

ABSTRAK

Online marketplace menjadi instrumen ekonomi Indonesia dengan proyeksi peningkatan pengguna dari 73,06 juta (2025) menjadi 99,1 juta (2029). Shopee [1], Tokopedia [2], dan Lazada [3] mendominasi pasar dengan kunjungan masing-masing bulanan 237 juta, 88,9 juta, dan 47,69 juta [4]. Namun, analisis sentimen ulasan pengguna menemui hambatan karena metode tradisional cenderung mengabaikan konteks sebenarnya sehingga analisis berbasis makna menjadi kurang akurat [5]. *Rating* bintang tidak selalu mencerminkan sentimen sebenarnya, menyebabkan analisis hanya mengandalkan rating berisiko bias [6]. Tantangan tambahan adalah pengelolaan volume ulasan yang besar dengan karakteristik yang beragam yang membutuhkan pendekatan analisis teks yang lebih canggih dibandingkan metode konvensional. Penelitian ini mengimplementasikan algoritma *Bidirectional Encoder Representations from Transformers (BERT)* [6] untuk menganalisis sentimen testimoni *Google Play Store* pada ketiga *online marketplace*, mengevaluasi kinerja algoritma, dan membandingkan proporsi sentimen antar *platform*. Metodologi *CRISP-ML(Q)* [7] digunakan dengan tahapan *business understanding*, pengumpulan 9.000 ulasan (triwulan pertama 2025), *preprocessing* data, *fine-tuning IndoBERT* dengan variasi *hyperparameter*, dan evaluasi menggunakan *multiple metrics*. Hasil menunjukkan performa model dengan rata-rata akurasi 0,94 pada ketiga *platform*, dengan konfigurasi optimal berbeda: Shopee [1] (akurasi 0,9444), Tokopedia (akurasi tertinggi 0,9495), dan Lazada (akurasi 0,922). Penelitian ini menghasilkan model analisis sentimen berkinerja tinggi untuk bahasa Indonesia dalam konteks *online marketplace* serta memberikan *insight* strategis bagi pengembang untuk meningkatkan layanan berdasarkan *feedback* pengguna [5].

Kata Kunci: Analisis Sentimen, *BERT*, *online marketplace* , *Google Play Store*, *CRISP-ML(Q)*.

ABSTRACT

Online marketplace s have become economic instruments in Indonesia with projected user growth from 73.06 million (2025) to 99.1 million (2029). Shopee [1], Tokopedia [2], and Lazada [3] dominate the market with monthly visits of 237 million, 88.9 million, and 47.69 million respectively. However, sentiment analysis of user reviews faces obstacles because traditional methods tend to ignore actual context, making meaning-based analysis less accurate. Star ratings do not always reflect true sentiment, causing analysis that relies solely on ratings to risk bias. An additional challenge is managing large volumes of reviews with diverse characteristics that require more sophisticated text analysis approaches compared to conventional methods. This research implements the *Bidirectional Encoder Representations from Transformers (BERT)* algorithm to analyze sentiment in *Google Play Store* testimonials for the three *online marketplaces*, evaluate algorithm performance, and compare sentiment proportions across *platforms*. The *CRISP-ML(Q)* methodology [8] is used with stages including business understanding, collection of 9,000 reviews (first quarter 2025), data preprocessing, fine-tuning *IndoBERT* with hyperparameter variations, and evaluation using multiple metrics. Results show model performance with an average accuracy of 0.94 across the three *platforms*, with different optimal configurations: Shopee (accuracy 0.9444), Tokopedia (highest accuracy 0.9495), and Lazada (accuracy 0.922). This research produces a high-performance sentiment analysis model for the Indonesian language in the context of *online marketplaces* and provides strategic insights for developers to improve services based on user feedback [5].

Keywords: *Sentiment Analysis, BERT, online marketplace , Google Play Store, CRISP-ML(Q).*