Empowering MSME Communities to Enhance Batam's Local Product Marketing Based on Artificial Intelligence

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Abstract: Digital marketing is the application of digital technology to bring online sales (channels) to the market (websites, email, databases, digital TV, and other innovations such as blogs, feeds, podcasts, and social media) and contribute to the success of business operations. The purpose of this activity is to increase understanding among MSME actors, particularly Ananda Brownies Kukus-Batam, and the management of e-commerce websites for improving the marketing and sales of MSME products. The material will be presented in the form of a seminar. The seminar format will be used by the speaker to deliver the activity material, followed by discussions and simulations. The training activity provides benefits in improving the understanding of MSME actors about digital marketing and e-commerce website management. The digital marketing socialisation activity was conducted at Ananda Brownies Kukus, Batam, in the form of socialisation, creating an artificial intelligence chatbot-based e-commerce website for MSMEs, and training them in managing the website, to empower MSMEs to improve their marketing and sales.

Keywords: Artificial Intelligence, E-Commerce, Empowerment, MSME.

Introduction

Micro, Small, and Medium Enterprises (MSMEs) are economic activities of the people owned by Indonesian citizens with a maximum net worth of Rp200,000,000 (excluding land and buildings) or a maximum annual sales turnover of Rp1,000,000,000. MSMEs are micro, small, and medium enterprises that generally refer to productive economic activities owned by individuals or business entities, as defined by Law No. 20 of 2008 (Munambar et al., 2024). In today's digital age, the ability to access, understand, and utilise information technology has become a fundamental requirement for effectively and efficiently running a business. However, many MSME actors still lack adequate digital understanding and skills (Windayati et al., 2024).

Empowering local MSMEs is a strategic key to optimising national economic potential. Batam's economy, as an industrial, trade, and tourism city, strategically located near Singapore and Malaysia and within a Special Economic Zone (SEZ) for free trade, makes a significant contribution to economic growth (Aini et al., 2023). Currently, for local flagship products from Batam, this includes culinary and typical Malay souvenirs, souvenirs and handicrafts, batik, and various other innovative products (Hadian & Rizaludin, 2024). Boosting the marketing and sales of local products can be a catalyst for MSME growth and strengthen Batam's identity as a diverse economic hub. Despite their significant potential, MSMEs in Batam often face problems and challenges in marketing and selling their products (Kurniawan et al., 2023).

The complexity of the situation where MSMEs in Batam face factors such as limited market access and distribution networks, leading to high price competition in the market, the absence of e-commerce application platforms integrated with chatbot artificial intelligence technology, and a lack of market knowledge and digital skills can be significant obstacles that make MSMEs feel

it is difficult to compete and improve the competitiveness of their local products. Technological advancements and digitalisation trends offer new opportunities for optimising and enhancing the competitiveness of MSMEs, as well as expanding their marketing reach (Jayanto et al., 2025). Utilising online platforms, social media, e-commerce technology, and artificial intelligence can be an effective solution to overcome traditional marketing barriers and increase the visibility of local products in today's digital era (Humaira et al., 2024).

Ananda Brownies is one of the micro, small, and medium enterprises (MSMEs) in Batam City that produces steamed bread and brownies as souvenirs for tourists visiting Batam City. Located in Baloi Permai Village, Batam City District, with Ms. Yosa Noviani as the owner. Ananda Brownies Kukus is committed to continually increasing its product sales through the delivery of high-quality products. Currently, his business can be said to be quite good because he can make sales locally in Batam city. However, it has not been fully maximised in terms of wider and global promotion, marketing, and sales. MSMEs like Ibu Yosa Yoviani often face limitations in market access and distribution networks, leading to high price competition in the market. The absence of e-commerce application platforms integrated with chatbot artificial intelligence technology, as well as a lack of market knowledge and digital skills, can also pose obstacles, including issues related to product quality (Kartini et al., 2024).

The limited information available to the public means that people are not yet well-informed about local products from their own region, which hinders the progress and marketing of local MSME industries. In its development, a system is needed that can introduce and provide information related to the existence of MSMEs (Amalia & Wibowo, 2019). In the business world, chatbots offer numerous advantages for sellers or users. The advantages of using a chatbot program for sellers include saving on customer service costs, as the program has replaced them. Besides benefits for sales, chatbots also offer advantages for consumers. Among other things, consumers can access the chatbot whenever they want. Intelligent chatbots can also make it easier for consumers to communicate and get information about the products they want to buy without having to go directly to the store (Hidayat et al., 2025).

Another benefit that will be gained is that consumers can provide and view reviews from other consumers before deciding to purchase a product. Additionally, chatbots can also provide product recommendations suitable for consumers at that time. Chatbots can handle thousands of incoming messages across various communication channels, ensuring that all customer messages are addressed quickly and in real-time, allowing consumers to access the store whenever they want without time constraints (Ardiyansah et al., 2021). Chatbot artificial intelligence quickly and accurately answers consumer questions, improving operational efficiency and customer satisfaction, and serving as an effective marketing and sales tool with global reach (Friadi et al., 2022). Businesses widely use chatbot artificial intelligence technology because it can save operational costs and provide 24-hour active service, thus reducing labour needs. Technological developments create new opportunities for MSMEs to remain competitive in the increasingly evolving digital economy. MSME actors must be wise in keeping up with technological developments to maximise their benefits, as the current digital technological advancements have a significant impact on the MSME sector (Behera et al., 2020).

This service activity is closely related to Asta Cita, which is an economic improvement that benefits the people through the opening of job opportunities, entrepreneurship, and the MSME industry (Asta Cita point 3), as well as the improvement of digital knowledge and skills and digital technology (Asta Cita point 4). This service activity is also closely related to the Sustainable Development Goals (SDGs) because MSMEs play an essential role in poverty alleviation, economic growth, and job creation (Perdana et al., 2025). SDG 1 is poverty alleviation, where empowering MSMEs opens up job opportunities and increases community income, ultimately helping to reduce poverty levels. SDG 8 is economic growth, where MSMEs are the backbone of the local and national economy and job creation that supports sustainable economic growth (Haries et al., 2021).

Lecturers, as professional educators and scientists, have the primary duty of transforming, developing, and disseminating knowledge, technology, and art through the three pillars of higher education: teaching, research, and community service (Aini et al., 2023). This program will undoubtedly support the university's Key Performance Indicators (KPIs), one of which is enhancing the quality of graduates by providing students with off-campus experiences that foster community empowerment, research, and service alongside lecturers. Additionally, the university's Key Performance Indicator (KPI) targets related to improving the quality of the learning curriculum are measured by the percentage of courses that utilise case study learning or project-based group learning (PBL) (Humaira et al., 2024).

From the initial survey conducted by the team, it was found that there is still a need for a deeper understanding of digital marketing and product sales, as well as the creation of promotional content to enhance marketing and sales. Therefore, after this training is

conducted, it is hoped that the understanding of MSME actors about digital marketing will increase and they will gain additional knowledge in creating promotional content. In addition, it is hoped that they will be able to manage e-commerce websites as a means of marketing and selling MSME products.

UMKM Ananda Brownies Kukus, as part of the UMKM group in Batam City, faces several problems that hinder its business development. First, limited market access and distribution networks make it difficult to market products widely, leading to high price competition in local markets and reducing the potential for expanding the consumer base. Second, suboptimal customer service management, particularly in providing active and real-time services, has prevented MSMEs from fully utilizing the potential of digital technology-based marketing (Friadi et al., 2022).

This is exacerbated by the lack of an e-commerce platform integrated with chatbot artificial intelligence to improve operational efficiency and product competitiveness. Third, low knowledge of the market, digital marketing skills, and product quality management also pose significant challenges to business sustainability. Seeing this situation, Batam University, through the Departments of Information Systems, Management, and Mechanical Engineering, was motivated to provide a real solution by involving students in the development of an e-commerce platform based on artificial intelligence chatbots. This solution is expected to boost the marketing and sales of MSME products, expand market reach, strengthen local competitiveness, and create a mutually beneficial business ecosystem, thereby supporting economic growth and the empowerment of the MSME community in Batam City.

Method

This Community Service activity is carried out to provide solutions to the problems experienced by partners. The approach used for the realisation of this Community Service program is an empowerment model with the following stages, based on Figure 1.

Figure 1. Flow of Community Service Activities

1. Observation and Interview

The community service activities carried out by the team were implemented in several stages, involving MSME actors, one of whom was Mrs. Yosa Yoviano, the owner of Ananda Brownies Kukus. This process involved listening, understanding, giving, creating, training, and evaluating. Through this method, it is hoped that MSME actors can gain additional knowledge about the market, marketing, and distribution networks, as well as the utilisation of marketing potential and the obstacles and constraints in the market.
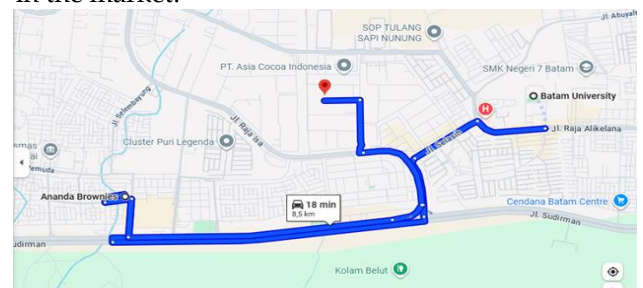
Figure 2. Partner Location

The distance between the proposing institution and the service location is 8.5 kilometres, which can be covered by two-wheeled or four-wheeled vehicles from Batam University to Ananda Brownies Kukus-Batam, Batam City District.

2. Preparation for Creating a Chatbot-based E-Commerce Application.

This stage focuses on developing and implementing an e-commerce platform integrated with artificial intelligence (AI) chatbots (Pamisetty, 2025). The selection of this platform is in accordance with the needs of Ananda Brownies Kukus as a partner and the local situation. E-commerce platform development, including design, functionality, and security. Involvement of the technical team to develop the necessary technology infrastructure (Iqbal et al., 2023). Training for MSME partners on the use and management of an e-commerce platform

integrated with an artificial intelligence (AI) chatbot. The preparations made at this stage are:

a. Purchasing a domain and hosting to store the product photo results from partners, purchasing web-based domains and hosting for partners to display all information related to marketing and product sales activities, and selecting a CMS (Content Management System),

b. Choosing a website template suitable for partners,

c. Purchasing a paid template to make the website appear more attractive and provide optimal display and benefits for partners, and

d. Developing a website as a medium for marketing, promoting, and selling products produced by partners.

3. Market Socialisation, Marketing, and Distribution Network.

Socialised entrepreneurship is an individual's understanding of entrepreneurs with various positive, creative, and innovative characteristics in developing business opportunities into profitable business ventures for themselves and their community or consumers (Lantana & Digdowiseiso, 2023). E-commerce is a marketing system conducted directly or through electronic media. According to Nisa & Misidawati (2024) E-commerce (electronic commerce) is a way to sell and buy goods and services over the internet. This e-commerce encompasses the distribution, sale, purchase, marketing, and service of products carried out electronically, such as through the internet or other computer networks. At this stage, the training provided includes:

a. Material on digital marketing,

b. Material on e-commerce, and

c. Conducting discussions and evaluating participants' understanding of market, marketing, and distribution network materials, as well as digital marketing, including e-commerce.

4. Training and Mentoring Application on Technology Use Part 1

E-commerce application training and mentoring for managing e-commerce applications integrated with artificial intelligence chatbots, conducted by partners, for businesses. The implementation activities at this stage are as follows:

a. Introducing e-commerce platforms integrated with artificial intelligence (AI) chatbot technology,

b. Training partners in utilising and managing chatbot-based e-commerce platforms to market their products, and

c. Conducting discussions and evaluations to enhance the understanding of MSME actors regarding e-commerce integrated with artificial intelligence technology.

5. Training and Mentoring Application on Technology Use

Training and mentoring activities for e-commerce application management integrated with artificial intelligence chatbots for businesses, conducted by partners, the training provided includes:

a. Introduction to e-commerce applications,

b. Training on how to upload content, activity photos, and entrepreneurial activity narratives,

c. Training on website or web visitor statistics graphs, and

d. Training on using chat applications to improve entrepreneurial literacy skills

This activity also involves students from the Information Technology study program creating an e-commerce website as a digital marketing medium to help increase the marketing and sales of Ananda's steamed brownies. Next, we will practice creating promotional and sales content to upload to the available website. First, the team and partners prepare product materials to be displayed on the website using the partners' existing product photos. Second, they upload these product photos to the prepared e-commerce platform. The next step is to wait for responses from customers and potential customers accessing the platform. After receiving a response from a potential buyer, the partner will respond according to the customer's request (Gao et al., 2023).

6. Monitoring and Evaluation

Continuous monitoring and evaluation of program implementation to measure the impact and success of activities carried out. For evaluation, monitoring was conducted on the ability of MSME actors to utilise the e-commerce platform developed by the service team. Periodic evaluation needs to be carried out to measure sales growth, market expansion, and the improvement of MSME capabilities in marketing local products (Pasaribu et al., 2023).

Result and Discussion

This PKM activity was carried out smoothly and ran well. The participants present are from the Ananda Brownies Kukus MSME group in Batam. The activity will be held on August 21, 2025. The PKM team carried out activities in accordance with the previously established plan. In carrying out this activity, partners actively participated in preparing the room and refreshments for the service activity. They welcomed us

with open arms and expressed their happiness at receiving this socialisation and training because it met their needs. They also actively participated in the discussion, asking questions about digital marketing, e-commerce, content creation, and website management.

Digital Marketing and E-commerce Socialisation

Digital marketing is a term used for the use of digital technology in marketing or selling products and services in a targeted, engaging, and interactive manner. According to Rerung (2018), online marketing offers significant benefits for businesses that use it. Digital marketing is also defined as marketing activities that utilise internet-based media. Compared to other media, digital marketing has a broader reach, is faster, accessible to anyone, and speeds up the sales transaction process.

Digital marketing is the application of digital technology to bring online sales (channels) to the market (websites, email, databases, digital TV, and other new innovations such as blogs, feeds, podcasts, and social media) and contribute to the success of business operations. In addition to developing strategies to increase consumer knowledge (about the company, products, prices, and loyalty levels to the company's products), it is also necessary to provide targeted communication with online services that meet the needs of each individual or client (Jasri et al., 2022).

Figure 3. Socialisation Activities

Figure 4. Presentation of Material on E-Commerce

Practice of Mentoring in the Use of E-commerce Website Applications

The development of digital media has changed many aspects of life, including the business world. In managing a business or enterprise, business owners face various tasks that must be completed to achieve the desired goals. Therefore, business owners must understand various types of literacy, including financial literacy, business literacy, and entrepreneurial literacy. According to Manuhutu & Wattimena (2019), A website is a method for displaying information on the internet, whether in the form of images, videos, text, and sound, or interactively linking from one document to another (hypertext) that can be accessed through a browser.

As for the types of websites, they are as follows: A static website is a website with pages that do not change. This means that to make a change to a page, it must be done manually, specifically by editing the code that forms the website's structure. A dynamic website is a website whose structure is designed for frequent updates. This website is primarily intended for user access, but a back-end page has also been provided for editing the website's code. An interactive website is a website designed for online interaction with others. Users of this type of website are typically communities or active internet users. Users on this website can interact and debate their thoughts (Suhrowardi et al., 2024).

Creating the Batam Brownies marketing and sales website: In this session, participants received materials on digital marketing and strategies for effectively and sustainably managing a website. The key point of this session is to raise awareness among training participants that sales and marketing issues encompass more than just buying and selling transactions. Then, the session continued with a practical demonstration of website management using the platform prepared by the community service team. Participants were trained in product photography, the use of artificial intelligence and promotional content, posting promotional content, and how to respond to buyer feedback.

Figure 5. Explanation of Material Regarding E-Commerce Features

The website transferred to the partner utilises the Brownies Batam e-commerce application platform, integrated with chatbot intelligence. This platform has become a highly relevant alternative solution, significantly impacting the sales and marketing of partner products. This training program has proven to be capable of improving partners' managerial skills, increasing knowledge about markets, marketing, and digital marketing. In the field of marketing, it provides an e-commerce platform integrated with a chatbot with specifications for social media optimisation, search engine optimisation (SEO), online advertising campaign management, and customer service management, featuring a user-friendly and interactive interface (UI/UX) and a management dashboard for business owners to manage orders, inventory, and sales transactions.

Figure 6. Material about E-Commerce Features

The image above shows an illustration of science and technology being transferred to partners. First, develop an integrated e-commerce application platform with a chatbot. Second, market local products from Batam. Third, provide training and mentoring in the implementation of the e-commerce platform. Fourth, evaluate the improvement of digital empowerment for Batam MSMEs.

Table 1. Results of the MSME Empowerment Activity Evaluation

No	Statement	NA (Not Agree)	A (Agree)	VA (Very Agree)
1	I am familiar with and understand what digital marketing entails.		77.8%	22.2%
2	I sell products online through e-commerce or social media.	22.8%	57.1%	20.9%
3	The provided activity materials were clear, easy to understand, and straightforward to implement.		33.3%	76.7%
4	The speakers delivered the material very clearly, in accordance with their competence.		33.3%	76.7%
5	The activities carried out helped increase my knowledge.		22.2%	77.8%
6	The community service activity team was invaluable throughout the process.		33.3%	76.7%
7	If the community service activity is held again, I am willing to participate.		33.3%	76.7%
8	The material presented met the needs of the partners (MSMEs).		22.2%	77.8%
9	The question-and-answer discussion helped partners better understand the material presented.		22.2%	77.8%
10	This activity helped partners better understand various digital marketing tools.		22.2%	77.8%

The activity evaluation was conducted to assess the participants' level of understanding regarding digital marketing and e-commerce, as well as their skills in managing the Batam Brownies e-commerce website, which was prepared by the service team. The evaluation results showed an increase in participants' understanding of digital marketing and e-commerce.

From Table 1 above, it can be seen that the partners' understanding of digital marketing, primarily e-commerce, has improved. Although they were already using digital marketing, their usage was still limited, primarily on the WhatsApp platform, and a small portion used Facebook and e-commerce platforms like Shopee Food. After the activity, they only realised that uploading product photos also requires a touch to make it easier for consumers or potential customers to access their online store. It is not just about uploading product photos. This is expected to help partners improve their product marketing. Initially, there were still 22.8% of partners who did not sell online. With this activity, they became interested and intended to sell online.

For website management, ongoing support is still needed to help them become accustomed to creating promotional content for upload, as well as crafting

taglines and promotional videos using artificial intelligence. Additionally, it is also for managing the customer database.

Figure 7. Group Photo

Conclusion

Digital marketing socialisation is one of the efforts to provide understanding about the market and marketing, especially digital-based marketing, to MSME actors in order to improve the marketing and sales of their products and services in their business activities. This activity consists of lectures, discussions, practical content creation, website management, and evaluation. The evaluation of the activities reveals that the material presented successfully enhanced the partners' understanding of the importance of digital marketing and e-commerce in enhancing product marketing and sales. The participants were very enthusiastic and actively involved in the activity process, especially during the discussions and the practice of uploading their products to the website prepared by the service team.

The benefits of this activity are: (1) For partners, in this case, MSME actors, especially Ananda Brownies Kukus Batam, they gain additional knowledge about the market, marketing, and digital marketing, as well as how to take and upload product photos to the e-commerce website prepared by the service team to improve product marketing and sales. (2) For the government, it helps efforts to increase human resource capacity, especially for MSME actors like Ananda Brownies Kukus Batam. (3) It familiarises MSME actors with conducting product promotion and sales activities and managing e-commerce websites as a means of product promotion and marketing, so they can keep up with digital marketing developments and compete with other products.

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