

**IMPLEMENTATION OF A WEBSITE-BASED APPLICATION TO
OPTIMIZE THE RICE COMMODITY SUPPLY CHAIN USING THE
WATERFALL METHOD**

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ABSTRACT

The current rice supply chain still uses traditional methods, such as selling their rice harvest through middlemen. This results in suboptimal rice selling prices due to the presence of middlemen who take a larger profit, resulting in relatively low prices for farmers. Although agricultural sales systems have been developed in previous research, these systems still have limitations in terms of the number of seller roles, a less specific transaction flow, and the lack of communication features for farmers and buyers. These problems prompted the development of a website-based rice harvest sales system as a solution to support the process of simplifying the process of selling farmers' crops without going through middlemen. This research applies the waterfall method with the stages of requirements analysis, system design, implementation, testing, and maintenance. The system design includes ERD, UML, and interface design using Figma. The system was developed using the PHP programming language and the Laravel framework and MySQL database. The developed system provides sales features, a shopping cart, chat, and an admin dashboard to monitor local agricultural productivity. System testing was conducted using the black box method with the equivalence partition technique to ensure all input fields function according to predetermined requirements. The black box testing achieved 100% success. The usability test used the System Usability Scale (SUS) and yielded a score of 69 for the admin, 65 for the farmer, and 67.5 for the community. The scores for these three roles were considered OK. The evaluation results showed that the system can simplify the process of selling rice harvests directly without going through middlemen, thus helping farmers obtain a more optimal selling price.

Keyword: Website, Laravel, MySQL, Waterfall, Black Box Testing, Equivalence Partitioning