Digital Transformation in Asset Life Cycle Management

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ABSTRACT:

The aim of implementing Asset management is to create value by means of an optimal deployment of assets. To achieve this, information on the condition and functionality of these assets is needed, among others. This information is then used to assess risk which form the basis for decisions on maintenance scheduling, asset replacement and the use of assets.

(visual) inspections are commonly used to assess asset condition. However, (visual) inspections have a number of shortcomings: subjectivity of inspectors, relative limited frequency by limitations in costs, capacity, worker safety and traffic disturbance, lack of information on non-visible parts of the asset. In addition, for existing assets information on structural design and history of use and maintenance are often lacking.
Some of these shortcomings may be partially overcome by training inspectors, standardizing procedures and adding (non)destructive testing methods. In practice, this enables a relatively effective asset management of infrastructural assets.

However, asset owners and asset managers find themselves confronting new challenges: aging assets, climate change and changes in the way assets are being used. In addition to this, society increasingly demands accountability from asset managers, especially in the light of recent failures of infrastructural assets. All this results in an uncertainty we have summarized in four questions:
1. What is the exact development of the quality of our existing assets? When is renovation, rehabilitation or replacement needed?
2. What will the future bring? Which technological solutions will be available and in which timeframe?
3. What will be the impact of these developments on the functionality of our assets and asset-system?
4. How can we involve an ever increasing number of stakeholders in our decision making processes?

Developments in the digital domain offer new opportunities to improve existing inspection procedures. In this keynote, we will present an overview of current developments, including Smart bridge Leeuwarden, Drones and deformation measurements of quay walls in Amsterdam and the use of Augmented Reality for bridge inspections. We will discuss current limitations and next steps to improve these application and discuss how these developments aid a better understanding of asset performance, a better management of risks and costs.