



Rating of Prognostic Performance Indicators through the Indicator Readiness Level

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Abstract

To move from corrective maintenance to preventive maintenance, it is essential to be able to monitor the bridge component behaviour and detect any drop in the performance level before major failure occurs. Performance Indicators are used to deal with life-cycle deterioration of infrastructures and characterize the current and future structural conditions. In the context of Cost Action TU1406, several performance indicators have been identified to serve as benchmarks in the establishment of a Quality Control plan. These Indicators can be qualitative or quantitative based, data-driven or obtained with physically-based models. They can be collected during principal inspections, through a visual examination, a non-destructive test or a temporary or permanent monitoring system. Moreover, they can describe the current condition (diagnostic performance indicators) and/or forecast future conditions (prognostic performance indicators). Several Performance Indicators are currently the object of research effort and not yet ready at for a systematic application to Quality Checks. The Indicator Readiness Level scale has been previously proposed by the authors to rate the maturity levels of Performance Indicators. This scale is herein applied to prognostic performance indicators used to characterize the performance of a bridge in terms of its ability to perform the structural function.

Keywords: Indicator Readiness Level, Prognostic Performance Indicator, standardization, bridges

1 Introduction

The decision to replace or repair, when and how to repair each individual structure, is a common and difficult issue for asset managers. For structural assessment, various types of sensor information

are used to generate data related to the health and load carrying capacity. Data can be collected on all types of structures in different ways, but the challenge is to translate them into *performance indicators* that is information about the structural