

**Title:** Quality and Knowledge Management on Road Projects.

**Sub-Title:** An examination of the potential benefits for project owners of road construction projects in Ireland by aligning Knowledge Management with Quality Management Systems.

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**Purpose:** The aim of the research is to identify the potential benefits that may be derived from using Knowledge Management (KM) processes to assist Quality Management Systems (QMS's) to the advantage of the project owner's in a road construction project. This dissertation was prompted by the researcher's experience working on behalf of project owners in the delivery of major road construction projects in Ireland. The move from traditional procurement to Design & Build (D&B) and Public Private Partnership (PPP) delivery mechanisms has changed the role of the project owner's representatives on such projects. The findings and recommendations will offer the potential to enhance the effectiveness of QMS's leading to improved performance by organisations engaged in the delivery of road construction projects.

**Methodology:** The secondary research consisted of a comprehensive literature review. The primary research utilised action research and a case study approach. The primary data was collected using an on-line questionnaire supplemented by follow-up semi-structured interviews with a selection of the respondents. The research participants are all very experienced engineering and construction professionals associated with the delivery of road construction projects in Ireland.

**Findings:** The research found that the mode of project delivery is important and good communication between the parties is crucial for the successful outcome of a project. Project owners need to communicate clearly their requirements for project quality. The project owners influence on project quality may be somewhat diminished by D&B and PPP procurement however this can be overcome with properly implemented QMS's and good supervision. There is a need to find new techniques and approaches for objectively appraising the quality of performance in D&B and PPP projects. The research found that KM is not a common concept on road construction projects in Ireland. Very few KM technologies or techniques are used. The findings acknowledged that KM has a role to play in the delivery of quality in projects. The research findings provide support for integrating KM with QM to achieve improved performance in an organisation. The key benefits identified include assistance with the identification and communication of project owner's requirements for project quality, assistance with the identification of repeat non-conformances and prevent recurrence and promote innovation and learning on projects. A number of recommendations are presented which if acted upon have the potential to deliver better projects. The significance of this research is that it has identified ways in which project owners of major road projects in Ireland can improve on their performance in project delivery, with the potential to provide greater value for money to the tax payer.

**Keywords:** Quality Management, Knowledge Management, Highway Construction, Design & Build, Public Private Partnerships, Performance Improvement.