
Abstract

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Topic: International comparison of quality management for traffic signals

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Quality management for traffic signals is a relatively new topic that is not yet widespread in practice. In the German guidelines for traffic signals RiLSA this approach has only been introduced since the 2010-version. However, quality management is a well-known concept that is often applied in many companies. The norms of the DIN EN ISO 9000ff.-family dealing with quality management have strongly contributed to this trend. The main features of these norms are presented in this work. They are of general character and are applicable to all sectors of economy, not only traffic management and traffic signals.

Performance measurement, which is also described in this Master Thesis, plays an important role for quality management for different areas of application including traffic signals. This results from the fact that normally only the issues represented by metrics can be managed efficiently.

In order to identify the main characteristics of quality management for traffic signals the relevant German norms are examined in this work. The main norms are RiLSA, 2010, HBS, 2001 and the Guidelines for Quality Management for Traffic Signals HQML, 2014. The most important task of quality management for traffic signals is to determine all processes that can be of significance for all life phases of a traffic signal and to apply the PDCA-method to them. This method and the resulting continuous improvement process form the essence of quality management.

The biggest part of the work consists of the presentation of the current state of quality management in the USA, Japan and Russia and the comparison of these countries and Germany regarding a set of selected criteria. Moreover there is some information provided about Austria, Switzerland, United Kingdom and France. In doing so it was found out that (quality) management for traffic signals in the USA is reported in the most comprehensive way and there is the norm HCM, 2010 which gives a detailed view on the measurement of traffic flow quality. Furthermore there is a range of other sources with interesting and promising approaches of quality management.

In Japan, there is quality management and performance measurement in the transport sector, too, but without clearly emphasizing traffic signals. On the subject of Russia can be said that neither in norms nor in practice in Russian towns references to systematic quality management could have been found. In most cases (not only in Russia) management of traffic signals involves individual measures caused by disturbances of traffic flow.

Conclusions and recommendations for Germany constitute the last part of the Master Thesis. One proposal is to place greater stress on the PDCA-method in the RiLSA, 2010. Moreover appropriate consideration should be given to the fact that quality management is a slow process with gradual improvements and that it might have to be organized differently in different agencies, e.g. if they are at different hierarchy levels.

Additionally, it was noted that in all countries examined delay is the crucial performance measure of the quality of the operation of traffic signals or the whole transport system. This metric is also important because it can be used as an indicator for other aspects of quality such as environmental compatibility or economic efficiency. Finally, quality policy and objectives can't be formulated without taking into account the whole transport system.
