

Integrated Solutions of Accessibility for Historical Centers

the cases of Évora and Lisbon

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Abstract

In a context of globalization and continuous increase of motorization rates, people often choose to use their private cars to access cities' historical centers. But what if there are alternatives? Integrated Solutions of Accessibility for Historical Centers, as sets of measures and policies that are related to each other, have the ability to provide access through alternative ways. Integrated Solutions of Accessibility are created with the aim of reducing of the need of private car usage. The Historical Centers of Évora and Lisbon are the main focus of this study. Regarding the needs of both accessibility and mobility of public transport users in both cities, this dissertation proposes a methodological approach to create a ranking scale of problems and users' needs using the Rasch Model. The use of this model is innovative in Transport Planning, but widely known in other sciences such as Psychometrics or Medicine. Therefore, the perceived accessibility and mobility of public transport users in Évora and Lisbon is studied in this dissertation. For the planning process, measuring users' perceptions in a comprehensive model can lead to a more accurate knowledge of the weaknesses of a system, and solving effective users' needs, can lead to a growing satisfaction and attractiveness, what can lead to a modal shift.

Keywords

Integrated Solutions; Accessibility; Historical Centers; Rasch Model; Évora; Lisboa

Introduction

As a key factor in nowadays urbanism, accessibility is fundamental for urban experience. Ascher (2012) defines accessibility as the inexistence of any material, economical, social or cultural restrains that can compromise the access of citizens to any aspect of their daily life.

Urban Spaces are now in a tendency of degradation, fragmentation and eventual destruction by the massive use of private cars. That increasing factor is leading to a growth of the number of roads, demand for parking spaces, and reduction of green areas (Lefebvre, 1991). So that citizens can gain back their quality of life, decision makers should rethink the car usage in the city. If the existence of cars in cities was wanted before (as a symbol of urban and human development), nowadays all around the world people are trying to limit their existence.

As a way to increase the accessibility, mobility and the revitalization of urban space, integrated solutions must be created. Those integrated solutions combine several aspects of several dislocation modes, in a way to take the maximum benefit from each one, and consequently increase the quality of life in the city.

In the XXI century, cities around the world are trying to reduce the usage of private cars. The dominance of the cars in the cities is slowly being replaced by sustainable transport systems that are adapted to the reality and users' needs.

Evaluating the performance of existing solutions must evolve the assessment of their users – the ones that have a real and deep knowledge of the weaknesses of the systems. The assessment of the users (and the inputs of their habits, opinions and needs) is one of the major challenges to improve the quality of the implemented solutions.

Mobility and Accessibility

For the transport system, mobility is understood as the physical movement of people and objects (Larson, Urry, & Axhausen, 2006).

Accessibility is the ability of population to access goods, services, activities or destinations (all can be called opportunities). The access to some opportunity is the goal of every dislocation, except the ones that the trip is the purpose by itself (as, for example, a cruise). For Jones (1981) accessibility the possibility that an individual have to take part of an activity

in a different spatial location – according to this definition, we must consider not only the spatial location of the activities, but also the available transportation means that interconnect them, no matter the ability of the individuals to use them or not (Martinez, 1991).

The main goal of planning for accessibility is to increase the access conditions for the larger possible number of people to a set of services and activities.

Transport theory and its practice has been having global changes – we are now assisting a transition of the traditional planning (focused on mobility), to a planning based on accessibility (Ferreira, Beukers, & Te Brömmelstroet, 2012). Jones studies four different accessibility policies: the network policies; the dislocation policies; the disaggregated policies of the transport systems and land use, and the aggregated policies of the transport system and land use – being the last one the purpose of this work.

The case study of Évora and Lisbon

This dissertation is focused on the Historical centers of Évora and Lisbon. The geographic delimitation of each one of them can be seen in Image 1 (Évora) and Image 2 (Lisbon)



Image 1 – Historical Center: Évora



Image 2 - Historical Center: Lisbon

In both cases, it is needed to reduce the usage of the car, as it can lead to a rehabilitation and revitalization of urban space, and a increase of the quality of life of the population.

In both cities there are some integrated solutions of accessibility, that allow the population to access historical centers in a way that does not evolve private vehicles. Within those solutions we have, for example, parking meters in the parks and streets – that can lead to a decreasing use of car (Nunes da Silva, 2008), and public transport systems (TREVO in Évora, and Transportes de Lisboa in Lisboa).

Historical center of Lisbon can be accessed by subway (working from 6h to 1h) or bus (in Lisbon there are bus lines working 24h) and in Évora can be accessed by the 'Blue Line' (workdays from 7h to 20h, and Saturdays from 8h to 14h.) The 'Blue Line' buses have no physical stops – any user can ask to enter or exit the bus at any part of the route (that is delimited by a blue line drawn on the street).

In Lisbon there are some informative panels (only at some locations – bus stops and subway stations) where users can be informed of how long they will wait for the bus. That information is also available in the mobile app MOVE-ME, that has available all the routes, timetables, stops and destinations.

Sustainability and Integrated Solutions

From the beginning of the XX century that cities and urbanizations are used to understand and explain the structure of societies, and its spatial and cultural dimensions. Nowadays, the patterns of concentration and urban sprawl are in a rapid growth (Hamnett, 2004), leading to mass metropolization phenomena (Castells 2000). Those phenomena intensify the interactions, and stimulate the productivity and innovation (Bassand, 1997).

The pace and shape of the urbanization are key factors in the resilience of cities. It is this pace and shape that created the need for a sustainable urban planning. According to Brundtland Commission (1987), sustainable development is the one that can fulfill the present needs with, non-sacrificing the fulfilling of the needs of the future. To make a sustainable place, there must be a complex interaction of all the components, so that integrated solutions can be created and the quality of urban life improved.

Planning for sustainability means that all the decisions that are being taken for the short run must be consistent with the straitening long run goals (Litman, 2007).

Integrated Solutions of Accessibility

There is a need for a sustainable equilibrium in the urban space – presupposed as cohesive, with the right economic and functional dynamics, with mobility, and accessibility to goods, services and activities

If the city is, in fact, the public space (Jacobs, 1958; Lefebvre, 1991; Portas, 2003) and if

urban traffic – occurring in that public space – is, in fact, a threat to the city living in multiple aspects (Gärling et al., 2002; McMichael, 2000), there is a need to adopt policies which guarantee that the access to every place in the city is not dependent on individual transport.

Accessibility can be improved by promoting more and faster mobility e by increasing the proximity between need and demand. Authors like Handy (2002) or Ferreira and Batsy (2007) consider that the most important benefit of thinking in terms of accessibility (instead of mobility) is that it makes the decision process to be interdisciplinary and multifaceted, what is fundamental to the creative process, increasing the range of possibilities of problem solving. Planning for accessibility improves not only the quality of the solutions, but also the quality of the objectives being adopted by the decision makers.

Hundreds of cities are debating and searching for integrated strategies that promote their sustainability, concerning mobility and accessibility. Goldman & Gorham (2006) identify some of the most ambitious and innovative directions being followed by the sustainability policies, organizing them in four activity clusters: New Mobility, Logistic City, Intelligent Management Systems and Liveability.

These clusters represent the vision of the authors which isn't rigid – there are aspects common to all the clusters. There's also the reserve that this strategic visions and policies can have different shapes depending on different cities, where local needs, levels of economic development, culture, urban form, economic structure and systems of transportation must be taken into account.

Some of the referred aspects of the clusters defined can be found in Évora and Lisbon, the cities studied, like the use of smart cards (Intelligent Systems of Transportation – New Mobility), the traffic limitations to the most polluting vehicles, or the pedestrian streets.

The definition of a group of integrated solutions to an urban space should, above all, suppress the population's needs. The accessibility integrated solutions should promote sustainability e make the alternatives become sufficiently attractive so that a modal shift can take place.

Private Car and Public Transport

Although public transport is an effective way of promoting transport sustainability, a large portion of the population chooses not to use it (Gabrielli, et al., 2014). Inadequate planning concerning accessibility and mobility of public transport reduces its use and increases the

urban travellers dependence on private transport (Welch & Mishra, 2013).

The growing motorization felt in developed countries has been transforming the cities and, consequently, the concerns as to their planning. Linked to diverse benefits, like individual and flexible transport, motorization brings negative effects on short, medium and long term, like the increase in traffic congestion and the noise and environmental pollution – raising global questions like climate change, increase in energetic dependence, air quality degradation, decrease in viability and competitiveness of public transport, among others. Buchanan (1963) considers that urban traffic is a threat to the quality and efficiency of the cities.

Measured by the number of light vehicles by 1000 inhabitants, the motorization rate is an international indicator that can be used to measure and compare the environmental and economic sustainability of a country. On one hand, a large motorization rate can mean a high level of economic development and quality of life. On the other hand, a large number of vehicles can be considered as an environmental problem associated to extensive energy use, air pollution (both locally and globally) and even the development of a large road networks that fragment public urban spaces and natural habitats (Sperling & Clausen, 2003).

On what concerns to sustainable development, a high motorization rate is associated to air pollution in urban areas, noise, urban Island heat, more traffic density and also to the loss of open space. Urban sprawl is also associated with private car usage.

According to Sanz (1999), for the decrease of the private car use it is needed the integration and combination of various collective transport services, as well as the facilitation of the dislocation in soft modes.

The individual cars and its consequences (lack of parking space, traffic, CO₂ emission) contribute to the degradation of the quality of life in the cities (Lebondidier & Menuier-Chabert, 2004). The Public transport is considered the easiest solution for the difficult mobility and accessibility problems in the cities. An user friendly public transport system must consider the accessibility to the points where people can enter in the public bus or subway, and the mobility within the system itself (Mishra, Welch, & Jha, 2012).

Conclusions and Future Developments

The historical centers of Portuguese cities are suffering from the consequences of having a large number of cars. The usage of integrated solutions of accessibility, that allows the

access to historical center without the need of private car usage, leads to the sustainability of the territory, the rehabilitation of public space, economical growth and the increase of quality of life.

Even with alternative solution to access the historical centers (as, for example, buses), people still choose to use their private car. This choice – explained by the lens of Pierre Bourdieu's *habitus* is influenced by the culture of the society in which the individual is in.

The usage of the Rasch Model as a way to rank the questions that the users are sensitive to – and to create quantitative data from qualitative perceptions – is a powerful tool for Transport Planning. When decision makers know to improve the accessibility and mobility of the users of public transport, is possible to increase the attractiveness of the solution, and inspire a modal shift for more sustainable ways of transport.

It is also important to understand not only the needs that users feel, but also the limitation of the resources. As so, it is imperative to have a reliable ranking of needs.

This work contributes to the existing literature by experimenting and validating an innovative methodology in Transport Planning, on what concerns to the ranking of problems of accessibility and mobility, based on the analysis of the perception of the users of Public Transport.

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