Performance Indicators for Describing the Road Infrastructure Asset at Network Level

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Pilot Project of Bavarian Building Authority

Performance-based procedures are becoming more and more important and popular for road authorities. They often use performance management and performance measures extensively in program areas such as maintenance and operations, programming and budgeting or project delivery. The performance-based management is also increasingly practiced in PPP-projects.

Thereby Key Performance Indicators play an important role as they reflect the most critical factors for the current and future management success.

Presentation of Disparity on the Map

For the comprehensive evaluation of the disparity, information about the regional distribution of performance indicators is essential.



Within the scope of a pilot project, Bavarian Building Authority has implemented a method for the successive determining of results indicators and performance indicators, based on Road Information Base of Free State of Bavaria (BAYSIS). The primary scope of the project was balanced maintenance management.

The focus was set on the description and the evaluation of the high-level societal or performance measures disparity. They refer to the distribution of those measures among administrative districts or sub-networks.

Three Categories of Performance Indicators

Based on database platform BAYSIS, procedures for the computing of required raw data have been implemented. The results and performance indicators for the particular administration unit and for the given time periods can be determined through aggregating these raw data. Such indicators will be called status quo indicators.

In order to describe the differences among single districts, we need a new kind of indicators, which are **disparity indicators**.

Dynamic indicators describe the time series of indicators and can be used to recognize the trends.



Dynamic Reports with Performance Indicators

In order to increase the utility of performance indicators, all important figures and graphics should be visualized online on dynamic reports.

All the components of dynamic reports are synchronized with each other.



Finally, for the encompassing description of the road network quality and road management, three kinds of performance indicators should be defined and determined: the status quo, the disparity and the dynamic indicators.



Gini-Coefficient as a Measure of Disparity

The description of the disparity can be done in many different ways, for instance, by the application of the Gini-coefficient.

The Gini-coefficient is also used for multi-dimensional, dynamic disparity analyses.

The dynamic reports can easily be customized in accordance with individual requirements, including the possibility to compare two or more indicators.









Conclusion

There is a lack of methods to describe the disparity of relevant performance measures among administrative units. The Bavarian Building Authority has made an important step towards closing this gap.

The methods developed in scope of a pilot project are now in the process of validation. However, there are still a few unanswered points. For example:

- how to set the target value for the disparity indicators
- how to measure and evaluate the dynamic processes

The suitable visualizing methods are crucial for an intuitive understanding of performance indicators.

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