

## **Opportunity for TIL or Cosem Master thesis project: Willingness to share personal road use data**

### *The problem*

Road authorities try to reduce traffic delays using dynamic traffic management, e.g., ramp-metering or routing advise. Those systems have to react on the traffic conditions and thereby prevent or postpone unwanted situations, such as congestion. This requires real-time traffic state estimation using traffic sensing data. At the moment, detectors installed in the road are the primary source of these sensing data. However, installing and maintaining these detectors is costly and the data have limitations with respect to estimating traffic conditions. As an alternative, road authorities may use traffic sensing data from individual vehicles. However, in contrast to detector data, these personal road use data are not directly available to road authorities. Therefore, road authorities have to rely on individuals to share their (privacy sensitive) road use data.

### *The project's objective:*

1. To explore road users' preferences with respect to sharing their privacy sensitive data about their road use.
2. To explore how such a system can be implemented in order that road-authorities (and other parties) are able obtain these desired data. This involves, among others, exploring the costs of different implementations of this data-market system and compare these to the costs of the traditional system based on road detectors.

### *Research approach*

The following steps are envisioned for this research project:

1. Conduct a series of interviews or a focus groups to gain more insights into the topic.
2. Conduct a stated preference experiment (see below).
3. Estimate advanced discrete choice models, among others to explore possible heterogeneity in preferences.
4. Apply the estimated models to evaluate different alternatives of data collection and traffic state estimation in dynamic traffic management applications.

### *Stated preference study*

The aim is to examine the conditions under which road users are willing to share their privacy sensitive use of roads. Some (potentially) interesting questions are:

1. Ownership/rights: do road users find it important to have the right to delete the data in a later stage? Are road authorities allowed to use the data for other applications? And if so, to what extent?
2. Information/insights about data use: do road users find it important to see the exact personal data that road authorities have about them? How important is it to know (exactly) for which applications and even estimates your data is used?
3. Transfer of data-ownership/rights: what kind of (financial) compensation do road users wish for transferring certain ownership/right?

### *Interested?*

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