Proactive problem-solver for construction

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Abstract

Construction is an experience-based discipline. Knowledge or experience accumulated from previous projects plays a very important role in successful performance of new works. More and more construction organizations have adopted commercial Knowledge Management Systems (KMSs) to develop their own Knowledge Management (KM) functionalities. Most of the existing KMSs adopt Communities of Practice (CoPs) for knowledge sharing and exchange. Such an approach is found on the reactive problem-solver (RPS); that is, the problem raised by the questioner in the CoP has to "wait" for the "solution knower" to respond (or reply). Previous research indicated that the RPS approach may suffer in poor time and cost effectiveness. This paper proposes a Proactive Problem-Solver (PPS) approach for the problems encountered in construction engineering and management. Unlike RPS, the PPS proactively solves the problem based on lessons learned from previous projects. Should the solution be not available; the PPS dispatches the problem to the most appropriate domain experts so that the problem can be tackled timely and efficiently. A case A/E consulting firm is selected for implementation of the proposed PPS to demonstrate its applicability. It is shown that the proposed PPS improves more than 89.5% of efficiency both for timeliness and cost-saving of problem-solving. The proposed PPS demonstrates great potentials for improvement of emergent problem solving and enhancement of market competitiveness of a construction organization.

Keyword：Knowledge management, Problem-solving, Knowledge map