Research on urban transportation planning system based on big data

Jiaxuan Lu

Shanghai University, School of Computer Engineering and Science, Shanghai 200444, China.

Abstract

With the advent of the era of cloud computing, "big data" technology has been widely used in all walks of life. After years of theoretical and practical research, some large cities in China are gradually introducing the "big data" technology into the field of urban transport planning, and urging the urban transport planning system in China to begin to develop in a more efficient and humane direction.

Keywords

Big data;Urban traffic planning; System constitution.

1. Introduction

Although some mega-cities in China have begun to apply large-scale data tools to information collection and problem sorting of urban traffic planning, and have made remarkable achievements in project and project research, it is undeniable that the application of large-scale data technology in urban traffic planning is still in progress in China. At the initial stage, there are many problems to be solved. This paper takes some problems existing in the study of large data urban traffic planning system as the research object, and puts forward some practical solutions, hoping to promote the construction of large data urban traffic planning system in China.

Two, some problems in the application of big data technology in urban traffic planning system.

(1) The incomplete collection of large data samples

The so-called "big data" technology is to standardize the processing of massive data information and make it a high-quality information assets of a technical means. Although the application of "big data" technology focuses on its processing value-added capability, it can not be denied that one of the salient features of large data is full sample. At present, limited by the single way of collecting large data and other factors, the applicable data of urban traffic planning in China is incomplete and can not really represent the full sample of urban traffic. For example, mobile phone signaling data is often used in urban traffic planning with large data in China, but in practice, such as the restriction of mobile phone users and the possibility that the same natural person may have multiple mobile phone signals. The lack of coverage or duplicate collection of mobile signaling data for some groups leads to the failure to implement the full sample of large data, which can easily mislead the direction of urban traffic planning.

2. The imperfection of the basic theory of big data.

Although the concept of "big data" has been widely used in various fields, but "big data" is still a new subject with short development time and single research method. For emerging disciplines, there is often a lack of widely accepted academic theories and empirical research tools within the discipline. The imperfection of this theory will easily lead to inconsistent standards for urban traffic planning and insufficient depth of data research. For example, in the study of urban traffic congestion, because

there is no widely accepted large-scale data study, each city uses different planning data sources, so the lateral comparison of urban traffic conditions is difficult.

3. Big data management is not in place.

For urban traffic planning practitioners and theoretical researchers, another limiting factor in the construction of large data urban traffic planning system is the inadequacy of large data management. Unlike the large-scale data processing of business model, the massive data collected in the field of urban transportation often involve the privacy of urban residents and even national security information. If there is no perfect information management system, it will infringe on citizens'privacy and endanger national security.

Three, some measures to build and perfect the big data urban traffic planning system in China.

(1) Building a multi-level and multi angle collection system for urban transportation.

According to the basic principles of statistics, we can know that only the whole sample can find the rule. Although the possibility of obtaining the whole sample is almost zero according to the current technical means, it is still necessary to collect the relevant data samples as diversified as possible in urban traffic planning, for example, when analyzing the causes of traffic congestion in a city, we can To integrate mobile phone signaling data and public traffic card data. This kind of diversified data collection can efficiently obtain the traffic density and travel characteristics of different urban areas in different time periods. In addition, traffic planners can broaden the sources of large data and improve the previously overly commercialized way of providing information so that sample information conforms to the theme of urban transport planning.

(Two) Improve the application of the theory of big data in the field of urban traffic planning

Theory is a necessary prerequisite for correct cognition, and it is also the basis for large data to be widely spread in the field of urban traffic planning. At present, practitioners of urban traffic planning must innovate the theory of large-data urban traffic planning system from the point of view of the definition of large-data characteristics, and make decisions, judgments and frameworks on this basis. For example, in urban traffic planning, we should take into account the complexity of the whole sample and also follow the principle of efficiency, make full use of large data and efficient computing capacity, reduce planning costs.

(Three) Establish a perfect urban traffic planning and management system with big data.

Establishing a perfect urban traffic planning and management system with large data mainly starts from two aspects: one is to pay attention to privacy protection in the process of information collection; the other is to formulate reasonable regulations for open urban traffic data. First of all, the state needs to change the mode of personal information protection in the era of big data, improve the procedure of information transmission from the legislative point of view, balance personal interests and economic interests of enterprises. Secondly, the government can establish cooperative relations with enterprises, for example, the transportation department can establish a special website for traffic data sharing, while meeting the economic needs of all parties, using the technology provided by enterprises to improve the management system.

4. Conclusion

To sum up, with the wide application of Internet technology, China has entered the era of big data. Facing the application of large data in the field of urban traffic planning, only when the relevant practitioners calmly face the concept of "big data" in the upsurge, and solve the problems of sample missing, theory imperfection and management inadequacy in the application of large data in the field of urban traffic planning, can they finally promote me. The development of urban transportation in China.

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