




八、 学生培养成效

(二) 学生荣誉与奖励

3. 学生发表 SCI 论文 (部分)

序号	学生姓名	成果名称	期刊名称	成果形式
1	左新羽	《Activity Duration under the COVID-19 Pandemic: A Comparative Analysis among Different Urbanized Areas Using a Hazard-Based Duration Model》 《疫情背景下活动持续时间的比较研究：基于风险模型的不同城市化区域分析》	Sustainability (MDPI)	论文
2	王志玮	《The Impacts of Low-Carbon Incentives and Carbon-Reduction Awareness on Airport Ground Access Mode Choice under Travel Time Uncertainty: A Hybrid CPT-MNL Model.》 《旅行时间不确定性下低碳激励与减碳意识对机场地面交通方式选择的影响研究：基于 CPT-MNL 混合模型》	Sustainability (MDPI)	论文
3	王兴宇	《The spatial and temporal disaggregation models of high - accuracy vehicle emission inventory》 《高精度机动车排放清单的时空分解模型研究》	Environment International	论文
4	郭奥华	《Development of distributed and decentralized intelligent transport systems in terms of digitalization》 《面向数字化的分布式与去中心化智能交通系统发展研究》	E3S Web of Conferences	论文
5	王兴宇	《A novel spatial disaggregation model of vehicle emission inventory》 《一种新型机动车排放清单空间分解模型研究》	Urban Climate	论文
6	李一佳, 金自明	《Digital traffic state analysis for urban regions considering complex multi - directional flow changes》 《考虑复杂多方向流动变化的城市交通状态数字化分析》	Ain Shams Engineering Journal	论文
7	邵梦茹	《Investigating the Impacts of Autonomous Vehicles on the Efficiency of Road Network and Traffic Demand: A Case Study of Qingdao, China》 《自动驾驶车辆对道路网络效率与交通需求影响的研究：以中国青岛为例》	Sensors	论文
8	王荣洲	《A Method for Designing the Architecture of Intelligent Transportation Systems in the People's Republic of China》 《中国智能交通系统体系结构设计方法研究》	E3S Web of Conferences	论文
9	左新羽, 谷晓宁	《Activity Duration under the COVID-19 Pandemic: A Comparative Analysis among Different Urbanized Areas Using a Hazard-Based Duration Model》 《新冠疫情背景下的活动持续时间研究：基于风险持续时间模型的不同城市化区域比较分析》	Sustainability	论文
10	邵梦茹, 吕庆昌, 左新羽, 谷晓宁	《The Impacts of Low-Carbon Incentives and Carbon-Reduction Awareness on Airport Ground Access Mode Choice under Travel Time Uncertainty: A Hybrid CPT-MNL Model》 《旅行时间不确定性下低碳激励与减碳意识对机场地面出行方式选择的影响研究：基于 CPT-MNL 混合模型》	Sustainability	论文

11	姜吉啸	《Research on the efficiency of neural network-based traffic flow prediction model》 《基于神经网络的交通流预测模型效率研究》	World of transport and technologic al machines	论文
12	姜吉啸	《Research on Urban Road Traffic Flow Prediction Based on Hybrid CNN-LSTM Model》 《基于 CNN-LSTM 混合模型的城市道路交通流预测研究》	Applied and Computatio nal Engineering	论文
				
Article		Article		
Activity Duration under the COVID-19 Pandemic: A Comparative Analysis among Different Urbanized Areas Using a Hazard-Based Duration Model		The Impacts of Low-Carbon Incentives and Carbon-Reduction Awareness on Airport Ground Access Mode Choice under Travel Time Uncertainty: A Hybrid CPT-MNL Model		
Chunguang Liu ¹ , Xinyu Zuo ¹ , Xiaoning Gu ² , Mengru Shao ^{3,*} and Chao Chen ^{2,*}		Mengru Shao ¹ , Chao Chen ² , Qingchang Lu ³ , Xinyu Zuo ¹ , Xueling Liu ^{4,*} and Xiaoming Gu ^{4,*}		
<p>¹ Daxi School, International Education College, Shandong Jiaotong University, Jinan 250057, China; 213008@sdjiaotong.edu.cn (C.-J.); 213009@sdjiaotong.edu.cn (X.-Y.)</p> <p>² State Key Laboratory of Structural Analysis for Industrial Equipment, School of Automotive Engineering, Dalian University of Technology, Dalian 116024, China; gaoxiaoning@mail.dlut.edu.cn</p> <p>³ Urban Planning and Transportation, Department of the Built Environment, Eindhoven University of Technology, 5600MB Eindhoven, The Netherlands</p> <p>* Correspondence: m.shao@tue.nl (M.S.); chenchaoc@tue.nl (C.C.)</p>		<p>¹ Urban Planning and Transportation, Department of the Built Environment, Eindhoven University of Technology, 5600MB Eindhoven, The Netherlands; m.shao@tue.nl</p> <p>² State Key Laboratory of Structural Analysis, Optimization and CAE Software for Industrial Equipment, School of Automotive Engineering, Dalian University of Technology, Dalian 116024, China; chenchaoc@mail.dlut.edu.cn</p> <p>³ School of Electronics and Control Engineering, Chang'an University, Xi'an 710064, China; qingchlu@mail.ccit.edu.cn</p> <p>⁴ Daxi School, International Education College, Shandong Jiaotong University, Jinan 250057, China</p> <p>* Correspondence: 213009@sdjiaotong.edu.cn (X.-J.); xliu@mail.dlut.edu.cn (X.-G.)</p>		
<p>Abstract: There have been significant changes in daily activities and corresponding durations since the outbreak of COVID-19. This study examines how the built environment factors and individual/household characteristics affect activity durations (e.g., shopping, social-related, hiking, and working) under the COVID-19 pandemic and analyzes the heterogeneity between different urbanized areas using the data of a Dutch national travel survey in 2020. A hazard-based duration model (e.g., the Cox proportional hazard model) was used to predict activity durations. Estimation results showed that the activity durations for different social groups varied under different geographical and policy conditions. In particular, women and seniors are more susceptible to the unprecedented pandemic, manifested in significantly shorter durations for work and hiking activities. In addition, couples with one or more children need to shorten their working hours and give more attention to their children due to the closure of nurseries and schools. Furthermore, the influence of built environment factors also present significant differences. A higher number of service facilities does not significantly foster the extension of hiking activity duration; however, this is the opposite among regions with more open green areas. Compared with previous studies on analyzing the influencing factors of activity durations, this study incorporated some unique variables (e.g., COVID-19 countermeasures and urban class) to consider the temporal and spatial heterogeneity under the particular pandemic period.</p>		<p>Abstract: Developing strategies to incentivize travelers towards adopting sustainable mobility options is one of the effective approaches to mitigate carbon emissions. Using Xi'an Xiangyang International Airport as a case study, this study aims to explore the effects of low-carbon incentives and carbon-reduction awareness on airport ground access mode choice. In addition, to account for the complex road environment, an innovative stated preference choice experiment was designed, integrating the factor of travel time uncertainty. Then, a hybrid cumulative prospect theory–Multinomial Logit (CPT-MNL) model was also developed. The estimated results revealed that travelers increasingly prioritize emissions reduction and consciously prefer sustainable mobility options to reach the airport. Furthermore, the potential of low-carbon incentives to encourage public transport usage over private vehicles has been highlighted. Notably, travel time uncertainty had a significant impact on the choice of private cars. When the travel time to the airport is uncertain, travelers exhibit a greater inclination towards selecting public transport. The findings of this study offer nuanced insights for transportation authorities, aiding them in fostering the adoption of sustainable mobility options and achieving carbon reduction objectives.</p>		
<p>Keywords: built environment; COVID-19 countermeasures; activity duration; spatial heterogeneity; hazard-based duration model</p>		<p>Keywords: mode choice behavior; CPT-MNL model; stated preference choice experiment; low-carbon incentives; carbon-reduction awareness; travel time uncertainty</p>		
<p>1. Introduction</p> <p>Since the first known outbreak of COVID-19 in Wuhan, China, in December 2019, this novel coronavirus has spread rapidly around the world. Precisely because of the unexpected epidemic, many countries have suffered varying losses. By early October 2021, more than 232.2 million cases were confirmed in 215 countries, with more than 4.7 million deaths [1]. In order to limit the further spread of COVID-19 and reduce the number of deaths, most countries have imposed certain restrictions on their residents. Like other European countries, the Netherlands has also introduced some epidemic prevention and control measures in the last two years. These measures are expected to present an effective method to prevent and slow down the pandemic in the Netherlands. However, the practical effects depend on how society follows these rules. Subject to these kinds of stricter control measures, Shafat et al. [2] found that residents could be roughly divided into two groups: “COVID Conscious” and “Infection Indifferent”. In addition, the residents’</p>		<p>1. Introduction</p> <p>In recent years, the global community has confronted escalating challenges related to climate change and environmental pollution issues. The extensive literature indicates that vehicle emissions have emerged as a leading contributor to air pollution in transportation [1]. For instance, in Beijing, China, approximately 31% of air pollution is attributed to vehicle exhaust emissions [2]. In response to these pressing concerns, governments and societies have intensified their focus on implementing and encouraging sustainable travel options as a means to mitigate the adverse effects of traffic-related pollution on climate change and achieve sustainable development [3]. However, it is crucial to highlight that reducing traffic carbon emissions requires not only innovations in vehicle-related technologies but also sustaining travel behaviors of people’s daily travels [4]. In this context, there is growing interest between both researchers and governments in exploring strategies and policies to incentivize and encourage individuals to travel with sustainable modes.</p> <p>Factors influencing transport mode choice behavior and the adoption of sustainable transport choices have been extensively explored in the literature [5–12]. Among these</p>		
<p>Sustainability 2023, 15, 9537. https://doi.org/10.3390/su15129537</p>		<p>Sustainability 2023, 15, 12610. https://doi.org/10.3390/su15126120</p> <p>https://www.mdpi.com/journal/sustainability</p>		
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Article

The Impacts of Low-Carbon Incentives and Carbon-Reduction Awareness on Airport Ground Access Mode Choice under Travel Time Uncertainty: A Hybrid CPT-MNL Model

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Abstract: Developing strategies to incentivize travelers towards adopting sustainable mobility options is one of the effective approaches to mitigate carbon emissions. Using Xi'an Xiangyang International Airport as a case study, this study aims to explore the effects of low-carbon incentives and carbon-reduction awareness on airport ground access mode choice. In addition, to account for the complex road environment, an innovative stated preference choice experiment was designed, integrating the factor of travel time uncertainty. Then, a hybrid cumulative prospect theory–Multinomial Logit (CPT-MNL) model was also developed. The estimated results revealed that travelers increasingly prioritize emissions reduction and consciously prefer sustainable mobility options to reach the airport. Furthermore, the potential of low-carbon incentives to encourage public transport usage over private vehicles has been highlighted. Notably, travel time uncertainty had a significant impact on the choice of private cars. When the travel time to the airport is uncertain, travelers exhibit a greater inclination towards selecting public transport. The findings of this study offer nuanced insights for transportation authorities, aiding them in fostering the adoption of sustainable mobility options and achieving carbon reduction objectives.

Keywords: mode choice behavior; CPT-MNL model; stated preference choice experiment; low-carbon incentives; carbon-reduction awareness; travel time uncertainty

1. Introduction

In recent years, the global community has confronted escalating challenges related to climate change and environmental pollution issues. The extensive literature indicates that vehicle emissions have emerged as a leading contributor to air pollution in transportation [1]. For instance, in Beijing, China, approximately 31% of air pollution is attributed to vehicle exhaust emissions [2]. In response to these pressing concerns, governments and societies have intensified their focus on implementing and encouraging sustainable travel options as a means to mitigate the adverse effects of traffic-related pollution on climate change and achieve sustainable development [3]. However, it is crucial to highlight that reducing traffic carbon emissions requires not only innovations in vehicle-related technologies but also sustaining travel behaviors of people's daily travels [4]. In this context, there is growing interest between both researchers and governments exploring strategies and policies to incentivize and encourage individuals to travel with sustainable modes.

Factors influencing transport mode choice behavior and the adoption of sustainable transport choices have been extensively explored in the literature [5–12]. Among these

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<div data-bbox="253 208 362 237"> </div> <div data-bbox="684 215 727 237"> </div> <div data-bbox="253 255 718 322"> <p>Article Investigating the Impacts of Autonomous Vehicles on the Efficiency of Road Network and Traffic Demand: A Case Study of Qingdao, China</p> </div> <div data-bbox="253 329 671 347"> <p>Chunqiang Liu ¹, Vladimir Zyryanov ², Ivan Topilin ³, Anastasia Feofilova ⁴ and Mengru Shao ^{3,*}</p> </div> <div data-bbox="370 358 727 412"> <p>¹ Don School, International Education College, Shandong Jiaotong University, Jinan 250357, China ² Faculty of Road and Transportation, Don State Technical University, 1 Gagarin sq., Rostov-on-Don 344000, Russia ³ Urban and Data Science, Graduate School of Advanced Science and Engineering, Hiroshima University, Higashi-Hiroshima 739-0011, Japan ⁴ Correspondence: shaomengru@gmail.com</p> </div> <div data-bbox="370 418 727 573"> <p>Abstract: Rapid urbanization has led to the development of intelligent transport in China. As active safety technology evolves, the integration of autonomous active safety systems is receiving increasing attention to enable the transition from functional to all-weather intelligent driving. In this process of transformation, the goal of automobile development becomes clear: autonomous vehicles. According to the Report on Development Forecast and Strategic Investment Planning Analysis of China's autonomous vehicle industry, at present, the development scale of China's intelligent autonomous vehicles has exceeded market expectations. Considering limited research on utilizing autonomous vehicles to meet the needs of urban transportation (transporting passengers), this study investigates how autonomous vehicles affect traffic demand in specific areas, using traffic modeling. It examines how different penetration rates of autonomous vehicles in various scenarios impact the efficiency of road networks with constant traffic demand. In addition, this study also predicts future changes in commuter traffic demand in selected regions using a constructed NL model. The results aim to simulate the delivery of autonomous vehicles to meet the transportation needs of the region.</p> </div> <div data-bbox="370 577 721 595"> <p>Keywords: autonomous vehicles; intelligent transport; transportation; demand; traffic simulation</p> </div> <div data-bbox="253 566 362 595"> <p></p> </div> <div data-bbox="253 577 362 658"> <p>Chunqiang Liu, C. Zyryanov, V. Topilin, I. Feofilova, A. Shao, M. Investigating the Impacts of Autonomous Vehicles on the Efficiency of Road Network and Traffic Demand: A Case Study of Qingdao, China. <i>Sensors</i> 2023, 24, 3136. https://doi.org/10.3390/s24043136</p> </div> <div data-bbox="253 658 362 739"> <p>Received: 22 July 2023 Revised: 30 July 2023 Accepted: 30 July 2023 Published: 7 August 2023</p> </div> <div data-bbox="253 745 362 763"> <p></p> </div> <div data-bbox="253 768 362 853"> <p>Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/).</p> </div> <div data-bbox="202 864 770 1052"> <p>邵梦茹 《Investigating the Impacts of Autonomous Vehicles on the Efficiency of Road Network and Traffic Demand: A Case Study of Qingdao, China》 《自动驾驶车辆对道路网络效率与交通需求影响的研究：以中国青岛为例》</p> </div>	<div data-bbox="845 201 979 224"> </div> <div data-bbox="1318 208 1361 230"> </div> <div data-bbox="845 239 1351 300"> <p>Article The Impacts of Low-Carbon Incentives and Carbon-Reduction Awareness on Airport Ground Access Mode Choice under Travel Time Uncertainty: A Hybrid CPT-MNL Model</p> </div> <div data-bbox="845 302 1278 318"> <p>Mengru Shao ¹, Chao Chen ², Qingchang Lu ³, Xinyu Zuo ^{1,4,*} and Xiaoning Gu ^{2,4}</p> </div> <div data-bbox="970 327 1351 412"> <p>¹ Urban Planning and Transportation, Department of the Built Environment, Eindhoven University of Technology, 5600MB Eindhoven, The Netherlands; m.shao@tue.nl ² State Key Laboratory of Structural Analysis, Optimization and CAE Software for Industrial Equipment, School of Automotive Engineering, Dalian University of Technology, Dalian 116024, China; chenchaocad@dlut.edu.cn ³ School of Electronics and Control Engineering, Chang'an University, Xi'an 710064, China ⁴ Don School, International Education College, Shandong Jiaotong University, Jinan 250357, China * Correspondence: 2320108@p.eindhoven.nl (X.Y.); gaoxiaoning@mail.dlut.edu.cn (X.N.G.)</p> </div> <div data-bbox="970 412 1367 553"> <p>Abstract: Developing strategies to incentivize travelers towards adopting sustainable mobility options is one of the effective approaches to mitigate carbon emissions. Using Xi'an Xiangyang International Airport as a case study, this study aims to explore the effects of low-carbon incentives and carbon-reduction awareness on airport ground access mode choice. In addition, to account for the complex road environment, an innovative stated preference choice experiment was designed, integrating the factor of travel time uncertainty. Then, a hybrid cumulative prospect theory–Multinomial Logit (CPT-MNL) model was also developed. The estimated results revealed that travelers increasingly prioritize emissions reduction and consciously prefer sustainable mobility options to reach the airport. Furthermore, the potential of low-carbon incentives to encourage public transport usage over private vehicles has been highlighted. Notably, travel time uncertainty had a significant impact on the choice of private cars. When the travel time to the airport is uncertain, travelers exhibit a greater inclination towards selecting public transport. The findings of this study offer nuanced insights for transportation authorities, aiding them in fostering the adoption of sustainable mobility options and achieving carbon reduction objectives.</p> </div> <div data-bbox="970 557 1367 582"> <p>Keywords: mode choice behavior; CPT-MNL model; stated preference choice experiment; low-carbon incentives; carbon-reduction awareness; travel time uncertainty</p> </div> <div data-bbox="845 490 896 508"> <p></p> </div> <div data-bbox="845 508 960 600"> <p>Chunqiang Liu, M. Chen, C. Lu, Q. Zuo, X. Gu, X. Gu, S. The Impacts of Low-Carbon Incentives and Carbon-Reduction Awareness on Airport Ground Access Mode Choice under Travel Time Uncertainty: A Hybrid CPT-MNL Model. <i>Sustainability</i> 2023, 15, 12610. https://doi.org/10.3390/su151012610</p> </div> <div data-bbox="845 602 960 658"> <p>Received: 19 July 2023 Revised: 14 August 2023 Accepted: 14 August 2023 Published: 20 August 2023</p> </div> <div data-bbox="845 658 960 676"> <p></p> </div> <div data-bbox="845 676 960 754"> <p>Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/).</p> </div> <div data-bbox="845 777 1367 790"> <p><i>Sustainability</i> 2023, 15, 12610. https://doi.org/10.3390/su151012610 https://www.mdpi.com/journal/sustainability</p> </div> <div data-bbox="813 797 1402 1059"> <p>邵梦茹 《The Impacts of Low-Carbon Incentives and Carbon-Reduction Awareness on Airport Ground Access Mode Choice under Travel Time Uncertainty: A Hybrid CPT-MNL Model》 《旅行时间不确定性下低碳激励与减碳意识对机场地面出行方式选择的影响研究：基于 CPT-MNL 混合模型》</p> </div>
<div data-bbox="212 1070 748 1099"> <p>E3S Web of Conferences 403, 07035 (2023) ESCP-2023</p> </div> <div data-bbox="526 1070 748 1086"> <p>https://doi.org/10.1051/e3sconf/202340307035</p> </div> <div data-bbox="237 1171 718 1236"> <p>Development of distributed and decentralized intelligent transport systems in terms of digitalization</p> </div> <div data-bbox="237 1247 537 1263"> <p>Guo Aohua ^{1,*}, Vladimir Zyryanov ¹, and Liu Chunqiang ²</p> </div> <div data-bbox="237 1267 509 1294"> <p>¹Don State Technical University, Rostov-on-Don, Russia ²Shandong Transport University, Jinan, China</p> </div> <div data-bbox="300 1299 657 1487"> <p>Abstract. Intelligent Transport System (ITS) is one of the fastest growing areas of intelligent systems that improves road safety and fuel efficiency, reduces traffic congestion, refines the environmental situation of metropolitan cities. The main functions of the intelligent transportation system are real-time monitoring of road conditions in certain areas, location of road traffic incidents (RTI), dynamic monitoring and management of the continuous use of public transport services, as well as anything that can lead to changes in road traffic. In this article, the aforementioned ITS functionality is used as basic simulation scenarios for the development and implementation of an Intelligent Transport System based on the Internet of Things and blockchain technology. Both of these technologies have the inherent characteristics of a distributed technology, integrating IoT sensor nodes and distributed registry technology to register changes in Intelligent Transportation systems and create a credit token mechanism to pay for the use of road transport services. The Intelligent Transport System is a comprehensive intelligent system; it can significantly change and improve traffic conditions.</p> </div> <div data-bbox="300 1485 657 1512"> <p>Keywords: blockchain, Intelligent Transport System, smart contract, machine learning, big data analysis.</p> </div> <div data-bbox="237 1536 381 1554"> <p>1 Introduction</p> </div> <div data-bbox="237 1556 718 1650"> <p>Fast-growing end-to-end technologies, including the Internet of Things (IoT) and cloud computing, enable big data processing, analysis and decision-making in control systems. These technologies also include blockchain, which shows a rapid pace of development and a significant potential for application in ITS [1–3]. Blockchain can be used to create a secure, reliable and decentralized system, ensuring optimal use of all road infrastructure and resources. One of the most important issues in the application of blockchain technology is the security issues caused by the evolution of ITS towards centralization.</p> </div> <div data-bbox="237 1675 458 1693"> <p>2 Materials and methods</p> </div> <div data-bbox="237 1718 458 1736"> <p>* Corresponding author: guoah66.6@gmail.ru</p> </div> <div data-bbox="212 1751 748 1778"> <p>© The Authors, published by EDP Sciences. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).</p> </div> <div data-bbox="197 1783 782 1968"> <p>郭奥华 《Development of distributed and decentralized intelligent transport systems in terms of digitalization》 《面向数字化的分布式与去中心化智能交通系统发展研究》</p> </div>	<div data-bbox="845 1093 1356 1122"> <p>E3S Web of Conferences 403, 07022 (2023) ESCP-2023</p> </div> <div data-bbox="1142 1093 1356 1108"> <p>https://doi.org/10.1051/e3sconf/202340307022</p> </div> <div data-bbox="874 1196 1329 1258"> <p>A Method for Designing the Architecture of Intelligent Transportation Systems in the People's Republic of China</p> </div> <div data-bbox="874 1270 1123 1285"> <p>Rongzhou Wang¹, Vladimir Vasylyevich Zyryanov</p> </div> <div data-bbox="874 1288 1123 1305"> <p>Don State Technical University, Rostov-on-Don, Russia</p> </div> <div data-bbox="932 1323 1272 1460"> <p>Abstract. Relevance of the research topic. With the rapid development of the social economy and technology, the number of existing cars and drivers has increased rapidly, and the construction of the urban road information management system has been relatively lagging behind, leading to the incompatibility of the existing traffic management model with the rapidly growing demand for transportation. Intelligent transportation systems (ITS) have been developed very complete and mature in many developed countries in the world and are widely used. With the development of technology, intelligent transportation systems will be increasingly used in urban traffic. The development of intelligent transport will be a promising direction for the development of transport in cities of the second and third echelon.</p> </div> <div data-bbox="932 1485 1272 1512"> <p>Keywords: Architecture, Intelligent transport systems, Development method, Software engineering.</p> </div> <div data-bbox="874 1536 983 1554"> <p>1 Introduction</p> </div> <div data-bbox="874 1556 1329 1729"> <p>With the rapid development of the social economy and technology, the number of existing cars and drivers has increased rapidly, and the construction of the urban road information management system has been relatively lagging behind, leading to the incompatibility of the existing traffic management model with the rapidly growing demand for transportation. This created serious problems for the traffic department. Traffic congestion, increased parking time and an increase in traffic accidents not only affect the development of economic construction, but also interfere with people's daily lives. Therefore, building an intelligent traffic information system, enhancing the city's economic development potential, effectively improving the city's investment environment, developing urban modernized traffic management plans, and using advanced technical means to achieve scientific management have become the top priority of urban traffic management construction [1]. Intelligent Transportation Systems (ITS) have been developed very complete and mature in many developed countries of the world and are widely used. China's intelligent</p> </div> <div data-bbox="874 1744 1085 1762"> <p>* Corresponding author: 1021553988@qq.com</p> </div> <div data-bbox="845 1774 1356 1800"> <p>© The Authors, published by EDP Sciences. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).</p> </div> <div data-bbox="813 1805 1402 1953"> <p>王荣洲 《A Method for Designing the Architecture of Intelligent Transportation Systems in the People's Republic of China》 《中国智能交通系统体系结构设计方法研究》</p> </div>