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Empowering Micro-Entrepreneurs through Artificial Intelligence: A Conceptual Framework for AI-Based Marketing

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Abstract

Technology becoming the main product to enhance various aspects in the business. Artificial Intelligence has provided many conveniences in marketing business products. However, this innovative technology is not yet widely understood by the F&B microentrepreneur. The microentrepreneurs tend to focus more on developing their products rather than improving sales through product marketing using AI. This research aims to develop a conceptual framework to help micro-entrepreneurs in marketing their products by utilizing Artificial Intelligence (AI) technology. The framework will be developed through a focus group discussion (FGD) involving stakeholders, including the Department of Industry and Trade, the Regional Development Planning Agency, and micro-entrepreneurs, to determine gaps or deficiencies that exist among micro-entrepreneurs. The Delphi method will also be used to gather opinions from experts in AI and marketing to develop an AI model suitable for micro-entrepreneurs. The model will involve the use of chat GPT, a simplified version of AI, and copy AI. The end result will be a prototype of an AI model that is tailored to the needs of micro-entrepreneurs, with the potential to improve their marketing capabilities and overall business operations. The framework will also include the use of digital marketing to provide a platform for micro-entrepreneurs to develop their online segmentation. The ultimate goal of this research is to bridge the gap between AI marketing and digital transformation, creating a user-friendly application for micro-entrepreneurs to increase their marketing capacity.

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1. Introduction

Artificial Intelligence (AI) is an area of computer science that involves the development of intelligent machines capable of performing tasks that typically require human intelligence. AI technologies have been rapidly advancing in recent years, and their application in the marketing sector has proven to be very beneficial for Micro enterprises. AI is primarily concerned with user retention and lead conversion in digital marketing. It can guide a user in the direction

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that aligns with the business's goals by using intuitive AI chatbots, intelligent email marketing, interactive web design, and other digital marketing services [1].

AI in marketing is currently gaining importance, due to increasing computing power, lower computing cost, the availability of big data, and the advance of machine learning algorithms and models [2]. The marketing model that AI can create surely will help the Micro Enterprises as a guidance creating a well-done content to posting their product on social media. However, Micro entrepreneur have a knowledge limitation of using an AI technology. Based on Department Industry and Trade Cianjur, there are 53.084 SME's that legally registered to the department. The department still tracking the number of SME that already go digital. Food and Beverages (F&B) microentrepreneur keen to focusing on produce their product so they put aside the online marketing.

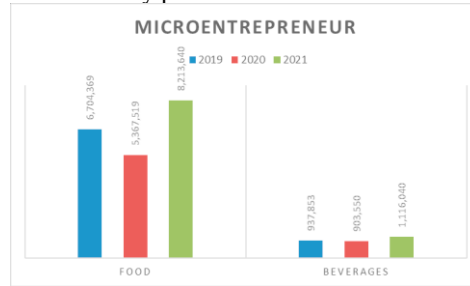


Fig 1 Microentrepreneur Food & Beverages

Based on data 2019 the data came fluctuate because Covid-19 hit in 2019 then in 2021 growth much higher. Focusing in food and beverages microentrepreneur because the product did not last long. So they need to market their product in order to get a higher profit.

Microentrepreneur often solely concentrate on producing their goods without considering how to effectively market them. At this point, AI can function as a tool for microentrepreneur to discover marketing alternatives for their products, freeing them to focus on creating product. This can be achieved if the microentrepreneur possess knowledge about AI, which includes the different types of AI and how to operate them as the reference material for their social media posts.

Indirectly and unconsciously the F&B microentrepreneur have already been engaging in online marketing utilizing AI. For example, checking the number of sales, comment and rating they make on the existing marketplace, but they have not yet fully utilized the potential of AI technology.

A module or video about AI should be provided to microentrepreneur. This condition occurs because microentrepreneur that has attending to the marketing training can easily forget the result of training if they do not immediately apply them to their business. Yet the module and video also need to be sync with the requirement of what microentrepreneur lacks. Therefore, the purpose of this research is to provide a suitable conceptual framework for micro entrepreneur to enhance their online sales.

Research Question in this article is What are the best conceptual framework for microentrepreneurs to improve their online marketing?

2. Literature Review

2.1 Artificial Intelligence

Artificial intelligence (AI) is a disruptive technology that allows machines to replicate human cognitive and effective functions necessary for performing intellectual tasks, like reasoning and problem-solving, autonomously [13]. Machines can learn, store, and refine their knowledge based on past experiences and existing information, enabling them to make real-time decisions and predictions, such as selecting marketing strategies or predicting customer satisfaction [14]. Machine learning occurs when machines compare their decisions to correct answers or criteria in situations where there are no clearly defined answers. The knowledge gained through this learning allows machines to adapt and respond to changes in the business environment, which is not possible with traditional

approaches that rely on a predefined set of static rules. AI has transformed the marketing landscape, replacing traditional methods like printed catalogs and telemarketing with digital approaches, such as social media and chatbots. [15].

Artificial Intelligence Marketing (AIM) is the use of AI to automate the collection and analysis of a vast amount of data and information related to the marketing mix to generate knowledge. This knowledge is then utilized to automate marketing processes, such as market intelligence [16]. AIM's ability to personalize marketing for each customer based on their unique needs and wants is a revolutionary feature made possible by AI [17]. Unlike traditional marketing, which focuses on the firm level and acquisition/purchase activity, AIM can analyze individual customer behavior across various activities related to a product or service, including acquisition, consumption, and disposal.

There is a three-stage strategic framework for using AI in marketing that leverages the three AI intelligences and their Marketing Research. At the marketing research stage, AI is used for market intelligence, including mechanical AI for data collection, thinking AI for market analysis, and feeling AI for customer understanding. At the marketing strategy stage, AI is used for the strategic decisions of segmentation, targeting, and positioning. Specifically, mechanical AI is ideal for discovering novel customer preference patterns in unstructured data, thinking AI is ideal for recommending the best segment(s) to target, and feeling AI is ideal for communicating with targeted customers about the product. During the marketing action stage, AI can provide benefits through standardization, personalization, and relationalization, either independently or in combination. Marketers must determine which AI capabilities are best suited for specific marketing actions. For instance, functions like payment and delivery can benefit from standardization through the use of mechanical AI, such as automated payment and delivery tracking. Digital marketing can benefit from personalization by utilizing thinking AI, including various recommendation systems. Feeling AI, such as social robots, can assist with customer service and frontline customer interactions by providing personalized greetings and conversational support [18].

There is a hope that the AIM can provide the F&B microentrepreneur to expand their current marketing situation to their online market. Thus, transfer knowledge of AIM will help the microentrepreneur to create new segmentation in online marketing.

2.2 Digital Marketing

Various digital marketing tactics and methods that include an electrical appliance or the online databases to demonstrate, advertise, or sell products or services, along with industries that have used internet channels to make them successful. Websites, social networking sites pages, targeted advertisements, and e - mails tend to hold current customers and attract new customers. To determine the critical role of artificial intelligence (AI) in digital marketing research, we must first analyze the current state of digital marketing scientific research and compare it to the business sector. Then we'll know how far digital marketing in academia tends to lag behind the advancement in the business sector [19].

Digital marketing refers to the use of hardware, software, and communication technologies to execute marketing plans [20]. This broad term encompasses online marketing, internet marketing, and mobile marketing, and includes various techniques such as market analysis, surveys, advertising, search engine optimization, publications, and social media marketing. To effectively utilize these technologies, marketing analytics is crucial [21].

Digital marketing has also changed the way consumers search and buy products and services, creating a consumer-driven economy. Consumers have become more demanding, have higher expectations than ever and of course more choices. Marketing is no longer just about the brand, but also about the consumer experience, which has now become the focus of every marketing strategy. While traditional marketing sought to create awareness for the product, the goal of marketing in our time, is to create experiences around the product that will stimulate consumer interest and action [22].

Digital marketing offers many benefits to companies that choose to use it. Through digital marketing, businesses find channels of direct communication with consumers; this can occur even in real time. Hence, companies can gather various information and valuable reviews to improve their product. In addition, by adapting their content and message, businesses can focus on more targeted and different audiences, which can extend to infinity as a size [23].

The collaboration of artificial intelligence marketing (AIM) and digital marketing is essential for Microentrepreneur to enhance their online sales capacity and competitiveness and facilitate their digital

transformation. To achieve this, microentrepreneurs need to grasp the concept of AIM and receive social media tutorials, which can not only boost revenue but also enhance segmentation.

2.3 Digital Transformation

The concept of digital transformation has gained significant attention from both researchers and practitioners in recent years, as it is changing the way industrial organizations operate through the use of digital technologies [24]. Digital transformation has not only affected the product and service offerings of industrial organizations but has also changed the way they operate and, therefore, requires a company-wide transformation program—the digital transformation of organizations. The relationship between technology implementation and organizational transformation is not new in the literature [25]. Trist and Bamforth [26] studied how the interconnected nature of implementing new technologies affects organizations, which led to the emergence of sociotechnical system theory (STS). The STS theory considers both the technical and social factors affecting change within an organization (Cherns, 1976; Davis et al., 2014 [27]). Similarly, the concept of digital transformation can be divided into two main categories: technical systems (advanced digital technologies such as cloud computing, the internet of things, digital platforms, big data, and analytics) [28] and social systems (people, culture, goals, procedures, and structures). Moreover, organizations are considered complex systems that consist of interdependent components hence, designing a change for one system (implementation of digital technologies) without considering its effects on other parts of an organization (the social system) will limit its effectiveness [29].

Microentrepreneurs need to realize the urgency of digital transformation. While microentrepreneurs have a good understanding of technology and demonstrate enthusiasm for it by having multiple social media accounts on their devices, they lack the ability to imitate successful online marketing strategies employed by established businesses. This hinders their ability to tap into the online market segment.

3. Methodology

In this study, a variety of research methods were employed, including a systematic literature review and the Delphi method using FGD as a tool to get the information. The systematic literature review was used to gain a comprehensive understanding of existing research on the topic, while FGD events allowed for a detailed exploration of the perspectives of business and microentrepreneurs. Additionally, the Delphi method was utilized to gather expert opinions and achieve consensus among participants. To get more information from the microentrepreneur situation about the Artificial Intelligence they used.

3.1 Determine the Article

In order to determine what article that will conduct in Systematic Literature Review, researcher will search the article of Artificial Intelligence Marketing, Digital Marketing and Digital Transformation focusing on Small Medium Enterprises. Here the researcher found

No	Source	Findings	Technology Used
1	[3]	the acceptance of new technology in small and medium-sized enterprises (SMEs) is improved by factors such as innovation, collaborations in research and development (R&D), skilled and educated employees, decentralized decision-making, and leadership with a clear vision.	Simple Technology
2	[4]	For small and medium-sized enterprises (SMEs) to effectively utilize social media, it is essential to have an open and collaborative business model innovation approach as well as a combination of central and distributed leadership.	Social Media Platforms
3	[5]	The proprietors and founders of small and medium-sized enterprises (SMEs) obtain and apply knowledge to expand internationally through internet-based	Social Media Platforms

		platforms, and their usage of these platforms is influenced by their online experiences.	
4	[6]	The performance of small and medium-sized enterprises (SMEs) is notably impacted by their digital platform capabilities through network capability, with exploitation and exploration orientations having a negative and positive moderating effect on this relationship, respectively.	Social Media Platforms
5	[7]	The marketing capabilities and performance of exporting businesses are significantly influenced by their platform and web capabilities.	Digital Information Technology, AI, Big Data
6	[8]	Small and medium-sized enterprises (SMEs) face difficulties in assessing the quality of potential partners in online marketplaces due to an excessive amount of information available at a low cost. Nevertheless, utilizing a recommendation system can improve the rate of matches by reducing the impact of information overload.	Social Media Platforms
7	[9]	According to the results, the adoption of cross-border ecommerce by small and medium-sized enterprises (SMEs) is influenced by their digital capabilities and size.	E-commerce Platforms
8	[10]	The acceptance of AI practices by small and medium-sized enterprises (SMEs) is influenced by both technology road mapping and attitude, but not professional expertise, as indicated by the results.	Social Media Platforms, AI as a new technologies
9	[11]	Small and medium-sized enterprises (SMEs) may be deterred from undertaking machine learning projects due to a lack of IT knowledge. Although machine learning methods have become more accessible through commercial cloud solutions, certain SMEs still need to prioritize digitization instead, given their limited level of digital adoption.	AI Platforms
10	[12]	The results highlight the restricted and relatively uncomplicated implementation of digital marketing practices among B2B small and medium-sized enterprises (SMEs) operating in the oil and gas sector, and also outline some of the challenges encountered by these businesses.	Social Media Platforms

Based on the previous research, the gap from the other research with this study is focused on the use of social media platform, and some of them using AI to improve the backbone of the SME's, while the other utilization of AI as a technology has been relatively underexplored because the previous research that using AI centered in B2B business and got limitation in Food and Beverages microentrepreneur cases. Our study aims to fill this gap by developing a conceptual framework that can assist F&B microentrepreneur in comprehending the potential and advantages of using AI for their online marketing endeavors by using the knowledge of microentrepreneur in implementing the ease of AI that can help them to achieve online market. Through this research, we hope to provide new insights to microentrepreneur on how they can harness the potential of AI to expand their online market reach. To find the best opportunity in artificial intelligence marketing that are suitable for microentrepreneur, a focus group discussion (FGD) will be conducted to determine what gaps or deficiencies exist among microentrepreneur.

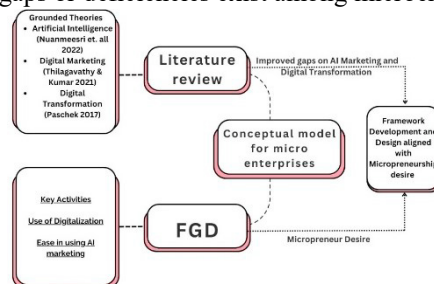


Fig 2 Research Methodology

Based on the figure 1, the research that will be conducted is to combine the existing AI technology with the concept of digital marketing to facilitate its use and turn it into digital transformation for the implementation of AI usage in online media as a marketing tool. To obtain maximum results, FGD activities are needed to bring together stakeholders and micro-businesses for discussions on the use of technology to increase marketing capacity. The FGD event will invite the Department of Industry and Trade, the Regional Development Planning Agency, and business actors to exchange ideas in determining an easy-to-use digital marketing strategy. The results of the FGD will be a reference for creating an application based on the needs of micro-businesses to facilitate their transactions and even market their products. Combined with existing literature studies, it is expected to create a user-friendly application for micro-businesses and bridge the gap between AI marketing and digital transformation. There are expected to be several influences from existing literature studies such as AI, Digital Marketing, and Digital Transformation that affect the marketing capacity of micro-businesses. Pre-tests and post-tests related to the material from the literature study need to be conducted. In addition, monitoring and evaluation of the literature study and the application used for ease of use for micro-business actors are needed.

On the other hand, digital marketing will provide a platform for microentrepreneur to develop their online segmentation. These two things will be created if there is a transfer of knowledge about the use of AI and devices that can be used as tools to open new segments in digital marketing. That way, business actors will be more aware of digital transformation when developing their small businesses.

4. Result

FGD has attended by 4 F&B microentrepreneurs, 1 Representative from Bapperida (Regional Development Planning, Research and Innovation Agency), 1 Representative from Diskoperindag (Department of Industry and Trade) and 3 Academics. these 4 people are the person that becomes role model for microentrepreneur focusing on the food and beverages business section.

The result of FGD, all the parties enthusiastic as the microentrepreneur wanting a conceptual framework that can be used by them to get known about AIM that is affordable and provides a lot of information that can attract customers and is free of charge. Bapperida wants not only microentrepreneur to be facilitated but all of the business actors. Then the Diskoperindag wants the AI application to help business actors, and there needs to be socialization and guidance on the use of AI technologies. Referring to the literature review, the combination of AI Technology and Digital Marketing will increase the Digital Transformation of business actors.

Furthermore, the framework that can be presented to increase the desire of business actors to carry out digital transformation by using AI and also the container, namely digital marketing, is as follows.



Fig 3 Conceptual Framework

The objective of this task is to prepare a conceptual model for the list of Artificial Intelligence Marketing methods, based on the theory of AI using the Delphi method to food and beverages microentrepreneur. The expected outcome is an AI model that is suitable for micro-entrepreneurs. The Delphi method is a systematic and interactive forecasting method that involves a panel of experts who provide their opinions and feedback in multiple rounds until a consensus

is reached [30]. The panel of experts will consist of individuals who have expertise in AI and marketing, and they will be asked to provide their opinions on the list of AI marketing methods that are most suitable for microentrepreneurs. The results of this study will be used to develop an AI model that is specifically designed for micro-entrepreneurs, which will help them to enhance their marketing strategies and improve their overall business performance.

The Framework Model aims to develop an AI model suitable for microentrepreneurs [31]. The development of this model will involve the use of chat GPT, a simplified version of AI, and copy AI. The methodology for this project will consist of prototyping, testing, and evaluation. The end result will be a prototype of an AI model that is tailored to the needs of microentrepreneurs, with the potential to improve their marketing capabilities and overall business operations.

The objective of this stage is to execute the prototype of the AI model that has been developed. The theoretical frameworks that will be considered in this stage are Digital Marketing and Digital Transformation, with a focus on microentrepreneur. The method that will be used to collect data is through observation and interviewing. The result of this stage will be the observation results and scores of the prototype. Transfer knowledge need to be done in this stage so the microentrepreneur can develop their marketing strategies using AI [32].

During this stage, the prototype of the AI model will be tested and evaluated in real-world settings. The observations and interviews will be conducted with microentrepreneurs who have used the prototype to determine its effectiveness and usability. The theoretical frameworks of Digital Marketing and Digital Transformation will be used to guide the evaluation process, with a focus on how the prototype can improve the marketing capabilities of microentrepreneurs [33].

The results of this stage will be in the form of observation notes and scores that reflect the effectiveness and usability of the prototype. These results will be used to make any necessary improvements to the prototype before moving on to the next stage of the project.

5. Conclusion

Based on the project, it has been found that microentrepreneur still face significant challenges in online marketing. However, the emergence of AI technology offers potential solutions for the F&B microentrepreneur to develop effective digital marketing strategies. Microentrepreneur understanding of technology remains limited, and a lack of information about AI technology means that they have yet to fully benefit from digital marketing solutions. Consequently, they tend to focus on traditional methods for product development and marketing.

Through a focus group discussion (FGD) with experts, stakeholders, and microentrepreneur, it has been found that the F&B microentrepreneur are enthusiastic about AI technology, which offers them a means to market their products for free. Moreover, stakeholders expressed a desire to continuously transfer knowledge about AI technology to microentrepreneur. By providing transfer knowledge, microentrepreneur can more easily operate their digital marketing strategies, leading to increased revenues. A better understanding of AI technology will also increase their awareness of digital transformation.

Nonetheless, this research has certain limitations. While a conceptual framework has been established, implementing AI technology within the F&B microentrepreneur environment may encounter challenges such as limited resources, technical skills and microentrepreneur that aware about changing. Additionally, this study solely presents a conceptual perspective and lacks empirical testing. Therefore, further research is required to examine the validity and effectiveness of implementing this conceptual framework in real-life microentrepreneur practices.

In conclusion, this research contributes significantly by offering a conceptual framework that empowers micro-entrepreneurs to enhance their online sales through the strategic implementation of AI. The implications underscore the importance of integrating AI within marketing strategies and provide valuable guidance for micro-entrepreneurs to fully leverage the potential of AI. However, it is important to acknowledge the limitations of this study and emphasize the need for future research to test the implementation and effectiveness of this conceptual framework in real-life contexts.

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