

# Ethical Decision-Making for Sustainable Urban Transportation

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## ABSTRACT

The paper deals with ethical decision-making for sustainable urban transportation. Sustainable urban transportation has become one the most demanding problems in several metropolitans over the world. Managers are often faced with question how to solve a problem correctly. Problem solving depends on the level of competencies of managers. Furthermore, it is important to ask how ethical the decision is. This is also crucial for local councils, as they interact with both city residents, and the government and business. Therefore, there is a problem in achieving balance in the interaction of all stakeholders. The author points out that in order to form ethical decisions in public transportation is necessary to understand the problems that arise before decision-making. Ethical decision-making related with ethical issues in public transportation such as satisfaction needs of the citizens, business ethics, public-private partnership, ecological issues and safety issues. The information about situation in public transportation in Ostroh and Estonian towns is presented.

### Keywords:

Ethical Decision-Making, Sustainable Urban Transportation, Public Transportation, Information Technology.

## 1.Introduction

The maintenance urban sustainable transportation depends on decisions made by authorities at the local and state level. Urban sustainable transportation has become one the most critical problems in several metropolitans over the world. In all cities in the world today, the problem of the automobile and its environmental impact is a major issue [12]. The issue of transportation and the environment is paradoxical in nature. Transportation satisfy citizen needs and may negative influence on environment [23]. Managers are often faced with question how to solve a problem correctly. Problem solving depends on the level of competencies of managers. Moreover, it is important to ask how ethical the decision is. This is also crucial for local councils, as they interact with both city residents, and the government and business. Therefore, there is a problem in achieving balance in the interaction of all stakeholders. If all stakeholders are satisfied, then we can talk about the rationality of decisions made by local authorities. It seems important to consider the problem of ethics and management decisions to ensure the sustainability of public transportation. Brans J.P. pointed out ‘if the Decisions is purely Ethical it is often not realistic!’ [5]. The author agrees with PeeterLorents (2006) point of view that systems without logics are suspicious; systems without ethics are – dangerous [17].

However, it must not be concluded that the ethical aspects of the decision-making process are in any way less important than other issues, such as e.g. the cost of technical solutions or air pollution. Furthermore, ethical aspects should be considered in connection with the establishment and use of increasingly autonomous decision-making support systems. In such a case, it is inevitable to study not only “purely ethical” but even formal - ultimately mathematical - problems of ethics. This is for the same reason that it was necessary to make the logic strictly mathematical (without which it would not be possible to derive the right decisions correctly using autonomous and intelligent systems). It is interesting to note that one of the first attempts to mathematics of ethics was made by Baruch Espinoza (see Spinoza, 1677) [22] more or less at the same time as Leibniz tried to mathematize logic. It took hundreds of years before Leibniz's dream came true, but what Spinoza started did not come true to this day. The need to proceed from the

transformation of ethics into technologically applicable exact science is precisely how the mathematization of logic has been implemented, written by P. Lorents in his book published in 2006 [17].

It is also important to emphasize what ethical means. Which must be the conditions and agreements of ethics. In case when we look at the so-called classical logic (in non-classical logics, eg intuitionist logic - there are other truth values between truth and false), we can say that estimates can be true or false (see Dragalin, 1988) [7]. Logic was mathematized to find true values.

Ethics should also be mathematized, as evidenced by the study of Peeter Lorents. This will help justify the feasibility of improving a particular system. It is also important for the formation of an artificial intelligence system that will help managers make ethical decisions.

In our research, we will focus on the issues of what makes ethical for a system and constitutes ethical decision-making, the principles that are necessary for ethical decision-making. The author will outline the problems that arise for ethical decision-making in public transportation. The author will identify stakeholders who are involved in providing public transportation. In this work, we will look at decision-making process in Ostroh and Estonian towns in order to create the guidelines for ethical decision-making in public transportation.

#### ETHICAL DECISION-MAKING IN PUBLIC TRANSPORTATION

Forman Ernest pointed that decision-making is a process of choosing among alternative courses of action in order to attain goals and objectives [10]. A decision usually involves three steps: (1) A recognition of a need (2) a decision to change and (3) a conscious dedication to implement the decision [2]. Decision-making process related with ethics. The word “ethics” is frequently applied when talking about moral standards of a particular social group or a profession (such as medical ethics and not a medical morality) [4]. Ruiqin Gao, Jin Liua, Robert Johnson, Jiandong Wang, Ling Huc pointed out that ‘the term “ethics” can be used to frame relevant issues in the process of making a decision about the ethics of an action’ [20]. Ethics is a helpful instrument within complicated human interactions to sort out the good and bad [6]. Brans J.P. pointed out that ‘ethics should also influence any decision because of the necessity to respect the environment: the social and the natural environment [5].

The unsolved questions are what it means to be ethical and what are the ethical criteria for the functioning of a particular system? Here it is necessary to agree with prof. Peeter Lorents, who, along with logical agreements (see Lorents 2006) has defined ethics related agreements [17]:

**Agreement 1. For the existence of ethics we must have**

- *ethical assessments*

- *things, to attribute ethical assessments to*

- *procedures for assigning appropriate assessments to ethically assessed items*

**Agreement 2. This approach implements only two ethical assessments, represented by the words *good and bad*.**

**Note.** In logics – to be more precise – *in different types of logics* there are also other terms of truth value used besides “the right” and “the wrong” (see §9.2., examples 4 and 8) [17]. Therefore, it should not be surprising if in ethics – to be more precise - *in different types of ethics* there are also other terms of the truth values used for ethical assessment.

**Agreement 3. Ethically assessed things must originate from the field which we could call *causation* or *evocation* or *initiating* etc.**

- Or to be more precise: *We attribute ethical assessment to such things only that may be described by the words*

- system  $S_1$  causes (caused) system  $S_2$  state  $S_{2T}$
- Ore more precisely: ( $S_1$ ) – some system, (C) – causes or caused, (T) – at some time, **either(I)** – some influential factors, (A) – applied in some way and for that purpose (R) – spending some resources **ornot doing it** (e.g. *not* IAR), ( $S_2$ ) – into some other system`s certain (not necessarily different) state or condition – ( $S_{2T}$ )

Every system has specification thus PeeterLorents defined some specification:

**Note 1.** The above agreements *cannot be considered as strict definitions*. Rather, these are so-called slightly stricter explanations.

**Note 2.** By having agreed as outlined above, we have “silently” enclosed ourselves in the world of systems and **assess ethically only these things that are related to the time dependent systems.**

**Note 3.** By ethically assessing the *causation* we get an opportunity to ethically assess not only the phenomenon, that is called in everyday language *activity* – but also a phenomenon that is called in everyday language *inactivity*.

**Note 4.** *Causation* and *cause* are **two different things!** It is not excluded that within the framework of everyday language use, *causation* may be interpreted as *cause* (for instance, it is said that terrorists *cause* fear and dissatisfaction on purpose, but it is also said that the *cause* of people`s fear and dissatisfaction is the activity of terrorists). It is also not excluded, that sometimes *cause* is interpreted as *causation* (for instance, we say that hunger *causes* riots, although at the same time we understand that hunger does not stir up and organize ...).

**Note 5.** **The abovementioned agreements have not yet finally defined the matter we could assess from the ethical point of view.** There are still some things that need to be further specified!

**Specifying agreement 4.** Lets agree that in case of the **causation (or evocation or initiation etc.)** of the observed matter **we only supply an ethical assessment then, when in addition to the caused or to be caused, does exist a relevant causator (vor evocator or initiator etc.)**, whereas  
 - *causator, causation and caused or an eight component set  $S_1, C, T, I, A, R, S_2, S_{2T}$  or – a five component set  $S_1, C, T, S_2, S_{2T}$ , when it reveals that we deal with inactivity – must be clearly identifiable causator must be an intelligent system or a system that is able to operate with knowledge (see §2) [17].*

*causator must know and understand (see §2) what does it cause or in other words – causator must know and understand what does it actually mean that the state of system  $S_2$  is  $S_{2T}$  [17]*

- *causator (system  $S_1$ ) must itself formulate a target:*

*to achieve the caused (state  $S_{2T}$  of system  $S_2$ )*

- *the caused must be achieved according to the free will of the causator*

PeeterLorents also clarified agreements by some examples. These examples are useful in order to establish ethical assessment [17].

**2.1. In the event of causation (or evocation or initiation etc.) we supply an ethical assesment only provided that, there is, in addition to the caused or to be caused, the relevant causator**

**Example.** When Bus works at line of public transportation of Town A cannot follow established time-table, the passengers will be unsatisfied the current situation or to put it softly – breathe ethically. But until it is unclear, was it caused by weather conditions (black ice, snowfall) or health of driver has deteriorated or some other unidentified causator – there is no reason to declare that *system  $S_1$  causes (caused) state  $S_{2T}$  of system  $S_2$* . What we actually may say under the circumstances is – that system  $S_2$  is in state  $S_{2T}$  (the route not completed), but are unable to say

neither what was the relevant causation nor who or what was the causator (was it still system  $S_1$  or not?). Consequently – in that case we are unable to supply any ethical assessment!

## **2.2. $S_1$ causes or caused the transfer of system $S_2$ into state $S_{2T}$ at a certain time T**

**Example.** It is bad to do a good thing *at a wrongtime* (T).

Probably most of us have heard how, in the process of recruitment of an employee, some candidates have been excluded, because the decision makers have been hinted that “*those and those people are troublemakers*” and this is bad! Therefore – in the event of a certain candidate  $S_1$  things are clear immediately because he (i.e.  $S_1$ ) is known to cause problems. Problem is roughly an unwanted state  $S_{2T}$  of system  $S_2$ . What is system  $S_2$  like in this case and what is the relevant state  $S_{2T}$  of system  $S_2$  like, this is not specified in the hint. But there is no need for that – “because everybody understands anyway”, that *et this is bad*. Let the opinion of the so called decision makers be as it is: this is bad. In order to give an ethical opinion a clear definition should be given, the creation of which state of what kind of a system are we actually talking about. In that case it was not done. Consequently – in that case we are unable to give an ethical assessment!

## **2.3. Causator must be an intelligent system or system, that is able to operate with knowledge**

**Example.** COVID-19 negative influenced on public transportation in cities and towns of Ukraine. Public transportation was suspended during three months. Resident had not an access to get to their work. It was only one possibility for residents to have an own car.

Therefore – the following:

system, named COVID-19, evokes a system called public transportation and a state called the traffic stop.

**Note.** System *intelligency* means – like said – *the ability of a system to operate with knowledge* (see §2.7.) [17]. It has not been (NB!) defined if the system must manage with it in a worse or better manner, being therefore *foolish* or *smart*. The matter is that ethical assessment *cannot be applied* if the causator is principally unable to operate with knowledge and does not know and is unable to understand what it is doing.

## **2.4. Causator must know and understand (see §2) what does he cause [17].**

**Example.** Decades ago the means used for writing was a fountain pen. The nib of the pen always tended to collect small fibres and fragments from the paper and this made the writing line wide and “hairy”. Therefore, every pen needed to be cleaned from time to time. For that purpose there were even special pen cleaning cloths, but an ordinary piece of paper was also good enough.

Once a schoolboy, who was looking for something to clean his pen with, and whose proud parents considered him clever and witty, noticed on a grand piano among the music books, books, magazines etc. paper similar to the edge of a newspaper. Without thinking much he tore a piece from the paper and solved his problem. After some time there was a loud noise raised, because it appeared that the iniquitous boy had spoiled the graphic print that was a present of a famous artist. In brief – a terrible story. When we look at the matter from the angle, that the child took the edge of the paper for that of some newspaper, we have to admit that the child *really did not realise*, what he was going to cause. Consequently – *we are unable to give an ethical assessment to that situation*.

## **2.5. Causator (system $S_1$ ) must formulate a target by itself in order to achieve the caused (state $S_{2T}$ of system $S_2$ ).**

**Example.** When small children escape from the careful supervision of parents and find a box with medicines, and one of the children offers the other the colourful sweet things, which cause the

poisoning of the other child - then it is impossible to assess the case ethically, because the causator (one of the children) *did not aim* to achieve the poisonous state of the other child as a system.

**It is worth repetition:**

**If the fact, that is caused by system  $S_1$  – is not or was not its (i.e. system  $S_1$ ) aim, then the fact that system  $S_1$  causes (caused) the state  $S_{2T}$  of system  $S_2$  cannot be ethically assessed.**

**2.6. The caused must occur as the result of the causator's free will.**

**Example 1.** If the bus driver of a coach, who is driving at full speed on a winter motorway, does not brake suddenly or turn the steering wheel in order to save the life of a fox, who has suddenly appeared on the road, and the poor animal has to die, **then in that case the activity of the bus driver cannot be ethically assessed**, because by running over the fox he actually **did not act on his own free will**.

**Example 2.** If on a nice summer evening, a person driving home accelerates when he sees a hedgehog crossing the road and even turns the steering wheel a little to run over the hedgehog (by telling the companion that *nobody, who gets in his way will finish well!*), then such a thing is probably ethically assessable.

It is necessary to point out that Peeter Lorents gave suggests the definition of free will (see Lorents, 2006) [17].

**Definition.** *The expression of free will* of system  $S_1$  or in brief *free will* occurs, when without any external influence or internal disorder

- system  $S_1$  creates in itself the description of the some following state  $S_{2T}$  of system  $S_2$
- system  $S_1$  sets a target which is the achievement of state system  $S_{2T}$  of system  $S_2$
- system  $S_1$  knows what it is doing (or knows that (I) defines and (II) sets a target to achieve a certain state  $S_{2T}$  of a certain system  $S_2$ ).

**Note.** In an exceptional case system  $S_1$  may act as system  $S_2$ , and in that case its purpose is to knowingly set a target that is related to its future state which will be known to itself.

**At the next stage Peeter Lorents recommends the way of presenting ethical opinions** (see Lorents, 2006) [17].

- If system  $S_1$  causes the allowed state  $L$  of system  $S_2$  **in a way that enables ethical assessment**, by knowing that it is the allowed state, then we say that **the evocation of state  $L$  of system  $S_2$  by system  $S_1$  was good**.
- If system  $S_1$  causes the forbidden state  $K$  of system  $S_2$  **in a way that enables ethical assessment**, by knowing that it is a forbidden state, then we say that **the evocation of state  $K$  of system  $S_2$  by system  $S_1$  was bad**.

It is essential to mention that decision-making depends on decision-makers (in the role of system  $S_1$ ). They are involved: individuals, institutions, companies, governments, etc. Thomas M. Jones (1991) defined ethical decision as 'a decision that is both legal and morally acceptable to the larger community' [24]. Ethical decision-making deals with preferences, utilities, costs, benefits, goals, and objectives [14]. Guy pointed out that ethical decision-making is the process of identifying a problem, generating alternatives, and choosing among them so that the alternatives selected maximize the most important ethical values while also achieving the intended goal. [14]. We say that decision made by the system  $S_1$  is ethically good is the expected result of set decision is to endue such a state  $S_{2T}$  of the system  $S_2$ , and the corresponding causation is ethically good.

**Example.** Managers ( $S_1$ ) of local council of Town X want to change the situation in public transportation from  $S_2$  to the some  $S_{2T}$ . The main problems in public transportation are lack of control the number of passengers, the citizens unsatisfied the quality of public transportation (buses uncomfortable, buses don't follow established time-table).

Managers know that their city X is quite similar to city Y (with a numerical estimate of similarity of 0.78, as it appeared in one specific case described in the work Lorents, Averkyna 2019) [18]. The managers decide to create, during time T, a situation  $S_{2T}$  in the field of transport of city X, instead of situation, which is similar to what they saw in city Y. The result was suitable for city X. Therefore, it can be said that it was a *good* decision in ethical terms.

Managers can make the next ethical decisions:

- (1) tickets' validation, E-ticket in order to maintain control the number of passengers;
- (2) the buses must be comfortable and private company should satisfy this condition. If company does not satisfy this condition, local council deny contract.
- (3) The public transport should follow by established schedules. Owner should control this condition. If buses don't follow established time-table, local authority will use penalty.
- (4) Managers should actively interact with towns managers in order to control of quality public transportation.

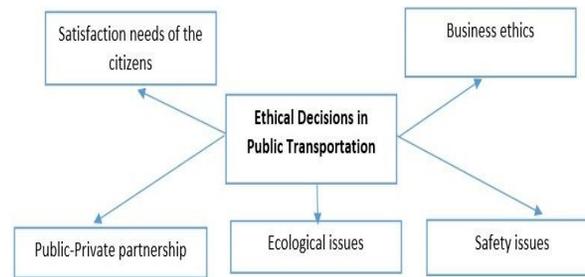
When these decisions realize, system ( $S_1$ ) will transfer into state  $S_{2T}$  of system  $S_2$ .

Ethical decision-making depends on ethical behavior in an organization. Kaptein's (2008) model distinguishes eight normative virtues that can promote ethical behavior in an organization: (1) clarity; (2) congruency of supervisors; (3) congruency of senior management; (4) feasibility, conditions created by the organization to enable employees to comply with normative expectations; (5) supportability; (6) transparency; (7) discussability (8) sanction ability [15]. According to this appeal, the stronger the presence of these virtues, the more ethical the organizational culture is [16].

The main stakeholders in public transportation are citizens, local council, government and business. Different stakeholders are also likely to prioritize what they value differently [23]. It is crucial to identify the main requirements and conditions for sustainable public transportation. Transport Ministers of the European Union adopted a more expansive definition of sustainable transport in April of 2001. This approach, an adaptation of an earlier proposal by the Centre for Sustainable Transport (CST) in Toronto, sees sustainable transport as a system that: 'Allows the basic access and development needs of individuals, companies and societies to be met safely and in a manner consistent with human and ecosystem health, and promises equity within and between successive generations' [20].

Forming ethical decisions in public transportation is necessary to understand the problems that arise from decision-making. Ethical issues typically arise of conflicts among individuals' personal moral philosophies and values, the values and culture of the organizations in which they work, and those of the society in which they live [8].

Understanding the main issues also help us to identify ethics guidelines. Ethics guidelines/ codes of ethics can be useful in defining ways in prioritizing [23]. Codes of ethics reflect the attempts of professional associations and individual organizations to document and communicate principles to guide the work of those in the field [26]. We identify the main issues in public transportation (see fig.1).



**Fig 1. The decision-making ethical issues in public transportation (source – developed by author)**

**Satisfy needs of Citizens.** Citizens' satisfaction is one of the most crucial factors of strategies. Passengers want public transport operator to provide high-quality service. In addition, they prefer less expensive service. The ethical elements are partially linked to the norms in businesses or industries, but also to the workers' inner attitudes to what's correct when it comes to work. Local council must organize public transportation in order to satisfy citizens' needs. It is necessary to concentrate on social transport trying to take into consideration the needs of social groups. They interact with the residents of cities where residents make great demands on transport services [6].

**Business ethics.** Business ethics gives the organization a lot of goodwill that will be translated into tangible advantages in the long run [6]. Company should provide high-quality public transportation and follow established rules by local council and government.

**Public-private partnership.** It is necessary to take into consideration some issues related to public-private partnership (PPP) in public transportation. It is related to financial resources and risk. Estache, A., Ellis J., Lourdes T. pointed out that in theory [8].

**Ecological issues** are becoming the significant concerns within the business community [8]. Public transportation should be ecological. The air pollutants of local impact, and thereby with greater impacts in urban areas, more common in the transportation sector, are carbon monoxide (CO), nitrogen oxides (NOx) and particulate matter (PM) [3].

**Safety issues.** Ethical issues also come into play when addressing accident risks. Society usually imposes safety regulations as to vehicles, passengers, and passengers' use of vehicles [1].

The principles and issues are important to create guidelines for decision-making process for public transportation. It is crucial to analysis situation in public transportation in small towns.

## CASE STUDY

Ostrog is a small town of regional significance (since 1995) in Ukraine, a center of the Ostroh district of the Rivne region. Based on an interview with Olga Logvin (deputy mayor) for forming town's statement, the main "bottlenecks" of the transport system of the city:

1. The lack of a municipal department for servicing the town's transport sector.
2. Lack of public transport in the town.
3. 100% of the provision of transportation services in the city from the private sector.
4. There is a problem in the regular transportation to the "New City" area.
5. It was revealed the greatest load of passengers in vehicles: 700-1000, 1700-1900.
6. Consideration should be given to ensure the regularity of the route "New City-Center-Belmage-Hospital".
7. Intercity routes overlap the city.

8. Transportation of residents is carried out by other means of transport than declared in the contract.

9. It is revealed that the driver misses a passport route while inspecting.

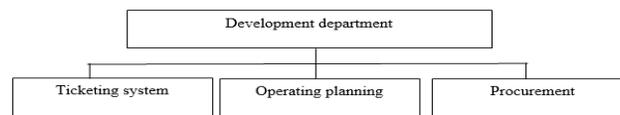
10. Carriers do not comply to transportation schedules on certain routes.

11. The item "Tasty stop" is overloaded by private means of transport used by residents as a taxi.

12. There is no route information at the stops to understand a shuttle time arrival.

Managers of local council understood that it is difficult to solve these problems. They want to change the current situation in public transportation ( $S_1$ ) in order to better its functioning. We can see ethical attempt to improve the public transportation. Managers of local council understood that it is difficult to solve these problems. These problems related with the main issues of ethical decisions in public transportation. It is necessary investigate foreign experience of similar cities. It was made a decision as to analysis of public transportation in Estonian small towns. It helps to understand features of Estonian public transportation and create a set of claims that can be implemented in Ostroh. There are only 10 small towns (Kuressare, Viljandi, Valga, Sillamäe, Rakvere, Võru, Jõhvi, Haapsalu, Keila, Maardu), which include such criteria in Estonia according to the DG REGIO [19].

There are three options to organize situation in public transportation according to the obtained information about Estonian experience. Local councils can make own decisions as to organizing situation in public transportation (Kuressare, Viljandi, Valga, Sillamäe, Rakvere). Managers who organize public transportation identify rules for the business. If the towns' residents ask the questions about improving the functioning of the transport system, the towns' councils itself approve the decision. Local councils try to consider it to satisfy citizens' needs in these towns. It is the main value of managers. Managers of local council control the public transportation service. Local councils depend on political decisions made by Government. The decisions second approach about public transportation in local councils are approved by nonprofit transport organization (Võru, Jõhvi). Nonprofit transport organization cooperates with local council, business in order to satisfy citizens' needs. Managers of nonprofit transport organization made decisions about issues in public transportation. The third approach means that decisions about situation in public transportation makes by Põhja-Eesti Public Transport Centre (Haapsalu, Keila, Maardu). We can see that manager of Estonian local councils always try improve the situation in public transportation. We can assess the decision of local councils as "good" in an ethical sense. The non-profit organization Põhja-Eesti Public Transport Centre (MTÜ Põhja-Eesti Ühistranspordikeskus) as public transport authority has been in charge of organizing public transport in Harju county since the beginning of 2005 [28]. The main department of Põhja-Eesti Public Transport Centre is development department (fig.2).



**Fig 2. Structure of department**

The Department has special rules as far as possible to put vehicles and passenger services on the line. The decision in the department is made up collectively. They hold meetings every week, write an internal report, discuss issues for an hour, and then make a decision, give answers to the requests of the city's residents. Residents of the city actively participate in the organization of public transportation. Citizens send good letters.

The Department sets requirements for carriers:

1. Delay is allowed within 2 minutes, more than 10 minutes are reported to the carrier.
2. Delayed more than 25 min - a statistically is considered not completed route.
3. Delay more than 60 min. - removed from the route of the carrier.

The card validation system is thought out. If the passenger does not have a card, forgot, then you can ask the driver for a ticket (buy or get a paper ticket for free depending on). So they control the congestion and the economic feasibility of the route.

They conduct preparatory work for the competition. The competition should be prepared for several years. There is no document on the Department's strategy for transport and development. There are two transport tracking information systems: [www.peatus.ee](http://www.peatus.ee); [www.ridango.com](http://www.ridango.com) for validation.

The Department controls the maintenance of vehicles. The Department prescribes the terms of the contract for carriers. The technical parameters of the buses are monitored through the website [www.delfi.ee](http://www.delfi.ee). The bus should have an electronic scoreboard, the seat belt and bus cameras. If the line does not give good efficiency, then the line is closed.

Prior to the start of the school year, they check the vehicles of the routes provided by the carriers. Routes in cities are designed so that students can easily get to schools. There is a person at the school who is responsible for validation issues. No exit validation. Over the last 2 years, the number of passenger traffic has increased by 30%.

The department's activities depend on a political decision. The Department should justify the allocation of money by the state for the development of transport. There are difficulties: money is difficult to allocate. If t money is allocated, then the decision period lasts for 3 months. After two years, the amount of money can increase.

Managers use Visum Transport Modeling for preparing the Strategic planning. Tableau Business Software correlated to devices from buses. They think about the ecological transportation. Residents want cheap transportation, therefore, the question of subsidization arises. The Department uses foreign experience in its work. Finland is a standard for transport system. Practice refuse diesel. The Center cooperates with the Estonian Road Administration as well as all local councils.

Based on interview, managers of Põhja-Eesti Public Transport Centre always try improve the situation in public transportation. The assessment the decision of Põhja-Eesti Public Transport Centre is "good" in an ethical sense.

The Estonian Road Administration (ERA) is a government agency operating within the administrative area of the Ministry of Economic Affairs and Communications. On the basis the ERA performs the implementation of state policy, development programmers, management functions, state supervision and to the extent prescribed by law. It applies the enforcement powers of the state in the field of road management, traffic safety, public transport and the environmental safety of vehicles [25].

The state is represented by the ERA in performing its duties. The activities are based on the legal acts of the Republic of Estonia and the European Union, international treaties which bind the Republic of Estonia as well as the regulations and orders of the government of the Republic, the regulations and directives of the Minister of Economic Affairs and Communications and the statutes of the ERA, and the relevant regulations of other ministers [27].

*What are the expectations from public transport in the near future?*

It necessary to point out that reduce negative influence emission is crucial ethical problem. Because it is negative influence on the health of residents and future generation. That is why is crucial to set up new rules which help to solve this problem.

First of all, a new EU directive will come into force. That means that all the public procurements conducted after 2021 require to ask private companies to offer vehicles that run on alternative fuels. In the first phase, 31% of vehicles need to be using green energy and, in the second phase, 43 %. Half of the alternative fuels need to run on electricity.

One of the biggest challenges they are facing is to provide the necessary infrastructure of alternative fuels. It is difficult for a private company to build a gas station without knowing if it will be feasible.

And one has to keep in mind that running a fleet of gas buses is more costly than a fleet of diesel buses and, in the end, public service contracts will become more costly for the government.

Kirke Williamson (Head of Public Transport Department) points out that it will be almost certainly we will say good-bye to traditional bus services in most of low-density rural regions. In her opinion, there are two reasons for that. Firstly, the number of inhabitants in rural areas is declining and there is no longer a demand for 40-seater buses. The second reason being is that traditional bus lines are slow and, to be competitive with cars, we have to transport people from A to B quicker.

So, transport will be either on-demand basis, where you have to let the private provider know when you want to move and where, or, there will be a new type of public transport introduced.

She believes, not before long, car sharing in rural areas will take over traditional bus services. That means your neighbor or post office worker can give you a lift and the government will pay them, or, the government will give you some money for transport every month, and you take a decision how to use the money.

She predicts that starting from 2022 31% of government-purchased transport services have to run on alternative fuels and 50 % has to be electricity. From 2025, 43 % government-purchased transport services have to run on alternative fuels and 50 % has to be electricity. Challenges will be related with lack of infrastructure, economical feasibility; service costs and on-demand services;

Every year the estimation of public attraction of public attractiveness is evaluated by the annual department's report at the end of October. The focus of the department is the attractiveness of public transport and increasing its use by residents for the coming years. They concentrate on social transport trying to take into consideration the needs of social groups. They interact with the residents of cities that the last ones make great demands on transport services

The Department requests the analyses on the future transport and groups of transport users are analyzed. The private vehicle data is used the analytical websites [tableau.mnt.ee](http://tableau.mnt.ee), <http://www.peatus.ee>.

According to their perspectives it is necessary to increase the number of departures around Tallinn area to satisfy the demand. The authorities of the department think about car sharing and on-demand transport in rural areas in the future is the way to go forward

They emphasize the main points, which include devotion to work, to do best (nice work), encouragement of people for public transport. All the best is for people. The Department decisions depend on the political situation.

They have Public Transport Act, which includes the general requirements for management public transportation. General provision – (Terms, requirements).Chapter 2.Planning and Management of Public Transport.

The authorities try to use experience of Nordic countries. Ridango ticketing system helps to estimate efficiency of public transportation.

Kirke Williamson with managers always try improve the situation in public transportation. The assessment the decision of The Estonian Road Administration is “good” in an ethical sense.

There is free of charge public transportation in some cities (Haapsalu, Viljandi, Valga, Kuressaare, Keila, Võru, Jõhvi). It depends on the political decision in the towns. The author proposes to form the guidelines for ethical decisions-making in public transportation according to the main principles of the ethical decision-making, ethical issues of urban sustainable transport and Estonian experience in public transportation (see table 1). These guidelines are useful for changing situation in the public transportation in Ostroh. Managers of local council must sign contract with company, which have the comfortable buses in order to satisfy citizens' needs. The schedules should be established near bus station and the public transport should follow by established schedules. The system of transportation of schoolchildren and residents to the basic infrastructures (workplaces, hospital) ought to be established. It is important to track the arrival of the public transport via the Internet, providing validation system and e-ticket. Managers of local council should encourage maximum use of public transport by residents and the rejection of private cars. It is essential to estimate efficiency of transport lines, actively monitoring the availability of public transportation and analyze the conditions for private companies in order to provide public transportation.

**Table 1.**  
**Guidelines for ethical decision-making in public transportation (source – developed by author)**

<b>Stakeholders</b>	<b>Economic</b>	<b>Political</b>	<b>Social</b>	<b>Ethical assessment</b>
<b>Citizens</b>	Citizens want to have free of charge public transportation. Citizens would like to travel when it is most convenient for them and with the minimum time.	Citizens take part in elections.	Public transport must be comfortable with high quality service.	What will be good for citizens? The “good” is when citizens have access to the high-quality public transportation.
<b>Local council and Government</b>	Enter into a contract with a company that offers the lowest price for 1 km of transportation.	Local council depends on political decisions made by Government.	Local council must organize public transportation in order to satisfy	What will be “good” for local council and government? The “good” is when local council and government maintenance

	on.		citizenship s' needs	high-quality public transportation.
	Subsidizing residents for the use of public transportation.	Local council should have information technology for annual reporting about situation in public transportation.	Providing the control for the qualitative public transportation.	
	Encourage maximum use of public transport by residents.	Green transport.	Establishing schedules near buses station.	
<b>Business in public transportation</b>	The company wants to make a profit.	Ensure compliance with the law.	Maintain the norms of public morality and try not to resort to corruption .	What will be "good" for business? The "good" is when company provide high-quality public transportation and follow established rules by local council and government.
	Providing truthful information about the economic situation.	Facilitate the legislative process by providing information on measures to improve the transport situation.	Concern for the safety of transport services.	
	The company must	Respect the laws of other	Use environme ntally	

operate within the framework of fair competition. Public transport must be equipped with information technology for validation. countries. friendly transport. Take into account the interests of the state and the community. Caring for the good emotional state of workers.

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## CONCLUSION.

Managers are often encounter the question how to solve a problem correctly. Problem solving depends on the level of competencies of managers. Moreover, it is important to ask how ethical the decision is. This is also crucial for local councils, as they interact with both city residents, and the government and business. Therefore, there is a problem in achieving balance in the interaction of all stakeholders. This paper has presented ethical decision-making guidelines for public transportation. It is crucial for maintenance sustainable urban transportation. These guidelines are useful for changing situation in the public transportation in Ostroh. We discussed the ethical decision-making concepts and importance ethical decisions in public transportation. We pointed out that satisfaction of all stakeholders' need leads to the rationality of decisions made by local authorities. Ethical decision-making depends on ethical behavior in an organization. The decision-making ethical issues in public transportation include satisfactions needs of the citizens, business ethics, public-private partnership, ecological and safety issues. It is help to form the statement for Information Technology. We presented information about situation in public transportation in Ostroh and Estonian towns.

## Acknowledgment

The author of the given paper expresses profound appreciation to professor Peeter Lorents for assistance in a writing of given clause. Great thanks to Olga Logvin, Ailar Ladva, Karl Tiitson, Väino Moor, Mati Jõgi, Yuriy Petrenko, Olga Morgunova, Monika Helmerand, Timo Suslov, Arno Uprus, Kaupo Kase, Sander Saare, Kait Kabun, Heiki Luts, Kirke Williamson, Kaadri Krooni, Riina Tamm, Karina Troshkina for the information on towns public transportation management.

## References

- [1] P. R. Anciaes, N. Thomopoulos Published in Garrett (Ed.) "Encyclopedia of Transportation: Social Science and Policy". SAGE Publications, Thousand Oaks, California, USA, 2014, 534-541.
- [2] H. Arsham, "Leadership decision making". Retrieved February 23, 2012 <http://home.ubalt.edu/ntsbarsh/opre640/partXIII.htm> 2010.
- [3] R. A. M. Bandeira, M. A. D'Agosto, S. K. Ribeiro, A. P. F. Bandeira, G. V. Goes, "A fuzzy multi-criteria model for evaluating sustainable urban freight transportation operations".

- Journal of Cleaner Production, 184, 727–739. <https://doi.org/10.1016/j.jclepro.2018.02.234>, 2018.
- [4] I. Baumane-Vitolina, I.Cals, E. Sumilo, “Is Ethics Rational? Teleological, Deontological and Virtue Ethics Theories Reconciled in the Context of Traditional Economic Decision Making”. *Procedia Economics and Finance*, 39, 2016, 108–114. doi:10.1016/s2212-5671(16)30249-0.
- [5] J.P. Brans, “Ethics and decision”. *European Journal of Operational Research*, 136, 2002, 340–352.
- [6] K. Diyana, F.I. Mohammad, A.I. Siti, M. Shariman, “An Empirical View on Ethical Values and Moralism of Public Bus Service in Kuantan in FGIC”, *2nd Conference on Governance and Integrity 2019, KnE Social Sciences*,) pages 364–373. DOI 10.18502/kss.v3i22.5061.
- [7] A. G. Dragalin, “Mathematical Intuitionism: Introduction to Proof Theory. AMS American Mathematical Society” 1988.
- [8] A. Estache, J. Ellis, T. Lourdes, “Public-Private Partnerships in Transport”. Policy Research Working Paper; No. 4436. World Bank, Washington, DC, 2007.
- [9] O.C. Ferrell, J. Fraedrich, L. Ferrell, “Business Ethics: Ethical Decision Making & Cases”, 8th Edition, 2011. 501 p.
- [10] E. Forman, “Decision By Objectives (How to convince others that you are right)”. 2001, 402 p.
- [11] R. Gao, J. Liu, R. Johnson, J. Wang, L. Hu, “Validating an ethical decision-making model of assessment using authentic scenarios”. *Studies in Educational Evaluation* 62, 2019, 187–196. doi:10.1016/j.stueduc.2019.05.003.
- [12] T. Goldman, R. Gorham, “Sustainable urban transport: Four innovative directions”. *Technology in Society*, 28(1-2), 2006, 261–273. doi:10.1016/j.techsoc.2005.10.00.
- [13] P. Guarnieri, F. Trojan, “Decision making on supplier selection based on social, ethical, and environmental criteria: A study in the textile industry”. *Resources, Conservation and Recycling*, 141, 2019, 347–361. doi:10.1016/j.resconrec.2018.10.023.
- [14] Mary E. Guy, “Ethical decision making in everyday work situations” / Mary E. Guy.: New York: Quorum books, 149 1990.
- [15] M. Kaptein, “Developing and testing a measure for the ethical culture of organizations: The corporate ethical virtues model”. *Journal of Organizational Behavior* 29(7), 2008, 923–947.
- [16] M. Kaptein, “The ethics of organizations: A longitudinal study of the US working population. *Journal of Business Ethics* 92(4), 2010, 601–618.
- [17] P. Lorents “The world of systems” (in Estonian – Süsteemidemaailm). Tartu Ülikooli Kirjastus. Tartu. §11, §12. (2006).
- [18] P. Lorents, M. Averkyina, “Some mathematical and practical aspects of Decision-Making based on similarity,” In: Stephanidis C. (eds) *HCI International 2019 – Late Breaking Papers. HCII 2019. Lecture Notes in Computer Science*, 2019, vol 11786. Springer, Cham.,.
- [19] D. Levis, P. Hugo, “Regional Working Paper: A harmonized definition of cities and rural areas: the new degree of urbanization”. 2014, P: 28.
- [20] A. Rahman, R. Grol, “SUMMA final publishable report v. 2.0”; July 2005. Available from: <http://www.summa-eu.org/control/reports/SUMMA-D8.pdf>.
- [21] R. Gao, J. Liu, R. Johnson, J. Wang, & L. Hu, “Validating an ethical decision-making model of assessment using authentic scenarios”. *Studies in Educational Evaluation*, 62, 2019, 187–196. doi:10.1016/j.stueduc.2019.05.003.
- [22] B. Spinoza, “Ethique. Bilinguelatin-français. Presene et traduit par Bernard Pautrat”. Paris, Seuil. 1966.

- [23] C. Summers, “Realities of decision-making and social issues: Implications for developing and implementing ethics guidelines”. *Science of The Total Environment* 184(1-2), 1996, 17–23. doi:10.1016/0048-9697(95)04983-5.
- [24] I. B. Tahzib, I. L. Zvijáková, “Environmental impact of land transport”, *Transfer inovácií* 24, 2012, 70–77.
- [25] M. Jones Thomas, “Ethical Decision Making by Individuals in Organizations: An Issue-Contingent Model”. *The Academy of Management Review* 16, No. 2 (Apr., 1991), 366-395.
- [26] M. D. Winston, “Ethical leadership and ethical decision making: A meta-analysis of research related to ethics education”. *Library & Information Science Research* 29(2), 2007, 230–251. doi:10.1016/j.lisr.2007.04.002.
- [27] Estonian Road Administration. <https://www.mnt.ee/eng/organization/estonian-road-administration>.
- [28] <https://www.ytkpohja.ee>