Scientific summary

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## Constructing and developing an integrated smart spatial database for Malmö Municipality, Case study: Västra innerstaden in Malmö

**GIS Section of Street and Park department of Malmö Municipality continuously receives new spatial data from different contractors that need to be saved to the GIS section traffic database. Due to spatial relationships and daily updates of traffic database, it is evident that the traffic database requires more consistency and integration in an automatic way.**

Since there is a spatial and conceptual relationship between the data, making a change in the traffic database and failing to make appropriate changes to other related features will eliminate the integrity of the data and the logical relationship of the data. Making appropriate changes manually are very hard and time-consuming. Thus, it is necessary to devise a mechanism, which update database automatically. For this purpose, it is needed to understand different techniques for implementing a smart database and selecting one for implementation based on possibilities and capabilities of GIS section.

Triggers, which are written using the SQL programming language for the traffic database, are used to apply the essential rules to the traffic database to make the traffic database smart. Using triggers, one can run a set of SQL commands with every change in the traffic database, which increase the consistency, integrity and attribution of the quantities automatically in the traffic database. However, using triggers has some disadvantages such as loop of triggers. To get rid of this problem in the traffic database, the iTRIMAN user interface is designed and implemented in a desktop and a web version. iTRIMAN allows triggers to be created on the traffic database when needed and to be dropped when they are not needed.