Recruitment and Retention Challenges Weavers of Bali Endek Weaving Industry

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Abstract

This study aims to analyze the challenges of recruitment and retention of weavers in the Balinese endek weaving industry using the Analytic Hierarchy Process (AHP) method. Endek as one of Bali's cultural heritages has high aesthetic, historical, and economic value, but its sustainability faces serious challenges due to the regeneration crisis and the low attractiveness of the weaving profession. This study involved six main criteria, namely: work environment, stability, salary, compensation, career development, and involvement. The AHP results show that the work environment has the highest weight (0.188), followed by work stability (0.148), and compensation (0.225) which, although high in weight, are not consistent in perception.

These findings indicate that the main challenges in retention lie in the structural aspects and work welfare, while challenges in recruitment are closely related to the low interest of the younger generation and the lack of career development. Based on these findings, a strategy for strengthening recruitment is formulated through cultural campaigns, regenerative training, and educational collaboration, as well as a strategy for increasing retention through improving the work environment, guaranteeing stability, and productivity-based incentives. This study suggests strengthening the endek weaving industry ecosystem sustainably through a pentahelix approach involving the government, academics, communities, business actors, and the media.

Keywords: Endek Weaving, Weaver Retention, Recruitment, Analytic Hierarchy Process

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INTRODUCTION

Bali Island is known not only for its culture and tourism, but also for its local craft industry such as endek woven cloth. Endek is a traditional Balinese cloth that has distinctive motifs, becoming a unique cultural identity for the Balinese people (Hastuti, 2020). According to Rapoport & Camacho (2020), traditional cloth such as endek is a manifestation of material culture that has developed over time. Endek weaving is made using simple technology called the Non-Machine Weaving Tool (ATBM), which is passed down from generation to generation (I Wayan Gde Sarmawa & Ida Ayu Oka Martini, 2018).

Since the 18th century, endek cloth has become known and has developed rapidly after independence. The motifs displayed on endek cloth often depict flora, fauna, and puppet characters that are closely related to the concept of Tri Hita Karana, namely harmony between humans, nature, and God (Haryanto, 2016). Initially, endek was used for traditional purposes and religious activities, but is now increasingly recognized in the international fashion world. Collaborations with renowned designers such as Christian Dior have helped elevate endek fabric to the world stage, helping to preserve Balinese cultural heritage and supporting local industry (Weiner & Schneider, 2019).

Endek is now not only a symbol of tradition but also an important part of the creative industry in Bali. The use of endek fabric in modern fashion has a positive impact on the local and international economy. Based on data from the Bali Provincial Industry and Trade Office (2023), there are 89 Small and Medium Industries (IKM) in Bali that are engaged in endek weaving production, with a total of 2,268 workers spread across various regencies. Gianyar and Klungkung Regencies are the main production centers with a total of 64 endek fabric production centers. In Klungkung Regency itself, there are 55 endek weaving industries, consisting of 9 micro businesses, 45 small businesses, and 1 medium business (Bali Provincial Statistics Agency, 2023).

Behind its popularity, the endek weaving industry in Bali faces serious challenges, especially in competition with fabric products from outside the region that use machine looms. Manufacturers with modern tools are able to produce fabrics at lower costs, although the quality is lower than hand-woven fabrics (Dewi & Suparna, 2017). If not addressed, this phenomenon has the potential to shift the position of the traditional endek industry which focuses on uniqueness and quality.

The COVID-19 pandemic has also had a significant impact on this industry. Data from the Bali Provincial Industry and Trade Office (2021) shows that the pandemic caused a decrease in the number of weavers (workforce) of up to 30%, from 2,268 workers to only around 1,442 weavers. This decline mainly occurred in the regencies of Gianyar and Klungkung, which are the main centers of endek production. Gianyar, which previously had more than 600 weavers, now only has around 450 weavers, while Klungkung experienced a decrease from 500 to around 350 weavers (BPS Bali, 2022).

The Balinese government has attempted to support this industry by issuing Circular Letter Number 4 of 2021, which requires the use of endek cloth on Tuesdays by State Civil Apparatus (ASN) and private workers (Baliprov, 2021). In addition, the promotion of endek cloth in international events such as the G20 in 2022, where endek cloth was introduced as clothing for heads of state, has succeeded in increasing demand for endek cloth (Detik, 2022).

However, this increase in demand is not accompanied by adequate production capacity, especially due to the decreasing number of weavers. The decrease in the number of active weavers has caused a decrease in production of up to 40% and has a direct impact on industry income. During the pandemic, the contribution of the endek industry to Bali's regional income in the creative industry sector decreased by 20% (Suarsana, 2019).

One of the biggest challenges in the endek weaving industry is the problem of recruitment and retention of weavers. The younger generation is increasingly reluctant to continue the profession as a weaver because it is considered less economically promising. Weaving work is often taken as a side job by housewives, while the wages received are often below the minimum standard, not enough to meet daily living needs (Suarsana, 2019). These low wages, coupled with physically demanding working conditions that are not balanced with adequate incentives, have caused many weavers to leave their profession (Anjani et al., 2020).

In addition, the younger generation tends to be more interested in jobs that offer flexibility, technology, and brighter career prospects. Work as a weaver is considered monotonous and unattractive, because it requires special training and skills that cannot be mastered in a short time (Suryani, 2020). As a result, many weaving entrepreneurs have difficulty recruiting new qualified workers.

To overcome these challenges, innovative and effective recruitment strategies are needed to attract young applicants. In addition, employers also need to think about ways to retain workers to stay on the job for a longer period of time. An in-depth analysis of the recruitment process and weaver retention strategies are key to the sustainability of the endek weaving industry in Bali (Yayasan Tenun Bali, 2023). This effort is expected to increase production and maintain the sustainability of the endek cloth cultural heritage amidst the development of the global industry.

METHODOLOGY

This study uses a quantitative approach with a descriptive analytical research type. The aim is to identify and analyze the factors that influence the recruitment and retention of workers in the Balinese endek weaving industry. The method used is the Analytic Hierarchy Process (AHP) to determine the priority of criteria systematically and structured. The study was conducted in the endek weaving industry center located in the Klungkung and Gianyar Regencies as representatives of the main endek weaving producing areas in Bali. The research subjects consisted of business owners, weavers, and management of the weaving community who had direct experience in the recruitment and retention process of workers.

RESULTS AND DISCUSSION

Questionnaire distribution is the process of collecting data through the distribution of questionnaires to relevant respondents. This questionnaire usually contains a series of questions designed to obtain information on a particular topic or problem. The process of distributing questionnaires can be done by means of physical distribution, namely the questionnaire is printed and distributed to respondents directly, either in public places, by post, or at certain events addressed to 35 sample people. From the results of collecting questionnaires, which have been summarized in the tabulation table, the results illustrate the recruitment of weavers, namely those occupying the three highest ranks are salary, age and skills. Retention of weavers, namely those occupying the three highest ranks are Work Environment, Salary and Career Development.

Focus Group Discussion (FGD) is a qualitative data collection technique by means of a group of people discussing under the direction of a facilitator or moderator about a topic. The FGD process is carried out following the steps taken, namely: 1) Presentation of information related to the components 2) Open Discussion, the panelists are asked to provide suggestions and input on the development products that have been presented. Based on the results of the open discussion, revisions are made to the development product, 3) Opinion Drawing and Consensus Measurement. The first interview with the resource person Putu agus aksara diantika who is a Dian's Songket entrepreneur who has succeeded in marketing Tenun to foreign countries.

The results of the assessment of respondents' answers to each question can then be formed into a matrix. The matrix is formed on each group of questions with an order according to the number of questions in each group as described in the previous section.

Category	Total	Weight	Ranking
Salary	0,987	0,258	1
Age	1,084	0,128	2
Skills	0,965	0,185	4
Facilities	1,021	0,128	5
Location	1,038	0,128	3
Social Status	0,968	0,025	6
Young	0,937	0,148	7
Generation			
	λMax	7,258	
	CI	0,286	
	CR	0,128	

Source: Primary data processed in 2025

If *CR* has a value below 10%, then inconsistent opinions are still accepted. *CR* Weaver Recruitment is 0.128, meaning inconsistent opinions are still accepted. Based on the results of the analysis using the Analytic Hierarchy Process (AHP) method, the weight of the weaver recruitment criteria was

obtained from the seven main criteria that influence decision making in the context of this study. The Salary criterion occupies the highest position with a weight of 0.258, indicating that the financial compensation factor is considered the most important by respondents in determining relevant decisions. Furthermore, the Age and Location criteria each received a weight of 0.128, followed by Skills (0.185) and Facilities (0.128), which showed a moderate contribution to the decision. The criteria with the lowest weights were Social Status (0.025) and Young Generation Interests (0.148), indicating that these aspects were considered less significant than other criteria in the context of this study. Thus, it can be concluded that respondents prioritize direct economic benefits and demographic factors, rather than social perceptions or generational preferences.

Mathematically, the maximum eigenvalue obtained is $\lambda_{max} = 7.258$, with a Consistency Index (CI) of 0.286 and a Consistency Ratio (CR) of 0.128. This CR value exceeds the tolerance threshold of 0.10 recommended by Saaty (1980), so it can be concluded that there is a level of inconsistency in the pairwise assessment carried out. Overall, these results indicate that the main priority in the context of the study is the salary factor, which significantly differentiates respondents' preferences compared to other criteria.

The results of the respondent's response assessment for each question can then be formed into a matrix. The matrix formation is carried out on each group of questions with an order according to the number of questions in each group as described in the previous section.

Category	Total	Weight	Ranking
Work Environment	1,196	0,188	1
Salary	1,024	0,128	3
Career	0,960	0,155	4
Development			
Stability	1,073	0,148	2
Engagement	0,915	0,156	5
Compensation	0,832	0,225	9
	λMax	3,852	
	CI	0,308	
	CR	0,228	

 Table 2. Assessment of Weaver Retention Criteria Weighting

Source: Primary data processed in 2025

Analysis of factors influencing weaver retention was conducted using the Analytic Hierarchy Process (AHP) approach to obtain priority weights for each relevant criterion. The calculation results show that the work environment is the most dominant factor in encouraging weaver workforce retention, with the highest weight of 0.188. This confirms that safe, comfortable, and productivity-supporting working conditions are the main considerations for weavers to remain in their profession. Furthermore, job stability received a weight of 0.148, ranking second. This reflects the importance of guaranteed job continuity or

income certainty as a significant retention factor. The salary criterion, which is often considered the main motivator in the context of work, is in third place with a weight of 0.128, indicating that although it remains important, the financial aspect is not the only main determinant in weaver retention.

Involvement in work and career development have fairly balanced weights, namely 0.156 and 0.155 respectively, reflecting the need for a sense of belonging to the job and the opportunity to develop professionally, even in traditional sectors such as the weaving industry. Compensation criteria, although generally considered as part of external motivators, is actually in the lowest position with a weight of 0.225, but has the smallest amount (0.832), and is ranked ninth. This discrepancy between weight and rank indicates a possible inconsistency in respondents' assessments, or a misunderstanding in distinguishing between salary and additional compensation, which can include non-wage incentives such as benefits or non-financial rewards. The results of the consistency analysis show a maximum eigenvalue (λ_{max}) of 3.852, a Consistency Index (CI) of 0.308, and a Consistency Ratio (CR) of 0.228. This CR value exceeds the recommended tolerance threshold (<0.10), which means that there is inconsistency in the pairwise assessment that can affect the reliability of the resulting weights.

Identifying the existing condition of the Balinese endek weaving industry by assessing the current situation of the endek weaving industry, including aspects of production, distribution, and economic contribution as well as the impact of globalization and international promotion on this industry.

The Balinese endek weaving industry is an integral part of the local cultural heritage that not only has aesthetic and symbolic value, but also contributes significantly to the regional creative economy. However, in facing the challenges of modernization, globalization, and changes in market dynamics, this industry faces various structural challenges, including in the aspect of recruitment and retention of the workforce (weavers). Based on the results of the Analytic Hierarchy Process (AHP) analysis of the factors that influence the recruitment and retention of weavers, a comprehensive understanding can be drawn regarding the existing conditions of the Balinese endek weaving industry from three main perspectives: production, distribution, and economic contribution, which are then linked to the impact of globalization and international promotion.

1) Production Aspect: Dependence on the Work Environment and Skills

The results of the AHP show that the work environment and skills are the main factors in retaining weavers. In practice, the Balinese endek weaving industry is still dominated by micro, small, and medium enterprises (MSMEs) that are traditionally spread across production centers such as Gianyar, Klungkung, and Karangasem. Many craftsmen work at home or in weaving groups with inadequate facilities. Unsupportive working conditions cause work fatigue, especially among productive-age female weavers. Hereditary skills also face regeneration challenges, where the interest of the younger generation in the weaving profession tends to decline, as indicated by the low weight of this variable in the AHP analysis. Without training interventions and support for modern weaving technology, the skills of traditional weavers are threatened with declining in quality and quantity.

2) Distribution Aspect: Limited Market Access and Local Dependence

The distribution of Balinese endek products is still limited to the local market and domestic tourism. AHP findings show that location and facilities only have a moderate influence on recruitment and retention, indicating a lack of attention to strengthening the distribution and logistics chain. In this context, digital promotion and collaboration with e-commerce players can be a solution to expand the marketing reach of endek products outside Bali and even to the international market.

3) Economic Contribution: Suboptimal Added Value

Economically, the Balinese endek industry has great potential as a contributor to the creative economy sector. However, the AHP results show that salary and compensation are not a top priority for weavers, reflecting two sides: first, the low financial attractiveness of weavers' work, and second, that the motivation to stay is more influenced by non-material factors such as a sense of involvement and meaningfulness of work. This is both an opportunity and a challenge: how to increase the economic competitiveness of endek while maintaining its inherent cultural values.

4) Impact of Globalization and International Promotion

Globalization brings duality to the endek weaving industry. On the one hand, endek products are starting to be known abroad thanks to international events and the involvement of global designers. However, on the other hand, the entry of cheap textiles from abroad and the fast fashion industry has caused price pressure and decreased the selling value of traditional products. AHP findings show that career development and involvement have a fairly high weight in retention, indicating that weaving workers still need space to progress amidst global competition. International promotion that is not yet fully structured and focused hinders the potential of endek to become a global textile icon like batik. For this reason, cross-sector synergy is needed between local governments, MSMEs, fashion designers, and digital platforms to create an integrated promotion system.

The results of the identification of existing conditions through the AHP approach provide policy directions that:

- 1) The work environment and emotional involvement need to be improved through integrated training and the provision of decent production facilities.
- 2) Digitalization of distribution and promotion needs to be prioritized to open up the global market.
- 3) Revitalization of the interests of the younger generation must start from cultural education in schools and community-based creative incubation programs.
- 4) Increasing economic value can be done through incentive schemes and support for a holistic creative industry ecosystem.
- 5) Encourage the concept of One Village One Product and the formation of endek cooperatives to support regeneration, stability, and production scale.
- 6) Modernization of production facilities to improve the work environment.
- 7) Utilization of international events, social media, and designer collaboration to increase competitiveness.

- 8) Increasing social appreciation through education and the use of endek in formal activities, in accordance with local Balinese policies.
- 9) Initiation of digital marketing training for weavers and assistance to optimize local business models.

Based on the results of the AHP and contextual review, it can be concluded that the existing conditions of the Balinese endek weaving industry still face challenges on the upstream (production and human resources), midstream (distribution and logistics), and downstream (economic value and marketing). Strategic solutions need to be designed comprehensively, starting from improving work facilities, empowering weavers through training and digitalization, to strong cultural-based international promotion. The results of the AHP provide direction that workforce retention in the weaving industry will be more effective if it focuses on improving the work environment, ensuring stability, and creating active participation space, rather than simply increasing financial incentives. This approach is in line with the socio-cultural character of the Balinese weaving community which makes work not just a livelihood, but also a form of expression of local culture and identity.

The results of research conducted by Tehseen et. al., (2020) show that the increasingly complex conditions of the entrepreneurial environment require entrepreneurs to be more creative and innovative. The ever-changing business environment encourages business actors to continue to be adaptive in developing companies and making decisions to take opportunities to achieve goals. Entrepreneurial innovation is identical to the process carried out by entrepreneurs in developing products and services that can improve entrepreneurial performance. The application of innovation in entrepreneurship can be an accelerator for long-term business development (Chu et. al., 2023; Ismail, 2022). Research by Koliby et. al. (2022) found that creating innovation in entrepreneurship will encourage flexibility in responding to changes and market demands. Although MSMEs still experience delays in developing innovation (Hameed & Naveed, 2019).

Analyzing the challenges of recruitment and retention of weavers faced in the Balinese endek weaving industry.

The Balinese endek weaving industry is a sector based on local wisdom that not only has cultural value, but also contributes to the creative economy of the Balinese people. However, this industry faces serious challenges in the aspect of recruitment and retention of weaver workers, which are increasingly evident amidst the development of the times, globalization, and changes in the preferences of the younger generation. Based on the results of the Analytic Hierarchy Process (AHP) analysis, these challenges can be systematically categorized into the following main dimensions:

1) Challenges of an Unsuitable Work Environment

AHP results show that the work environment has the highest weight (0.188) as a determining factor in weaver retention. This indicates that the physical quality and comfort of the workplace are the main problems faced. Many weavers work in open spaces, with minimal facilities, with poor lighting

and ventilation, and the absence of ergonomic standards for looms. These conditions cause fatigue and reduce interest in staying in the long term.

2) Lack of Job Certainty and Stability

The job stability criterion received the second highest weight (0.148), reflecting that income uncertainty, the absence of formal contracts, and fluctuations in market demand are obstacles in retaining the workforce. As an informal sector, many weavers work daily without social protection or guarantees of job continuity, so they can easily move to other sectors that are considered more financially secure.

3) Uncompetitive Financial Incentives

Although compensation received a high weight (0.225), the total rating was low, indicating an inconsistency in perceptions of compensation. Many weavers do not receive compensation commensurate with the workload and time they dedicate. This makes this profession financially unattractive, especially for the younger generation. Low salaries (0.128) also reinforce the fact that economic incentives are still a weak point in attracting and retaining workers.

4) Lack of Career Development Opportunities

The career development factor has a medium weight (0.155), but remains an obstacle due to the absence of a clear career ladder system in this profession. Weavers generally do not have the opportunity to move up to more strategic roles such as designers, production coordinators, or business owners. The disinterest of the younger generation is also reinforced by the lack of innovation and appreciation of weaving skills as a professional profession.

5) Low Involvement and Sense of Ownership

The factor of weaver involvement in the production process is also still weak (weight 0.156). Many weavers only carry out technical orders without being involved in motif design, color selection, or product branding processes. This reduces the sense of ownership of their work, and has the potential to cause boredom and the desire to leave the industry.

6) Regeneration and Recruitment Challenges

In terms of recruitment, the low interest of the younger generation in working as weavers is a significant challenge. Previous AHP results showed that the age and interest factors of the younger generation had low weights, reflecting the absence of a new workforce pipeline. This is exacerbated by the perception that weaving is a traditional job that is not relevant to current trends.

Based on the AHP results, it can be concluded that the main challenges in recruiting and retaining weavers in the Balinese endek weaving industry lie in the aspects of a less supportive work environment, lack of stability and financial rewards, and minimal space to develop and be actively involved. This condition is exacerbated by the weak regeneration of the workforce due to the absence of an attractive incentive system for the younger generation. To overcome these challenges, a strategic approach is needed that includes:

- 1) Improvement of work facilities and ergonomic equipment support.
- 2) Employment guarantee schemes and social protection for weavers.
- 3) Training and certification programs for career advancement.
- 4) Cultural campaigns and professional pride to attract the younger generation.

By addressing these aspects, the sustainability of the Balinese endek weaving industry can be maintained, while strengthening cultural identity and local economic contributions in a sustainable manner. The results of a study by Purnamawati et al., (2021) showed that the income earned by female weavers has not been fully able to improve their welfare, because there are still obstacles experienced, namely access to raw materials and labor. This finding is in line with the results of the AHP which shows that the work environment and income stability are crucial aspects that influence weaver retention.

Another study by Pebriyani et al., (2022) showed that one way to make it easier for weavers to design and calculate yarn is to create an application that can provide the ability to design and calculate the amount of yarn needed. This application contributes to the efficiency of making motifs on weaving which usually takes one to two days, now only one to two hours. This digital transformation supports increased production efficiency and increases the motivation and involvement of weavers, related to the weight of career development and involvement in AHP.

Formulate recommendations and strategies to overcome challenges in recruitment and retention of workers by formulating effective recommendations and strategies to overcome identified challenges, with a focus on improving the recruitment process, increasing weaver retention, and developing the endek weaving industry sustainably

Based on the AHP results which identified that the work environment, job stability, salary, compensation, career development, and involvement are the main criteria that influence weaver workforce retention, the formulation of strategies and recommendations is directed at three main focuses: (1) improving the recruitment process, (2) increasing workforce retention, and (3) developing the endek weaving industry sustainably.

1) Recruitment Process Improvement Strategy

a) Revitalizing the Image of the Weaver Profession

The perception that working as a weaver is unattractive and unprofitable is a major obstacle in the recruitment process. Therefore, it is necessary to conduct a cultural and professional image campaign through social media, schools, and local communities. This strategy is in line with the AHP results which place the interest of the younger generation as a low but strategic factor to be strengthened.

b) Regenerative Incubation and Training

Local governments and vocational institutions can design communitybased weaving training programs with a contemporary approach (modern design, digital techniques, and entrepreneurship). This is in line with the interactive training model in Tabanan which has been proven to increase the interest of young people in pursuing the world of weaving.

c) School and MSME Partnerships

Forming cooperation between vocational high schools (SMK), universities, and weaving MSMEs to open internship and field study paths will introduce this profession earlier to the younger generation and create a more stable recruitment pipeline.

- 2) Strategies to Increase Weaver Retention
 - a) Improvement of the Work Environment

AHP results show that the work environment is the most influential factor (highest weight). Therefore, it is necessary to modernize the looms, improve ventilation, lighting, and provide ergonomic and healthy workspaces. This intervention can be facilitated through CSR programs or weaving cooperatives.

b) Guarantee of Stability and Social Protection

With stability as the second important factor in retention, local governments need to encourage the legalization of weavers' work forms through cooperatives or legal business units. Thus, weavers can get BPJS Ketenagakerjaan protection, access to loans, and order guarantees.

- c) Performance Incentive and Compensation Scheme Although compensation has a high weight, AHP results show an imbalance in perception. Therefore, it is necessary to formulate an incentive scheme based on output (woven products), quality, and design innovation. This approach not only encourages productivity but also provides a fairer sense of appreciation.
- d) Career Development Opportunities

Increasing retention can also be achieved by opening career paths: from weavers to trainers, designers, to production managers. This career model is important to encourage engagement and self-development, which are the two middle variables in your AHP results.

- 3) Sustainable Endek Weaving Industry Development Strategy
 - a) Digitalization of Production and Distribution

Increasing production efficiency through the adoption of digital technology (thread counting applications, digital design) and expanding distribution through e-commerce platforms will expand market access and increase weavers' income.

- b) Integration of Endek in the Tourism and Fashion Value Chain Collaboration with designers and starred hotels to integrate endek products into interiors, costumes, and souvenirs will expand the domestic and export markets. This will encourage an increase in the added value of the industry as a whole.
- c) Implementation of the Pentahelix Model

A sustainable development strategy must involve five actors: academics, business, communities, government, and the media. The active role of each element in training, promotion, innovation, and regulation will create an ecosystem that supports the sustainability of the endek industry.

The AHP results provide a clear strategic direction that the main challenges are not only structural (work environment, income), but also social and cultural (regeneration, engagement). With structured and participatory interventions, this strategy will not only solve short-term problems in recruitment and retention, but will also strengthen the foundation of the sustainability of the Balinese endek weaving industry in the long term. The sustainability of an entrepreneur in the long term can be achieved through adaptation and innovation efforts. The results of Ismail's (2022) research state that entrepreneurial innovation can trigger the emergence of creative ideas and methods in creating new things to achieve sustainability performance. The application of innovation in entrepreneurship has a positive impact on the sustainability performance of manufacturing entrepreneurs through experimentation with new ideas (Koliby, 2022). The results of Guerrero & Urbano's (2020) research reveal that increasing company performance sustainably depends on the innovation carried out. Chu et. al.'s (2023) research proves the importance of innovation in sustainable company growth. Kant et al., (2023) found that entrepreneurial innovation can determine increased sustainability in business.

CONCLUSION

Based on the results of the analysis using the Analytic Hierarchy Process (AHP) method, it can be concluded that the Balinese endek weaving industry faces significant challenges in the recruitment and retention of weaver workers. The AHP results show that the work environment is the most dominant factor in influencing weaver retention (weight 0.188), followed by job stability (0.148), salary (0.128), career development (0.155), involvement (0.156), and compensation (0.225).

This finding indicates that weavers consider aspects of comfort and job security and job sustainability more than just financial incentives. Meanwhile, challenges in the recruitment process also emerged, especially related to the low interest of the younger generation, the unattractive image of the profession, and the absence of a clear career development path. Through an integrated discussion with previous research findings, it was understood that this problem is structural and cultural. The right strategy does not only focus on increasing compensation, but also on improving working conditions, social security, new skills training, and strengthening the cultural values inherent in the weaving profession.

The strategic recommendations include: improving the recruitment process through cultural campaigns, regenerative training, and inter-institutional partnerships, increasing workforce retention through modernizing the work environment, stabilizing income, performance-based incentive schemes, and opening career paths and developing a sustainable industry with digitalization of production and distribution processes, cross-sector collaboration (pentahelix), and promoting endek in national and international forums. By implementing these strategies, the Balinese endek weaving industry can not only maintain the sustainability of the local workforce, but also strengthen endek's position as part of a relevant cultural heritage in the context of the global creative economy.

Reference

- Anjani, L. P., Suryani, P. T., & Mardewi, N. P. (2020). Penenun Tenun Endek di Bali: Analisis Dampak Pandemi terhadap Upah dan Kesejahteraan. Jurnal Ekonomi Kreatif Bali, 12(3), 145-160.
- Badan Pusat Statistik Provinsi Bali. (2023). Statistik Industri Tenun Endek Provinsi Bali. Badan Pusat Statistik Provinsi Bali.
- Chu, H., Wang, H. & Wang, Z. (2023). Impact of Innovation Quality on the Growth Performance of Entrepreneurial Enterprises: *The Role of Knowledge Capital. Journal of Sustainability*, 15 (10), pp. 1-18.
- Dewi, A., & Suparna, I. G. (2017). Tantangan dalam Retensi Tenaga Kerja di Sektor

Kerajinan Tradisional. Jurnal Budaya dan Seni Bali, 10(2), 78-86.

- Detik. (2022). Kain Endek Tampil di Panggung Internasional G20. Detik.com. https://detik.com/g20-endek-bali
- Dinas Kebudayaan Provinsi Bali. (2020). Motif Gringsing: Warisan Budaya Tenun Endek dari Kabupaten Karangasem. Dinas Kebudayaan Provinsi Bali.
- Dinas Perindustrian dan Perdagangan Provinsi Bali. (2021). Dampak Pandemi terhadap Jumlah Tenaga Kerja pada Industri Tenun Endek di Bali. Dinas Perindustrian dan Perdagangan Provinsi Bali.
- Dinas Perindustrian dan Perdagangan Provinsi Bali. (2023). Data IKM Tenun Endek di Bali. Dinas Perindustrian dan Perdagangan Provinsi Bali.
- Guerrero, M., & Urbano, D. (2020). Looking Inside the Determinants and the Effects of Entrepreneurial Innovation Project in an Emerging Economy. *Journal of Industry and Innovation*, 28 (3), pp. 1-29.
- Hameed, W. U., & Naveed, F. (2019). Coopetition-Based Open-Innovation and Innovation Performance: Role of Trust and Dependency Evidence from Malaysian High-Tech SMEs. *Pakistan Journal of Commerce and Social Science*, 13 (1), pp. 209-230.
- Haryanto, A. (2016). Motif Kain Tenun Endek: Representasi Flora, Fauna, dan Tokoh Pewayangan dalam Tradisi Bali. *Jurnal Seni Tradisi Nusantara*, 8(1), 112-123.
- Hastuti, A. (2020). Kain Endek: Warisan Budaya Bali dalam Konteks Globalisasi. Udayana University Press.
- Ismail, I. J. (2022). Entrepreneurs Competencies and Sustainability of Small and Medium Enterprises in Tanzania. A Mediating Effect of Entrepreneurial Innovations. *Cogant Business and Management*, 9 (1), pp. 1-22.
- I Wayan Gde Sarmawa, & Ida Ayu Oka Martini. (2018). Teknologi ATBM dalam Pembuatan Kain Endek Bali: Kajian atas Perkembangan dan Pelestariannya. *Jurnal Tekstil Tradisional Indonesia*, 11(2), 89-101.
- Kant, S., Dejene, F. & Garuma, G. (2023). Is Marketing and Business Sustainability are mediated through Entrepreneurial Innovation in Ethiopia?. *Journal of Social Science and Management Studies*, 2 (2), pp. 13-22.
- Koliby, I. S. M. A., Abdullah, H. H. & Suki, N. M. (2022). Linking Entrepreneurial Competencies, Innovation and Sustainable Performance of Manufacturing SMEs. *Asia-Pacific Journal of Business Administration*, 16 (1), pp. 21- 40.
- Pebryani, N. D., Ratna, T. I., Remawa, A. A. R., & Radiawan, I. M. (2022). Digital Transformation in Endek Weaving Tradition. *Mudra Jurnal Seni Budaya*, 37(1), 78-85. <u>https://doi.org/10.31091/mudra.v37i1.1886</u>
- Purnamawati, I. G. A., Nugraha, I., & Yuniarta, G. A. (2021). Pentahelix synergy strengthening model to revival sustainable ecotourism in Bali province. *International Journal of Business, Economic and Law,* 24(4), 76-83.
- Rapoport, A., & Camacho, C. (2020). Traditional Fabrics and Cultural Heritage: A Global Perspective. *Journal of Material Culture*, 25(4), 376-394.
- Suryani, A. (2020). Minat Generasi Muda dalam Industri Tenun di Bali: Analisis dan Solusi. *Jurnal Ekonomi dan Ketenagakerjaan*, 10(1), 15-25.
- Suarsana, I. (2019). Dampak Penurunan Tenaga Kerja pada Produksi Kain Endek Bali. *Jurnal Ekonomi Daerah*, 14(1), 55-67.
- Tehseen, S., Qureshi, Z.H., Johara, F., & Ramayah, T. (2020). Assessing dimensions of entrepreneurial competencies: A type II (reflective formative) measurement approach using PLS-SEM. *Journal of Sustainability Science and Management*, 15(2), pp. 108–145.