JURNAL TEKNOLOGI DAN OPEN SOURCE
Vol. 8, No. 1, June 2025, pp. 123~132
e-ISSN: 2622-1659, accredited Four Grade by Kemenristekdikti, Decree No: 152/E/KPT/2023
DOI: 10.36378/jtos.v8i1.4310

Design of Web-Based Financial and Product Management System for Onemens Leather Admin Using the Agile Method

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Article Info

Article history:

Received 05 11, 2025
Revised 05 16, 2025
Accepted 05 28, 2025

Keywords:

Agile Development
Design
Management
Website

ABSTRACT

This research aims to design and develop a web-based financial and product management system for Onemens Leather to address issues related to manual data management, which often leads to inefficiencies and errors in record-keeping. The system development employs the Agile Development methodology, which supports a flexible and adaptive software development process in response to user needs. The system is built using PHP programming language with the Laravel framework, and MySQL as the database management system. The outcome of this research is an interactive website providing key features such as a business performance dashboard, real-time product stock management, transaction recording, and automatic and structured reporting of inventory and financial data. The implementation of this system has proven to improve operational efficiency, accelerate data entry and reporting processes, enhance data accuracy, and support faster, more precise decision-making based on reliable data.

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1. Introduction

The rapid advancement of information technology and the internet has influenced various aspects of human life [1]. Along with the development of Industry 4.0, business actors are encouraged to expand their businesses by enhancing internet-based information services [2]. Every year there are various new innovations in technology development [3]. One form of technological development is the existence of Information Systems [4]. Information systems are used in various fields, including finance, business, education, health, and others [5]. In the context of the current digital economy, local business actors, especially leather craftsmen such as Onemens Leather, are required to be able to adapt to technological changes in order to remain competitive in the market. One of the main challenges faced by these business actors is in managing finances and goods efficiently. Management that is still carried out manually not only complicates the recording and reporting process, but is also prone to human error, inaccurate recording, and lack of adequate data integration [6]. Effective information management plays a crucial role in supporting business operations as it assists management in decision-making. Therefore, it is necessary to upgrade from a

manual system to a web-based information system to enable the company to deliver information more easily and allow consumers to access it more cost-effectively[7].The use of information technology is expected to accelerate the process that was initially complex to become simpler [8].

Financial and product management is an integral part of the management information system, where a good information system must be able to support the organization's core business processes, including in the aspects of planning, controlling, and decision making. One of them is through the development of a website that has a very significant role [9]. The use of a web-based management system is the right solution for businesses such as Onemens Leather, which has been actively marketing its products through e-commerce platforms such as Shopee and Lazada. One of the tools that can be used to support data-based decision making in a management information system is Business Intelligence (BI) [10]. BI is a series of processes for collecting, analyzing, and presenting company operational data into useful information that is easy for decision makers to understand. With BI, business actors can identify sales patterns, product trends, and stock management efficiency more accurately[11]. In addition, the Onemens Leather store being managed will become more streamlined and efficient [12].This convenience allows decision makers to see transaction data that has been processed and presented in an informative and easy-to-understand visual form, through a system often referred to as a dashboard [13]. To ensure that the information system developed is able to continuously adjust to user needs, a web-based system development approach with the Agile Development method is the right choice.

This study refers to the theory of integrated information systems and the Agile approach as a foundation in designing a web-based financial and product management system. Agile Development provides the flexibility needed to accommodate changing feature requirements and an ever-evolving market [14] [15]. For the project team, changes to project objectives can be very challenging if not managed with a clear sequence of activities [16]. In its implementation, this system was developed using HTML and PHP programming languages by utilizing the Laravel framework, which is known for its ability to build structured and efficient websites. Meanwhile, MySQL is used for data management as its database management system. The research results show that the implementation of this system makes it easier for users to monitor and print inventory data, thereby serving as an efficient control tool in the warehouse department [17].The main objective of this study is to design and implement a web-based information system that can help Onemens Leather manage financial transactions and product inventory in a more structured and integrated manner. Timely stock availability, accurate monitoring of stock movements, and efficient order management are some aspects that need to be improved [18]. This allows for quick corrective action to avoid shortages or excess stock that can disrupt smooth operations [19]. Manual data entry into Microsoft Excel is time-consuming and does not allow multiple warehouse admins to work simultaneously, increasing the risk of errors and delays in report generation [20]. Without a structured automated system, store owners will face difficulties in tracking stock availability and identifying products that need to be restocked promptly [21].This objective is based on the hypothesis that the implementation of a web-based system can improve operational efficiency and data management accuracy, while the use of the Agile method in its development allows collaboration and evaluation of each other between teams with a short development time [22]. The argument underlying the first hypothesis is the ability of web-based systems to provide real-time and centralized data access, which is very important in the context of today's digital business. Meanwhile, the second hypothesis is supported by the basic principles of Agile which emphasize team collaboration, continuous testing, and rapid iteration, all of which contribute to the creation of a user-oriented system that is ready for long-term use.

2. Research Method

This study uses the Agile Development method as the main approach in the design and development process of the Onemens Leather financial management and product system. The Agile method is a software development strategy that has been proven effective in accommodating changes in user needs quickly and dynamically, because each iteration or sprint produces system output that can be immediately tested and evaluated with users [23]. This approach is very suitable for use in system development for MSMEs because it provides high flexibility in project planning and execution [24].

The Agile method facilitates active communication between the development team and stakeholders, so that the resulting system will be more in line with business needs. In the context of this study, the Agile method was chosen so that the system development process can be carried out in stages, starting from planning, interface design, module development, to testing and implementation. By involving the Onemens Leather business owner directly, each stage in Agile ensures that the development results can truly be applied according to the operational flow of the business.

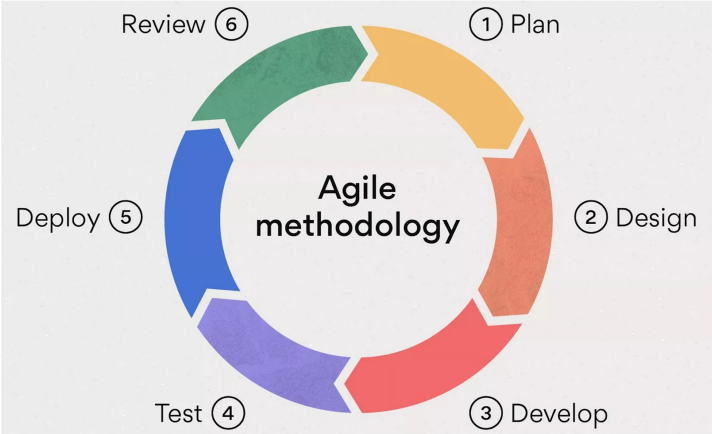

Figure 1. Agile Methodology

The Figure 1 above shows the six main phases in system development with the Agile method, namely: Plan, Design, Develop, Test, Deploy, and Review [25]. In the Plan phase, partner searches, project plans are prepared, and system requirements are collected directly through discussions with Onemens Leather. Furthermore, the Design phase focuses on creating wireframes, prototypes, and UI/UX designs by considering design references that are in accordance with business characteristics.

After the design phase is complete, the Develop phase is carried out by building the system in stages from the front-end and back-end, followed by data migration into the database system. This phase is then followed by the Test phase, where the system is tested using black-box testing methods and evaluated by the Onemens admin. In the Deploy phase, the system is officially launched and handed over to Onemens Leather. While the last phase, Review, is carried out to fix bugs and compile the final documentation of the project as part of the overall responsibility for system development.

3. Result and Discussion

The web-based financial and product management information system developed for Onemens Leather aims to assist business owners in managing inventory data and sales transactions more efficiently and in a structured manner. The system development is carried out in stages using the Agile Development approach, which allows for iterative and collaborative processes between developers and users. This system is designed to meet the operational needs of small and medium-sized enterprises (SMEs), prioritizing ease of access, accuracy of record-keeping, and integrated business analysis features. Through this system, business owners can input, update, and monitor stock levels in real time, minimizing the risk of human error and ensuring better control over product availability. Sales transactions can also be recorded automatically, enabling faster reporting and reducing the workload of manual bookkeeping. The financial module provides comprehensive income and expense tracking, giving users a clear view of the business's financial health at any given time. In addition, the system is equipped with dashboard features that display sales trends, best-selling products, and monthly financial summaries, making it easier for users to make informed business decisions. The use of web-based technology also allows the system to be accessed from various devices and locations, increasing flexibility and business continuity even when the owner is not on site. Security and user-level access control are also implemented to protect sensitive business data. By automating various business processes and providing real-time data insights, this system is expected to improve productivity, reduce operational costs, and enhance decision-making quality for Onemens Leather. Ultimately, this digital transformation supports the business in becoming more competitive and adaptive in an increasingly digital economy.

3.1. Plan

In the Plan stage, the process begins by identifying and determining the partners who require an information system, with Onemens Leather being chosen as our partner. Next, project planning is carried out, including defining the scope of work, estimating time, dividing tasks among the team, and creating an Agile-based development timeline. Intensive meetings and discussions with the partner are held to explore their specific needs, including the types of data to be managed, existing business processes, and essential features

required in the system. The results of these discussions are then summarized in a system requirements document, which serves as the primary reference for the next stage. Additionally, the initial concept for the website development scope, target users, and system objectives is outlined. The development team and Onemens Leather's business owners create a backlog of priority features to be developed iteratively, ensuring that the development process remains well-structured. Figure 2 shows the Structural Diagram illustrating the flow and main components of the website.

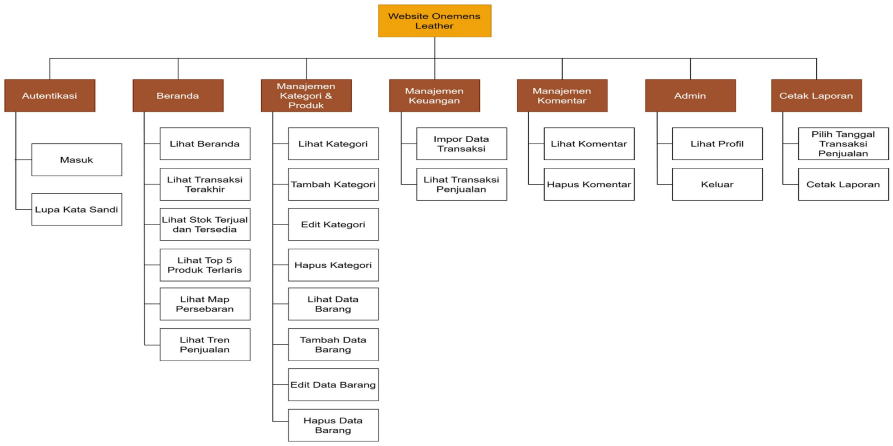

Figure 2. Structural Diagram

3.2. Design

The Design stage in Figure 3 is a continuation of the Plan stage, focusing on the detailed design of the system's visual aspects and structure. In this stage, interface design references are gathered from various sources to ensure a modern, responsive, and user-friendly final outcome. Following this, an initial wireframe is created to illustrate the page layout and the relationships between components within the system. This wireframe is then developed into a more detailed UI/UX design, covering layout, color schemes, typography, iconography, and menu navigation tailored to Onemens Leather's business characteristics. In addition to UI/UX design, an interactive prototype is also created using design tools to simulate the system's usage before the development stage. This design process is crucial for obtaining early feedback from the partner, allowing for improvements and adjustments to be made earlier before moving on to the coding stage.

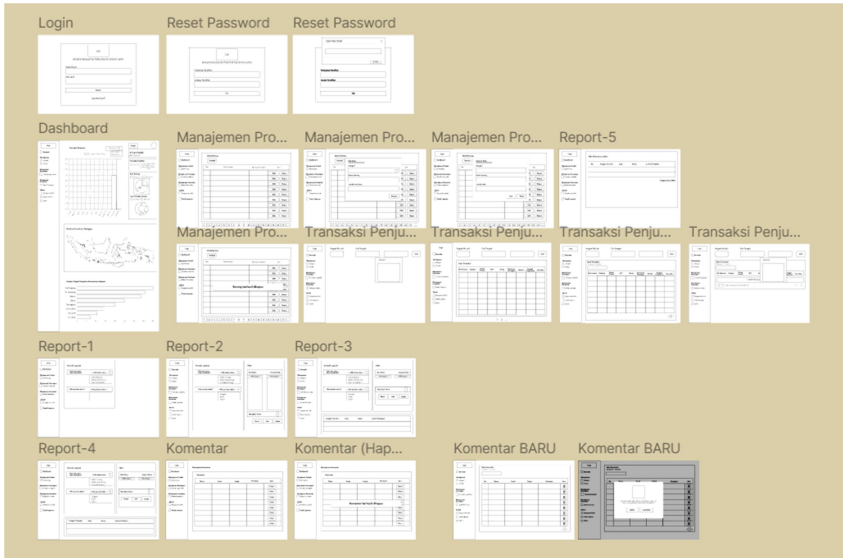

Figure 3. Wireframe

3.3. Develop

The Develop stage focuses on system development, starting from the development of front-end and back-end components, as well as data migration into a new database. On the front-end side, an intuitive and easy-to-use user interface was developed, including dashboard pages, category management, product management, transaction recording, report printing features, and admin profile settings. On the back-end side, a system was designed that is able to manage transaction and inventory data efficiently using the Laravel framework. In addition, integration is carried out between the MySQL database and the application to ensure that data storage and retrieval run smoothly. Thus, the develop stage plays an important role in realizing the concept into a product that is ready to be used by end users.

The dashboard feature display in Figure 4 is an implementation of the business intelligence (BI) concept that presents Onemens Leather operational data in the form of easy-to-understand visualizations. This dashboard displays monthly and annual sales transaction graphs, best-selling product trends, and transaction history with the highest number of purchases, providing a quick overview of sales dynamics and consumer preferences. In addition, there is a pie chart for stock availability, a doughnut chart of the five best-selling products, a product category graph, and an interactive map of customer distribution in Indonesia. All of these visualizations support data-driven decision making and can be printed in PDF format, so the dashboard serves as a strategic tool for monitoring business performance in real-time.

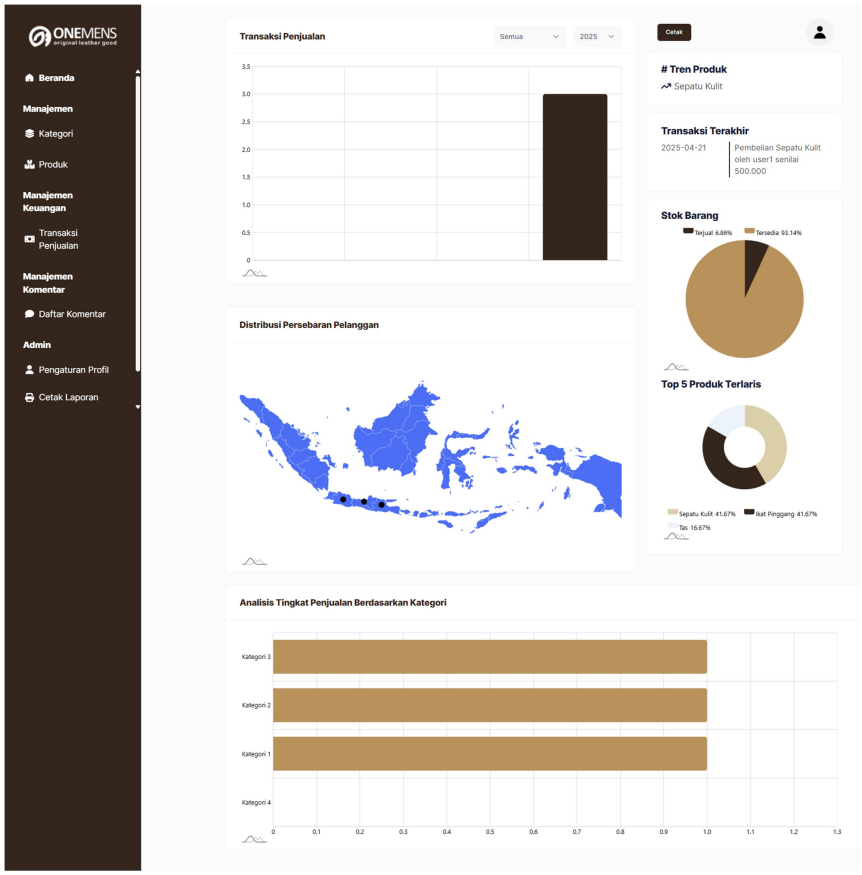

Figure 4. Dashboard Feature

The management features for categories and products shown in Figure 5 and Figure 6 allow for structured item management, where users can add, modify, or delete product categories and set their active or inactive status using a switch button. On the product page, a complete list of items is displayed, including product codes, names, categories, stock, total sales, and status, along with editing, deletion, filtering, and search features to simplify navigation. This feature plays a crucial role in maintaining the accuracy and efficiency of inventory management in line with market demands and business conditions.

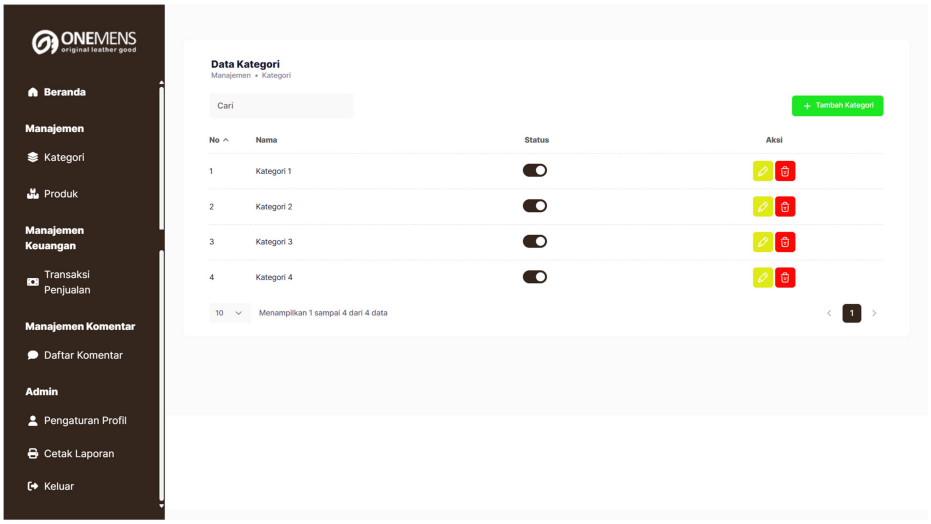

Figure 5. Category Management Feature

The **Category Management** feature is designed to help administrators manage and organize products or services into specific categories for easier navigation and data management. Through this feature, users can add, edit, or delete categories according to their business needs. This simplifies inventory classification and improves the user experience by enabling faster product searches and filtering. The feature also ensures that every item is placed in its appropriate group, allowing for better reporting and analysis. With a structured categorization system, businesses can maintain consistency in product management and enhance the overall efficiency of operational processes.

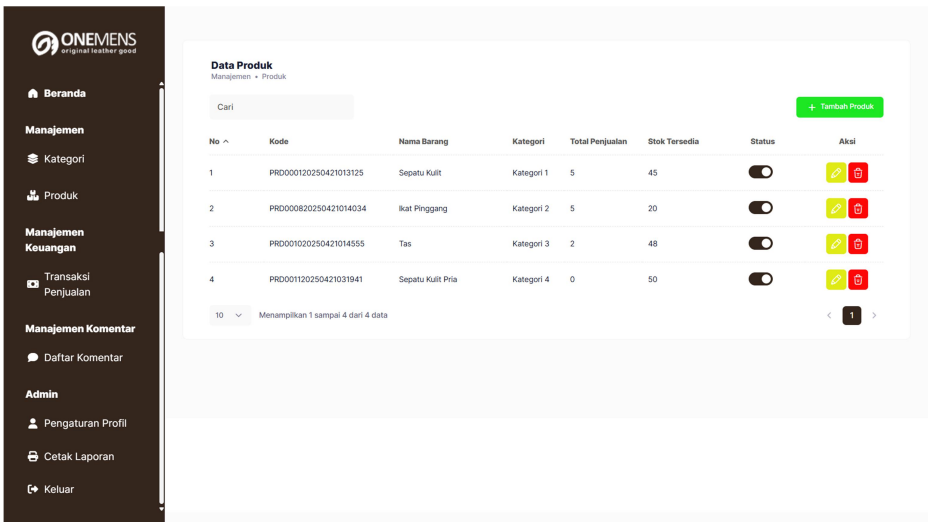

Figure 6. Product Management Feature

The sales transaction management feature shown in Figure 7 allows for detailed and user-friendly transaction recording. Each transaction includes data such as transaction code, customer name, category, product name, quantity purchased, price, as well as address and shipping date information. This recording process is designed to support the needs of SMEs in quickly and systematically recording daily sales activities. One key feature on the transaction page is the ability to import sales data directly from an Excel (.xls) file. This is especially useful when users want to migrate previous transaction data or record multiple transactions at once. With this feature, the data entry process becomes more efficient and minimizes manual recording errors. The system also provides filters based on dates, allowing users to search through transaction history by a specific time period.

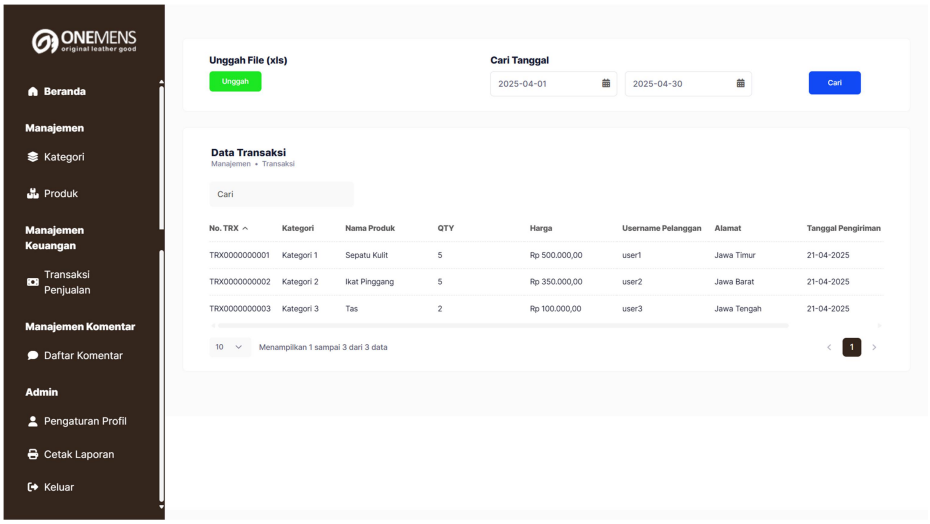

Figure 7. Sales Transaction Management Feature

The print report feature display in Figure 8 is designed to support business documentation and reporting needs. Through this feature, users can select the type of report they want to generate, such as stock reports, product list reports, and sales transaction reports. After selecting the type of report, users can determine the report period based on the date, month, or year, according to the information they want to obtain. The generated report will be displayed automatically in a neat table view and ready to be downloaded or printed in excel format. This feature is very helpful in compiling administrative documentation, financial reports, and periodic operational evaluation needs. Thus, this system not only facilitates daily operational processes, but also supports professional business accountability and reporting.

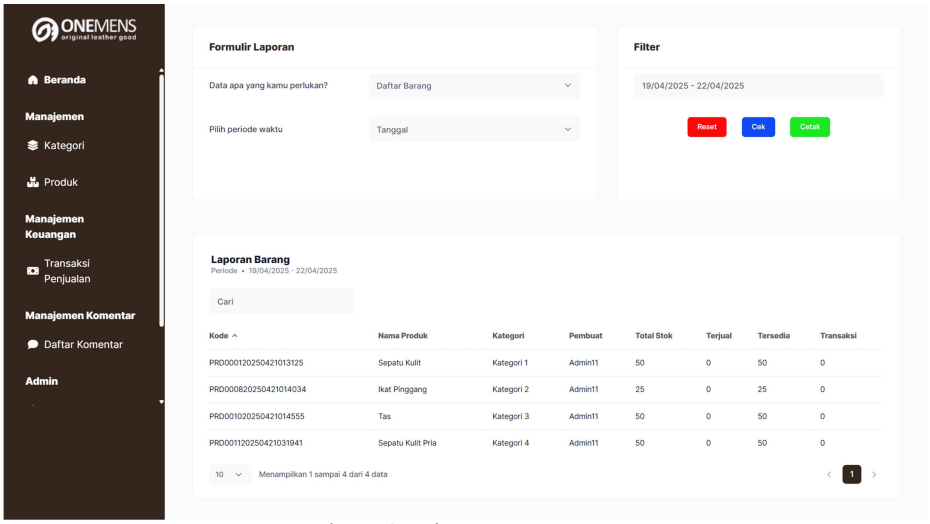

Figure 8. Print Report Feature

3.4. Test

After the development of each iteration is completed, system testing is conducted to ensure that all functions operate according to the requirements. The testing focuses on aspects such as website functionality, data security, responsiveness, and the integration of features within the Onemens Leather website. In practice, the testing method uses a black-box testing approach, where the testing is focused on validating the output based on the provided input, without considering the internal structure of the program code. This approach helps detect errors in the system workflow, data validation failures, and potential bugs in feature

integration. The results of the testing serve as a crucial reference in the debugging process before the website enters the deployment stage into the production environment.

Table 1. Black Box Testing

Type of Testing	Test Results (As Expected)	(Not As Expected)
Login Page	✓	
Forgot Password Page	✓	
Home Page	✓	
Management Page	✓	
Category CRUD Page	✓	
Product CRUD Page	✓	
Sales Transaction Page	✓	
Delete Comment Page	✓	
Profile Settings Page	✓	
Print Report Page	✓	
Logout Page	✓	

Based on the results of the black-box testing that has been carried out in Table 1, it can be concluded that the website-based sales system for Onemens Leather has successfully met all test criteria with perfect results, namely 100% success. Thus, this system is considered ready to be used in business operations, and is expected to be able to improve the efficiency of product and financial management at the Onemens Leather store.

3.5. Deploy

At this stage, the system that has been developed and tested is then implemented into the production environment so that it can be used directly by users. In the Onemens Leather website development project, the deploy stage is carried out by uploading all program codes and supporting components to the prepared hosting server, as well as configuring the domain so that the website can be accessed widely. This process is carried out in stages following the Agile principle, where each stable feature is immediately implemented without waiting for the entire project to be completed, so that users can immediately feel the benefits of the developed system. To ensure the success of the deploy, a series of steps are taken such as data backup, post-migration system validation, and website performance monitoring to identify potential obstacles early on. With structured deploy stages, the Onemens Leather website is ready to support online business operations faster, adaptively, and according to user needs.

3.3. Review

The review phase focuses on assessing whether the deployed features meet user needs, run according to expectations, and do not cause technical problems. This review process involves system demonstrations, collecting feedback from stakeholders, and open discussions about what is going well and areas that need improvement. The feedback obtained is used as a basis for improvement in the next iteration, so that system development remains adaptive to changing needs and continuously improves product quality. Through this review phase, the Onemens Leather website can be continuously adjusted and refined to support business operations more effectively and responsively.

4. Conclusion

This study produced a web-based financial and product management information system designed to support the operations of the Onemens Leather MSME by applying the Agile Development method. The

system is capable of managing transactions, inventory, and business reporting in a more structured manner through features such as a dashboard, flexible product management, integrated transaction recording, and periodic report generation, thereby supporting data-driven decision-making. Digitalization through this system has proven to be a strategic solution to overcome the challenges of manual management and can be adapted to various MSME sectors, such as culinary, fashion, and creative services. Furthermore, the system enhances operational efficiency by automating key processes and reducing the risk of human error. This automation allows businesses to focus more on strategic growth and customer engagement rather than time-consuming administrative tasks. In the future, the system has the potential to be further developed by adding integration features with e-commerce platforms. Further research could also explore the extent to which the system fosters data-driven decision-making habits among MSME actors and assess its scalability when applied to larger-scale businesses.

Acknowledgement

With heartfelt gratitude, the author would like to express sincere thanks to Allah SWT for His blessings and guidance, which have enabled the completion of this work. Special appreciation is also extended to the academic advisor for their valuable guidance and direction, to the Onemens Leather team for the support and opportunity provided, and to the author's family and friends for their continuous prayers, encouragement, and moral support. The author acknowledges that this work is still far from perfect, and therefore welcomes any constructive criticism and suggestions for future improvement.

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