

A Proposal of Advanced Key Performance Indicators for Assessing Six Performances of Construction Projects

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Abstract : Large-scale construction projects are continuously increasing, and the need for tools to monitor and evaluate the project success is emphasized. At the construction industry level, there are limitations in deriving performance evaluation factors that reflect the diversity of construction sites and systems that can objectively evaluate and manage performance. Additionally, there are difficulties in integrating structured and unstructured data generated at construction sites and deriving improvements. In this study, we propose the Key Performance Indicators (KPIs) to enable performance evaluation that reflects the increased diversity of construction sites and the unstructured data generated, and present a model for measuring performance by the derived indicators. The comprehensive performance of a unit construction site is assessed based on 6 areas (Time, Cost, Quality, Safety, Environment, Productivity) and 26 indicators. We collect performance indicator information from 30 construction sites that meet legal standards and have been successfully performed. And We apply data augmentation and optimization techniques into establishing measurement standards for each indicator. In other words, the KPI for construction site performance evaluation presented in this study provides standards for evaluating performance in six areas using institutional requirement data and document data. This can be expanded to establish a performance evaluation system considering the scale and type of construction project. Also, they are expected to be used as a comprehensive indicator of the construction industry and used as basic data for tracking competitiveness at the national level and establishing policies.

Keywords : key performance indicator, performance measurement, structured and unstructured data, data augmentation

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