Technopreneurship As A Solution For Micro Enterprises To Survive And Growth: Case Study In Kayumas Village -Situbondo Regency- East Java – Indonesia

Elsye Tandelilin^{1*}; Elieser Tarigan ²; Hazrul³; Sulistiyaningsih⁴; Yasmini Suryaningsih⁵; Ani Listriyana⁶

1,2,3</sup> University of Surabaya-Surabaya; 4,5,6 Abdurahman Saleh University-Situbondo

Correspondence Email: elsye.tandelilin@gmail.com

EXTENDED ABSTRACT

Technological developments greatly influence business progress today. Surviving in complex environments, micro, and small businesses need to adopt various technologies to produce more efficiently (Slavec Gomezel & Rangus, 2019). Most micro enterprises are still carrying out incremental innovation due to the changes in customer desires/needs and also focus on the short term.(Wibowo et al., 2022). Limited capital is the main obstacle for SMEs, even though the government and banks have supported them. Micro-enterprises rarely allocate their budget to technology (Dwiyanti, Topril, Satria 2015). Technopreneruship is one solution for the case and also increases efficiency and effectiveness. The combination of entrepreneurship and technology known as technopreneurship, is the innovative application of technical knowledge both individually or by a group of people, who create the business and take financial risks to achieve their goals. (Fowosire et al., 2017).

The existence of technopreneurship encourages the success of an entrepreneur. It creates innovation, and abilities to adapt to market needs and business growth (Andonov et al., 2021). However, the use of technology can cause a technopreneur failure also, due to a lack of technological competence, inability to adapt to technological developments, and limited funds to upgrade (Wang et al., 2023). It is an interesting gap to be researched, whether the implementation of technopreneurship in Kayu Mas Village triggers the entrepreneur's success or vice versa.

Kayu Mas Village is one of the villages that produce ginger, which is still sold raw without processing. Before 2019, ginger production could reach a total production of 10,740,000 kg. Meanwhile, in 2020, production decreased by 306,000 kg, which was caused by high humidity and excessive use of fertilizer, which triggered the emergence of the Fusarium s.p. fungus. The Fungus causes ginger to rot before it is harvested. Ginger is sold in the form of raw material without processing, which is very cheap with a per kg value of around IDR 7,000/kg. However, farmers are constrained by the weather, especially during the rainy season, so drying ginger is difficult. Through a simple drying technology, it is hoped can increase the efficiency and effectiveness of ginger farmers and increase its economic value. The study aims to describe how technological innovation can scale up micro-businesses in Kayu Mas Village-Situbondo District – Indonesia. Based on the phenomena, we address the research question: how does the innovation technology scale-up micro-businesses in Kayu Mas Village-Situbondo District? The qualitative approach was employed in this paper. According to (Creswell & Poth, 2018). Qualitative research is a means for exploring and understanding the meaning individuals or groups ascribe to social or human problems". This research uses a single case study where the researcher focuses on one case through detailed and in-depth data collection involving

various information (observations, interviews, audio-visual materials, and documents from many reports)(Creswell & Poth, 2018).

A simple schematic of a hybrid solar dryer that relies on a solar heat source can help overcome problems in drying. The dryer processes can be seen in Figure 1 below

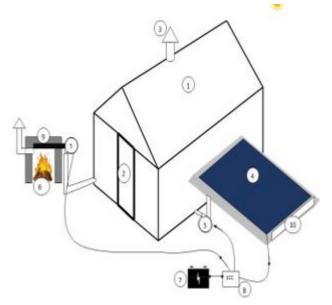


Figure 1: Schematic of hybrid solar dryer

Dryer Components:

- 1. The drying room is make of transparent polycarbonate for its roof wall.
- 2. Loading door
- 3. Chimney for moist air out
- 4. Solar cells for solar collector
- 5. Hot air blower
- 6. Biomass/firewood
- 7. Battery
- 8. Solar Charge controller
- 9. Biomass burner
- 10. Fresh air inlet

In this project, a hybrid solar dryer is employed. The schematic diagram for the dryer can be seen in Figure 1. The dryer features a drying chamber with transparent polycarbonate walls and a roof. Additionally, it utilizes a solar thermal collector to generate hot air, which is then circulated into the drying chamber using a blower. Notably, the solar collector is constructed from solar photovoltaic (PV) panels, enabling it to produce both heat and electricity.

This dryer operates as an active system, where a dedicated electric fan or air blower circulates the drying air. The power for the air blower is supplied by solar panels, which are connected to a battery storage system. During operation, the product to be dried is loaded onto racks in the drying chamber through the loading door.

The primary source of heat is expected to come from solar radiation during daylight hours. However, in cases where solar radiation is insufficient due to adverse weather conditions or during nighttime, a biomass backup heater can be employed. As a result, continuous drying can be sustained until the product is fully dried

The implementation of systematic hybrid solar dyer results in a significant economic impact as seen in Table 1

Table 1: Comparison of solar dryer implementations

| Before | | | After | | |
|----------|--------|-----------|------------|----------------|----------------|
| Price of | Volume | Total | Price of | Volume | Total Revenue |
| Raw | | Revenue | Dry Ginger | | |
| Ginger | | | | | |
| IDR | 250 kg | IDR | IDR | 125 kg (ginger | IDR.10.000.000 |
| 7.000/kg | | 1.750.000 | 80.000/kg | mass decreases | |
| | | | | due to drying) | |

| Drying Time | |
|-------------|----------|
| Before | After |
| 5-7 days | 2-3 days |

Source: Observation and Interview, October 2023

The results in Table 1, show that there is an economic value in increasing ginger production, after using the systematic hybrid solar dryer, so the profits of micro-enterprises increasing also. The recommendation for further research is to examine customer satisfaction related to product quality and the impact of systematic hybrid solar dyer technology on the welfare of local communities.

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