

Efektivitas Penerapan Laboratory Information System (LIS) Menggunakan Model Human Organization Technology (HOT Fit) pada Laboratorium Medis X di Depok Tahun 2026

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Deskripsi Lengkap: <https://lib.fkm.ui.ac.id/detail.jsp?id=139442&lokasi=lokal>

Abstrak

<div style="text-align: justify;">Penerapan LIS merupakan prasyarat utama untuk menggantikan proses pencatatan manual yang rentan kesalahan transkripsi dan memakan waktu, guna meningkatkan efisiensi alur kerja spesimen serta akurasi data klinis. Namun, pada Laboratorium Medis X di Depok masih ditemukan celah antara kapabilitas teknologi dengan realitas operasional harian yang menghambat pencapaian net benefit secara optimal. Penelitian ini bertujuan untuk melihat efektivitas penerapan LIS menggunakan model HOT Fit guna memberikan rekomendasi perbaikan mutu yang praktis. Metode penelitian yang digunakan adalah kualitatif dengan pendekatan deskriptif studi kasus tunggal. Informan dipilih secara purposive sampling sebanyak empat orang yang merupakan pengguna rutin harian, terdiri dari tiga ATLM dan satu service manager. Pengumpulan data dilakukan melalui wawancara mendalam, observasi lapangan, dan telaah dokumen, yang selanjutnya divalidasi melalui triangulasi sumber dan metode. Hasil penelitian menunjukkan bahwa secara umum penerapan LIS telah berjalan baik dan berhasil menggantikan Sebagian besar proses pencatatan manual, namun masih menyisakan beberapa kekurangan pada keempat komponen Hot fit. Pada faktor teknologi, fungsi inti bidirectional interfacing dan auto-flagging terbukti andal menjamin akurasi parameter klinis dibandingkan proses manual sebelumnya, tetapi kualitas sistem secara keseluruhan masih terhambat oleh ketidaksesuaian (misfit) pada perangkat keras pendukung, terutama gangguan mekanis pada printer barcode dan hasil. Pada faktor manusia, penggunaan sistem telah berjalan rutin dengan tingkat kepuasan pengguna yang tinggi karena tereduksinya beban kerja transkripsi manual, namun akuntabilitas otorisasi digital menjadi titik lemah akibat praktik sharing account dan kebijakan no backdate yang memicu ketidakteraturan jejak audit (audit trail). Pada faktor organisasi, ditemukan transisi positif menuju budaya kerja digital dan kemandirian staf melalui penguatan mekanisme peer-to-peer learning, tetapi efektivitasnya masih terkendala oleh minimnya pelatihan formal berkala dan fragmentasi SOP digital. Pada faktor net benefits, penerapan LIS memberikan dampak nyata berupa pemangkasan TAT dan penguatan integritas data rujukan regional dibandingkan dengan proses manual sebelumnya, meskipun capaian ini belum optimal akibat dilema antara responsivitas pelayanan dengan keamanan akses digital serta gangguan teknis printer yang masih berulang. Penelitian ini merekomendasikan penguatan pemeliharaan perangkat keras, penerapan kontrol akses berbasis peran (RBAC) yang lebih fleksibel, penyediaan kartu petunjuk cepat (quick reference card), serta pelatihan penyegaran berkala sebagai langkah perbaikan mutu yang dapat segera diterapkan.</div><hr /><div style="text-align: justify;">

The implementation of a Laboratory Information System (LIS) is a key prerequisite for replacing manual recording processes that are prone to transcription errors and time-consuming, in order to improve specimen workflow efficiency and clinical data accuracy. However, at Medical Laboratory X in Depok, a gap was still found between technological capability and daily operational realities, which hinders the optimal achievement of net benefits. This study aims to examine the effectiveness of LIS implementation using the HOT Fit model in order to provide practical quality improvement recommendations. The research method used was qualitative with a single case study

descriptive approach. Informants were selected through purposive sampling, comprising four daily routine users: three Medical Laboratory Technologists (ATLM) and one service manager. Data collection was conducted through in-depth interviews, field observations, and document review, which were subsequently validated through source and method triangulation. The results showed that, overall, LIS implementation has run well and successfully replaced most manual recording processes, although several shortcomings remain across all four HOT Fit components. In terms of the technology factor, the core functions of bidirectional interfacing and auto-flagging proved reliable in ensuring the accuracy of clinical parameters compared to the previous manual process; however, overall system quality was still hindered by hardware misfit, particularly mechanical disruptions in the barcode and result printers. In terms of the human factor, system usage has become routine with a high level of user satisfaction due to the reduced burden of manual transcription workload, but digital authorization accountability remains a weak point due to account-sharing practices and a no-backdate policy that triggers irregularities in the audit trail. In terms of the organization factor, a positive transition toward a digital work culture and staff independence was found, strengthened through peer-to-peer learning mechanisms, although its effectiveness is still constrained by the lack of regular formal training and fragmented digital SOPs. In terms of the net benefits factor, LIS implementation delivered tangible impacts in the form of reduced turnaround time (TAT) and strengthened regional referral data integrity compared to the previous manual process, although these achievements have not been fully optimized due to a dilemma between service responsiveness and digital access security, as well as recurring technical printer issues. This study recommends strengthening hardware maintenance, implementing a more flexible role-based access control (RBAC), providing quick reference cards, and conducting periodic refresher training as immediate quality improvement measures.</div>