

ABSTRACT

Fishing is a vital sector in the economy of coastal communities, where fishermen often face challenges in improving the technical efficiency of their fishing gear. With technological advancement, the utilization of the Internet of Things (IoT) emerges as a potential innovation to enhance the productivity and efficiency of fish harvesting. One such innovation is the Electronic Fish Attractor (ALPIN), which incorporates IoT technology by combining audiosonic signals and LED lights to attract fish within a specific range. This technology is expected to have a positive impact on increasing fishermen's productivity.

This study, entitled "Economic Feasibility Analysis of IoT Based Electronic Fish Attractor," aims to evaluate the economic viability of ALPIN through a feasibility analysis that supports the improvement of its Technology Readiness Level (TRL) from level 6 to level 7, thereby enabling ALPIN to enter mass production.

The research method employs a capital budgeting approach, which includes the calculation of Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period (PP). In addition, a sensitivity analysis was conducted to identify key variables that significantly affect the project's feasibility. Primary data were obtained through interviews with the ALPIN development team and target users (fishermen), supported by secondary data from the Ministry of Marine Affairs and Fisheries, the Central Bureau of Statistics, and community service project proposals. Production cost analysis was conducted using the Bill of Materials (BOM) method, while market potential was estimated using the market sizing approach based on TAM, SAM, and SOM.

The research results showed a positive NPV of Rp 1,338,381,243, an IRR of 48%, and a Payback Period of 3 years. Sensitivity analysis showed that changes in product sales volume and cost of goods manufactured were the most sensitive factors to project profitability.

This research contributes significantly to the development of IoT-based fisheries technology, supporting the achievement of SDG 9 (Industry, Innovation, and Infrastructure) and SDG 14 (Life Below Water). It is recommended that the development of ALPIN proceed to commercialization through collaboration with local governments and fishermen's groups. Further research is suggested to expand the regulatory aspects and technology adoption strategies to enhance the success of its nationwide implementation.

Keywords: *Capital Budgeting, Economic Feasibility, Electronic Fish Attractor, IoT, Sustainable Development Goals (SDGs).*