

BAB VI

PENUTUP

A. Kesimpulan

Melalui implementasi teknologi *blockchain*, sistem ini berhasil mengotomatisasi pembayaran secara aman dan transparan, serta menghilangkan ketergantungan pada pihak ketiga. Fitur penyelesaian sengketa yang didukung oleh sistem voting komunitas terbukti berfungsi dengan baik, di mana 100% responden menyatakan bahwa proses pengajuan dispute dapat berjalan dengan baik, serta seluruh bukti yang diunggah dapat terlihat dalam halaman dispute, sehingga transparansi terjamin. Selain itu, 90% responden menilai tingkat transparansi proses sengketa cukup baik hingga sangat baik, yang menunjukkan bahwa mekanisme ini efektif dalam memberikan penyelesaian yang adil bagi klien dan *freelancer*. Hasil pengujian juga menunjukkan bahwa antarmuka pengguna (UI) mudah digunakan, dengan mayoritas responden menilai proses pembuatan pekerjaan, lamaran, dan pembayaran berjalan sangat baik. Semua aktivitas kontrak tercatat secara permanen dalam *blockchain*, yang meningkatkan akuntabilitas dan kepercayaan antar pengguna. Secara keseluruhan, sistem yang dikembangkan telah berhasil menciptakan ekosistem *freelance marketplace* yang lebih aman, transparan, dan adil.

B. Saran

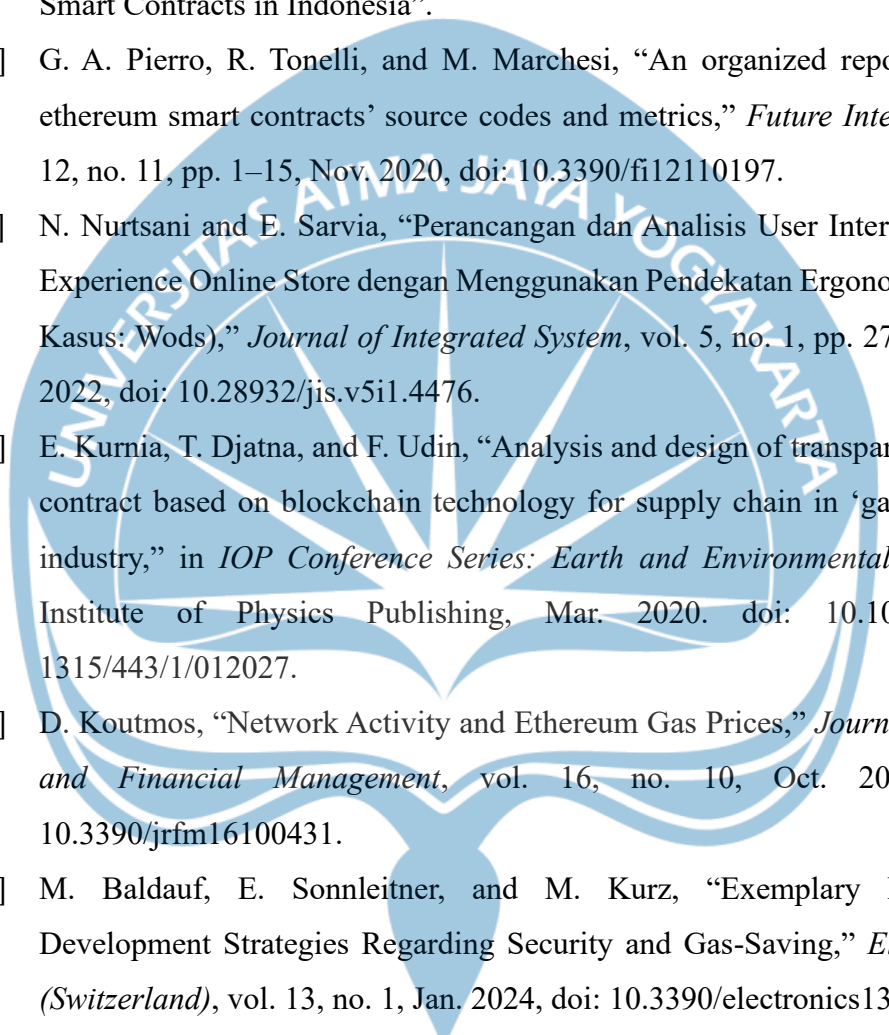
Meskipun sistem *freelance marketplace* berbasis *blockchain* yang dikembangkan telah memenuhi kebutuhan utama, penelitian ini masih memiliki beberapa keterbatasan. Salah satu kelemahan yang cukup signifikan adalah belum diterapkannya mekanisme *rate limiting*, sehingga sistem berpotensi rentan terhadap serangan spam maupun manipulasi voting dalam penyelesaian sengketa melalui *sybil attacks*. Kondisi ini dapat memengaruhi validitas proses voting komunitas yang menjadi pilar utama dalam mekanisme dispute resolution. Selain itu, penggunaan *cryptocurrency* sebagai satu-satunya metode pembayaran juga masih menjadi hambatan, terutama terkait dengan aspek legalitas dan regulasi di Indonesia, yang sampai saat ini belum memiliki landasan hukum yang jelas.

Sebagai tindak lanjut, terdapat beberapa saran pengembangan yang dapat dilakukan. Pertama, penerapan *rate limiting* atau mekanisme verifikasi tambahan seperti *proof-of-identity* perlu dipertimbangkan untuk mencegah serangan spam maupun penyalahgunaan voting. Kedua, peningkatan fitur penyelesaian sengketa dapat diarahkan pada penerapan sistem arbitrase yang lebih terstruktur sebagai pelengkap voting komunitas, sehingga hasil keputusan lebih objektif dan adil. Ketiga, integrasi metode pembayaran tradisional, seperti transfer bank atau kartu kredit, dapat memperluas jangkauan pengguna yang belum terbiasa dengan *cryptocurrency*. Terakhir, optimisasi kode *smart contract* menjadi langkah penting untuk menekan biaya transaksi (gas fee) dan meningkatkan efisiensi eksekusi kontrak. Dengan pengembangan lebih lanjut, sistem ini berpotensi memberikan solusi yang lebih komprehensif, efisien, serta sesuai dengan regulasi yang berlaku.

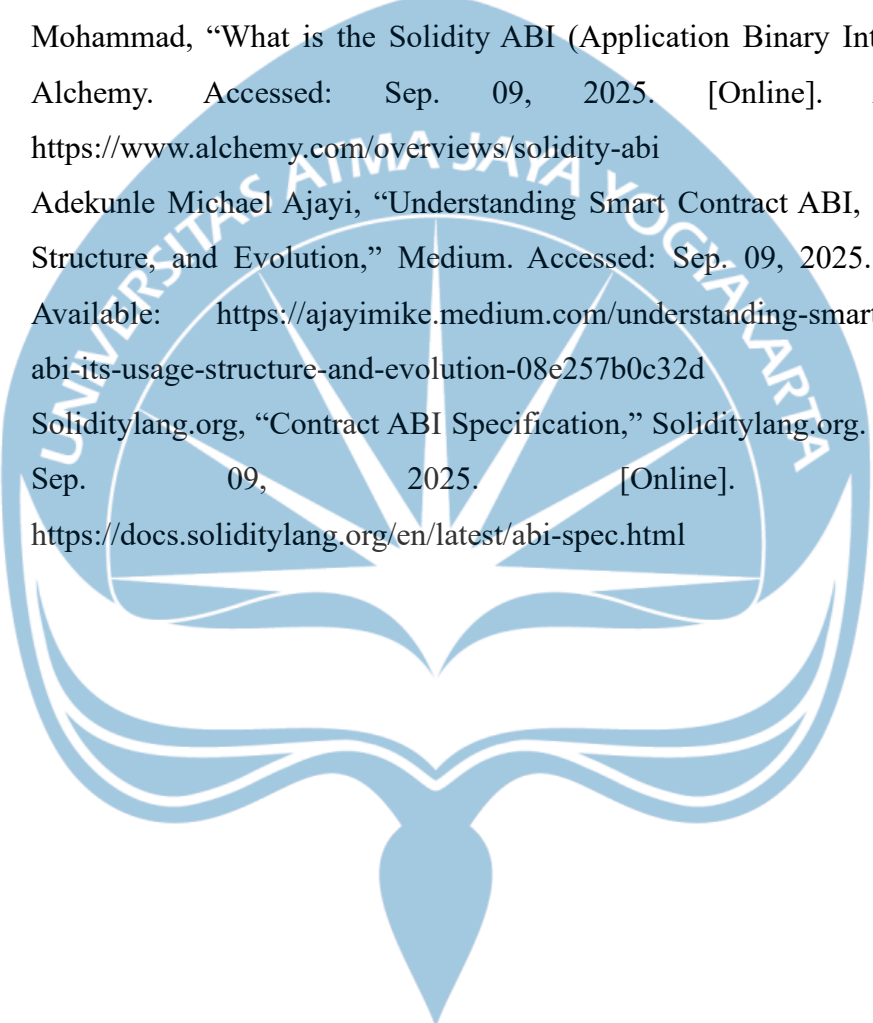


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