ODOO ERP DESIGN AND MICROSERVICES DEVELOPMENT TO IMPROVE INVENTORY ADMINISTRATION AND ACCOUNTING INTEGRATION

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ABSTRACT

AKMAL ZIDAN. Odoo ERP Design and Microservices Development to Improve Inventory Administration and Accounting Integration. Supervised by TAUFIK DJATNA and INDAH YULIASIH.

Manual inventory management and financial transaction recording may lead to delays in information availability, duplicate records, and poor data integration across departments in the company. This study aimed to analyze the existing business processes, design, implement, and evaluate an Odoo version 18-based ERP system using the MBSE approach. The implementation focused on the Inventory and Accounting modules, supported by a mobile microservices application, and was carried out in two stages. Requirement fulfillment rose from 86.67% and 80.00% in the Inventory and Accounting modules respectively at the end of the development stage to 100% in both after refinement. Black-box Testing confirmed that all thirty functional and non-functional requirements were fulfilled. The User Acceptance Test returned 92% for the Inventory Module and 90% for the Accounting Module, while administrative processing time fell by 91.5% and 94.6%. Inventory movements now generate the corresponding accounting records within a single database, removing the duplicate recording the previous arrangement depended on.

Keywords: accounting integration, efficiency, ERP, inventory management, Odoo

ABSTRAK

AKMAL ZIDAN, Desain ERP Odoo dan Pengembangan *Microservices* untuk Meningkatkan Administrasi Persediaan dan Integrasi Akuntansi. Dibimbing oleh TAUFIK DJATNA dan INDAH YULIASIH.

Pengelolaan persediaan dan pencatatan transaksi keuangan yang masih dilakukan secara manual berpotensi menyebabkan keterlambatan informasi, duplikasi pencatatan, dan rendahnya integrasi data antar bagian pada perusahaan. Penelitian ini bertujuan menganalisis kondisi eksisting, merancang, mengimplementasikan, dan mengevaluasi sistem ERP berbasis Odoo versi 18 menggunakan pendekatan MBSE. Implementasi difokuskan pada Modul *Inventory*, Modul *Accounting*, serta aplikasi mobile *microservices* sebagai sistem pendukung, dan dilaksanakan dalam dua tahap. Ketercapaian kebutuhan meningkat dari 86,67% pada Modul *Inventory* dan 80,00% pada Modul *Accounting* di akhir tahap pengembangan menjadi 100% pada keduanya setelah tahap penyempurnaan. Pengujian *Black-box* memastikan seluruh tiga puluh kebutuhan fungsional dan non-fungsional terpenuhi. Hasil *User Acceptance Test* sebesar 92% pada Modul *Inventory* dan 90% pada Modul *Accounting*, sementara waktu proses administrasi berkurang sebesar 91,5% dan 94,6%. Perpindahan persediaan kini menghasilkan pencatatan akuntansi dalam satu basis data, sehingga pencatatan ganda yang sebelumnya diperlukan dapat dihilangkan.

Kata Kunci: akuntansi terintegrasi, efisiensi, ERP, manajemen persediaan, Odoo

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PREFACE

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES