Chapter 3
Cloud Computing Diagnostic Tool for Sustainable Insurance Practices

Nida Fatimah
https://orcid.org/0009-0005-7183-3223
Dayananda Sagar College of Engineering, India

K. Jayashree
https://orcid.org/0009-0006-5185-0795
Dayananda Sagar College of Engineering, India

ABSTRACT

This chapter assesses cloud computing influence on insurance claims processing based on different data collection methods like primary and secondary research data. The research gathers primary data by conducting customer surveys during interviews with insurance experts and analyzing anonymized claim data and organizing expert sessions with industry experts. The secondary data consists of industry reports and regulatory guidelines academic research in addition to financial market data. The study combines various techniques of analysis such as descriptive statistics with sentiment analysis, comparative and thematic analysis in order to review efficiency improvement, fraud prevention and quality customer services. Data protection of the insurance industry is ensured by ethical mechanisms that maintain confidentiality as well as having regulatory provisions in force while protecting network infrastructures.

DOI: 10.4018/979-8-3373-1882-0.ch003

1. INTRODUCTION

Insurance firms that clung to legacy systems along with paper-based processes are facing radical transformations due to the entry of Industry 4.0 (Nukala, 2024). The digital revolution relies on three highly influential technological integrations that include cloud computing with data science and artificial intelligence. These integrations transform insurance management operations, customer relationship systems, and claim assessment procedures (Syamkumar & Sridevi, 2024; Aina et al., 2023). The data-driven evolution of the world has directed insurance companies to adopt cloud computing because it enables them to overcome existing obstacles while creating novel prospects for business expansion while boosting operational efficiency and sustainability (Lekhi, 2024). The fundamental change in business operates through the transition of traditional on-site infrastructure toward cloud-based solutions (Devaraj, 2024; Ahmad, Mishra, & Sharma, 2023). The cloud computing environment provides insurers with flexible advanced resources for business expansion at lower costs, which helps them meet the increasing demands for information transparency over data security and for individualized customer service (Oke et al., 2023). Insurance operators who adopt cloud services gain access to real-time analytics for data exploration followed by automation of standard procedures which results in better decisions that enhance efficiency together with productivity and transparency throughout their whole value delivery system (Wang, Jiang, & Khaskheli, 2024; Lăzăroiu et al., 2023). Table 1 displays the comparison between traditional and cloud-based insurance models. The collaborative cloud infrastructure enables insurers to improve adaptation of dynamic market conditions and enhance customer satisfaction alongside higher profitability (Buyya, Ilager, & Arroba, 2024; Segun-Falade et al., 2024; Mateen et al., 2023). The insurance sector deals with several obstacles during its integration of cloud computing technologies (Hebballi et al., 2023; Nag et al., 2024). Conventional security systems no longer work effectively against the large quantity of information processed through cloud-driven infrastructure. The protection of customer data stands as one major obstacle preventing insurance organizations from advancing their operations (Shanmugam, Satyam, & Rajasekhar, 2024). Rapid changes in the industry have compelled insurance organizations to analyze their information systems and processes because they face problems such as data privacy and the need for better claim transparency and service personalization (Akindote et al., 2023; Sachdeva et al., 2024).

Insurance companies face enhanced difficulties during unexpected events like the COVID-19 pandemic because these events exposed their insufficient capabilities to process increased claims while maintaining digital-based customer services, when the Covid-19 crisis hit there was a discovery that traditional insurance systems lacked adequate capabilities to manage high volumes of claims which forced companies to