

## Development of Endek Innovation in Encouraging Digitalization of MSMEs

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**ABSTRACT:** Endek cloth is a cultural heritage on the island of Bali and even an icon of Bali, which was first introduced in Gelgel, Klungkung Regency but is currently experiencing a decline in interest in producing it. This makes this service carried out in order to be able to provide encouragement for innovation to green products, care for the green environment, the use of natural dyes with the utilization of environmental waste, and concern for the environment related to pollution, with the aim of encouraging promotional strategies so that businesses will be sustainable. The method in this service is qualitative observation, involving owners as business actors, workers, and users in obtaining information. The results of this study provide encouragement to innovate more varied products by using environmentally friendly colors from nature, then utilizing organic waste that can produce natural colors so that it will reduce environmental pollution. Green product innovation is also balanced with STP (Segmentation, targeting, and promotion), Tini Zhop after getting support in product innovation into green products also promoted to millennials by promoting to students by conducting online promotions and exhibitions to campuses.

**KEYWORDS:** Endek Cloth, Green Environment, Green Products, Zero Waste Concept, Digitalization

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### INTRODUCTION

Various industries that are developing in Bali include the food and beverage industry, traditional medicines, fashion and others. According to the Department of Industry and Trade, one of the leading commodities of Bali Province is the ikat weaving craft industry that produces endek cloth. Endek cloth is a typical Balinese ikat woven cloth made by weaving traditionally using a Non-Machine Loom (ATBM). Based on data obtained from the Department of Industry and Trade of Bali Province in 2015 there were 179 endek industries developing in each district.

The existence of tight business competition demands the ability to carry out a productive and efficient business management process as possible, and can produce products or services that are in accordance with market preferences with better quality standards compared to competitors (Sulistyaningsih, 2023). The endek cloth industry is expected to create and maintain competitive advantages in businesses run by small Ndek cloth industry players.

Jayarathna et al. (2023), stated that business sustainability can also be generated from the implementation of value creation strategies that are not implemented simultaneously by competitors.

Adoption of this technology is a form of strategy to help companies maintain their survival (Mishrif & Khan, 2023). Ndek cloth entrepreneurs need to create product excellence by analyzing competitors to find out information about competition in the market (Duwalang and Santika, 2020). In order to win a competition, in marketing products today, producers are not only based on product quality, but also rely on strategies generally used by companies, namely innovation (Bataneh et al., 2024) and digital use (Li et al., 2023). Innovation can increase the added value of a product. Innovation is considered important for companies because the main key to winning the competition is to create innovation. Companies must be able to make products different in the eyes of consumers so that consumers are more interested in buying these products than competitors' products (Setini et al., 2020).

Research conducted by (Agustian et al., 2023) shows that innovation can also be used as a strategy in achieving competitive advantage. This statement is supported by research by Alkhatib & Valeri (202); and Mady et al. (2023), which proves that there is a significant positive influence between innovation and competitive advantage. For companies, their success in innovating means that the company is one step ahead of its competitors. Companies need to know their customers' tastes so that the innovations they make ultimately match their customers' desires.

Currently, the phenomenon of environmental concern can play an important role in creating the value of a product, green products for Endek cloth can be produced from the use of natural colors. The business world is now starting to adopt new thinking, where the use of technology is referred to as one of the factors in realizing sustainable and highly competitive company economic growth. Supported by research (Santikayasa et al., 2014), it is said that the environment has an impact on sustainability in every development planning process, which has the same meaning as a pattern of change towards innovation so that in carrying out innovation, especially for a product, the impact on the environment becomes a management risk that must receive special attention.

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Technology itself is a creative and innovative ability that is used as a basis, tips and resources to find opportunities for success (MartínRojas et al., 2023). A business owner who has and uses technology will produce good performance for the company itself (Hadi et al., 2023). By having good technology from business actors, the company is considered capable of developing compared to competitors.

The Tini Zhop Group consists of the surrounding community, namely in Dusun Tengah, Gunaksa Village, Dawan District, Klungkung Regency, Bali, who are over 40 years old. The Head of the Ibu Tini Group invites mothers and fathers to become weavers in addition to empowering the elderly, another goal is so that the abilities they have are transmitted to the younger generation and do not become extinct. So far, the products produced have had various patterns and motifs and have started to use digital marketing.

**Table 1. Types of Ndek Fabric Products and Prices**

No	Product	Harga (Rp)
1	Clutch Bag	Rp. 550.000
2	Ndek Bag	Rp.650.000
3	Cotton Outer	Rp. 300.000
4	Ndek Outer	Rp.350.000
5	Short Wallet	Rp. 350.000
6	n's Short Lubeng Shirt	Rp. 700.000
7	Men's Short Ndek Shirt	Rp.700.000
8	Ndek Cloth	Rp.450.000

What Mrs. Tini did in making Ndek cloth is as follows?

1. Selection of Raw Materials

In making Ndek cloth, dyes and cloth are needed. Mrs. Tini and her group dye the thread purchased from their regular supplier.

2. Spinning Yarn

As we mentioned above, this woven fabric is made with white thread. The initial process begins with spinning the thread. Then the thread is stretched onto a special tool.

3. Making a motif

After the yarn is spun, the next stage is making a motif from the woven fabric. This is done by tying the spun yarn with raffia rope to form a desired pattern or motif pattern.

4. Giving Color

Yarn dyeing is usually done several times according to the number of colors applied to the fabric motif. When the yarn is dry, then these threads are set aside one by one arranged according to the pattern. This stage requires the highest concentration, because if a thread is not arranged according to the pattern, the weaving stage will be very difficult and chaotic.

5. Weaving Cloth

The last stage is the weaving stage, the threads that have been set aside and arranged earlier will be woven directly with a non-machine loom (ATBM). Well, those are the stages of the process of making Balinese woven cloth. Hopefully this article is useful for you.

Business owner Tini Zhop has 15 weavers in the process its manufacture sometimes still has many obstacles, especially in product color design, and marketing. Based on observations in the field, the obstacles experienced by Mrs. Tini are related to the ability of the artisan group which is not yet optimal in product innovation, especially product color design by utilizing environmentally friendly natural colors, digital adoption by artisans, and for digital marketing still using conventional marketing so that it is less effective and efficient.

## METHOD

This research is a qualitative research with data collection techniques are observation and interviews, where the sample in this study is the head of the Tenun Ndek group, members and the community as users. With the analysis technique as follows:

1. Observation

The first phase of this community partnership program begins with activities, joint observation with partners, namely the Kain Ndek business group. Observation activities are the process of observing and recording information about an object, situation, or phenomena systematically and carefully. Initial observations were made with see the production activities in the business group. This observation aims to analyze the current situation regarding the group and identify problems faced by the group. Based on the problems partners then the activities agreed to be completed during the implementation PKM program is as follows: 1) partners do

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not yet have the capability green product innovation, 2) Partners have not maximized digital adoption, 3) partners need to strengthen digital marketing 4) production tools used still limited.

2. After the observation is carried out, it is continued with FGD (Focus Group Discussion). FGD is a method used to collect information directly from ndek cloth craftsmen group as partners participating in the discussion

3. Implementation, this stage is implementing the mentoring and training program related to the problems faced by partners. This stage is to provide knowledge related to the problems faced by partners from the results of observations and FGD.

4. Evaluation is the final stage of this community service program.

## RESULTS AND DISCUSSION

### Implementation of Mentoring

Mentoring methods are used to be able to compete in the digital era innovation must be carried out especially in relation to product development and marketing but earlier is the focus on the product, there is product development Green makes endek cloth craftsmen able to attract the interest of consumers. Increasingly aware of environmental sustainability.

Figure 1. Product Innovation and Marketing



Figure 2. Green Product Innovation and Environmental Sustainability



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The results of implementing this service are:

### Green Product Innovation

Innovation Product a way to create new products that are intended to meet consumer needs and desires, allows buyers to buy products as expected (Setini et al., 2020). However, product innovation is not always related to products. Endek cloth craftsmen are advised to use environmentally friendly raw materials, such as silk and organic cotton, these environmentally friendly raw materials will make products endek cloth is of higher quality and more in demand by consumers. Delivered a green product only using natural materials, but more importantly industrial or managed businesses are able to utilize or process their waste. Waste processing by industry will produce cleaner production, thereby reducing exploitation of natural resources natural power (Muliarta and Darmawan, 2021).

*“Waste management is an obligation for industry, as part of waste management based on sources, in accordance with the policies of the Bali Provincial Government. Waste management by industry is also an effort to implement the zero waste concepts,”* Muliarta emphasized. According to Muliarta, if the industry is able to implement green products, it will provide added value to the products produced. The price of the product produced too will be offered higher because it has added value compared to other similar products.

*“Challenges in the world of industry, especially fashion, today is being able to contribute to reducing greenhouse gas emissions which trigger global warming global. Moreover, the fashion industry contributes to global carbon emissions reachin 8%”,* according to Santikaysa.

*“Unconsciously we are responsible for what happens, so it's time to using natural materials to reduce emissions. Not to mention to that fashion has an impact on environment,”* said Santikayasa.

Figure3. Colourful Endek



Make one piece clothing requires 2,700 lit. So it is very clear

### Products and Marketing Strategy

The current era of technology forces us to be able to compete in the digital era, innovation is a must done primarily in relation to product development and marketing but earlier was Focus on products, developing green products enables endek cloth craftsmen to attracting the interest of consumers who are increasingly aware of environmental sustainability. Green products have a higher selling value compared to regular products," he explained. It was also said that product development must first be initiated with STP (Segmentation, Targeting, and Market Position) to be targeted. The existence of STP will make it easier to use digital media as a promotional medium, but before this is done, of course, the main basis for creating different products is or differentiated products, one of which is green products, which is one way to developing green products is by using natural dyes that come from plants. These natural dyes are not only environmentally friendly, but also produce colors that are more beautiful and durable. Segments formed from ndek products will facilitate the achievement market, namely to digitalization.

Direct marketing can be done through exhibitions – Special exhibitions such as those carried out by Tini Zhop carry out marketing strategies by promoting through exhibitions on campus where the target is millennials to love environmentally friendly products, plus the adoption of digital, namely use of *WhatsApp, IG, Facebook and E-commerce* media, the existence of green product innovation is certainly will encourage the creation of Brand Image, with the market segmentation being the millennial generation who are tech-savvy are seen in figure 4 below.



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Figure 4. Promotion through Exhibitions



Figure 5. Promotion through Online Media

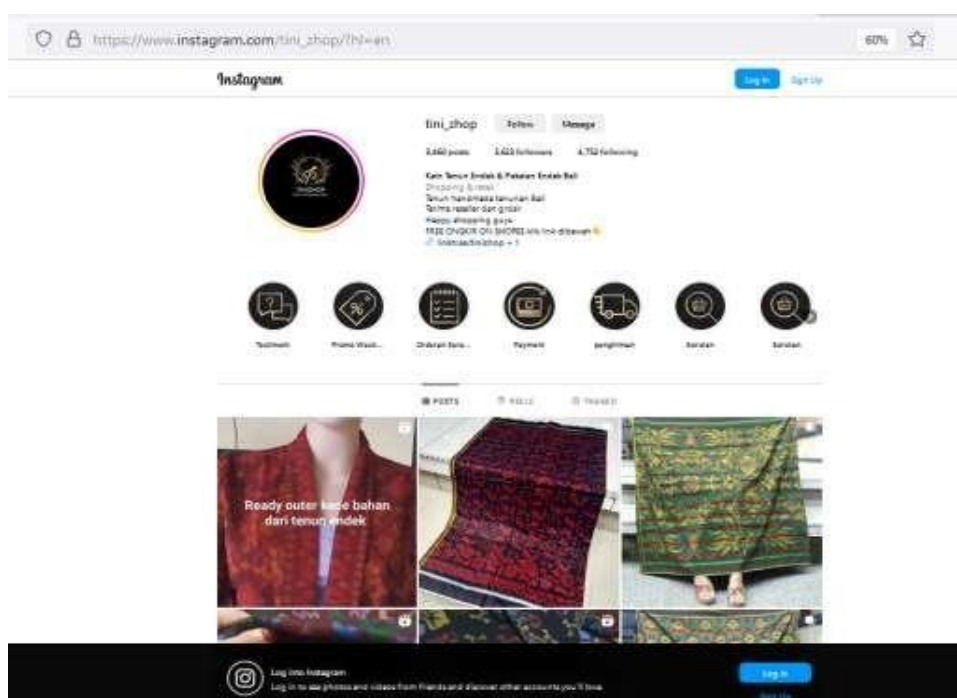


Figure 6. Online Promotion



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### Process Innovation

This PKM activity ended with providing assistance in the form of Paskin equipment or product innovation demonstration tool (modified Ndek clothes) to display the results. Endek fabric products used as clothing models. This assistance was provided directly by The Head of the PKM Team to UKM partners Kain Ndek Tini Zhop with the hope of providing This assistance can increase product innovation and production capacity.

Figure 7. Product Differentiation Innovation Tools



Tini Zhop's partner UKM explained that after receiving assistance from the Team The dedication of Warmadewa University shows an improvement as shown in Table 1 below

Table 1. Partner Activity Achievement Indicators

Table 2. Partner Activity Achievement Indicators

No	Description	Year 2023 (Before)	Year 2023 (After)	Progress
1	Assets	Rp 25.000.000	Rp. 35 .000.000	66,6 %
2	Sales/Average/Month	Rp30.000.000	Rp45 .000.000	75 %

### CONCLUSION

This Empowerment Activity aims to support green product innovation, care for the green environment so as to create special market segmentation, and be able to encourage digital adoption to strengthen marketing strategies. This activity provides strengthening of independence with training and mentoring to support the quality of work and green product innovation and utilization of fruit waste and environmental awareness. These steps not only benefit the craftsmen individually, but also contribute to local economic development and the maintenance of valuable cultural heritage.

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