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Sustainable Urban Transportation Evaluating Green Solutions for the Future

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Abstract

The sustainability of transport systems is a significant challenge for urbanisation, as demonstrated by the escalating air pollution concerns in large cities. The increasing population and travel, despite little control over the pervasive use of public and private automobiles, have adversely impacted our global ecosystem. Consequently, the enhancement of the transportation system must be meticulously strategized for global sustainability, referred to as green transportation or sustainable transportation. The objective is to present a comprehensive review of the current advancements in the field and to elucidate the paths indicated by the literature for sustainable urban design. The sustainability of transport systems is a significant challenge for urbanization, as demonstrated by the escalating air pollution concerns in large cities. The increasing population and travel, despite limited control over the prevalent use of public and private cars, have severely damaged our worldwide ecosystem. Current research and practices are integrated, emphasizing the interrelationship between urban design and transportation systems in attaining sustainable objectives. The

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potential contributions of technical innovations like electric mobility and innovative urban planning strategies like transit-oriented development to sustainable urban transportation are also explored. This emphasizes the necessity of implementing comprehensive and flexible measures to promote sustainable urban settings, urging collaborative action from politicians, urban planners, and communities. When city planners are aware of the findings they may better plan for the future sustainability of their communities. This review examines eco-friendly transport options and their alignment with global sustainability objectives.

Keywords Sustainable Cities, Urban Form; Urban Planning; Transport Planning; Energy Consumption, Sustainable Urban Mobility.

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INTRODUCTION

The innovative and sustainable development of urban centers and their adjacent regions has emerged as a significant and pressing concern with a primary focus on the transport infrastructure that facilitates smart and sustainable mobility. The United Nations reports that three million individuals migrate from rural regions to urban centers globally each week resulting in an anticipated doubling of metropolitan populations by about 2050. The expansion of the urban population raises concerns over the capacity of metropolitan regions to accommodate this movement in the forthcoming decades. This situation alarms the excessive demands on housing, energy, and transportation infrastructures as well as deteriorating air quality. The advancement of sustainable and intelligent urban transport systems is linked to the United Nations' Sustainable Development Goals (SDGs) (Halkos et al., 2021). In 2015, 193 United Nations member states accepted the Sustainable Development Goals (SDGs), acknowledging that the realization of these sustainable objectives necessitates both financial and non-financial contributions from governments, businesses, consumers, and society at large. The advancement of the SDGs is assessed and reviewed annually by explicitly specified metrics for each objective. The United Nations has highlighted that an effective and well-structured transport system enhances societal quality of life by facilitating access to education, healthcare, social services, employment, and economic prospects. Moreover, an efficient and eco-friendly transportation system and automobiles mitigate environmental pollutants and climate change (Mavlutova et al., 2023).

The 21st century is experiencing unparalleled urban expansion exerting significant strain on current transportation systems. Conventional urban transportation predominantly dependent on fossil fuels, substantially contributes to greenhouse gas emissions, air pollution, and traffic congestion. In response, cities worldwide are transitioning to sustainable urban mobility systems which are economically viable, environmentally favorable, and socially inclusive. The relationship between urban areas and climate is reciprocal, making it crucial to establish, enhance, and pursue a more sustainable built environment (Martin., 2014). The quality of life for city people and the sustainability of our planet as a whole depend on planning to make cities more sustainable. It has gathered the attention of local and global researchers and policymakers due to the significant and increasing energy consumption in urban areas (Yıldırım et al., 2017). The design and structure of the built environment influence energy use made the urban design techniques essential for achieving energy efficiency and climate objectives (Caputo et al., 2015). City-level energy planning is a difficult endeavor sometimes characterized as a “wicked problem,” denoting complex, poorly defined, and evolving issues that necessitate meticulously developed plans and regulations encountering several barriers and challenges (Cajto et al., 2017). A significant difficulty is the consolidated urban built environment namely existing metropolitan districts where modifications, regeneration, or rehabilitation are arduous and necessitate changes in human behavior to decrease energy usage (Wu et al., 2023).

The advancement of new technologies, along with citizen utilization and access, with investments in research and development, staff, training, and intangible assets, contributes to the establishment of a Smart City (Navarro et al., 2017). Hamamurad characterized a Smart City as one that employs information and communication technology (ICT), technological advancements, and innovation to

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enhance overall urban development and elevate the quality of life for its residents, while fostering economic growth, sustainability, and efficient urban management, including intelligent mobility (Hamamurad et al., 2022). Another study underscores a predominantly human-centric rather than technocentric approach to defining Smart cities (Dashkevych and Portnov, 2022). Anthopoulos asserts that a contemporary Smart city must encompass features such as resources, transportation, urban infrastructure, habitation, governance, economics, and coherence (Anthopoulos., 2015). The construction and effective use of superior infrastructure, particularly the urban mobility system, are essential for attaining sustainable development objectives. Nonetheless, it necessitates public involvement in local government and innovation initiatives.

A study explained a three-tiered Smart City framework: the environmental dimension, including smart environment and smart mobility; the social dimension, comprising smart people, smart lifestyle, and smart management; and the economic dimension, identified as smart economy (Tregua, et al., 2015). Smart cities aim to establish a sustainable living environment that benefits all individuals, irrespective of their social background, employing a holistic approach that significantly enhances mobility transformation; interdisciplinary living laboratories can provide a foundation for the creation of innovative and sustainable mobility solutions (Usca et al., 2019). Urban transport models in Smart cities must be analyzed for their enhancement of existing public transport and freight services, promotion of active mobility and micro-mobility, and their flexibility to deployment and shared implementation within urban environments. These models will also highlight emerging issues, particularly in the domains of flexibility, privacy, and resilience for future technological advancement. The European transport development planning projects suggest that mobility is transitioning from conventional ownership-based transport to access-based transport (Popovic et al., 2022). When enhancing urban mobility, it is important to take into account not only the welfare of the populace and environmentally friendly upgrades, but also the health of the economy to ensure that the enhancements benefit companies as well. Advancements in urban mobility via diverse applications, social networks, and sharing platforms have influenced the economic appeal of cities and the contentment of residents. Furthermore, these advancements in mobility solutions and intelligent technology alter the lifestyle and conduct of inhabitants towards more sustainable living (Ramos et al., 2020).

LITERATURE REVIEW

SUSTAINABILITY ASSOCIATED TECHNOLOGIES

In recent decades, the necessity for sustainability has gained prominence across several industries including engineering. As apprehensions over climate change, resource depletion, and environmental degradation intensify, there is an increasing focus on devising new solutions that reduce environmental effect while fulfilling human requirements. This literature review examines the domain of green technologies in sustainable engineering, integrating essential findings from scholarly study and industrial advancements (Khan et al., 2020).

GREEN BUILDING TECHNOLOGIES

A prominent domain of sustainable engineering that has attracted much focus is green building technology. Green buildings are engineered to decrease energy use, minimize waste, and enhance resource efficiency throughout their lifespan. A research emphasizes the significance of integrating passive design solutions, like natural

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lighting and ventilation into architectural practices to improve energy efficiency and occupant comfort. Furthermore, advancements in materials science have resulted in the creation of environmentally sustainable building materials such recycled concrete and bio-based insulation. This result in enhancing the sustainability of construction projects (Chou and Han, 2018).

WASTE MANAGEMENT TECHNOLOGIES

Efficient waste management is crucial for attaining sustainable development objectives and alleviating environmental damage. In order to reduce landfill disposal and transform organic waste into renewable energy sources advanced waste-to-energy technologies including anaerobic digestion and thermal conversion processes present viable alternatives. A study assesses the environmental and economic efficacy of several waste-to-energy technologies highlighting the necessity of including lifecycle consequences and techno-economic viability in decision-making procedures (Kumar and Raj, 2020).

RENEWABLE ENERGY TECHNOLOGIES

The shift to renewable energy sources is fundamental to sustainable engineering initiatives. The main renewable energy sources propelling the transition to a low-carbon energy environment are solar, wind, hydropower, and geothermal power. A study illustrates the viability of attaining 100% renewable energy systems by a combination of wind, solar, and additional renewable sources. Likewise, research indicates that combining solar photovoltaic (PV) systems with energy storage devices like batteries and pumped hydro might improve grid stability and dependability (Lee et al., 2020).

SMART TRANSPORTATION TECHNOLOGIES

The transportation industry significantly contributes to greenhouse gas emissions and air pollution, rendering it a primary focus for sustainable engineering initiatives. Smart transportation technologies, such as intelligent traffic management systems, multimodal transportation networks and electric vehicles (EVs) present opportunities for the enhancement of urban mobility and the reduction of emissions. A research evaluates the ecological advantages and adoption obstacles of electric vehicles, emphasizing the necessity of conducive legislation and infrastructural expenditures to expedite their proliferation (Liu et al., 2020). This literature review offers an extensive examination of green technologies in sustainable engineering, encompassing diverse areas such as green construction, renewable energy, waste management, and transportation. Engineers and policymakers can establish a more sustainable and resilient future for current and future generations by utilizing the transformative potential of green technologies (Rao and Shah, 2020).

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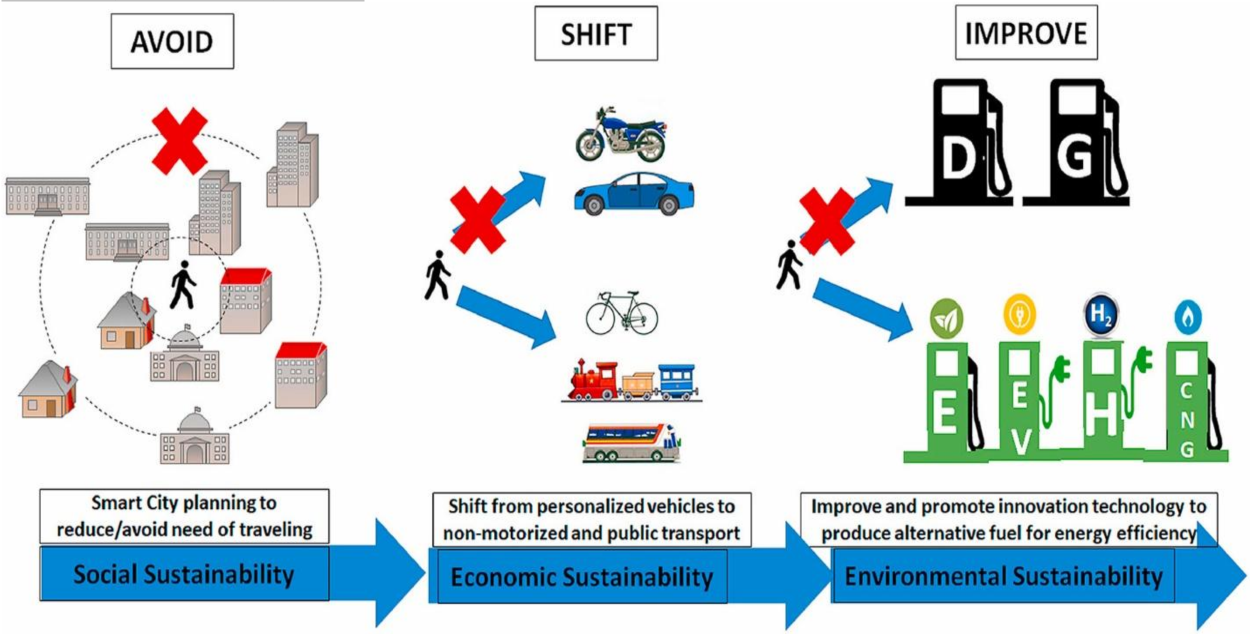

FIGURE 1: ***IMPLEMENTATION STRATEGIES FOR SUSTAINABILITY (SHAH ET AL., 2021).***

WHY THERE IS NEED FOR SUSTAINABLE URBAN TRANSPORTATION?

The necessity for Sustainable Urban Transportation stems from the pressing issues cities have owing to fast urbanization, environmental deterioration and population expansion. Sustainable urban mobility is crucial for developing cities that are clean, efficient inclusive, and future-ready. In its absence, urban existence becomes progressively unsustainable in economic, environmental, and social dimensions. Table 1 give brief information about several factors involve in sustainable urban transportation system.

TABLE 1: ***VARIOUS FACTORS AND THEIR ROLE IN SUSTAINABLE URBAN TRANSPORTATION.***

Factors	**Importance**	**Sustainability Solutions**
Environmental concerns:	Transport contributes to nearly 25% of global CO_2 emissions making decarburization essential. Air pollution from vehicles is a major source of greenhouse gases (GHGs)	Sustainable transportation (e.g., electric vehicles, cycling, walking, public transit) reduces emissions and supports climate goals.
Equity and accessibility:	Many urban transport systems fail to serve low-income and marginalized populations adequately.	Sustainability focus on creating inclusive, fair, and universally accessible systems particularly in urban infrastructure, transportation, and environmental policies.
Traffic congestion:	Traffic congestion results in productivity losses and increased fuel consumption.	Sustainable modes like **mass transit and carpooling** reduce the number of vehicles on the road.

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Public health impact	Air pollution from vehicles causes respiratory diseases and urban heat islands. Use of transportation and personalize vehicles effect human health causing various illness like body ach, fatigue and cardiovascular issues.	Reduced emissions improve **air quality**, lowering respiratory and cardiovascular illnesses. Encouraging walking and cycling promotes **physical activity** and well-being. Well-designed transit reduces **accident rates** compared to private vehicle use.
Economic Strain:	Various type of vehicles effect the fuel cost and human health due to poor maintenance system resulting more expenses on health and vehicles.	Sustainable systems are often **cheaper long-term**, reducing fuel costs, infrastructure wear, and health expenses.

GREEN TRANSPORTATION SOLUTIONS

Sustainable mobility is more important than ever as environmental issues gain urgency and urbanization increases worldwide. Green mobility solutions provide a means to decrease greenhouse gas emissions, reduce fossil fuel usage, and foster healthier, more sustainable urban environments. These solutions include many inventions and practices such as electric and hybrid automobiles, public transport systems, bicycle infrastructure, carpooling initiatives, and the incorporation of renewable energy sources. Implementing green mobility initiatives enables communities to boost air quality and public health, improve energy efficiency, and advance long-term environmental objectives. This transition is essential for addressing climate change and attaining a more sustainable future for urban transport (Shah et al., 2021).

a) ELECTRIC MOBILITY (E-MOBILITY)

Electric Vehicles (EVs) decrease exhaust emissions and auditory pollution. The integration of charging infrastructure, renewable energy, and battery recycling is essential for success. There are some obstacles such as substantial upfront expenses, restricted charging infrastructure, and reliance on electrical grids (Martinez., 2024).

b) PUBLIC TRANSIT UPGRADES

The upgradation in public transit can be done by following steps that are mentioned bellow.

- Enhancement and modernization of bus rapid transit (BRT), metro, and tram networks.
- Utilization of clean energy buses (e.g., hydrogen, electric).
- Deployment of Mobility-as-a-Service (MaaS) platforms for cohesive planning and payment integration (Gao et al., 2019)

c) NON-MOTORIZED TRANSPORT (NMT)

The promoting change for cycling and walking via pedestrian-friendly infrastructure and dedicated bike lanes help to build a sustainable environment. Bike-sharing systems, such as dock less bicycles, are increasingly prevalent in densely populated metropolitan centers (Mansoor et al., 2022).

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d) URBAN PLANNING AND POLICY

Transit-oriented development (TOD) promotes high-density residential construction in proximity to transit stations. Incentives for environmentally friendly commuting encompass congestion pricing, low-emission zones, and car-free zones (Liang et al., 2020).

e) SMART MOBILITY AND ITS (INTELLIGENT TRANSPORT SYSTEMS)

The utilization of real-time traffic data, artificial intelligence algorithms, and the Internet of Things helps to enhance traffic flow efficiency. The incorporation of autonomous cars with ride-sharing platforms also play vital role in ITS (Telang et al., 2020).

MAIN TRENDS OF SUSTAINABLE TRANSPORTATION IN SMART CITIES

The sustainable transformation fostering the advancement of improved and more sustainable Smart cities, where the encouragement of pro-environmental behavior among citizens is paramount. A comprehensive literature review enables the authors to identify many strategies for advancing sustainable mobility in smart cities. Nabiyeva and Wheeler claim that Geographic Information Systems (GIS) may be regarded as a versatile computer-based instrument that offers advanced capabilities for modelling, mapping, and analyzing data across various geographical levels, which may aid in achieving sustainable development goals (Lu et al., 2018). Another experiment underscores the significance of global initiatives regarding climate change and innovative vehicle technology, while their work constitutes a comprehensive overview of studies focused on the environmental and noise implications anticipated from the deployment of new vehicle types in road traffic (Astari et al., 2021).

The European Life project known as DYNAMAP aims to accurately represent the noise produced by motor traffic in urban and suburban regions, creating a dynamic acoustic map with a small number of economical permanent noise monitoring stations. The established technique facilitates judgements about enhancements in traffic planning within a substantial metropolitan setting (Sahin et al., 2013). A study propose that electrification may serve as an appealing approach for mitigating the adverse environmental effects of transportation. The authors conducted scenario replications to demonstrate the role of transport electrification in climate change mitigation and concluded that transport electrification, as an independent factor, does not contribute to reducing negative environmental impacts. However, transitioning to electrified vehicles under the shared socioeconomic pathway yields improved outcomes for the low-carbon transition (Popescu et al., 2020).

CONCLUSION

Urban populations are using more energy therefore efficiency is essential to reducing emissions and resource usage. Consequently, spatial and transport planning must incorporate energy efficiency and its techniques proved to be most essential for urban sustainability. In this regard, compactness has demonstrated several beneficial attributes that coincidentally. The urban environment is anticipated to accommodate an increasing population in the next decades and compact urbanism is a viable alternative to regulate energy consumption while offering the advantages of closeness. In contrast to urban development, it increases reliance on motorized transportation and inefficiencies due to traffic congestion near and at the destination, lower VMT, a greater active modal share, and improved public transportation service all contribute to lower energy consumption and emissions. However, policies must also improve public transportation (more/faster lines, stop density, electrification) discourage the

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use of private vehicles, improve accessibility (e.g., mixed land use) and provide adequate active transportation provisions (e.g., infrastructure investments, rights-of-way privileges) in order to fully benefit from proximity. Policymakers and transport planners must reevaluate the potential for efficient and sustainable mobility through individual transportation methods such as fostering the growth of various car or bike-sharing enterprises and social models along with supporting the utilization of light cars. This need the establishment of green corridors in urban areas and the encouragement of alternative choices among inhabitants, such as walking and cycling instead of driving, particularly for short distances. It is essential to promote citizens' choices by examining their desires and wants through the lens of user behavior, since the literature analysis indicated that these factors are often overlooked in the comprehensive development of new Urban Transportation Models.

REFERENCES

1. Sahin, Y.G.; Fawzy, D.E. HaReS: Real-time hazard reporting and loss estimation system. In Proceedings of the 2013 International Conference on Systems, Control and Informatics, Reykjavík, Iceland, 29–31 July 2013; Volume 256, p. 263.
2. Liang, Y., Du, M., Wang, X., & Xu, X. (2020). Planning for urban life: A new approach of sustainable land use plan based on transit-oriented development. *Evaluation and program planning*, *80*, 101811.
3. Popescu, T. Time Series Analysis for Assessing and Forecasting of Road Traffic Accidents—Case Studies. WSEAS Trans. Math. 2020, 19, 177–185.
4. Gao, Q. L., Li, Q. Q., Zhuang, Y., Yue, Y., Liu, Z. Z., Li, S. Q., & Sui, D. (2019). Urban commuting dynamics in response to public transit upgrades: A big data approach. *Plos one*, *14*(10), e0223650.
5. Astari, A.J.; Mohamed, A.A.A.; Ridwana, R. The Role of Geographic Information Science in Achieving Sustainable Development Goals (SDGs) during the COVID-19 Pandemic. J. Geogr. Gea 2021, 21, 112–122.
6. Chua, H. C., & Goh, K. L. (2018). A review of sustainable engineering for water and wastewater treatment: Policies, drivers and technologies. Journal of Cleaner Production, 185, 908-934.
7. Halkos, G.; Gkampoura, E.C. Where do we stand on the 17 Sustainable Development Goals? An overview on progress. Econ. Anal. Policy 2021, 70, 94–122.
8. Mavlutova, I., Atstaja, D., Grasis, J., Kuzmina, J., Uvarova, I., & Roga, D. (2023). Urban Transportation Concept and Sustainable Urban Mobility in Smart Cities: A Review. *Energies*, *16*(8), 3585.
9. Liu, H., & Yuan, Z. (2020). A review of green technologies for sustainable agriculture. Journal of Cleaner Production, 276, 124057.
10. Lee, K. S., & Tan, K. H. (2020). A review of green engineering practices in manufacturing and service industries. Journal of Cleaner Production, 276, 123207.
11. Kumar, S., & Raj, S. (2020). Sustainable engineering: A review of green technologies for waste management. Materials Today: Proceedings, 26, 3445-3451.
12. Khan, Z., Azam, M., & Dar, Z. H. (2020). Sustainable technologies in civil engineering: A review. Journal of Engineering Research and Applications, 10(4), 59-64.

ISSN (E) 3007-3197
ISSN (P) 3007-3189
Publisher Name : COLLABORATIVE EDUCATIONAL LEARNING INSTITUTE
Frequency Of Journal: Bi-Annual
Annual Methodological Archive Research Review

VOL-2, ISSUE-4, 2024

13. Rao, P. M., & Shah, A. (2020). Sustainable engineering: A review of green technologies in construction and infrastructure. Materials Today: Proceedings, 21, 1902-1908.
14. Lu, H.; Shi, K.; Zhu, Y.; Lv, Y.; Niu, Z. Sensing urban transportation events from multi-channel social signals with the Word2vec fusion model. Sensors 2018, 18, 4093.
15. de Casas Castro Marins, K. R. (2014). A method for energy efficiency assessment during urban energy planning. *Smart and Sustainable Built Environment*, *3*(2), 132-152.
16. Yıldırım, H.H.Y.; Gültekin, A.B.; Tanrıvermi¸s, H. Evaluation of Cities in the Context of Energy Efficient Urban Planning Approach. IOP Conf. Ser. Mater. Sci. Eng. 2017, 245, 072051.
17. Caputo, P.; Pasetti, G. Overcoming the Inertia of Building Energy Retrofit at Municipal Level: The Italian Challenge. Sustain. Cities Soc. 2015, 15, 120–134.
18. Cajot, S.; Peter, M.; Bahu, J.-M.; Guignet, F.; Koch, A.; Maréchal, F. Obstacles in Energy Planning at the Urban Scale. Sustain. Cities Soc. 2017, 30, 223–236.
19. Wu, W.; Xue, B.; Song, Y.; Gong, X.; Ma, T. Investigating the Impacts of Urban Built Environment on Travel Energy Consumption: A Case Study of Ningbo, China. Land 2023, 12, 209.
20. Shah, K. J., Pan, S. Y., Lee, I., Kim, H., You, Z., Zheng, J. M., & Chiang, P. C. (2021). Green transportation for sustainability: Review of current barriers, strategies, and innovative technologies. *Journal of Cleaner Production*, *326*, 129392.
21. Torija Martinez, A. J. (2024). Future Developments in Noise from Transport. In *A Sound Approach to Noise and Health* (pp. 205-222). Singapore: Springer Nature Singapore.
22. Mansoor, U., Kashifi, M. T., Safi, F. R., & Rahman, S. M. (2022). A review of factors and benefits of non-motorized transport: a way forward for developing countries. *Environment, Development and Sustainability*, *24*(2), 1560-1582.
23. Telang, S., Chel, A., Nemade, A., & Kaushik, G. (2020). Intelligent transport system for a smart city. In *Security and privacy applications for smart city development* (pp. 171-187).
24. Navarro, J.L.A.; Ruiz, V.R.L.; Peña, D.N. The effect of ICT use and capability on knowledge-based cities. Cities 2017, 60, 272–280.
25. Ramos, É.M.S.; Bergstad, C.J.; Chicco, A.; Diana, M. Mobility styles and car sharing use in Europe: Attitudes, behaviours, motives and sustainability. Eur. Transp. Res. Rev. 2020, 12, 13.
26. Hamamurad, Q.H.; Jusoh, N.M.; Ujang, U. Concept and Evaluating of Smart City. J. Adv. Geospat. Sci. Technol. 2022, 1, 92–111. 15. Dashkevych, O.; Portnov, B.A. Criteria for Smart City Identification: A Systematic Literature Review. Sustainability 2022, 14, 4448.
27. Anthopoulos, L.G.; Rodríguez-Bolívar, M.P. (Eds.) Understanding the Smart City Domain: A Literature Review. In Transforming City Governments for Successful Smart Cities; Springer International Publishing: Cham, Switzerland, 2015; pp. 9–21.
28. Tregua, M.; Auria, A.; Bifulco, F. Comparing Research Streams on Smart City and Sustainable City. China-USA Bus. Rev. 2015, 14, 203–215.

ISSN (E) 3007-3197
ISSN (P) 3007-3189
Publisher Name : COLLABORATIVE EDUCATIONAL LEARNING INSTITUTE
Frequency Of Journal: Bi-Annual
Annual Methodological Archive Research Review

29. Popovic, T.; Bäumer, T.; Gökdemir, E.; Silberer, J. How Innovative Mobility Can Drive Sustainable Development: Conceptual Foundations and Use Cases Using the Example of the iCity Ecosystem for Innovation. In iCity. Transformative Research for the Livable, Intelligent, and Sustainable City; Coors, V., Pietruschka, D., Zeitler, B., Eds.; Springer: Cham, Switzerland, 2022.
30. Usca, J.; Uvarova, I.; Pakalna, L.; Veitners, K.; Cebura, I. Towards Joint Spatial Vision on Regional Development, Logistics and Mobility of the North Sea Baltic Corridor 2050. NSB Core—A Network of Connections; VASAB Secretariat, SAFEGE Baltija: Riga, Latvia, 2019