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No.	Title	Abstract	Outcome	Attachment
1.	Differentiated Learning with Information Technology for Teachers at SMA Negeri 5 Padangsidimpuan	Differentiated learning is an effort to enhance the classroom learning process, enabling teachers and students with diverse personalities and backgrounds to effectively and efficiently participate in the learning process. The aim of this community service activity is to provide training to teachers at SMA Negeri 5 Padangsidimpuan regarding differentiated learning methods using information technology through a blended learning approach, creating a more effective, efficient, and implementable learning experience. The combination of technology application and the development of learning methods through blended learning in face-to-face interaction between teachers and students can enhance students; academic achievement while developing practical technology usage skills. The combination of student flexibility in learning concepts independently with assistance and direct explanations from teachers in face-to-face interactions is expected to enhance student participation and motivation to learn. Therefore, it is important for teachers to design and implement diverse teaching strategies through interactive media according to	1. Improved Understanding of Differentiated Learning Among Teachers: Training in differentiated learning using technology increased teachers' ability to tailor their teaching strategies to meet diverse student needs. This understanding was reflected in the increased post-test scores following the training sessions. 2. Enhanced Technological Proficiency for Classroom Application: Teachers at SMA Negeri 5 Padangsidimpuan became proficient in using various educational technology applications, such as Kahoot, Padlet, Nearpod, and Classcraft. This technological proficiency allowed them to implement blended learning effectively, engaging students with interactive tools. 3. Increased Student Engagement through Blended Learning: By using technology to supplement face-to-face interactions, teachers reported improved student motivation and participation in learning activities, making the learning environment more dynamic and inclusive. 4. Development of Skills in Implementing Adaptive Teaching Methods: Teachers learned to apply adaptive teaching methods, providing flexible and personalized learning experiences that could better accommodate students' individual learning styles and paces. 5. Sustainable Educational Innovation with Institutional Support: The program	https://drive.google.com/open?id=1LaRVeRUIuLb5AmwL-pWP8SOqAYuNnI4I

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		students; needs to create different and meaningful learning experiences for each student.	received positive feedback from school administration, indicating a commitment to sustaining these innovative teaching practices. Additionally, teachers were supported with premium access to the educational applications, ensuring continued usage of the new methods in future lessons.	
2.	Pemanfaatan Teknologi Pascapanen untuk Meningkatkan Nilai Ekonomis Cabai Merah di Poktan Berkah Tani, Desa Pulau Gambar, Kecamatan Serbajadi, Kabupaten Serdang Bedagai (Utilization of Postharvest Technology to Increase the Economic Value of Red Chili in Berkah Tani Farmer Group, Pulau Gambar Village, Serbajadi District, Serdang Bedagai Regency)	Chili is a horticultural commodity in Indonesia, especially North Sumatra, which is widely consumed by the public. The availability and demand for red chillies in society are very unstable; when production increases, the price of red chillies is relatively low, and when production decreases, the price of red chillies will increase due to commodity shortages. Therefore, one solution to overcome this problem is processing fresh chillies into chilli sauce. Processing chillies into chilli sauce, apart from extending shelf life and increasing sales value, is also practical to consume, tastes delicious and refreshing, and is also helpful in improving the taste of dishes. Community Service Activities was in the form of Training on Chili Sauce Processing Technology and Food Safety for Pulau Gambar Village Communities of Serbajadi District, Serdang Bedagai Regency. This activity aims to obtain quality chilli sauce processing technology that meets quality standards, can increase	1. Increasing the Economic Value of Red Chili: Through the application of post-harvest technology, farmers in Poktan Berkah Tani can process red chili into chili sauce products, which extend the shelf life and increase the selling value of red chili, overcoming the problem of price fluctuations and chili availability. 2. Strengthening Community Skills and Knowledge: The training program succeeded in improving the community's understanding and skills in processing chili into sauce according to quality standards, introducing post-harvest technology and techniques that allow diversification of chili products. 3. Increased Farmer Income: With product diversification and quality improvement through post-harvest technology, the income of chili farmers increased along with access to a wider market segment and a more durable product. 4. Government Support and Collaboration: The success of the program was supported by collaboration with an enthusiastic local government as well as support from the university, which	https://drive.google.com/open?id=10qnXPMb_bdB3Mv1yXancnFdDGlx4cRdN

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		added value and is safe for consumption. The method used is counselling and assistance in processing chilli sauce. The results and outcomes achieved from the service activities that have been carried out: of the 37 participants who took part in the activities, 100% stated that the results were beneficial, 69% (15 people) intended to try it themselves, and 31% did not decide yet.	provided technical training and equipment assistance such as grinding machines and stirrers for chili sauce processing. 5. Sustainable and Inspiring Agriculture Model: The program serves as an inspiring example for other regions in developing sustainable agriculture through the use of technology, thereby increasing the competitiveness of local products and contributing to food security and the region's economy.	
3.	Peningkatan Kapasitas dan Kualitas Produk Arang Tempurung Kelapa melalui Pelatihan SDM UMKM Usaha Arang Batok di Desa Patumbak (Increasing the Capacity and Quality of Coconut Shell Charcoal Products through Human Resource Training for MSMEs in Patumbak Village)	Business Partners with Arang Batok are located on the Patumbak Defense Road, Deli Serdang district. The home industry is managed by Mr. Burman, started operating in 2020 and has 4 permanent workers, engaged in processing coconut shells into charcoal. Based on observations and interviews with partners, from row materials (coconut shells) to charcoal, with 5 well units the kiln can produce ± 5 tons of charcoal/week. The price of shell charcoal on the market is IDR 10,000-13,000/kg, with a sales turnover of 500 – 1,000 million/year. One of the problems faced by coconut shell charcoal entrepreneurs is that the quality of the shell charcoal produced is still low due to the presence of dirt or foreign objects, and the water content does not meet the charcoal quality requirements. This is also what partners feel. The low sales turnover is	1. Enhanced Coconut Shell Charcoal Quality: The introduction of a modified pyrolysis furnace allowed the production of higher-quality coconut shell charcoal with a reduced moisture content of less than 5%, significantly improving the product's commercial value. 2. Increased Production Efficiency: By using a mechanical vibrating sieve, the process of separating charcoal from ash became four times more efficient, increasing production capacity by 25% and reducing labor time. 3. Reduction of Air Pollution: The new controlled-air pyrolysis furnace design reduced smoke emissions, addressing environmental concerns and improving air quality around the production site, which benefited workers and nearby residents. 4. Boosted Sales and Revenue: The improved product quality and increased production efficiency led to a 25% increase in sales, reflecting a direct positive impact	https://drive.google.com/open?id=1_3lFPeYflwZgSz9RH21iy5dpPcjbiw29

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		due to production capacity and quality still being very low. The shell charcoal processing process is still traditional / without a touch of science and technology, such as open burning wells which also cause air pollution in the surrounding environment. Before the training, the water content of the shell charcoal was (>10%), after providing the pyrolysis furnace equipment and training, the water content of the shell charcoal was obtained (<5%). Separate charcoal and ash using a manual sieve. After using the vibrator sieve, work effectiveness becomes faster resulting in an increase in the quality and capacity of shell charcoal products by ± 25%.	on the income of the coconut shell charcoal enterprise in Patumbak. 5. Sustainable Business Model for Other Local Enterprises: The success of the training and technology implementation in this project created a model that can be replicated by other small-scale charcoal enterprises, promoting sustainable practices and economic growth in the region.	
4.	Penerapan Teknologi Pengemasan Menggunakan Mesin Continuous Band Sealer Pada Produk UMKM (Application of Packaging Technology Using Continuous Band Sealer Machine on MSME Products)	MSMEs (micro, small and medium enterprises) are businesses owned by individuals or groups that have met the criteria as MSMEs. UMKM Daima is one of the MSMEs in Pardomuan Nauli Village, which is one of the villages in Palipi District, Samosir Regency, North Sumatra Province, which is engaged in selling cassava chips whose production has been marketed at wholesalers in Palipi District. The obstacle experienced by partners is packaging that still uses manual packaging tools in the form of heat sealers. Packaging using this tool has disadvantages including that the	1. Improved Packaging Efficiency for Local SMEs: The introduction of a continuous band sealer with nitrogen flushing technology at UMKM Daima enhanced packaging speed and reliability, reducing manual labor and product leakage, which previously occurred with traditional heat sealers. 2. Extended Shelf Life of Cassava Chips: By using nitrogen flushing, the new packaging method minimized lipid oxidation, preserving the taste, aroma, and texture of the cassava chips for a longer period, which increases product appeal and marketability.	https://drive.google.com/open?id=1ou6oa7H41uJPx0Wg_q-lRJbLuZvdlBA_

		packaging material does not adhere perfectly. The method of implementing this community service activity was carried out by conducting visits and interviews with Daima MSMEs regarding the problems faced and obstacles in carrying out the cassava chip production process. The solution provided by the USU community service team is to provide innovative packaging equipment in the form of a continuous band sealer.	3. Enhanced Product Quality and Consumer Trust: The advanced packaging method not only maintains the freshness of the cassava chips but also ensures a more professional appearance, improving customer perception and potentially boosting brand loyalty. 4. Increased Knowledge of Modern Packaging Technologies: Training sessions on the continuous band sealer provided UMKM Daima staff with technical knowledge, empowering them to operate and maintain modern packaging equipment independently. 5. Positive Economic Impact on Local Business: The improved packaging quality and extended shelf life enabled UMKM Daima to expand its distribution network, potentially increasing revenue and supporting the local economy in Desa Pardomuan Nauli.	
5.	Assistance in Modeling Techniques in Photography and Content Creation of Production Products of KERIAHEN Sewing Skills Course Institution to Expand Marketing through Social Media	This program aims to provide assistance to KERIAHEN Sewing Skills Course Institution in improving knowledge and skills in modeling techniques in photography and visual content creation, as well as expanding marketing through social media. KERIAHEN Institute currently faces challenges in utilizing social media to expand marketing reach and lack of understanding of modeling techniques in photography. The mentoring method includes identification of needs and challenges, intensive training on	1. Improved Photography and Visual Content Skills: The program at KERIAHEN Sewing Skills Course Institute enhanced participants' knowledge and skills in modeling techniques, photography composition, and lighting, enabling them to produce high-quality visual content to showcase their sewing products. 2. Strengthened Social Media Marketing Capabilities: Training on social media strategies helped participants learn how to create engaging content, set up posting schedules, and leverage platforms like Instagram, TikTok, and Facebook,	https://drive.google.com/open?id=1ze5i1XWhq-ln7erY0sbBUp1MH3mAFjkT

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		modeling and photography techniques, collaboration with photographers and visual creatives, creation of content plans and posting schedules, consultation and mentoring, evaluation and measurement, as well as dissemination of results and experience sharing. It is expected that through this assistance, KERIAHEN Institute will improve skills in modeling techniques in photography, understand marketing strategies through social media, and be able to produce attractive visual content. This will help the institute in expanding its marketing and increasing its popularity through social media, so as to attract potential course participants and achieve broader marketing goals.	expanding KERIAHEN's online presence and attracting more potential course participants. 3. Empowerment in Content Creation for Brand Building: By mastering modeling and photography skills, KERIAHEN's staff developed the ability to create consistent, professional-grade visual content that enhances the institution's brand identity and sets it apart in a competitive market. 4. Increased Enrollment Interest: The effective use of visually compelling content and social media marketing led to a rise in interest from prospective students, helping KERIAHEN expand its reach and potentially increase enrollment numbers. 5. Ongoing Skill Development and Community Engagement: The positive reception of the program has fostered a community of learners within KERIAHEN who are motivated to continue improving their content production and marketing skills, supporting the institution's growth and sustainability in the digital era.	
6.	*Hexagonal Rotary Dryer* untuk Peningkatan Efisiensi Pengeringan Biji Kopi di Desa Sempajaya, Kecamatan Berastagi, Kabupaten Karo	Post-harvest handling of community agricultural products needs attention in order to improve the quality of the harvest. Drying is one of the post-harvest treatments that requires attention. Conventional methods applied by farmers currently still need improvement. Coffee farmers need to pay attention to post-harvest handling. The treatment commonly carried out by farmers is drying directly under sunlight	1. Increased Efficiency in Coffee Drying for Local Farmers: The introduction of the hexagonal rotary dryer in Sempajaya Village enabled coffee farmers to dry their beans more consistently and efficiently, regardless of weather conditions, enhancing post-harvest processing. 2. Improved Coffee Quality: By providing a controlled drying environment, the hexagonal rotary dryer produced coffee beans of uniform quality, reducing	https://drive.google.com/open?id=1iX1vihRKCE4PfzZEUAGYTsTMbSVY-o06

		(natural solar drying). This drying does not guarantee uniformity of quality due to fluctuations in sunlight intensity. Apart from that, the cleanliness of the dried material is also not guaranteed because it is left in the open. Hexagonal rotary dryer is a type of drying that utilizes sunlight. This dryer operates in the morning, afternoon, evening, or on a cloudy/rainy day by passing dry air through the drying medium (shell). The use of a Hexagonal rotary dryer also aims to facilitate the drying mechanism, especially when collecting harvests when it rains. Apart from that, another aim of this program is to produce a drying system that is capable of producing agricultural products of better and uniform quality, to produce a new drying tool, namely the Hexagonal rotary dryer prototype, and to obtain techniques and supporting variables for this drying tool.	contamination risks from open-air drying and improving the cleanliness and market value of the coffee. 3. Enhanced Community Knowledge in Advanced Drying Techniques: Training sessions on using the hexagonal rotary dryer equipped farmers with new skills in modern drying techniques, increasing their understanding of efficient post-harvest handling. 4. Reduction of Crop Loss During Rainy Seasons: The technology allowed farmers to dry coffee beans even during rainy periods, reducing spoilage and ensuring a more stable supply of coffee beans year-round. 6. Positive Community Reception and Potential for Economic Growth: Community members expressed enthusiasm for the new drying method, with many farmers planning to adopt this technology to improve their productivity and increase their income from coffee farming.	
7.	Optimalisasi Kemandirian Masyarakat dalam Mendeteksi Penyakit dan Menindaklanjuti Pengobatan Berbasis Situs WEB (Optimizing Community Independence in	The high morbidity and mortality rate of the community is due to lack of knowledge in detecting health status and the inability to make decisions to overcome health problems, causing delays in treatment. The application of information and communication technology such as WEB in nursing services is a solution to overcome this because it can optimise community independence so that distance, time,	1. Improved Community Independence in Disease Detection: Through training on the use of health-based websites, 65% of 173 respondents in the working area of Puskesmas Medan Sunggal became more independent in detecting their health status and following up on treatment, reducing dependence on health facilities for early disease detection. 2. Utilization of Information Technology for Health Service Access: The	https://drive.google.com/open?id=1g56WtRMaxUjXBSFpnVQxTQrI9DYZGE1I

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	Detecting Disease and Following Up on Treatment Based on WEB Site)	place, and cost are not an obstacle to getting nursing services and achieving SDGs to ensure a healthy life and improve population welfare. The study was conducted from August to October 2023 in the community in the Medan Sunggal Health Centre working area with a total of 173 people. The research was conducted with interviews, WEB user training, observation and monitoring of WEB implementation. The results showed 113 (65%) respondents were independent in detecting health status and following up on treatment, but there were still 60 (35%) respondents who needed continuous assistance in implementing WEB.	implementation of this website allows the community to access health services more easily, without being hindered by distance, time, and cost, supporting the achievement of SDGs goals related to public health. 3. Need for Assistance for Some Communities: Results show that 35% of respondents still require assistance in using the website, indicating the need for ongoing support for the entire community to optimally utilize this technology. 4. Effectiveness of the Technology-Based Training and Monitoring Program: The program demonstrated that technology-based training and monitoring can increase community participation in maintaining independent health and promote preventive health awareness. 5. Reduced Morbidity and Mortality Rates: By improving the community's ability in early detection and follow-up of diseases, the program is expected to reduce morbidity and mortality rates, as health treatments can be carried out more quickly and precisely.	
8.	Adoption of Water Source Filtering Technology for Feasibility Fish Hatchery Business in Bunut Seberang Village, District Pulo Bandring,	Fisheries cultivation is a promising field for Indonesia's economic development, which cannot be separated from quality hatchery efforts. The Tunas Muda Mandiri People's Hatchery Unit is a group of fish hatchery workers located in Bunut Seberang Village, Pulo Bandring District, Asahan Regency, North	1. Enhanced Fish Hatchery Skills among Community Members: Training provided to the fish hatchery workers in Bunut Seberang Village improved their skills in using water filtration technology, enabling them to produce higher-quality catfish fry and increasing their hatchery productivity. 2. Increased Awareness of Occupational Health and Safety: Through the provision	https://drive.google.com/open?id=1E5-ljOZW27rbqIn2fCLO-mxhbMDutGOC

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	Asahan Regency in 2023	Sumatra Province. In the fish hatchery business, water availability is needed in quantity and quality, but the water in Bunut Seberang Village contains rust. This community service is carried out by empowering fish hatchery workers to develop a more modern and quality business. Adoption of water filtering technology that can maintain the viability of hatchery businesses. The solution achieved in this activity was to provide a water booster, namely water booster, to encourage water to flow faster, provide catfish seed production facilities, assistance, monitoring, and development of community group dynamics. Outcomes are obtained through non- formal education, increasing the knowledge and skills of catfish breeders, as well as providing K3 facilities. Consuming catfish is beneficial for children's health. Fish is a source of protein, fatty acids, omega-3, and minerals that support the growth and development of children's brains. The use of technology and improving the quality of human resources can ultimately encourage better and more capable economic productivity. It is hoped that the explanation in socialization can be the beginning of community empowerment.	of personal protective equipment (PPE) such as gloves, goggles, and boots, workers became more conscious of safety measures, which contributed to a safer working environment in the hatchery operations. 3. Sustainable Water Management Practices: The installation of a water booster pump and filtration system helped address the issue of rust-contaminated water, ensuring a sustainable and consistent water supply essential for fish breeding and reducing fish mortality rates due to poor water quality. 4. Improved Economic Outcomes for Local Fish Hatcheries: By implementing this technology and increasing the quality of their fish fry, the Tunas Muda Mandiri fish hatchery unit could potentially boost their income, making fish hatchery operations a more viable source of livelihood for the community. 6. Positive Community Feedback and Engagement: The program was well-received by the community, with active participation from fish hatchery workers, who expressed a commitment to maintaining the new technology and practices to enhance the sustainability of their fish farming operations.	
9.	Protection of Intellectual Property Rights	Intellectual property rights (IPR) encompass a wide range of property rights stemming from the intellectual or	1. Increased Community Awareness of Intellectual Property Rights (IPR): The educational initiative in Tanjung Rejo	https://drive.google.com/open?id=16_uWhml8pF

	(IPR) for Batik Mangrove Products in Tanjung Rejo Village, North Sumatera, Indonesia, as an Initiatives to Export Products	creative capabilities of individuals. These rights span various domains, including knowledge, art, literature, and technology, and their creation typically demands investments in the form of effort, time, finansial resources, and intellectual labor. The focal point of this research is the safeguarding of IPR pertaining to Mangrove Batik products originating from Tanjung Rejo village, with the ultimate objective of facilitating their exportation. The chosen research methodology for this study is the normative juridical approach, characterized by its descriptive-analytical nature. The data used in this research comprises both primary and secondary sources, and the analysis primarily employs qualitative methods, given the predominantly descriptive and analytical nature of the data collected. The research findings underscore the concerted efforts aimed at preserving and upholding intellectual property rights for mangrove batik products originating from Tanjung Rejo village, driven by the goal of amplifying the export potential of these culturally significant creations. Tanjung Rejo village has carved out a reputation as a producer of exceptionally unique and culturally valuable mangrove batik products. However, the continued success and integrity of this product	Village enhanced the community's understanding of intellectual property rights, particularly regarding their unique Mangrove Batik products, reducing risks of unauthorized copying and misuse. 2. Improved Knowledge of Export Procedures for Local Products: The program provided practical knowledge on exporting, enabling batik producers to navigate export requirements more confidently, which opens new market opportunities for Mangrove Batik products. 3. Strengthened Economic Potential of Mangrove Batik: By promoting IPR and preparing products for export, the initiative supported the economic growth of Tanjung Rejo Village, highlighting Mangrove Batik as a culturally and economically valuable asset. 4. Empowerment Through Legal Knowledge: Community members gained valuable legal insights into protecting their creative work, enabling them to uphold the authenticity of Mangrove Batik and safeguard its cultural heritage. 5. Positive Community Response and Readiness for International Markets: Participants expressed strong interest in utilizing IPR to promote Mangrove Batik internationally, showing readiness to maintain product quality and brand identity, essential for success in global markets.	0q7d4jLtVwgTpbmtRj_ltn

		line are challenged by issues such as counterfeiting and a general lack of awareness regarding intellectual property rights. To address these challenges, this study has initiated an education and training program designed to enhance the local community's comprehension of IPR intricacies and the requisite procedures for exporting these distinct products. The study's data analysis involves pre-tests and post-tests, which serve as instruments to gauge the effectiveness of the educational program. Encouragingly, the results demonstrate a noteworthy enhancement in the local community's comprehension and awareness of intellectual property rights. This newfound knowledge and understanding can substantially fortify the protection of Mangrove Batik products while concurrently fostering their potential for export. Ultimately, safeguarding intellectual property rights stands as a pivotal instrument in preserving the authenticity and economic worth of this culturally significant product, all the while advancing cultural preservation and stimulating local economic growth.		
10.	Dukungan Percepatan Proses Pembuatan Lemang UMKM	Tebing Tinggi City is one of cities in Indonesia known as a Lemang producer. One of the MSME that survive in this city is Lemang Bundo	1. Accelerated Lemang Production Process: The provision of a coconut milk press machine to Lemang Bundo Widya MSME in Tebing Tinggi reduced the time required	https://drive.google.com/open?id=1o-5EnFHiKbfkY5BZ7Ugz8FgQdfHSf_9n

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	"Lemang Bundo Widya" (Support for the Acceleration of Lemang Making Process of UMKM "Lemang Bundo Widya")	Widya, where our preliminary assessment to the business owner we obtained information that there are still several obstacles faced by them. The constraints include a lack of capital in equipping work equipment, the length of the production process, and packaging designs that are still too simple. One production process that is quite time-consuming is the coconut milk squeezing process. As coconut milk is the main ingredient in making Lemang, we took the initiative to provide a quality coconut milk squeezer machine in order to overcome problems related to capital and production duration and to support the acceleration of the Lemang making process. In addition, we also provide a more attractive packaging design to differentiate it from other Lemang MSME products. On the packaging design, we also include the contact number and social media of the lemang business so that consumers can communicate and transact faster.	for squeezing coconut milk by 51%, allowing for faster and more efficient lemang production. 2. Enhanced Product Presentation with Improved Packaging: A new, attractive packaging design was introduced, which included contact information and social media links, enabling better brand recognition and easier customer communication. 3. Increased Production Capacity: By speeding up the production process, Lemang Bundo Widya could meet higher demand, especially during peak seasons, thus supporting business growth and increased revenue. 4. Strengthened Brand Identity and Market Differentiation: The upgraded packaging design helped the product stand out from competitors, creating a memorable brand identity that appeals to customers. 5. Positive Feedback from Customers and Increased Market Reach: With the new packaging and faster production, Lemang Bundo Widya attracted more customers and improved customer satisfaction, potentially expanding its market presence.	
11.	Training on Making Digital Learning Media to Improve Motivation and Learning Outcomes of Elementary School Students for	Learning media today is one thing that is very important in supporting the success of the student learning process at school. Monotonous learning only in the form of narration makes students bored with the learning process, so teachers must change student learning methods to make it	1. Enhanced Teacher Skills in Digital Learning Media: The training program provided teachers at SD Negeri 068332 Medan with the skills to create digital learning media, which led to more engaging lessons and improved student motivation. Teachers learned to use digital	https://drive.google.com/open?id=15x0RmvhGWJ3IBNbZDF4WWrkFGOn02i83

	Teachers SD Negeri 068332 Medan	more interesting and of course to improve the learning outcomes of these students. The demands of the times have required teachers to understand digital learning media. Of course, it is accompanied by the teacher's ability to mix and design in such a way that the learning process and the material presented can be in line and not boring. The learning process is basically a communication process through interaction between teachers and students. In the communication process the message is conveyed by the teacher to the recipient of the message or student. In the context of learning in the classroom, the message conveyed can be in the form of teaching materials delivered verbally (oral and written) and / or nonverbally (gestures). Not only teachers as communicators, learners can also act as communicators or messengers. This can happen in the midst of an increasingly modern learning system. Teachers are no longer the only source of learning, but learners can explore themselves to dig up information from various sources and communicate it in the learning process. Thus, there will be two-way communication or multiways traffic communication. Learning with both communication models requires the role of learning	tools to make their lessons visually appealing and interactive. 2. Increased Student Engagement and Learning Outcomes: With the implementation of digital learning tools, students showed greater interest in subjects like mathematics, participating more actively in class and responding positively to the new learning format. 3. Provision of Digital Learning Templates for Sustainability: Teachers received editable templates for digital learning media, allowing them to easily update and reuse materials, which supports the continuity of digital learning practices. 4. Improvement of Classroom Infrastructure for Digital Learning: The program equipped the school with necessary tools, such as a smart TV and air conditioning, to facilitate a comfortable and technology-enabled classroom environment. 5. Positive Feedback and Institutional Commitment to Digital Education: Teachers and students responded positively to the shift towards digital media, prompting the school administration to consider ongoing support for digital learning initiatives, which aligns with modern educational needs.	

		media to increase the effectiveness of achieving goals or competencies.		
12.	Digitalisation Of Sukamandi Hulu Village Through The Creation Of An Information System Application Web-Based Population Data To Support The Concept Of Smart Government	The lack of effectiveness in the process of recording, searching and reporting population data using manual methods makes many obstacles in the activity. Population Registration is an activity routinely carried out by the government for science related to techniques, collection, recording, population data consisting of moving data, migrant data, birth data, death data. This Population Data Recording Application is designed in such a way as to facilitate data recording and report generation efficiently and effectively. This application is built with Flowchart notation, Data Flow Diagram, Entity Relationship Diagram and programming is PHP and MySql as DBMS, with engineering development methods and system modelling, needs analysis, design, coding, testing and maintenance. The Population Data Recording Application has several advantages, including being able to display the number of residents in Sukamandi Hulu Village from each month.	1. Improved Efficiency in Population Data Management: The implementation of a web-based population data recording system in Sukamandi Hulu Village allowed for quicker, more accurate data management, replacing the previous manual method and reducing the time needed for data retrieval and reporting. 2. Enhanced Accessibility of Population Information: With the new digital system, village officials and residents gained easier access to up-to-date population data, supporting efficient service delivery for tasks such as issuing permits and managing public assistance programs. 3. Strengthened Data Security and Accuracy: By centralizing data on a secure platform, the system minimized data errors and increased protection against loss, ensuring reliable demographic information for village planning and resource allocation. 4. Support for Smart Government Initiatives: This digitalization aligns with smart governance goals, providing Sukamandi Hulu with a model for modernizing village administration and setting a foundation for future digital developments in local government. 5. Positive Feedback and Adaptability of the System: Community members and village officials responded positively to the system's user-friendly design, and the	https://drive.google.com/open?id=1qNKxZEOsi2yxIk2SnxdlVvtSOZQ_bQ9-

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			system's adaptability allows for easy updates to meet future administrative needs.	
13.	Pelatihan Penggunaan Aplikasi Kasir dan Pembuatan Website Company Profile untuk Meningkatkan Pendapatan RM. Intan Sari Medan (Training on the Use of Cashier Application and Creation of Company Profile Website to Increase Revenue of RM. Intan Sari Medan)	Padang restaurants in the city of Medan itself have many with a variety of advantages. Tight competition of course makes partners must be ready to do the best strategic management that can be done, both in the field of food production, financial management, service, and realize the importance of promotion for increasing revenue. The location of RM Intan Sari is very strategic as a place of business. This can be seen from the area which is crowded with residents and along the road there are many eating places that offer a variety of very diverse types of food. This of course creates business competition among traders there. So that a better marketing strategy is needed to support increased income. Based on the results of interviews and observations conducted, several obstacles were found that resulted in partners not being able to compete with similar businesses such as financial management that was not transparent and accountable, marketing techniques that were still conventional, sales volume that was not optimal and inadequate facilities. Through this program, the implementation team offers several solutions in the form of	1. Enhanced Financial Management for Small Businesses: Training sessions on using digital cash register applications provided RM Intan Sari in Medan with tools for accurate, transparent financial record-keeping, helping to improve overall financial accountability. 2. Improved Digital Marketing Strategies: The creation of a company profile website and social media accounts allowed RM Intan Sari to reach a broader audience, increasing visibility and attracting more customers through digital platforms. 3. Increased Sales Volume through Efficient Operations: By implementing digital tools and enhancing facilities with additional seating, the program enabled RM Intan Sari to serve more customers, improve service quality, and boost daily sales. 4. Strengthened Customer Engagement: Training on social media management empowered the team to connect more effectively with customers, leading to improved brand loyalty and increased repeat visits. 5. Positive Business Growth and Community Impact: The successful application of digital tools and marketing strategies fostered a model for other local businesses, showcasing the benefits of modern management practices and	https://drive.google.com/open?id=16c5CUvOrKykaYANFA-RulaoqoULMdU7b

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		training and assistance in the use of cashier applications, providing assistance and training in digital-based marketing by creating company profile websites and official partner social media accounts, providing equipment assistance to increase sales volume and providing facility assistance (sets of tables and chairs) to improve service excellence. So that in the end there will be an increase in income at R.M intan Sari Medan.	contributing to the economic growth of the community.	
14.	Utilizing Animal Feed Mixing Technology to Enchance Chicken Production in the Sido Selamat Farmer Group at Tebing Linggahara Village, Labuhanbatu	The Sido Selamat Farmer Group, located in Tebing Linggahara village, West Bilah sub-district, Labuhanbatu Regency, North Sumatra, Indonesia, has been running an independent business in the form of village chicken and catfish farming since 2014. With the potential for fish feed raw materials, as well as enormous marketing opportunities, the Sido Selamat farmer group wants to increase its production in processing animal feed to reduce feed production costs. The animal feed processing technology that has been carried out so far is constrained by the limited number of machines used to stir the feed automatically so that the production process can run quickly and efficiently. The technology that has been used so far is to use manual methods using hands so that it takes a long time in production. Therefore, a tool is needed that can stir the feed	1. Improved Efficiency of Animal Feed Production: With the automatic feed mixer machine provided, the Sido Selamat Farmer Group in Tebing Linggahara Village can mix feed more quickly and homogeneously, reducing production time and reliance on time-consuming manual methods. 2. Reduced feed costs and increased profits: The automated mixing process enables farmers to produce quality, self-sufficient animal feed at a lower cost, thereby increasing the profitability of the farmer group's native chicken and tilapia farming businesses. 3. Increased Production and Quality of Livestock Products: With more nutritious and quality feed, the production of native chicken eggs and fish meat increases, meeting the high market demand and increasing income for farmers. 4. Socialization of Waste Utilization for High Nutrient Feed: Farmer groups are also	https://drive.google.com/open?id=1EXAFZpl5h2tPEJBvDpOg8Q1BgvFaxMU9

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		automatically and is integrated with the existing feed printing machine so that work in production becomes fast and efficient. The designed tool has diesel specifications with 7 PK power that is able to stir feed with a capacity of 100 kg in one operation to produce animal feed that has good quality and can compete in the market. For now, the production of native chicken livestock continues to increase from the number of livestock almost reaching 2000 heads, egg sales of about 100 eggs / day, production of native chicken meat as much as 100 kg / week.With the independent processing of feed, the profit value obtained is expected to increase.	trained to utilize household wastes such as fish scales and taro leaves as feed ingredients, adding nutritional alternatives for livestock with an environmentally friendly approach. 5. Strengthening Agricultural Technology Capacity in the Community: The use of Internet of Things (IoT)-based machinery introduces farmers to new technologies, improving their skills and knowledge in tool maintenance and the use of technology to increase productivity.	
15.	Digital Literacy Training for Adolescent Social Media Users at SMA Negeri 1 Berastagi	This community service activity is entitled Digital Literacy Training for Social Media Users in SMA Negeri 1 Berastagi. Weak digital literacy is a problem faced by adolescents globally. Teenagers are digital natives in the digital era, with a high level of exposure to digital media. There needs to be an effort to provide digital literacy training to adolescents so that they avoid the adverse effects of the digital era. The method used in this service activity is training with details of the participant's digital literacy skills test method, interactive quizzes, case studies and scenarios from participants' real experiences, discussions from videos	1. Increased Digital Literacy Among Teenagers: The digital literacy training for students at SMA Negeri 1 Berastagi successfully improved their understanding of safe and responsible social media use, with a notable increase in students' ability to recognize and respond to online threats like cyberbullying and misinformation. 2. Enhanced Critical Thinking and Responsible Online Behavior: Through interactive activities, such as case studies and discussions, students developed critical thinking skills, learning how to evaluate digital content and make informed decisions when engaging online. 3. Promotion of Healthy Digital Habits: The training provided practical tools and	https://drive.google.com/open?id=1PPHEQlDTkkkB-R_NfTutlOHtiKIopmkh

		and animations, and giving personal and group assignments. In addition to presenting the material, we also employ gaming as a medium to explore information related to their knowledge, understanding, and experiences in using social media, illustrating how digital literacy is practiced in the daily lives of teenagers.	strategies to help students balance their online activities, promoting healthier digital habits and reducing the likelihood of internet addiction. 4. Use of Engaging Educational Methods: The program effectively used games, videos, and quizzes to engage students, making digital literacy training enjoyable and interactive, which contributed to better retention of the material. 6. Positive Community Impact and Role Modeling: Students were encouraged to act as digital literacy ambassadors, using their knowledge to promote safe online practices within their peer groups and the broader community, supporting a culture of responsible digital citizenship.	
16.	Employment of Bandrek Venders and Karo's Traditional Medicine to Enhancement the Mutual and Production Marketing through Modernization of Equipment	The publics need for natural medicines that can be consumed practically urges processed spice traders to continue to improve the quality and quantity of products marketed. The problem with traders of bandrek and traditional ingredients is the lack of equipment that supports the quality of the ingredients used as basic ingredients for bandrek and traditional Karo ingredients. Equipment that is very important in this business is a machine for grinding basic ingredients to produce a finer composition of ingredients. Apart from that, the packaging for bandrek products and traditional ingredients is more hygienic and attractive to support the sales	1. Increased Production Efficiency for Bandrek Vendors: The provision of a flour grinder and large-scale containment equipment allowed bandrek vendors in Kwala Bekala to process ingredients faster and achieve a finer powder consistency, improving product quality and reducing labor time. 2. Enhanced Product Hygiene and Market Appeal: With modern packaging featuring the LPPM USU logo, the bandrek and Karo herbal products gained a more hygienic and professional appearance, making them more appealing to customers and expanding their market potential. 3. Strengthened Knowledge in Equipment Usage: The training and demonstration on using the grinding and packaging	https://drive.google.com/open?id=1DX-Qu-3rs9_dBJ6bn_s8ZykCUHLSVWS5

		appeal and hygiene of the products produced. Based on the existing problems, community service activities provide the necessary equipment in the form of a finer spice grinding machine with a large grinding capacity. Apart from that, there were also 1000 pieces of packaging for bandrek with the LPPM USU logo. The aim of this service is to help traders of bandrek and traditional Karo medicine so that they can improve the quality and marketing of production by providing assistance with flouring tools/machines. The method of socializing product benefits and demonstrating the use of flouring machines is carried out directly to traders of bandrek and traditional Karo medicine. This activity has an impact on increasing traders; awareness to maintain the quality and marketing of bandrek production and Karo traditional medicine through equipment modernization, so that it can provide profits for traders.	equipment provided vendors with the necessary skills to operate and maintain the machines, ensuring sustainable production practices. 4. Promotion of Traditional Health Benefits: The socialization activities educated both vendors and customers on the health benefits of bandrek and traditional Karo herbal medicines, boosting demand and increasing community interest in natural remedies. 5. Positive Vendor Feedback and Support for Ongoing Improvements: Vendors expressed appreciation for the new equipment and training, indicating a readiness to continue implementing these practices to enhance product quality and potentially increase sales.	
17.	Organizatonal Strengthening, Economic, and Technological Benefits in the Implementation of Smart Agriculture in Nagaru Batu Busuk	The economy of the Batu Busuk Village community is generally classified as lower middle level while the education level is relatively not high. The main livelihood of the community is as farmers. The commodities planted by the village farmers are sweet potatoes, corn, peanuts, rice and vegetables. The	1. Capacity Building of Farmers in Smart Agriculture: The program successfully improved the skills of farmers in Nagari Batu Busuk in applying smart and organic farming technologies, including the production of organic fertilizers, which helped optimize crop yields despite flood-prone land conditions.	https://drive.google.com/open?id=1G-TbewZ62m9bFnYchwZcRYdzi6Y7Tn5j

		agricultural crops produced by Batu Busuk farmers are peanuts, sweet potatoes, rice and various types of vegetables. The production process starts from sowing seeds, then the seeds are transferred for cultivation and growth until the plants are ready to be harvested by farmers. The plant enlargement process is carried out by caring for and applying fertilizer according to the dosage and needs of each commodity. The stages of community service program activities in utilizing land in Batu Busuk Village to strengthen the organization and increase the economic value of the village community consist of two stages, namely the preparation and socialization stages of the program; both stages of implementation. The aim of each of thesestages is to ensure that intelligent farmer groups can be independent in creating their own programs and collaborate with interconnected institutions to meet the needs of farmer group members.	2. Strengthening Farmer Group Institutions: With the establishment of a more structured organizational structure, farmer groups in Batu Busuk have become stronger institutionally. This encourages more effective cooperation among members and the development of self-sustaining programs that can improve farmers' economic resilience. 3. Application of Technology for Flood Mitigation: The proposed use of flood detection technology is one of the innovative solutions resulting from the collaboration with the university. This technology is expected to assist farmers in taking early preventive measures against the adverse effects of flooding on agricultural land. 4. Collaboration with Universities and Other Institutions: Through partnerships with Andalas University and North Sumatra University, the program builds synergies that expand farmers' access to agricultural technology training, resources, and academic support for village development. 5. Awareness Raising on Eco-Friendly Agriculture: The program instills awareness and skills for farmers to practice organic farming, which is environmentally friendly and sustainable, and reduces dependence on synthetic chemicals in the long run.	
18.	WEB-Based Empowerment of Individuals to	The high morbidity and mortality rate of the community is due to lack of knowledge in detecting health status	1. Improving Community Independence in Health Detection: Through the use of a health-based website, 65% of 173	https://drive.google.com/open?id=1iHWaONUr53I

	Detect Health Status and Follow-Up Treatment	and inability to make decisions to overcome health problems, causing delays in treatment. Providing education in the form of simulations and applying patents of a method of increasing independence for detecting health status and following up on appropriate treatment and patents of WEB site-based self-care methods is the application of information and communication technology in nursing services which is one solution to overcome this because it can optimize individual independence so that distance, time, place, and cost are not an obstacle to getting nursing services and achieving SDGs 3; ensuring a healthy life and improving the welfare of the population. Community service uses interview methods, health promotion about upper respiratory tract infections, hypertension, infections, rheumatism, dental caries, skin infections, refractive errors, pulmonary tuberculosis, pulp and pariapical tissue diseases and cataracts. Followed by simulations, assistance to all participants in using the WEB https://ariganursingselfcare.com/, observation and monitoring of the application of WEB to increase independence in detecting health status and following up on treatment. Community service was carried out from August to October 2023 in the	respondents in the Medan Sunggal Health Center working area were able to independently detect their health status and follow up on treatment without having to rely on health facilities for initial check-ups. 2. Easy Access to Health Services through Technology: The website provides information that can be accessed anytime by the community at no cost, supporting the accessibility of health services and bringing the community closer to valid and precise medical information. 3. Need for Assistance for Specific Groups: While the majority can use the technology independently, 35% of respondents still require assistance, suggesting the need for additional training for groups that need help using digital health platforms. 4. Morbidity and Mortality Reduction through Early Detection: The program is expected to reduce morbidity and mortality through early detection of symptoms of common diseases such as hypertension, infections, and diabetes, as well as faster and more appropriate action guidance for the community. 5. Recommendations for Evaluation and Improvement of Digital Health Literacy: Special evaluation and approaches are needed to improve digital health literacy in the community, including the development of content that is easier to understand, in order to strengthen community independence in maintaining health.	IQuykK8WHSPL4GLbL-BUm

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		community in the Medan Sunggal Health Center working area with a total of 173 people. The results showed 113 (65%) respondents were independent in detecting health status and following up on treatment, but there were still 60 (35%) respondents who needed continuous assistance in applying the WEB.		
19.	Pengelolaan Limbah Biomassa Padat menggunakan Mesin Pemipil Jagung untuk Produksi Karbon Alam di Desa Ujung Tanduk Kecamatan Laguboti, Kabupaten Toba (Solid Biomass Waste Management using Corn Sheller Machine for Natural Carbon Production in Ujung Tanduk Village, Laguboti District, Toba Regency)	Ujung Tanduk is one of the villages producing corn commodities. This service began with the socialization and handover of corn shelling machines and providing education to the Ujung Tanduk village community so that the corn cob products are used to process solid biomass waste into natural carbon so that it can increase farmer productivity through the burning process. Corn shelling machine specifications are model: YCT 86, Power: 7.5 HP, speed: 1600 rpm with production capacity: 1200 kg/hour. With a production of 1200 kg/hour, it is hoped that it can provide added value from corn cobs and reduce the environmental impact of corn cobs.	1. Enhanced Efficiency in Corn Waste Processing: The introduction of a corn shelling machine in Ujung Tanduk Village allowed farmers to process corn cobs quickly, achieving a production rate of 1200 kg per hour, which reduced manual labor and increased processing speed. 2. Increased Utilization of Corn Cobs as Biomass: Through training, farmers learned to convert corn cobs into natural carbon, providing an environmentally friendly way to manage agricultural waste and turning it into a valuable resource for uses such as water filtration and soil pH balancing. 3. Improved Environmental Sustainability: By repurposing corn cobs into natural carbon, the program helped reduce waste accumulation, contributing to a cleaner environment and minimizing the negative impacts of unused biomass in the village. 4. Empowered Local Farmers with Technological Knowledge: The community received hands-on training in operating and maintaining the corn shelling machine, fostering self-sufficiency and enabling the	https://drive.google.com/open?id=11bAie8OEUMqRBRoiD1PpI6GXfYJzWanI

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			village to sustain these practices independently. 5. Positive Community Response and Interest in Further Development: The success of the program and the benefits observed in waste management and productivity led to community interest in expanding the initiative to include other sustainable agricultural practices.	
20.	Implementation of Spinning Machine Technology for Purun Rope and Business Management Development for the "Nasti Purun" Weaving Group in Serdang Bedagai	Community Service Activities for the Purun Weaving Group aim to enhance the quality of products and marketing for the "Nasti Purun" Purun Weaving Group in the Cinta Air Village, Perbaungan District, Serdang Bedagai Regency, as well as support the government's enterprise development program. Several production technologies within the "Nasti Purun" Purun Weaving Group in Serdang Bedagai are currently conducted manually, particularly the process of making Purun rope bags. The spinning of Purun rope still involves the use of hands and feet, causing discomfort, fatigue, and even injury to the workers' hands and feet. The "Nasti Purun" Purun Weaving Group in Serdang Bedagai is in dire need of a Purun rope spinning machine. The specific objective of this activity is the acquisition of a Purun rope spinning machine and providing appropriate marketing methods along with basic accounting. The implementation	1. Improved Efficiency and Reduced Labor in Purun Rope Production: The implementation of a Purun rope spinning machine at the "Nasti Purun" Weaving Group in Serdang Bedagai reduced physical strain on workers and cut production time, allowing artisans to create Purun rope products faster and with less discomfort. 2. Enhanced Product Quality and Variety: The spinning machine produced neater, higher-quality ropes, which enabled the group to expand their product line to include diverse and refined Purun-based items, increasing their appeal to broader markets. 3. Expansion of Market Reach through Digital Marketing: Training in digital marketing empowered the "Nasti Purun" group to promote their products online, using platforms like Instagram and Facebook, which broadened their customer base regionally and nationally. 4. Strengthened Financial Management Skills: Basic accounting training helped group members improve their financial	https://drive.google.com/open?id=150bXr3y0J_QUoJJiyfK_qLOoQnU9pTIO

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		method is carried out comprehensively, beginning with the application of Purun rope spinning technology and proper business management development, expanding the market area using online marketing (digital marketing) as an effort towards achieving one of the SDGs objectives, Decent Work and Economic Growth. This aims to enhance inclusive and sustainable economic growth, as well as decent work for all. These activities can have a positive impact not only on the target community but also on the university.	record-keeping and budget management, contributing to better business organization and financial transparency. 5. Positive Economic Impact and Community Support: The community welcomed the advancements, with increased demand for the group's products and supportive feedback from local stakeholders, highlighting the potential for further growth and sustainable economic development in Cinta Air Village.	
21.	Application of Chopping Machine in The Production of Liquid Organic Fertilizer (POC) with Banana Stem Waste Material to Increase Agricultural Productivity in Paya Geli Village	Paya Geli Village is a village located in Sunggal District, Deli Serdang Regency, North Sumatra Province and has good geographical conditions for the development of the agricultural sector, especially horticultural commodities and banana trees. This situation is a source of income for farmers in Paya Geli Village. This potential has not been fully utilized by farmers due to the scarcity of chemical fertilizers in Agricultural Stores. Farmers are starting to become aware of producing liquid organic fertilizer, but the process of chopping the raw materials is still done manually, which increases work time, as well as the accuracy of farmers in producing liquid organic fertilizer. In addition, the costs	1. Enhanced Efficiency in Organic Fertilizer Production: The introduction of a banana stem chopping machine in Paya Geli Village allowed farmers to produce liquid organic fertilizer more quickly and with less physical strain, significantly reducing labor time and manual effort. 2. Increased Fertilizer Production Capacity: By using the chopping machine, farmers were able to process larger quantities of banana stems, resulting in higher production of organic fertilizer to support their agricultural needs. 3. Improved Understanding of Agricultural Machinery Use: Farmers received training in operating and maintaining the chopping machine, empowering them with skills to ensure the equipment's longevity and efficiency in organic fertilizer production.	https://drive.google.com/open?id=1LQzTfaKVVtwRa37idWfypLXkAoTVk-Ho

		incurred to hire workers increase. Farmers; knowledge in operating agricultural tools and machinery is also low, so it is necessary to introduce farmers to the use of agricultural tools and machinery so that farmers can feel the benefits and convenience in producing liquid organic fertilizer to be used on their farms. It is hoped that this activity can add insight and knowledge to the farming community in Paya Geli Village and be able to improve the welfare of the farming community. The results of community service activities are able to provide benefits to farmers so that farmers can apply science and technology to banana chopping activities and can increase the production of liquid organic fertiliser produced.	4. Reduced Dependency on Chemical Fertilizers: With the production of liquid organic fertilizer, farmers in Paya Geli can now rely less on scarce and costly chemical fertilizers, supporting more sustainable and cost-effective farming practices. 5. Positive Community Feedback and Sustainable Agricultural Growth: Farmers expressed satisfaction with the chopping machine's impact on productivity, showing interest in expanding similar technological applications to enhance other aspects of their agricultural practices.	
22.	ASEAN ECONOMIC INTEGRATION: Enchanting Policy for Free Trade Areas	Introduction to the Problem: ASEAN economic integration is an ambitious goal that combines hopes and challenges. ASEAN economic integration is a journey that requires cooperation, adaptability, and innovation. By overcoming challenges and harnessing potential, ASEAN can continue to grow and contribute to the global economy. Purpose/Study Objectives: Since the establishment of ASEAN there have been various policies that have been ratified such as AFTA but their implementation has not been carried	1. Improved Understanding of ASEAN Economic Integration: The community in Medan gained a better understanding of the ASEAN Economic Community (AEC) and the opportunities it presents for economic growth, enhancing local awareness of regional trade benefits. 2. Enhanced Knowledge on Free Trade Policies: The program educated participants on policies such as the ASEAN Free Trade Area (AFTA), helping them recognize how reduced trade barriers could support local businesses by expanding access to ASEAN markets.	https://drive.google.com/open?id=1lUnjXSDZOvrVEVQACxE1ayDwA9PNV6Sy

		out optimally, especially in maximizing profits through these policies so it is necessary to improve related to the management of superior commodities and the development of competitiveness superior product. Design/Methodology/Approach: This research uses qualitative methods with a descriptive approach to provide a detailed picture related to how the political-economic dynamics of ASEAN form and efforts that can be made to maximize the available potential of the policies that have been issued. Findings: Since its establishment, ASEAN has had various policies that have been ratified such as AFTA, but their implementation has not been implemented optimally, especially in maximizing profits through these policies so it needs to be improved related to the management of superior commodities and the development of the competitiveness of superior products owned.	3. Support for Small Business Competitiveness: By understanding regional economic integration, local businesses are better equipped to enhance their products' competitiveness in terms of quality and pricing, preparing them to meet ASEAN standards and market demands. 4. Strengthened Regional Collaboration Skills: The initiative encouraged collaboration among local stakeholders, teaching strategies for engaging with regional markets and partners, fostering a cooperative approach to international trade. 5. Positive Feedback and Increased Interest in ASEAN Market Participation: Participants expressed interest in further education on ASEAN trade opportunities, showing readiness to leverage free trade policies for community economic growth and market expansion.	