

INTISARI

Aksesibilitas informasi meteorologi yang presisi dan mudah dipahami memegang peranan krusial dalam strategi mitigasi risiko bencana serta efisiensi operasional pada sektor agraris di Indonesia. Kendati demikian, antarmuka web *mobile* BMKG saat ini menghadirkan hambatan usability yang signifikan bagi petani, ditandai dengan tingginya tingkat kegagalan navigasi, penggunaan terminologi teknis yang membingungkan, serta inefisiensi operasional akibat absennya fitur sinkronisasi lokasi otomatis. Penelitian ini menerapkan kerangka kerja *Goal Directed Design* (GDD) untuk merancang ulang antarmuka tersebut dengan mengintegrasikan pendekatan berbasis dampak dan kearifan lokal, yang kemudian divalidasi menggunakan instrumen *Usability Testing*, *Post-Study System Usability Questionnaire* (PSSUQ), dan *Heuristic Evaluation*. Hasil evaluasi empiris membuktikan peningkatan performa yang substansial dan signifikan secara statistik ($p < 0,05$) melalui uji Mann-Whitney U. Secara spesifik, tingkat efektivitas penyelesaian tugas (*Effectiveness*) meningkat sebesar 17,37% (dari 83,77% pada desain *existing* menjadi 98,32% pada hasil *redesign*), sementara efisiensi waktu (*Time on Task*) membaik drastis dengan penurunan durasi sebesar 45,24% (dari rata-rata 85,47 detik menjadi 46,80 detik). Selain itu, persepsi kepuasan pengguna yang diukur melalui skor keseluruhan PSSUQ mengalami perbaikan kualitas sebesar 38,94%, bergerak dari skor 3,487 menjadi 2,129. Penelitian ini menyimpulkan bahwa transformasi desain antarmuka yang menyelaraskan model mental pengguna dengan fungsionalitas teknis mampu meningkatkan relevansi dan adopsi sistem peringatan dini di kalangan masyarakat pertanian secara signifikan.

Kata kunci : *Goal Directed Design*, *Heuristic Evaluation*, PSSUQ, *Local Wisdom*, BMKG

ABSTRACT

Access to precise and comprehensible meteorological information plays a pivotal role in disaster risk mitigation strategies and operational efficiency within Indonesia's agrarian sector. However, the current BMKG mobile web interface presents significant usability barriers for farmers, characterized by high navigation failure rates, confusing technical terminology, and operational inefficiencies resulting from the absence of automatic location synchronization features. This study applies the Goal-Directed Design (GDD) framework to redesign the interface by integrating Impact-Based Forecast approaches and local wisdom, validated through Usability Testing, the Post-Study System Usability Questionnaire (PSSUQ), and Heuristic Evaluation. Empirical evaluation results demonstrate substantial performance improvements that are statistically significant ($p < 0.05$) via Mann-Whitney U test. Specifically, task completion effectiveness increased by 17.37% (from 83.77% in the existing design to 98.32% in the redesign), while time efficiency improved drastically with a 45.24% reduction in task duration (from an average of 85.47 seconds to 46.80 seconds). Furthermore, user satisfaction perception, measured through the overall PSSUQ score, experienced a quality improvement of 38.94%, moving from a score of 3.487 to 2.129. This study concludes that interface design transformation aligning user mental models with technical functionality significantly enhances the relevance and adoption of early warning systems among agricultural communities.

Keywords : Goal Directed Design, Heuristic Evaluation, PSSUQ, Local Wisdom, BMKG