Small And Medium-Sized Businesses: Cloud Computing Acceptance And Readiness

Rana Veer Samara Sihman Bharattej Rupavath*

Abstract—
Over the course of ten years (2011-2021), this research employs a comprehensive literature review to analyse data collection methods, CC services, research theories and frameworks, publishing patterns and channels, regional spread, and key adoption determinants. The duration of this study is ten years. We searched six different databases and found 76 relevant articles. The most often used techniques were PLS-SEM for quantitative data and interpretative interpretation for qualitative data. More research has been done on general types of CC services than on specific types of business software. The number of publications has risen rapidly over the last decade, and most of them are flawed. In the business sector, no publication could compare to the Journal of Small Business and Enterprise Development. The vast majority of research were carried out in Asia, and it was determined that cost reduction was the most important factor in continuing usage. This study contributes to the field of CC research by delving further under the data analysis techniques that were utilised, the CC services that were researched, and other essential research subjects that are associated with the adoption of CC by SMEs. It also has the potential to aid future studies towards the adoption of CC.

Keywords: Digital, Artificial Intelligence, Cloud Computing Adoption, And Readiness

*MS in Computer Science. Email: rupavathrana@gmail.com

***Corresponding Author:** Rana Veer Samara Sihman Bharattej Rupavath
*MS in Computer Science. Email: rupavathrana@gmail.com

I. INTRODUCTION

The use of cloud computing has allowed SMEs to save money on IT. As a result, SMMEs have to deal with issues including a lack of information and communication technology infrastructure and an inadequate supply of relevant expertise. This further reduces the competitiveness of SMMEs in comparison to larger businesses and market leaders. SaaS, PaaS, and IaaS are all examples of cloud-based service delivery models that may be used by SMEs. When it comes to capital expenses, data security, access to ICT systems, and scalability without breaking the bank, cloud computing might be a boon to SMEs. Small and medium-sized enterprises (SMMEs) should have access to state-of-the-art cloud ICT services without having to internal IT systems. A TOE-based Conceptual Research Model was used to investigate SMME cloud computing adoption (Gumshield, 2018). This research used Ngaka Modiri Molema and Bojanala Platinum District SMME data. This study will assist SMEs adopt cloud computing. (2018)

II. OBJECTIVE

The following are some of the goals that the study attempted to accomplish:

- To do research Cloud Computing Adoption and Readiness
- Cloud Computing in Small and Medium-sized Enterprises
- The Influential Aspects of Adoption of cloud computing

III. METHODOLOGY

CC is often used in tandem with other technologies including as networking, virtua-lization, distributed/parallel systems, multi-core CPUs, and grids. Business leaders and academics are trying to define "CC," but they can't seem to come to terms with it. The NIST definition of CC has become the standard. Cloud computing is defined by the National Institute of Standards and Technology as "a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources" (such as networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or interaction with the service provider. CC stands apart from other forms of IT due to its distinctive features. The elasticity of CC to meet users' ever-changing demands for data storage, processing power, network through put, and other IT resources, and the ease with which users may access cloud-based services from any location at any time, are two of its distinguishing features. New and established businesses alike may gain from scalability if it allows them to quickly and easily deploy more instances of their application software and hardware. Sharing a shared pool of data processing and storage space, CC allows several users to work together. Cloud computing has the fifth benefit of charging users only for the amount of storage space they really use.

IV. CLOUD COMPUTING IN SMALL AND MEDIUM-SIZED ENTERPRISES

Many nations and continents rely heavily on the contributions of their small and medium-sized companies (SMEs). They make up about 70% of Europe's labor force and are responsible for nearly 60% of the EU's GDP. Small companies employ 47.5% of all workers in the United States (Small Business Administration, 2018), and make up 99.1% of all firms. In order to remain competitive and provide lasting assistance to the economy of their host nations, SMEs must make use of readily accessible and inexpensive information technology (IT).

One example of one of these cutting-edge but reasonably priced technologies for SMBs is cloud computing (CC). Since the CC model ensures a paradigm change in the provisioning of talents and IT resources, it has been gaining more and more attention as of late. There are several advantages for small and medium-sized organizations (SMEs) who embrace and implement CC because of its low cost, low technical skill need, and ability to strengthen bilateral partnerships between businesses. CC has developed into an invention that allows businesses of any size and level of IT expertise to quickly and simply has access to advanced IT services without the burden of ongoing maintenance, personnel re-retraining, or a hefty initial investment. CC allows for consistent communication across departments, which boosts productivity and efficiency, thus

increasing a company's competitiveness. However, SMEs remain reluctant to implement CC, thus studies have concentrated on exploring the barriers that prevent small and medium-sized enterprises from embracing this technology. (2016) Other review papers in this area of research give examples of reviews that explain the consequences of CC adoption on SMEs, theoretically categorize reviews, and organize reviews according to topics including risk analysis, CC conceptualizations, and the feasibility of using CC. However, research into data analysis methods is essential for the methodology underlying CC services under scrutiny. Literature reviews of qualitative, quantitative, or mixed research procedures are useless, according to this study, since they don't provide light on the data analysis approaches that may help direct future studies and improve the quality of their results. Due to the unique nature of CC services, it is important to detail the various implementations being considered by SMEs in order to locate unrealized CC potential. The goal of this research is to find new uses for CC technologies. Therefore, this study aims to add to the growing body of knowledge by providing answers to a number of pressing concerns that have been raised before. Objectives The goal of this research is to conduct a thorough literature assessment of the adoption of cloud computing (CC) by SMEs from 2011 to 2020. The following research questions will be given special attention: (1) the data analysis techniques used in the methodologies of the studies; (2) the CC services under investigation; (3) the changing patterns of publication and the types of publications that have published studies in this area over time; and (4) the practical application of the underlying frameworks and theories. Garrett)

V. Cloud Computing Adoption And Readiness

Seventy-two percent of the studies focused on general cloud computing services, whereas just seventeen percent examined cloud ERP. 6.6% of all research involves some kind of cloud computing service; 1.3% each involves mobile retail apps, SaaS, big data analytics, and customer relationship management.

The differences between the various CC service types are generally glossed over, as seen by the many studies that have concentrate d on broad categories of CC services in SMEs. It's realistic to predict that different variables will have different effects on the various CC service types aimed towards SMEs. Cloud enterprise resource planning (ERP) is the most researched use of cloud computing, followed by CRM, m-commerce, and big data analytics. Your company's success or failure might hinge on any one of these business applications. Cloud enterprise resource planning (ERP) has the potential to unify a business's many logistical divisions, including warehousing, sales, and HR. On the other hand, small and medium-sized firms (SMEs) rely heavily on customer relationship management (CRM), big data analytics, and mobile retail applications to effectively manage customer relationships, massive amounts of corporate data, and retail logistics. Avesyan (2021). The study's authors ignored the cloud-based supply chain management (SCM) technology that simplifies operations and reduces communication staff expenses for SMEs. IaaS and PaaS, two of the most essential cloud computing service models along with SaaS, have also not been investigated. IaaS and PaaS installations are prevalent in small and medium-sized enter prises, even if SaaS hosting dominates cloud computing services and applications. However, public private, community, and hybrid CC models have seldom been studied in detail in studies on SMEs' use of CC.

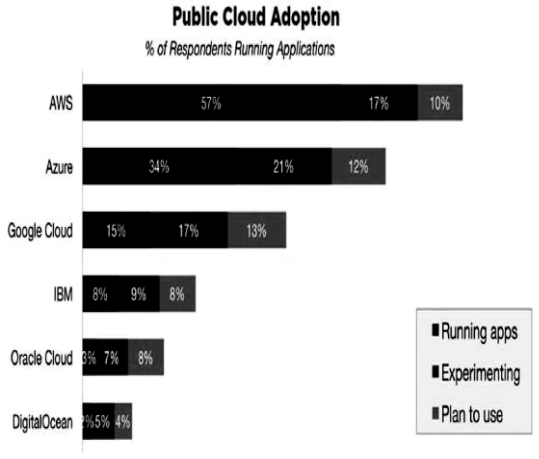

FIGURE 1. *ADOPTION OF CLOUD COMPUTING*

VI. INFLUENTIAL ASPECTS OF ADOPTION OF CLOUD COMPUTING

There was a total of 76 papers about the topic of CC adoption in SMEs, and among those articles' study models, 117 distinct adoption variables were represented 609 times. All of the studies modelled the impact of many factors on CC uptake. Using a threshold of at least 25% (19 times) incidence in the examined articles, the most crucial CC adoption criteria for SMEs were determined. We were able to derive this conclusion by counting how often they were considered important vs how often they were considered unimportant. Despite security and privacy being the most investigated issues in CC adoption (55 times), cost savings were the most important reason for SMEs to use CC. Thirty out of thirty-six studies (83.3%) that factored in potential cost savings as a predictor of CC adoption found that factor to be important. According to Twenty-three studies (79.3%) found compatibility to be crucial, whereas twenty-three (82.1%) highlighted the need of backing from upper management. Of these 50 papers, 40 (or 74.9 percent) cited Security and Privacy as a key component of their schemes. Awareness was shown to be significant in 14 of 16 studies. Research that included relative advantage, competitive pressure, and regulatory support in their models came to the same conclusion in 25 (71.4%), 14 (56%) and 10 (50.0%) cases, respectively. As can be seen in Table 8, the TOE and the DOI are the two theories/frameworks that have been used the most in the current body of literature. Saving money was the key motivator for using CC. Small and medium-sized enterprises (SMEs) are profit-driven, so it makes sense that they would be interested in a technology like CC that reduces operating expenses.

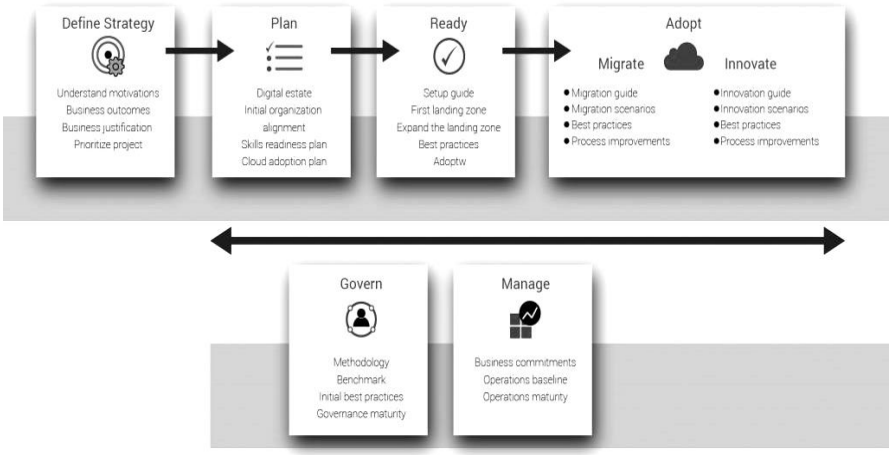

FIGURE 2: - *CLOUD COMPUTING ACCEPTANCE*

CONCLUSION

Adopting CC, a cheap and creative information communication technology, will help them compete and succeed. This rigorous literature study helped us understand the current literature on CC uptake in SMEs. Since it makes fewer assumptions, PLS-SEM was the most popular quantitative data analysis method. CB-SEM did not analyse Adoption rates of CC by SMEs. Because of its greater rigor, CB-SEM should be used in the analysis of data from any future studies in this area that are consistent with its aims and assumptions. Researchers using quantitative methods should give more weight to multiple and logistic regressions than to descriptive analysis, which offers less explanation. In qualitative studies, interpretative analysis was the norm. Numerous strategies for analysing qualitative data were brought to light in this study and should be used in the future. Enhanced thematic analysis may unearth additional emergent themes that aid understanding in this study's unique circumstance. Grounded theory and content analysis may enhance qualitative data on CC adoption in SMEs with "manifest content." Although rare in quantitative and qualitative research, multi-level analysis may improve data processing, results, and conclusions. Studies may enhance this

perspective. Oversimplifying CC service models, types, and commercial applications may lead to errors. Therefore, future study should concentrate on underexplored CC services including big data analytics, CRM, m-retail, SCM, IaaS, PaaS, public, private, community, and hybrid to better understand the specific drivers of adoption in SMEs. SMBs will utilize CC more as it matures. Research should be regularly improved to address the most current, comprehensive, relevant, and contextual challenges related to CC adoption by SMEs. Due to its multidisciplinary nature, CC research will likely be published in several publications and conference proceedings.

REFERENCES

1. Avesyan, E. A. (2021). Quantitative methods for optimizing the location of small and medium-sized businesses. Vector Economy, (11). https://doi.org/10.51691/2500-3666_2021_11_8
2. Burdine, D., & Silicate, L. (2012). Cloud computing application in small and medium-sized enterprises. Issues of Business and Law, 4(2012), 119–130. https://doi.org/10.5200/ibl.2012.11
3. Cloud computing an emerging tool to survive e-business especially small and medium sized business. (2016). Internatio-nal Journal of Science and Research (IJSR), 5(2), 1877–1880. https://doi.org/10.21275/v5i2.nov161574
4. Cloud computing technology: A viable option for small and medium-sized businesses. (2018). Journal of Strategic Innovation and Sustainability, 13(2). https://doi.org/10.33423/jsis.v13i2.609
5. Garrett, V. A. (n.d.). An Investigation of Successful Implementation of social media by Small and Medium-Sized Businesses. https://doi.org/10.26686/wgtn.16998820
6. Mendyk-Krajewska, T., Mazur, Z., & Mazur, H. (2016). Cloud computing services for small and medium-sized enterprises. Economize Problem Uslu, 122, 339–348. https://doi.org/10.18276/epu.2016.122-32
7. Gumshield, E. K. (2018). Leveraging cloud computing, virtualization and solar technologies to increase performance and reduce cost in small to medium-sized businesses. Proceedings of the 8th International Conference on Cloud Computing and Services Science. https://doi.org/10.5220/0006641103100321