



# The development of work performance analysis system

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## ABSTRACT

The purpose of this study is to develop the web-based system for work performance analysis (WPAS). The need of work performance analysis system has already been suggested in many previous researches on the computerization of the performance measurement in the construction site by using the indicators such as time, cost and quality.

However, they had focused on measuring or analyzing the result when the project would be over. The WPAS suggests three indicators — work reliability, work effectiveness and work efficiency — to manage the performance of the construction site. It can help the manager more easily recognize the status of on-going work in the construction site by measuring and analyzing the work reliability rate, the work effectiveness and work efficiency every day.

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## 1. Introduction

### 1.1. The Overview and Purpose

“Like the saying, the unmeasurable thing cannot be manageable,” the capability to understand status of construction project and quantify and measure its performance improvement is required in order to execute effective construction project. Due to the importance of performance measurement, construction companies in Korea have made vigorous efforts to develop performance measurement system and indicator to measure the performance. However, until now the performance indicators utilized to measure success of a company's project are mainly focused on time and cost [1].

On the other hand, studies related to development of performance measurement system that utilize progress performance oriented indicator and progress indicator besides time and cost factors have been actively proceeded in overseas countries. The major advantage of performance measurement of a project with progress performance indicator is that providing feedback to solve problems that occur during a project is faster and easier in comparison with performance measurement via time and cost because the performance is measured up to the smallest work activity of a project. Although performance measurement via time and cost is done to measure performance regularly to manage particular type of project and a specific work

activity better from the perspective of time or cost, this cannot be referred as proper measurement of progress performance [2].

The purpose of this study is to define the following three progress performance indicators — reliability of work, effectiveness of work, and productivity of work to measure progress performance of project and develop web-based Work Performance Analysis System (WPAS) to measure and analyze progress performance of construction project utilizing such indicators. In addition, as measurements of work progress per project, contractor, and individual task are recorded in database through such system, the performance of on-going project can be analyzed, and solutions for problems can be planned. Also, the predicted progress of work in similar project can be projected.

### 1.2. Method and area of study

An emphasis of this study is placed on analysis and diagnosis of progress performance of a specific task in construction project, and WPAS of prototype presented in this study limits the range of primary data entry of the system to data entry of monthly schedule excluding stages for master schedule planning and standard task database establishment to measure and analyze progress measurement indicator of on-going project.

This study consists of five following main sections.

- (1) Definition of indicator to measure progress indicator of a project
- (2) Major task process for WPAS
- (3) Database Structure and data flow analysis of WPAS
- (4) Functional format of WPAS
- (5) Review on system application through case study

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