

## MARKETING INNOVATIONS IN CROSS-BORDER PASSENGER TRANSPORTATION

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**Abstract.** *The development of innovations in various areas of economic activity has its own characteristics. There are a number of unique features for the development of passenger transport routes, which should be considered in more detail than in the planning of freight transport, and characterize this type of activity as particularly unique and requires a specialized approach in marketing innovations in this area. The presented article outlines the basic principles and concepts of the approach both when working with the material and technical base and when working with personnel in the course of planning and implementing innovations in passenger transportation. Particular attention is paid to the system of motivation for the implementation of the innovation process since the result of the introduction of innovation depends on the degree of motivation of potential subjects of the innovation process. Also, options for communication are considered both directly with potential consumers of the service created in the process of innovative activity and with local authorities in those regions where it is planned to carry out the innovative activity.*

**Keywords:** *marketing innovations, passenger transportation, carbon footprint reduction, motivation, innovation roadmap.*

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### INTRODUCTION

Modern aspirations to reduce the carbon footprint can be viewed from the point of view of the transportation of passengers from two fundamentally different positions. The first position includes technological changes in terms of personal transport, which is still progressing rather slowly due to the high cost of development results, which makes them inaccessible to the vast majority of the population. The second position is to offer a convenient way of transportation for passengers in order to reduce the use of personal vehicles. For the success of the second position, it is necessary to revise existing routes and develop new ones, including cross-border ones, in order to maximize the convenience of passengers' movement while causing minimal harm to the environment (Honcharova & Metil, 2022). Passenger convenience will come from the fact that the time spent driving a private car can be used much more rationally in the era of virtual production and communication, that is, instead of wasting time on amateur driving, people can spend it studying correspondence, performing certain types of work, that can be done electronically and other things that cannot be done while driving a personal car.

The reduction of the carbon footprint will be facilitated by the fact that passenger transport is much easier to convert to environmentally friendly technologies than private transport (Koval et al., 2022). However, at the same time, the comfort of passengers should not suffer, that is, it is necessary to radically change the approach to the choice of rolling stock for the implementation of all passenger traffic in general and cross-border in particular.

## I. Literature review

The problem of optimizing and bringing the passenger transportation system in line with modern requirements has now faded into the background, however, authors such as Comfort (2020) and Munby (2014) are of the opinion that an efficiently functioning passenger transportation system is of high social importance. These authors are of the opinion that there is a need for deep innovation in this industry. In turn, such authors as Dias (2018), Kunret (2018), and Pfohl (2022) note that in the computer era, planning and implementation of various types of transportation, including passenger transportation, should be taken in a new way. As Kunret (2018) emphasizes, the main stabilizing factor at present is complete and reliable information, which is promptly communicated to all participants in the transport and logistics process (Kunert, 2018). In turn, Pfohl (2022) provides clear economic requirements for the passenger route as an object of logistics infrastructure. In general, all authors consider passenger transportation mainly from an economic point of view.

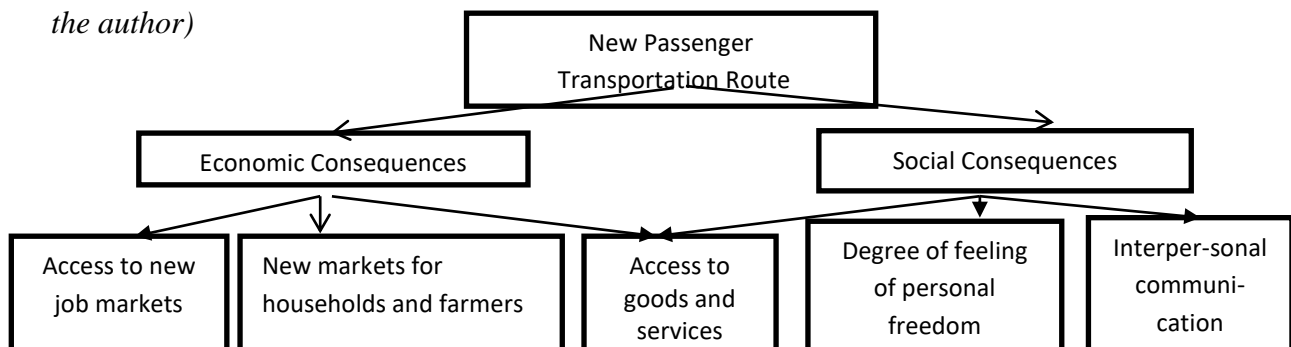
## II. Results

### II.1. Motivation to development of innovations

The main motivation for the development of innovative activity is the increase in the economic efficiency of enterprises. Passenger traffic is characterized to some extent by seasonality, variability in passenger traffic, different density of potential passenger traffic for different areas and many other features that should be taken into account when developing specific routes and considered along with such facts as the presence of border checkpoints along the route (Fragerberg, et al., 2006). Despite the presence of a number of factors that negatively affect the potential route, the benefits of developing a new route for both the transport company and the population living in the territories that will be served by this route should also be taken into account (Comfort, 2020).

The diagram in Figure 1 shows the implications for an area for which a new passenger route is proposed as an innovation.

Figure 1. Consequences for the area after the opening of a new passenger route. (Compiled by the author)



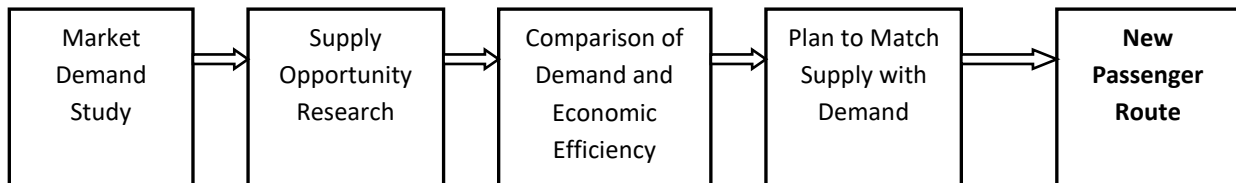
If we consider in more detail the consequences for the region after the introduction of a new route for passenger transportation, then the motivation for introducing innovations in passenger transportation in general and in particular through the development and implementation of a new route will be more widely revealed. As can be seen from Figure 1, all impacts can be divided into two main categories: economic and social. The economic consequences include the opening of new markets for the population. The main thing will be the opening of a new labor market, since in practice there are quite often disproportions in the professional composition between the unemployed and the available vacancies. New passenger routes can help smooth them out through labor redistribution opportunities. It may also open new markets for households and farmers, which will raise the level of well-being of the backbone of any economy - the household (Karlsson, et al., 2009). Thus, the possibility of reducing unemployment, increasing tax inflows from employees, households and farmers is a motive for local authorities to look for opportunities to open new passenger routes (Koval, et al., 2023).

Access to goods and services is not only an economic, but also a social consequence of the introduction of a new passenger route, since from an economic point of view, an increase in trade serves to form a more sustainable economy in the region, and from a social point of view, it makes it possible to improve the quality of life of the population, since access to a wider range of goods and services may also mean access to a greater number of medical services provided by private and public companies, that is, it improves the quality of life of the population in various areas of physiological existence (Nagaraj, 2021).

## II.2. Plan for innovation in passenger transportation

When drawing up a marketing plan for any innovation, the stages of innovation should be clearly defined, for which an innovation roadmap is drawn up. Figure 2 presents a roadmap for innovation in the passenger transportation industry.

Figure 2. Innovation Roadmap: "New Passenger Route". (Compiled by the author)



## III. Market Demand Study

When studying the market in order to create a new route for passenger transportation, special attention should be paid to a survey of potential consumers of the proposed service. In order to obtain objective and reliable information, it is necessary to conduct full-scale surveys of residents in all settlements according to the proposed route patterns (Tobelmann, 2011).

In modern conditions, it is possible to conduct a survey of potential consumers using electronic means, limiting the possibility of submitting a response from each device only once (Boland, 2014). If it is necessary to conduct a study in areas where Internet technologies are poorly developed, it is possible to contact the local authorities for help in conducting a survey of residents.

As an example, let's consider data on non-regular transportation carried out by Bolgradtrans JSC for the period 2020-2022. Figures 5-8 show graphs of passenger traffic for the main traffic routes in Romania and Bulgaria.

Figure 3. Passenger traffic to Galati, Romania  
Constanta, Romania

Figure 4. Passenger traffic to

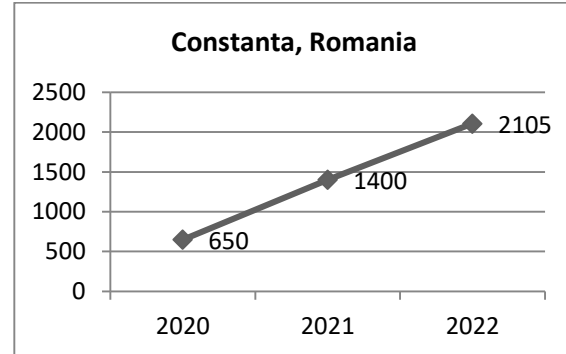
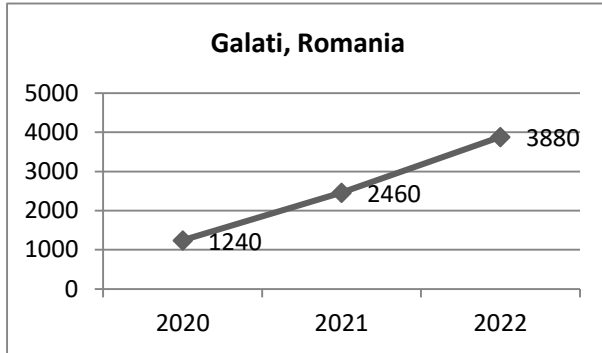


Figure 5. Passenger traffic to Bucharest, Romania  
Bulgaria

Figure 6. Passenger traffic to Varna,

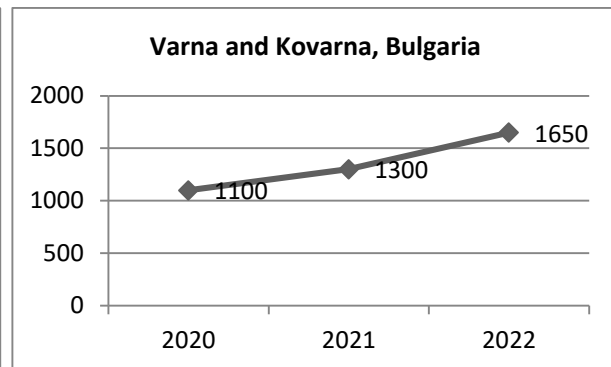
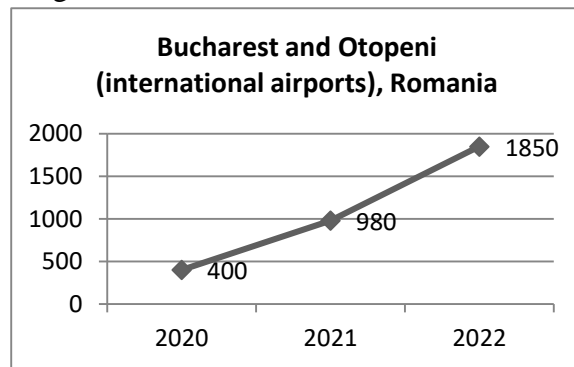
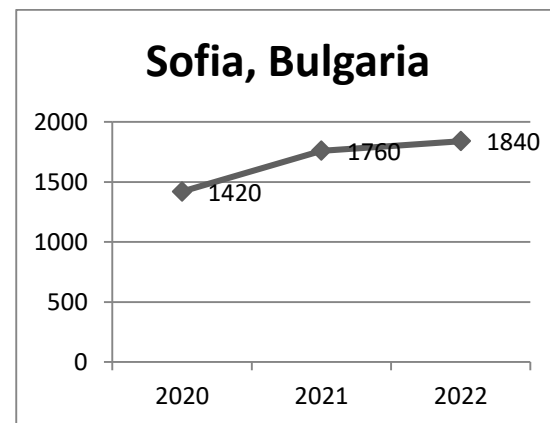
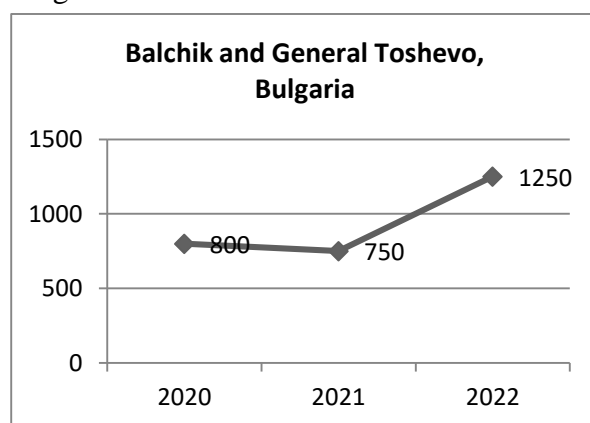


Figure 7. Passenger traffic to Balchik, Bulgaria

Figure 8. Passenger traffic to Sofia,



(Fig.3-8 Compiled by the author)

### III.1. Supply Opportunity Research

The study of the capabilities of carriers operating in the region is carried out in terms of the availability of rolling stock, the quality of rolling stock and the formation of a professional staff of drivers for passenger transportation. As mentioned earlier, one of the missions of opening new passenger routes is to reduce the carbon footprint. To achieve this

goal, it is necessary to clearly follow the policy of improving the quality of rolling stock for passenger transportation (Comfort, 2020). Therefore, when considering new possibilities for the implementation of transportation, it is necessary to consider the rolling stock both in terms of the comfort of transporting passengers and in terms of safety for the environment (Trachenko et al., 2021). When planning cross-border passenger routes, it is necessary to take into account the requirements for the rolling stock of all states through whose territory the route will pass.

If we consider the personnel potential, then for the selection of drivers for passenger routes, it is necessary to consider candidates who are not inclined to create conflict situations, who have positive thinking and, in the case of cross-border transportation, speak the necessary languages to communicate with employees of bus stations and passengers.

### III.2. Comparison of Demand and Economic Efficiency

To study the effectiveness of a potential passenger route, it is necessary to carry out a number of calculations. Initially, for each section between two settlements, it is necessary to determine the number of potential passengers (PP) for a certain unit of time, for example, per month, and then determine the number of possible seats (PS) provided by carriers. Then you can calculate the density of demand (in %) using the formula 1.

$$DD = \frac{PP}{PS} * 100\% \quad (1)$$

In the case when the density of demand is below 50%, the route will be economically inefficient, however, to serve potential customers, it can be laid so that passengers can use it, but with a transfer. If the resulting potential demand is between 50% and 75%, further research is needed to determine the frequency of the route, as some routes are more popular on weekdays and some are more popular on weekends. When obtaining a demand density above 75%, it is necessary to plan a systematic movement along this route (Munby & Watson, 2014).

### III.3. Plan to Match Supply with Demand

If quantitative indicators were more significant to determine the economic efficiency of the passenger transportation route, then to bring the supply in line with demand, the quality factors of the services provided are much more significant. The quality of the services provided in the implementation of passenger transportation currently means not only the comfort of the cabin of a passenger bus, but also comfort at stops, and, most importantly, the presence of an electronic notification system about the movement of the bus along the route (Frey & Osterloh, 2013). It is especially important to have an electronic notification system when planning a cross-border route, since the imperfection of the system of border and customs control does not allow drivers of such routes to strictly adhere to the time frames of movement along the route. The solution to the problem of long-term border and customs control can be the creation of a passenger database, in which information about passengers will be entered at bus stations or by the driver by scanning biometric passports when boarding a bus on a cross-border route.

If we consider the electronic notification system about the movement of the bus along the route, then it can be an integral part of the mobile application, the functionality of which

will include both obtaining information about the available seats on the route of interest to the passenger, the level of comfort of the bus provided, the availability and location of empty seats. In addition, the fare payment service should be available through the application, in the case of a cross-border route - in any of the currencies of those countries through which the route passes, and through the application the opportunity should be provided at the bus station to enter the relevant data of the international passport into this application (Machado & Davim, 2022).

## CONCLUSIONS

Innovation is the basis for progressive growth in all areas of society. It is impossible to consider separately the economic and social effect of the introduction of innovations, since they are closely interconnected and form the quality of life of end consumers of goods and services. When forming innovations in the transport sector, especially in the field of passenger cross-border transportation, there are a number of problems, the solution of which requires an integrated approach both from the side of business and from the side of the authorities, many state structures. The ultimate goal of the formation of innovations in passenger transportation, especially in cross-border ones, is both to increase the degree of freedom of movement of citizens, and the possibility of intercultural and intersocial exchanges, which will give a positive dual effect for the mutual development of participants in such contacts. Another positive effect of introducing innovations in passenger cross-border transportation is the reduction of the carbon footprint, which is one of the main tasks of modern society.

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