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**EXPLORATION UTILIZATION OF CHATBOTS BASED ARTIFICIAL  
INTELLIGENCE IN DIGITAL MARKETING FOR SNACK SMES  
TRADITIONAL TYPICAL OF SUMENEP – MADURA**

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**Abstract**

The study explores the utilization of chatbot-based *Artificial Intelligence (AI)* in digital marketing in snack SMEs typical Sumenep Madura which has start adopt technology the However Not yet optimize its use . Through approach qualitative with technique interviews , observations , and documentation , as well as data analysis using *NVivo 15* , research This find that *chatbot* utilized For respond consumer through social media and *e-commerce platforms* , but its function Still limited to services basis . MSME actors feel a number of benefit like efficiency time , increase speed response , and convenience service customers , but faced



with obstacles in the form of low digital literacy , limitations device , instability network , as well as various problem technical aspects of *chatbots* . In addition , concerns related costs , needs adaptation technology and resistance to change participate influence optimization utilization *Chatbot* . Consumers and employees hope *chatbot features* capable give recommendation more personal and interactive products , while MSMEs require integration more systems flexible and appropriate with context local . With thus , *chatbot* based *AI* own potential significant For strengthening the digital marketing strategy of snack MSMEs typical Sumenep Madura, however required improvement digital literacy , support more technology adaptive , as well as development aligned features with characteristics business small in area.

**Keywords:** Artificial Intelligence, Chatbot, Digital Marketing, MSMEs, Snacks  
Traditional Typical of Sumenep

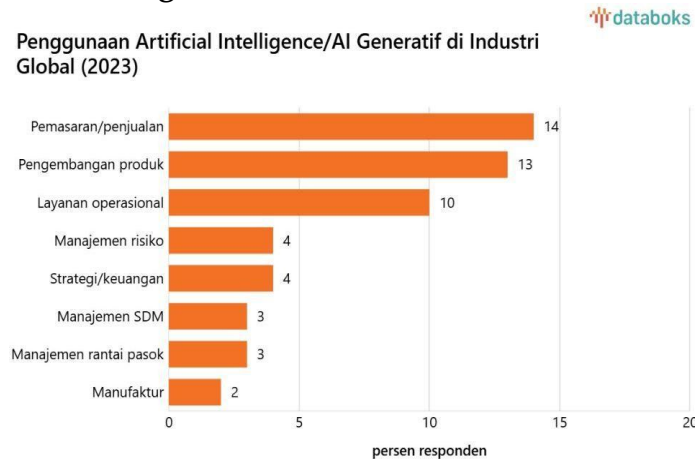
## INTRODUCTION

The Micro, Small and Medium Enterprises (MSMEs) sector is bone back economy national and play role important in guard stability economy in the era of disruption moment This . In addition , the MSME sector also has an impact on the absorption of power work , equality income , as well as push activity economy in various area . The size contribution sector This reflected from the 2024 Ministry of SMEs data which shows that the number of MSMEs in Indonesia reached very significant figures . The trade sector occupy most dominant position with 14.43 million business units , followed by providers accommodation as well as food and Drink as many as 6.4 million units, and the industry processing with 4.16 million units. Meanwhile that , other sectors such as services , construction , and real estate also provide contribution although with more amount small . Structure This describe that MSMEs do not only play a role as support activity economy , but also as a motor of growth in various sector business (Arifah et al., 2021) .

In the middle increasing competition tight, digital transformation becomes need urge for MSMEs to expand market reach and strengthen Power competition . Digitalization allows perpetrator business optimize marketing processes, reduce cost operational , at the same time build more connectedness intense with consumers . One of the development technology that provides influence big in realm This is utilization intelligence artificial (*Artificial Intelligence/AI*), especially

in activity marketing . Global *trends* show that *AI* generative the more Lots adopted in various field (Firdaus et al., 2025) . This is can seen in table 1 below This .

**Figure 1.**  
**Usage Artificial Intelligence/ Generative AI in Global Industries in 2023**



Source : Databoks , 2023

In 2023 , marketing and sales recorded as sector with level utilization *AI* highest , namely 14% , followed by development products (13%) and services operational (10%). The data show that *AI* has become instrument strategic for various industry For increase efficiency and quality service .

One of form implementation Relevant *AI* with What MSMEs need is chatbots. Technology This functioning as capable virtual assistant give response fast , consistent , and reaching consumer without limitation time . For MSMEs that have limitations power work , *chatbot* become potential solutions For repair quality service at a time speed up the transaction process . However , the benefits This Not yet enjoyed in a way evenly distributed by all MSMEs, especially those in the regions (Hidayat, Najiatun, et al., 2025) .

Condition the seen in snack SMEs typical Sumenep , one of the subsector culinary that has mark culture and potential a large economy . Although the actors local businesses This has start utilizing social media and *e-commerce* platforms For market product , understanding they about more digital features complex Still limited (Najiatun, Wulandari, et al., 2025) . In the case of the UMKM *kriyukin.yuk* , for example , the owner business has make an effort do marketing offline and online, but utilization *chatbot* not optimal . Digital literacy constraints, inadequate devices adequate , and internet access that is not stable become obstacle main in the adaptation process . In addition , it appears concern about



cost use technology and assumptions that chatbots can reduce personal closeness with customer (Hidayat et al., 2024) .

From the perspective consumers , Sumenep MSME products Actually own Power competition high . Taste, quality material raw materials , and affordable prices get appreciation positive . However , this aspect supporters like design packaging , information products , and speed response customer Still become note . This is show that need to more digital services responsive and structured the more increased , good For strengthen image professional and increase trust consumer (Nurul Hidayat et al., 2025) .

From the above phenomenon , research about utilization of chatbots based on *AI* in digital marketing for snack SMEs typical Sumenep become relevant . Research This important For identify pattern use of chatbots , perceived benefits , obstacles that arise , and need development features to make it more in accordance with context local . Findings study expected can give contribution for formulation of a more digital strategy for MSMEs adaptive , inclusive and sustainable (Khas & Hidayat, 2025) .

Study This aim For understand in a way deep utilization *chatbot* based intelligence artificial in digital marketing for snack SMEs typical Sumenep with examine pattern use *chatbots* on various *platform* , perceived benefits perpetrator business to improvement efficiency services , as well as the obstacles they face face it related digital literacy , readiness devices , and constraints technical (Yuni K et al., 2025) . In addition , research this also digs perspective consumer about needs and expectations they to service *chatbots* , in particular related personalization information and quality interaction . Through mapping potential and challenges said , research This expected give description comprehensive that can become base development of a more digital strategy for MSMEs adaptive and appropriate with local context (Rahman et al., 2025) .

## LITERATURE REVIEW

### Digital Transformation of MSMEs and Technology Adoption Challenges

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in regional and national economic development, particularly in employment creation and local value generation. In recent years, digital transformation has become an essential strategy for MSMEs to remain competitive amid rapidly changing market dynamics. Digital technologies enable small businesses to expand market reach, streamline operations, and improve customer engagement



through online platforms and digital marketing tools (Arifah et al., 2021; Najiatun et al., 2025).

However, the adoption of digital technologies among MSMEs, especially those operating in rural or peripheral regions, remains uneven. Previous studies highlight that limited digital literacy, inadequate technological infrastructure, and constrained financial capacity often hinder effective digital transformation (Najiatun et al., 2024). Many MSME actors still perceive digital tools as complex and costly, resulting in partial or superficial adoption rather than strategic integration into business processes. This condition underscores the need for digital solutions that are simple, adaptive, and aligned with the operational realities of small local businesses.

### **Artificial Intelligence in Digital Marketing**

Artificial Intelligence (AI) has emerged as a transformative force in digital marketing by enabling automation, data-driven decision-making, and personalized customer interactions. AI technologies allow businesses to analyze consumer behavior, predict preferences, and deliver targeted marketing messages more efficiently than traditional approaches (Firdaus et al., 2025). In the context of MSMEs, AI offers opportunities to enhance marketing effectiveness while reducing operational burdens.

The literature suggests that AI-based marketing tools can improve service efficiency, reduce response time, and strengthen customer relationships by providing consistent and timely interactions (Hidayat, Najiatun, et al., 2025). Nevertheless, the successful implementation of AI depends heavily on user readiness and technological compatibility with business scale. For MSMEs with limited human resources, AI must function not only as an advanced technology but also as an accessible support system that complements existing business practices.

### **Chatbots as AI-Based Marketing and Service Tools**

Chatbots represent one of the most practical applications of AI in digital marketing, particularly in customer service and online communication. As virtual assistants, chatbots are designed to respond automatically to customer inquiries, provide product information, and support transaction processes across digital platforms such as social media and e-commerce marketplaces. For MSMEs, chatbots offer a cost-effective solution to maintain continuous customer interaction without requiring additional labor (Hidayat et al., 2023).

Empirical studies indicate that chatbots can enhance customer satisfaction by improving response speed and service availability (Priyatni et al., 2020). Moreover, chatbots have the potential to support promotional activities through



product recommendations and information dissemination. Despite these advantages, their functionality in many MSMEs remains limited to basic question-and-answer services, indicating underutilization of their broader marketing capabilities.

### **Barriers to Chatbot Utilization in MSMEs**

Although chatbots present significant potential, several barriers limit their optimal use among MSMEs. Technical issues such as inaccurate responses, limited contextual understanding, and language constraints frequently reduce chatbot effectiveness (Hidayat, Najiatun, et al., 2025). These challenges are particularly evident in local business contexts where consumers often use informal language or regional dialects that chatbots struggle to interpret.

In addition to technical barriers, non-technical factors also play a critical role. MSME owners often express concerns regarding implementation costs, system maintenance, and the fear that automated interactions may weaken personal relationships with customers (Hidayat et al., 2024). Resistance to technological change further complicates adoption, especially when business owners lack sufficient training and institutional support. These findings suggest that technological innovation alone is insufficient without parallel efforts to strengthen digital literacy and user confidence.

### **Chatbots in Local and Culturally Embedded MSMEs**

For MSMEs rooted in local culture and traditional products, such as traditional snack producers, the application of digital technology must consider social and cultural dimensions. Literature emphasizes that technology adoption in culturally embedded businesses should be context-sensitive, respecting local communication styles and consumer expectations (Khas & Hidayat, 2025). In this regard, chatbots need to be designed not only for efficiency but also for cultural compatibility.

Chatbots that incorporate local language elements, familiar expressions, and personalized interaction patterns are more likely to be accepted by both business owners and customers. When adapted appropriately, chatbots can function as mediators between traditional business values and modern digital practices, supporting both service quality and cultural authenticity. This adaptive approach aligns with the broader objective of sustainable digital transformation for MSMEs (Geissdoerfer et al., 2020).

## **RESEARCH METHOD**

### **Research Design**



Study This use design research exploratory Because aim dig in a way deep how chatbots work *Artificial Intelligence* utilized in digital marketing for snack SMEs typical Sumenep – Madura. Approach exploratory allows researchers identify problems , opportunities , and dynamics use of chatbots experience in context business small (Najiatun et al., 2024) . This strategy in line with characteristics study qualitative which emphasizes understanding phenomenon based on experience direct MSME actors , consumers , and other parties involved in activity digital marketing (Najiatun, Khalida, et al., 2025) .

Approach qualitative studies case chosen Because give room For dissect practice use of chatbots in snack MSMEs typical in a way holistic . In addition , the interview deep with technique *key informant* and *expert opinion* used For get rich understanding of implementation , challenges technical , non- technical obstacles , as well as hope chatbot development to front . Structure design This referring to the guide study qualitative which emphasizes data depth through exploration contextual (Firdaus et al., 2025) .

### **Object Study**

Object in study This is snack SMEs typical Sumenep – Madura, in particular owner efforts that have been using digital media or *chatbot features* on marketing platforms ( e.g., Shopee, WhatsApp Business, and Instagram). In addition to MSME owners , research this also involves consumers , employees or shop admin , and manufacturers involved in activity operations and marketing digital marketing , including pattern use , effectiveness , obstacles , and potential its development in increase performance marketing of snack SMEs typical .

### **Place and Time of Research**

Study implemented in snack SMEs typical located in the Regency Sumenep , namely the relevant area with development business snack typical local and start utilise *digital platform* . Research done throughout 2025–2026 , including the process of collecting field data , analysis thematic , and interpretation results use device NVivo software (Plard & Martineau, 2021) .

### **Data Types and Analysis Techniques**

Data types in study This includes primary data obtained from interview deep with question main and additional , as well as secondary data as complement (Tsawaba et al., 2024) . Data analyzed in a way qualitative using the Miles and Huberman model consisting from three stage main , namely data reduction for simplify and focus raw data , present data in form narrative or visuals such as tables and graphs , as well as taking conclusions based on valid data and not preference researchers (Geissdoerfer et al., 2020) . Analysis process This assisted with Nvivo software to make it more systematic and efficient . To



ensure data validity , research This using five criteria that is credibility which ensures that the data can be trusted , transferability for evaluate implementation results in context; dependability which evaluates consistency results between researchers , confirmability in the form of openness in the research process , as well as authenticity that maintains integrity and authenticity of the collected data.

## RESULTS AND DISCUSSION

The informants in study This consists of for MSME actors registered with the Cooperatives, Small and Medium Enterprises Service industry and trade . MSMEs also play a role as manufacturers , with total number of four people. After all over results interview collected , researchers do coding against keywords from every statements made by informants . The data analysis process was carried out use device NVivo 15 software . In the presentation findings , researchers utilise four type visualization of the resulting data through data processing in NVivo 15 (Allsop et al., 2022) .

### 1. Visualization Hierarchy Chart

Hierarchy chart is one of the technique qualitative data visualization that displays connection between category in structure tiered , usually through a hierarchy diagram or *tree map* , so that proportion and relationship between nodes can seen clear (Limna, 2023) . The image shown shows five categories main related utilization of chatbots in digital marketing for MSMEs, namely *Benefits of Chatbots* , *Digital Marketing* , *Expectations of Chatbot Development* , *Obstacles to Chatbot Optimization* , and *Current Chatbot Usage* . Each part depicted in form slices circular with color different , depicting magnitude attention or proportion discussion on each theme .

**Figure 1.**  
**Chart Hierarchy**



Source : *Processed Data* , 2025

Based on analysis to visualization said , can concluded that efficiency work and speed response is the most prominent and recognized benefits of chatbots by all parties , both owner businesses , consumers , and employees . Although own potential large , the application of chatbots in MSMEs is still limited . Development expectations also vary : owners business emphasize importance integration system For increase smoothness operational , while consumers and employees more want feature recommendation products that can support improvement sales . The most frequent obstacle appear related accuracy , language , and a number of problem more personalization felt by employees . In overall , image the confirm existence imbalance between potential big chatbot and the obstacles that still exist hinder implementation in the field (Priyatni et al., 2020) .

## 2. Comparison Media Topic /Project Map

### a. Expectations for Chatbot Development

Mapping results in the image First show that hope users to development *chatbot* moving in two directions main , namely need integration system and desire will feature recommendation product . Expectations about integration system only stated by Aisyah as owner business . This is show orientation more owners focus on quality operational and efficiency work . For owners , integration considered as element important For expedite channel service , make it easier data management , as well as strengthen business process coordination (Hidayat et al., 2023) .

Different with that , hope related recommendation product appear from three informant with different roles , consumers , producers , and employees . The emergence of the same aspirations from third party This show that need the



No only relevant for buyers , but also for those involved in the production and service process . For consumers , recommendations product help clarify choices and improve experience shopping . For producers and employees , this feature This viewed as tool promotion automatic which can reduce burden manual explanation at once help speed up the sales process .

In a way overall , visualization the confirm existence difference orientation among users . Owner more focus on strengthening system and effectiveness operational , while the actors who interact direct in activity production and sales see feature recommendation product as need urgent . Dynamics This in line with findings study previously emphasized that chatbot integration in system service can increase experience customer at a time repair effectiveness MSME services .

### **b. Challenge in Chatbot Optimization**

In the picture second , it looks that challenge main in chatbot optimization is centered on three Issues : accuracy , language , and personalization . Problems accuracy and language appear almost from all over informant , shows that second aspect the become universal barriers . Limitations of chatbots in catch context conversation and responding with appropriate make users often experience error understanding and information that is not appropriate . In addition , the obstacles Language related with limited chatbot's ability to adapt self with a variety of speech local frequent used consumers .

Temporary that , the issue personalization only appear from side employees . Findings This show that obstacle the more related with need interaction in work everyday . When the chatbot is not capable adapt response with character need customers , service process become not enough effective .

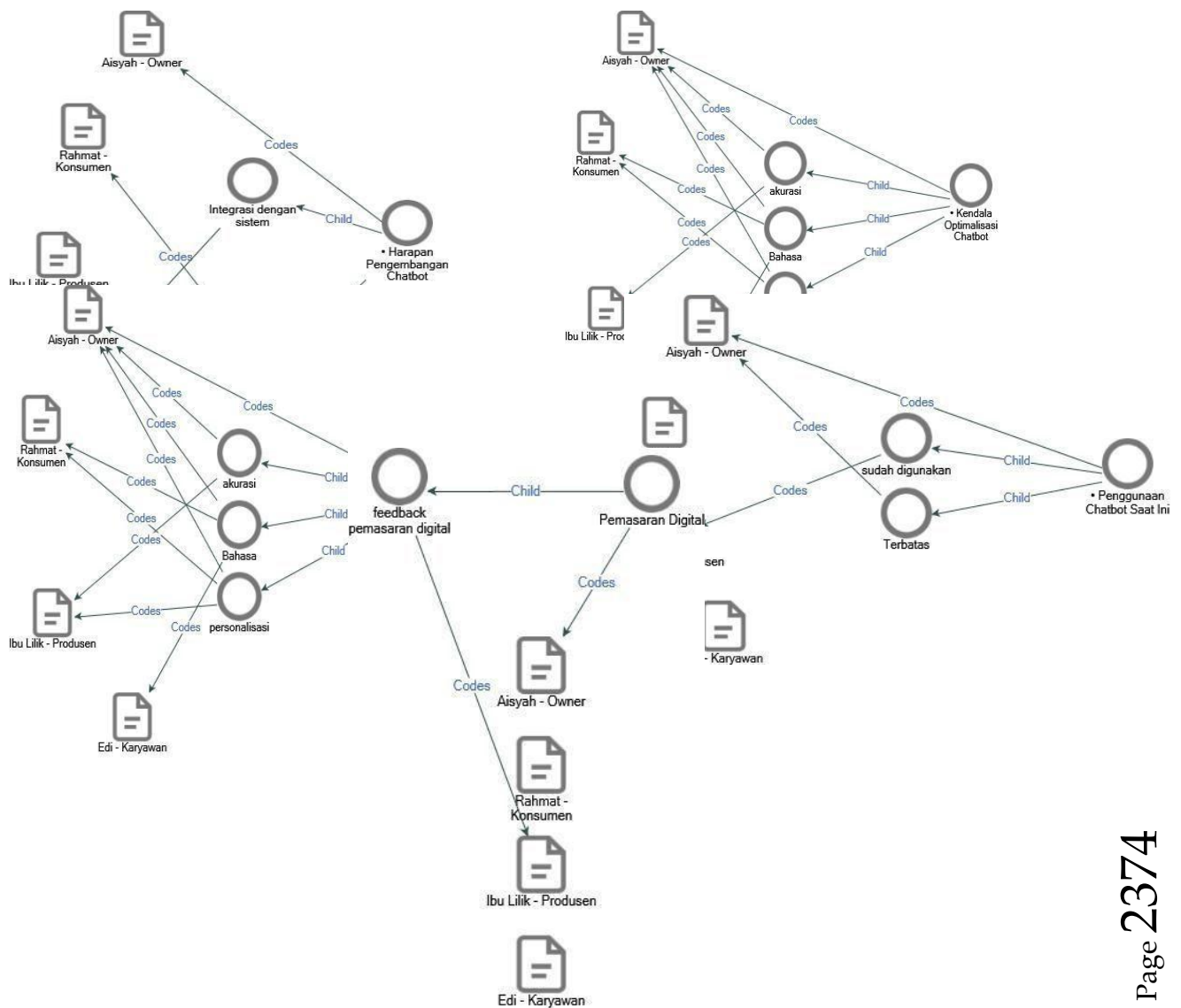
With Thus , visualization the emphasizes two layers of challenges : the problem technical issues felt by all parties and issues more interaction specific to employees . Findings This strengthen study previously recorded Still existence constraint technical like response delayed , error understanding , as well as concern consumer related data security and usage less language adaptive .

### **c. Benefits of Chatbots**

Last image show that perception about different benefits of chatbots in accordance the role of each informant . Owner businesses and consumers You're welcome emphasize importance efficiency work , even though with corner different viewpoints . For owners , efficiency means decrease burden operational and increasing order channel communication . For consumers , efficiency reflected in the convenience get information without waiting for long.

On the other hand , the benefits in the form of speed response more Lots highlighted by consumers and producers , because second party It really depends on fluency interaction . Employees also feel the same benefits , especially Because chatbot speed helps finish task service in a way more concise .

Visualization the show that benefits of chatbots can grouped to in two orientations : first , improvement efficiency at the internal business level ; and secondly , acceleration services that impact satisfaction customers . Findings This in line with literature that explains that satisfaction chatbot users are influenced by the level of trust , chatbot competence in give answers , and quality capable communication build proximity emotional with user .







Source : *Processed Data* , 2025

In Figure 3, the word "chatbot" appears to dominate the visual space, occupying a much larger area than other words. This dominance indicates that discussions of chatbots consistently emerged in almost all informants' statements, whether they touched on the benefits, constraints, or hopes for the technology's development. The large size of this word indirectly emphasizes chatbots' position as the focal point of conversation and a key theme in this study (Hidayat, Firstiani, et al., 2025) .

The emergence of supporting words such as "help," "consumer," "question," "can," and several other terms related to service functions reinforces the interpretation that informants often highlight the role of chatbots in supporting the question-and-answer process, providing information quickly, and facilitating interactions between businesses and customers. This pattern demonstrates that *chatbot technology* is understood not only as an automation tool but also as a communication medium that influences the user experience in the context of digital marketing.

Thus, this *word cloud* not only presents an overview of word frequency, but also reflects how informants interpret the existence of *chatbots* in MSME marketing practices, namely as a tool that has the potential to improve service quality through faster, more precise, and consistent responses (K et al., 2025) .

#### 4. Visualization of World Frequency Results

The *Word Frequency Query* feature in NVivo allows researchers to track how frequently a word appears in a qualitative data set. Based on the data processing results in NVivo 15, shown in Figure 4, the *tree map* shows that the words "chatbot" and "bisa" occupy the most dominant positions. The large proportion of these two words confirms that the informants' discussion focused on *chatbot technology* and the capabilities they expected from the system. More details can be seen in the *World Frequency Results Visualization image* below.





Utilization of *chatbot-based* intelligence made in snack SMEs traditional Sumenep Madura, shows potential significant in speed up services , improve experience customers , and strengthen digital marketing , but its implementation Still limited by the low digital literacy of MSME actors , obstacles technical like accuracy and language , as well as concern cost and resistance to changes . Optimization technology This demand improvement capacity through training and mentoring , support design more *chatbots* simple and adaptive to need business small , and scheme financing that is not burdensome . Implementation gradually accompanied by socialization benefit important done For push more acceptance extensive . In the future , research can expanded For measure impact real use *chatbot* as well as dig its integration with other digital technologies to strengthen the marketing strategy of MSMEs in general sustainable .

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