology, urban tourists from Québec City and Bordeaux were interviewed.

The next section will proceed with a review of the relevant literature and a presentation of the research objectives. In Section 3, the research methodology will be presented. Section 4 will present the results, which will then be analyzed in Section 5. A conclusion will close the paper.

Literature

Urban sustainable development

■ For several decades, sustainable development has been part of the redefinition of urban policies, reflecting a shift towards a new mode of urban development (Edwards et al., 2008; Emelianoff, 2007a). According to the Brundtland Report, this mode of development strives to meet the needs of present generations without compromising the ability to satisfy those of future generations (Brundtland, 1987).

An offshoot of sustainable development, the sustainable city aims to integrate the economic, environmental, social and cultural dimensions of the urban environment (A. Lévy, 2009; Veyret & Le Goix, 2011). It is based in particular on the Aalborg Charter, which recognizes the role of cities in sustainability (Charte d'Aalborg, 1994; Charte d'Aalborg +10, 2004). In order to preserve the resources, economic dynamism and identity of the city, actors assemble around a political project oriented towards the improvement of the quality of life of all the citizens, which mobilizes strategies related to density, social and functional diversity, public transport or natural areas (Emelianoff, 2007b; Keivani, 2010; Speirs, 2003). Beyond simply a fight against inconveniences, the sustainable city is committed to regaining public spaces, the presence of nature in the city, soft mobility, control of sprawl and participatory democracy (Theys & Emelianoff, 2001). Since the Rio Earth Summit in 1992, Agenda 21 has been a plan that proposes a transversal approach, establishing the actions to be implemented to achieve the chosen objectives (Emelianoff, 2005; Lazzeri & Moustier, 2008; Vlès, Clarimont, & Hatt, 2011). The common use of sustainable development indicators can serve as a signal to municipal governments, as well as priority orientations, sources of information and support for regional objectives (Li et al., 2009; Tanguay, Rajaonson, Lefebvre, & Lanoie, 2010).

Most often perceived as a search for balance between economic, social and environmental considerations, several researchers express the importance of examining sustainable development from the perspective of each of its components (Gibson & Hassan, 2005; Rogers, Jalal, & Boyd, 2008). Another conception approaches sustainable development as a hierarchy of poles: the environment is positioned as an essential condition, social development as an objective and the economy is the means to achieve it (Gendron & Revérêt, 2000; Sébastien & Brodhag, 2004). To these three dimensions, a fourth is added: the cultural aspect. This touches on identity, art and heritage, and is a crucial element in community building (Brault, 2009; A. Lévy, 2009; Runnalls, 2007). These dimensions, raised from the Brundtland report, are compatible and non-exclusive (Brundtland, 1987; J. Lévy, 2010).

If the notion of the sustainable city developed following the recognition of the limits of environmental and social solidarity, a conciliation challenge still lies in identifying resources that can offer international promotion without harming cultural, social and environmental heritage (Jan & Beesau, 2010; Laigle, 2007; Sassen, 1996). There is mounting recognition of the importance of sustainable development to ensure the competitiveness of the city (Balkyte & Tvaronavičiene, 2010; Poirot & Gérardin, 2010). This competitiveness is defined as the ability to succeed in the market, leading to a better quality of life for all by combining economic dynamism and social progress. The Organization for Economic Co-operation and Development (OECD) emphasizes the importance of international competition between urban environments (Kamal-Chaoui & Robert, 2009). As a result, several cities are moving towards this approach in order to become more attractive on a global scale (Camagni, 2002; Nijkamp, 2008; Van den Berg & Braun, 1999). Here, the term attractiveness represents the capacity of a territory to be chosen by an actor (citizen, investor or visitor) as the location of their activities (Poirot & Gérardin, 2010). In order to respond to the economic, environmental, social and cultural rationale behind the approach, it seems essential to bring together measures of territorial attractiveness and sustainable development (Deisting & Paumard, 2012; Musson, 2010). Focusing on tourism attractiveness in relation to sustainable urban development thus seems an interesting avenue of research.

Urban tourism

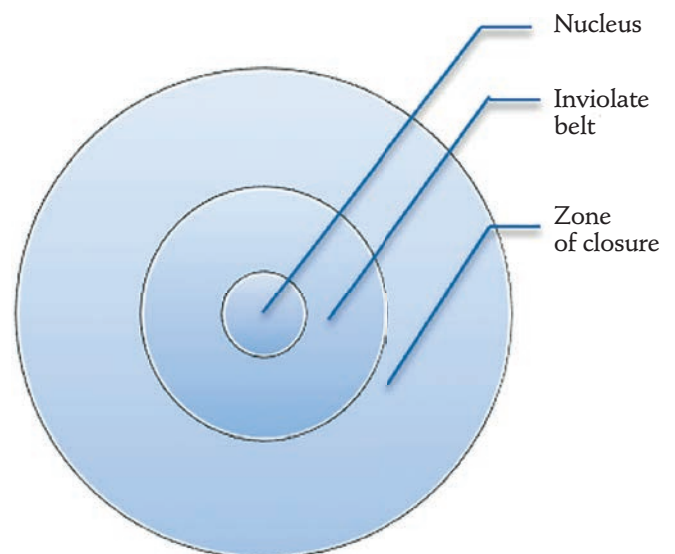
■ Urban tourism is a specific type of tourism that takes place in a city (Duhamel & Knafo, 2007; WTO, 2008). Metropolitan tourism is also discussed, referring to "the integration of tourist products in a metropolitan offer cemented by the lifestyle, the pace of the inhabitants and the atmosphere that one finds there" (Pilette & Kadri, 2005). The city can thus be "consumed" by citizens, tourists and day-trippers.

Urban tourism is distinguished from other categories of tourism, notably by the multiple motivations supporting the practice (Ashworth & Page, 2011; Blank & Petkonich, 1980; Pearce, 2001). These include visiting relatives, business and conventions, culture, outdoor activities, entertainment, sightseeing or shopping (Ashworth & Page, 2011; Blank & Petkonich, 1980; Law, 1992, 2002). In fact, much of the tourism experience is lived in the public space (Ashworth & Page, 2011). If globally, sustainable development can be part of the renewal strategies deployed by a city, the connection between urban planning and urban tourism appears necessary for harmonious and balanced development between residents and tourists (Laroche & Hermet, 2010). Bridging the two areas together can contribute to a better development of cities.

Several tourism authors have studied attractiveness to

understand how tourists are attracted to a destination (Gunn, 1997; Leiper, 1990; Lew, 1987). According to Lew (1987), tourism attractiveness is defined as the element of the destination that pulls the traveler away from their usual environment. From this perspective, Gunn (1997) approaches the spatial environment of the tourist attraction as three concentric disks (Figure 1). The "nucleus" is the *raison d'être* that attracts tourists. The "inviolable belt" zone represents the touristic setting. Finally, the "zone of closure" constitutes the broader context of attraction. For Crouch (2011), tourism attractiveness is based on the attributes of a destination and the perception of visitors. It is therefore through their eyes that one can better understand the attractiveness of a tourist site.

Figure 1 Tripartite model of tourism attractiveness



Source: Gunn (1997).

The attractiveness of a city consists of primary and secondary elements (Jansen-Verbeke, 1986). The former includes tourism resources and facilities that attract visitors (eg museums, historic buildings). These resources are generally the main objective of an urban tourism visit. The secondary elements are those that support these attractions and contribute to the tourism of the city (eg shops, accommodation). Additional aspects are also available to the tourist, such as parking spaces, information desks and signage (Jansen-Verbeke, 1986).

Some factors (pull and push) are known to influence the choice of vacation destination (Dann, 1981; Gnoth, 1997; Uysal & Jurowski, 1994). This study focuses on pull factors, a destination's external forces that encourage tourists to visit (Crompton, 1979; Van der Merwe, Slabbert, & Saayman,

2011). These include recreational equipment or historical attractions (Andreu, Bigné, & Cooper, 2001). Several cities are also relying on infrastructural improvement to develop tourism: pedestrian zones, built-up areas, unifying themes or tourist complexes (Hayllar, Griffin, & Edwards, 2008; Page, 1995).

Evidence of tourists' renewed conscience regarding the places they visit, eco-friendly travel is becoming more common (François-Lecompte, Prim-Allaz, & Durif, 2013; Lamic, 2008). Sustainable urban tourism is an ongoing development strategy that balances the current benefits of the tourism industry with future opportunities for the host community (Paskaleva-Shapira, 2007). If both urban and tourism initiatives are inevitably linked, it is important to better understand how tourism happens within the city to identify the important aspects of sustainable tourism (Vlès et al., 2011).

Sustainable development could help stimulate an authentic city experience and attract more visitors. Research shows that the environmental quality of a destination gives it a competitive edge (Cracolici & Nijkamp, 2009; Kelly, Williams, & Englund, 2007; Mihalič, 2000). It is also observed that tourists tend to prefer locations where tourism offerings meet eco-efficiency criteria, and that are willing to invest in environmental measures (Hedlund, 2011; Kelly et al., 2007; Miller, 2003). Since urban tourism is based on the attributes and characteristics of the area, and the tourism offering cannot be isolated from the environment in which it is located, a city's sustainability-related adaptation could be an essential condition of their tourism attractiveness (Edwards et al., 2008; Van den Berg & Braun, 1999).

Objectives

■ The urban context appears relevant for examining the impact of sustainability-related actions on the tourism attractiveness of a destination. The mere fact that "strolling" is urban visitors' main activity speaks volumes about the importance of the quality of the environment in which this tourism is happening (Vlès, 2008, 2010). Indeed, an integrated approach in public spaces seems best able to account for the priorities of sustainable tourism. A sustainable development approach could thus combine two objectives: the improvement of both the quality of urban life and the tourism attractiveness. Instead of seeing this mode of development as a constraint, public policy makers and industry players could recognize the opportunity to make tourism in the city viable in the long term. The goal is thus to evaluate visitors' recognition of sustainable urban development and understand its impact on the tourism offering.

The notion of sustainable development is gradually integrating into urban understanding, and is beginning to be associated in the literature with the tourism attractiveness

of a city (Lu & Nepal, 2009). The research to date has mainly focused on the link between the environment and tourism. Alternatively, this article aims to bridge the four dimensions of sustainable development and urban tourism attractiveness. Since sustainable development contributes to the competitiveness of a city (Balkyte & Tvaronavičiene, 2010) and an environmentally responsible destination can provide a better context for visiting tourists (Bojanic, 2011; Kelly et al., 2007; Mihalič, 2000), the general research question is: *what are the impacts of sustainable urban development on the tourism attractiveness of a city?*

Gunn's tripartite model provides a theoretical framework for understanding the role of sustainable development on the tourism attractiveness of the city (Gunn, 1997). Inspired by the elements of urban tourism, the cultural, physical and social attractions of the tourist city (eg historical monuments) make up the nucleus that attracts tourists (Donald, 1993; Jansen-Verbeke, 1986). The second level represents the framework surrounding these main attractions (Hayllar et al., 2008). This refers to the design and planning of places through which the tourist must pass to access the attractions. The third level is part of the larger context of the city, most notably exemplified by social and municipal services, as well as tourist support facilities such as accommodation, transport, shops and information services. The study therefore required the measurement of the three levels of attractiveness in order to then examine links with sustainable urban development.

Articulating the link between sustainable development and tourism attractiveness, three questions underpin this reflection. First, recognition of the city's attractions is questioned. Given that the literature distinguishes three levels of attractiveness (Gunn, 1997), it is important to understand the importance given by visitors to each of the circles, namely the nucleus attractions, the tourist belt and the urban context. Secondly, consideration of the sustainable development characteristics when choosing an urban destination is questioned. Since sustainable development is recognized as having four dimensions (Tanguay et al., 2010), it seems relevant to know whether tourists consider the various associated variables when choosing and planning their stays. Finally, the relations between each dimension of sustainable development and the spheres of tourism attractiveness are examined (Rajaonson & Tanguay, 2009; Vlès et al., 2011). As there are different levels of attractiveness, sustainable development could play a role for each of the circles presented in the conceptual framework. Assuming that sustainable development-related urban transformations can modify the tourism offering, and that the information about the city is transmitted to the visitor, the sub-questions retained for the research focus on the tourist's level of the interpretation of these elements.

Methodology

Tourist Perceptions

■ To explore the role of sustainable development in urban tourism attractiveness, a questionnaire survey was conducted among tourists, with the aim of better understanding urban tourism attractiveness and highlighting the most recognized characteristics associated with sustainable development. The survey was conducted in Québec City and Bordeaux with a random sample of urban tourists. The majority of the questions were formulated in a closed manner, presented with multiple choice or five-point Likert scales. However, an open-ended question was also inserted into the questionnaire to obtain more information. The questionnaire addressed the characteristics of tourists and their trip, the determinants of their destination choice, variables associated with sustainable urban development indicators, and information markers.

The sample size was 249 respondents in Québec and 250 respondents in Bordeaux, each with a margin of error of 6.2% and a 95% confidence level. The survey in Québec City was conducted from July 14 to 24, 2014, while the one in Bordeaux was held from August 11 to 22, 2014. The collection weeks for the two cities were selected for comparability, purposely outside of large festivals and special events. The survey was administered in a face-to-face or self-administered interview, depending on the respondent's preference. From the main tourist information center of the two cities, the interviewer selected one out of every five tourists until the desired sample had been reached. The location was chosen in order to question respondents at the beginning of their stay, and thus close to their initial motivations and perceptions.

Two factorial analyses of the principal components made it possible to study the interrelationships between the variables, to group them in factors and to generate composite indices (Stafford, Bodson, & Stafford, 2006). This method therefore helped bring together the various indicators of attractiveness and sustainable development. Then, through several Spearman correlation exercises, it was possible to identify which dimension of sustainable development holds the most weight in destination choice, and more precisely on what level of attractiveness (Clason & Dormody, 1994).

Cities Studied: Québec and Bordeaux

■ The study was carried out in the cities of Québec and Bordeaux, both recognized on the UNESCO World Heritage List and shown to have shifted towards sustainable development over the past twenty years (UNESCO, 1985, 2007). They have been twin cities since 1962, with a cultural component, exchange of experiences in the health field, university cooperation, and inter-

municipal institutional cooperation in several fields including sustainable development and tourism (Mairie de Bordeaux, 2013). Moreover, Québec City and Bordeaux have a tourist-friendly character and offer comparable attractions based on heritage and history, a particular urban atmosphere and many festivals and events (Gunn, 1997). Their similarities and their differences contributed equally to the choice of cases studied.

The selected cities are relatively comparable in size (Québec: 532,354, metropolitan area: 568,026 / Bordeaux: 241,287, metropolitan area: 737,492), despite different urban densities (Québec: 1,038 h / km², metropolitan area: 1,005 h / km² / Bordeaux: 4,888 h / km², metropolitan area: 1,275 h / km²) (INSEE, 2012; ISQ, 2014; Statistics Canada, 2011). The differences in temperature are also noteworthy, since Québec has a humid continental climate and snow-covered winters, whereas Bordeaux has an oceanic climate with mild winters. In terms of tourism, Québec welcomes more than 4.5 million visitors each year, while around 5.5 million tourists visit Bordeaux (OTB, 2015a; OTQ, 2014). To accommodate these people, 9,274 rooms are available in Québec City and the hotels have an average occupancy rate of 65.8% (OTQ, 2014). Bordeaux has 6,493 rooms and hotels are on average 60.3% occupied (OTB, 2015a, 2015b).

In both Québec City and Bordeaux, sustainable development has been evident throughout the city, particularly over the past two decades (Bordeaux Métropole, 2017; Bordeaux, 2007; Ville de Québec, 2005, 2011). Bordeaux was revitalized in depth in the early 2000s, while Québec gradually incorporated the theme into its urban policies. In terms of transport, both offer a common service accessible to residents and visitors, with the tramway in Bordeaux and buses in Québec City. Finally, many development and revegetation efforts were made in the central neighborhoods of the two cities and along their respective rivers, the St. Lawrence and the Garonne.

Results

■ Urban sustainable development policies in Québec City and Bordeaux have various impacts on tourism. This section highlights the results of the research by addressing the information collected from visitors.

Indicator Ranking

■ The indicators of tourism attractiveness and sustainable urban development, measured through visitor responses, make it possible to hierarchize their centers of interest. The focus is thus on the indicator order of importance rather than the average value, given that cultural factors may have affected the scores awarded.

Table 1 Mean and rank of importance of tourist attractions considered

Variables	Québec City		Bordeaux	
	Mean	Rank	Mean	Rank
Urban atmosphere	4.10	1	3.66	4
Urban architecture	4.10	2	3.94	1
Pedestrian-friendly places	4.08	3	3.86	2
Monuments and historical sites	4.02	4	3.70	3
Public spaces, parks, gardens	3.93	5	3.65	5
Accommodations and restaurants	3.73	6	3.29	6
Public services	3.57	7	3.14	7
Tourist information	3.42	8	3.01	9
Contact with residents	3.04	9	2.36	13
Shops, commercial services	2.97	10	2.72	11
Museums and art galleries	2.86	11	2.50	12
Access and signage	2.78	12	2.98	10
Excursions	2.67	13	3.08	8
Festivals and events	2.15	14	1.71	15
Theaters, concerts and night life	1.99	15	1.88	14
Fairs, conventions and exhibitions	1.75	16	1.40	16

Question 11: In preparation for this trip, on a scale of 1 to 5, where 1 is “the lowest” and 5 is “the highest”, how important did you consider the following attractions before choosing to visit Québec City/Bordeaux?

Source: Own elaboration.

Tourism Attractiveness

In terms of tourism attractiveness indicators, a list of statements has been drawn up to measure tourists' interest in attractions, based on previous research (Gnoth, 1997; Jansen-Verbeke, 1986; Van der Merwe et al., 2011; Yoon & Uysal, 2005). These variables were selected to represent the three spheres of Gunn's model (Table 1).

Of the top 10 tourist attractions in order of importance, 8 variables were found in both the Québec and Bordeaux lists. With a few nuances, the first rankings were the urban atmosphere (1st Québec, 4th Bordeaux), urban architecture (2nd in Québec, 1st in Bordeaux), pedestrian-friendly places (3rd Québec, 2nd Bordeaux), monuments and historic sites (4th Québec, 3rd Bordeaux), public spaces, parks, gardens (5th in both), accommodation and food (6th in both), public services (7th in both) and tourist information (8th Québec, 9th Bordeaux). The contact with residents ranked 9th in Québec City (13th Bordeaux) while

the nearby excursions, particularly in the vineyards or peripheral attractions, was 8th in Bordeaux (13th Québec). In both cities, theaters, concerts and nightlife, festivals and events or fairs, congresses and exhibitions had the lowest ranks.

Sustainable Development

In terms of sustainable development criteria, the variables were derived from indicators of sustainable city development and cultural policy evaluation, established in previous studies (Poirier, 2008; Tanguay et al., 2010). The objective was to address the economic, environmental, social and cultural fields by measuring the contribution of these variables when choosing a city to visit (Table 2).

Of the first 10 elements, 7 variables were found on the list in Québec and Bordeaux. Visitors to both cities clearly agreed on the top three: the built and natural heritage, the authenticity of places and lifestyles, and the cultural

Table 2 Average Value and Ranking of Relevant Urban Components According to Tourists

Variables	Québec City		Bordeaux	
	Average	Rank	Average	Rank
Built and natural heritage	4.10	1	3.77	1
Authenticity of places and ways of life	3.78	2	3.31	2
Music, gastronomy, crafts, cinema	3.54	3	3.28	3
Animation of public space	3.44	4	2.90	6
Green spaces and biodiversity	3.25	5	2.76	8
Public art and street furniture	3.20	6	3.02	5
Safety and crime rates	2.75	8	2.03	12
Price level (cost of living)	2.74	7	2.22	11
Social and ethnic diversity	2.63	9	2.00	14
Infrastructure development	2.61	10	2.44	9
Public transit and bicycle network	2.51	11	3.03	4
Local products trade	2.49	12	2.84	7
Pollution level (e.g. air, noise, water)	2.48	13	2.27	10
Accessibility for all (e.g. disability)	2.38	14	2.02	13
Recycling and waste management	2.31	15	1.88	16
Economic activity	2.26	16	1.95	15
Types of energy used	2.09	17	1.81	17
Solidarity policies (e.g. poverty)	2.08	18	1.65	18
Access to health care	1.98	19	1.55	19
Employment situation (e.g. unemployment)	1.69	20	1.38	20

Question 13: When choosing and planning your stay in Québec / Bordeaux, on a scale of 1 to 5, how much importance did you attach to the following urban characteristics?

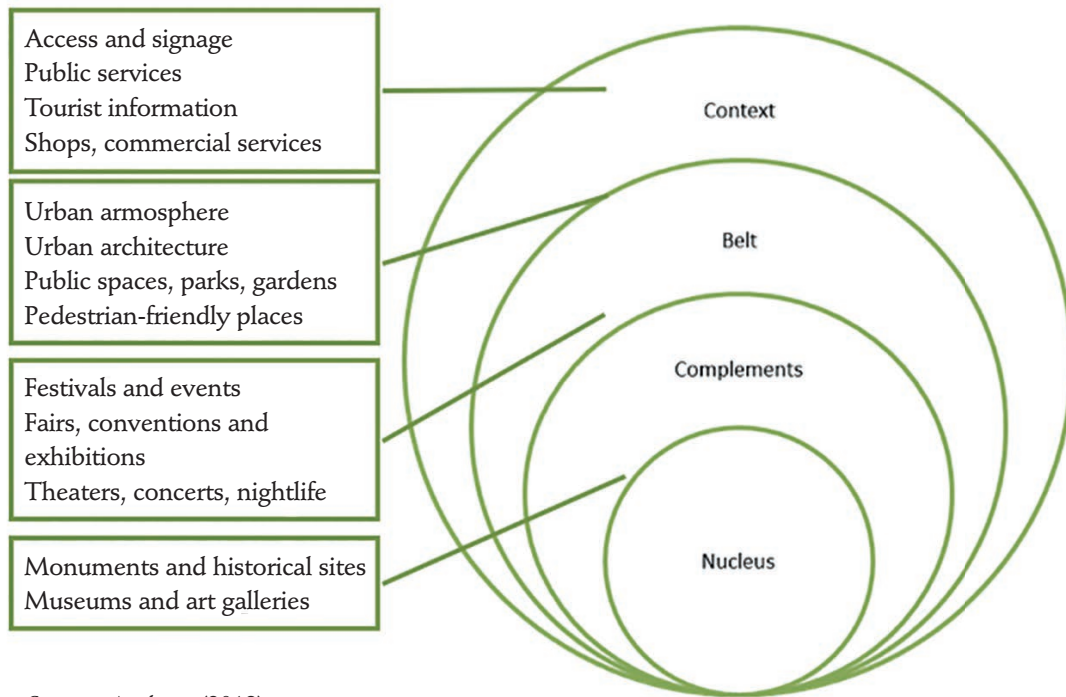
Source: Own elaboration.

industry (music, gastronomy, crafts, cinema). In Québec City, public space animation came in 4th place (6th Bordeaux) and green spaces and biodiversity ranked 5th (8th Bordeaux). In Bordeaux, it was public transportation and the cycle network that ranked 4th (11th Québec) while public art and street furniture were in fifth place (6th in Bordeaux). While the indicators remained relatively close in order, some divergences were observed. For example, the local products trade was better positioned for visitors from Bordeaux (12th Québec, 7th Bordeaux), while security and the crime rate (7th Québec, 12th Bordeaux), the price level (8th Québec, 11th Bordeaux) and social and ethnic diversity (9th Québec, 14th Bordeaux) were more important for Québec City visitors. The last four items were the same for both cities.

Factor Analysis

■ Two factor analyses of the principal components were carried out from indicators developed through tourist interviews. The first one was applied to tourism attractiveness variables while the second focused on sustainable development indicators. These treatments were performed on all respondents in order to generate equivalent factors for Québec City and Bordeaux and allow comparative analysis. The method used to extract the factors was the study of the components' eigenvalue, or the variance explained (Ferguson & Takane, 1989; Stafford et al., 2006). The factor analysis was performed with varimax rotation.

Figure 2 Tourism attractiveness factors by urban tourists



Source: Authors (2018).

Tourism Attractiveness

The factor analysis carried out on tourism attractiveness variables revealed four factors. These components represented four levels of tourism attractiveness of the city, namely the urban context, the belt, the complementary attractions and the nucleus (Figure 2). In total, this analysis explained 62% of the tourism attractiveness (Appendix 1).

- First of all, the **urban context** included indicators for access and signage, public services, tourist information, and shops and services. This component referred in general to urban services used by both residents and visitors.
- Secondly, the **tourist belt**, which stood out as the factor with the highest explanatory potential, was composed of the urban atmosphere, architecture, public spaces, parks and gardens as well as pedestrian-friendly areas. This component brought together variables related to the urban living environment and planning elements.
- The third factor included **complementary attraction** variables, such as festivals and events, fairs, congresses and exhibitions, as well as theaters, concerts and nightlife. Initially perceived as one of the central variables for urban tourism attractiveness, these were treated differently by visitors who actually gave them a less crucial role.
- The fourth factor, referred to as the **nucleus**, consists

of historical monuments and sites, as well as museums and art galleries. Although this factor reveals that few attractions are considered central, the importance given to them is considerable.

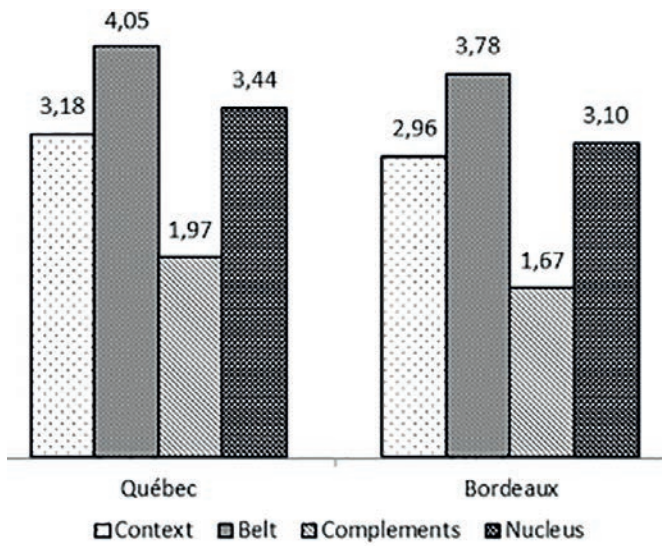
In order to understand the importance given to the different levels, an average was calculated for each component in the two cities studied. In Québec City as well as in Bordeaux, the tourist belt got the highest score (Québec: 4.05, Bordeaux: 3.78), followed by the attractions of the nucleus (Québec: 3.44, Bordeaux: 3.10), the urban context (Québec: 3.18, Bordeaux: 2.96) and the complementary attractions (Québec: 1.97, Bordeaux: 1.67). Figure 3 presents these results.

The urban living environment and amenities within the tourist belt therefore play an essential role in the attractiveness of the city, even appearing to be more important than the nucleus. Nevertheless, given that the latter has only two elements, it must be recognized that visitors attach great importance to them. The urban context is also not neglected by visitors, who take it into consideration when preparing their trip. Finally, the complementary attractions are taken into account very little, but this can partly be justified by the choice of a collection period outside of major festival events.

Sustainable Development

A second factor analysis was performed on the items used to measure the city's sustainable development criteria.

Figure 3 Importance attached to tourism attractiveness levels (average value)

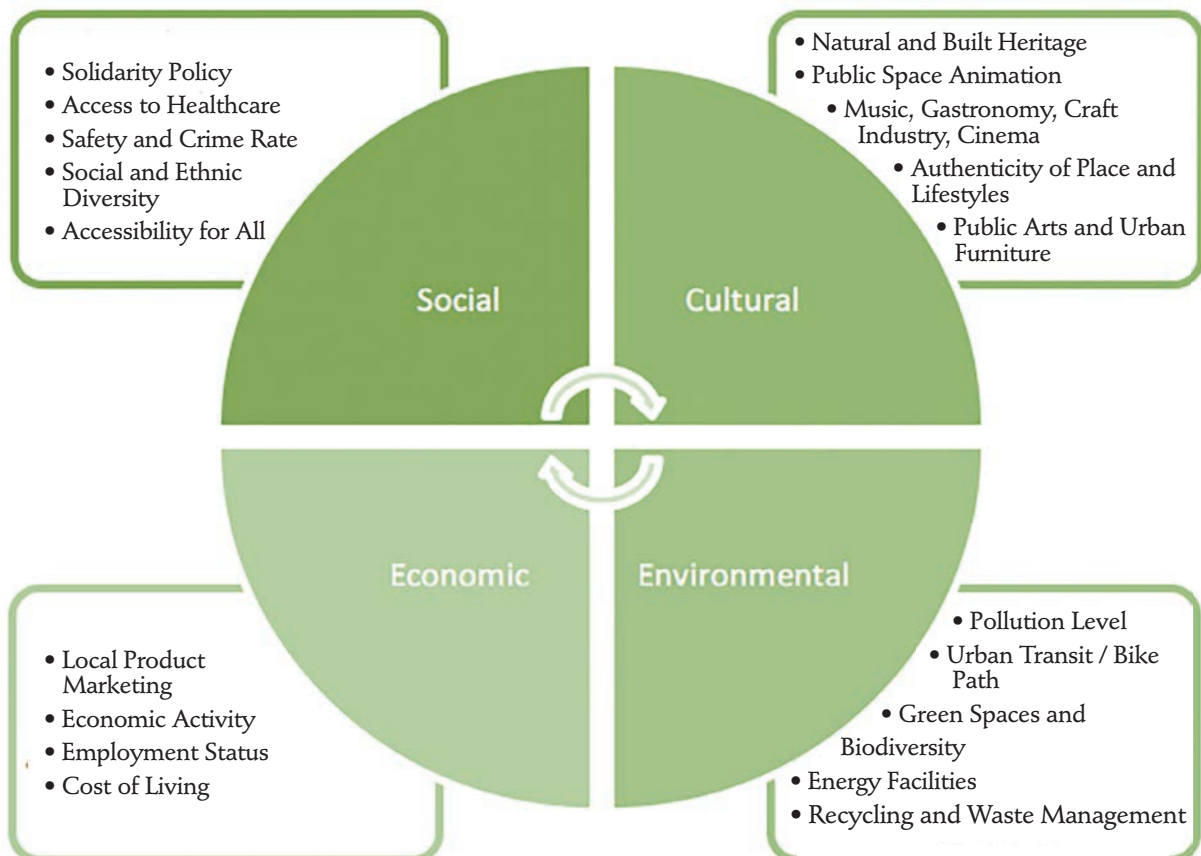


Question 11: When preparing for your trip, how important do you consider the following tourist attractions when deciding to visit Québec City/Bordeaux, on a scale of 1 to 5?
Source: Own elaboration.

The factors, generated from the characteristics that tourists focus on when choosing a destination, represent the four components of sustainable development - the social, cultural, environmental and economic dimensions (Figure 4). The analysis accounted for 63% of tourists' consideration of sustainable development (Appendix 2).

- The first component groups variables related to the **social** field. It brings together solidarity policies, access to health care, security and crime rates, social and ethnic diversity and accessibility for all.
- The second factor includes indicators of a **cultural** nature: built and natural heritage, the animation of public space, music, gastronomy, arts and crafts, the authenticity of places and lifestyles, public artwork and street furniture.
- The third component of the factor analysis includes **environmental** indicators, namely the level of pollution, public transit and cycling network, green spaces and biodiversity, the types of energy used, in addition to recycling, and the management of waste pollution.

Figure 4 Sustainable development factors by urban tourists



Source: Authors (2018).

- The fourth factor, the **economic** dimension, includes trade in local products, economic activity, employment situation and price levels.

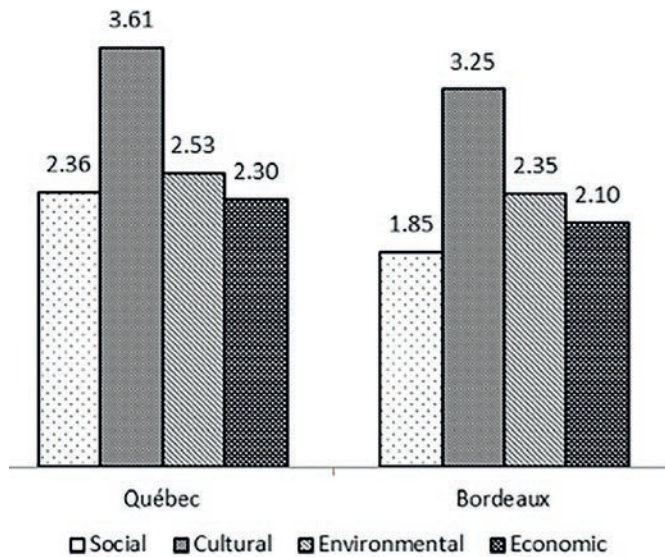
In order to compare each sample's level of importance given to each of the different dimensions, an average was calculated per factor (Figure 5). Respondents from Québec City and Bordeaux showed the highest interest in the cultural dimension (Québec: 3.61, Bordeaux: 3.25), which included indicators similar to the attractiveness elements, like built and natural heritage for example. The second factor in order of importance was the environmental dimension (Québec: 2.53, Bordeaux: 2.35). This refers to the variables related to green spaces and biodiversity, as well as public transit and cycling, which contribute to increasing this average. In terms of economic factors (Québec: 2.30, Bordeaux: 2.10) and social factors (Québec: 2.36, Bordeaux: 1.85), average values appeared to be lower.

As shown, culture acts as an essential criterion for the choice of a city for tourism, proving the most important dimension to visitors. Nevertheless, elements related to the urban environment are also important for visitors, who take them into consideration when planning their trip.

Correlations between factors

■ In the final stage of data processing, correlation analysis made it possible to qualify the links between the dimensions of sustainable development and the spheres of tourism attractiveness. Spearman's rho is a non-parametric test using the rank of variables to determine the existence of a correlation (Allen & Seaman, 2007; Clason & Dormody, 1994; Gibbons & Chakraborti, 2014). According to the evaluation scale, an index between 0 and 0.35 reveals a weak correlation, between 0.36 and 0.67 an average correlation, between 0.68 and 0.90 a high correlation, while a value greater than 0.90 represents a very strong relationship (Taylor, 1990).

Figure 5 Importance attached to sustainable development (average value)



Question 13: When choosing and planning your stay in Québec / Bordeaux, on a scale of 1 to 5, how much importance did you attach to the following urban characteristics?

Source: Own elaboration.

On the one hand, analyses of correlations between attractiveness and sustainable development factors were made from the sample of respondents visiting Québec City. Table 3 reveals statistically significant correlations, ranging from 0.184 to 0.423. Average strength correlations appeared between the context and each index of sustainable development (social: 0.350, culture: 0.374, environment: 0.395, economy: 0.423). The tourist belt was also quite connected to the cultural dimension (0.359). As for the complementary attractions and the nucleus, they were

Table 3 Correlations between the sustainable development factors and the tourism attractiveness (Québec City)

Québec City	Social	Cultural	Environmental	Economic
Belt	,188**	,359**	,240**	,184**
Context	,350**	,374**	,395**	,423**
Complements	,239**	,209**	,191**	,256**
Nucleus	,245**	,248**	,245**	,238**

** . Correlations are significant at the level of 0,01 (bilateral)
Source: Own elaboration.

Table 4 Correlations between the sustainable development factors and the tourism attractiveness (Bordeaux)

Bordeaux	Social	Cultural	Environmental	Economic
Belt	,178**	,437**	,248**	,146*
Context	,481**	,436**	,507**	,486**
Complements	,336**	,302**	,361**	,358**
Nucleus	,252**	,403**	,325**	,281**

** . Correlations are significant at the level of 0,01 (bilateral)
Source: Own elaboration.

very weakly connected to the four dimensions. According to the results, sustainable development had a stronger link with the contextual component of Québec City. For this attractiveness factor, the economy was distinguished by its moderate strength correlation, followed by the environment. The tourist belt was also linked to the cultural factor. This can be associated in particular with the notion of architecture present in this level of attractiveness.

On the other hand, the same correlation analyses were conducted between attractiveness and sustainable development factors for respondents who visited Bordeaux. Table 4 reveals significant correlations ranging from 0.146 to 0.507. These correlations appear more pronounced between the urban context and each of the sustainable development indicators (social: 0.481, culture: 0.436, environment: 0.507, economy: 0.486). It is important to note that the relationship between the context factor and the environmental component was particularly strong compared to other Spearman coefficients, reaching 0.507. In addition, it appears that the tourist belt was specifically related to culture (0.437). In terms of complementary attractions, they were weakly related to the social component (0.336), the environmental component (0.325) and the economic component (0.358). The nucleus was related to culture (0.403) and environment (0.325). The results illustrate that context, the most encompassing factor of attractiveness, is most related to sustainable urban development in Bordeaux. The tourist belt and nucleus were also correlated with the cultural dimension, while the complementary attractions were weakly affected by the four dimensions.

Thus, according to tourist perception, the context of the city seems particularly related to sustainable development. Associated with the various urban services offered to citizens and visitors and recognized by tourists as playing a role in the preparation of the trip, this context qualified as the factor of attractiveness most affected by sustainable development approaches, with the environmental compo-

nent most strongly in mind. It should also be noted that the belt and the nucleus were more related to the cultural factor. This is logical since the elements that make up this factor, such as built heritage, are similar to certain variables of these levels of attractiveness. Finally, the correlations appear higher in Bordeaux than in Québec, which could be due to the extent of the urban transformation carried out in Bordeaux in the last twenty years.

Discussion

■ Bridging the gap between sustainable urban development and urban tourism attractiveness requires an assessment of tourists' perceptions of these two areas of research. The first two research sub-questions considered the recognition given by tourists to the attractions of the city and the characteristics of sustainable development, while the third sub-question aimed to understand the relationship between tourism attractiveness factors and dimensions of sustainable development.

First, the factor analysis performed on the attractiveness variables revealed four components, though the initial attractiveness model was based on three levels. On a scale from the global to the particular, these levels are the urban context, the tourist belt, the complementary attractions and the nucleus of attractiveness. In terms of importance, the tourist belt obtained the highest score, followed by the nucleus attractions, urban context and complementary attractions. However, it is notable that tourists were paying specific attention to the urban environment and to the amenities that make up the tourist belt. Cities' sustainable development strategies certainly have a role to play in this respect, including actions related to planning, public spaces, pedestrian friendly areas and architecture.

Secondly, the factor analysis of sustainable development indicators confirmed the importance given to the

sustainable characteristics of cities when choosing a destination. The factors generated represent the four dimensions of sustainable development: the cultural, environmental, social and economic dimensions. The average of the factors reveals a greater tourist concern regarding the cultural dimension, in both Québec City and Bordeaux, with the environmental dimension second in importance. Economic and social factors were the least valued.

Third, an analysis was performed relating the components that emerged from each factor analysis. The correlation analysis made it possible to affirm that sustainable development is more strongly associated with the urban context than with other spheres of attractiveness. Indeed, the 4 dimensions were particularly related to this level, which brings together urban services in general (access and signage, public services, tourist information, shops and service shops). Given the correlations that emerged for the two samples, it was shown that the economic dimension had a stronger correlation with the urban context in Québec City. Comparatively, in Bordeaux, relationships were pronounced for each of the components, but the environmental dimension was distinguished by a high correlation with the context. Trams, wharves and urban revitalization clearly played an influential role in these relationships in Bordeaux. The strength of the links between sustainable development and tourism thus seem to be subject to the scale of actions implemented in each territory.

Returning to the main question of this research (*What are the impacts of sustainable urban development on the tourism attractiveness of a city?*), the study shows that sustainable development is associated with the tourism attractiveness of the city. This is reflected first by the tourists' perceived link between the tourism attractiveness of the city and urban planning initiatives in public spaces. Indeed, tourists proved more interested in the tourist belt than in the main attractions of the city, and more strongly evaluated the sustainability indicators of a tangible nature. Given that some tourists have difficulty conceptualizing sustainable development, some perceive and value it through its concrete representations in the public space. The four dimensions of sustainable development, considered by urban tourists when choosing and planning their stay in the city, were particularly related to the urban context. However, a city's sustainable development policy also contributes to the consideration of urban services in general. The culture is correlated with the tourist belt and the nucleus, and some efforts must also concentrate on the cultural dimension which plays a key role in the urban tourism attractiveness.

From a practical perspective, this research has shed new light on the elements that attract visitors to a city. The results illustrate that some tourists are sensitive to sustainable development, including cultural and environmental aspects. This is even more evident when discussing the requalification of urban public space, which

plays a key role in attractiveness. This urban renewal not only contributes to improving the quality of life of the inhabitants, but also to revitalizing the tourism offering itself. By accentuating sustainable development efforts and enhancing these characteristics, urban destinations can hope to generate a new tourism influx, attract more conscientious visitors, and encourage people to visit differently and extend stays. Better articulating sustainable development and tourism can thus be considered a solution to perpetuate the industry.

Conclusion

■ This work illustrates that the sustainable development policy carried out in a city plays a global role in its tourism attractiveness, contributing especially to the recognition of its urban context. The cultural and environmental dimensions have a major impact on this attractiveness, particularly with regards to the tourist context, belt and nucleus. Indeed, links are present in both cities, although they are more pronounced in Bordeaux. This can be explained by the extent of its urban metamorphosis over the last 20 years, compared to a more recent evolution in Québec City. Thus, the more a city is advanced in its approach, the more obvious the correlations appear to be. It can therefore be assumed that tourists appropriate sustainable development installations, accordingly adjusting their tourism practice in the city.

The experiences of Québec and Bordeaux show that the realization of new projects related to sustainable development promotes a new tourism attractiveness for the city, without compromising the balance between its population and the influx of visitors. These conclusions may eventually lead the urban and tourism stakeholders to further integrate sustainable tourism strategies to increase the influence of the city, but also ensure the perennity of the industry. Indeed, the integration of tourism considerations upstream from the creation of urban policies could bring many benefits to the city, not only at the level of tourism revenues but also in terms of urban practice. For example, in the case of transportation, this may mean providing an efficient and user-friendly service, serving the city's touristic highlights and various neighborhoods.

Appendix 1 Factor analysis based on tourist attractions

Components and variables	Coefficients	Variance explained	
		Real*	Internal
Component 1: Tourist belt			
Urban atmosphere	.766	29.1%	46.8%
Urban architecture	.755		
Public spaces, parks, gardens	.738		
Pedestrian-friendly places	.737		
Component 2: Urban context			
Access and signage	.761	14.0%	22.6%
Public services (e.g. cleanliness)	.742		
Tourist information	.741		
Shops, commercial services	.583		
Component 3: Complementary attractions			
Festivals and events	.817	9.7%	15.6%
Fairs, conventions and exhibitions	.720		
Theaters, concerts and nightlife	.711		
Component 4: Nucleus			
Monuments and historical sites	.812	9.3%	14.9%
Museums and art galleries	.768		
Total variance		62.0%	100.0%

*Before rotation
Source: Own elaboration.

Appendix 2 Factor Analysis Based on the Sustainable Development Variables

Components and variables	Coefficients	Variance explained	
		Real*	Internal
Component 1: Social		39.5%	62.5%
Solidarity Policy (e.g., poverty)	0.789		
Access to Healthcare	0.772		
Safety and Crime Rate	0.701		
Social and Ethnic Diversity	0.667		
Accessibility for All (e.g., Disabled)	0.665		
Component 2: Cultural		11.2%	17.8%
Natural and Built Heritage	0.774		
Public Space Animation	0.757		
Music, Gastronomy, Craft Industry, Cinema	0.742		
Place Authenticity and Lifestyles	0.727		
Public Art and Urban Furniture	0.720		
Component 3: Environmental		6.6%	10.5%
Pollution Level (e.g., air, water)	0.742		
Urban Transit and Bike Path	0.732		
Green Spaces and Biodiversity	0.730		
Energy Facilities	0.619		
Recycling and Waste Management	0.607		
Component 4: Economic		5.8%	9.1%
Local Product Marketing	0.735		
Economic Activity	0.704		
Employment Status	0.639		
Cost of Living	0.587		
Total variance		63.1%	100.0%

*Before rotation
Source: Own elaboration.

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