E-ISSN: 2987-1573, P-ISSN: 2987-3460
TGO Journal of Community Development
Vol. 4, No. 2, July - December (2026)

Application of Innovation Technology in Efforts to Increase the Quantity of Bamboo Handicraft Products in Pace Village, Jember

Riza Bahtiar Sulistyan[1*], Nely Supeni[2], Ahmad Sauqi[3], Arinda Nur Safitri[4], Lia Indriani[5], Zulfa Aliyah Faurina[6], Yessy Hananita Sembiring[7], Helmiyatul Meilin[8]

[1,2,3,4,5,6,7,8] Faculty of Economics and Business, Institut Teknologi dan Sains Mandala, Jember, Indonesia

ABSTRACT

Bamboo kere crafts are one of the traditional craft products that serve as a source of income for the community in Pace Village, Silo District, Jember Regency. However, the production process still carried out manually results in limited production capacity, relatively long processing times, and less uniform product quality. This condition encourages the need to apply appropriate technology to improve the efficiency and productivity of bamboo craft businesses. The purpose of this community service activity is to increase the knowledge, skills, and productivity of bamboo artisan groups through the application of more modern production tools in the ker-making process. The methods used include socialization, training, and mentoring activities conducted from October to November 2026. The socialization is conducted to provide understanding about the importance of technological innovation, while training and mentoring focus on the use of production tools and their application in daily business activities. The results showed an increase in the artisans' understanding and skills in operating the tools, accelerated production processes, reduced workload, as well as improved quality of the kere results that are neater and more uniform compared to manual methods. In addition, the artisans showed high enthusiasm in adopting new technology as an effort to develop their businesses. A unique finding from this activity was the high adaptability of the artisan group to the use of appropriate technology, even though previously all production processes were done traditionally, opening opportunities for developing more diverse bamboo products with higher economic value in the future.

Kewords: Socialization, Training, Assistance, Bamboo Handicrafts, Improvement

*Correspondence:
Riza Bahtiar Sulistyan
(rizabahtiars@gmail.com)

Received: 17-10-2026
Revised: 15-11-2026
Accepted: 17-11-2026
Published: 19-11-2026

This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

1. INTRODUCTION

Bamboo crafts are one of the creative economy sectors based on local wisdom that have developed widely in various regions of Indonesia (Aji, 2025; Ummanah et al., 2025; Vuspitasari & Siahaan, 2022). Bamboo is not only used as a raw material for household appliances, furniture, traditional musical instruments, and decorative products, but also as a source of livelihood for many rural communities (Yunus et al., 2022). However, amid the trend of modernization and the entry of manufactured products made from plastic and metal, the bamboo craft industry faces various challenges such as declining interest among the younger generation to become artisans, limited design innovation, low access to digital marketing, and competition with cheaper imported products (Nugroho & Wijaya, 2025). On the other hand, increasing public awareness of

environmentally friendly and sustainable products opens new opportunities for the development of bamboo crafts as green economic products with high cultural, economic, and ecological value (Effendi et al., 2025). This phenomenon shows that the sustainability of bamboo crafts in Indonesia heavily depends on the ability of business actors to innovate products, improve quality, and utilize technology and digital markets to expand marketing reach.

The bamboo craft group located in Pace Village, Silo District, Jember Regency has long been known for producing kere or bamboo weaving crafts, which are generally used as traditional home walls and various simple building needs. Although these products still have high economic and cultural value, the variety of products produced is relatively limited, so the business development potential is not yet optimal. The production process, which still relies on simple equipment, causes production capacity to be less efficient and the quality of woven products is not yet fully uniform. On the other hand, the increasing market demand for innovative and environmentally friendly bamboo products opens great opportunities for artisan groups to expand the types of products produced. Therefore, innovations in tools and production technology are needed to increase work efficiency, accelerate bamboo processing, produce more precise material sizes, and support product diversification such as decorative panels, household crafts, souvenirs, and bamboo furniture. This innovation is expected to increase productivity, product added value, business competitiveness, and the income of bamboo artisan communities in Pace Village.

Implementing solutions to transform the kere craft making process from manual to more modern systems is very important because it can increase productivity, product quality, and business competitiveness. Until now, the processes of splitting, weaving, and weaving bamboo done manually have taken a long time, required large labor, and often produced non-uniform bamboo blade sizes. This condition causes limited production capacity and makes it difficult for artisans to meet large market demands. With innovations in production tools, work processes can become faster, safer, and more efficient, thereby reducing production costs. In addition, neater and more uniform weaving results will improve product quality and open business diversification opportunities into various higher value-added bamboo products. Modernization of tools also has the potential to attract younger generations to get involved in the bamboo craft industry because the work process becomes easier and does not rely on heavy physical labor. Therefore, the transformation from manual production to simple technology-based production is a strategic step to increase artisans' income, strengthen business sustainability, and develop kere crafts as the flagship product of Pace Village, Silo District, Jember Regency.

The purpose of this activity is to increase the efficiency and productivity of the kere craft making process in Pace Village, Silo District, Jember Regency through the application of more modern production tools so that the processing time is shorter, labor usage is more effective, and the quality of the products produced is more uniform and has high selling value. In addition, this activity aims to encourage the development and diversification of bamboo-based products so that artisans not only produce kere but also various other craft products with broader market potential. The expected benefits include increased production capacity and income of artisans, the creation of easier and safer work processes, increased competitiveness of bamboo craft businesses, the opening of new business opportunities based on local potential, and the sustainability of bamboo crafts as one of the flagship products that can support the economic growth of the Pace Village community, Silo District, Jember Regency.

2. METHODS

This community service activity will be carried out over two months, from October to November 2026, covering stages referring to Sulistyan & Afrianto (2024) of socialization, training, and mentoring to bamboo artisan groups in Pace Village, Silo District, Jember Regency. The socialization stage aims to provide partners with an understanding of the importance of applying appropriate technology in the *kere* craft production process to improve work efficiency and product quality. Next, the training phase focuses on introducing and practicing the use of

tools implemented in bamboo processing and kere making. After the training, the activity continues with intensive mentoring to ensure partners can operate the tools well, apply more effective production techniques, and overcome various obstacles that arise during the production process. Through this series of activities, it is hoped that there will be an increase in skills, productivity, the quality of handicrafts, as well as the strengthening of the business independence of bamboo artisan groups in Pace Village, Silo District, Jember Regency.

3. RESULTS

The socialization activity was carried out as an initial stage to provide understanding to bamboo artisan groups in Pace Village, Silo District, Jember Regency about the importance of applying appropriate technology to support the development of the bamboo craft business. In this activity, the community service team presented various problems faced by the partners, such as the production process still being done manually, relatively long processing times, limited production capacity, and suboptimal quality and uniformity of the products produced. In addition, participants were also given insights into opportunities for developing bamboo crafts amid the increasing demand for environmentally friendly and economically valuable products.

The results of the socialization activity showed that the artisans had high enthusiasm and participation throughout the discussion process. Participants realized that the use of more modern production tools can help speed up the bamboo processing process, reduce workload, and improve the quality of the craft products. Through the Q&A session and group discussion, the artisans also conveyed various obstacles they have faced in the production process as well as their hopes for the programs to be implemented. The socialization activity successfully increased partners' understanding of the benefits of technological innovation and fostered a shared commitment to participate in the training and mentoring stages that will be carried out in future activities.



Figure 1. Program Socialization
Source: Community Service Activities (2026)

The training activity was conducted after the socialization stage with the aim of improving the technical skills of bamboo artisan groups in using the introduced tools to support the kere craft production process. In this activity, participants received material on how to operate the tools, more efficient bamboo processing techniques, occupational safety procedures, as well as maintenance steps for the tools to be used optimally and sustainably. In addition to delivering the material, participants were also given the opportunity to conduct hands-on practice to understand the functions and benefits of tools in accelerating the production process and producing more uniform woven materials.

The results of the training activities showed that the participants were able to understand and practice the use of tools well. Compared to the manual methods used so far, using tools has been proven to help speed up bamboo processing stages, reduce the workload of artisans, and improve the neatness and uniformity of production results. The participants' enthusiasm was evident from their active involvement during practice and discussions, where they tried various techniques for using tools according to production needs. Through this training activity, the skills and knowledge of the artisans improved, so they are better prepared to apply these technologies in daily production activities and develop bamboo craft businesses more productively.



Figure 2. Tool Usage Training
Source: Community Service Activities (2026)

The mentoring activity was carried out after the training with the aim of ensuring that bamboo artisan groups in Pace Village, Silo District, Jember Regency are able to apply the knowledge and skills they have acquired in their daily production processes. The mentoring is conducted directly at the partner business location through technical guidance related to the use of tools, work process management, selection of appropriate bamboo raw materials, as well as the application of more effective and efficient production techniques. At this stage, the community service team provides guidance and solutions to various obstacles faced by artisans during the use of tools so that the adaptation process to new technology can run well.

The results of the mentoring activities show that the artisans are becoming more skilled and confident in operating the tools that have been introduced. Partners are able to apply faster

production techniques compared to the manual methods previously used, resulting in shorter processing time and neater and more uniform quality of the products. In addition, the mentoring also succeeded in increasing the artisans' understanding of the importance of tool maintenance and efficient production process management to maintain business sustainability. With ongoing mentoring, the artisan groups are expected to increase productivity, product quality, and the competitiveness of bamboo craft businesses, thereby positively impacting increased income and the welfare of the local community.

5. DISCUSSION

The results of the community service activity show that the application of technological innovation through socialization, training, and mentoring stages has a positive impact on increasing the capacity of bamboo artisan groups in Pace Village, Silo District, Jember Regency. At the socialization stage, there was an increase in partners' understanding of the importance of modernizing production processes to improve business efficiency and competitiveness. Before the activities were carried out, most artisans still relied on traditional methods in making kere, so the production process took a relatively long time and resulted in limited production capacity. Through socialization, artisans gained insights that using appropriate technology not only aims to speed up work processes but also can improve product quality and open wider business development opportunities. The high participation of participants during the discussion shows a real need for innovation that can help overcome various production obstacles that have been faced so far.

During the training stage, artisans are given the opportunity to learn and practice the use of tools directly. The training results show an improvement in participants' technical skills in operating tools as well as understanding more effective bamboo processing techniques. The use of tools helps produce more uniform bamboo slats, making the quality of kere weaving neater and more consistent. This condition aligns with market demands that increasingly demand high-quality products with uniform standards. Besides improving technical skills, the training also provides understanding of the importance of work safety and tool maintenance so that it can be used optimally in the long term. Thus, the training not only enhances partners' operational capabilities but also strengthens their readiness to adopt new technology in daily production activities.

Meanwhile, the results of the mentoring show that the artisans are able to implement the knowledge and skills acquired during the training into the production process in real terms. Mentoring plays an important role in helping partners overcome various obstacles that arise at the early stage of using the tools, so that the adaptation process runs more smoothly. Through continuous mentoring, the artisans become more confident in operating the tools and are able to implement more efficient work processes than before. The impacts felt include reduced production time, improved quality of craft products, and opening opportunities to develop various bamboo-based products besides kere. These results indicate that the combination of socialization, training, and mentoring is an effective approach in increasing productivity, business independence, and competitiveness of bamboo artisan groups, thereby supporting the sustainable improvement of the welfare of the Pace Village community, Silo District, Jember Regency.

The results of the community service activity show that the application of appropriate technology through socialization, training, and mentoring stages is able to increase the knowledge, skills, and productivity of bamboo artisan groups in Pace Village, Silo District, Jember Regency. At the socialization stage, artisans gain an understanding of the benefits of modernizing production processes to overcome the limitations of manual methods that have been used so far. Furthermore, the training successfully improved the technical skills of artisans in operating the tools, making bamboo processing faster, more efficient, and producing more uniform kere products. These findings are in line with various previous studies stating that technology adoption, competency enhancement through training, and innovation in production

processes contribute to improving product quality as well as the competitiveness of micro and small enterprises (Sulistyan, 2021; Sulistyan et al., 2022). In addition, mentoring activities play an important role in ensuring the success of technology implementation because they help artisans overcome operational obstacles and strengthen their ability to use tools independently (Praselanova, 2025). Thus, the combination of technological innovation, human resource capacity strengthening, and ongoing mentoring has proven to be an effective strategy to increase productivity, expand opportunities for bamboo craft business development, and support the improvement of the welfare of artisan communities.

6. CONCLUSION

Community service activities carried out on bamboo artisan groups in Pace Village, Silo District, Jember Regency, through stages of socialization, training, and mentoring, have successfully improved the understanding, skills, and ability of partners to utilize appropriate technology to support the kere craft production process. The application of more modern production tools can increase work efficiency, speed up bamboo processing, and produce neater and more uniform products compared to manual methods. In addition, this activity also encourages the growing awareness of artisans about the importance of innovation in business development, which is expected to increase productivity, competitiveness, and sustainability of bamboo craft businesses as one of the superior potentials of the Pace Village community.

The implementation of this activity still has several limitations, including the relatively short mentoring time, so not all aspects of business development can be optimally carried out, as well as the absence of quantitative measurements on the increase in productivity and income of artisans after using the tools. In addition, diversification of bamboo-based products still requires further guidance so that artisans can produce products with higher added value. Therefore, it is recommended that similar activities be continued through continuous mentoring that includes product design development, business management, digital marketing, as well as strengthening partnership networks with industry and market players. Thus, the benefits of applying appropriate technology can be felt more broadly in improving the welfare of artisans and strengthening the sustainability of the bamboo craft industry in Pace Village, Silo District, Jember Regency.

ACKNOWLEDMENT

Thanks to the Directorate of Research and Community Service, Ministry of Higher Education, Science and Technology for providing funding for this activity for the 2026 fiscal year. Thanks also to the Mandala Institute of Technology and Science and Pace Village Partners for their full support to ensure the smooth running of the activities.

REFERENCES

Aji, G. B. P. (2025). Transformasi UMKM Kerajinan Anyaman Bambu Menuju Ekonomi Kreatif dan Pariwisata Berkelanjutan di Lampung Barat. *Journal of Economic Studies*, *1*(2), 135-142. https://doi.org/10.66618/jeta.v1i2.107

Effendi, H., Nurhaida, D., & Haryadi, E. (2025). Pemberdayaan Masyarakat Pedesaan Melalui Pelatihan Anyaman Bambu dan Pemasaran Digital untuk Pertumbuhan Ekonomi yang Berkelanjutan. *Jurnal IPTEK Bagi Masyarakat*, *4*(3), 268-283. Effendi, H., Nurhaida, D., & Haryadi, E. (2025). Pemberdayaan Masyarakat Pedesaan Melalui Pelatihan Anyaman Bambu dan Pemasaran Digital untuk Pertumbuhan Ekonomi yang Berkelanjutan. Jurnal IPTEK Bagi Masyarakat, 4(3), 268-283. https://doi.org/10.55537/j-ibm.v4i3.1116

Nugroho, A. D. Y., & Wijaya, A. (2025). Eksistensi sentra kerajinan tembaga desa Tumang: Strategi bertahan dalam dinamika zaman. *Journal of Education on Social Science (JESS)*, *9*(3). https://doi.org/10.24036/jess.v9i3.627

Praselanova, R. (2025). Pemberdayaan UMKM Desa Sawentar melalui implementasi konsep desa cerdas untuk meningkatkan daya saing di era digital. *Madanika: Jurnal Pengabdian kepada Masyarakat*, *1*(1), 1-7. https://doi.org/10.38073/madanika.v1i01.2963

Sulistyan, R. B. (2021). Peningkatan Kualitas Pegawai melalui Program Autocad : Pendekatan Social Exchange Theory. *Dinamisia : Jurnal Pengabdian Kepada Masyarakat*, *5*(1), 101-105. https://doi.org/10.31849/dinamisia.v5i1.4297

Sulistyan, R. B., & Afrianto, E. (2024). Sosialisasi Penguatan Organisasi melalui Teknologi Digital pada Generasi Muda. *Capacitarea : Jurnal Pengabdian Kepada Masyarakat*, *4*(2), 43-49. https://doi.org/10.35814/capacitarea.2024.004.02.06

Sulistyan, R. B., Carito, D. W., Cahyaningati, R., Taufik, M., Kasno, K., & Samsuranto, S. (2022). Identification of Human Resources in the Application of SME Technology. *Wiga : Jurnal Penelitian Ilmu Ekonomi*, *12*(1), 70-76. https://doi.org/10.30741/wiga.v12i1.799

Ummanah, U., Pertiwi, R., & Pane, I. Z. (2025). Pemberdayaan Ekonomi Kreatif Desa Buniayu Tangerang: Diversifikasi Produk Digitalisasi Pemasaran Pengrajin Bambu Berbasis Kearifan Lokal. *Jubaedah: Jurnal Pengabdian dan Edukasi Sekolah (Indonesian Journal of Community Services and School Education)*, *5*(3), 1078-1085. https://doi.org/10.46306/jub.v5i3.467

Vuspitasari, B. K., & Siahaan, S. V. B. (2022). Hambatan Kearifan Lokal Anyaman Bambu Sebagai Potensi Ekonomi Kreatif Bagi Perempuan Di Desa Suka Maju. *EKOMBIS REVIEW: Jurnal Ilmiah Ekonomi dan Bisnis*, *10*(2), 1237-1244. https://doi.org/10.37676/ekombis.v10i2.2266

Yunus, A. I., Mastutie, F., Cahyani, E., Rukaiyah, S. R., & Kasim, N. N. (2022). Pemanfaatan bambu sebagai bahan kreasi yang mempunyai nilai ekonomis dalam meningkatkan dan mendorong industri kerajinan rumah tangga. *Jurnal Pengamas*, *5*(3), 197-208.