

ABSTRAK

USULAN PERBAIKAN INFRASTRUKTUR STASIUN PENGISIAN KENDARAAN LISTRIK UMUM (SPKLU) PT PLN BERDASARKAN *HEURISTIC EVALUATION* DAN UTAUT 2

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Penggunaan kendaraan listrik terus meningkat dan perlu dukungan infrastruktur. Dukungan tersebut berupa infrastruktur *software* dan fisik. *Software* berupa fitur *electric vehicle* pada aplikasi PLN *Mobile* dan fisik Stasiun Pengisian Kendaraan Listrik Umum (SPKLU). Namun, fitur *electric vehicle* sering mengalami *error* saat pengisian dan pembayaran. Permasalahan yang diidentifikasi pada SPKLU yaitu keterbatasan jumlah *charger*, sebaran SPKLU, alat *charger* yang rusak, dan antrian pengisian yang panjang. Penelitian terkait evaluasi *usability* fitur *electric vehicle* dan penerimaan pengguna terhadap SPKLU terbatas. Penelitian ini mengevaluasi fitur *electric vehicle* menggunakan *heuristic evaluation* dan menganalisis faktor penerimaan pengguna terhadap SPKLU dengan *Unified Theory of Acceptance and Use of Technology 2* (UTAUT 2). Evaluasi heuristik dilakukan oleh lima evaluator dengan pria lebih dominan dan kisaran *age* $24,2 \pm 6,05$ menggunakan 10 prinsip Jacob Nielsen. Sedangkan penerimaan pengguna diuji dengan PLS-SEM dari 100 pengguna SPKLU dengan jumlah pria 43 dan usia yang dominan adalah $50 \pm 24,04$. Hasil penelitian menemukan 21 masalah *usability* dengan *severity rating* tertinggi (3,4) pada prinsip *Match Between System and Real World* dan *Help Users Recognize, Diagnose, and Recover from Errors* dimana bahasa juga ikon tidak sesuai dengan kebiasaan sehari-hari dan sistem menampilkan informasi *error* yang sulit dipahami. Prinsip dengan persentase temuan terbesar adalah *Aesthetic and Minimalist Design* dan *Visibility of System Status* dan *Aesthetic and Minimalist Design* (19,04%). Pada penerimaan pengguna, lima hipotesis diterima yaitu hubungan *habit*, *price value*, *sosial influence* ke *behavior intention*, kemudian *habit* dan *behavioral intention* ke *use behavior* dan lima ditolak yaitu hubungan *performance expectancy*, *effort expectancy*, *facilitating condition*, *hedonic motivation* ke *behavioural intention*, dan *facilitating condition* ke *use behavior*. Pada moderasi *age* tidak berpengaruh terhadap hubungan terhadap faktor. Sementara *gender* hanya memoderasi hubungan *habit* terhadap *behavioral intention* ($t=2,949$; $p= 0,013$). Temuan memberikan wawasan bagi pengembang PLN *Mobile* untuk meningkatkan *usability* fitur *electric vehicle* dan penyedia SPKLU dalam memperbaiki infrastruktur guna mendukung kendaraan listrik di Indonesia.

Kata Kunci: Evaluasi Heuristik, SPKLU, UTAUT 2, *Electric Vehicle*

ABSTRACT

INFRASTRUCTURE IMPROVEMENT FOR PUBLIC NATIONAL ELECTRIC COMPANY (PLN) BASED ON HEURISTIC EVALUATION AND UTAUT 2

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The use of electric vehicles continues to increase and needs infrastructure support. The support is in the form of software and physical infrastructure. Software in the form of electric vehicle features in the PLN Mobile application and physical Public Electric Vehicle Charging Stations (PEVCS). However, the electric vehicle feature often experiences errors during charging and payment. The problems identified at PEVCS are the limited number of chargers, the distribution OF PEVCS, damaged charger tools, and long charging queues. Research related to the usability evaluation of electric vehicle features and user acceptance of PEVCS is limited. This study evaluates the electric vehicle feature using heuristic evaluation and analyzes user acceptance factors for PEVCS with the Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2). Heuristic evaluation was conducted by five evaluators with a male preponderance and an age range of $24,2 \pm 6,05$ using Jacob Nielsen's 10 principles. Meanwhile, user acceptance was tested with PLS-SEM from 100 PEVCS users with 43 males and a dominant age of 50 ± 24.04 . The results found 22 usability problems with the highest severity rating (3,4) on the Match Between System and Real World and Help Users Recognize, Diagnose, and Recover from Errors principle, where the language of the icons is not in accordance with daily habits and the system displays error information that is difficult to understand. The principles with the most significant percentage of findings are Visibility of System Status and Aesthetic and Minimalist Design (19,04 %). In user acceptance, five hypotheses are accepted, namely the relationship between habit, price value, social influence on behavior intention, and habit and behavioral intention to use behavior. Five are rejected namely the relationship between performance expectancy, effort expectancy, facilitating conditions, hedonic motivation to behavioral intention, and facilitating conditions to use behavior. In moderation, age does not affect the relationship to factors. Meanwhile, gender only moderates the relationship between habit and behavioral intention ($t = 2.949$; $p = 0.013$). The findings provide insights for PLN Mobile developers to improve the usability of electric vehicle features and for PEVCS providers to improve infrastructure to support electric vehicles in Indonesia.

Keywords: *Heuristic Evaluation, PEVCS, UTAUT 2, Electric Vehicle*