# Study of New Generation Cloud Based Digital ERP System

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***Abstract*—The global digital transformation has led to paradigm shift in Enterprise Resource Planning systems. This major shift occurs while transition is performed from traditional on premises models to cloud based ERP model. This research paper explores the strategic factors which act as catalysts to this major transformation. The research paper investigates the benefits, challenges, adoption drivers and the business impact of cloud ERP systems. The research paper focuses for presenting strategic recommendations for successful and smother transitions and increased digital maturity.**

***Keywords—Enterprise Resource Planning (ERP), Cloud based Systems, Digital transformation***

## I. INTRODUCTION

Enterprise Resource Planning (ERP) systems have been in center of focus for managing the business processes across various departments like finance, supply chain management, customer services operations, human resources management and many more. In traditional model, the ERP systems were hosted on-premises of an organization. The traditional model i.e. On- Premises hosting of ERP systems requires a significant capital investments, dedicated IT employees and have long deployment cycle. This model is mainly suited for the large organizations[1]-[7]. Figure 1 describes the disadvantages of the traditional model of ERP systems.

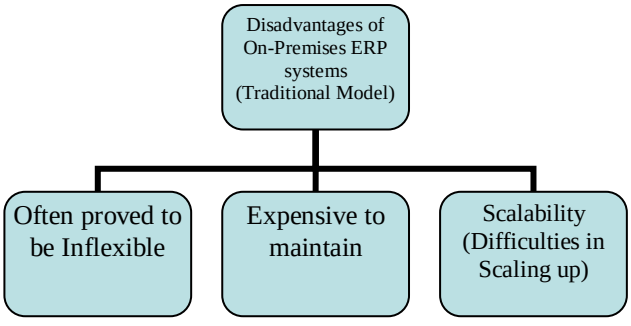


**Figure 1 Disadvantages of On-Premises ERP Systems**

With the thrust towards the digital transformation and upcoming advancements in cloud computing, a new model of Cloud based ERP systems have emerged and is gaining popularity. These systems are hosted on the external servers and connected through intranet[8]-[12]. This model is basically a subscription based model which comes with reduced upfront costs and also offers scalability. Figure 2 captures the advantages of cloud based ERP model.

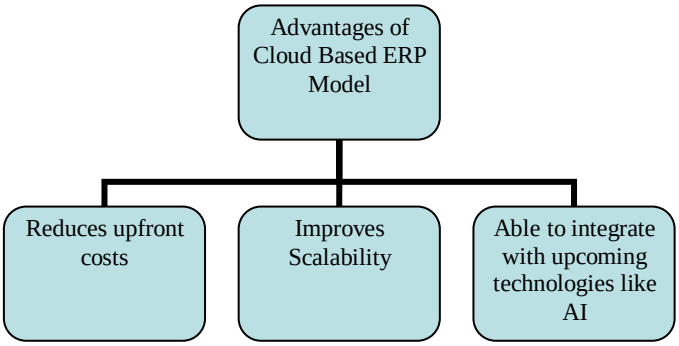


**Figure 2 Advantages of Cloud based ERP model**

The above advantages have led to a gradual shift from traditional ERP model to cloud based ERP model. Figure 3 describes the gradual shift [1]-[10].

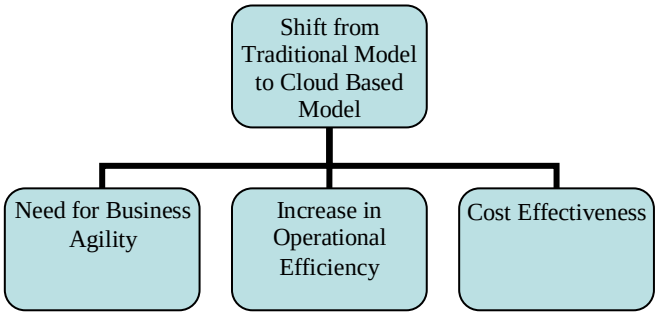


**Figure 3 Shift from Traditional to Cloud based ERP Model**

This research paper intends to study the gradual shift from on-premises model to cloud based model. Also this research paper intends to identify the critical success factors, challenges, and issues in the cloud ERP model adoption journey.

## II. BACKGROUND & PROBLEM STATEMENT

The main advantage of ERP systems lies in automation and integration of the core business operations. ERP systems provide a unified database and also facilitate the streamlined workflows[11]-[15].

Though there are various benefits for cloud based ERP systems yet the organizations face many challenges in transition from on-premises ERP model to cloud based model. These challenges include dependency on legacy systems, risks related to data migration, concerns with respect to cyber-security and limited awareness of the cloud based systems. This study intends to fill the gap by studying and analyzing the existing available literature. This literature review will provide insights and recommendations to enterprises [20]-[25].

## III. Research Objectives

The primary aim of this research paper is to study and explore the strategic transition from traditional on-premises ERP systems to new generation cloud-based ERP solutions. This of focus of this research study lies on identification of key drivers of adoption, evaluating organizational outcomes, and comparison of global & Indian perspectives.

The under-mentioned objectives have been set for guiding the research in a structured and comprehensive manner:

**O1.** To analyze the strategic shift from traditional on-premise ERP systems to cloud-based ERP solutions, focusing on the driving factors behind this transition.

**O2.** To evaluate the benefits and challenges associated with adopting cloud-based ERP systems, including aspects such as cost-effectiveness, scalability, data security, and integration complexities.

**O3.** To assess the impact of cloud-based ERP adoption on organizational performance and business process agility, particularly in sectors like healthcare, education, manufacturing, and finance.

**O4.** To analyze the key factors influencing cloud ERP adoption in Indian enterprises, including SMEs, large corporations, and government institutions, and compare them with global trends.

**O5.** To provide strategic recommendations for organizations transitioning from traditional ERP to cloud-based ERP, ensuring minimal disruption, cost optimization, and maximum business value.

## IV. Research Methodology

Using clearly defined inclusion and exclusion criteria, we first identified a broad pool of papers focusing on ERP systems, cloud computing, and enterprise digitization. The initial search yielded 150 papers from 2017 to 2024, which were screened through a stepwise process involving duplication checks, title and abstract screening, and full-text analysis. From the initial 150 papers, duplicates were removed, leaving 120. Title and abstract relevance checks reduced this to 80 papers. After full-text analysis and alignment with the research objectives, a final set of 25 high-quality papers was selected. These were categorized thematically (adoption factors, organizational outcomes, Indian context, etc.) for deeper analysis. Figure 4 depicts the filtration of research papers.

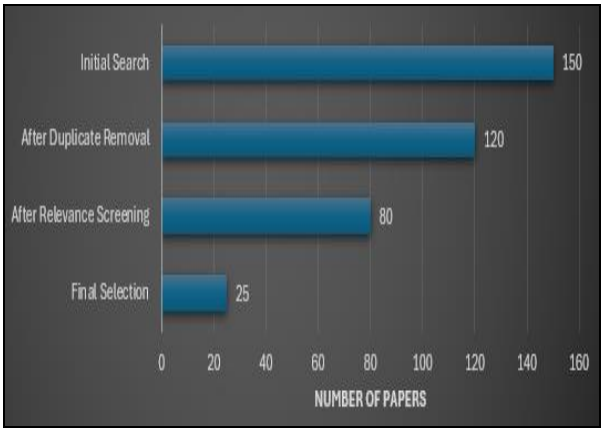


Figure 4 Figure showing Filtration of Research Papers

In order to ensure the rigor for academics and reliability of research, a wll structured quality assessment of the reserch papers was conducted. The research papers were evalauated on the basis of the predefined crieteria which coreelates with the research objectives, relevance and soundness.

The scording was perfromed on a five point scale with the parameters as under-mentioned :

- Relevance to research objectives
- Recency of Research Papers (Post 2017)
- Peer Reviewed Status
- Rigor in Research Mehtodology
- Clarity in terms of Findings
- Relevance to Indian Markets

The research score is calculated for reach research paper and the research papers which had scores above the threshold values were considered for the final analysis. The process was perfromed so as to ensure that the synthesis of literature is credible and relevant in terms of Indian Context.

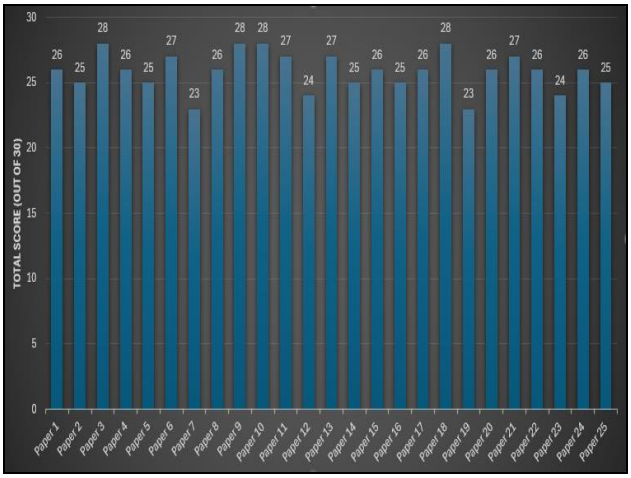


Figure 5 Total Quality Score of Research Papers

The research papers under consideration i.e. 25 research papers captured Adoption of Cloud ERP across various sectors like manufacturing, healthcare, education and public services.

Important Themes in the research papers are as under:

i. Adoption Drivers: Cost reduction, real-time data access, scalability.

ii. Barriers: Data security, integration with legacy systems, lack of cloud-readiness.

iii. Indian Context: Indian SMEs and government initiatives are key drivers but face regulatory and infrastructural constraints.

iv. Global vs. Indian Trends: While global enterprises focus on innovation, Indian firms prioritize affordability and compliance.

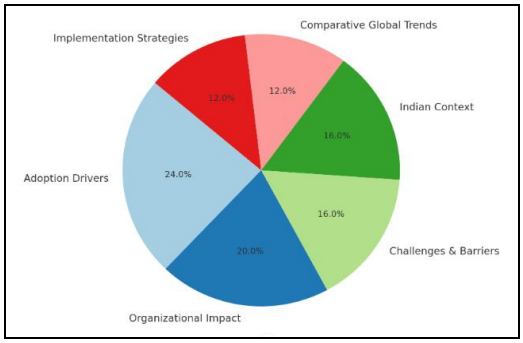


Figure 6 Analysis of Research Papers

## V. Comparative Analysis

In this study, a comparative methodology was implemented for evaluation of the strategic shift from traditional on-premises ERP systems to new-generation cloud-based ERP systems. This method captures well-structured comparison of the features, drivers for adoption, key outcomes and various limitations. This comparative methodology was implemented for 25 research papers which have been selected through proper filtration process.

A comparative matrix methodology was implemented for the assessment of the critical factors which are cost structure, scalability, deployment time, maintenance needs, security, customization, and accessibility.

Each factor was assigned a rating on a scale of 1 to 5, based on insights from 25 research papers and industry reports. For instance, **cost structure** and **deployment time** received significantly higher scores for cloud ERP due to lower upfront investments and quicker implementation, respectively. Similarly, **scalability** and **accessibility** scored high for cloud ERP, reflecting its flexible infrastructure and real-time data availability across devices and locations.

The comparative methodology is helpful in validating the hypotheses in reference to agility, operational efficiency, and cost benefits which are associated with cloud ERP adoption. It also highlights parameters like security—where both systems received similar scores. Figure 7 depicts the comparative analysis between traditional ERP and Cloud ERP systems.

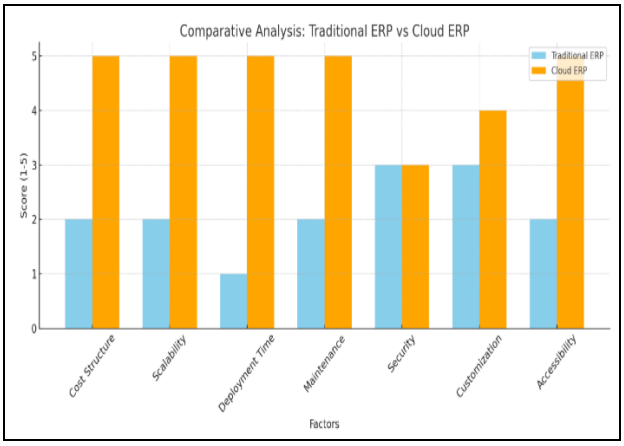


Figure 7 Comparative Analysis b/w Traditional ERP and Cloud ERP

## VI. Conclusion

Basis the literature review and the comparative analysis of the research papers it is clearly highlighted that the Cloud ERP Model has transformative impact on the organizations. The impact is not limited to particular industry but it is prevalent and spread across a wide range of industries. The literature review confirms that the cloud ERP offers significant advantages in terms of cost-efficiency, scalability, flexibility, and business process agility.

The comparative methodology further highlighted sector-specific dynamics, revealing that industries like IT services and healthcare are at the forefront of cloud ERP adoption, benefiting from enhanced decision-making, real-time access, and operational fluidity. In Indian context, SMEs and educational institutions—have shown a growing inclination toward cloud ERP owing to its low capital investment, simplified deployment, and vendor-managed updates.

While there are adoption barriers such as complexities in data migration, integration with the legacy systems and compliance related issues, the overall trend is in favor of the Cloud ERP adoption by organizations.

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