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# Corporate Social Responsibility Program Communication Model using Artificial Intelligence for Farmers and Fishermen Empowerment (Study in Indonesia)

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## ABSTRACT

Corporate Social Responsibility (CSR) in Indonesia has evolved from a philanthropic program to a strategic approach focused on sustainable development. However, various CSR programs in the agriculture and fisheries sectors still face challenges in communication, community participation, and sustainability of impact. The development of Artificial Intelligence (AI) offers new opportunities to improve the effectiveness of communication, planning, and decision-making in CSR programs. This study aims to analyze an AI-based CSR communication model for empowering farmers and fishermen in Indonesia. The method used was qualitative, based on a literature review, analysis of company CSR documents, and in-depth interviews with CSR practitioners and academics. The research findings indicate that the integration of AI into the CSR communication model offers three key innovations: (1) a data-driven two-way communication system, (2) increased accuracy of community needs through predictive analysis, and (3) a machine learning-based monitoring system for continuous evaluation. The resulting model offers a technology-enabled participatory communication framework that can strengthen farmers' and fishermen's capacity, increase productivity, and enhance the sustainability of CSR programs.

**Keywords:** CSR, Artificial Intelligence, Development Communication, Community Empowerment, Farmers and Fishermen

## INTRODUCTION

Corporate Social Responsibility (CSR) in Indonesia has experienced quite dynamic development over the past two decades (Lin & Zhang, 2023). CSR is no longer understood as merely charitable philanthropic activities, such as providing temporary assistance, but has moved towards a strategic approach directly linked to business sustainability and sustainable development (Famularo, 2023). The implementation of CSR has also gained a strong legal basis under the Limited Liability Company Law, particularly for companies operating in the natural resources sector, thereby positioning CSR as an obligation rather than a mere moral choice. In this context, companies are encouraged to develop CSR programs that are relevant to community needs, have long-term impacts, and align

with the national development agenda and the Sustainable Development Goals (SDGs) (Williams & Murphy, 2023).

One sector that has become a significant focus for CSR in Indonesia is agriculture and fisheries. These two sectors are the backbone of the economy in many rural and coastal areas and are the primary source of livelihood for millions of farmers and fishermen. However, the reality on the ground shows that farmers and fishermen still face various structural problems, ranging from limited access to technology, market information, and capital, to weak bargaining power in the value chain. These conditions leave them vulnerable to price fluctuations, climate change, and global market dynamics. In such situations, CSR programs that empower farmers and fishermen can be a crucial tool for strengthening their capacity, both in production and in business management (van der Merwe & Al Achkar, 2022).

Although numerous CSR programs have been directed at farming and fishing communities—for example, cultivation training, assistance with production equipment, the formation of business groups, and marketing programs—classic challenges still frequently arise, particularly in communication. Many programs are designed top-down, initiated by companies or external parties based on their own assumptions about community needs, without in-depth and participatory dialogue (Perks et al., 2017). As a result, there is a gap between the program design and the realities of the target community's needs and aspirations. CSR programs that are poorly communicated risk becoming merely ceremonial, unsustainable, and failing to foster a sense of ownership among farmers and fishermen.

From a development communications perspective, the success of empowerment programs is greatly influenced by how communication occurs among the actors involved: companies, government, facilitators, and the community. Effective communication involves not only conveying information from companies to the public, but also accommodating the voices, experiences, and local knowledge of the community at every stage of the program—from problem identification and planning to implementation and evaluation (Kim, 2022). In this context, the concept of participatory communication is crucial, namely, communication that positions the community as the subject, not merely the object, of program interventions. However, the ideal participatory communication model often clashes with resource, time, and scale constraints in CSR programs spread across many regions (C. Fajri et al., 2024).

Amid these challenges, developments in digital technology, particularly Artificial Intelligence (AI) (Camilleri, 2024), offer new opportunities to design more adaptive, data-driven CSR communication models. AI, encompassing technologies such as machine learning, natural language processing, computer vision, and recommendation systems, has been widely used across sectors, including agriculture and fisheries (Sulastri, 2023). Globally, AI is used to predict weather and climate patterns, analyze soil quality, detect plant diseases, optimize fertilizer use, and help fishermen identify potential fishing locations. In Indonesia, the use of digital technology in agriculture and fisheries is also growing, for example, through price information applications, early warning systems for weather, and online crop marketing platforms.

However, the use of AI in the context of CSR, particularly as part of a community communication model, is still relatively new and has not been extensively researched. To date, discourse on AI has focused more on technical aspects (e.g., algorithms, predictive accuracy, and production efficiency) rather than on how AI can serve as a medium and instrument for communication between companies and the target communities of CSR programs. Yet, AI has the potential to be used to collect, process, and visualize data on community needs more comprehensively; to open more intensive two-way communication channels through intelligent chatbots; and to provide rapid, personalized feedback to farmers and fishermen on production and market conditions.

## LITERATURE REVIEW

### The Concept of CSR and Its Development in Indonesia

Corporate Social Responsibility (CSR) is conceptually understood as a company's commitment to contribute to sustainable economic development by considering social and environmental dimensions, beyond mere legal obligations. Carroll defines CSR in four main dimensions: financial, legal, ethical, and philanthropic, which form the pyramid of corporate social responsibility. While the economic and legal dimensions serve as the foundation, a company's social legitimacy is increasingly determined by its ability to fulfill its ethical and philanthropic responsibilities in a sustainable, strategic manner.

In Indonesia, CSR practices have been reinforced by the Limited Liability Company Law and regulations governing companies operating in the natural resources sector. Therefore, CSR is no longer viewed as an optional activity but as an obligation linked to the social license to operate. The growing global discourse on creating shared value (CSV) encourages companies to integrate CSR into their core business strategies by creating shared value for both the company and society (Porter, M. E., & Kramer, 2021). In the context of agriculture and fisheries, this

approach means that corporate support for farmers and fishermen is not simply a temporary aid but is designed to strengthen the value chain, increase productivity, and expand fairer market access.

In line with the Sustainable Development Goals (SDGs), CSR in Indonesia is also shifting from a charity-based approach to a development-oriented one, with programs focused on food security, poverty reduction, and strengthening local economies. Reports from international institutions such as the World Bank indicate that transforming Indonesia's agrifood system requires increased productivity, greater inclusiveness, and the use of digital technology as a key lever for change. (World Bank., 2020). CSR becomes a strategic channel for the private sector to participate in this transformation.

**Empowering Farmers and Fishermen from a CSR Perspective**

Empowerment is understood as the process of increasing individuals' and communities' capacity to make choices and turn those choices into concrete actions, thereby enabling them to control their livelihoods. Chambers emphasizes the importance of putting the last first, namely, placing marginalized groups at the center of attention in the development process. In the Indonesian context, smallholder farmers and traditional fishermen are groups that often experience structural vulnerability due to limited access to capital, technology, and market information, as well as weak bargaining power vis-à-vis intermediaries and large corporations.

CSR programs have the potential to be a relevant instrument to support the empowerment of farmers and fishermen through: strengthening technical production capacity (cultivation training, environmentally friendly technology), institutional development (farmer groups, fishermen's cooperatives, village-owned enterprises), facilitating access to capital and markets, and improving digital and managerial literacy.

Various national and international initiatives related to farmer empowerment demonstrate that information and communication technology (ICT) support can accelerate farmers' access to information on prices, weather, and cultivation innovations. (World Resources Institute, 2022), the success of empowerment programs depends heavily on how communication between companies, governments, facilitators, and communities is designed. Without an inclusive and locally sensitive communication model, CSR programs are vulnerable to becoming short-term projects that fail to foster long-term independence.

In the fisheries sector, small-scale fishers face additional challenges, including weather uncertainty, declining fish stocks, and fishing regulations. CSR programs targeting fishers are now beginning to focus on strengthening sustainable fishing practices, improving safety at sea, and recording accurate catch data for fisheries resource management. This is where digital technology and AI play a crucial role in supporting more reliable fisheries information systems.

**Artificial Intelligence in Agriculture and Fisheries**

Artificial Intelligence (AI) has developed rapidly and is being widely applied in the agriculture and fisheries sectors. Systematic reviews show that AI is used for a variety of functions: crop yield prediction, plant disease detection, soil quality analysis, irrigation optimization, and precision-based agricultural input management (Dodo Ruvic, 2023).

Several recent studies based in the Indonesian context show that:

- AI can be integrated with drones and sensors to monitor crop health and map land more accurately, thereby helping smallholder farmers improve the efficiency of fertilizer and pesticide use.
- AI- and IoT-based systems help provide more timely recommendations for planting, fertilization, and irrigation times, thereby increasing productivity while reducing the risk of crop failure.

In the fisheries sector, AI is being used for automatic fish species recognition and catch recording via computer vision, real-time fish counting, and stock analysis. The development of tools for smallholder fishers to document catches with simple photos taken on mobile phones, which are then analyzed by AI systems.

This use of AI not only contributes to production efficiency but also supports better resource management, sustainable fisheries, and data-driven fisheries policy development. This global trend aligns with Indonesia's ongoing initiative to promote digital transformation in the agriculture and fisheries sectors, as well as the development of a national AI roadmap that prioritizes the food and agriculture sectors.

## RESEARCH METHODS

This study uses a Research and Development (R&D) approach to develop an Artificial Intelligence (AI)-based CSR Program Communication Model to empower farmers and fishermen in Indonesia. R&D was chosen because the research objective is not simply to describe a phenomenon, but to produce a new model that can be implemented and tested for feasibility in the field.

The R&D approach in this study refers to a modification of the steps of (Makarchuk, 2019), which are simplified into seven main stages, including: needs assessment, literature study and model concept formulation,

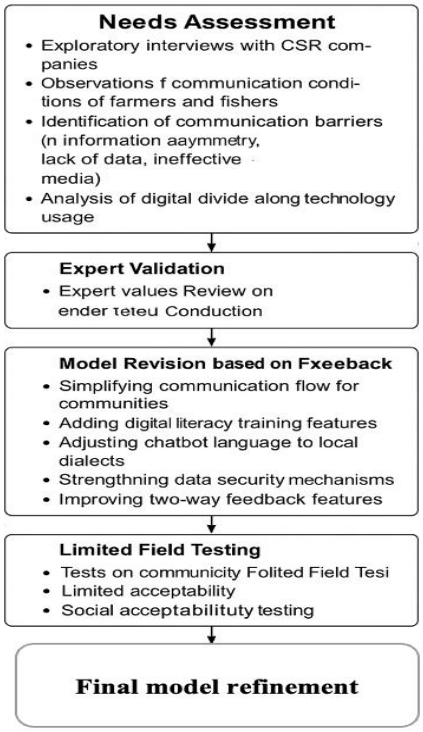
development of an initial draft of the CSR–AI communication model, expert judgment validation, model revision based on expert input, limited field testing, final model refinement.

The model was developed to establish a communication framework among the company, CSR facilitators, farmers, and fishermen, integrated with AI technologies such as recommendation systems, data analytics, chatbots, and digital monitoring.

Data were obtained through:

1. In-depth interviews with farmers, fishermen, the CSR team, and experts.
2. Participatory observation during model trials was conducted in the South Coast area of Bantul, Yogyakarta.
3. Documentation and analysis of corporate CSR documents focused on empowering farmers and fishermen.
4. AI usage data logs (chatbot interactions, system recommendations, application activity).
5. Focus group discussions (FGDs) were conducted with 50 farmers and fishermen in the South Coast area of Bantul to assess model acceptability.

The R&D stages involved in this research are shown in the following diagram:




## RESULTS AND DISCUSSION

### CSR Communication Dynamics and AI Model Needs

Communication dynamics in Corporate Social Responsibility (CSR) programs in the agriculture and fisheries sectors in Indonesia are shaped by complex relationships among companies, field facilitators, the government, and farming and fishing communities. In many cases, CSR communication remains top-down, with companies being the dominant actors determining information flows, program formats, and reporting mechanisms (Chen & Hang, 2017). This linear pattern aligns with the findings of (Morsing, M., & Schultz, 2016), who showed that most companies still pursue a stakeholder information strategy, a one-way communication strategy aimed at informing the public about CSR activities without involving intensive community participation.

The consequences of this top-down communication pattern are evident in the emergence of information asymmetries between companies and target communities. Companies tend to have access to data on production, markets, environmental risks, and program evaluations, while farmers and fishers lack similar systems for building collective knowledge from their own experiences. This gap increases the risk of inaccurate CSR programs, as communities are not meaningfully involved in problem identification, intervention design, or evaluation. (Chambers, 2007) refers to this dynamic as 'reversals in learning,' in which formal institutions fail to understand local conditions due to non-dialogic communication patterns.

Furthermore, CSR communication faces structural challenges, including limited digital literacy, limited technological access, and the affordability of communication infrastructure in rural and coastal areas. Fishermen, for example, often rely on traditional sources of information such as weather forecasts from fellow fishermen or intuition, despite increasing climate uncertainty. This situation underscores the existence of a digital divide that extends beyond device access to include the ability to interpret digital information (UNDP, 2021) critically.

In this context, the integration of Artificial Intelligence (AI) is seen as a strategic necessity to improve the quality of CSR communication. AI can process complex data—from textual data, satellite imagery, weather patterns, to user interactions—enabling companies and communities to make evidence-based decisions. Through AI applications such as Natural Language Processing (NLP), predictive analytics, and computer vision, previously scattered and unstructured local data can be processed into easily understandable information relevant to the needs of farmers and fishermen (Zeng, Y., Li, R., & Chen, 2023).

AI integration also enables data-driven two-way communication. By leveraging intelligent chatbots that respond to community inquiries in local languages, companies can provide more inclusive and sustainable communication channels. This brings CSR closer to stakeholder involvement strategy, a communication strategy that emphasizes dialogue and participation between actors (Morsing, M., & Schultz, 2016). Furthermore, AI can automatically collect feedback data, allowing companies to evaluate the effectiveness of messages and adjust interventions in real time.

Previous research also shows that AI has the potential to reduce subjective bias in CSR implementation. Predictive analytics can identify the risk of crop failure or potential fishing locations with greater accuracy than manual estimates (World Bank., 2020). This not only improves production quality but also strengthens CSR's communication function, as the public receives more accurate, timely, and easily accessible information. Thus, AI integration can be a solution to three key challenges in CSR communication: program relevance, message delivery effectiveness, and the sustainability of company-community interactions (Humaira & Zaelani, 2023).

However, AI integration cannot be separated from local social and cultural dynamics. Technological inequality, algorithmic bias, and concerns about data privacy are challenges that must be addressed through a sensitive, inclusive communication approach (Dr. Alexander Lee, 2024). As (Servaes, 2024) points out, technology can function effectively only when accompanied by a participatory development communication approach, namely when communities become subjects in the process of interpreting and utilizing technology.

Thus, the dynamics of CSR communication in the Indonesian agriculture and fisheries sector demonstrate the urgent need for a more adaptive, dialogic, and data-driven communication model. The integration of AI not only offers the technical capability to process information quickly but also provides a new communication infrastructure that enables the transformation of CSR towards a more participatory, responsive, and empowerment-oriented approach.

Developing an Artificial Intelligence (AI)-based CSR communication model requires a strong theoretical foundation to ensure the resulting model is not only technical but also conceptually relevant to development communication and corporate social responsibility. This study maps several key theories that serve as references for the development of the CSR-AI model, particularly CSR communication theory, participatory development communication theory, technology and empowerment theory, and an intellectual framework regarding the use of AI in development.

Referring to (Porter, M. E., & Kramer, 2021) on the concept of Creating Shared Value, the use of AI provides companies with an opportunity not only to implement CSR as a moral obligation but also to create shared value through data that improves the productivity of farmers and fishermen, thereby indirectly supporting the company's supply chain.

The developed CSR–AI model is grounded in CSR theory and enriched by development communication theory, which emphasizes inclusive social change.(Servaes, 2024), states that effective development communication must be dialogic, participatory, sensitive to local cultural contexts, and non-instructive, non-top-down.

This participatory approach aligns with Paulo Freire's thinking, which emphasizes that communities should be subjects of development rather than objects. AI, in this context, should not be viewed as a substitute for social relationships, but rather as a tool that strengthens participation. AI applications such as mobile applications, NLP chatbots, and predictive analytics can accelerate the flow of information. However, they must still be designed to support the principle of knowledge co-creation between companies and communities. Thus, AI technology serves as a medium that facilitates participation, not one that replaces it.

AI can expand community capacity by processing previously inaccessible environmental, weather, and production data. Thus, technology is not merely instrumental but transformational. (Zeng, Y., Li, R., & Chen, 2023) Demonstrate that AI functions not only as a technical tool but also as a knowledge system that transforms the way society interprets food production.

In the context of CSR, this digital agriculture theory reinforces the premise that companies can leverage AI not only to help communities but also to build inclusive communication and information systems.

## RECOMMENDATIONS FOR A CORPORATE SOCIAL RESPONSIBILITY PROGRAM COMMUNICATION MODEL USING ARTIFICIAL INTELLIGENCE TO EMPOWER FARMERS AND FISHERMEN

The application of Artificial Intelligence (AI) in Corporate Social Responsibility (CSR) programs presents new opportunities to strengthen the effectiveness of corporate communication with farming and fishing communities in Indonesia (Kochhar, 2014). To date, CSR communication dynamics have tended to be dominated by a top-down approach, creating an asymmetrical interaction between companies and communities. Farmers and fishermen are often passive recipients of information, while companies and external institutions largely determine program decision-making. This situation creates a gap between community needs and CSR interventions, as well as low program sustainability. The integration of AI technology offers a new path to creating more participatory, data-driven, and socially context-adaptive communication (Truby et al., 2022).

Essentially, the AI-based CSR communication model is designed to address three key challenges in CSR implementation in the agriculture and fisheries sector: information asymmetry, limited public access to strategic data, and limited feedback mechanisms. AI functions as a communication support system that works through real-time data collection, predictive analysis, dialogue automation, and information visualization. Technologies such as Natural Language Processing (NLP), machine learning, and data analytics enable companies not only to disseminate information to the public but also to receive and respond to feedback quickly and in a structured manner.

In the agricultural context, AI can map weather patterns, assess crop failure risks, and optimize production inputs (Nebere et al., 2021). The resulting information can be delivered to farmers through intelligent chatbots or digital applications in local languages, thereby increasing its relevance. For fishermen, AI helps predict sea conditions and potential fishing locations, and provides early warnings of extreme weather. Computer vision technology also helps record catches more accurately. All information provided to the public is tailored and data-driven, improving decision-making reliability and minimizing the risk of loss.

AI also plays a role in strengthening the participation dimension. By using AI-based digital platforms, farmers and fishermen can submit complaints, suggestions, or needs directly, without waiting for CSR facilitators to visit. This reduces communication distance and increases the company's responsiveness when modifying program designs. Thus, AI opens up a space for two-way dialogue that was previously difficult to achieve consistently. This communication model aligns with the stakeholder involvement strategy approach (Morsing, M., & Schultz, 2016), which positions communities as strategic partners in the decision-making process.

From an empowerment perspective, the CSR–AI model has the potential to increase community capacity in several aspects: (1) increasing digital literacy through regular interaction with digital applications and devices, (2) increasing the ability to make data-driven decisions, and (3) strengthening the bargaining position of farmers and fishers in the value chain. Communities with access to weather information, market prices, and production technologies will be better able to plan adaptive livelihood strategies and reduce dependence on external actors. In the context of climate change, this capability is crucial for ensuring the social and economic sustainability of coastal and rural communities.

However, the CSR–AI model is not without ethical and structural challenges. Some issues that require attention include the digital literacy gap, algorithmic bias, data security and confidentiality, and the risk of dependence on digital systems that the community does not fully understand. Therefore, implementing AI in CSR programs requires intensive mentoring, simple interface design, and a participatory communication approach that respects local knowledge. This approach aligns with (Servaes, 2024) notion of development communication, which emphasizes dialogue, cultural relevance, and empowerment as fundamental principles.

An AI-based CSR communication model is ultimately not simply a technological application, but a paradigm shift (C. N. S. H. I. K. F. M. N. F. D. F. Fajri, 2025). CSR programs no longer focus on distributing short-term aid, but rather on building inclusive communication and knowledge systems (Pang et al., 2017). AI helps create a sustainable communication ecosystem, enabling companies and communities to work together to create shared value that improves the welfare of farmers and fishers while simultaneously supporting business sustainability. Thus, developing a CSR-AI model is a strategic step to address the multidimensional challenges in Indonesia's increasingly complex agriculture and fisheries sectors.

The architecture of the AI-Based CSR Communication Model is designed as a multi-layer, integrated communication ecosystem that connects companies, facilitators, farmers, and fishers through data-driven technologies. The framework ensures continuous, participatory, and adaptive communication that supports empowerment and sustainable development.


The **Data Acquisition Layer** serves as the model's fundamental input hub, gathering comprehensive data from various sources to support AI-based processing and communication. Data collected in this layer include environmental and climate variables such as weather forecasts, rainfall predictions, sea condition indices, wave height, and wind patterns. It also captures agricultural and fisheries data, including soil quality measurements, crop health images, photos of fish catch, production volumes, and indicators of pests or plant diseases. Furthermore, socioeconomic data—such as household income levels, market prices, fluctuations in input costs, and access to credit or subsidies—are collected to inform CSR planning. User interaction data is also integrated, including chatbot queries, feedback logs, participation frequency, and training attendance records. These diverse data originate from IoT sensors, mobile applications, satellite imagery, drones, government open-data platforms, and CSR field reports, forming a comprehensive evidence base for subsequent analytical processes.

The **AI Processing and Analytics Layer** serves as the analytical core of the model, transforming raw and unstructured data into actionable insights that guide decision-making for both companies and communities. This layer incorporates several AI modules. The first is Natural Language Processing (NLP), which enables AI chatbots to process user queries in local languages and dialects, provide personalized responses, and collect structured feedback. The second module consists of machine learning predictive models capable of forecasting crop yields, pest outbreaks, optimal planting or harvesting times, potential fishing zones, risk-prone areas, and weather anomalies, while also generating targeted recommendations for CSR interventions. The third module involves computer vision systems that detect plant diseases from leaf images, identify fish species, and estimate catch volumes from uploaded photos. The fourth module comprises decision-support algorithms designed to prioritize community needs, evaluate CSR resource allocation, and facilitate real-time program adjustments, ensuring responsive, accurate decision-making.

The **Communication and Interaction Layer** serves as the user-facing component of the architecture, enabling seamless two-way communication among all stakeholders. This layer utilizes several tools and digital channels. The AI chatbot serves as a 24/7 interactive assistant, providing immediate responses on farming techniques, fishing guidance, CSR programs, market price updates, weather alerts, and community complaints. The mobile application hosts dashboards, learning modules, reporting tools, and input forms that allow farmers and fishers to interact directly with the system. CSR field facilitators use a dedicated dashboard to monitor user interactions, support onboarding processes, and manage digital literacy activities. Meanwhile, the company dashboard provides real-time insights into community needs, engagement levels, and program outcomes, enabling CSR managers to refine their strategies continuously.

The **CSR Program Management Layer** transforms insights generated by AI analytics into programmatic decision-making. Within this layer, the model supports a data-driven approach to needs assessment, enabling companies to identify priority issues for farmers and fishers based on real-time conditions. It supports precise program planning, ensuring that CSR interventions are accurately targeted. The layer also facilitates ongoing monitoring of program implementation, enabling real-time tracking of participation, resource distribution, and activity progress. Impact evaluation is enhanced through automated reporting of economic, social, and

environmental outcomes. At the same time, integrated feedback loops ensure that community input directly informs program refinement, resulting in an adaptive, participatory CSR system.

The **Empowerment and Capacity-Building Layer** emphasizes the strengthening of farmer and fisher independence by enhancing their technological and decision-making capabilities. This layer includes digital literacy training to help users operate mobile applications, AI chatbots, and other digital tools effectively. It also supports the development of AI-assisted decision-making skills, enabling communities to interpret AI-generated insights and translate them into practical actions. The model promotes community data ownership to uphold ethical and inclusive data governance and integrates local knowledge, ensuring that AI recommendations are contextualized and aligned with long-standing traditional ecological practices.

Finally, the **Governance, Ethics, and Security Layer** functions as a cross-cutting safeguard ensuring the responsible, transparent, and ethical implementation of AI across the CSR model. This layer encompasses privacy protection through encryption, anonymization, and controlled data access. Algorithmic transparency is upheld by explaining how AI-generated decisions are made. Bias mitigation strategies are implemented to prevent discriminatory outcomes against vulnerable groups. Moreover, community consent is mandatory, ensuring informed participation and oversight in all data-related processes. This governance layer ensures that AI adoption aligns with ethical standards and respects community rights.

## CONCLUSSION

This research demonstrates that integrating Artificial Intelligence (AI) into the Corporate Social Responsibility (CSR) program communication model provides a strategic breakthrough in empowering farmers and fishermen in Indonesia. The AI-based communication model, developed through a Research and Development (R&D) approach, addresses issues that have hampered the effectiveness of CSR programs, including information asymmetry, low community participation, limited data access, and the lack of two-way communication mechanisms between companies and the community. AI provides fast and accurate data processing capabilities, enabling companies to conduct more precise needs analysis, design more relevant interventions, and monitor program impacts in real time. The use of technologies such as Natural Language Processing (NLP) for chatbots, machine learning for weather and production predictions, computer vision for catch identification, and analytical systems for program monitoring has been proven to strengthen communication quality and enhance the effectiveness of information for farmers and fishermen. The results of a limited trial indicate that the CSR–AI communication model can increase community participation through a more responsive two-way communication mechanism. Communities find it easier to access information, raise complaints, and obtain technical recommendations independently. This contributes to increased digital literacy, data-driven decision-making capacity, and improved productivity and workplace safety. Thus, the CSR-AI model not only enhances program effectiveness but also strengthens community empowerment and independence. However, implementing this model requires special attention to ethical aspects, data governance, and technological inclusivity. Challenges such as the digital divide, potential algorithmic bias, and cultural sensitivity must be systematically addressed through digital training, local language adaptation, and transparency in data utilization. With its participatory and ethical approach, this model has great potential for replication across various community development sectors in Indonesia. Overall, this study concludes that the AI-based CSR communication model is a crucial innovation in enhancing the effectiveness, relevance, and sustainability of CSR programs. This model not only strengthens the relationship between companies and communities but also encourages a more inclusive, equitable, and empowering digital transformation for farmers and fishermen. With further development and appropriate policy support, this model could become a strategic approach to sustainable development in Indonesia.

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