WILL CHANGING HABITS ENSURE SUSTAINABLE MOBILITY: SYSTEM DYNAMICS MODELLING EXAMPLES FROM MUNICIPALITIES IN FOUR COUNTRIES
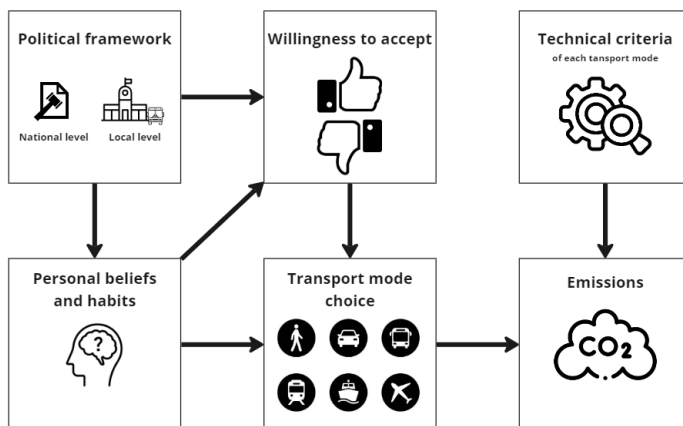
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Abstract – The transportation industry stands out as a significant contributor to world emissions, which presents a significant obstacle to the process of decarbonization. This study recommends a comprehensive plan that addresses emissions not just at a national level but also at a local and individual level, with an emphasis on using a multi-dimensional approach. Our study aims to support municipalities in assessing and mitigating transportation-related emissions by using a system-dynamic approach and introducing a state-of-the-art instrument. In contrast to conventional assessments, which are primarily concerned with technical criteria, our approach takes into account the everyday routines of inhabitants as well as their willingness to accept sustainable policies. Dynamic modelling enhances our understanding of the intricate correlation between technical metrics and socio-behavioural dynamics. This allows us to provide municipalities with a strong basis for creating effective initiatives to reduce emissions. This research adds to the subject of sustainable urban planning by promoting the increased public acceptance of sustainable mobility schemes and encouraging active public involvement. This analysis allows municipalities to build policies that not only target technical emissions but also integrate smoothly into the social framework of the local community. This is made possible because this study emphasizes the relevance of holistic and community-centred approaches. For municipalities that are attempting to navigate the complexities of emissions reduction in the transportation sector, it gives significant insights that highlight the requirement of policies that are both inclusive and adaptive to promote a sustainable urban future.

Keywords – CO_2 emissions; local policies; SD modelling; socio-behavioural dynamics; transport sector

Research methodology.