

EVALUATING THE PERFORMANCE OF MATERIALS MANAGEMENT PROCESS ON CONCRETE BUILDING PROJECTS IN THE ARAB REGION

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INTRODUCTION

The implementation of new technologies and the changing of existing methods are slow within the construction industry. However, the significant question that can be raised is, “*how the impact of these changes and applications can be evaluated in order to identify the extent of their effectiveness, suitability, and/or the need for more improvement or replacement*”. Thus, there is a pressing need for measuring the performance of the Construction Materials Management (CMM) process to provide a basis for the follow-up and for evaluating and analysing the impact of any improvements or process changes on the material management process and the overall construction process performance. The rapid growth of the construction sector in the Arab region, along with other sectors that are based on construction projects has contributed to increasing the number and types of the large-scale projects; thus, it has realized growth in the use of building materials that promotes the identification of the material management services.

AIM

Consequently the primary aim of the research was “to establish a set of uniform measures for evaluating the effectiveness of Construction Materials Management (CMM) performance and to develop a framework for their use within the large-scale concrete building projects in the Arab Region”.

OBJECTIVES

To achieve the research’s question and aim above following objectives and sub-objectives were formulated;

- To critically review the existing literature on materials management processes and to identify, theoretically, the typical workflow diagram(s) of the material management process in the construction industry. (CMM)
- To identify and assess the material-related measures used within different industries and to establish a proposed set of measures to evaluate the Effectiveness of CMM Performance (E.CMM.P) in the building projects,
- To develop a practical workflow diagram for communicating the integrated functions and activities that form the CMM process within the large-scale concrete building projects in the Arab Construction Industry (A.C.I),
- To explore practical Effectiveness Measures of the CMM (ECMMP) on the Arab building projects
- To develop and validate framework for using the effectiveness measurement of the CMM performance on large-scale concrete building projects in the Arab regions (E.CMM.P Framework)

METHODOLOGY

1 Research Methodology: The work adopts a mixed research methodological approach involving literature review and both quantitative and qualitative data collection techniques.

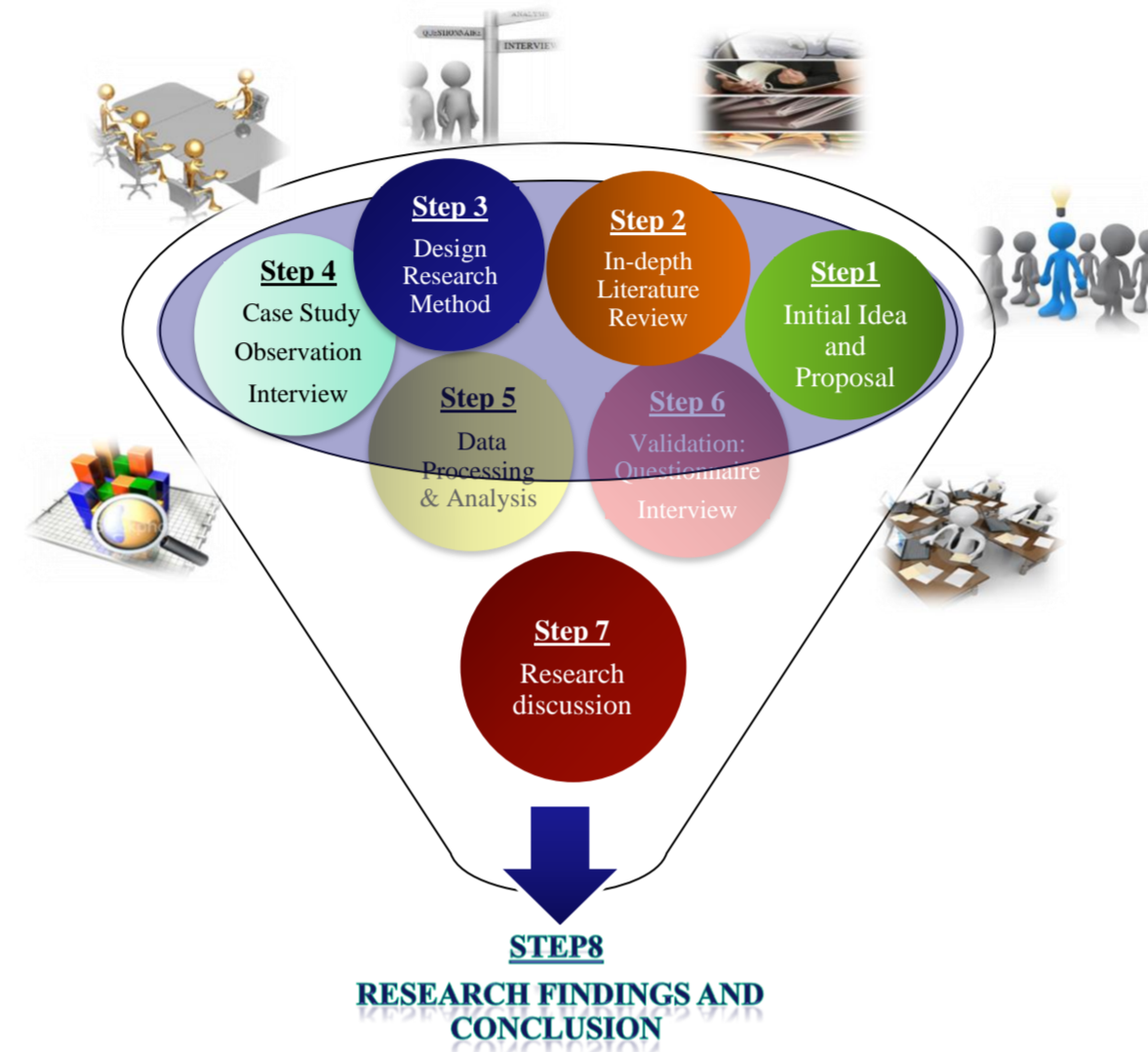


Figure 1: Diagram outlining the Research Methodology

2 Data Collection Technique: A case study project was introduced where site visits and semi-structured interviews were carried out to establish a practical workflow diagram to reflect real-life CMM processes. This also included the identification of a set of measures to be used for evaluating the E.CMM.P on construction projects

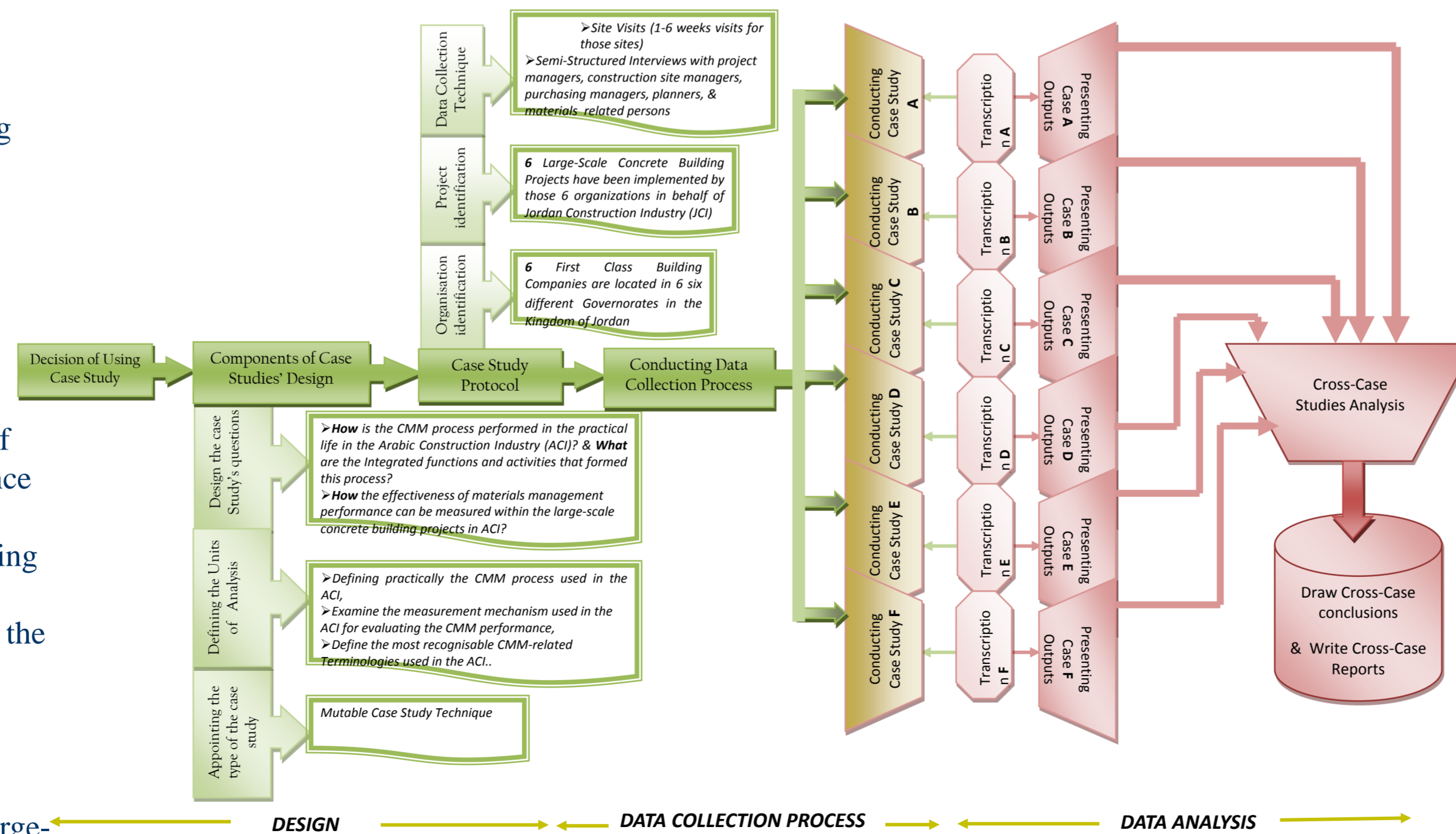


Figure 2: The Case Study Protocol Framework: Design and analyse of the case studies

RESULTS

1 Literature Review Findings: The Literature Review process aims to achieve the first and second objectives of the study, and its main findings are;

- Develop, Theoretically, the Typical Workflow Diagram(s) of the Material Management in Construction Industry,
- Develop a Proposed Set of Measures for Evaluate the Effectiveness of Construction Material Management Performance (E.CMM.P) in Building Projects,

2 Data Collection Findings: The case study approach is designed to accomplish the third and fourth objectives . The main findings of the cross-case studies (Six case studies) analysis are;

- Developing the Practical Workflow Diagram for Communicating the Integrated Functions and Activities that Form the CMM Process within the Large-Scale Concrete Building Projects in Arabic Construction Industry (A.C.I),
- Establishing the Set of Measures that can be practically used for Evaluating the Effectiveness of the Construction Material Management Performance (E.CMM.P) in the Large-scale Concrete Building Projects in the A.C.I.

CONCLUSIONS

Based on the main outputs obtained from the literature review and the case study findings, the Framework of Evaluating the Effectiveness of the Performance of the Construction Materials Management Process (E.CMM.P Framework) was developed.

This research might be the first attempt to develop a mechanism for monitoring, analysing and evaluating the effectiveness of construction materials management performance in the building construction field, which represents the widest industries in the Arab region.

