

MANAGERIAL PRACTICES IN THE CIRCULAR BUSINESS MODEL: CASE STUDY OF INDONESIAN FOOD INDUSTRIES

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ABSTRACT

Background: The circular economy is an emerging paradigm designed to address sustainable economic development challenges in Indonesia. At the micro-level, it emphasizes managerial practices in adopting and implementing circular business models.

Purpose: This study uses a case study approach to analyze three Indonesian food companies that have incorporated circular economy principles into their operations.

Design/methodology/approach: A qualitative approach is utilized, employing semi-structured interview methods to gather in-depth and detailed information.

Results: The research identifies managerial practices through a taxonomic framework of circular business model dimensions, focusing on value creation and capture. Managerial practices vary across the three companies based on the nature of their products and waste management processes.

Conclusion: The findings underscore the need to strengthen the ecosystem through collaborative efforts among the industrial sector, government, and other institutions.

Originality/value (State of Art): This is the first multicase study in Indonesia to explore managerial practices in circular business models at the micro level, specifically within the food industry.

Keywords: circular economy, business model, managerial practices, food industry, external factor

How to Cite:

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INTRODUCTION

The circular economy has emerged as a transformative model addressing global challenges, including climate change, resource depletion, and the achievement of Sustainable Development Goals (SDGs) (Montag, 2023). Unlike the traditional linear economy, which is based on a take-make-dispose approach, the circular economy promotes the efficient use of resources through waste minimization, recycling, and reuse. In the last decade, policymakers and practitioners have focused on the opportunities and challenges associated with the circular economy (Urbinati, Rosa, Sassanelli, Chiaroni, & Terzi, 2020), including cleaner production, eco-industrial systems, and waste management. Countries such as China, Germany, and Japan have actively implemented circular economy models to drive sustainable development (Ogunmakinde, 2019).

Indonesia, as part of its national economic transformation strategy, has embraced the circular economy to foster low-carbon development and green growth. The government projects that integrating circular economy principles could increase national income by USD 42–45 billion by 2030, particularly through enhanced resource and energy management in key sectors such as food and beverages, construction, electronics, textiles, and plastics (Bapennas, 2022). The food and beverage sector, which contributes significantly to food loss and waste, has been highlighted as a priority for circular economy adoption in Indonesia.

Business models have been believed to be a tool for companies to gain profits by describing in detail what needs to be done to determine the product's value and which customers can afford (Fadila, R.A, Asnawi, Y.H, Taryana, A, 2024). Recent research on circular business models has highlighted their potential for driving value creation, cost reduction, and environmental sustainability. Centobelli et al. (2020) have explored the mechanisms through which circular business models generate and capture value, particularly in European non-food manufacturing industries. This research found that value creation often occurs through supply chain optimization, collaboration with key stakeholders, and eco-innovation in product design (Vermeulen, 2015). Value capture, on the other hand, is facilitated by mechanisms such as customer relationship management, pricing strategies (e.g., pay-per-use), and the development of service-oriented business models (Tukker, 2013).

Some significant progress has been made in understanding circular business models in sectors such as electronics and textiles, little empirical research exists on how circular business models are being implemented in other sectors. The novelty of this research lies in its focus on a sector (food and beverages) in Indonesia that have received limited academic attention in the circular economy discourse. Despite the sector's importance, there is a notable lack of research on how circular economy principles are applied in this industry, motivating the need for this study to fill that gap. This paper adopts the one proposed by Urbinati et al. (2017; 2020) as seen in Table 1, which has been used in several scientific contributions for empirical analysis.

This study aims to identify the managerial practices that companies in the Indonesian food and beverage sector implement within circular business models. This includes examining how companies create value through innovations in product design, supply chain management, and stakeholder collaboration, as well as how they capture value through customer-focused strategies and new business models. Furthermore, the study aims to analyze the external factors such as government regulations, environmental standards, and market conditions that influence the implementation of these managerial practices. From practical point of view, the research provides actionable insights for companies looking to adopt circular economy principles and offers guidance on overcoming barriers such as regulatory challenges and market resistance. (Urbinati et al. 2017; Korhonen et al. 2018). Additionally, the findings contribute to the development of policy frameworks that support the transition to circular business models, helping to establish a sustainable and resilient industrial paradigm in Indonesia's food and beverage sector.

METHODS

This research employs an explanatory case study approach to explore the relationships between managerial practices and the outcomes of circular business model implementation (Yin, 2003). This study utilized qualitative research data collected through semi-structured interviews to obtain in-depth and detailed information. with strategic managers and operational managers from the companies. The interview conducted during February – April 2024 thru online meeting platform with duration 1- 2 hours per session. In addition to the data collected from

interviews, this study utilized secondary data which includes documentation from books, academic journals, printed media, annual reports, relevant regulations, and other printed documents, as well as information sourced from company websites and online media.

The respondents for this study are companies implementing circular business models. The selection criteria included: (i) large enterprises with comparable

revenue; (ii) uniformity within the food sector; and (iii) membership in the Indonesia Business Council for Sustainable Development (IBCSD), a CEO-led organization supporting sustainable practices and the circular economy. Three companies were selected as research subjects. For confidentiality reasons, the cases are named “PT.Agro”, “PT. Kebun”, and “PT. Cemilan”. Table 2 and 3 summarizes the information about the companies and the respondent.

Table 1. Theoretical taxonomy (Urbinyaty at al, 2017;2020)

Dimension of Business Circular Model	
Value network	Customer value preposition & interface
<ul style="list-style-type: none"> • Energy efficiency initiatives • Usage of friendly materials, which are natural, recyclable, durable, and easy to separate. • Involvement of supply chain stakeholder in value creation initiatives. • Practices related to the effective communication with the supply chain stakeholder and upstream partners. • Design for “X” practices. 	<p>Price strategies and initiatives</p> <ul style="list-style-type: none"> • Direct sale of product • Sale of products by adding complementary services • Activities of leasing or renting products • Activities of pay-per-use <p>Promotion strategies and initiatives</p> <ul style="list-style-type: none"> • Exploitation of the company website to promote the value preposition. • Activities of advertisement and in-store sales. • Initiatives on sustainability and circular economy themes which involve customer. • Initiatives on sustainability and circular economy themes by exploiting all the available communication channels

Table 2. Object research

	PT. Agro	PT. Kebun	PT. Cemilan
Fresh food	√	√	-
Processed food	√	-	√
Food ingredients	√	√	√
Target market	B2B and B2C	B2B	B2C
Market type	Export & Local	Export & Local	Export & Local

Table 3. Information about interview

Code	Company	Position	Status
A.1	PT. Agro	Head of Sustainability	Manager Strategic
A.2	PT. Agro	External Affairs	Manager Operational
B.1	PT. Kebun	Senior Manager of Corporate Affairs	Manager Strategic
B.2	PT. Kebun	Manager of Corporate Affairs	Manager Operational
C.1	PT. Cemilan	Head of Corporate and Govt Affairs	Manager Strategic
C.2	PT. Cemilan	Manager Program Coordination	Manager Operational

The selection of respondents in this study was conducted through observations on LinkedIn and the researcher's connections in the food industry to meet the appropriate managerial level and role criteria. The study chose two respondents from each object company, with each respondent representing the strategic manager level and the operational manager level. Strategic managers are responsible for reviewing business strategies and objectives to identify strengths, weaknesses, and improvement opportunities, while operational managers manage productivity activities and control effectiveness in accordance with company policies. The selected respondents come from the sustainability or corporate affairs departments, which are most closely related to the strategy and implementation of circular business models, focusing on managers at the director level and middle management. The credibility of the respondents was verified through information on LinkedIn regarding their positions and responsibilities, as well as confirmation from trade association networks ensuring that the respondents actually work at the companies.

Table 4 summarizes the steps, activities and sub-activities that have been performed for conducting this research. This case study used a semi-structured interview model with a prepared interview transcript

guideline combined with open-ended questions to allow for further exploration during the interview. All interview sessions were recorded and transcribed. Subsequently, a content analysis coding process was utilized to capture relevant information. The next step is to analyze the transcribed data; the study employed both within-case and cross-case analyses to identify, validate, and compare recurring patterns of valuable information (Urbinati, Rosa, Sassanelli, Chiaroni, & Terzi, 2020).

Based on prior explanation, the following is several hypotheses to be examined in this research based on conceptual framework according in Figure 1. In the framework managerial practices in circular business models within Indonesia's food and beverage sector positively influence value creation and value capture by enhancing supply chain collaboration and adopting sustainable practices, such as energy efficiency and the use of eco-friendly materials. Furthermore, external factors, including government policies and environmental conditions, significantly impact the implementation of these circular economy principles, shaping both value creation and value capture processes. It is also hypothesized that aligning the customer value proposition with sustainability themes contributes to increased revenue generation.

Table 4. Research Steps

Step	Activity	Sub-activity
1	Literature Review	academic articles indexed in Scopus, Proquest, and Wiley.
2	Research Design	Refer to academic articles and reference books related to qualitative methods and case studies Output : <ul style="list-style-type: none"> • Qualitative methods through multiple case studies. • Designing semi-structured interviews. • Selecting 3 companies as research objects with strategic and operational managers as respondents.
3	Data gathering	<ul style="list-style-type: none"> • Primary data obtained from interview responses to address research questions. • Secondary data sourced from internal data company profiles, ESG reports, and information from company websites.
4	Data Analysis and Interpretation	<ul style="list-style-type: none"> • Data are analyzed from specific to general using a cross-case pattern approach with divergent techniques. • Validity checks are conducted through data source triangulation using other secondary sources.
5	Reporting	<ul style="list-style-type: none"> • Explanation of the findings, conclusions drawn from the research results, and recommendations for implementation strategies.

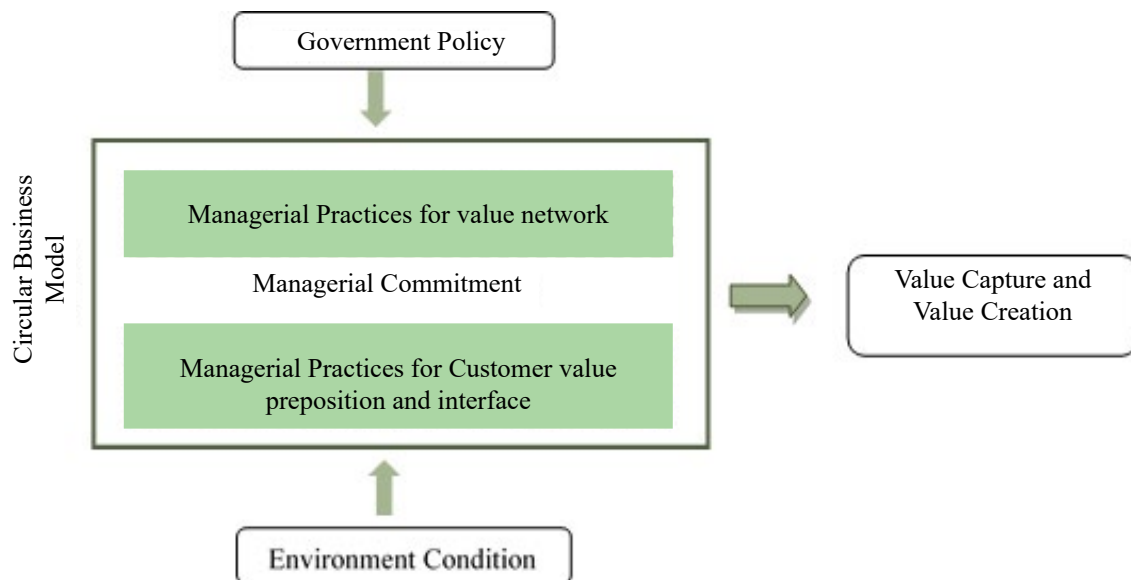


Figure 1. Conceptual Framework (Urbinati et al, 2020; modified by writer)

RESULTS

Circular Business Model in Companies

PT. Agro is a multinational company from Indonesia founded in 1979. PT. Agro and its affiliates operate in the agriculture and food manufacturing business lines, producing fresh fruits, processed foods and beverages, as well as protein and dairy products. Their main products include canned fruits, which are distributed in over 60 countries, making PT. Agro is one of the world's top three canned fruit producers and the largest integrated and zero-waste producer globally. PT. Agro's commitment to sustainability is evident in its adoption of modern farming practices and environmentally friendly technologies, resulting in numerous awards recognizing its environmental initiatives, such as CSR awards and Retail Asia awards. Figure 2 illustrates the circular business model that PT Agro has implemented and developed over the past several years.

PT. Kebun, a multinational company from the United States with over 150 years of history, operates in more than 125 countries. In Indonesia, it started its operations in 1974 with feed processing facilities. Today, PT. Kebun is involved in various agricultural activities, including procurement, processing, and marketing of products such as palm oil, copra, cocoa, protein, and fructose syrup, primarily targeting the B2B market. These priorities are translated into tangible actions within each business line, considering the environmental, social, and economic impacts. One

of them is an environmentally friendly plant occupied with water treatment to reduce waste to the environment. Figure 3 illustrates the circular business model that PT Kebun has implemented.

PT. Cemilan, a multinational corporation, is a key player in the global and Indonesian snack markets. Founded in Indonesia in 1994, the company specializes in processed foods and beverages, serving the retail sector. With an integrated supply chain, PT. Cemilan aims to achieve zero waste in packaging and promote a circular economy. Figure 4 illustrates the circular business model that PT Cemilan has implemented and developed for a few years.

Value Network

Observations from the three companies indicate managerial practices within the value network dimension may exhibit differences, there are also notable similarities among them. This differs from Urbinati's (2020) findings, which state that the value network dimension in the three manufacturing companies studied is relatively similar. Managerial practices are significantly influenced by the nature of the products and the type of waste generated. For example, PT. Kebun, which produces for the B2B market, does not focus on plastic waste like PT. Agro and PT. Cemilan did. However, all three focus on energy efficiency initiatives, although they have different strategies in practice. Table 5 presents a cross-case analysis of managerial practices in value network dimensions.

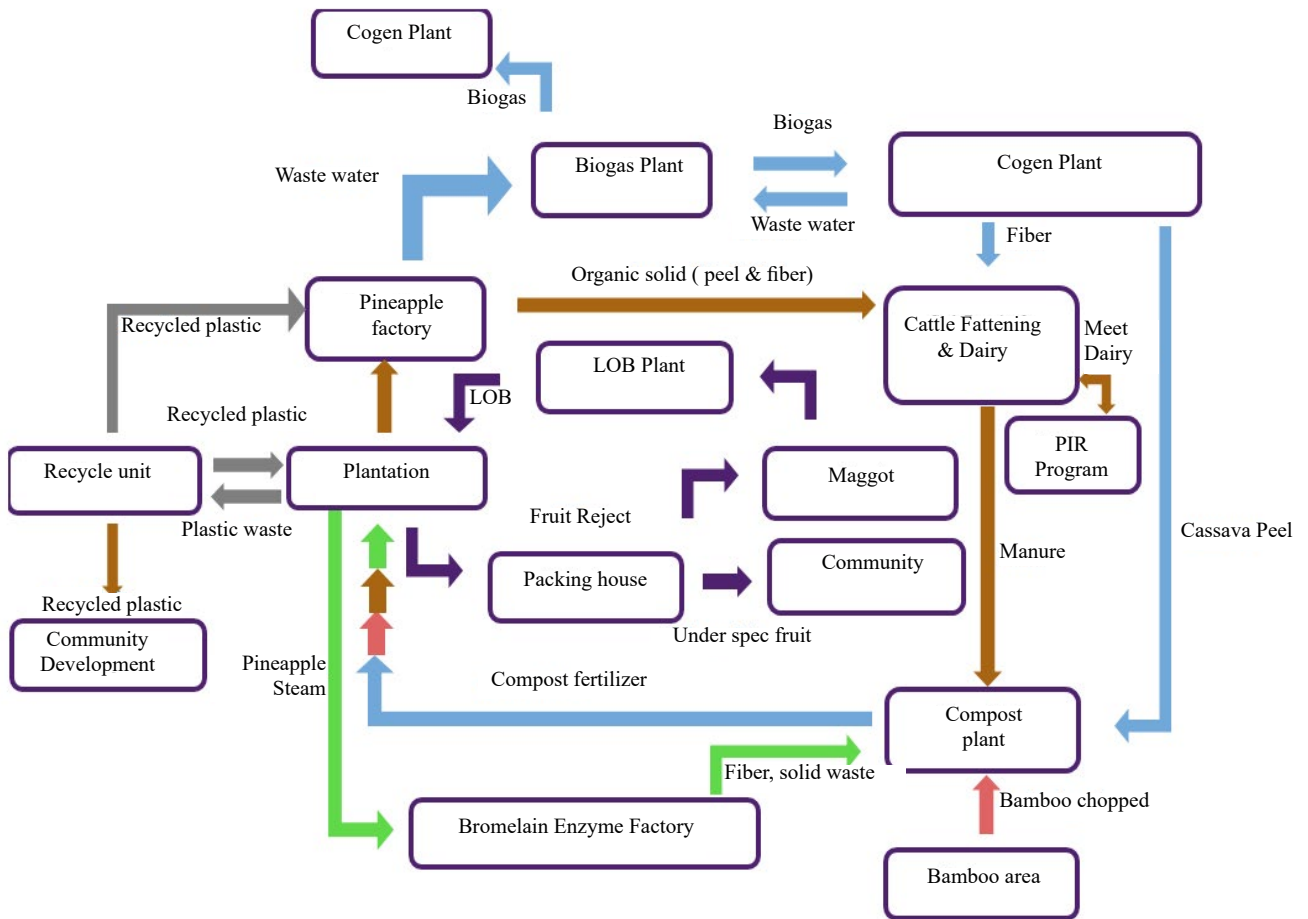


Figure 2. Circular Business Model PT. Agro

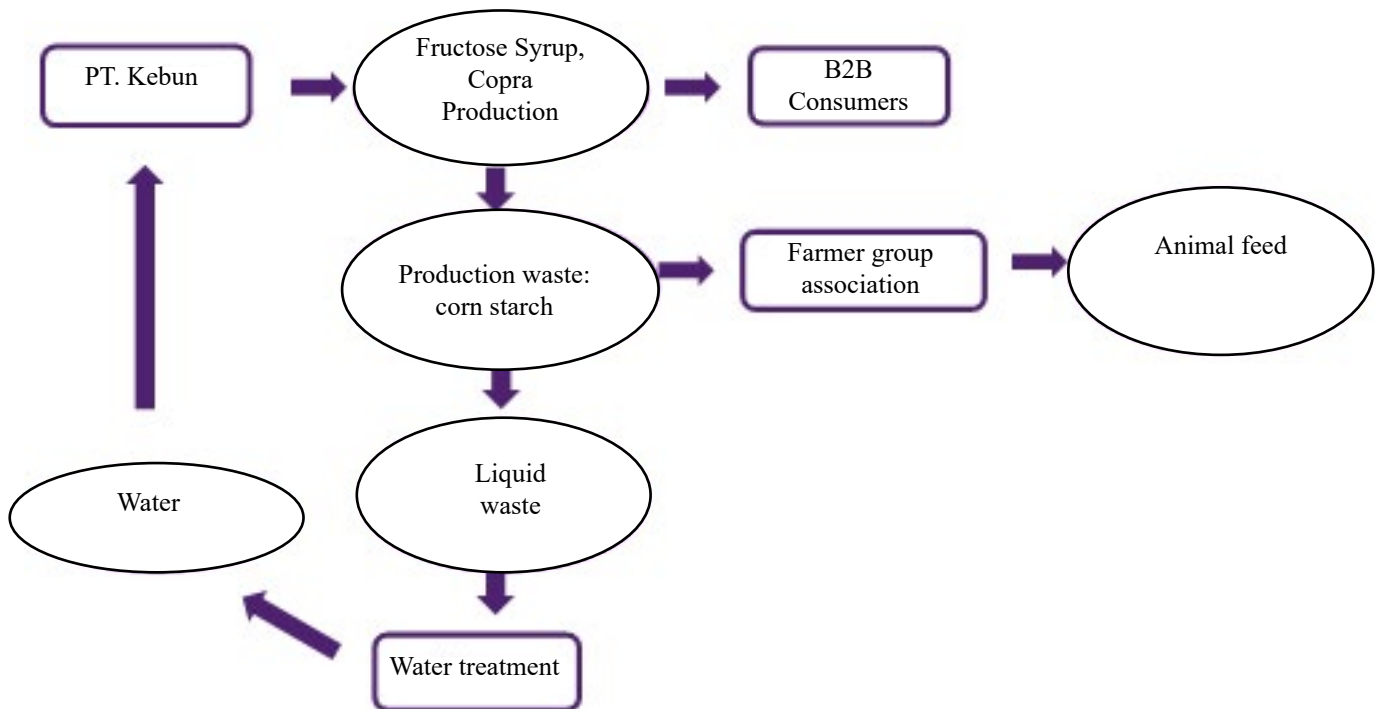


Figure 3. Circular Business Model PT. Kebun

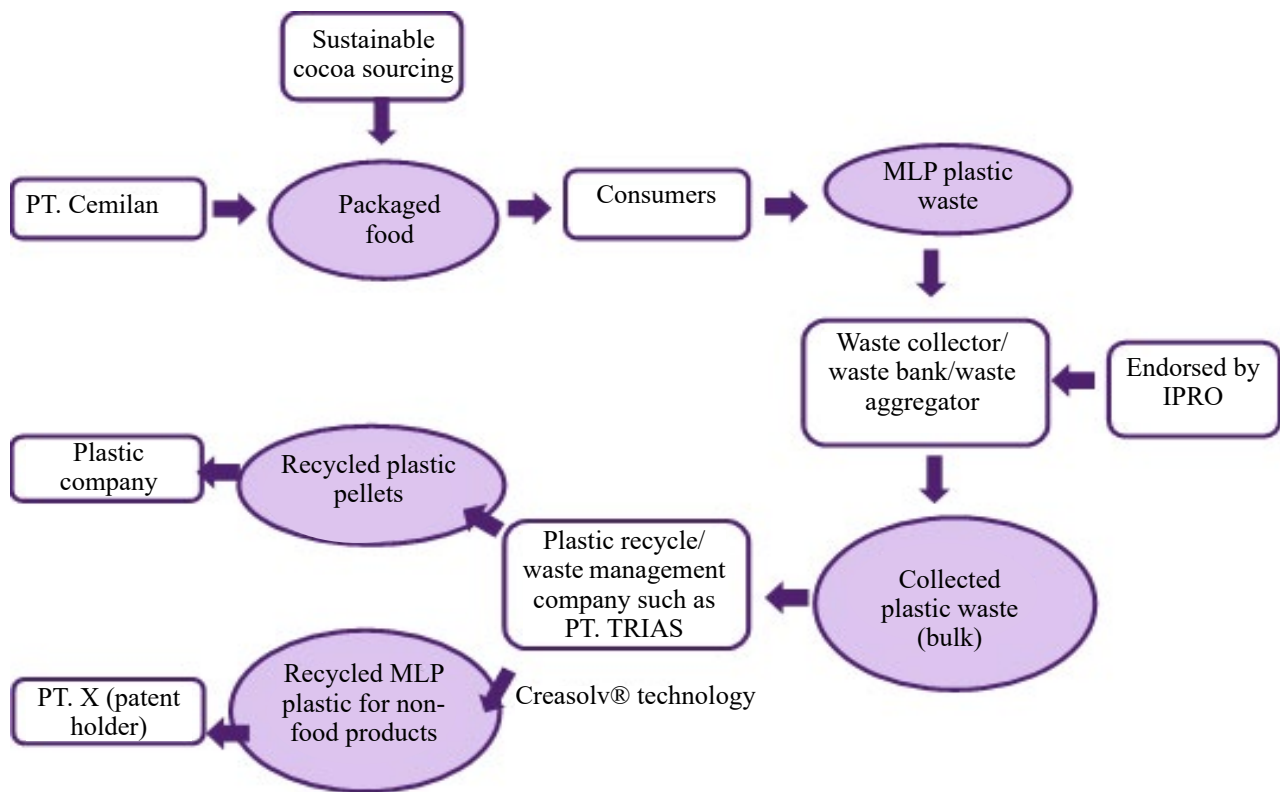


Figure 4. Circular Business Model PT. Cemilan

Table 5. Managerial practices associated with the customer value Proposition and Interface dimension

Promotions Strategies and Initiatives	PT Agro (A)	PT. Garden (B)	PT. Cemilan (C)
Exploit the company website to promote the value proposition.	Use of corporate web to promote circular business initiatives and sustainability commitments Similar to B and C	Use of corporate web to promote circular business initiatives and sustainability commitments Similar to A and C	Use of corporate web to promote circular business initiatives and sustainability commitments Similar to B and A
In-store advertising and sales activities	Communication through sales staff at outlets Different from A and C	None Similar to C and different from A	None Similar to B and different from A
Customer-engaging initiatives centered on sustainability and circular economy themes	Customer engagement for plastic bottle recycling program Different from B, similar to C	Collaboration with industrial customers on mangrove planting and water conservation Different from A and C	Customer engagement in plastic packaging recycling program Different from B, similar to A
Initiatives on sustainability and circular economy themes that leverage all available communication channels.	Active participation in government events (bappenas), cooperation with academics and universities, communication through the company web and employees as "influencers" Partially similar to B and C	Active participation in national and local government events, communication through the company's website Partially similar to A and C	Active participation in government events, collaboration with associations of similar companies, and communication through company web and media press releases Partially similar to B and A

Customer value proposition and interface

All three companies employ direct sales as a key pricing strategy. PT Agro and PT Cemilan cater to both industrial (B2B) and end consumers (B2C), while PT Kebun focuses exclusively on B2B transactions. This choice aligns with their business models as producers of food commodities for direct consumption or further processing. In this context, there is no direct involvement of consumers in the companies' circular economy efforts (Kumar and Venkatsen, 2005).

Regarding promotional strategies and initiatives, all three companies implement various managerial practices, with a commonality being the promotion of value propositions through their respective company websites. Promotion emerges as the simplest

managerial practice within promotional strategies (Urbinati, at al, 2020). Table 6 represents the strategies for all companies which are related to dimension of customer value proposition and interface.

Managerial Commitment

The managerial practices implemented by the three companies would not be effective without the driving factor of managerial commitment. Managerial commitment is strategically significant in aligning resources with company goals. This alignment is strengthened by the interdependence of business model dimensions, where companies are expected to build a holistic view of the managerial practices necessary for their circular economy business models (Ünal, Urbinati, & Chiaroni, 2019).

Table 6. Managerial practices associated to the value network dimension

Value Network	PT. Agro (A)	PT. Kebun(B)	PT. Cemilan (C)
Energy efficiency initiatives	<ul style="list-style-type: none"> • Biogas management from liquid waste to be used in running the canned pineapple production process • Management of cow dung into compost for plantation management • Different from C and B 	<ul style="list-style-type: none"> • Power-saving factory machine investment • Management of production wastewater for reuse in production • Different from B and C 	<ul style="list-style-type: none"> • None • Different from C and A
Use of eco-friendly materials, which are natural, recyclable, durable, and easy to separate	<ul style="list-style-type: none"> • Use of rPET plastic which easily to recycle • Investment on plastic recycling machine • Partially similar to C, in contrast to B 	<ul style="list-style-type: none"> • None • Different from A and C 	<ul style="list-style-type: none"> • Transitioning to more environmentally friendly plastics • Similar to A, different from B
Involvement of supply chain stakeholders in value creation initiatives.	<ul style="list-style-type: none"> • MSME involvement in managing products that do not pass QC and waste • Different from B and C 	<ul style="list-style-type: none"> • Involvement of Gapoktan in absorbing corn syrup waste into animal feed • Different from A and C 	<ul style="list-style-type: none"> • Collaboration with IPRO in plastic waste management • Collaboration with food banks to manage near-expired products • Collaboration with farmers in managing cocoa research farm products • Different from A and B
Practices related to effective communication with supply chain stakeholders and upstream partners	<ul style="list-style-type: none"> • None • Similar to B and C 	<ul style="list-style-type: none"> • None • Similar to A and C 	<ul style="list-style-type: none"> • None • Similar to A and B
Design for "X"	<ul style="list-style-type: none"> • Use of rPET plastic bottles and return mechanism of used plastic bottles • Different from B and C 	<ul style="list-style-type: none"> • None • Different from A and C 	<ul style="list-style-type: none"> • Transition in using more recyclable plastics • Different from A and B

At PT. Agro, managerial commitment is manifested in a declared pledge, where one of the pillars is a commitment to circular business with the main goal of creating a competitive edge through environmentally friendly practices. In contrast, the managerial commitment of PT. Kebun and PT. Cemilan is reflected in their global commitments, where one of the sustainability KPIs is cascaded to all business units, including those in Indonesia. These two companies, multinational firms from the United States, have increasingly focused on sustainability issues in recent years.

From the examples of managerial commitment in the three companies, it can be concluded that managerial commitment is crucial in implementing circular business models. Managerial commitment is strategically important for aligning resources with company goals (Ünal, Urbinati, & Chiaroni, 2019). This alignment is reinforced by the dimensions of the circular business model to collectively enhance the level of circularity. In other words, companies must consistently manage the value network dimension, customer value proposition, and interface, along with managerial commitment to their business models. In several managerial practices, the involvement of stakeholders in circularity is evident. These stakeholders play various supporting roles in the implementation of the circular business model. According to Leena Aarikka et al. (2022), collaboration in the circular supply chain enables the management of product flows, by-products, and waste within the supply chain and the surrounding industrial and natural ecosystems through circular economy principles. Limitations in resources, regional coverage, and funding drive companies with the same commitments to join forces.

This study found a strong connection between the managerial practices implemented and the creation and capture of value. Value creation is demonstrated by energy efficiency, environmentally friendly product design, and waste management, while value capture is evident from consumer collaboration in waste reduction initiatives and the achievement of a closed-loop system (Leena Aarikka et al. 2022). Ultimately, this value creation has positive impacts, such as job creation, increased regional and company revenues, and becoming a distinctive feature of a company, while value capture results in material benefits for the company, enhanced credibility and corporate image, and reduced food loss, which in turn lowers production costs.

In identifying managerial practices based on the circular business model, researchers found that most managerial practices involve collaboration with various stakeholders to create a closed-loop supply chain. For example, in plastic waste management, several multinational companies have formed non-profit organizations focused on improving plastic waste collection and recycling claims, aiding companies in implementing their circular business models.

External factors

The research indicated that both the components of the business model and the adoption of managerial strategies for transitioning to a circular economy were influenced by external factors, which could either facilitate or impede the implementation of circular business models in Indonesia's food industry. Four main external factors were identified: the role of the government as a regulator, collaboration with stakeholders, the readiness of the circular economy supporting the ecosystem, and environmental impact.

The government's role is crucial in promoting the circular economy through regulations and policies. For instance, Indonesia's adoption of the Extended Producer Responsibility (EPR) concept, the Government mandates producers to manage non-compostable packaging waste. Regulations like the Ministry of Environment and Forestry Regulation No. P.75/2019 detail plans for reducing plastic waste by 30% by 2029 in the food and beverage sector. However, these regulations lack enforcement mechanisms and incentives for compliance, posing challenges for companies, particularly those using difficult-to-recycle materials like multilayer plastics.

Collaboration with stakeholders is essential for achieving a circular economy. Companies cannot achieve circularity alone and need to work with various stakeholders, including government, academia, non-profits, and local communities. Successful collaborations, such as PT. Agro's partnerships with research institutions and PT. Cemilan's work with IPRO on plastic waste management, demonstrates the importance of joint efforts. Government support in facilitating these collaborations is vital for creating a supportive ecosystem.

The readiness of the circular economy ecosystem significantly impacts the success of circular business models. A robust ecosystem involves cooperation among companies, government, academic institutions, and NGOs to promote efficient recycling, remanufacturing, and reuse of materials. In Indonesia, this ecosystem is still underdeveloped, with inadequate infrastructure and limited access to recycling technologies. The government needs to enhance public awareness and provide better support for recycling businesses to stabilize the market for recycled products.

Environmental impacts drive businesses to adopt sustainable practices. Circular business models focusing on recycling, renewable energy use, and efficient waste management contribute to reducing natural resource use and carbon emissions. The research highlights that the government's regulatory role, while important, is not sufficient on its own. A comprehensive approach involving a well-developed ecosystem and active stakeholder collaboration is crucial for the successful implementation of circular business strategies, ultimately leading to significant environmental benefits.

Managerial Implication

The research findings have significant managerial implications for the government, business actors, and stakeholders. The government can use these findings to improve regulatory implementation related to the circular economy by preparing adequate infrastructure and technology and acting as a mediator between businesses and stakeholders to form a supportive ecosystem. Businesses can use the findings as a reference for implementing circular business models, predicting potential challenges, and better preparing for them. Stakeholders such as NGOs, associations, academia, and community groups can leverage these findings to collaborate with businesses in creating a supportive circular economy ecosystem. The research underscores that achieving a circular economy requires collective efforts from all actors, including the government, businesses, consumers, suppliers, and other stakeholders.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This paper aimed to explore the managerial practices of companies in implementing circular business models, focusing on value creation and capture, as well as the external factors that influence these practices. The three companies examined showed diverse approaches based on their specific products, waste management needs, and business models. Managerial commitment and stakeholder collaboration, including partnerships with nonprofits such as IPRO, are critical for successfully adopting circular practices. External factors, including government regulations, stakeholder collaboration, and the development of a circular economy ecosystem, significantly influence these efforts. However, the readiness of the supporting ecosystem in Indonesia is still evolving, and stronger efforts are needed to fully realize the potential of the circular economy.

To advance the adoption of circular business models in Indonesia, it is crucial to strengthen government regulations and policies that support sustainable practices and ensure their effective implementation. Enhancing collaboration among companies, NGOs, government entities, and local communities will be key to improving waste management and facilitating circular initiatives. Investment in infrastructure, including recycling systems, renewable energy, and sustainable supply chains, is essential for building a supportive ecosystem. Moreover, fostering managerial commitment through targeted training and awareness programs will drive the successful adoption of circular practices. Finally, implementing mechanisms to monitor and assess the environmental impact of these practices will help ensure that circular business models achieve positive environmental outcomes and mitigate any potential rebound effects.

Recommendations

This paper provides insights into managerial practices related to circular business models and the external factors influencing them. However, it also has limitations, such as focusing only on the food industry in Indonesia, which may render the findings less relevant to other industries with different business models. Future research could explore value creation and capture in circular business models from the demand side, focusing on consumer perspectives, as

most studies have concentrated on the supply side, from a company viewpoint. Additionally, further studies could employ quantitative methodologies and/or theory-building approaches in the field of circular business models to expand understanding.

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