Available online at www.sciencedirect.com

ScienceDirect

Procedia - Social and Behavioral Sciences 223 (2016) 487 – 492

Procedia Social and Behavioral Sciences

2nd International Symposium "NEW METROPOLITAN PERSPECTIVES" - Strategic planning, spatial planning, economic programs and decision support tools, through the implementation of Horizon/Europe2020. ISTH2020, Reggio Calabria (Italy), 18-20 May 2016

Effective Sustainable Public Transportation Approaches in Izmir

Yakup Egercioğlu[a,]*, Kader Doğan[b]

[a] *Department of City and Regional Planning, Izmir Katip Celebi University, Izmir 35620, Turkey*
[b] *Department of City and Regional Planning, Yildiz Technical University, Istanbul 34349, Turkey*

Abstract

The most prominent of public transport, the risk of accidents, energy consumption, and congestion is lower than road transport. Considering all these reasons an important problem that urban transport on such as the environment, energy, sustainability and social balance taking into account issues, first especially in big cities resolved with scientific methods and requires the organization. When considered from this point of view, 'Nielsen's Network Design approach for public transport' provides us the appropriate evaluation to examine the city transportation. This approach emphasizes seamless and intra-regional public transport and has five network design factors. In this study, 'Izmir Karşıyaka Tram Project' has been analyzed in the context of Nielsen approach and it has been explained how the project can realized that factors.

Peer-review under responsibility of the organizing committee of ISTH2020

Keywords: Transportation; Urban Transport; Sustainable Public Transport; Tram, Nielsen's Approach; Izmir

1. Introduction

Today, communities prefer to live in the city due to economical, technological, political and sociological reasons. Such a preference increases the population and population density in the city. Increasing population causes many problems in the city life. Traffic and transportation problem seems as one of the most important problems (Baştürk, 2014). This is possible with the implementation of the developed efficient public transport system. In cities with an efficient and effective public transport system traffic and transport problems can be prevented. Indeed, urban governments in developed countries have brought the problem of traffic congestion, as well as public transport, into

* Corresponding author. Tel.: +0-90-232-329-3535; fax: +0-90-232-386-0888
E-mail address: Yakup.egercioglu@ikc.edu.tr

Peer-review under responsibility of the organizing committee of ISTH2020
doi:10.1016/j.sbspro.2016.05.300

the forefront, in order to achieve the efficient transport of passengers (Abbasgil, 1994). Urban transport, which connects spatially separate functions of the city, is a vital system. Therefore, transportation is a quality instrument that provides physical communication between urban functions. There is a close correlation between the land development and transport. Therefore, a comprehensive and coordinated planning of use the land in any urban area should be balanced in accordance with the transport system (Tanyel, 2013). One of the most important urban transport types is tram. Trams, or so called light rail systems, are important for coordination with other urban public transport systems, for example between buses and the subway, and to meet the demand. Light rail systems have flexible route, do not harm the environment, are comfortable and reliable, have low energy consumption and in terms of guiding his role in the development of the city stand out as one of the indispensable elements of the public transport today. In particular, the need for trams is increasing in the highly populated big metropolitan cities. The use of cars can be reduced by ensuring integration between tram projects and other urban transport systems and thus the crowded city traffic congestion problem can be prevented (Izmir Tramvay Raporu, 2014).

In this study, Tram Project of Izmir, which is one of the most populous cities in Turkey, with a population of 4.168.415 persons, is evaluated. In this evaluation firstly general transportation issues were examined and the importance of the tram was emphasized. After examining Nielsen's approach, which suggests effective and sustainable public transport system, Izmir tram project was evaluated in terms of this approach.

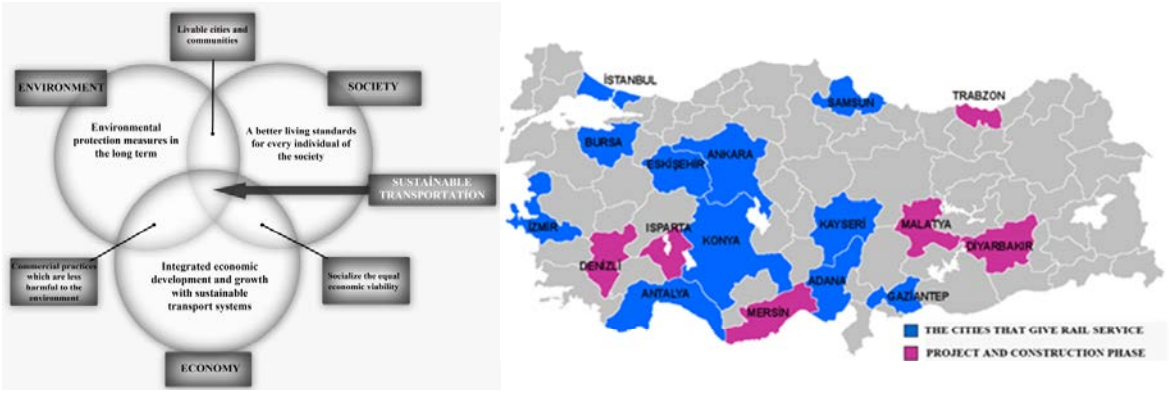

Fig. 1. (a) Sustainable transportation (Izmir Ulaşım Ana Planı, 2009); (b) The map of Turkey urban rail systems.

2. Nielsen's Approach for Effective Transport

In this paper, we have evaluated Izmir Karsıyaka Tram Projects in accordance with Nielsen's public transport approach. Nielsen presents seamless and intra-regional public transport system. The key factors of such public transport systems are social welfare, accessibility for all and competitiveness to the car. Nielsen emphasizes universal design for all elements; door-to-door services for certain user groups with mobility problem; convenient, fast and attractive enough to replace car use; express services for long journeys and coordination with car restrictions for an effective public transport. Nielsen suggests a lot of strategies to achieve all these. They are high quality fixed, scheduled services in an integrated travel network with universal accessibility, information, comfort and safety for all users, high quality access systems for walking, cycling and motorized transport, including demand-responsive services in low demand situations (Nielsen and Lange, 2007). In addition to all of these, Nielsen determines the most ımportant network desıgn factors for efficient and sustainable public transport. They are;

- Simplicity and ease of use
- Optimal frequency
- The network effect and connectivity
- Speed of travel (Nielsen and Lange, 2007).

In this paper, we have examined Izmir Karsıyaka Tram Project for these factors.