

Implementing an Open-Source ERP for a Small Retail Business: A Case Study of Inventory Management Optimization at Rendy Audio

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ABSTRACT

This study focuses on integrating an inventory management system for Rendy Audio, a small retail company with only four employees that installs and customizes vehicle audio systems, using the open-source ERP Odoo. The purpose of a centralized digital system that connects inventory operations with real-time procurement and sales data is to improve order processing, inventory management, and stock visibility. Rendy Audio intends to use Odoo's Inventory module to automate manual processes, reduce stock discrepancies, and gain real-time visibility into stock levels, order statuses, and inventory locations. This study follows a four-phase methodology that includes preparation and planning, data collection and analysis, system design and prototype, and deployment including user training. The results suggest that utilizing Odoo improves customer service, reduces order processing time, and improves inventory tracking accuracy. These findings support Odoo ERP's efficacy as a scalable and reasonably priced inventory management solution tailored to the needs of small merchants.

Keywords: Car Audio Customization, Inventory Management, Odoo ERP, Small Retail Business, Real-Time Stock Management

INTRODUCTION

A sound revolution is taking place in the field of automotive entertainment. As Meilanitasari & Ibrahim (2023) wisely note, the increased desire of consumers for customized, high-end in-vehicle sound experiences has led to a spectacular expansion of the automobile audio sector. From speakers alone to multiple configurations that can combine a variety of speakers such as tweeters and subwoofers, amplifiers and other multimedia devices, this industry is evolving over time and offers a wide range of improvements that can be made. Cables, fuses, and other equipment for installation are some of the components that Rendy Audio must have to meet client needs and facilitate their installation. These items are very important to be managed properly in order to maintain installation performance and ensure customer satisfaction (AlMuhayfith & Shaiti, 2020; Takehiro Hasegawa & Shotaro Tani, 2022). However, irregular supplies, delays, and other disruptions brought on by traditional inventory management methods which are usually manual increase operating costs and lower customer satisfaction. Small businesses with few employees face particular difficulties with inventory management because they lack professional teams or costly proprietary software, claim Hansen et al. (2023) and AlMuhayfith & Shaiti (2020). Rendy audio's small independent company, which has only four people, had similar problems, in terms of inventory and order processing. A solution that worked well for these needs would also need to be relatively inexpensive due to the small population. Rendy audio uses an open source ERP program such as Odoo to respond to the needs of SMBs that come with its own abilities to be customized to fit the unique needs of your particular business. The systems offer assets that are adaptable using to the organization's current engagements and organization. According to Olson et al. For example, reports such as Mercurial (2018) and Davyn

Limited (2023) suggest that compared to traditional proprietary systems, there are indispensable elements like inventory analytics, existing order construction, and recording information in real time form which can be found for a fraction of the cost.

Olson et al. (2018), while further explaining that open source ERP systems will enhance accuracy and operational flexibility. Rendy Audio capitalizes on this by adopting Odoo's Inventory module that consolidates critical tasks and enables the business to link inventory details with sales and procurement. This integration is helpful not only to decrease stock inconsistencies and other human errors but also provides real-time inventory visibility (Bayu et al., 2019; Erkeyman, 2019). Increased cross-departmental Performance, better decision-making, and integration of these functions can be driven with Odoo (Teittinen et al., 2013). Bayu et al. indicated that such integration is highly demanded by the retail industry where services need to be quick, and orders are required to fulfil orders with very high accuracy to maintain a competitive advantage (2019).

Ibrahim et al. The planned approach on ERP implementation detailed in JSCM (2022) defines a four-phase methodology, which this study applied in the context of Rendy Audio's unique operational needs. The first part of preparation and planning involves assessing the company's unique inventory needs what products and equipment are often used, trends in consumer demand, and so on and aligning the existing ERP setup with business objectives. The second stage of this problem solution is to collect data and analyze data, this is the stage of collecting data that is detailed about stock data and patterns of ordering, so that the configuration of the ERP system matches the operational activities that are running at Rendy Audio. Stage three is to develop a system design and prototype to design an easy-to-use interface that fits with Rendy Audio's current workflow. The last phase is user implementation and training, and it needs to make certain that staff members are skilled enough to utilize the ERP system correctly to speed up everyday tasks.

Research by Hansen et al. and Yulianto et al. (2023), Davyn Limited (2023) states that ERP systems have provided benefits such as enhanced inventory tracking accuracy, shorter order processing times, and improved responsiveness to customer inquiries – all advantages that have followed Rendy Audio as a result of their Odoo implementation. These broad enhancements demonstrate the ERP system as an affordable and scalable technology, making it that one system which serves the best for the small and medium enterprises operating in the retail car audio industry, where responsive timings and maximized transactional efficiency serve as the two major altering parameters (Goumas et al., 2018; Ranjan et al., 2016). Furthermore, recent works by Wahedi et al. (2023) highlight that SMEs' integrated use of ERP and machine learning techniques can give them a competitive advantage with respect to their demand forecasting and inventory planning.

This research has shown that open-source ERP systems such as Odoo can serve as a flexible solution for small businesses like Rendy Audio. Faizan & Mehmood (2022) stated and Zakharchenkov (2024) stated that SMEs will be in a position to implement technical solutions of state-of-the-art on affordable basis just like improving the efficiency of existing operations. In addition, Zakaria et al. (2023) discuss that ERP could mitigate some errors, e.g., in materials tracking, and can provide better visibility of current inventory. According to Spathis and Constantinides (2003), ERP systems should be able to help businesses by simplifying their processes and increasing customer satisfaction. Here ERP plays a very important role, which can drive long-term business growth and increase competitiveness for small retail companies in the dynamic automotive audio market.

METHODS

This study follows a structured, four-phase methodology adapted and modified from Ibrahim et al. (2022), designed to implement an ERP system effectively in a small business context like Rendy Audio. In consideration of the limited resources and the small team of only four employees at Rendy

Audio, the methodology is streamlined to lower its complexity and to support easy adoption by all staff members. This will ensure that the strategy will align with the dynamic, organization-centric paradigm, which allows for customized ERP deployments in specific business situations (Dunaway, 2012). Ibrahim et al.'s four-phase framework (2022) served as the model for the study's four revised stages, which are Preparation and Planning, Data Collection and Analysis, System Design and Prototyping, and Deployment with User Training. The approach is tailored because it aims to ensure smooth implementation of the ERP system at all levels, focusing on simplicity, usability, and efficiency so that all staff will be able to join the change process without need for a specialized IT or inventory team.

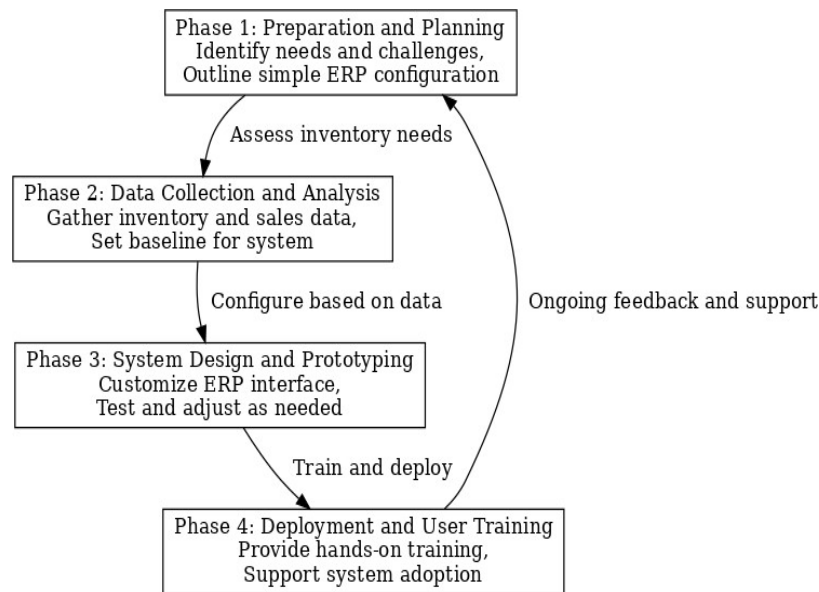


Figure 1. Flowchart for Research Method

Source: Documentation by Author

A. Preparation and Planning

During the initial stage, known as Preparation and Planning, emphasis is given to comprehending the specific business needs of Rendy Audio and determining the major issues the ERP system has to address. Since Rendy Audio is a small establishment with limited personnel, the basic needs are that there should be optimized inventory management, improved order fulfillment, and proper visibility of stock ensured. *Needs Analysis.* This activity involves determining which items require regular checking, specifically those that have a high demand or fast turnover rate. It also includes deciding which specific procedures need to be improved, for example, reorder levels and update inventory. By analyzing the trends of the store's operations, the ERP system can be configured to accurately reflect these critical needs.

Challenge Identification. Due to its workforce constraint, Rendy Audio cannot have manpower dedicated to complex IT-related tasks. This phase has therefore involved a review of functions in the ERP that can be automated or simplified, with the objective of configuring it user-friendly so as to make inventory management easier and not a task that takes up a lot of manually entering data. *System Configuration Outline.* An initial configuration strategy has been developed to correspond with the daily operational activities of Rendy Audio. It includes detailing the sequence of the implementation of the modules, with priority in the inventory and sales modules, while also detailing essential functionalities like automated inventory notifications and efficient order monitoring. The configuration strategy will ensure that the

architecture of the ERP system is clear, intuitive, and fitting for a small team setting. With all these limitations in view, the phase also proposes a simple and effective setup of a system to facilitate inventory management in the easiest way possible.

B. Data Collection and Analysis

The second stage, Data Collection and Analysis, would involve collecting data on Rendy Audio's current inventory levels, sales patterns, and reordering cycles. This phase is critical in setting up the ERP system correctly and establishing automated procedures that reflect both actual demand and the turnover rate of inventory. Since Rendy Audio does not have an inventory team, data collection has been made simple by focusing on capturing only important information such as current stock counts, high-turnover items, and typical demand cycles. *Inventory and Sales Data Collection.* This involves gathering information on current inventory counts, historical sales data, and purchase records. The data collecting process is reduced to focus on important parameters like current stock counts, turnover rates for popular items, and seasonally high-demand products because Rendy Audio lacks a professional inventory personnel. When designing the ERP automation, the operational snapshot provided by the collected data will be useful.

Cycle and Demand Analysis. Through the analysis of reordering cycles, demand fluctuations can be determined, and the ERP system can be programmed to reflect the store's inventory rhythm. For example, fast-moving items can be set up with automatic reorder triggers to minimize stockout situations. Further, the demand analysis indicates the timing and quantity needs for the reorders, which will become part of the automated functionalities of the ERP. *Baseline Establishment.* The data collected will serve as a baseline for the setup of the ERP system, ensuring that the automated reordering and tracking features reflect the actual operational needs. This baseline supports easier integration of the system and reduces the need for adjustments later, as the system is already calibrated to the store's inventory patterns. This information will give a baseline to the ERP system so that functions for automatic reordering and tracking will work right with less intervention by the limited staff.

C. System Design and Prototyping

Rendy Audio has a unique workflow and operational requirements, so in the development and prototyping of the ERP system, considerations were made to suit Rendy Audio. Due to the small number of people, the system architecture prioritizes accessibility and usability, making it easier for employees to maintain and update inventory data. To make the ERP system's interface easy to use and understand, the first step is to set up an intuitive user interface. Staff members can easily process orders, manage inventory levels, and update stock counts thanks to the design. Essentially, this backdrop is about making the ERP accessible and available to even the least tech-savvy staff. This is attenuated with customizing the core feature of the ERP to Rendy Audio. That means automating stock tracking, transparency into your real-time inventory, and alerts when items are low in stock. An efficient workflow includes fundamental processes that minimize human errors (e.g., updating stock and processing orders).

To fulfill practical needs, Rendy Audio staff collaborated to develop and test a prototype. Staff feedback was also gathered in user engagement sessions and system demonstrations, where staff members could view the features and identify any challenges while interacting with them. Comment-based changes were made in order to enhance productivity and adjust the ERP together with Rendy Audio's specifications. Flexible Prototype: The team tested the prototype before finalizing the system interface and carrying out the necessary modifications to ensure

that the functional requirements meant to be provided by the Rendy Audio system were sufficiently met.

D. Deployment and User Training

The final stage, called Deployment and User Training, focuses on introducing the ERP system to the employees of Rendy Audio, making sure they have the skills needed to adequately perform inventory-related activities. *System Deployment.* System deployment of the ERP begins with the base modules defined in the configuration plan: Inventory, Sales, and Procurement. This incremental approach allows the team to adapt in stages, thus business disruptions are minimized. *Practical User Training.* Given that Rendy Audio does not have a specialized IT department, the availability of training is very important. The training sessions cover basic yet essential operations, such as stock monitoring, updating of inventory records, and retrieving real-time order information. Each of these training sessions is participatory and hands-on, so employees are not forced and will feel more comfortable using the system and combine ongoing support with feedback.

After the implementation phase, support sessions will be held to address any questions or concerns that arise as staff members adapt to the new system. Making these small changes easier to make allows the system to fit into staff operations while information is continually collected. This helps increase user confidence, making adoption of the ERP system smoother and easier.

RESULTS

A. Preparation and Planning

Needs Assessment

At the needs assessment phase, Rendy Audio’s assets were assessed in order to find out which units would require regular tracking; especially parts or components that are frequently sold or fast-moving. It found that some items, such as audio cables, connectors and specialized mounting kits, had higher turnover rates and required more diligent tracking. Moreover, in observing the operational patterns of the store it was evident that reorder schedule and stock updates needed to be optimized to prevent low stock situations, thereby leading to reduced downtime of service for customers. The needs assessment laid the groundwork for setting up a way for the ERP to accurately track key inventory items and trigger reorders in a timely manner at the Table 1: More Information on High-Demand Components.

Table 1. High-Demand Inventory Items and Tracking Requirements				
No	ERP Functionality	Automation Type	Description	Benefit to Rendy Audio
1	Inventory Count Updates	Automated stock level sync	Real-time updates on inventory levels	Reduces manual counting effort
2	Order Status Tracking	Real-time tracking alerts	Tracks and alerts on order status changes	Improves order processing efficiency
3	Stock Level Alerts	Low-stock notifications	Sends alerts when stock falls below preset levels	Ensures timely reordering to prevent stockouts
4	Simplified User Interface	User-friendly interface customization	Provides easy access to core ERP functions	Enhances employee usability with minimal training
5	Sales Module Integration	Streamlined order processing	Automates sales entry and tracking	Supports efficient order management

Source: Data Processed by Author (2024)

This needs assessment study found out that Rendy Audio's team effort could reduce by adding feature of automatic notifications and real-time tracking. The ERP system set up thus includes highlighting cases of stock shortage, predicting points of order placement, and generating automated stock out alerts all of which has to be tailored to suit the high-demand and critical stock items in the industry. This demonstrated the need for a system that actively helps with efficient stock management, especially in a small-scale retail scenario where employees cannot commit the whole day to implementing inventory checks. Regarding features, please refer to Table 2.

Table 2. Key ERP System Functionalities and Automated Processes

No	Item Category	Specific Items	Turnover Rate	Tracking Requirement	Reordering Schedule
1	Head Units	Android Head Unit	Moderate to High	Stock updates, alert on low stock	Two Weeks or as needed
2	Audio Cables	RCA, AUX, AWG Cable	Moderate	Real-time tracking, alert on low stock	Monthly or as needed
3	Speakers	Coaxial, Tweeter, Mid Range & Subwoofer	Moderate to High	Stock updates, alert on low stock	Two Weeks or as needed
4	Amplifiers	DSP, Mono, multi-channel amplifiers	Moderate to High	Stock updates, alert on low stock	Monthly or as needed
5	Specialty Items	Spare Part, Bluetooth receivers, sound dampeners	Variable	Real-time tracking, alert on low stock	Monthly or as needed
6	Car Accessories	Wiper Blades, Car Seat Cover, Car Floor Mat, Car Cover, Lamps, etc	Moderate	Stock updates, alert on low stock	Three Weeks or as needed

Source: Data Processed by Author (2024)

Challenge Identification

The challenge identification process included assessing the features of the ERP that need to be simplified or automated to work as some small team would. Designing for minimal manual input across all team members with basic workflows was key to a successful ERP configuration, particularly given the limited availability of Rendy Audio team members and the absence of an IT department. Then analyzed where data could be leveraged through automation in repeat cases, it was found that processes like updating inventory counts, tracking order status, and adjustment of stock levels could be removed from humans and automated.

This led to the curation of the user interface and the individual workflows in the ERP. With programming that was easily-configurable and intuitive in a user-friendly manner, the ERP system empowered Rendy Audio's staff to perform management roles without excessive need for technical training. This proved to be a diplomatic finding, as it showcased the system's ability to drive productivity forward and mistake aversion, especially in the areas which had previously been based much upon manual entry. The setup was intended to facilitate fast access to basic information and reduce interruptions to daily operations so employees could focus on customer service and sales.

System Configuration Outline

A temporary system modelling plan will be created based on the analysis of previously existing challenge identification processes and demands. This strategy observes the important modules that exist to be prioritized in the implementation of this ERP, which will be carried out with an emphasis on these modules, namely inventory and sales. The below modules were selected to effectively manage the basic needs of Rendy Audio: inventory management and filled orders process.

According to the configuration plan, important features included automated stock alerts, a low-stock warning system, and a user-friendly order tracking process. This setup ensured that Rendy Audio could maintain visibility over stock levels, monitor inventory turnover rates, and receive timely alerts when critical items were running low. This idea also encourages the selection of a simpler and easier-to-understand user interface so that not only a few employees but all employees can access information without having to learn complicated features. This approach is taken so that the development of this ERP system is easy to use and in accordance with the small workforce so that Rendy Audio can smoothly make the transition to digital from manual operations.

B. Data Collection and Analysis

Phase two: Data Collection and Analysis The data collection and analysis phase, the second phase, involves gathering crucial information about Rendy Audio's inventory levels, sales trends, and reordering cycles to ensure the ERP system is properly configured. Phase allowed a simple data base that can help with automation, demand forecasting, and reordering.

Inventory and Sales Data Collection

The objective of this step was to obtain data about past sales statistics, purchasing records, and current inventory counts that would help to determine the current stock position of Rendy Audio. The data collection method was intentionally simplified streamlining the capturing of key information i.e., stock counts of popular goods, turnover rates for popular products, seasonally high-demand goods etc, as Rendy Audio did not have a dedicated inventory team. Therefore, they kept the data input streamline and ERP setup to be relevant to actionable inventory KPI. Refer to Table 3 for more details on Inventory and Sales data (2024).

Table 3. Inventory and Sales Data Collection

No	Item Category	Stock Count	Turnover Rate	Demand Frequency	Seasonal Demand
1	Head Units	30	Moderate to High	Two Weeks or as needed	Medium
2	Audio Cables	200	Moderate	Monthly or as needed	Low
3	Speakers	50	Moderate to High	Two Weeks or as needed	Medium
4	Amplifiers	50	Moderate to High	Monthly or as needed	High
5	Specialty Items	300	Variable	Monthly or as needed	Medium
6	Car Accessories	100	Moderate	Three Weeks or as needed	High

Source: Data Processed by Author (2024)

The utility oversaw the entire process and obtained data that could be used to automatically track stock (limits) and automatically notify regarding restocking, which could provide an overview of stock activities and possibilities of the ERP system. This achievement shows how important it is to carry out an effective data collection preparation even with limited

resources and time owned by a small company like Rendy Audio. Using the data that they had collected to create an in-house ERP system requiring minimal human tweaking, the tiny team could devote more of its energies to customer service.

Cycle and Demand Analysis

During this phase, I analyzed reordering cycles of Rendy Audio and identified any demand fluctuations. This prepared against stockouts of high volume consumable items, like necessary audio cables and connectors, how soon to reorder in the ERP system. Furthermore, demand analysis improved timing and quantity needs for reorders, allowing the ERP's automatic features to better match the store's actual requirements. Table 4 contains more information on Cycle and Demand Analysis.

Table 4. Cycle and Demand Analysis

No	Item Category	Demand Pattern	Reorder Cycle	Typical Quantity per Reorder
1	Head Units	Consistent weekly demand	Two Weeks or as needed	15 Units
2	Audio Cables	Bi-monthly, moderate demand	Monthly or as needed	50 Units
3	Speakers	Moderate, fluctuates with season	Two Weeks or as needed	10 Units
4	Amplifiers	Moderate, fluctuates with season	Monthly or as needed	10 Units
5	Specialty Items	Variable	Monthly or as needed	20 Units
6	Car Accessories	Bi-weekly, moderate demand	Three Weeks or as needed	35 Units

Source: Data Processed by Author (2024)

Thus, the results from this analysis propped up the arrangement of a more reactant ERP that made it feasible for it to suit Rendy Audio's designated stock upsurge. Using it to learn trends in demand versus normal stock levels, so many key items would automatically re-order, relieving the manual demand on the small team of staff and ensuring more consistent product availability.

Baseline Establishment

Data collected at this stage was utilized to establish a baseline for ERP system configuration. This baseline was necessary to establish automated reordering and tracking solutions that will suffice Rendy Audio's operational objectives. The ERP was already configured with baseline inventory patterns, so integration was made easier and further tweaks to the system were reduced. Removing a need for Rendy Audio staff to continuously enter data by hand improved overall the effectiveness and reliability of inventory management as a whole, refer Table 5.

Table 5. Baseline Data for ERP Configuration

No	Item Category	Baseline Stock Level	Reorder Threshold	Low-Stock Alert Level	Stock Monitoring Frequency
1	Head Units	30 Units	15 Units	5 Units	Two Weeks or as needed
2	Audio Cables	200 Units	125 Units	50 Units	Monthly or as needed

3	Speakers	50 Units	30 Units	20 Units	Two Weeks or as needed
4	Amplifiers	50 Units	30 Units	20 Units	Monthly or as needed
5	Specialty Items	300 Units	150 Units	50 Units	Monthly or as needed
6	Car Accessories	100 Units	65 Units	40 Units	Three Weeks or as needed

Source: Data Processed by Author (2024)

C. System Design and Prototyping

In the System Design and Prototyping phase we customized the interface and functionalities of the ERP according to Rendy Audio's needs. With such a small company, the system design focused on usability and independence so employees were able to simply manage inventory updates.

User-Friendly Interface Configuration

Such an interface for this user-friendly ERP system was developed taking into consideration many prerequisites such as usability and accessibility, making this system user-friendly for all Rendy Audio's employees. The architecture simplifies the core processes such as inventory monitoring, order processing, and supply adjustments. So this approach not only prevents mistakes in inventory but also improves data accuracy.

Core Functionality Customization

We decided to implement a custom ERP (Enterprise Resource Planning) system, where the core functions were tailored to Rendy Audio's needs, not only regarding inventory management (stock automatically updated) but also real-time visibility of products in order and instant low stock notifications. These functionalities were built-in to help Rendy Audio minimize manual intervention, allowing their internal team to run smoothly with little to no extensive technical training. By implementing such an ERP system, we simplified and integrated them into a single business process (order processing and stock modifications), significantly reducing the likelihood of human error in the management of inventory.

Prototyping and Feedback Gathering

Once these were set up the design into a prototype of the ERP system was made and tested by Rendy Audio's personnel. During testing, these employees tested the core functions and any usability issues found were reported during feedback sessions and user demonstrations. Several revisions were done accordingly, which provided a fine-tuned ERP configuration that fitted to Rendy Audio daily operations and increased the efficiency as a whole. The prototyping process ensured that the final ERP setup was practical and well-suited to the team's needs, which helped in smoother adoption in the subsequent deployment phase.

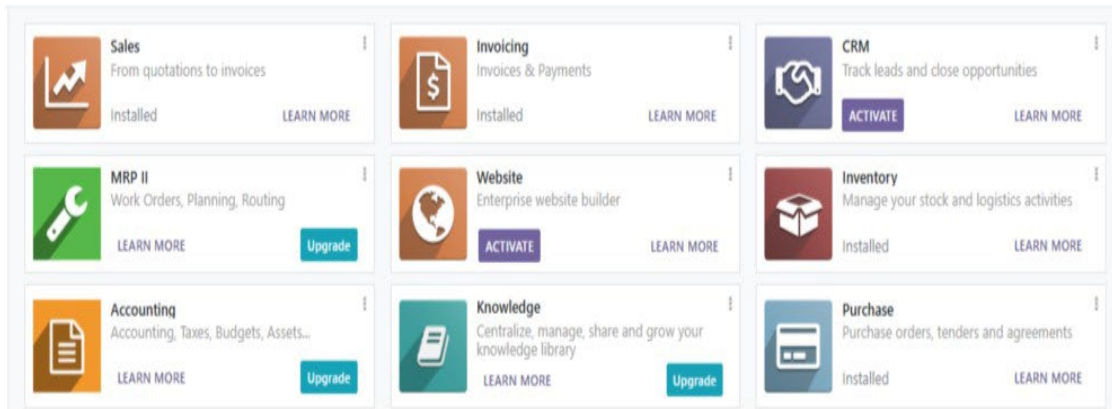


Figure 2. Installed Modules
Source: Documentation by Author

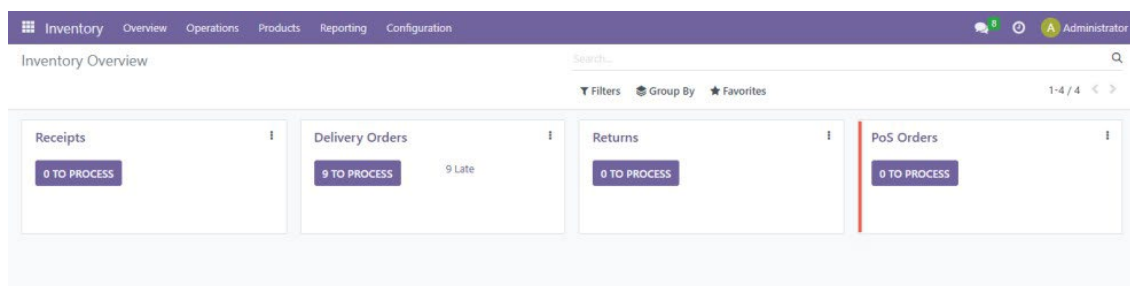


Figure 3. Inventory Module Dashboard
Source: Documentation by Author

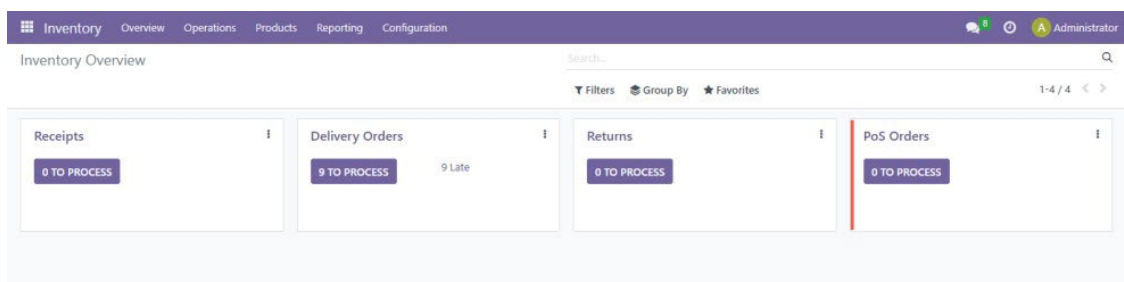


Figure 4. Inventory Module for Product Receiving
Source: Documentation by Author

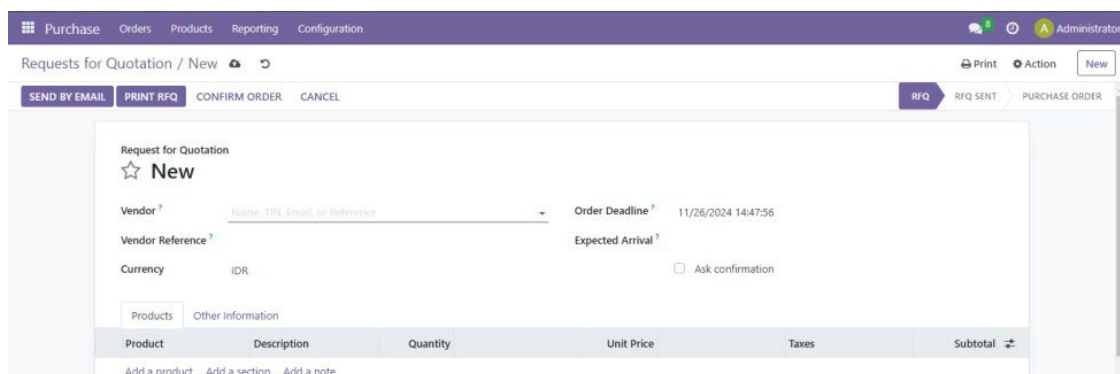


Figure 5. Purchase Module for Product Receiving
Source: Documentation by Author

	Product Name	Internal Reference	Responsible	Product Tags	Sales Price	Cost	Quantity On Hand	Forecasted Quantity
☐	Android AVIX AX2AND10X13 10"	100008	Administrator		Rp 3,300,000.00	Rp 3,000,000.00	5.00	5.00
☐	Android AVIX AX2AND10X13 9"	100007	Administrator		Rp 3,000,000.00	Rp 2,800,000.00	2.00	2.00
☐	Android AVIX AX2AND10X13 DVR 9"	100009	Administrator		Rp 3,600,000.00	Rp 3,300,000.00	1.00	1.00
☐	Android DHD DHD-7001 10"	100006	Administrator		Rp 1,750,000.00	Rp 1,550,000.00	1.00	1.00
☐	Android DHD DHD-7001 7"	100004	Administrator		Rp 1,300,000.00	Rp 1,000,000.00	2.00	2.00

Figure 6. Master Data Product
Source: Documentation by Author

New

Customer: _____ Expiration: _____

Invoice Address: _____ Pricelist: ?

Delivery Address: _____ Payment Terms: _____

Order Lines Optional Products Other Info

Product	Description	Quantity	Unit Price	Taxes	Subtotal
Add a product Add a section Add a note					

Figure 7. Sales Module
Source: Documentation by Author

D. Deployment and User Training

The last phase is the implementation and user training which are crucial to ensure a smooth transition to the ERP system without any hiccups and to give Rendy Audio employees the tools they need to carry out inventory tasks.

System Deployment

Deployment followed a step-by-step approach, with the crucial modules determined in the configuration plan being the first, such as Inventory, Sales & Procurement. This gradual rollout enabled Rendy Audio's team to ease into the new system in stages, ensuring daily operations remained uninterrupted. By prioritising core functionalities at a manageable pace, Rendy Audio was able to build familiarity with the enhancements to the ERP system without overwhelming the team, leaving the small team feeling empowered and confident in the new processes.

Hands-On User Training

Since there was no IT staff per se the training beyond practical training was required so that each and every employee could comfortably use the system on their own. Simple training sessions were held to cover essential parts such as retrieving live order data, updating item records, and monitoring stock. Staff members were able to practice their jobs under supervision since all the sessions were interactive. Including real data during training, preparation and the "sandbox" setup, where people could experiment with processes or functions without causing real harm, "made it much easier for us... we gave them confidence and skills to succeed with the ERP implementation."

Ongoing Support and Feedback Integration

A support phase of activities was initiated post launch to answer questions and resolve issues as employees engaged with the system. We kept getting feedback that allowed for some tweaks to ensure the ERP system was in line with Rendy Audio's workflow. This additional support period resulted in a higher level of user confidence, with employees being able to work through any issues/teething problems and to tailor the system to their specific needs.

DISCUSSION

The implementation of Odoo ERP at Rendy Audio demonstrates that open-source ERP systems can significantly improve inventory management performance in small retail businesses with limited financial and human resources. The findings indicate that the integration of inventory, sales, and procurement processes into a centralized platform reduced reliance on manual record keeping and enabled real-time stock visibility. This outcome is consistent with the argument of Spathis and Constantinides (2003), who found that ERP systems improve operational control by streamlining business processes and enhancing the availability of managerial information. For SMEs, the ability to access accurate inventory data in real time is particularly important because inventory errors can directly affect customer satisfaction and cash flow.

The study also confirms that ERP adoption can increase inventory tracking accuracy and reduce order-processing delays. Automated low-stock alerts, reorder thresholds, and real-time transaction updates helped Rendy Audio maintain adequate inventory levels for fast-moving items such as audio cables, speakers, and amplifiers. Similar benefits were reported by Bayu et al. (2019), who demonstrated that Odoo-based inventory management supports better safety-stock control and minimizes stockout risks in retail environments. The present findings therefore reinforce the view that ERP-supported automation is an effective mechanism for improving inventory reliability in small-scale retail operations.

Another important contribution of this study is the emphasis on implementation methodology. The four-phase approach consisting of preparation and planning, data collection and analysis, system design and prototyping, and deployment with user training proved suitable for a business employing only four people. This staged implementation reduced complexity and encouraged employee participation throughout the process. The result aligns with Bingi et al. (1999), who identified organizational readiness and user involvement as critical factors in successful ERP implementation. Likewise, Dunaway (2012) argued that ERP projects in smaller organizations require simplified methodologies that prioritize usability and gradual adoption. The experience at Rendy Audio demonstrates that ERP success depends not only on technology selection but also on the alignment between system design and organizational capability. Previous work by Meilanitasari and Ibrahim (2023) showed that integrated warehouse applications built on open-source ERP platforms can improve inventory coordination and operational responsiveness in retail businesses. The current study extends this perspective by demonstrating that similar benefits can be achieved in a specialized automotive-audio retail context through the use of Odoo's Inventory module. Both studies support the argument that affordable digital inventory solutions enable SMEs to strengthen operational resilience by improving visibility, reducing manual errors, and accelerating decision making.

The supply-chain perspective, the integration of inventory data with sales and procurement activities created a more responsive replenishment process. Teittinen et al. (2013) noted that ERP systems in SMEs enhance cross-functional coordination and support management control by providing a shared information base across departments. In Rendy Audio, this integration allowed

reorder decisions to be based on actual demand patterns rather than intuition, thereby improving inventory planning and reducing the risk of excess stock. The findings therefore support the proposition that ERP systems contribute not only to operational efficiency but also to better tactical decision making in small businesses. The study additionally highlights the strategic value of open-source ERP solutions. Olson et al. (2018) argued that open-source ERP offers flexibility, customization capability, and lower acquisition costs compared with proprietary alternatives. These characteristics were evident in Rendy Audio's implementation, where the system was tailored to the company's workflow without requiring substantial investment in specialized IT infrastructure. This affordability is particularly relevant for Indonesian SMEs, which often face budget constraints when pursuing digital transformation initiatives.

Overall, the results suggest that Odoo ERP can function as a scalable and cost-effective platform for inventory optimization in small retail enterprises. By combining automation, real-time visibility, and user-centered implementation practices, the system improved operational efficiency while supporting business continuity and customer service quality. These outcomes strengthen the growing body of evidence that digital inventory management is a practical pathway for enhancing SME competitiveness and resilience in increasingly dynamic retail markets (Faizan & Mehmood, 2022; AlMuhayfith & Shaiti, 2020).

CONCLUSION

Rendy Audio managed to enhance operational efficiency, customer service, and release workload on fewer people by reducing dependency on manual systems which are often prone to error leading to inventory management and moving towards automatic and real-time tracking. Its systematic four-phase approach which encompasses needs assessment, data extraction, systems design, and deployment led to a successful implementation transition by adjusting the ERP system according to the specific requirements of the enterprise. Such systems, the study supports, are a highly viable and inexpensive option for small businesses that must upgrade their systems in the face of opposition from their finance or IT departments.

Now, this research does have important consequences for small businesses, working in closely-related industries. Open-source ERP systems, like Odoo, offer scalability and flexibility, which enables businesses to modify the system to meet specific needs and make plans for future expansion. Instead of wasting a lot of time on manual tasks that could be automated, these few employees can focus on improving customer service and Rendy Audio's business development by automating critical operations that better the system than manual ones such as inventory, reordering, and workflow sale. Furthermore, through hands-on training and user-friendly interfaces, employees can build confidence and expertise, facilitating technology integration. Additionally, by providing real-time information about inventory and order issues in a timely manner, a business can win the trust and loyalty of its clients.

An implementation approach focused on human capital is therefore strongly recommended engaged in the process, the new ERP system is assured to be tailor-made around practical, day-to-day needs through identification of problems, designing workflows, and giving feedback. Heavy investment in proper training and continued support is also important to equip employees with competencies that ensure effective use of the system, reducing resistance and increasing benefits. What's more, the flexibility in open-source ERP systems has to be exploited to fulfill unique business needs without blowing up the costs. Another advantage companies will get is that of creating SME networks with the same ERP solutions in place, sharing knowledge, and problem-solving in collaboration, thereby fastening digital transformation in industries.

A system needs monitoring and continuous optimization to sustain the benefits of ERP adoption. Companies can monitor system performance regularly, utilize the feedback from employees, and analyze operational data to improve areas that might need enhancement in order to keep the ERP system attuned to the changing business needs. By doing so, small businesses can now update their operations, expand their customer base, and strengthen their path toward a leading and sustained organization. This in itself is a form of the achievement of Rendy Audio's metamorphosis, how a relatively resource-constrained enterprise has reached great heights by applying prudent thought and custom-fit ER

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