

ABSTRAK

SARIFA ARINI LATUCONSINA. Perancangan Sistem Intelligence Risk Register dengan Integrasi Large Language Model (LLM) Menggunakan Model Waterfall (Studi Kasus: PT BRI Insurance).Dibimbing oleh MUHAMMAD FADLI PRATHAMA, S.Si., MMSI.

Manajemen risiko merupakan aspek krusial dalam menjamin keberhasilan proyek digital, khususnya pada industri asuransi yang memiliki kompleksitas operasional dan tuntutan regulasi yang tinggi. Di PT BRI Insurance (BRINS), proses pengelolaan risiko masih dilakukan secara semi-manual sehingga berpotensi menimbulkan keterlambatan identifikasi risiko, inkonsistensi analisis, serta keterbatasan dokumentasi mitigasi. Penelitian ini bertujuan merancang Sistem Intelligence Risk Register berbasis Artificial Intelligence dengan integrasi Large Language Model (LLM) untuk meningkatkan efektivitas dan efisiensi pengelolaan risiko proyek digital.

Metode pengembangan yang digunakan adalah model Waterfall yang mencakup tahap analisis kebutuhan, perancangan sistem, implementasi, dan pengujian. Integrasi LLM dimanfaatkan untuk menghasilkan rekomendasi identifikasi risiko, analisis tingkat probabilitas dan dampak, serta usulan mitigasi secara otomatis dan kontekstual.

Hasil pengujian sistem menunjukkan peningkatan kinerja berdasarkan tujuh parameter, yaitu: (1) kecepatan proses analisis risiko, (2) tingkat akurasi identifikasi risiko, (3) konsistensi dokumentasi, (4) relevansi rekomendasi mitigasi, (5) kemudahan penggunaan sistem, (6) efisiensi waktu kerja tim proyek, dan (7) tingkat kepuasan pengguna. Secara keseluruhan, sistem mampu mempercepat proses analisis, meningkatkan kualitas rekomendasi, serta mendukung pengambilan keputusan yang lebih akurat dan terstruktur.

Kata kunci: Large Language Model, Artificial Intelligence, Risk Register, Manajemen Risiko, BRINS.

ABSTRACT

SARIFA ARINI LATUCONSINA.Design of an Intelligence Risk Register System Integrated with Large Language Model (LLM) Using the Waterfall Model (Case Study: PT BRI Insurance).Supervised by MUHAMMAD FADLI PRATHAMA, S.Si.,
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Risk management plays a crucial role in ensuring the success of digital projects, particularly in the insurance industry, which is characterized by high operational complexity and strict regulatory requirements. At PT BRI Insurance (BRINS), the risk management process is still conducted semi-manually, leading to potential delays in risk identification, inconsistencies in analysis, and limitations in mitigation documentation. This condition highlights the need for a more adaptive, structured, and intelligent system integrated with artificial intelligence technology.

This research aims to design and develop an Intelligence Risk Register System integrated with a Large Language Model (LLM) to enhance the effectiveness and efficiency of digital project risk management. The system development follows the Waterfall model, consisting of requirement analysis, system design, implementation, and testing phases. The LLM integration is utilized to automatically generate contextual risk identification, probability and impact analysis, and mitigation recommendations.

The system evaluation results demonstrate performance improvement based on seven parameters: (1) speed of risk analysis, (2) accuracy of risk identification, (3) consistency of documentation, (4) relevance of mitigation recommendations, (5) system usability, (6) team work efficiency, and (7) user satisfaction level. Overall, the proposed system accelerates the risk analysis process, improves recommendation quality, and supports more accurate, structured, and data-driven decision-making.

Keywords: Large Language Model, Artificial Intelligence, Risk Register, Risk Management, BRINS.