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Marketing research in public transport in achieving sustainable urban mobility goals

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Introduction

In the context of public authorities implementing a sustainable mobility policy, the provision of the public urban transport services offer is regarded as an element of that policy. On account of its characteristics: high transport capacity, low emissions and noise per passenger-kilometre, low energy consumption, and low land use (compared to private cars) (Wyszomirski, ed., 2008), public transport should serve as a pillar of sustainable mobility (Grzelec, Hebel, Wyszomirski 2020).

In undertaking actions in respect of sustainable mobility, public authorities align their own policies with the goals of sustainable mobility. Concepts in the field of sustainable development, an element of which is sustainable mobility, appear to focus on two main ideas. There is no contradiction between economic growth and "green" pro-ecological development (Wanner 2015). It is recognised that the current social and economic system, oriented towards accumulation and growth, can and should be replicated, and our way of life should be maintained, achieving ecologically sustainable development through a change of subsystems using modern technologies (Scruton 2012). Proponents of the second concept, degrowth, claim the need to radically transform the social and economic system through: "a fair reduction in production and consumption that enhances human well-being and improves environmental conditions both locally and globally, in the short and long term" (Schneider, Kallis, Martinez-Alier 2010). When conducting sustainable mobility projects, in order to demonstrate the justification for pursuing such a policy, politicians and officials refer to the reports of agencies such as (EEA 2022) and reviewed scientific publications (Gallo, Marinelli 2020). They also cite political and social justifications concerning the influence of sustainable mobility in areas

such as well-being, equality in society, and quality of life (Beyazit 2011; Jones, Lucas 2012). Justifications for actions advancing the goals of sustainable transport can be found in the micro- and macro-economies, using the Lorenz curve and the Gini coefficient to measure the outcomes (Delbosc, Currie 2011).

The critical approach to sustainable mobility policy is not concerned with the policy itself[1], namely, the aspiration to reduce the negative effects of urban transport on cities and the lives of their residents. There are, however, calls for the wider involvement of shareholders in the creation and implementation of sustainable mobility plans (Botte et al. 2019). Pointing to attempts to reconcile ecological goals with economic growth (Krähmer 2021), calls have been made to reconsider the classification of electric vehicles as an effective instrument of sustainable mobility (Henderson 2020).

Leaving aside the unresolved matter of the best path to sustainable mobility, it can be claimed that it not only affects the views of academics but is also reflected in economic practice, including the identified actions of local authorities in transport policy. From the point of view of the goals and solutions included in this monograph, it is important to highlight that in many publications dedicated to the problem of sustainable development, including sustainable mobility, the authors cite research and report perspectives that are selective towards matters requiring further research and discussion[2], and often ignore the problem of shaping human needs and attitudes rooted in personal freedom, under the assumption that a collectivist approach to civilizational development and the pursuit of set objectives is consistent with the norms of democratic societies. In many publications on topics such as electromobility in public urban transport in Poland, it is ignored that many studies of cost-benefit

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1 Nevertheless, there are also scientific publications which are critical towards the idea of a scientific consensus concerning the human causes of climate change (Dentelski et al. 2023).

2 An example of this is the universal practice of limiting citations to the summaries of Intergovernmental Panel on Climate Change (IPCC) reports.

analyses show that, in the current energy conditions, the operation of electric vehicles is without economic or social justification (when factoring in internal costs) (Jagiełło 2021).

The author of this monograph is of the opinion that sustainable mobility must not be only a political project, conducted using public funds, which omits the market as a reference point for assessing the benefits, costs, and risks for social and economic development. The concepts of sustainable mobility and the smart city, both of which employ modern technologies, must be treated as innovations, which should ultimately be verified by the market and the procedures of public choice based on democratic rules.

In this context, the right solution for public urban transport, which will allow its services to form the principal sustainable means of meeting transport requirements, is to recognise the role of marketing in shaping the service offering of this transport mode. Marketing concepts related to shaping transport services, pricing, service distribution, promotion mix, customer service, tangible service evidence, acquiring and retaining loyal customers, as well as establishing partnership-based principles of cooperation within the logistics chain, are proven methods of effective operation. They align with the objectives of sustainable mobility and enable their achievement. The realisation of the concept of marketing mix in public urban transport allows services to be offered that are adapted to the transport needs, expectations, and preferences of residents. Only a high level of satisfaction with the quantity and quality of services offered can be an indicator of the ability of this mode of transport to satisfy an increasing number of transport requirements and improve its share in urban transport.

This monograph presents the following research hypothesis: The adaptation of the number and quality of public urban transport services to the different preferences and expectations of residents on the quality of services and their complex transport behaviours requires the transport organiser and provider to carry out marketing research. Accordingly, the achievement of sustainable mobility goals is determined by shaping

the public urban transport services offer according to the marketing rules and regulations, based on the results of marketing research. The results of such research should be used to validate the effectiveness of the activities of public authorities in relation to sustainable mobility.

The aim of this monograph is to show that the decision processes concerning the quantity and quality of public urban transport services should be based on the outcomes of research into demand, preference, transport behaviour, and customer satisfaction. Research outcomes in these areas may support the decision-making process, however, it should be remembered that not all factors that determine demand on public urban transport services identified by researchers can be implemented in practice. This is determined by specific market-related constraints, including financial constraints and constraints resulting from certain transport behaviours. Attempts to change these behaviours, which are reliant only on administrative solutions (obligations and prohibitions) may cause society to strongly resist the goals of sustainable development, which in democratic countries, in certain political conditions, could lead to their radical modification or even to resignation from such goals.

Publications dedicated to the issues addressed in this monograph are spread across multiple themes within the scope of the research topics. Papers published in journals tend to focus on narrow research areas, much like the reports produced by institutes or organisations dedicated to the functioning of public urban transport. Monographs on the complex issue of the functioning of this transport mode typically focus on demand, price elasticity of demand, or market organisation. In the majority of cases, work on marketing research deals with market phenomena as a whole, whereas the subject matter of public transport research is most often explored in handbooks. This monograph aims to address this gap by showing the role of marketing research in achieving the goals of sustainable mobility in urban areas.

The monograph consists of seven parts.

Chapter 1 characterises sustainable mobility in terms of its essence, the management of this form of human activity, the conditions influencing

the implementation of actions outlined in Sustainable Urban Mobility Plans (SUMP), and implementation concepts, including Mobility as a Service (MaaS).

In Chapter 2, public urban transport is presented as a sustainable mobility service. The discussion focuses on the development of motorisation as the main driving force of urban mobility and the consequences of the uncontrolled increase in the number of cars and the number of trips carried out by this transport mode in cities and agglomerations. The chapter includes examples of breaking the development deadlock of cities connected with the development of motorisation, which leads to the dysfunction of urban areas. It discusses the role of public transport in the realisation of urban mobility goals, whilst providing examples of the effective substitution of journeys by car with public transport. The conditions for the development of public transport are also indicated.

Chapter 3 focuses on the characteristics of public urban transport. In the course of the analysis of the market characteristics of this transport mode, the main conditions concerning the formation of demand, supply, prices, and competition in public urban transport are presented.

Chapter 4 looks at the scope and characteristics of the sources, methods, and research instruments used in marketing research related to public urban transport. The chapter's content is largely based on the experiences of the author and his team, with whom he has worked for more than 30 years as a researcher and practitioner on shaping the market for this transport mode.

In Chapter 5, the author discusses the main elements which make up the public urban transport services offer, determined by the characteristics of transport services. This section of the monograph contains a review of the literature and makes use of the rich but dispersed research results on demand, preferences, and transport behaviour in the international and Polish literature as well as the author's own results and those of his colleagues. The principal focus of the discussion in this chapter are the attributes of public urban transport.

Chapter 6 includes an overview of the results of chosen marketing research into public urban transport in the context of their application in the implementation of sustainable mobility in cities and agglomerations. A significant part of this chapter contains the author's own research findings, published in journals and conference proceedings, as well as analyses that have yet to be published. It also quotes interesting research results of other authors, including those with whom the author had the pleasure of working in various research teams.

Chapter 7 presents the conditions for conducting and utilising marketing research in public urban transport in meeting the goals of sustainable mobility.

The monograph ends with a summary of the most important conclusions.

In the English literature, the terms "transport" and "transit" are used interchangeably and refer to bus, coach, light and heavy railway, tram and ferry services, as well as taxis and rental cars (Wallin Andreassen 1995; Parkan 2002; Balcombe et al. 2006). The term "public transport" is mainly used in Europe, Japan, and Australia, while the terms "mass transit" and "public transit" are more commonly used in North America and Southeast Asia (primarily in China, Hong Kong, and Singapore). These terminological conventions, however, are not strict rules and are often used interchangeably (Redman et al. 2013). In the literature, the term public urban transport refers to all passenger transport services offered in cities and metropolitan areas (i.e., within the scope of urban mass transit, as well as individual transport services such as car sharing, bike sharing, e-scooter rentals, taxis, and Uber). The subject of this monograph is, however, mainly public urban transport in the form of buses, trolleybuses, trams, urban rail, metro, water trams and other public transport modes as part of the integrated services offering, in particular in terms of tariffs. Therefore, the author uses the term public urban transport in this narrower meaning. An exception is made with the research results of other authors in cases where it was unclear whether these results concern public urban

transport. In such instances, the original vocabulary, or a faithful translation, has been maintained (e.g., public transport, urban transport).

The monograph is aimed at researchers and students involved in the study of sustainable mobility and public urban transport. It will also be of interest to practitioners and policy-makers implementing specific solutions concerned with mobility and the functioning of public urban transport.

Part of the marketing research results presented in the publication, especially in Chapter 6, but also those concerning practices in forming a public urban transport services offer, are the original work of the author and have not been previously published. The author is a member of staff in the Transport Market Department in the Faculty of Economics at Gdańsk University. He is also a practitioner in research and shaping the public transport services offer in the greater Gdańsk area and in other cities in Poland.

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The monograph is the result of many years of research work of the author and his team of colleagues, whom he would like to thank sincerely for their years of collaboration, reflected in the author's scientific research work and work as a practitioner in the operation of public urban transport. I would especially like to thank Professor Olgierd Wyszomirski, my mentor, doctoral supervisor, and for many years my superior at the University of Gdańsk and in economic practice. I would also like to express my gratitude to Professor Katarzyna Hebel, my colleague at the Transport Market Department, with whom I still have the pleasure of conducting research, analyses and publishing research results. I also thank Maciej Helbin and Adam Raszpunda for their help in compiling data for analysis. Finally, I would like to thank Doctors Hubert Kołodziejski, Director of the Public Transport Board in Gdynia; and Kamil Bujak, Chair of the Public Transport Metropolitan Association of Gdańsk Bay for permission to use the results of marketing research financed by the entities under their management.