Preliminary ethical analysis of ITS applications

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ABSTRACT
This paper describes a possibility of applying an ethical approach to ITS applications is described. It refers to benefits of ITS applications in terms of classic ethical values, and their interpretation in the light of consequentialism and classical utilitarianism. The paper presents a kind of new look at numerous and various ITS benefits from the ethical (moral) point of view. It emphasizes the ethical importance of such benefits of ITS applications as savings of time, safety, and convenience in traveling. The paper also raises the problem of connections of ethical evaluation of ITS benefits with the so-called costs/benefits analysis (CBA) in the transport sector.

KEYWORDS: ethical analysis, ITS applications, benefits, consequentialism

1. Introduction

The decision on the application of ITS is usually difficult, especially in the absence of greater experience in this field. This situation is typical for ITS-underdeveloped countries in Europe. At the beginning of the second decade of the 21st century there is no national plan of ITS in transport, both road and other modes of transport, in Poland. There are also fundamental troubles with carrying out so-called national ITS architecture project. The scenarios for the development and deployment of ITS technologies in the coming years are not very optimistic [5].

In this situation, some brave decisions on ITS applications should be taken in Poland by the public administration in cooperation with private sector organizations, and academic institutions. The decisions should be understood as political and moral decisions based on political commitments to the future ITS-development of the country. The moral character of those decisions involves the obligation to care for the future common good of the Republic of Poland.

A deep understanding of the benefits of these new technologies in transport is a basic condition for promoting ITS in Poland. The benefits should be understood as a kind of moral justification for some political decisions regarding the dissemination of ITS technologies in Polish transport.

The article takes a sample of pre-ethical analysis of the benefits of ITS applications. This is done in the light of a few ethical theories [9,8], especially connected with utilitarian values (goods) [3,6].

2. Consequentialism as a basis for an ethical evaluation of ITS

Consequentialism bases our duties on consequences [6]. It draws attention to the effects: the good, which is realized in them. Therefore it is important to assess the situation and so-called moral bill of goods, the standards or ordinances are less important. The best example is utilitarianism, appearing in various forms. Where there are no specific
orthodox rules of conduct, consequentialism is the best. A version of utilitarianism is sometimes treated as so-called minimal morality. In general for a consequentialist, for example, motives seem to be irrelevant, if people act properly. It is a morality founded in the circle of political decision makers. It is not surprising that it is suited for use in policy, for example in transport policy. The policy objective is to be caring about the welfare of all or at least the specific social groups, for example a transport community.

In sum, consequentialism says that the moral value of the action shall take full from the value of its consequences. According to this position, no action is good or bad in itself, but only because of the consequences that entails.

3. Basics of utilitarian ethics

Utilitarianism is a form of consequentialism [8]. The most influential contributors to this ideology were Jeremy Bentham and John Stuart Mill, one of liberal thinkers of the 19th century; however his teachings were a little different from Jeremy Bentham's philosophy. In general usage, the term “utilitarian” can be referred to a somewhat narrow economic or pragmatic viewpoint. However, philosophical utilitarianism is a much broader view that encompasses all aspects of people’s lives, including transport of people and goods.

Utilitarianism says that the moral worth of an action is determined solely by its outcome. The moral worth of an action is determined solely by its utility in providing happiness or pleasure as summed among all sentient, not only human, beings.

Social utilitarianism is often described by the phrase “the greatest good for the greatest number of people”, and is also known as “the greatest happiness principle” [6]. Utility, the good to be maximized, has been defined by various thinkers as happiness or pleasure (versus suffering or pain). It may be shortly described – happiness or pleasure or reducing pain are of ultimate importance.

In sum, social utilitarianism is based on the principle: a future of decision of an act is morally good, if you maximize the usefulness of the community; in the case, the usefulness of a transport community.

4. Benefits as the expected outcomes of ITS applications

The ITS benefits are usually considered as the positive effects of an ITS project. There are several main categories of ITS benefits. In transport, users benefits are primary related to safety, time savings and pleasures of travelling [2,6].

From the classical ethics point of view, according to Aristotle and Thomas Aquinas, there are three kinds of goods, namely [9]: bonum delectans (comfortable /pleasurable good), bonum utile (utilitarian good) and bonum honestum (proper good). The first two should lead to the bonum honestum as the highest good in a human life. It is of moral character. While according to Bentham they should be limited only to the first two. They are mainly of sensitive character in practice, and any consideration of moral goods should be excluded as a kind of metaphysics.

The nature of ITS benefits is sometimes very complicated. In the contemporary philosophy we often use the term “value” instead of the classical term “good”. From the point of view of the general theory of value we can speak about utilitarian values in a narrow sense or in a broad sense of the term. For example we can distinguish vital values, pleasure values, economic values, instrumental values, and technical values. Generally ITS systems belong to the category of instrumental values as a kind of mean (the tool), which are not values in themselves, but they are useful in achieving particular benefits in the transport sector.

The safety benefits of an ITS project are expressed in terms of expected reductions in injuries and fatalities on the transportation network resulting from the project in question [2]. It seems that it has moral value belonging to the bonum utile category. As for most utilitarian theories they deal with producing the greatest amount of good for the greatest number of people, but the so-called negative utilitarianism requires us to promote the least amount of harm, or to prevent the greatest amount of human suffering for the greatest number of people. It is the case of the benefits of some safety-based ITS applications.

The mobility benefits refer to the improved ability of travellers to reach destinations and to reduce the required amount of travel time, for example by reducing congestion delays [2,7]. Time savings and delay reductions are measured in hours. It is commonly known that almost all ITS application save time. However, some ITS applications reduce the discomfort of a journey. Some drivers and passengers of cars take their journeys for comfort only. Therefore the moral nature of the mobility benefit may be mixture of bonum delectans and bonum utile. For instance, an ITS investment project may allow motorists to save time on their commutes. These time savings would be counted as benefits because they have value to the motorists, even though ordinarily there is no direct revenue to the government. From the ethical point of view it is not important to precisely know to what kind of moral benefits they belong: to bonum utile or to bonum delectans. In practice they are indistinguishable.

The environmental benefits of an ITS project stem from reduced vehicle emissions and other pollutants, for example from reductions in vehicle idling time [2]. It
seems that this kind of benefits may be counted to the bonum utile category.

In practice, a list of ITS benefits is rather longer than that just mentioned. It is commonly known that most ITS applications reduce discomfort in some way and even provide an element of entertainment. They make traffic smoother, they reduce anxiety about having an accident, they amuse travellers, they reduce uncertainty regarding routing, travel time, road condition. Sometimes people do travel for fun. It is more common on weekends. They enjoy the comfort of their cars after a busy day. A multimedia car is equipped with such features as key-less entry, digital fingertip sensors to start the engine, navigation, DVD for entertainment, climate control, phone, on-board computer and camera inside etc. All in all, the value of non-traditional ITS benefits (bonum delectans) should not be disregarded.

The benefits of an ITS application comprise: (a) benefits to travellers; (b) benefits to transport agencies; (c) benefits to society. From the moral point of view the first category of benefits seems to be the most important; especially in the passenger road transport it is connected with saving lives of human and comfort of travelling.

5. Usefulness of ethical analysis

The ethical analysis of benefits may be the first step in the process of any ITS applications [1,4]. It can give a moral justification of each of ITS applications on the basis of expected benefits. Such a moral justification is needed for getting political and public awareness on the basis of expected benefits. Always the first question should be: is there a general awareness amongst the public administration and the public of ITS benefits? If so, it is possible to go on to the next step of the implementation of ITS solution in a transport project. If not, it makes it impossible to implement an ITS project. We should know to answer to the open question: what is the expected reaction by the public to expected ITS benefits?

Besides, it is clear that all governments must make decisions about the allocation of limited resources in order to advance the safety and well-being of their citizens in transport. The ethical analysis of ITS benefits may be part of ex ante or ex post cost-benefit analysis (CBA). It is an analytical tool that is commonly used to evaluate public-sector investment opportunities in transport. It provides a comprehensive, uniform accounting of costs and benefits across categories and across time periods, thus allowing comparisons of disparate projects. However it is commonly known that the proper estimation of all ITS benefits is extremely difficult in practice.

The CBA looks at benefits and costs across the expected lifespan of the project. It is based exclusively on economic values, expressed in money. The core of CBA is the assumption that economic benefits will exceed its costs. Each ITS project would be considered a “worthwhile” investment and a wise use of public resources, since it would create value to citizens that exceeds its resource costs.

However, any CBA should assume that a given ITS project is, in a sense, morally justified. Utilitarianism provides the foundation for moral justification. It means that an ITS application is accepted by all in a given transport community.

6. Conclusions

The ethical analysis of ITS applications seems to be the first step of the process of ITS implementation. The gist of it is to be an initial evaluation of ITS benefits for all users in a given transport community. It can be followed by ex ante CBA which includes the evaluation of expected measurable benefits of an ITS project.

A novelty in the application of ITS in transport is to promote their development because of the need for comfort (entertainment) when travelling. It is often the main reason for the application of numerous ITS technologies in the passenger transport. However, the most important benefits from the moral point of view are the ones connected with the safety ITS applications.

Contemporary consequentialism as an ethical approach may be used for the ethical (moral) justification of all ITS applications, and it seems to be a fresh and powerful idea. It may be applied in the initial process of ITS application to help planners and decision makers appreciate full potential benefits from the future employment of ITS.

It may be a starting point for building up a kind of general ethical theory of intelligent transport systems applications; in short – an ITS ethics.

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