

IMPLEMENTASI *BUSINESS INTELLIGENCE* BERBASIS WEBSITE UNTUK MONITORING EFISIENSI BIAYA MATERIAL PADA PROYEK INTERIOR BISA GAMBAR STUDIO

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ABSTRAK

Bisa Gambar Studio merupakan penyedia jasa desain interior yang mencatat Rencana Anggaran Biaya (RAB) dan realisasi belanja material menggunakan Microsoft Excel dengan berkas terpisah pada setiap proyek. Kondisi tersebut menyulitkan pemilik dalam membandingkan anggaran rencana dengan pengeluaran aktual, meningkatkan risiko *human error*, serta berpotensi menimbulkan pembengkakan biaya yang baru terdeteksi setelah proyek selesai. Penelitian ini bertujuan membangun sistem Business Intelligence berbasis web untuk memantau perbandingan RAB dan realisasi material secara *real time*, dilengkapi peringatan dini berbasis sistem pakar serta pengamanan melalui *Role Based Access Control* dan *Audit Log*. Sistem dikembangkan menggunakan metode *Rapid Application Development* (RAD) dengan analisis kebutuhan PIECES, perancangan *Unified Modeling Language* (UML), serta pembangunan memanfaatkan *framework* Next.js dan basis data PostgreSQL. Pengujian dilakukan melalui *Blackbox Testing* dan *User Acceptance Testing* (UAT). Hasil penelitian menunjukkan sistem berhasil menggantikan pencatatan manual dengan menyajikan dashboard analitik yang akurat, notifikasi otomatis saat pengeluaran melampaui anggaran, serta rekomendasi preskriptif bagi manajemen. Berdasarkan UAT, sistem memperoleh persentase kelayakan sebesar 88% dari Owner dan 90% dari Asisten sehingga termasuk kategori Sangat Layak. Dengan demikian, sistem yang dibangun mendukung pengendalian biaya material proyek interior secara lebih terukur dan tepat guna.

Kata Kunci: *Business Intelligence, Efisiensi Biaya Material, Rapid Application Development, Sistem Pakar, Role Based Access Control*

**IMPLEMENTATION OF A WEB BASED BUSINESS INTELLIGENCE
SYSTEM FOR MONITORING MATERIAL COST EFFICIENCY IN
INTERIOR DESIGN PROJECTS AT BISA GAMBAR STUDIO**

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ABSTRACT

Bisa Gambar Studio is an interior design service provider that tracks its Budget Estimates and actual material expenditures using Microsoft Excel, with separate files for each project. This situation makes it difficult for clients to compare the budget estimates with actual expenditures, increases the risk of human error, and has the potential to lead to cost overruns that are only detected after the project is completed. This study aims to develop a web based Business Intelligence system to monitor real time comparisons between the Budget Estimates and actual material expenditures, equipped with early warnings based on an expert system as well as security measures through Role Based Access Control and Audit Logs. The system was developed using the Rapid Application Development (RAD) method, incorporating PIECES requirements analysis, Unified Modeling Language (UML) design, and implementation utilizing the Next.js framework and a PostgreSQL database. Testing was conducted through Blackbox Testing and User Acceptance Testing (UAT). The results of the study show that the system successfully replaced manual record keeping by providing an accurate analytical dashboard, automatic notifications when expenditures exceed the budget, and prescriptive recommendations for management. Based on the UAT, the system received a feasibility rating of 88% from the Owner and 90% from the Assistant, placing it in the “Highly Feasible” category. Thus, the developed system supports more measurable and precise control over interior project material costs.

Keywords: Business Intelligence, Material Cost Efficiency, Rapid Application Development, Expert System, Role Based Access Control