ABSTRAK

Cryptocurrency awalnya menarik perhatian sebagai solusi inovatif untuk bertransaksi, namun sifat anonim dan kurangnya regulasi memicu penggunaannya dalam transaksi ilegal. Permasalahan semakin nyata ketika bursa kripto meluncurkan cryptocurrency-nya sendiri, yang berpotensi menyebabkan manipulasi harga seperti kasus FTX dengan coin FTT, serta manipulasi transaksi ilegal seperti kasus Binance dengan coin BNB. Tokocrypto, salah satu bursa kripto lokal terbesar di Indonesia, memiliki Toko Token (TKO) sebagai cryptocurrency-nya sendiri. Penelitian ini bertujuan membantu bursa kripto lokal dan regulator mencegah kasus serupa melalui deteksi anomali transaksi menggunakan algoritma Isolation Forest. Evaluasi model menunjukkan performa optimal dengan pembagian data 80% training dan 20% testing, menghasilkan accuracy 98,66%, precision 86,56%, recall 86,56%, F1-score 86,56%, dan ROC-AUC score 99,65%. Algoritma ini memberikan identifikasi komprehensif terhadap transaksi abnormal, melampaui metode threshold persentil ke-95.

Kata Kunci: *Tokocrypto, Isolation Forest, Deteksi Anomali, Machine Learning, Wallet Address*

ABSTRACT

Cryptocurrency initially attracted attention as an innovative solution for transactions; however, its anonymity and lack of regulation have led to its use in illegal activities. The issue becomes more evident when crypto exchanges launch their own cryptocurrencies, which can lead to price manipulation, as seen in the FTX case with the FTT coin, and illegal transaction manipulation, as in the Binance case with BNB. Tokocrypto, one of Indonesia's largest local crypto exchanges, has its own cryptocurrency called Toko Token (TKO). This study aims to assist local crypto exchanges and regulators in preventing similar cases by detecting transaction anomalies using the Isolation Forest algorithm. Model evaluation shows optimal performance with an 80% training and 20% testing split, achieving 98.66% accuracy, 86.56% precision, 86.56% recall, 86.56% F1-score, and a ROC-AUC score of 99.65%. The algorithm provides a comprehensive identification of abnormal transactions, surpassing the conventional 95th percentile threshold method.

Keywords: *Tokocrypto, Isolation Forest, Anomaly Detection, Machine Learning, Wallet Address*