

GREEN LAST-MILE DELIVERY: O FUTURO DO FRETE URBANO.

Resumo: As mudanças no padrão de consumo da sociedade moderna e intensificadas pelo advento do comércio eletrônico, levaram ao aumento de viagens no transporte urbano de cargas. Acredita-se que novas formas de atuação na distribuição de cargas urbanas podem levar a melhorias na eficiência das entregas de última milha, causando impactos ambientais, econômicos e sociais de forma positiva. Este trabalho tem como objetivo propor um método para apoiar o planejamento e a gestão da distribuição, sob a perspectiva do operador, considerando critérios ambientais. Deseja-se, portanto, a fim de transformar o last mile em green last mile. Será realizada uma revisão sistemática baseada no protocolo PRISMA e revisão bibliométrica. Em seguida, será desenvolvido um estudo de caso para produzir conhecimento amplo e detalhado na perspectiva do operador. O analytic hierarchy process será utilizado para construir o método proposto para apoiar a gestão da tomada de decisão no setor privado, considerando as crescentes pressões ambientais voltadas para o segmento de transporte.

Palavras-chave: Green Last-mile. Transporte urbano de cargas. Cadeia de abastecimento.

1. INTRODUCTION

The world's urban population has been increasing over the years, and currently 54% of it lives in cities, with an expected increase to 66% by 2050. This growing urbanization leads to greater demand for passenger and freight transport in cities (DE OLIVEIRA et al., 2017). In addition, changes in the consumption pattern, the advent of electronic commerce (increased during the COVID-19 pandemic) and logistical practices (as just in time), also has been leading to an increase in the number of trips in urban freight transport (DE OLIVEIRA SOUZA et al., 2020). Unlike light vehicles, which suffered with restrictive measures due to social distance, cargo transport was less affected by the pandemic since this mode it is essential for the supply of most Brazilian cities (EPE, 2021).

Last-mile delivery in cities is responsible for increased traffic volume, congestion, noise, and air pollution (MUCOWSKA, 2021). Nevertheless, smart cities' researches traditionally focus on passenger mobility, what makes the investigation of the green last mile even more pertinent. Up to 20% of urban transport is related to freight and service trips but these contribute proportionally more to the negative side-effects than passenger related trips (BULDEO RAI et al., 2017). Therefore, the first stage of this research is conduct a systematic and bibliometric review to demonstrate the main concerns in the context, they will be addressed in the case study.

2. GENERAL AND SPECIFIC OBJECTIVES

This research has as general objective the development of an ecofriendly method in the supply chain last stage to improve planning and distribution management from the operator's perspective, in order to transform the last-mile into green last-mile by identifying the most relevant impacts on social, economic and environmental esfera. For this purpose, the specific objectives are: An in deep analysis of the main indicator responsables for last-mile dynamic and investigate specialists general opinions for future employment of analytical hierarchy process (AHP) to support the decision making management in the private sector.

3. METHODOLOGY

The reporting of the systematic review and meta-analyses will be conducted by following the PRISMA protocol to accomplish the main factors in literature search. As for the bibliometric review, the method seeks to increase the potential collected from data collection platforms (SOARES et al., 2016). For this purpose, materials will be collected through worldwide journals indexed in the Web of Science database, and will be treated with OpenRefine software. To perform the data analysis VOSviewer tool will be applied. The bibliometric indicators chosen to conduct this study are co-authorship with countries as unit analysis, co-citation with cited sources and cited authors as unit analyses and co-occurrence with author keyword as unit analyses. Interviews will be developed with those responsible for the company's strategic and tactical planning to collect sensitive information. Questionnaires will be used with those responsible for operational planning and execution. The idea is to combine the questionnaire and interview dynamics. The analytic hierarchy process (AHP) will be applied to quantify the relative importance of each of numerous conflicting objectives or criteria engaged in the decision-making process.

4. EXPECTED RESULTS

In preliminary research on the Web of Science platform, there were few recent studies on green last-mile directed to urban cargo activities, with object of investigation in social, environmental and economic impacts, in order to bring a management tool aid for operator's decision-making. Being said, issues such as fleet electrification, use of biofuel, management policy, among other criteria will be raised throughout the research. Therefore, this work aims to add knowledge to science and technology in the near future, through the development of method to support the decision-making process in green last mile.

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