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## Abstract

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Topic: Applications of Nudging in Traffic and Transport

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The term 'Nudge' or 'Nudging' was introduced in this context by the behavioural economists Richard Thaler and Cass Sunstein in their book *'Nudge: Improving Decisions about Health, Wealth and Happiness'*. The basic idea of Nudging is to steer the decision of people with a small 'nudge' into the 'right' direction.

More and more states use Nudging what indicates the growing interest in it. In the United Kingdom, the so called 'Nudge Unit' could register great success with the application of Nudging. This shows the potential of the application of Nudging and hence, this poses the question, how Nudging can be applied in the context of Traffic and Transport.

The aim of this work is it to show and discuss possible applications of Nudging in Traffic and Transport.

For this purpose the first step is to present the idea of Nudging in general. Thaler and Sunstein (2008) denote as a Nudge 'any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates.'

Thaler and Sunstein express itself for the Libertarian Paternalism. As Libertarian Paternalism are policies of superior authorities called which have the aim to influence behavior with the help of a Nudge.

Nudging is based on influencing the automatic actions. Hence, the two modes of thought (or types of thinking) are briefly introduced. On the one hand there is the Automatic System which works automatically and fast. On the other hand, the Reflective System works deliberative, logical but consequently more slowly. The Reflective System corresponds with what we usually associate with the term 'thinking', whereas the Automatic System can also be called intuition or subconsciousness. Because of the way the Automatic System works, it can lead to systematic and predictable errors in reasoning. These errors are responsible for the divergences of rational behavior and therefore often the reason of bad decisions.

The divergence of the rational behavior can be the reason for applying a Nudge as well as applied as a Nudge itself.

All in all there are different kinds of Nudges which are briefly presented:

- A change of the default option or of the Framing is a strong Nudge on account of the Status Quo Bias.
- People tend to postpone decisions, hence, it helps to increase the ease and convenience or to remind somebody to make the decision.

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- Information provides a basis for decision.
  - Pre-commitments increase the chance of realizing of the desired behavior.
  - Humans are influenced by the action of others either through the action itself or the information about it.
  - A thought, an action or an emotion primes many thoughts, actions or emotions. Therefore pictures or words can influence the human behavior.
  - Mapping means that you can relate the costs and benefits of a decision. For that reason it's effective to help humans with 'Mapping'.
  - The behavior is influenced by the illustration of the costs respectively benefits, which humans tend to overlook.

Nudging therefore influences the Automatic System, which enables it to make better decisions. The traffic behavior is marked by habits which are steered by the Automatic System. Therefore the application of Nudging in Traffic and Transport seems sensible.

Examples, studies as well as ideas were gathered and evaluated on the basis of an international literature research. The evaluation was carried out using a "morphological box". The morphological box contains traffic specific as well as general features of Nudging.

Although there are many articles related to the subject of Nudging in Traffic and Transport, only a low percentage deals with the concrete possibilities of applying Nudging in this context. The quantity of existing examples is limited. The ideas and attempts are vague for the most part and their main purpose is to illustrate the potential of Nudges in Traffic and Transport. This suggests the supposition that currently Nudging has limited relevance in Traffic and Transport.

Although concrete dealing with specific applications of Nudging in Traffic and Transport is not very frequent, already existent applications as well as ideas and studies related to this subject show the potential of such actions.

Effectiveness is an advantage of Nudging. It offers the condition and therefore the possibility to deal with human behavior while designing actions. In order to check the effects of actions in connection with Nudging, an evaluation is provided.

Nudging makes a contribution to improve the road safety and to develop a sustainable traffic behavior. In case of road safety Nudging is already used whereat the percentage is quite low so there is more potential for improvements. Sustainable traffic behavior needs to be investigated more closely. To use the present ideas, they need to be concretized.

The presented applications show that Nudging can improve existing actions. Behavioral insights should be considered in each action. For instance a different framing of costs can lead to a completely different acceptance of an action.

To achieve the highest effects of Nudges, different kinds of expositions should be pretested and the most effective one should be chosen.

Coming to a conclusion Nudging in Traffic and Transport represents a draft which is profitable to be investigated and applied in the future.