primarily may help Ukraine not to be left behind other countries where investors are already being invested in alternative energetics and have the opportunity to become a major energy exporter in the future, since our country has all the opportunities.

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PLAN AND SCHEME OF MEASURES TO REDUCE THE NEGATIVE PERCEPTION OF INNOVATIONS BY CARRIERS AND THE POPULATION (DIVIDED INTO GROUPS)

The introduction of smart metering in urban passenger transport based on the integration of smart innovations and information technology forms a certain set of reviews among consumers of

passenger services, requires measurement, evaluation and the formation of a set of relevant measures.

The current model of functioning of urban passenger transport does not meet modern challenges and significantly lags behind the practical experience of developed economic systems. Service quality of passenger's transportation app is not long enough changed and is at an unsatisfactory level, to which one of the users has adapted, and the other – chose alternative ways to address the issue of mobility in everyday life. Due to the long absence of innovations in the quality aspect of passenger transportation services, innovations provoke an ambiguous reaction from all participants of urban passenger transportation, both users and carriers, the perception of which should be evaluated and minimized cases of the negative perception of smart innovations. So, it requires the development of a consistent algorithm of actions to implement a plan and scheme of measures to reduce the negative perception of innovations by carriers and the public.

An analysis of the perception of innovations by carriers has revealed certain risks for rejecting innovations for a number of reasons:

1) The existing system of passenger transport services, revenue or income of carriers depends on the workload of the route, its length, and the advance I motion graphics with carriers competitive routes.

2) Introduction of smart accounting and in urban passenger transport declines drivers feature obtaining funds in the form of fare, but in the case of passengers ignoring the need to buy a ticket in the absence of checks on the process will lead to a decrease in total revenues, which would wipe the city and the carrier.

3) The need to introduce the position of inspector performing random checks on passenger transportation routes requires the formation of a separate payroll for this category of workers. This financial burden should be taken into account in calculating the cost of passenger transportation, and in the future, it can lead to an increase in the amount of passenger transportation fees that fall on users.

4) Failure to fix the fixed cost of passenger transportation if their cost is linked to distance is an obstacle to long-term forecasting of financial results of operations, which will not allow planning technical re-equipment and necessary repairs of vehicles in the predicted future.

5) The need to monitor the support in the operational state of smart metering devices lies with the carrier. This driver passenger transport shall promptly report the situation and the incorrect use of smart accounting devices.

6) If it is not possible to pay the cost of transportation using smart metering devices, such a vehicle cannot be allowed on the route, which reduces the carrier's revenue and requires constant availability of technical support specialists to eliminate possible problems.

To reduce the negative perception of innovation on the part of carriers hold in the context of the subjects of the group – participants operating model of urban passenger transport, SWOT-analysis of the introduction of smart accounting and in urban passenger transport on the basis of integration of smart innovation, information technology and marketing tools (Table 5.2).

The SWOT-analysis made it possible to highlight the strengths and weaknesses of introducing smart metering for the carrier, to see the potential opportunities and threats that await it when participating in this model of passenger services.

The implementation indicated in the Table 5.2 opportunities for carriers will become available if a consistent system of measures is implemented to reduce the negative perception of the innovations indicated in Figure 5.4. They cover an action plan that is organizational, educational, economic and marketing in nature.

Implementation of measures within the framework of the action plan to reduce the negative perception of innovations by carriers should be implemented in stages, starting with the psychological perception of rationality and the need for change. After all, innovations introduced in the service sector are, in the first place, the nature of social and psychological changes for subjects of the passenger transportation market than technological.

Information awareness of carriers regarding the international practice of introducing smart metering in passenger transportation will reduce the tension of conflict of interests of participants and shift the emphasis to the economic attractiveness of the issue. A detailed justification of technological advantages in combination with economic benefits for carriers will minimize the risks of potential resistance to innovation during implementation.

The need to comply with the driver's traffic schedule will improve labor discipline and promptly identify the facts of its violation by the carrier.

The carrier will be interested in continuously monitoring the driver's strict observance of duties and the provision of quality transportation services, since the probability of continuing the contract with the city in the next reporting period will depend on this.

Table 5.2

SWOT-analysis of the implementation of smart metering in urban passenger transport based on the integration of smart innovations, information technology and marketing tools from a position of consideration of carriers

Strengths 1. Joining the creation of an innovative transport system creates a positive image of a carrier that provides passenger transportation services. 2. Obtaining a fixed income, allows you to plan and predict activities in the enterprise for the future. 3. Reducing the level of stress and emotional and psychological stress of drivers. 4. The technological advantage of market players who have joined the smart accounting system. 5. Improving traffic safety, as drivers of passenger vehicles will not be distracted by the need to perform the functions of a cashier.	*Weaknesses* 1. The limited resources of the budget system as a factor that can create delays in the payment of funds to carriers from the budget. 2. The need for control and timely provision of information on the occurrence of technical mismatch of smart metering devices. 3. The absence of an alternative method of calculation, except for the use of an electronic ticket system, does not allow non-equipped vehicles to enter the route, which may lead to the termination of the contract with the carrier city.
Capabilities 1. Positioning of the carrier as a socially responsible business entity in the market. 2. High loyalty of users of passenger transportation services, due to an increase in the level of quality of services in terms of compliance by carriers with traffic schedules, ease of payment for the use of services. 3. The opportunity to participate in state programs for the development of urban passenger transport. 4. Positive response from users, which is th tsya “testator” innovation will expand the target audience and to contribute to the reduction of car ownership Ukrainian cities.	*Threats* 1. High competition between carriers for the opportunity to provide quality passenger transportation services. 2. Decrease in revenue compared to the modern passenger transportation model. 3. The presence of an inflexible price system, which is under the control of state regulatory bodies, which may increase the risks of insufficient coverage of the expenditure part of the case according to the calculations of carriers. 4. The low level of awareness of some categories of people using passenger transportation services, as well as the likelihood of incorrect use of smart metering devices. 5. Lack of sufficient public funding to support the implementation of innovations in smart accounting.

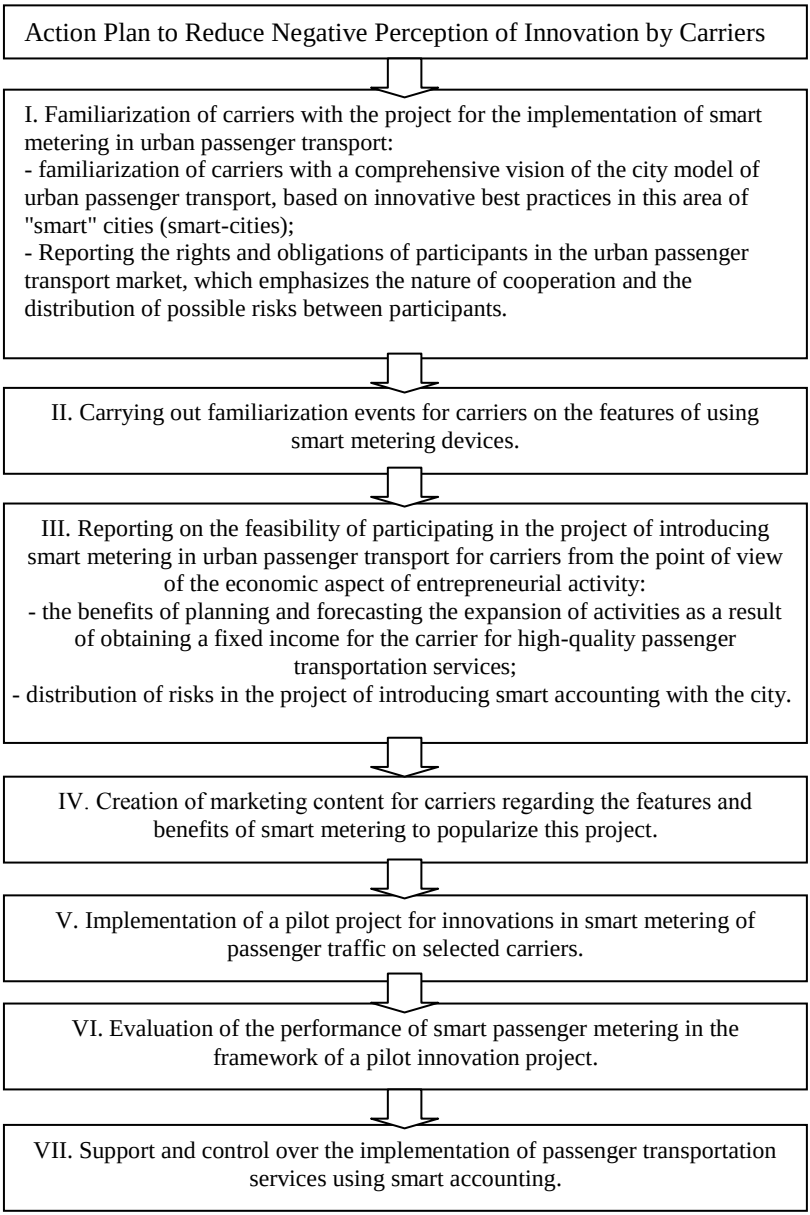

Figure 5.4 Action plan to reduce the negative perception of innovations by carriers

The transition to cashless fare payment will reduce the risk of profit shortfall, since in this model of functioning of urban passenger transport, payment for passenger transportation services is carried out by the city directly to the carrier. The intermediate link in the person of the driver, who acts as a cashier, disappears, so the probability of not accounting for part of the proceeds is excluded. The human factor when paying for fares when using the smart accounting system is minimized.

Consideration of a system of measures for reduction of th negative user experience of smart accounting innovations in urban passenger transport will spend by exercising their classification according to the principle of the age of social and distribution, which will determine the specificity of action applicable to each group.

As part of the study, 4 groups of users of passenger transportation services were identified (Fig. 5.5).

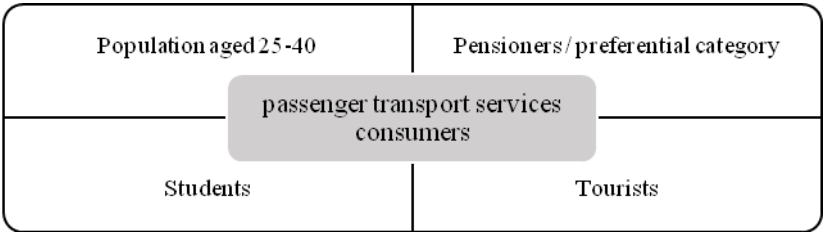

Figure 5.5 Classification of consumers of passenger transportation services by age and social status

This classification will allow to identify the needs of each group, susceptibility to innovation and to formulate an action plan for the formation of positive feedback as a result of the introduction of a smart metering system in urban passenger transport based on the integration of smart innovations, information technology and marketing tools.

Factors that determine the characteristics of the consumption of passenger transportation services can be structured as follows: economic; cultural; social; psychological; marketing; situational; personal preferences, etc.

These factors are the main assessment of the reaction of the passenger transportation services market participants during the SWOT analysis when identifying strengths and weaknesses, threats and opportunities when introducing smart accounting innovations for each of the considered groups in the study.

The consumer group “students” is one of the least protected when traveling costs increase, since the need to get to study and additional electives require active movement for six days a week, and if smart metering is introduced, the fare will automatically increase due to the need for technical equipping vehicles, updating the composition and monitoring its contents in proper form. The weaknesses of this consumer segment in the SWOT analysis included low personal incomes (Table 5.3).

Table 5.3

The main factors of the cluster analysis of income [8]

	Clusters				
	Students (before 24 years old)	Model Families (from 25 to 45 years old)	Families in difficult financial situation (from 5 to 45)	Families are more comfortable (from 27 to 50 years old)	Senior citizens
	Cluster 5	Cluster 4	Cluster 3	Cluster 1	Cluster 2
% of the population in the cluster	4 %	33%	20 %	18 %	25%
Factor ↓	Average	Average	Average	Average	Average
Student (high = yes)	70	0	0	0	0
Senior Citizen (High = Yes)	0	7	7	21	76
Age	6	37	37	43	73
Feeling of financial comfort	42	41	17	35	11
Average welfare	44	55	33	35	26
Personal income	15	34	20	21	9
Family income	51	56	43	45	30
Barely covering basic needs	59	74	33	48	10
Satisfaction with financial condition	47	48	19	33	12
OECD Final Score	48	65	54	47	52
Lack of funds	38	40	16	37	10
OECD Conduct Score	48	70	55	47	55

Consideration of the advantages and disadvantages of introducing smart metering in urban passenger transport based on the integration of smart innovations, information technology and marketing tools from the point of view of consumers in the age group from 25 to 40 years should be investigated using SWOT-analysis (Table 5.4). This tool will identify those issues on which e should pay special attention to the development of neutralizing the negative events of perception of innovation on the part of the population aged 25 to 40 years.

The next category of consumers of passenger transport services that requires consideration in the context of the introduction of an electronic ticket is pensioners. A SWOT-analysis of the introduction of smart metering in urban passenger transport based on the integration of smart innovations, information technology and marketing tools from the perspective of retirees is presented in Table 5.5.

Using smart accounting will allow you to clearly agree on the amounts that should be compensated to carriers for the transportation of privileged categories of citizens, and will prevent the risks of cost overruns or their misuse.

Smart accounting of passenger traffic allows you to create a transparent system of compensation of funds in the framework of the system of preferential transportation.

Now drivers must record the number of persons enjoying privileges for passenger transport, in the course of the traffic without the use of specialized software for this purpose, which can lead to errors in the calculations and cost overruns in the Budget compensation. The electronic ticket system thus improves the control function, which is based on actually confirmed data on the transportation of privileged categories of citizens.

Weaknesses include difficulty in understanding the features of cashless payments using retirees using an electronic ticket. Instructions for interaction with smart metering devices in urban passenger transport should be as accessible as possible for pensioners and not contain a double definition of certain positions on the features of technical operation.

Pensioners should be able to use smart metering devices when calculating a preferential electronic ticket without outside assistance.

A SWOT analysis of the introduction of smart metering in urban passenger transport based on the integration of smart innovations, information technology and marketing tools from a tourist perspective is presented in Table 5.6.

Table 5.4

SWOT-analysis of the introduction of smart metering in urban passenger transport based on the integration of smart innovations, information technology and marketing tools from a position of consideration of the population aged 25 to 40

Strengths 1. Active use of non-cash forms of payment for goods and services in everyday life, which develops a certain culture and consumer habits. 2. Ensuring a high degree of mobility, this is relevant for this segment of the economically active population. 3. Savings on servicing and refueling a personal car when using public transport. 4. Using Internet banking, Mobile banking. 5. Using gadgets with the respective mobile and payment and applications.	*Weaknesses* 1. Negative past experience of using the electronic ticket system in other cities of Ukraine or abroad. 2. The insufficient income level of families in difficult financial situation runs counter to the increase in the fare, which will be due to the need to update the movable composition of urban public transport. 3. The lack of comfort in public transport compared to a personal car. 4. Lack of dedicated lanes for public transport. 5. Insufficient awareness of the savings resulting from replenishment of the electronic ticket card at the nth cost of travel.
Capabilities 1. Using an electronic ticket will improve the quality aspect of financial planning for the family budget for a month. 2. Departure from the form of cash payments for passenger transportation services will eliminate the manifestations of the criminal situation in transport. 3. The positive experience of using the “electronic ticket” will expand the information on convenience among older family members. 4. Preservation of the state of emotional comfort of the population.	*Threats* 1. The ability to face incorrect work of equipment, providing smart accounting of passenger transportation. 2. The need to pay for travel each time during a transfer, which will increase the cost of travel. 3. The inconvenience of the process of buying / replenishing a card as part of the “electronic ticket” program. 4. Increase in the cost of paying for passenger transportation in connection with the need for technical equipment of transport, updating the composition of carriers. 5. More advantageous use of a ticket in comparison with electronic.

Table 5.5

SWOT-analysis of the introduction of smart metering in urban passenger transport based on the integration of smart innovations, information technology and marketing tools from a position of senior citizens

Strengths 1. Transparency of settlements in the smart metering system in urban passenger transport. 2. The use of preferential fares in urban passenger electric vehicles. 3. Savings on servicing and refueling a personal car when using public transport. 4. Meeting the need for quality passenger transportation services.	*Weaknesses* 1. The use mainly of cash payments in the process of acquiring goods and services. 2. Reluctance to master innovative technologies. 3. Unsuccessful personal previous experience using cashless payments. 4. The need for third-party assistance in the operation of smart metering devices for cashless payments. 5. Lack of material support when using transport that does not imply a preferential fare.
Capabilities 1. Accurate accounting of the number of preferential categories of the population, incl. pensioners who use urban transport services in calculating the amount of subsidies and subsidies from budget funds. 2. Updating the e -ended electric transport at the expense of funds allocated from the budget, since it is the category of "senior citizens" is actively used as a means of transportation trams, trolley buses. 3. Identification of the person enjoying the right to privileged travel with the help of an individual privileged electronic ticket, which will ensure the implementation of the principle of “targeted orientation” of budget funds. 4. The factor of psychological comfort in transport by minimizing the need for communications.	*Threats* 1. Providing a limited number of preferential trips by electronic ticket. 2. The ability to encounter incorrect operation of equipment that provides smart metering of passenger traffic. 3. Delay in targeted payments for the preferential category of passengers. 4. Incomplete coverage of all categories of transport for passengers using a preferential electronic ticket. 5. More advantageous use of a ticket in comparison with electronic. 6. The increase in the cost of paying for passenger transportation due to the need for technical equipment of transport, updating the composition of carriers in those modes of transport that do not support the preferential travel arrangements for pensioners.

Table 5.6

SWOT-analysis of the introduction of smart metering in urban passenger transport based on the integration of smart innovations, information technology and marketing tools from a tourist perspective

Strengths 1. Experience in using the "electronic ticket" in the city / country of residence. 2. The possibility of cashless payments, which simplifies the need to convert cash currency and search for a commercial bank or exchange office providing these services. 3. Getting high-quality passenger transportation services.	*Weaknesses* 1. Lack of experience in using the "electronic ticket" in the city / country of residence. 2. The use of mainly cash payments. 3. Unsuccessful personal previous experience using cashless payments. 4. Not a favorable rate when buying a small number of trips.
Capabilities 1. The possibility of financial planning of the trip budget. 2. Ensuring the safety of travel in public transport. 3. Preservation of emotional comfort in tourist trips. 4. The formation of a positive image of the city as a result of the use of innovations in transport infrastructure.	*Threats* 1. Inability to use preferential certification outside the city of residence. 2. The inconsistency of the mechanism of budget compensation for the preferential category of tourists. 3. The need for third-party assistance from local residents in the operation of smart metering devices. 4. Lack of the necessary language layout when using smart metering devices. 5. The inconvenience of routes and stops for tourists. 6. Stowaway.

Thus, the study made it possible to identify risks, weaknesses and strengths, opportunities and threats as a result of reforming the current model of urban passenger transport functioning by carriers and consumers – the population, dividing the latter into groups (students aged 25-40, pensioners (beneficiaries), tourists).

Based on the SWOT-analysis of the introduction of smart metering in urban passenger transport based on the integration of smart innovations, information technologies and marketing tools from a position of carriers' consideration, measures were developed and proposed as part of an action plan to reduce the negative perception of innovations by carriers, which involves phased implementation. The reasons for the slow perception of innovation by staff are clarified and recommendations are given.

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Strategies for sustainable socio-economic development and mechanisms their implementation in the global dimension

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