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## FEBRUARY 2024

### AUTONOMOUS TRANSPORT SYSTEMS



Prepared By:

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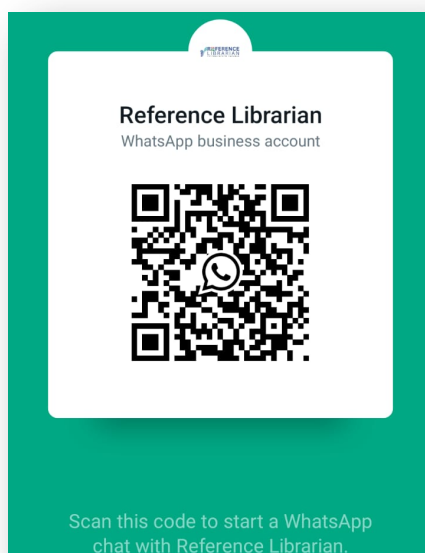
## CURRENT AWARENESS SERVICE@PUSTAKA

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TOPIC OF CURRENT AWARENESS SERVICES@PUSTAKA FOR FEBRUARY:  
**AUTONOMOUS TRANSPORT SYSTEMS**

According to Lot One website, Autonomous transport systems provide unmanned, autonomous transfer of equipment, baggage, people, information or resources from point-to-point with minimal intervention. They can include the full range of transport vehicles, including trucks, buses, trains, metros, ships, and airplanes. They are most commonly deployed in controlled industries zones but are expected to soon be deployed in public areas with varying degrees of autonomy.

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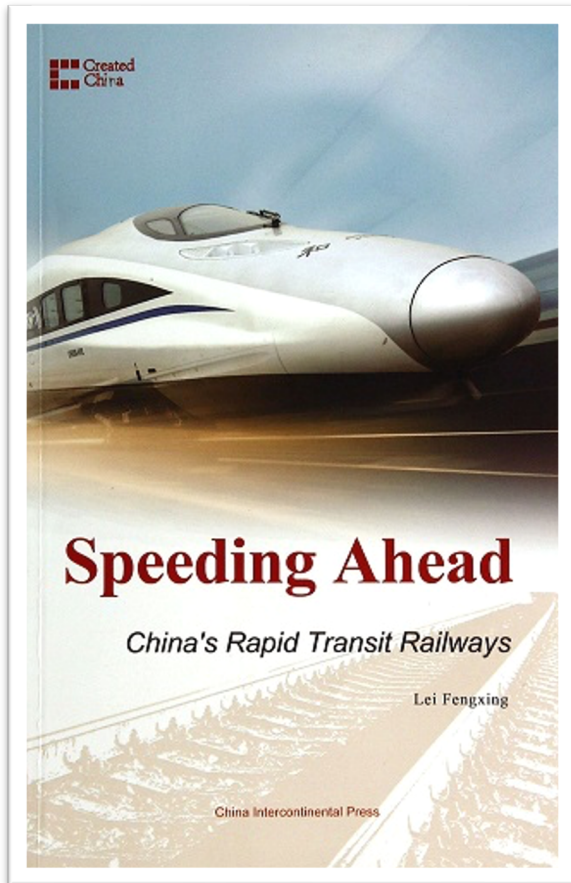
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## LIST OF RESOURCES ON AUTONOMOUS TRANSPORT SYSTEMS IN PUSTAKA'S COLLECTION

### LIST OF BOOKS

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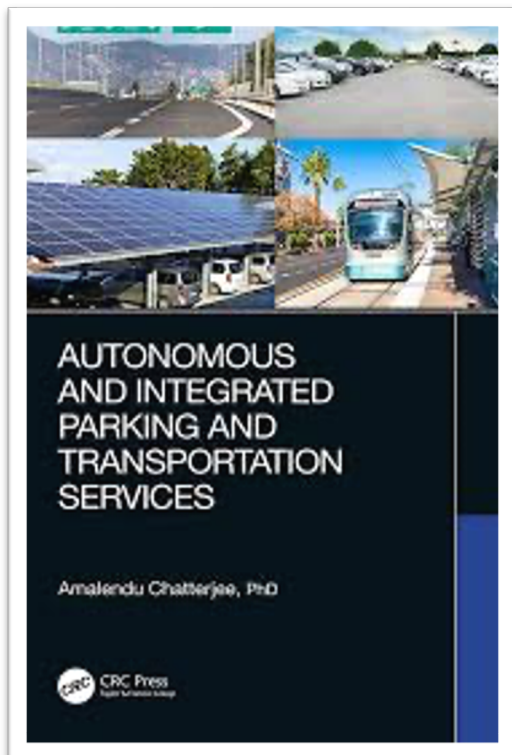
Title : Speeding Ahead :  
China's Rapid Transit  
Railways  
Author : Lei Fengxing  
Publisher : China  
Intercontinental Press  
Call : 385.2095  
Number  
ISBN : 9787508527055  
Location : Pustaka Negeri  
Sarawak, Miri  
Format : Book  
material



#### Description:

This book sets forth the historical background for the development of China's rapid transit railways and puts into order the endeavors of China in catching up with the world's development trend for rapid transit railways.



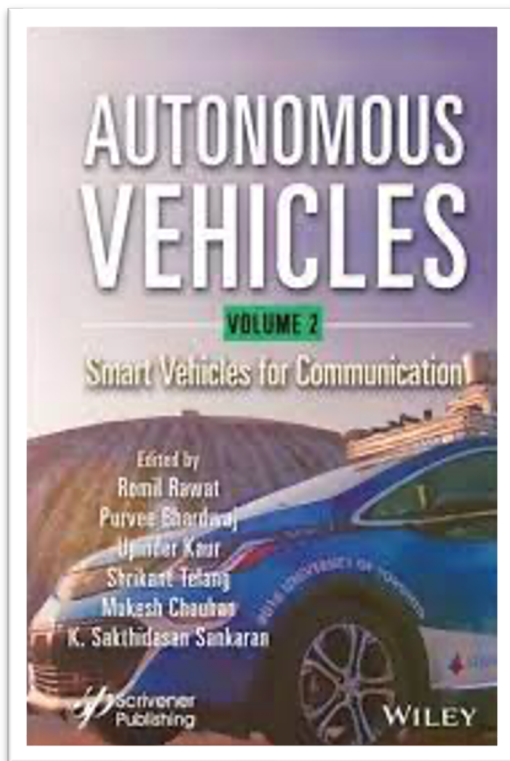


Title : Autonomous and Integrated Parking and Transportation Services  
Author : Amalendu Chatterjee  
Publisher : CRC Press, Taylor & Francis Group  
Call Number : 388.474  
ISBN : 9780367180812  
Location : Pustaka Negeri Sarawak (Kuching)  
Format : Book material



**Description:**

The book highlights currently available autonomous parking and transportation technologies, and the development of an integrated and intelligent transportation service/system (IITS) platform, with specific use of technologies to reconfigure the transportation industry. The author also suggests many regulatory and policy changes to simplify data collection, traffic operation, introduction of a duplicate transportation system using light rail (LRs) and high speed rail (SPRs), and redistribution of parking spaces along such routes, using renewable energy.



Title : Autonomous Vehicles  
Volume 2 : Smart Vehicles  
Editor : Romil Rawat  
Publisher : MA:Scrivener Publishing  
Call : 388.312  
Number  
ISBN : 9781394152254  
Location : Pustaka Negeri Sarawak  
(Sibu)  
Format : Book  
material



#### Description:

The purpose of the book is to present the needs, designs, and applications of autonomous vehicles. The topics covered range from mechanical engineering to computer science engineering, both areas playing vital roles in programming, managing, generating alerts, and GPS position, artificial intelligence-based prediction of path and events, as well as other high-tech tools, are covered in this book, as well.

## LIST OF ARTICLES

**Note:** Kindly scan the QR Code for full text online.

Title : **Mapping technology roadblocks and opportunities in the transportation revolution**  
Authors : Amy Blitz and Khurram Kazi  
Online Database : Emerald Insight  
Format : e-Article



## Mapping technology roadblocks and opportunities in the transportation revolution

Amy Blitz and Khurram Kazi

**W**hen technological breakthroughs disrupt industries, organizational structures and the broader macroeconomic environment they also generate opportunities for new business models. A paradigm shift toward “machine-to-machine services” is fast emerging, setting off a revolution in many areas including transportation. As an example, the advent of autonomous electric vehicles (AEV), piloted by artificial intelligence and serviced by other “intelligent” machines, poses vast implications for business strategy in many industries. Self-driving electric cars and trucks, which are expected to transform the transportation landscape over the next decade,[1] will likely produce changes in the economy similar to the effect of railroads in the 1800s or the automobile in the 1900s. Given the speed with which business leaders today must assess and react to the business risks and opportunities engendered by breakthrough technological change, their plans to navigate an AEV-based transportation future can benefit from a scenario map to the roadblocks and the richest prospects.

### The future of autonomous vehicles: a case study in navigating breakthrough technologies

As one major factor in a scenario exploration, smart machines are creating new market frontiers throughout the economy. A second factor, concerns about climate change, are intensifying demand for energy efficient road transport for people and freight, spurring interest in electric vehicles. Combining smart machines and electric vehicles, AEVs offer societal benefits such as reduced environmental impact, improved traffic flows and better time management by freeing people from driving. When expanded to trucking, business opportunities to transform ground transport in areas such as operations and supply chain management are significant as well, particularly with unsupervised AEVs, which could slash labor costs and transport times, while also addressing current and projected shortages of truck drivers.[2]

A key limitation facing AEVs, however, is in charging, specifically access to charging stations and the time required to recharge. Currently, about 80 percent of all recharging occurs in home garages using the existing power distribution infrastructure.[3] As innovations in AEVs continue, the power needed for recharging is increasing multi-fold, straining the existing grid. To overcome this, significant infrastructure enhancements will be needed to accommodate larger electric loads.[4] Moreover, while the number of charging stations continues to increase, these stations are concentrated in urban areas and along the coasts, limiting the range of AEVs beyond these areas. This is a significant challenge to the potential for long-distance AEV car travel and long-haul trucking.

Amy Blitz is a professor of Economics and Strategy at Babson College ([ablitz@babson.edu](mailto:ablitz@babson.edu)). She has over 20 years of experience leading strategy initiatives at IBM, Ernst & Young and Harvard Business School. Khurram Kazi is a principal member of the technical staff at Draper Labs, where he works on R&D for autonomous spacecrafts, micro-grids, optical networks, and integrated circuits ([kkazi@draper.com](mailto:kkazi@draper.com)).

The authors would like to thank Kirsten Sandberg, Editor-in-chief of the Blockchain Research Institute, Adam Kelsey, principal member of technical staff at Draper Labs, Ravil Bikmetov, UNC Charlotte, M.A. Yasin Raja, Sr. Professor of Physics and Optical Science at UNC Charlotte and Churtzu Lim, Associate Professor of Systems Engineering at UNC Charlotte.

Title : **Intelligent and efficient? An empirical analysis of human–AI collaboration for truck drivers in retail logistics**  
Online Database : Emerald Insight  
Authors : Dominic Loske and Matthias Klumpp  
Format : e-Article

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<https://www.emerald.com/insight/0957-4093.htm>



IJLM  
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## Intelligent and efficient? An empirical analysis of human–AI collaboration for truck drivers in retail logistics

1356

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### Abstract

**Purpose** – Technological advances regarding artificial intelligence (AI) are affecting the transport sector. Although fully autonomous delivery, or self-driving trucks, are not operating currently, various AI applications have become fixed components of cargo vehicles. Since many research approaches primarily concentrate on the technical aspects of assistance systems (ASs), the economic question of how to improve efficiency is seldom addressed. Therefore, the purpose of this paper is to apply an efficiency analysis to measure the performance of truck drivers supplying retail stores.

**Design/methodology/approach** – For this comparative study, 90 professional truck drivers in three groups are compared with (1) trucks without AS, (2) trucks with AS that cannot be turned off and (3) trucks with AS that can be turned off. First, we build a model investigating the impact of performance expectation, effort expectation, social influence and facilitating conditions on the behavioural intention to use AS. Second, we explore the impact of truck drivers' behavioural intention on actual technology use, misuse and disuse; operationalize these constructs; and merge them with our behavioural constructs to create one econometric model.

**Findings** – The human–AI system was found to be the most efficient. Additionally, behavioural intention to use ASs did not lead to actual usage in the AI-alone observation group, but did in the human–AI group. Several in-depth analyses showed that the AI-alone group used AS at a higher level than the human–AI group, but manipulations through, for example, kickdowns or manual break operations led to conscious overriding of the cruise control system and, consequently, to higher diesel consumption, higher variable costs and lower efficiency of transport logistical operations.

**Research limitations/implications** – Efficiency analysis with data envelopment analysis is, by design, limited by the applied input and output factors.

**Originality/value** – This study represents one of the first quantitative efficiency analyses of the impact of digitalization on transport performance (i.e. truck driver efficiency). Furthermore, we build an econometric model combining behavioural aspects with actual technology usage in a real application scenario.

**Keywords** Europe, Decision-making, Case study, Information technology, Retail logistics, Performance measurements

**Paper type** Research paper



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**Disclosure statement:** No potential conflicts of interest were reported by the authors.

Title : **Systematic analysis of driverless technologies**  
Authors : David John Edwards, Jahangir Akhtar, Iain Rillie,  
Nicholas Chileshe, Joseph H.K. Lai, Chris J. Roberts,  
Obuks Ejohwomu  
Online Database : Emerald Insight  
Format : e-Article

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<https://www.emerald.com/insight/1726-0531.htm>



JEDT  
20,6

## Systematic analysis of driverless technologies

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1388

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### Abstract

**Purpose** – The advent of Industry 4.0 has engendered opportunities for a coalescence of digital technologies that collectively enable driverless vehicles to operate during the construction and use of a highway. Yet, hitherto scant research has been conducted to review these collective developments and/or sample construction practitioner opinion on them. This study aims to present a systematic review of extant literature on the application of driverless technologies in civil engineering and in particular, the highways infrastructure sector and offers insight into the limitations of associated barriers to full adoption, namely, current technological development processes, legal deficiencies and societal concerns. In so doing, this work presents a vignette of contemporary developments augmented by a critical analysis from practitioners' perceptions.

**Design/methodology/approach** – A mixed philosophical methodological approach is adopted for this inductive research study. Interpretivism is used to critically analyse the literature and post-positivism to perform content analysis of the literature and synthesis of the discourse with practitioners. A total of 44 related papers published between 1998 and 2019 have been included in this study. Emergent themes identified from literature are then discussed in some further detail, namely, 1) automation and robotics; 2) case studies and simulations; and 3) safety and ergonomics. A focus group is then held with leading industrialists to discuss their experiences of advanced driverless technology applications in practice. Based upon a culmination of emergent evidence, a conceptual model of prevailing barriers is then developed to further elucidate upon the challenges facing the highways infrastructure sector.

**Findings** – Research into driverless technologies within the highways infrastructure sector has received relatively scant academic attention. Hitherto, most advancements made have stemmed from multidisciplinary teams consisting of engineering, information technology and social scientist researchers. There is insufficient supporting evidence of civil engineering and construction academics input into developments made – suggesting that prototype products often fail to adequately consider practical applications in the highways infrastructure sector at the design



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## LIST OF CASE STUDY

**Note:** Kindly scan the QR Code for full text online.

Title : **Policy and Strategy Evaluation of Ridesharing Autonomous Vehicle Operation: A London Case Study**

Authors : He-in Cheong, Jose Javier Escribano Macias, Renos Karamani, Marc Stettler, Arnab Majumdar, and Panagiotis Angeloudis

Online Database : Sage journal



**TRR**  
TRANSPORTATION RESEARCH RECORD

Research Article

### Policy and Strategy Evaluation of Ridesharing Autonomous Vehicle Operation: A London Case Study

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He-in Cheong<sup>1</sup>, Jose Javier Escribano Macias<sup>1</sup>, Renos Karamanis<sup>2</sup>,  
Marc Stettler<sup>1</sup>, Arnab Majumdar<sup>1</sup>, and Panagiotis Angeloudis<sup>1</sup>

#### Abstract

To understand the dynamics of an autonomous ridesharing transport mode from the perspectives of different stakeholders, a single model of such a system is essential, because this will enable policymakers and companies involved in the manufacture and operation of shared autonomous vehicles (SAVs) to develop user-centered strategies. The model needs to be based on real data, network, and traffic information and applied to real cities and situations, particularly those with complex public transportation systems. In this paper, we propose a new agent-based model for SAV deployment that enables the parametric assessment of key performance indicators from the perspective of potential SAV users, vehicle manufacturers, operators, and local authorities. This has been applied to a case study of three regions in London: central, inner, and outer. The results show there is no linear correlation between an increased ridesharing acceptance level and average trip duration. Without a fleet rebalancing algorithm, over 80% of SAVs' energy expenditure is on picking up customers. By reducing pickup distance, SAVs could be a contender for a nonpersonal transportation system based on trip energy comparisons. The results provide a picture of future SAV systems for potential users and offer suggestions as to how operators can devise an optimal transportation strategy beyond the question of fleet size and how policymakers can improve the overall transport network and reduce its environmental impact based on energy consumption. As a result of its flexibility and parametric capability, the model can be utilized to inform any local authority how SAV services could be deployed in any city.

#### Keywords

operations, automated/autonomous/connected vehicles, planning and analysis, shared mobility, simulation modeling, public transportation, transportation network companies (TNCs)

Autonomous vehicles (AVs), connected autonomous vehicles (CAVs), and shared autonomous vehicles (SAVs), which are fully automated at level 5 of automation (according to the classification provided by the Society of Automotive Engineers) and fully electric, are thought to be a transformative technology that will address the high demand for transportation in cities. Furthermore, through the deployment of SAVs, high-density cities could reclaim curb space for uses other than increasing the number of parking spaces to accommodate personal vehicles. From the users' perspective, SAVs have the potential to provide more convenient and quicker journeys than public transportation, although likely at a higher cost.

Numerous models have been developed for understanding the interaction between autonomous ridesharing

scenarios and SAVs. However, as outlined by Levin et al. (1), many of these models are limited by their use of unrealistic scenarios, a congestion modeling approach, grid networks, links with same travel times, and/or very small nodes and fleet sizes. Therefore, new agent-based models employing case studies of real cities have emerged (1–6). However, the research on SAVs is piecemeal, with limited overlap of the findings, and a heavy focus on the perspective of the transportation network operators.

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## LIST OF NEWSPAPER ARTICLE

**Note:** Kindly scan the QR Code for full text online.

Article Name : **'Autonomous transport tech is definitely coming'**  
Authors : Sherouk Zakaria Dubai  
Newspaper : Arab News  
Date of Published : 14 Feb 2024  
Online Database : PressReader



Article Name : **China's Consul-General praises developments in Sarawak under Premier Abang Johari**  
Newspaper : The Borneo Pos  
Date of Published : 3 Feb 2024  
Online Database : PressReader



Xing (right) presents a memento to Deputy Premier Datuk Amar Dr Sim Kui Hian, who represented Abang Johari at the dinner. — Photo by Kong Jun Liung



## China's Consul-General praises developments in Sarawak under Premier Abang Johari

Article Name : **AI-based Westwell to open global headquarters in HK**  
Authors : Peggy Sito  
Newspaper : South China Morning Post  
Date of Published : 20 Feb 2024  
Online Database : PressReader

LOGISTICS

## AI-based Westwell to open global headquarters in HK

**Peggy Sito**  
peggy.sito@southchina.com

Chinese artificial intelligence (AI)-based logistics company Westwell will inaugurate today an international headquarters in Hong Kong as a springboard to global expansion.

The Shanghai-based company, which designs and develops

scheduled for today, the new headquarters will be inaugurated by Westwell executives and the Secretary for Innovation, Technology and Industry Sun Dong, and the Under Secretary for Innovation, Technology and Industry Eileen Cheung Man-kei.

The Office for Attracting Strategic Enterprises (OASE), which works to draw high-potential and strategic enterprises to

collaborating with Hutchison Ports to introduce its autonomous trucks at Thailand's Laem Chabang Port.

The company also signed an agreement with the Port of Felixstowe, part of the Hutchison Ports network, to deploy 100 Q-Trucks at Britain's largest container port. To date, 34 trucks have been delivered.

Westwell employed more than

details about potential partners have not been disclosed.

The company had conducted extensive research into autonomous driving ecosystems worldwide during its global expansion planning, Yang said.

Westwell believes being in Hong Kong will create business opportunities thanks to the government's efforts to support research and development, accel-



Article Name : **GOING MOBILE: People with disabilities hope autonomous cars deliver independence**  
Authors : Tony Leys  
Newspaper : Baltimore Sun  
Date of Published : 9 Feb 2024  
Online Database : PressReader



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# GOING MOBILE

People with disabilities hope autonomous cars deliver independence.

By Tony Leys  
PHOTO BY TONY LEYS

As the car pulled onto the street, the driver's seat was empty. Instead, a computer was in the driver's seat, and a camera was in the passenger seat. The car was a white SUV with a blue and green logo on the side. The rear hatch was open, and a ramp was extended. A person in a wheelchair was being loaded into the car. A man in a green shirt was standing nearby.

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