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## Investigation of Document Management Systems in Small Size Construction Companies in Jordan

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### Abstract

For successful management of construction projects and organizations, it is crucial to adopt effective management systems that can handle the various information and documents of project activities. Document Management System (DMS) is the system used to store, control, coordinate, process and/or retrieve documents whether it is in electronic or paper based format. This research aims at investigating existing electronic and paper based DMSs in a sample of small size contracting companies in Jordan. Interviews and questionnaire survey with contractors, contractors' representatives and practitioners of DMSs in a number of small contracting companies were carried out to investigate and evaluate the components, processes, motivations and challenges of the existing and intended DMSs. Electronic formats of documents and files used in small contracting companies will be also investigated. The results of this research can help contracting companies to enhance their DMSs, and improve efficiency and performance of the processes of construction projects management.

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## 1. Introduction

### 3.1. DMS Definition

DMS refers to the repository that store documents and allows end-users to retrieve required information. Some literature has combined the meanings of the term document management with other concepts such as communication and knowledge management, and information system [1].

Dictionaries, such as (businessdictionary.com), define DMS as the coordination and control of the flow of electronic and paper based documents in a secure manner to be used efficiently by authorized personnel as and when required. Flow of documents can include storage, retrieval, processing, printing, routing, and distribution of business documents. Furthermore, digital DMS can be defined as the software application that collect documents (paper-based or electronic) for the secure storage, retrieval and archiving of these documents [2]. According to [3], sophisticated electronic DMS may use a central server or repository to store documents, and users can use interfaces using browsers on computer networks to facilitate the management of and the interaction with the stored documents.

### 3.2. Drivers of DMS

With new economy increasingly becoming a more knowledge-based economy, knowledge is becoming the most important asset for organizational success among other assets such as capital, materials, machineries, and properties. Document in construction enterprise contains knowledge, that if managed successfully can improve the whole management process and produce better performance of construction companies [4, 5].

Traditional manual methods of filing construction project documents are more common in the small size construction companies in Jordan because according to the opinions of organizations' managers these methods are easier and have lower cost to apply. However, these methods are not effective for information retrieval because they need previous knowledge and understanding of document content and require high capabilities and time consumption from the seeker [6].

By using quality digital DMS, organizations should be able to reduce the overall document-related costs, and improve the efficiency of work processes and procedures in order to address the specific business procedures and needs. Many organizations have claimed saving time and efforts, increasing productivity and profitability, and improving coordination and collaboration among end-users [2].

### 3.3. Challenges of DMS

Research [3] has investigated the use of internet-based DMS in the project-based construction industry. The results showed that the main challenges for applying EDM systems successfully are related to psychological and management issues. Among the challenges discussed are the complexity of contents' structure, the use of paper documents in parallel with electronic ones and the difficulty of measuring the benefits of applying the system.

The complexity, the diversity of work performers, the non-repetitive nature of processes, the time and cost pressure, difficulty of systems' integration and the need to make changes to the routine procedures of work of construction projects are all critical factors that may stop successful application of electronic systems in the construction projects [6–10].

## 2. Aim and Method of Research

This research seeks to investigate existing DMS in small size construction companies in Jordan. The research will highlight the use, components, challenges and motivation to apply DMS and their contribution to the organizations. Advantages and opportunities to improve existing systems in the organizations will be studied. Related literature will be reviewed to provide fundamental understanding and strength to the research.

The research can be split into 3 phases. This paper presents only the first phase of the study. In this phase, review of available literature that investigate existing DMSs or the development and application of new DMS models was performed. Also, interviews with practitioners of DMS in construction projects were conducted. Interviews with open-

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