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MODEL OF RANGE OF POTENTIAL RISKS IN THE IMPLEMENTATION OF SMART METERING IN PUBLIC PASSENGER TRANSPORT

The condition for simplifying the monitoring and control of payments in urban passenger transport, registration of transportation using modern information technologies is the creation and implementation of an automated payment system (smart metering system) in Ukrainian cities [1-3]. But with the implementation of this system, there are a number of risks that need to be managed: to reduce, accept or increase, which makes them relevant [4-5].

According to the Laws of Ukraine «On Road Transport» and «On Urban Electric Transport» an automated system of accounting for payment of fare is a software-technical complex, which is intended for accounting of the provided transport services by means of an electronic ticket [6-7].

The problems of urban electric transport enterprises are: the large depreciation of fixed assets and the lack of use of innovations in some modes of transport; inadequate condition of the contact and cable network of passenger electric transport; incompleteness of rolling stock; not taking into account the actual cost of transportation; shortage of funds for renovation and major overhaul of fixed assets; lack of regulation in the market of passenger transportation; reducing the quality of service to the population; insufficient investment attractiveness among urban electric transport enterprises.

Advantages of introduction of the automated system are: efficiency of functioning of passenger transport; the ability to track passenger traffic (including privileged categories) through effective controls; detection of actual traffic congestion; protection of interests of local self-government bodies (customer of services) and carriers; transparency and objectivity; ability to track metrics in real time; increase of competitiveness of transport enterprises; increase in revenues by optimizing their collection and de-shadowing; creation of a rational network of passenger transport; providing social assistance to privileged categories; optimal planning of the transport network and the number of rolling stock required; reducing the number of passengers who do not pay for travel; reducing the delay of passenger transport at a stop; increase of responsibility and discipline of employees; compliance of management decisions with the task and increasing their efficiency; reduction of accidents due to replacement of transport.

Disadvantages that may arise with the implementation of an automated system: the cost of implementation time; the need to create appropriate infrastructure; retraining of personnel for a limited period of time; the need to attract additional (investment) and budgetary funds to create the system; high costs for system implementation; the need for an investment competition; limited use of a credit card; impossibility of further granting monetized or combined benefits, if there is a legal basis for this; the need to develop a significant amount of regulatory, technological and regulatory documentation necessary for the functioning of a computerized accounting system [8].

A prerequisite for sustainable development is the ability to anticipate, manage and manage most of the risks involved. Planning and implementation of the project of smart metering system in urban passenger transport is subject to uncertainty, which is caused by the change of both internal and external environment.

The following are the risks that may arise from the introduction of a smart metering system in public passenger transport, if some aspects are not considered.

Keeping the current state will preserve (and possibly increase) the risk of non-settlement of the issue of non-cash toll payment using electronic plastic cards on public passenger transport.

Risk of protest among public transport drivers and conductors. Reasons: shadowing of income: lack of interest, motivation; Maximizing transparency and accuracy of accounting for actually rendered services for the carriage of preferential and other categories of passengers; providing complete, reliable and detailed information on the transport

work performed; no need for jigs – reducing the number of employees: the need to find a new job; the desire to keep the old; resistance of the conductors of the new system (provided they remain in the role of controller): lack of competence, lack of interest. Consequences: the refusal of some drivers to work in the new system – the need to find a new workforce; contracting with supporters; «Ultimate measures»; absence of machinations of some drivers and reduction of their «shadow profit»; availability of reliable statistical information; possibility of solving problems of analysis and planning of passenger transportation; reputational damage: disgust of transport users; the need to motivate old staff or find new ones: increase training costs; spending time searching and learning.

Risks related to population dissatisfaction. Causes: distrust of new technology: complexity in the first stage of use; long-lasting complexity (for some people); dissemination of false judgments; not awareness of the population; the desire to keep the habitual; mental features; no desire to adapt to the new system. The consequences are: Reduction of users by public transport; Promotion of alternative transport (own bicycles, rental systems, etc.) or arrival at the destination on foot. Difficulties with using the new system and delayed payment. Reasons: increased fare: new system requires more costs (increase in cost), orientation to the experience of other countries. Consequences: the refusal or use of public transport – a decrease in revenue, an increase in costs.

Risks associated with not being able to monetize benefits. Reasons for not creating a single database of privileged categories of citizens: technical complexity, negligence. Consequences: the inability to monitor the passage of privileged categories of the population; unable to return the funds to the budget in case of travel of the Kiev «privileger» in Odessa and vice versa. Reasons: Beneficiaries' refusal to use the new system: getting used to the old system. Consequences: the need for motivation and training; issuing cards at banking institutions (subject to the conclusion of a contract with the bank); «Ultimate measures».

The risk of system crashes. Causes: Poor equipment: wrong choice of manufacturer, supplier; lack of production; incorrect program setting: staff negligence; not detecting information breaches in the system. Consequences: Delays in customer service; forced downtime: not customer satisfaction; travel discomfort and inconvenience, poor passenger service, mistakes.

The risk of lack of funding. Reasons: investors were not interested in the project: long payback of the project, difficulties in implementation,

lack of awareness of the project, subjective judgments; not investor awareness: little publicity for the project.

Fraud risk and user fraud. Reasons: lack of a register of valid and blocked electronic media prohibited for acceptance and maintenance; the desire to save: the fare, not honesty. Consequences: use for their own purposes; reducing profits.

The risk of losing an electronic ticket. Causes: human factor: inattention, theft. Consequences: the need to buy a new ticket; distrust of the controller.

Therefore, increasing the efficiency of passenger electric transport for Ukraine will be facilitated by the adoption of world experience in urban passenger transport. But despite the benefits of implementing a smart metering system in urban passenger transport, using the latest technology, it is important to keep track of the risks that are unfavorable, to increase the risks with the positive effects, and to take some, to manage the risks. The study identified a number of risks, their causes and consequences that need to be considered when implementing an automated fare system.

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У збірнику представлені матеріали ІІІ Міжнародної науково-практичної конференції «Сучасні підходи до ефективного використання потенціалу економіки».

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СЕКЦІЯ 6. ЕКОНОМІКА ПРАЦІ

СЕКЦІЯ 7. ЕКОНОМІКА РОЗВИТКУ