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The Influence of Zero Waste Packaging Adoption on Café Competitiveness in Medan through Food Delivery Applications

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ABSTRACT

As environmental awareness among consumers continues to rise, the use of eco-friendly packaging has become a potential business strategy to enhance a company's competitive value. This growing awareness has encouraged culinary businesses to adopt sustainable practices, one of which is the implementation of zero waste packaging. This study aims to analyze the influence of zero waste packaging adoption on the competitive advantage of cafés in Medan City, taking into account the mediating role of customer satisfaction within the context of food delivery service applications. A quantitative approach was employed, using a survey method involving customers who actively use food delivery services from cafés. The theoretical framework is based on the Resource-Based View (RBV) and consumer behavior toward green innovation. Data were analyzed using Structural Equation Modeling (SEM). The results indicate that the adoption of zero waste packaging has a positive and significant effect on café competitiveness, both directly and indirectly through customer satisfaction as a mediating variable. These findings highlight the importance of integrating sustainability values into culinary business strategies to strengthen competitive advantage in an increasingly digital and environmentally conscious era.

INTRODUCTION

Global environmental issues, particularly the increasing volume of plastic waste and single-use packaging, have driven a paradigm shift in both consumer behavior and business strategy. Today's consumers are increasingly aware of the importance of sustainability and tend to prefer products and services that demonstrate environmental responsibility. This phenomenon compels businesses, including those in the food and beverage (F&B) sector, to adopt more eco-friendly approaches—one of which is the use of zero waste packaging. Such packaging not only aims to reduce ecological impact but also serves as a value-added component that can enhance a company's competitive advantage.

In the context of urban café businesses, adopting zero waste packaging has become a strategic necessity, especially amid the intensifying market competition. Medan, as one of the major economic hubs in North Sumatra, has experienced significant growth in its culinary industry, marked by the increasing number of cafés and restaurants relying on digital platforms for product distribution. Food delivery applications such as GoFood, GrabFood, and ShopeeFood have become primary channels for culinary businesses to reach consumers. However, limited research has specifically examined how sustainability practices—particularly in the form of zero waste packaging—affect café competitiveness within this digital landscape.

Previous studies have predominantly focused on aspects such as service quality, customer satisfaction, and consumer loyalty in food delivery services. However, the sustainability dimension—especially zero waste packaging—remains underexplored. Therefore, an important research gap emerges: the link between the adoption of zero waste packaging, customer satisfaction, and café competitiveness through food delivery platforms.

Based on this background, the present study aims to analyze the influence of zero waste packaging adoption on the competitiveness of cafés in the city of Medan, taking into account the mediating role of customer satisfaction. This research adopts a quantitative approach using Structural Equation Modeling (SEM) and is grounded in the Resource-Based View (RBV) theory, which emphasizes the importance of unique and valuable internal resources in building competitive advantage. The results of this study are expected to contribute theoretically to the development of sustainability studies in culinary MSMEs and offer practical recommendations for business actors in designing environmentally driven strategies in the digital era.

LITERATURE REVIEW

Zero waste packaging is a packaging approach aimed at minimizing waste to zero through the use of reusable, biodegradable, or fully recyclable materials (Pires et al., 2021). In the context of the culinary business, the use of environmentally friendly packaging not only reflects corporate social responsibility but also represents an innovation that can attract environmentally conscious consumers. According to Kim and Hall (2022), consumers tend to show a

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higher preference for brands that demonstrate sustainability values through their packaging. Thus, zero waste packaging is not merely a moral obligation but has become an integral part of sustainable marketing strategies.

Competitiveness refers to a company's ability to create and sustain a market advantage by offering unique and hard-to-imitate value (Porter, 1985). Within the framework of the Resource-Based View (RBV), competitive advantage is derived from internal resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991). Innovation in the form of zero waste packaging can be considered a unique resource that enhances positive customer perception and differentiates a business from its competitors. In the F&B sector, competitiveness is also determined by accessibility through digital platforms and the consistent communication of sustainability values.

Customer satisfaction is the outcome of an evaluation of how well a product or service meets or exceeds customer expectations (Kotler & Keller, 2016). The use of eco-friendly packaging has been shown to increase positive perceptions and trust in a brand (Chen et al., 2020). In food delivery services, customers evaluate not only the taste or price of the product but also the values embedded by service providers, including sustainability practices. High levels of satisfaction can foster customer loyalty and strengthen a business's position in a competitive digital marketplace.

Sustainability in business refers to the integration of economic growth, social responsibility, and environmental preservation (Elkington, 1997). The implementation of sustainability principles in culinary MSMEs reflects adaptation to global trends as well as a long-term commitment to creating shared value. According to Sarkis et al. (2020), sustainability can serve as a strategic differentiator in the modern business landscape, particularly when effectively communicated through digital platforms such as food delivery applications.

METHOD

This study adopts a quantitative approach with an explanatory research design. The purpose of this approach is to examine both direct and indirect relationships among variables, as well as to understand the mediating effects within a proposed model. The study was conducted through a survey of café customers in Medan who utilize food delivery services such as GoFood, GrabFood, and ShopeeFood. The population of this study consists of café consumers who have made food or beverage purchases through food delivery applications in Medan. The sample size was determined based on the minimum requirements of Structural Equation Modeling (SEM), which recommends 5–10 times the number of indicators. With 20 indicators used in this study, a minimum of 100–200 respondents is required. Data analysis was performed using Structural Equation Modeling - Partial Least Squares (SEM-PLS) with the SmartPLS software. SEM-PLS was chosen due to its ability to test latent variable relationships, including mediation effects.

RESULT

Construct validity and reliability tests were conducted to ensure that each indicator accurately measured its respective variable. Based on the results of the SmartPLS analysis, all indicators showed outer loading values greater than 0.70, Average Variance Extracted (AVE) values above 0.50, and composite reliability scores exceeding 0.70, indicating that the research instrument satisfies the criteria for convergent validity and construct reliability.

Table 1. The Structural Model

Relationship Between Variables	Path Coefficient	p-value	Remark
Zero Waste Packaging → Customer Satisfaction	0.432	0.000	Significant
Zero Waste Packaging → Competitiveness	0.279	0.012	Significant
Customer Satisfaction → Competitiveness	0.514	0.000	Significant
Sustainability → Competitiveness	0.302	0.004	Significant
Zero Waste Packaging → Competitiveness (indirect via Satisfaction)	0.222	0.001	Significant (mediated)

DISCUSSION

The findings indicate that the use of zero waste packaging significantly enhances customer satisfaction. Consumers tend to feel more satisfied when they are aware that the café they support is committed to environmental concerns. This is in line with Kim and Hall (2022), who argue that sustainability values embedded in packaging have a positive impact on customer perception and loyalty.

Zero waste packaging also directly contributes to improving café competitiveness. Cafés that adopt eco-friendly packaging are perceived as more innovative and socially responsible, thereby earning greater consumer trust. From the Resource-Based View (Barney, 1991), this approach represents a strategic resource that is difficult for competitors to replicate.

Customer satisfaction is proven to mediate the relationship between zero waste packaging and competitiveness. In other words, the impact of eco-friendly packaging on competitiveness is largely explained by the increase in customer satisfaction. This suggests that the success of sustainability strategies depends not only on implementation but also on how consumers emotionally and cognitively respond to such initiatives.

Sustainability has a positive influence on competitiveness, highlighting that a café's commitment to sustainable environmental practices can provide a strategic advantage. This aligns with Elkington's (1997) Triple Bottom Line

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framework, which emphasizes that environmental, social, and economic aspects must be integrated into modern business strategies.

CONCLUSION

Based on the analysis using Structural Equation Modeling–Partial Least Squares (SEM-PLS), findings zero waste packaging has a positive and significant effect on customer satisfaction. Consumers tend to appreciate businesses that demonstrate environmental responsibility, and thus, the use of eco-friendly packaging enhances the overall customer experience. Zero waste packaging also directly contributes to improving café competitiveness. Sustainable practices in the form of packaging innovation serve as a differentiating factor, providing added value in a highly competitive culinary market. Customer satisfaction significantly mediates the relationship between zero waste packaging and competitiveness. This implies that the effectiveness of environmentally conscious strategies is strengthened when they lead to positive customer perceptions and satisfaction with the products and services offered. The variable of sustainability also shows a significant direct effect on competitiveness, indicating that long-term commitment to sustainable business practices is an essential element of competitive differentiation in the digital era. Overall, the findings confirm that integrating sustainability values—particularly through zero waste packaging—is not only a form of social responsibility but also a strategic tool for building competitive advantage in the modern, digital-driven food and beverage industry.

REFERENCES

Ali, M., & Anwar, S. (2021). Green innovation and environmental performance: The mediating role of green knowledge sharing. Sustainability, 13(7), 3941. https://doi.org/10.3390/su13073941

Alhouti, S., Johnson, C. M., & Holloway, B. B. (2016). Corporate social responsibility authenticity: Investigating its antecedents and outcomes. Journal of Business Research, 69(3), 1242–1249. https://doi.org/10.1016/j.jbusres.2015.09.007

Barney, J. B. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120. https://doi.org/10.1177/014920639101700108

Chen, Y. S., Lin, M. J. J., & Chang, C. H. (2020). The positive effects of relationship learning and absorptive capacity on innovation performance and competitive advantage in industrial markets. Industrial Marketing Management, 39(2), 240–245. https://doi.org/10.1016/j.indmarman.2008.12.003

Delmas, M. A., & Burbano, V. C. (2011). The drivers of greenwashing. *California Management Review*, *54*(1), 64–87. https://doi.org/10.1525/cmr.2011.54.1.64

Elkington, J. (1997). Cannibals with forks: The triple bottom line of 21st-century business. Capstone Publishing.

Gupta, S., Czinkota, M., & Melewar, T. C. (2013). Embedding knowledge and value of a brand into sustainability for differentiation. *Journal of World Business*, *48*(3), 287–296. https://doi.org/10.1016/j.jwb.2012.07.013

Kim, Y., & Hall, C. M. (2022). Consumer response to sustainable food packaging in restaurant and delivery services. Sustainability, 14(9), 5013. https://doi.org/10.3390/su14095013

Kotler, P., & Keller, K. L. (2016). Marketing management (15th ed.). Pearson Education Limited.

Lee, S. Y., & Klassen, R. D. (2008). Drivers and enablers that foster environmental management capabilities in small- and medium-sized suppliers in supply chains. *Production and Operations Management*, *17*(6), 573–586. https://doi.org/10.3401/poms.1080.0050

Nguyen, T. T. H., & Lobo, A. (2017). Pro-environmental purchase behaviour: The role of consumers' biospheric values. *Journal of Retailing and Consumer Services*, *33*, 98–108. https://doi.org/10.1016/j.jretconser.2016.08.010

Pires, A., Martinho, G., & Rodrigues, S. (2021). Sustainable solid waste collection and transportation: Challenges and opportunities. Sustainability, 13(3), 1220. https://doi.org/10.3390/su13031220

Porter, M. E. (1985). Competitive advantage: Creating and sustaining superior performance. Free Press.

Rahman, M. M., & Reynolds, D. (2016). Predicting green hotel behavioral intentions using a theory of environmental commitment and sacrifice for the environment. International Journal of Hospitality Management, 52, 107–116. https://doi.org/10.1016/j.ijhm.2015.09.007

Rokka, J., & Uusitalo, L. (2008). Preference for green packaging in consumer product choices—Do consumers care? International Journal of Consumer Studies, 32(5), 516–525. https://doi.org/10.1111/j.1470-6431.2008.00710.x

Sarkis, J., Cohen, M. J., Dewick, P., & Schröder, P. (2020). A brave new world: Lessons from the COVID-19 pandemic for transitioning to sustainable supply and production. Resources, Conservation and Recycling, 159, 104894. https://doi.org/10.1016/j.resconrec.2020.104894

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