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Optimizing Competitiveness and Sustainability of Agribusiness SMEs through a Circular Economy Business Model

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Abstract

This study aims to optimize the competitiveness and sustainability of agribusiness SMEs in Indonesia through the application of the circular economy business model, using the design thinking approach, which includes the stages of empathize, define, ideate, and prototype. In light of increasing consumer awareness regarding sustainability, SMEs need to adapt in order to remain competitive. The circular economy offers solutions by utilizing waste as raw materials and extending product life cycles. This research is based on a literature review, direct discussions, and insights from a seminar presented by agribusiness owners, namely Mitra Tani Farm and Sangreat Natural Indonesia, to provide a deeper understanding of the application of the circular economy in the field. The findings indicate that circular economy-based strategies can improve operational efficiency and business resilience, while also providing positive environmental sustainability impacts, as demonstrated through case studies at Mitra Tani Farm and Sangreat Natural Indonesia. The prototype phase of this study outlines managerial implications that can be applied by agribusiness SMEs to enhance business sustainability. This article offers practical guidance for SMEs to achieve long-term sustainability while meeting market demands for responsible business practices.

Introduction

The agribusiness industry, encompassing food production, livestock, and agricultural product processing, is currently facing various challenges, including the increasing demand for environmentally friendly business practices. This is driven by growing consumer awareness of sustainability and social responsibility. Amid intensifying market competition, SMEs, which dominate the agribusiness sector in Indonesia, need to innovate in order to remain relevant and competitive (Prasanna et al., 2021; Najib & Kiminami, 2011; Valerio et al., 2022; Mulyati & Prasetyo, 2023). In this context, the application of the circular economy business model emerges as a potential solution capable of reducing waste and optimizing resources through more efficient production chains. According to Geissdoerfer et al. (2017), the circular economy concept focuses on reducing natural resource consumption through the reuse of waste, which is transformed into new raw materials, thereby extending product lifecycles. Unlike the linear economic approach, which tends to use, produce, and dispose of, this model offers opportunities to create higher efficiencies, reduce costs, and enhance positive environmental impacts. Research by Kirchherr et al. (2018) demonstrates that the circular economy not only reduces environmental impact but also strengthens SMEs' competitive position through resource optimization and operational efficiency.

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However, despite the growing adoption of the circular economy, many agribusiness SMEs still struggle to effectively implement this concept, particularly in waste management and resource utilization. In this regard, prototype-based innovation, supported by the design thinking approach, is expected to offer practical, context-specific solutions. On the other hand, in-depth research on the application of the circular economy in agribusiness SMEs in Indonesia is still limited. Therefore, this study aims to explore how the circular economy business model can be adopted by agribusiness SMEs to ensure their sustainability amidst competition (Klein et al., 2022; Mtengwa, 2023). Case studies of Mitra Tani Farm and Sangreat Natural Indonesia will be used to analyze the circular economy steps they have implemented and the positive impacts of these practices in maintaining competitiveness and business sustainability. By using the design thinking method, this research will formulate priority strategy recommendations that can serve as a reference for other SMEs in adopting the circular economy.

In this study, the theory used is the Resource-Based View (RBV), which posits that a company's competitive advantage can be achieved through the management of unique and hard-to-imitate resources (Barney, 1991). The application of RBV in the circular economy involves utilizing internal resources, such as waste that is processed into value-added products, creating a unique competitive advantage that is difficult for competitors to replicate. Recent studies also show that the adoption of the circular economy in agribusiness SMEs not only reduces waste but also enhances efficiency and creates sustainable product value.

Through the RBV perspective and the design thinking approach, this research is expected to contribute to the circular economy literature and provide practical guidance for agribusiness SMEs to achieve long-term sustainability.

Literature Review

Circular Economy and Its Relevance to SMEs

The circular economy has become one of the strategic approaches in fostering sustainability and competitiveness for SMEs across various sectors, including agribusiness. According to Geissdoerfer et al. (2017), the circular economy is an economic model that emphasizes reducing the consumption of natural resources by maximizing the reuse of materials and products throughout their life cycles. This approach is particularly relevant for SMEs as it helps them reduce operational costs, optimize waste as a resource, and create sustainable value-added products. Other studies show that the implementation of the circular economy in agribusiness SMEs enhances process efficiency and reduces dependence on external resources, enabling businesses to operate more independently and efficiently.

Furthermore, in a study by Kirchherr et al. (2018), it was noted that the implementation of the circular economy can strengthen the competitiveness of SMEs through resource management efficiency and reduced environmental impact. This approach allows SMEs to utilize raw materials from their own waste, which is often inexpensive and abundant, transforming it into value-added products (Liu et al., 2024; Lim et al., 2021). This not only generates economic benefits but also creates positive social and environmental impacts. A concrete example of circular economy implementation in Indonesia can be found in SMEs such as Mitra Tani Farm, which successfully utilizes livestock manure as organic fertilizer and raw materials for complementary products, thereby reducing waste and generating added value.

Design Thinking in the Development of SME Business Models

Design thinking is an innovative methodology that has gained popularity in business model development, particularly for SMEs facing the need for rapid adaptation and change.

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According to Brown (2019), design thinking is a user-centered approach that helps businesses understand customer needs through an iterative process focused on finding solutions. The use of design thinking in this research includes the stages of empathize, define, ideate, prototype, and test, which are useful for analyzing consumer needs and designing sustainable business prototypes (Kurek et al., 2023; Storm & Smith, 2022). As an approach that prioritizes empathy, design thinking is capable of delivering innovations that are relevant to market needs, especially in the face of increasingly intense competition in the agribusiness sector.

The book Design a Better Business by van der Pijl et al. (2016) states that the design thinking process not only helps understand user needs but also helps identify new opportunities to create unique value for the company. In the context of agribusiness SMEs, design thinking can help identify the specific needs of customers who are aware of the importance of eco-friendly products and sustainability, and develop business models that can accommodate these needs.

Additionally, the design thinking approach, as explained by Lewrick (2023), emphasizes a deep understanding of user needs and the development of solutions through repeated iterations to minimize risks and ensure the relevance of products or services to the market. In the context of the circular economy, design thinking provides a flexible framework for SMEs to test innovative ideas while simultaneously enhancing business resilience and sustainability (Habicher et al., 2021). This approach not only focuses on short-term solutions but also on long-term development that aligns with market needs and sustainability objectives.

Sustainable Competitive Strategies in the Circular Economy

Sustainable competitive strategies are a crucial concept in the circular economy, emphasizing more efficient use of resources and the development of products that can be recycled or repurposed. According to the Resource-Based View (RBV) theory proposed by Barney (1991), competitive advantage can be achieved by utilizing unique, valuable, and hard-to-imitate resources. In the context of the circular economy, these resources can include raw materials derived from waste that are transformed into new products, or innovations in production methods that reduce dependence on external raw materials. Research by Prieto-Sandoval et al. (2018) shows that circular economy strategies based on RBV enable SMEs to maintain competitive advantage by utilizing sustainable resources and reducing production costs.

In the implementation of this strategy, agribusiness SMEs such as Mitra Tani Farm and Sangreat Natural Indonesia have leveraged organic waste, processing it into value-added products such as fertilizer and fish feed. This demonstrates that by integrating circular economy principles, SMEs can create sustainable and competitive business models in the long term.

The Impact of the Circular Economy on Agribusiness SMEs

The circular economy has a significant positive impact on agribusiness SMEs, encompassing economic, social, and environmental aspects. Research by the Ellen MacArthur Foundation (2020) found that the implementation of the circular economy reduces carbon footprints, extends product lifecycles, and reduces the consumption of new resources. In the context of agribusiness SMEs in Indonesia, this impact can be seen in reduced production waste, improved cost efficiency, and value creation through derivative products (Utami, 2022). Sangreat Natural Indonesia, for example, has successfully utilized seaweed production waste to create high-nutrient organic fertilizer that benefits local farmers. The positive impacts of the circular economy are also evident in the improvement of local community welfare through job creation and collaboration with other SMEs in the supply chain.

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Methods

There is a significant relationship between gender & spending behind the purchasing of Chinese Mobile phones.

Research Approach

This study employs a design thinking approach to identify and design strategies for implementing a circular economy business model in SMEs within the agribusiness sector. Design thinking, which emphasizes understanding user needs and iterative development of solutions, allows the researcher to explore and deeply understand the factors influencing the sustainability of SME operations. In this context, design thinking is applied to map out the strategic and operational needs that will help SMEs such as Mitra Tani Farm and Sangreat Natural Indonesia remain competitive amid market dynamics.

Case Studies (Mitra Tani Farm and Sangreat Natural Indonesia)

The focus of this research is on two SMEs: Mitra Tani Farm and Sangreat Natural Indonesia, both of which have implemented circular economy practices in their operations. Mitra Tani Farm, which operates in livestock and agribusiness, has integrated the use of livestock manure as fertilizer, processed vegetable waste as fish feed, and utilized livestock hides as value-added products. Meanwhile, Sangreat Natural Indonesia applies circular economy principles by using natural materials for household products, reducing the use of chemical pesticides, and converting seaweed waste into organic fertilizer. The selection of these two SMEs as case studies is based on their success in implementing the circular economy model and their commitment to sustainability, which is expected to provide valuable insights for other SMEs.

Data Collection

Data for this research was gathered from multiple sources, including relevant literature on circular economy and SMEs, journal reviews, and information from seminars and direct discussions with the owners of Mitra Tani Farm and Sangreat Natural Indonesia. This approach enabled the researcher to gain a comprehensive understanding of the challenges and opportunities associated with the implementation of circular economy practices in agribusiness SMEs in Indonesia

Result and Discussion

External and Internal Analysis of Agribusiness SMEs

In this study, an analysis of both external and internal factors was conducted to identify the constraints and opportunities faced by agribusiness SMEs in implementing the circular economy. External factors include the shift in consumer preferences towards sustainability, government regulations that support circular economy principles, and increasing market competition. On the other hand, internal factors involve limited access to technologies that support the circular economy, a lack of understanding of circular economy principles, and constrained financial and human resources to implement more environmentally friendly systems.

Through this analysis, it was found that the majority of agribusiness SMEs are not fully prepared to implement circular economy practices, primarily due to a lack of information and access to technologies, as well as difficulties in managing waste and optimizing resources more efficiently. However, there are significant opportunities to diversify products and optimize existing resources to support a more sustainable system.

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Application of Circular Economy at CV Mitra Tani Farm and Sangreat Natural Indonesia

CV Mitra Tani Farm and Sangreat Natural Indonesia are examples of SMEs that have successfully implemented circular economy principles in their operations. Mitra Tani Farm, an SME in the livestock sector, utilizes animal waste to produce organic fertilizer, which is used for cultivating feed grass for sheep. This not only reduces dependency on external raw materials but also lowers production costs and minimizes waste. In addition, vegetable waste from their cultivation is utilized as fish feed. Other value-added products, such as sheep skin crackers, are also produced, providing employment for local women. With this model, Mitra Tani Farm has successfully improved operational efficiency, reduced costs, and strengthened the company's image as a sustainable and environmentally-friendly business. The impact on the business's competitiveness is highly positive, as they not only lower costs but also meet the growing market demand for environmentally friendly products.

Meanwhile, Sangreat Natural Indonesia has adopted circular economy principles with a focus on using natural materials and environmentally friendly waste management. They process seaweed into sustainable household cleaning products and organic fertilizer. The efficient production process helps reduce the carbon footprint and the environmental impact of their manufacturing activities. In addition to the positive environmental impact, the implementation of the circular economy at Sangreat has also created new job opportunities and empowered the local community, particularly through their involvement in sustainable natural resource management. Sangreat is committed to not only prioritizing financial gain but also focusing on social empowerment and sustainability, making it a business model that is not only economically profitable but also generates positive social impact.

Although these two SMEs operate in different industries, they have both successfully implemented circular economy practices to enhance their competitiveness and business sustainability. By using waste as a new resource and managing production more efficiently, they have not only reduced costs and waste but also contributed to reducing environmental impact and empowering the local community.

Comparison and Joint Strategies

Both SMEs illustrate that the implementation of the circular economy can be done in various ways, depending on the characteristics and potentials of each business. Mitra Tani Farm focuses on product diversification and agricultural waste management, while Sangreat Natural Indonesia emphasizes the utilization of natural raw materials and the reduction of production waste.

The priority strategies that can be adopted by other agribusiness SMEs based on these findings are: a) Product Diversification: Utilizing waste and by-products from agricultural or livestock production to create new value-added products; b) Training and Capacity Building: Enhancing the knowledge and skills of SME practitioners in waste management and the efficient use of resources to support circular economy principles; c) Partnerships for Green Technology: Collaborating with providers of environmentally friendly technology to improve production efficiency and reduce the environmental impact of production processes; d) Sustainable Innovation: Developing products based on natural and eco-friendly materials that can enhance the company's image and meet the increasing market demand for sustainability.

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Design Thinking Process: From Empathize to Prototype

In this study, Design Thinking was employed to formulate priority strategies that can be implemented by agribusiness SMEs, following the steps outlined below: a) Empathize: In this phase, a deep understanding of the needs and challenges faced by agribusiness SME actors was developed. Through interviews and observations, it was revealed that these SME owners face difficulties in implementing circular economy principles due to a lack of information regarding the economic benefits of circularity, as well as challenges in waste management and sourcing eco-friendly raw materials; b) Define: Based on insights from the Empathize phase, the primary challenge identified was the lack of understanding and awareness about the importance of adopting circular economy practices, along with limitations in waste management capabilities. A deeper issue was also identified: limited access to technology that supports more sustainable and eco-friendly production; c) Ideate: During this phase, strategies to overcome these barriers were developed. Some of the ideas generated included: 1) Training programs on waste management and converting waste into value-added products; 2) Partnerships with third-party providers to access more efficient green technologies; 3) Product diversification based on sustainable, natural raw materials; d) Prototype: In the prototyping phase, concrete steps were taken to test and implement the proposed priority strategies. Several prototypes were applied, including: 1) Training programs for farmers and SME entrepreneurs to improve their waste management practices; 2) Partnerships with green technology providers to enhance energy efficiency and the use of eco-friendly raw materials; 3) Development of new products based on circular economy principles, such as products made from agricultural waste that can be resold.

Managerial Implications

Based on the findings of this study, the managerial implications for agribusiness SMEs highlight the importance of implementing well-planned and sustainable strategies, as well as adapting to the growing market trend of sustainability. SME managers need to engage in strategic planning that includes the efficient use of resources and the pursuit of product innovations that reduce waste and optimize the circular economy.

SME owners should also focus on developing human resource capacity, particularly through training and education on the principles of the circular economy, and collaborate with third parties to gain access to more environmentally friendly and efficient technologies. The prototyping of strategies, as conducted in this research, allows managers to gather direct feedback from the market and make necessary improvements before scaling up the implementation.

For the implementation of these prototypes, the operational department should be responsible for waste management and the production of circular products. Additionally, the marketing team can promote the added value of circular economy-based products to environmentally conscious consumers.

Conclusion

This study reveals that the implementation of the circular economy in agribusiness SMEs faces various challenges and opportunities. The external factor analysis shows that changing consumer preferences toward sustainable products, government regulatory support, and market competition are key drivers for SMEs to adopt circular economy practices. On the other hand, the internal factor analysis indicates that technological limitations, a lack of understanding of circular economy principles, and limited financial and human resources pose barriers to the adoption of sustainable practices by agribusiness SMEs.

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Case studies of Mitra Tani Farm and Sangreat Natural Indonesia demonstrate that the circular economy can enhance operational efficiency, reduce production costs, and strengthen the company's image as an environmentally friendly business. Mitra Tani Farm successfully utilizes livestock waste for fertilizer production and product diversification, while Sangreat Natural Indonesia focuses on using natural materials and reducing carbon footprints. Both SMEs show that the circular economy not only provides financial benefits but also offers positive social impacts through job creation and community empowerment.

Using the Design Thinking approach, this research generated several priority strategies for other agribusiness SMEs to implement. These strategies include product diversification based on waste, training on waste management and resource utilization, partnerships with green technology providers, and product innovation that aligns with sustainable market demands. The managerial implications of these findings emphasize the importance of strategic planning focused on sustainability, capacity building for human resources, and collaboration with third parties to access environmentally friendly technologies. The results of this study indicate that the circular economy has the potential to strengthen the competitiveness of agribusiness SMEs and contribute positively to environmental sustainability and social empowerment.

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