



Streamlining field inspections for infrastructures life-cycle management

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Summary

In the Era of Cloud Computing, mobile devices are playing a determinant role in how people communicate and work. With impressive computational and graphical capabilities modern mobile devices are showing to be true candidates to assume control in processes until now paper-based. With that line of thought, infrastructure managers are becoming prone to take advantage of mobile devices for the inspection and management tasks.

A platform, for a tablet pc, is being developed for inspection tasks in order to expedite the processes of storing and using of information. The platform might be remotely connected to a database to present standard inspection files, combined with the possibility of obtaining technical information of the element being inspected (such as historical data, previous inspections data, theoretical-technical information, etc.) in order to increase the inspections' objectivity. This platform aims to make information available in real-time and aims to be a step forward to standardize and automatize the inspections' classification. The inspection results will be converted into normalized indexes to be used in optimization models (considering the infrastructures performance and constraints) to trace the best scenarios for maintenance/intervention.

Keywords: Asset Management, Infrastructure Management Systems, Field Inspections, Mobile Computing Devices.

1. Introduction

Over the last years, the scientific community has been directing substantial efforts in the research and development of tools to support the infrastructures management. The main concern is to improve the existing management systems to streamline the management process, with the overall objective of obtaining significant efficiency earnings. Currently, this thematic is transversal to all type of infrastructures and management models, being designated by Asset Management.

Asset management must be based in a whole-life costing model, which consists in determining the total cost of any infrastructure from its initial conception to the end of its service life. Whole-life costing models rely on the treatment of infrastructure's data by application of several methods, analyses and tools. The quality of a WLC model will heavily depend on the quality of available data. Thus the quality of data gathered in field inspections is a key element of WLC models. Although great developments were made by scientific community to provide tools for data gathering, there are still problems with data quality due to subjectivity on field inspections, as it depends from who realizes it. Proper inspections may lead to lower costs in maintenance, repair and rehabilitation during the lifecycle of an infrastructure. In conditions of limited budget a good schedule of high quality inspections is required. An effective inspection system must be able to be operated by different type of users. There are inspectors with different levels of knowledge and experience, some are specialists but others are just technicians that just follow the inspection's model or protocol.

It is important to streamline paper-based field inspections. Nevertheless, the alternative must be