Chapter 15
Measuring Service Quality in Generative AI Environments: A Comprehensive GAISQUAL Framework

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ABSTRACT

In the context of generative AI systems, monitoring and verifying service quality is a crucial challenge that this research explores. As AI develops further, especially in generative domains, guaranteeing the caliber of services provided becomes critical. The study uses a thorough methodology, integrating validation methods with measurement metrics, to evaluate and validate the general quality, dependability, and efficacy of generative AI services. This project intends to build a strong framework for assessing and verifying service quality in the dynamic field of generative AI settings by closely examining important characteristics including consistency of model output, user experience, and system stability. The results have consequences for both consumers and developers of AI, providing information on how to improve service quality and build confidence in generative AI systems.

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INTRODUCTION

Systems that combine complex software and hardware with enormous datasets to simulate human intellect in decision-making are referred to as artificial intelligence (AI) systems (Murphy et al., 2019). Over the past few years, artificial intelligence (AI) has advanced quickly and is now frequently utilized in customer service scenarios (Chi et al., 2020). These AI-powered service robots and intelligent assistants, whether they be virtual or actual, are referred to as AI service agents (Chi et al., 2020). For instance, in order to engage with customers and meet their various needs, Macy's stores have implemented AI service agents, known as "On Call," as shopping advisers. The traditional receptionists in many Vogue hotels have been gradually replaced with AI service agents (Fernández-Llamas et al., 2018). Furthermore, an increasing number of AI service agents have emerged in a variety of extremely specialized industries in recent years, including healthcare and education (Mende et al., 2019). The COVID-19 pandemic of 2020 has prompted a rise in the usage of AI service agents. According to some academics, AI service agents may eventually replace workers in whole professions as opposed to just certain jobs (Frey & Osborne, 2017). Artificial intelligence (AI) technology are being used more and more in a variety of industries, changing the way that consumers receive services. Due to influencing aspects including robot design, customer characteristics, and features of the service environment, these applications may differ (Belanche et al., 2020). In the context of the services business, Chi et al. (2020) classify AI agents into four types: chatbots, service robots, intelligent gadgets, and self-service technologies. The influence of various AI-assisted service contact types on customer experiences may vary (Keyser et al., 2019). AI contactless services arose when clients started to receive direct, autonomous service from AI while workers operated in the background. Customers can act as expediency seekers, judges, motivators, involuntary workers, aid providers, and judges (Kelly et al., 2017). Meanwhile, artificial intelligence (AI) can act as a substitute or an intermediary by creating personalized, flexible services that impact customer experiences, customer satisfaction, loyalty, and retention rates (Prentice et al., 2020). The relationships that consumers have with technology are fundamentally social and natural, according to media equation theory (MET) (Reeves & Nass, 1996). Technology can therefore offer services as long as users believe that these devices' characteristics are equivalent to those of human workers (Tung & Law, 2017).

Artificial intelligence with the ability to produce diverse types of unique information is known as generative artificial intelligence, or GAI. GAI is called "generative" because, via supervised or unsupervised training, it can produce particular types of output, including text, audio, images, and video, as opposed to artificial general intelligence (AGI), which is currently only hypothetical and is capable of