

ABSTRACT

The adoption of fifth-generation (5G) technology gives high opportunities for communication in Indonesia through its high-speed, low-latency capabilities. The adoption of 5G technology in Bandung has been slower than anticipated, primarily due to uneven infrastructure development. While some urban areas have access to 5G, many residential areas and regions still lack coverage. This lack of widespread infrastructure delays users' ability to experience the benefits of 5G, making them less likely to adopt the technology. Despite efforts from the government to enhance digital infrastructure, progress remains inconsistent, especially in areas outside the city center, which poses a significant barrier to achieving widespread 5G adoption.

The analysis revealed that three factors significantly influence 5G adoption: network service quality, perception of security and privacy, and social influence. Specifically, poor perception of network quality, low trust in data privacy and security, and weak social influence have a significant effect on adoption levels. Other factors, such as infrastructure availability, technology awareness and knowledge, service and device cost, potential benefits offered by 5G, and user experience, were found to have no statistically significant impact in this study. Additionally, performance testing showed poor speed and latency. 5G coverage and high latency in several areas of Bandung, indicating gaps in infrastructure readiness.

Regarding the performance of the 5G network, coverage tests showed areas with peak download speeds of up to 305 Mbps (Cihampelas), and the average download speed in several locations reached 220 Mbps, surpassing the national target of 100 Mbps for 2029. However, areas like Dago recorded much lower performance, with a maximum download speed of 28 Mbps and an average of 12.9 Mbps, indicating significant disparities. Latency across all locations ranged from 30 ms to 43 ms, higher than the 4 ms target for standard 5G services. This research provides insights into the adoption process and offers recommendations, including improving network quality, addressing privacy concerns, and leveraging social influence to enhance 5G adoption in Bandung. The findings are expected to inform policymakers and service providers to facilitate the widespread adoption of 5G technology in Indonesia.

Keywords: 5G, Adoption, users