

# Chapter 12

## Analyzing Blockchain Systems Using MG1 Queue Models for Travel Business Process

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### **ABSTRACT**

*Blockchain technology is a disruptive innovation in travel business processes because of its decentralized, secure nature. However, assessing its success is challenging. This paper recommends utilizing MG1 queuing models to analyze and develop blockchain systems in the travel business. By evaluating critical indicators like queue length and wait time, businesses may uncover bottlenecks and scalability problems. The integration of MG1 models enhances operational efficiency, allowing businesses to maximize blockchain's involvement in travel operations, assuring scalability and minimizing expenses.*

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## INTRODUCTION

Blockchain technology's potential to disrupt several sectors has garnered attention in recent years. Blockchain is a decentralized, irreversible system that ensures all interactions are safe, accurate, and dependable, helping companies enhance efficiency. Blockchain technologies in corporate operations are difficult to examine and enhance. To tackle this challenge, this study offers employing MG1 queue models to analyze and measure blockchain system performance in travel business process improvement. The MG1 queue model is used in queueing theory for systems with Markovian inputs and exponential wait periods.

This research examines blockchain system performance using MG1 queueing models in travel travel business process optimization. We want to anticipate line length and waiting time. MG1 queue models may reveal blockchain-based travel travel business process bottlenecks and scaling issues. This research will provide a mathematical model to optimize blockchain systems, making them more effective, scalable, and efficient. To connect blockchain technology and incorporate processes, the study uses MG1 queue models for performance evaluations.

This research uses real-world blockchain implementations in travel travel business processes to analyze blockchain systems using MG1 queue models. We may learn about these systems' strengths and shortcomings, find areas for development, and enhance their efficiency by analyzing their performance. Transaction processing time, stability, and scalability will be measured. We can estimate the average queue length and waiting time using MG1 queue models to optimize the system. The study will assist companies comprehend blockchain technologies and develop ways to streamline and scale their operations.

## LITERATURE REVIEW

Blockchain technology's potential to disrupt several sectors has garnered attention recently. Optimizing blockchain systems requires performance analysis.

Neisse et al. (2017) use decentralized consensus and smart contracts to optimize corporate operations using blockchain technology. Tama et al. (2017) used blockchain-based smart contracts to enable decentralized and trustworthy commercial operations. Zhou and Xu (2018) used blockchain technology to promote travel business process reengineering efficiency and transparency. Qureshi and colleagues (2018) extensively study blockchain technology in travel business process management systems. Sun, Zhang, and Liu (2019) examined blockchain technology in travel business process management. Their analysis illuminates this integration's advantages, drawbacks, and uses. Bao, Xu, Zeng, and Zhang (2019) developed a blockchain system efficiency

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