

# A Model of Successful Implementation of Cloud Enterprise Resource Planning in Sudan Civil Aviation Authority

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## Abstract

A cloud-based enterprise resource planning (ERP) system offers organizations integrated software to manage the organization and operations and financial information. It also provides access to business information from any connected device in real time. However, the lack of strategy in implementing cloud-based ERP in government organizations can cause a failure in the efficiency and performance of the organization. The Sudan Civil Aviation Authority (SCAA), a unique large government organization that regulates the aviation sector in Sudan, has failed to fully implement cloud ERP. Therefore, this study aims to investigate the implementation of an ERP System in the aviation industry and develop a model for successfully implementing cloud ERP in the civil aviation authority of Sudan. This study uses De Lone & McLean's updated model of successful IS implementation. This research uses a quantitative approach by conducting a survey using a questionnaire as an instrument to collect data from the target population in SCAA, which has many subordinates. The results of this research are expected to show a theoretical and practical approach toward the successful implementation of Cloud ERP in SCAA and other aviation industries.

**Keywords:** Success, Implementation, Cloud Enterprise Resource Planning, Aviation Industry

## 1. Background

Enterprise Resource Planning (ERP) is essential for businesses, automating processes, centralizing data, and fostering integration, enabling competitive advantages like resource savings, adaptability, enhanced customer service, and data security. On the other hand, Cloud-based ERP systems offer real-time access, promoting consistent data utilization across organizations and facilitating informed decisions and scalability [1]. The Cloud ERP software market emphasizes the dominance of cloud-based solutions. Organizations must embrace digital innovations and shift to cloud-based ERP systems integrating artificial intelligence and robotic process automation (RPA). Despite various studies on cloud ERP success factors, research needs to enhance the existing taxonomy of Cloud ERP implementation challenges through empirical data collection.

## 2. Problem Background and Research Gap

Cloud ERP implementation is still being developed, especially in developing nations like Sudan. Practitioners should pay attention to the organizational context, and more research is needed to investigate the criticality of CSFs in cloud ERP implementation using a quantitative approach [2]. The Sudan Civil Aviation Authority (SCAA) sought to modernize its operations with cloud-based ERP but faced challenges due to regulatory compliance and specific needs. Cloud ERP implementation faced difficulties in SCAA, leading to the discontinuation of automated operations deficiencies in integrated information systems and difficulty integrating cross-functional interactions. Numerous studies investigating cloud ERP implementation have been conducted in countries like India and the UK, revealing varying critical success factors (CSFs) according to theories and phenomena [2]. To better

understand ERP implementation, Further research is needed to identify CSFs and refine information system (IS) models in other countries European and developing economies [3].

### 3. Research Questions and Research Objectives

Main Research Question: How can a successful implementation model be developed for cloud ERPs in the Sudan Civil Aviation Authority (SCAA)? The research objectives are:

Objective 1: To identify the Sudan Civil Aviation Authority's current challenges regarding cloud ERPs.

Objective 2: To investigate critical success factors for the successful implementation of cloud ERPs in SCAA.

Objective 3: To investigate the relationship among the factors influencing the successful implementation of cloud ERPs in SCAA.

Objective 4: To provide Cloud ERPs with successful implementation guidelines suitable for service provider organizations like SCAA.

### 4. Underlying Theory(ies)

De Lone and McLean's model significantly contributes to the literature on evaluating the success of information systems (IS). Two dimensions were practically selected for exploration: system quality and service quality. The researcher also introduced two additional dimensions, namely process quality and support quality, which were derived from a literature review and were deemed relevant for addressing the problem of a unique large governmental organization like the Sudan Civil Aviation Authority (SCAA).

### 5. Method

The study's focus on successfully implementing CERP factors and dimensions with empirically tested hypotheses aligns with the notion that more research is needed in this area. Therefore, the study is based on the positivist paradigm. A deductive approach is "the process by which the researcher begins with a theoretical proposition and then moves towards concrete empirical evidence." Quantitative research assesses the significance of research factors, tests hypotheses, and evaluates research models [20]. The research will follow a two-step approach: measurement model and structural model assessments, following guidelines by [4] and [5].

### 6. Conclusion

This study focuses on implementing a cloud-based ERP system in Sudan's Civil Aviation Authority to enhance safety and quality processes. The integrated system aims to improve process efficiency, provide accurate information for decision-making, and streamline activities across departments. The research offers both theoretical and practical contributions. Theoretical contributions involve identifying critical success factors for cloud ERP implementation and enhancing knowledge in this domain. Empirical contributions provide a modified implementation model for large organizations. This study is valuable for SCAA managers and researchers, offering guidelines to improve efficiency and stakeholder satisfaction and address critical factors.

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