A New Hint to Transportation-Analysis of the NYC Bike Share System

ABSTRACT:

Bike-sharing systems have been deployed in many major cities around the world today. Bike sharing systems provide great advantages as a mean of urban public transportation facilitating a green solution for daily commuters and tourists. Users tend to use more often this type of transportation for their daily needs. The key to success for such systems is the efficient distribution of bikes among the bike stations in order to satisfy high user demands. Existing schemes in the literature focus either on predicting the bike station demand and modeling user mobility mainly focusing on making cycling more accessible to people, or on minimizing the costly and time-consuming movement of bikes among the stations while the system is in use. In this work our objective is to gain insights into the usage of bike sharing systems and in particular the pick-up and drop-off operations. Our goal is to get a better understanding of the bike mobility patterns and identify the key factors that lead to imbalances in the distribution of the bikes at the stations, towards creating effective and sustainable bike sharing systems. One of the problems in bicycle sharing systems design is the estimation of the potential demand to the service, especially in countries where this type of systems is not yet implemented. The main objective of this methodology is to relate the demand of bike-sharing systems with external characteristics that affects the bicycle usage in order to obtain its territorial distribution.