

ABSTRAK

Tim *IT Infrastructure Project Management* di Pejompongan masih bergantung sepenuhnya pada pencatatan konvensional melalui form Excel, sehingga rentan terhadap ketiadaan rekam jejak keputusan yang sistematis, sulitnya pemantauan anggaran secara *real-time*, serta risiko kesalahan klasifikasi antara belanja modal (*capex*) dan belanja operasional (*opex*) yang berpotensi menyebabkan *over-budgeting*. Perancangan ini bertujuan merancang *prototype* sistem *helpdesk e-procurement* yang mengintegrasikan mekanisme *smart validation* sebagai *decision support system* otomatis dan *dashboard* monitoring berbasis visualisasi informasi guna menciptakan tata kelola informasi pengadaan yang akuntabel, transparan, dan efisien. Pendekatan yang digunakan adalah riset terapan dan pengembangan, dibangun menggunakan *framework* Laravel 13 berbasis PHP 8.3 dan PostgreSQL. Arsitektur informasi dikembangkan menggunakan kerangka *information package* yang mencakup *submission*, *archival*, dan *dissemination information package* dalam alur persetujuan berjenjang, terdiri dari tiga *role*, yaitu *Requester*, *Team Leader*, dan *Department Head*. Mekanisme *smart validation* dirancang dengan empat gerbang seperti deteksi duplikasi tiket, validasi kewajaran nominal, klasifikasi *capex* atau *opex* secara otomatis, serta verifikasi ketersediaan saldo anggaran secara *real-time*. Tingkat kelayakan dinilai melalui *usability testing* dan survei evaluasi menggunakan kerangka ISO 9241-11:2018 yang melibatkan enam partisipan dari ketiga *role*. Hasil evaluasi menunjukkan rata-rata skor *usability* sebesar 4,51 dari skala 5, melampaui kategori *usability* tinggi ($\geq 4,0$), dengan dimensi efektivitas 4,55, efisiensi 4,38, dan kepuasan 4,61. Seluruh skenario pengujian berhasil diselesaikan tanpa kegagalan fungsional. *Prototype* ini membuktikan bahwa digitalisasi pengadaan yang dilandasi arsitektur informasi terstruktur, mekanisme validasi preventif berbasis *decision support system*, dan prinsip tata kelola informasi mampu meningkatkan akuntabilitas, transparansi, serta efisiensi pengelolaan pengadaan pada tim *IT Infrastructure Project Management* di Pejompongan.

Kata Kunci: Arsitektur Informasi, *Prototype*, *Smart Validation*, Sistem *Helpdesk E-Procurement*, Visualisasi Informasi

ABSTRACT

The IT Infrastructure Project Management team in Pejompongan still relies entirely on conventional record-keeping using Excel spreadsheets, making it vulnerable to the lack of a systematic decision-making trail, difficulties in real-time budget monitoring, and the risk of misclassification between capital expenditures (capex) and operating expenditures (opex), which could potentially lead to over-budgeting. This project aims to design a prototype e-procurement helpdesk system that integrates a smart validation mechanism as an automated decision support system and a dashboard for monitoring based on information visualization to create accountable, transparent, and efficient procurement information management. The approach used is applied research and development, built using the Laravel 13 framework based on PHP 8.3 and PostgreSQL. The information architecture was developed using an information package framework that includes submission, archival, and dissemination information packages within a tiered approval workflow, consisting of three roles: Requester, Team Leader, and Department Head. The smart validation mechanism is designed with four checkpoints, including duplicate ticket detection, nominal value validity checks, automatic classification of capex or opex, and real-time verification of budget balance availability. The system's usability was assessed through usability testing and an evaluation survey using the ISO 9241-11:2018 framework, involving six participants representing all three roles. The evaluation results showed an average usability score of 4.51 on a scale of 5, exceeding the high usability category (≥ 4.0), with effectiveness at 4.55, efficiency at 4.38, and satisfaction at 4.61. All test scenarios were successfully completed without any functional failures. This prototype demonstrates that the digitization of procurement grounded in a structured information architecture, preventive validation mechanisms based on a decision support system, and information governance principles can enhance accountability, transparency, and the efficiency of procurement management within the IT Infrastructure Project Management team at Pejompongan.

Keywords: E-Procurement Helpdesk System, Information Architecture, Information Visualization, Prototype, Smart Validation