

ABSTRACT

Digital transformation is driving companies to enhance the quality of customer service in order to remain competitive. In the Internet Service Provider (ISP) industry, effective customer management and prompt responses to inquiries are essential particularly for recurring or frequently asked questions related to the services offered. PT Amreta Aguna Abipraya faces challenges in managing customer interactions, which are currently unstructured and undocumented, along with limitations in its service system that still relies heavily on manual processes. Consequently, response times are slow, and customer satisfaction is declining. To address these issues, this study aims to design and implement a web-based Customer Relationship Management (CRM) system integrated with a chatbot powered by a Natural Language Processing (NLP) model. The system is intended to centrally manage customer data and automate responses to frequently asked questions. The development process follows the waterfall methodology, with system testing conducted through black-box testing and effectiveness evaluated using user surveys. The implementation results demonstrate that the system successfully enhances the efficiency of handling customer inquiries, reduces the workload of the customer service team, and significantly accelerates response times. However, the chatbot is not yet fully capable of handling all types of customer requests. Nevertheless, the integration of CRM and chatbot technology not only improves the quality of customer service at PT Amreta Aguna Abipraya but also presents a solution model that can be adopted by other ISP companies.

Keywords: Customer Relationship Management, Chatbot, Natural Language Processing, Customer Service.

ABSTRAK

Transformasi digital mendorong perusahaan untuk meningkatkan kualitas layanan pelanggan guna mempertahankan daya saing. Di industri Internet Service Provider (ISP), kebutuhan akan pengelolaan pelanggan yang baik dan respon cepat terhadap pertanyaan pelanggan menjadi krusial, terutama untuk pertanyaan yang bersifat berulang atau sering ditanyakan, seperti terkait layanan yang disediakan perusahaan. PT Amreta Aguna Abipraya menghadapi tantangan dalam pengelolaan interaksi pelanggan yang belum terdokumentasi secara terstruktur, serta keterbatasan sistem layanan yang masih bergantung pada proses manual. Akibatnya, waktu respon menjadi lambat dan tingkat kepuasan pelanggan menurun. Untuk menjawab permasalahan tersebut, penelitian ini bertujuan merancang dan mengimplementasikan *Customer Relationship Management (CRM)* berbasis web yang digabungkan dengan *chatbot* yang menggunakan model *NLP*. Sistem ini dirancang untuk mengelola data pelanggan secara terpusat sekaligus mengotomatisasi jawaban atas pertanyaan yang sering diajukan. Metode pengembangan yang digunakan adalah pendekatan *waterfall* dengan pengujian sistem melalui metode *black-box* dan evaluasi efektivitas berbasis survei pengguna. Hasil implementasi menunjukkan bahwa sistem berhasil meningkatkan efisiensi penanganan permintaan pelanggan, mengurangi beban kerja tim layanan pelanggan, serta mempercepat waktu respon secara signifikan, meskipun *chatbot* belum sepenuhnya dapat menangani seluruh permintaan konsumen. Penggabungan *CRM* dan *chatbot* tidak hanya meningkatkan kualitas layanan pelanggan di PT Amreta Aguna Abipraya, tetapi juga menawarkan model solusi yang dapat diadopsi oleh perusahaan ISP lainnya.

Kata Kunci: *Customer Relationship Management, Chatbot, Natural Language Processing, Customer Service.*