ABSTRACT

Keripik Tempe Pesantren X Business Unit is one of the Micro, Small and Medium Enterprises (MSMEs) in the culinary sector. Of the total production produced by business units in the last 10 months, there have been high fluctuations in demand due to the less precise marketing techniques chosen. Fluctuation in market demand became a problem since the business unit does not know the maximum production capacity in accordance with the capacity of the resources they have. Scenario that adjusts to the resources they have could help in designing production plans that are more stable and profitable for the business.

The aims of this study were (1) to describe the elements that build a production system for Keripik Tempe Pesantren X Business Unit, (2) to create a simulation model for production, marketing, and financial systems for Keripik Tempe Pesantren X Business Unit, (3) to determine the minimum production volume to gain breakeven point, (4) determine the optimal alternative production, marketing and financial scenarios, (5) choose the best alternative scenario in accordance with the resources owned by the business unit.

This study uses a system dynamic simulation approach that starts with identifying variables, defining structures and relationships in the model, model validation, then simulation. The minimum production volume simulation result is 5 kg, and this result is used to map production scenarios into pessimistic, moderate, and optimistic scenarios. From the simulation results, the best scenario is optimistic scenario 2 with order volume of 10.1 kg/month, the number of consignment products is 5 kg/month, and the use of Facebook Ads 6 times/month which in its implementation requires an additional 1 employee. This scenario is expected to achieve an average sales of 12.7 kg/month, with a total profit of IDR 23,727,800 in 2 years.

Keywords— **Business simulation design, system dynamic model, production volume capacity design, profit optimization.**