

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

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2026**



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

AKMAL ZIDAN

Undergraduate Final Thesis
Submitted in Partial Fulfillment of the Requirements
for the Degree of Bachelor of Engineering
in the Agroindustrial Engineering Study Program

**AGROINDUSTRIAL ENGINEERING STUDY PROGRAM
FACULTY OF ENGINEERING AND TECHNOLOGY
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PREFACE

All praise and gratitude are due to Allah Subhanahu wa Ta'ala for His endless blessings and mercy, which have enabled the author to complete this scientific work. This research was conducted from January to June 2026 under the title “Odoo ERP Design and Microservices Development to Improve Inventory Administration and Accounting Integration.” This project was undertaken as one of the academic requirements for obtaining a Bachelor's degree in the Agroindustrial Engineering Study Program, Faculty of Engineering and Technology, IPB University. The author would like to express sincere appreciation and gratitude to everyone who has contributed to the completion of this thesis, especially to:

1. Dr. Indah Yuliasih, S.T.P., M.Si., as the lecturer in charge of the Capstone Project, for her guidance, valuable suggestions, and continuous support throughout the project.
2. Prof. Dr. Eng. Ir. Taufik Djatna, M.Si., as the thesis advisor, for his invaluable guidance, encouragement, motivation, and constructive feedback throughout the implementation of this project.
3. All faculty members and staff of the Agroindustrial Engineering Study Program for their assistance and the facilities provided during the author's academic journey.
4. All employees of the partner company for their cooperation, support, and valuable insights throughout the project.
5. The author's family, for their endless prayers, unconditional love, sacrifices, unwavering support, and trust. Every achievement the author has accomplished, including the completion of this thesis, is the result of their prayers and hopes.
6. The author's Capstone Project teammates, Abdun Salam and Satria Aryadwika Rifana, for their dedication, hard work, and collaboration throughout the project.
7. The author's classmates of TINININIT 59, for their friendship, support, and togetherness throughout university life.
8. The author's friends at Basecamp PBI Pondok Inspirasi which are Agi Khaerul, Perdiansyah, Raden Pradjasoejatma, and Fiki Ramdani for their encouragement, support, and lasting companionship.
9. The author's fellow thesis advisees, "Ya Allah Kuat-kuat Kita," Azzam, Indri, and Dini, for their support and companionship throughout the thesis journey.
10. Arfa Nashtrya Namina, for the support provided throughout the author's university studies.
11. The author's fellow students of TIN IPB Batch 59 (TINITI) in the Agroindustrial Engineering Study Program, for the memorable journey and togetherness throughout university life.
12. The author himself, for having the courage, perseverance, and determination to continue learning, growing, and striving to become a better person.

Bogor, July 2026

Akmal Zidan



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