

Research Article

Environmental Management Accounting (EMA) Framework for Restaurant Surplus Food Redistribution Platforms: A Literature Review

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Abstract: Digital food bank platforms have emerged as a technological approach to connecting surplus food providers with beneficiaries and improving the efficiency of food redistribution. However, previous developments have predominantly focused on logistical and operational aspects, such as location-based matching, distribution optimization, and inventory management, while the integration of environmental information into platform management remains limited. This study aims to examine the potential integration of Environmental Management Accounting (EMA) into digital food bank platforms to support environmentally sustainable and socially oriented food redistribution. This study employs a Systematic Literature Review (SLR) method to systematically identify, evaluate, and synthesize relevant literature concerning the topic under investigation. The literature reviewed indicates that EMA can provide information regarding environmental costs, resource utilization, and environmental impacts associated with operational activities. Previous studies also demonstrate that EMA can support environmental information disclosure, waste management, environmental performance improvement, and managerial decision-making. In the context of digital food bank platforms, the integration of EMA can complement existing logistical functions by providing information for evaluating food waste reduction, resource utilization, and environmental costs.

Keywords: Digital Food Bank; Environmental Management Accounting; Food Waste; Sustainability; Systematic Literature Review.

1. Introduction

The rapid growth of the tourism sector, service industries, and culinary businesses across various regions often creates a contradiction with the welfare conditions of communities in surrounding areas. Although a region may experience economic growth driven by commercial sectors, the distribution of economic benefits is often uneven. As a result, some vulnerable communities continue to face poverty and food insecurity. This inequality indicates that the growth of business sectors and high levels of food consumption have not yet been accompanied by a redistribution system capable of reaching low-income communities in an inclusive and sustainable manner.

In response to the issues of food insecurity and the generation of food surpluses, community-based approaches through food bank schemes have emerged as an increasingly developed philanthropic solution. Theoretically, the existence of food banks is rooted in the framework of social welfare. Midgley (1995) identifies philanthropy as one of three major approaches to promoting social welfare and poverty alleviation, alongside social service and social work approaches. Unlike formal government interventions, philanthropic approaches emphasize voluntary participation, social concern, and community involvement. Philanthropic practices are also strongly rooted in local wisdom and religious values that emphasize moral obligations and social solidarity to share excess resources with those in need (Tajudin, 2021).

As information technology continues to develop, philanthropic practices involving food banks have increasingly been transformed into digital platforms. These digital platforms aim to connect surplus food providers, such as restaurants, hotels, and catering businesses, with distributing organizations or beneficiary households more rapidly. However, a review of previous literature indicates that the development of digital food bank platforms has thus far

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been predominantly oriented toward technical and logistical operations. Existing studies have largely focused on optimizing location-based matching algorithms, delivery route efficiency, and physical food inventory monitoring to accelerate the distribution process.

Although operational efficiency is highly important, a predominantly logistics-oriented approach presents limitations in providing comprehensive information on sustainability impacts. One aspect that remains relatively underexplored in the literature is the integration of an Environmental Management Accounting (EMA) module into community-based food bank platforms. EMA serves as an accounting approach for identifying, measuring, and reporting the environmental impacts associated with business or social activities. The management of surplus food does not only generate social impacts, particularly in reducing food insecurity, but also has direct ecological implications, such as reducing greenhouse gas emissions associated with food waste and lowering the carbon footprint.

The adoption and implementation of Environmental Management Accounting (EMA) practices across various countries remain relatively limited, particularly in developing countries. This condition indicates that EMA has not yet been fully integrated into corporate management processes. Iredele et al. (2020) state that the level of adoption and implementation of EMA practices in various countries, particularly developing countries, remains relatively low. One factor contributing to this condition is managers' limited understanding of environmental issues and the potential benefits that organizations can obtain through improved environmental performance and reduced environmental impacts.

Limited environmental knowledge has resulted in some managers not fully recognizing that environmental management is not merely related to fulfilling environmental responsibilities but can also constitute an integral part of operational management. Muhammad Jamil et al. (2015) explain that a lack of environmental knowledge prevents managers from fully recognizing the various benefits that can be obtained from efforts to improve environmental performance and reduce the environmental impacts generated by organizational activities. Therefore, managerial understanding of environmental aspects represents one of the elements required to encourage the implementation of EMA within organizations.

In practice, managerial responsibility is not solely oriented toward achieving efficiency and reducing organizational costs but also encompasses efforts to control the environmental impacts arising from operational activities. Solovida and Latan (2017) emphasize that managers' responsibilities are generally concerned not only with reducing costs but also with minimizing the environmental impacts generated by organizational operations. This demonstrates that managerial decision-making needs to consider economic and environmental aspects simultaneously so that organizational operations can be managed in a more responsible manner.

The relatively low level of adoption and implementation of Environmental Management Accounting (EMA) practices across various countries, particularly developing countries, indicates that environmental considerations have not yet been fully integrated into managerial decision-making processes. Iredele et al. (2020) state that the adoption and implementation of EMA practices remain relatively low. This condition is also associated with managers' limited environmental knowledge, which means that the benefits of improving environmental performance and reducing environmental impacts are not yet fully understood (Muhammad Jamil et al., 2015). Nevertheless, environmental management within operational activities is not merely a matter of environmental responsibility; it also requires information that can assist management in making more efficient and sustainable decisions.

According to Solovida and Latan (2017), managerial responsibilities are not limited to efforts to reduce costs but also include efforts to minimize the environmental impacts generated by operational activities. In this context, the availability of information regarding environmental costs represents an important aspect of supporting decision-making. Such information can assist management in identifying various activities that generate costs while simultaneously producing environmental impacts. Therefore, the implementation of EMA can provide more structured information regarding the economic and environmental aspects of operational activities.

These issues are particularly relevant when considered in relation to the development of digital food bank platforms that utilize information technology to connect parties with surplus food to those in need. Such platforms are not solely concerned with food distribution but are also associated with efforts to reduce food that would otherwise potentially become waste. Activities such as food collection, storage, recording, sorting, and distribution entail operational consequences that need to be managed effectively. Therefore, the management of digital food banks should not focus solely on the successful matching of donors and

beneficiaries but should also consider information regarding the resources and costs associated with environmental management activities.

Under these circumstances, EMA represents a relevant approach for supporting the management of digital food bank platforms, particularly through the provision of information on environmental costs arising from operational activities. Such information can be used to identify and evaluate activities related to reducing food waste, resource utilization, and the management of food distributed through the platform. With adequate environmental information, platform managers can obtain a clearer understanding of the relationship between operational activities, resource utilization, costs, and the resulting environmental impacts.

Nevertheless, the development of digital food bank platforms has thus far been primarily directed toward technical aspects, such as distribution optimization, location-based matching systems, donation management, and the efficiency of food distribution processes. This approach demonstrates that digitalization in food banks has primarily been utilized to support operational and distribution processes. Meanwhile, the integration of Environmental Management Accounting (EMA) as a source of information for managerial decision-making remains an aspect that requires further development. This condition indicates a need to expand the function of digital food bank platforms beyond serving as a means of connecting surplus food with beneficiaries, toward becoming systems capable of supporting the recording and utilization of information concerning costs and environmental impacts.

2. Materials and Method

The Systematic Literature Review (SLR) method is employed to systematically identify, evaluate, appraise, subject, or phenomenon (Triandini et al., 2019). Kitchenham et al. (2009) explain that an SLR comprises three main stages: planning the review, conducting the review, and reporting the review.

In the planning stage, researchers determine the objectives and requirements of the review and develop a review protocol to establish a systematic framework for the research process. The review stage involves identifying relevant studies, selecting primary studies, assessing their methodological quality, extracting relevant data, and subsequently analyzing and synthesizing the findings. Finally, in the reporting stage, the results of the literature review are systematically documented and presented to disseminate the findings and provide a comprehensive account of the review process and its results.

The SLR process was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. This approach involves several essential processes, including defining the eligibility requirements, identifying relevant information sources, selecting studies, collecting data, determining the data items to be extracted, and establishing eligibility criteria. To ensure the relevance and consistency of the studies included in the review, the selection process was based on the following inclusion criteria (IC): Research articles examining the influence of Environmental Management Accounting (EMA). Articles published within the period from 2016 to 2026. Articles containing the relevant keywords in the title, abstract, or full text and accessible to the researchers. International research articles indexed in Scopus

3. Results and Discussion

Following a systematic search of scientific literature through Google Scholar, Publish or Perish, and relevant academic databases, a total of 30 articles were identified based on the predetermined inclusion criteria. The selected studies were published between 2016 and 2026 and focused on Environmental Management Accounting (EMA), sustainability accounting, green accounting, food waste management, surplus food redistribution, digital food-sharing platforms, and circular economy practices. These articles were further analyzed to identify theoretical perspectives, research trends, and existing gaps related to the development of an Environmental Management Accounting framework for restaurant surplus food redistribution platforms.

Table 1. Literature Review Results.

Title	Writers	Results
Environmental Management Accounting (EMA) Practices and Plastic Pollution Control in Selected Food and Beverage Firms	Smangele Nzama, Odunayo Magret Olarewaju, Omolola A Arise & Idris Ganiyu	The results indicated a notable connection between information regarding the environment and activities associated with it. Additionally, environmental information showed a favorable association with a company's environmental strategy. Furthermore, a robust positive correlation was identified between environmental information and the management of plastic pollution. An examination of the relationship between activities related to the environment and the control of plastic pollution uncovered a negligible connection. A negligible relationship was also found between corporate environmental strategy and the management of plastic pollution.
Sustainable and Resilient Supply Chains: Opportunities for Research	Arun A. Eliasa, Matthew Peppera, Anand Gurumurthy and Avanish K. Shukla	An essential examination of literature found the need for developing the theory underpinning resilient and sustainable supply chains and the need for rich empirical studies. The six articles featured in this issue showcase an array of contexts such as the food supply chain, environmental accounting framework, energy sector, human resources, modern slavery, horticultural worker exploitation and sustainable transport in jurisdictions like Australia, European Union, Fiji and India.
Reflections on Editing Advances in Environmental Accounting & Management	Martin Freedman, Bikki Jaggi	Accounting educators and the professionals need to determine how they can contribute to abating the environmental consequences of past and present political and economic decisions that have placed the planet in this perilous state. The volumes we produced included articles discussing accounting's function in assessing and reporting on environmental conditions and some suggest how accounting might play a part in mitigating some of these challenges.
A Systems View of The Environment of Environmental Accounting	G.A. Swanson	This article introduces a range of ideas that are maturing in the systems sciences that may provide certain insights to environmental accounting. The ideas prominently concern a concrete systems perspective and draw extensively from the scientific works of James Grier Miller and Nicholas Georgescu-Roegen. Collectively, the ideas present evidence that economies emerge in environmental processes and continue only as long as they are fed by those processes. A conclusion might be drawn, consequently, that environmental processes should be conspicuously disclosed in public accounting statements.
Financial Analysts' Views of The Value of Environmental Information	Herbert G Hunt, D.Jacque and Grinnell	The results, while exploratory in nature, indicate a surprising lack of knowledge among the respondents concerning various organizations and reporting initiatives that are well known in environmental circles. Apervasive theme running through the results suggests that while most analysts do not explicitly incorporate environmental variables into their evaluation models, for those that do, their focus is on downside risk rather than upside potential. The results suggest that the reluctance to make widespread use of environmental information is due, at least partly, to concern with the reliability of the available information

Why Do Hospitality and Food Service Businesses Use Food Sharing Platforms? A Social Practice Perspective on Surplus Food Redistribution to Reduce Food Waste	Shalini Talwar, Amandeep Dhir, Babak Taheri, & Puneet Kaur	The research explores the adoption of food-sharing platforms among hospitality and food service businesses. The findings indicate that surplus food redistribution is influenced by technological capability, organizational practices, user competence, and the perceived social and environmental benefits generated through platform participation.
Smart Food-Sharing Platforms for Social Sustainability: A Heuristic Algorithm Approach	Behzad Maleki Vishkaci & Pietro De Giovanni	The study develops a smart food-sharing platform approach that integrates digital technologies to improve surplus food allocation. The findings indicate that technology-based coordination can increase redistribution efficiency and reduce unnecessary food waste.
Influence of Environmental Management Accounting, Organizational Strategy, and Green Human Resource Management on Environmental Performance and Corporate Innovation	Miftahul Jannah, Muhammad Irfan Tarmizi, & Eva Herianti	The research examines the relationship between Environmental Management Accounting (EMA), organizational strategy, and green human resource management. The findings indicate that integrating environmental considerations into management practices contributes to improved environmental performance and encourages corporate innovation.
Environmental Accounting and Financial Management: A Strategic Approach to Corporate Sustainability	Meny Huliselan	The study emphasizes the strategic role of environmental accounting in identifying environmental costs and incorporating sustainability considerations into financial management decisions. The findings suggest that environmental accounting supports transparency, resource efficiency, and long-term corporate sustainability.
Analysis of Sustainable Practices Based on the Triple Bottom Line Concept and Green Accounting Treatment at the St. Regis Bali Resort	I Nyoman Tri Anjas Pramuditha, I.G.N. Agung Wiryanata, & Christina Susanti	The study analyzes sustainability implementation in hospitality through the Triple Bottom Line approach. The findings reveal that environmental, social, and economic considerations are integrated through green accounting practices to support sustainable hotel operations.
A Conceptual Framework for Determinants, Resources, and Outcomes of	Gökhan Yılmaz & Kerem Çırak	The research proposes a conceptual framework explaining factors influencing food waste generation in restaurants. The findings highlight that operational management, resource utilization, and organizational

Food Waste in Restaurants		practices determine food waste outcomes and sustainability performance.
Environmental Management Accounting, Carbon Disclosure Emission, and Their Effects on Environmental Performance with Green Competitive Advantage as a Moderating Variable	Ismawati Haribowo & Yvonne Augustin	The study investigates the relationship between EMA, carbon emission disclosure, and environmental performance. The findings show that carbon emission disclosure positively affects environmental performance, while EMA implementation requires stronger organizational support to generate measurable environmental improvements.
The Sustainability Characteristics of Michelin Green Star Restaurants	Yuying Huang, C. Michael Hall, & Ning (Chris) Chen	The research examines sustainability initiatives implemented by Michelin Green Star Restaurants. The findings indicate that sustainable restaurants apply various environmental practices related to food procurement, preparation, and presentation, although further improvement in sustainability communication remains necessary.
The Role of Management Accountants in Accounting for Sustainable Development	Alfred Agada	The study discusses the contribution of management accountants in supporting sustainable development. The findings emphasize that accountants play an important role in integrating environmental and social considerations into organizational reporting and decision-making processes.
Environmental Management Accounting as a Perspective for Hotel Sustainability: A Case Study from a Sri Lankan Hotel	Yashodha Gunawardena & Kalani Dissanayake	The research demonstrates that EMA can support sustainability practices in hospitality organizations by providing environmental information related to resource consumption, environmental costs, and operational improvements. The findings show that EMA adoption contributes to energy efficiency, customer satisfaction, and stronger sustainability positioning.
Quantifying Environmental Implications of Surplus Food Redistribution to Reduce Food Waste	Damiani et al.	The study evaluates the environmental consequences of surplus food redistribution using life cycle assessment. The results indicate that food donation can reduce environmental impacts compared with conventional waste treatment, although effective recovery and redistribution mechanisms are required.
Evaluating the Influence of Barriers to Environmental Sustainability on Environmental Management Accounting in the Food and Beverage Manufacturing	Nzama, Olarewaju, & Arise	The research investigates how sustainability barriers influence EMA implementation in food and beverage companies. The findings reveal that reducing organizational and institutional barriers can facilitate the adoption of EMA practices.

Firms in Durban, South Africa		
Food Waste Accounting Methodologies: Challenges, Opportunities, and Further Advancements	Corrado et al.	The study reviews food waste accounting methodologies and identifies challenges related to measurement boundaries, data reliability, and methodological consistency. The findings emphasize the importance of standardized accounting approaches to monitor food waste reduction progress.
The Impact of Sustainability Reports, Sustainability Accounting, and Environmental Innovation on the Achievement of the Sustainable Development Goals (SDGs): Empirical Evidence on Consumer Goods Companies in the Food and Beverage Sub-Sector in Indonesia	Dewi, Martini, & Ratnasari	The study examines the influence of sustainability reporting, sustainability accounting, and environmental innovation on SDGs achievement in food and beverage companies. The findings indicate that sustainability reporting, sustainability accounting, and environmental innovation positively influence SDGs achievement. Sustainability accounting shows the strongest contribution by supporting environmental cost measurement and waste management disclosures.
Environmental Management Accounting and Green Innovation on Financial Performance: The Moderating Role of Regulatory Pressure	Fitriana et al.	The research analyzes the relationship between Environmental Management Accounting, green innovation, and financial performance with regulatory pressure as a moderating variable. The findings demonstrate that EMA and green innovation significantly improve financial performance, while regulatory pressure strengthens the positive relationship between sustainability practices and organizational outcomes.
Influence of Barriers to Environmental Sustainability on Environmental Management Accounting in the Food and Beverage Manufacturing Firms	Smangele Nzama, Odunayo Magret Olarewaju, & Omolola Arise	The study analyzes how environmental sustainability barriers affect the implementation of Environmental Management Accounting in food and beverage manufacturing firms. The findings reveal a significant relationship between sustainability barriers and EMA implementation, suggesting that reducing organizational constraints, improving environmental awareness, and strengthening institutional support are important factors for successful EMA adoption.
The Influence of	Ludovica Principato,	The research explores how sustainability and digitalisation influence business model innovation in a

Sustainability and Digitalisation on Business Model Innovation: The Case of a Multi-sided Platform for Food Surplus Redistribution	Caterina Trevisan, Marco Formentini, Luca Secondi, Camilla Comis, & Carlo Alberto Pratesi	food surplus redistribution platform. The findings show that digital platforms can balance economic viability with social and environmental sustainability objectives. The study highlights the importance of integrating sustainability dimensions with digital capabilities to generate value for multiple stakeholders involved in surplus food redistribution.
Food Waste Management in the Hospitality Sector: A Systematic Review of the Strategies and Barriers	Gideon Walter Mutanda	The study reviews food waste management strategies and barriers within the hospitality sector. The findings identify that food waste reduction requires interventions throughout the food service process, including procurement control, inventory management, portion management, donation practices, and composting. The research also emphasizes the role of technological innovation in monitoring food waste and supporting circular economy practices in hospitality operations.
The Role of Environmental Management Accounting in Sustainability	Quang Linh Huynh & Van Kha Nguyen	The research investigates the role of Environmental Management Accounting (EMA) practices in supporting corporate sustainability. The findings demonstrate that environmental uncertainty, market competition, organizational size, and corporate governance influence the adoption of EMA practices. Furthermore, EMA implementation contributes to improved environmental performance by providing relevant environmental information for managerial decision-making and controlling environmental costs.
The Influence of Green Accounting, Sustainability Report Disclosure and Environmental Performance on Firm Value	Amalia Cahya Azzahra, Damayanti, & Anita Kusuma Dewi	The study examines the effect of green accounting, sustainability report disclosure, and environmental performance on firm value. The findings indicate that green accounting and environmental performance have a positive and significant influence on firm value, while sustainability report disclosure shows a negative significant effect. The research emphasizes that environmental accounting practices and strong environmental performance can enhance corporate legitimacy and investor confidence.
Dual Accounting and Decision Support for Food Surplus Management in Circular Food Systems	Marianne Thomsen, Asimina Bairaktari, Robin Rosa Raupach, Sujita Pandey, Xun Zhou, Milena Siemiatkowska, & Mausam Budhathoki	The study develops a dual accounting framework to improve monitoring, reporting, and verification of food surplus management within circular food systems. The findings demonstrate that distinguishing food surplus retained for human consumption from waste pathways improves transparency and supports environmental and economic evaluations. The proposed framework provides a structured approach to measure food waste prevention and evaluate circularity progress toward sustainable food systems.
Food Loss and Waste Management in the Retail Food Supply Chain: Methods and Framework to Achieve	Oluwole Olabode, Niraj Kumar, & Debashree De	The research analyzes food loss and waste management practices across the retail food supply chain and identifies strategies to achieve environmental sustainability. The findings indicate that effective operational management, inventory control, packaging strategies, logistics improvement, and stakeholder collaboration are important factors in reducing food loss and waste. The study proposes an integrated framework

Environmental Sustainability		combining supply chain management practices and sustainability approaches to improve environmental performance.
From Waste to Worth: How Environmental Accounting Translates Sustainability Practices into Organizational Value	Mohammad Main Uddin, M. Meherul Islam Khan, Md. Tazul Islam, & Md. Asaduzzaman Babu	The study examines how environmental accounting and reporting transform sustainability practices into organizational value. The findings show that environmental initiatives such as solid waste management, wastewater management, energy control, and environmental monitoring positively influence environmental accounting and reporting. Furthermore, environmental accounting and reporting improve organizational reputation, financial performance, and environmental sustainability outcomes, demonstrating the strategic value of environmental accounting implementation.
Smart Food-Sharing Platforms for Social Sustainability: A Heuristic Algorithm Approach	Behzad Maleki Vishkai & Pietro De Giovanni	The research develops a smart food-sharing platform framework using artificial intelligence and smart contracts to improve surplus food redistribution. The findings indicate that smart platforms can support proactive redistribution strategies, reduce food waste, and improve social and environmental outcomes through more efficient coordination among stakeholders.
The Influence of Electronic Word of Mouth, Green Marketing Practices, and Green Brand Image on the Intention to Choose Green Hotels with Green Attitude Mediation	Mochammad Jamaluddin Al Fadli & Erna Sofriana Imaningsih	The research analyzes factors influencing consumers' intention to choose green hotels. The results show that electronic word of mouth, green marketing practices, and green brand image positively influence green attitudes. Green attitude also acts as a mediating variable that strengthens consumers' intention to choose environmentally friendly hotels.

Analysis/Discussion

The impact of manufacturing companies' activities on environmental sustainability has become an increasingly important global concern over recent decades. Manufacturing activities are not solely oriented toward achieving economic growth and improving productivity but also have consequences for environmental conditions and community well-being. In line with growing global attention to climate change and environmental sustainability, governments and regulatory institutions in various countries have strengthened their commitment to promoting sustainable development practices. This situation has encouraged companies to begin integrating relevant environmental information into their corporate strategies and environmental management activities (Mokhtar et al., 2016).

Nevertheless, the increasing attention to environmental sustainability has not fully addressed the various ecological problems arising from economic and industrial activities. Rising emissions, waste generation, water pollution, climate change, biodiversity loss, and excessive use of limited natural resources remain serious concerns. These issues not only affect environmental quality but also have direct implications for people's lives and well-being (Khan et al., 2019). Therefore, environmental sustainability can no longer be viewed solely as an ecological concern but must also be regarded as part of corporate responsibility toward society and stakeholders.

Pressure on companies has also intensified as stakeholders increasingly demand that management pay greater attention to ecological issues and environmental performance. In this context, environmental performance assessment has become an important aspect that management needs to consider when carrying out corporate activities, particularly to ensure that operational activities do not result in uncontrolled environmental impacts (Latan et al., 2018). This demand reflects a shift in corporate management orientation from an approach

focused primarily on economic performance toward an approach that also incorporates environmental considerations into the decision-making process.

Environmental degradation is also closely associated with the implementation of unsustainable business practices by some companies. Practices such as deforestation, environmental pollution, and carbon emissions may contribute to increasing environmental pressures (Ismail et al., 2014). Furthermore, advances in industrial development and increasing production activities have been accompanied by rising emissions generated throughout the production process (Agustia et al., 2019). This condition demonstrates the relationship between the development of industrial activities and environmental pressures, thereby highlighting the need for corporate activity management that takes into account the environmental consequences of operational activities.

Based on these conditions, companies are required not only to focus on achieving economic objectives but also to consider the environmental impacts arising from their operational activities. The integration of environmental considerations into corporate strategies is therefore relevant to supporting the control of ecological impacts while addressing stakeholders' expectations regarding environmental performance. In this context, the availability of information concerning environmental impacts and costs is essential as a basis for management to evaluate corporate activities and make decisions that place greater emphasis on environmental sustainability.

Several previous studies have demonstrated that the implementation of Environmental Management Accounting (EMA) is associated with environmental management, the provision of environmental information, and organizational decision-making. Staniskis and Stasiskiene (2006) examined the extent to which Small and Medium Enterprises (SMEs) had adopted EMA practices through innovative assessment and evaluation methods, namely the Environmental Management System (EMS) and Cleaner Production (CP). Although the findings differed from conditions observed in other industrial sectors, the study indicated that the implementation of EMA practices could enhance the disclosure of environment-related information. Furthermore, the adoption of EMA could encourage companies to conduct their business activities with greater consideration for environmental sustainability.

Findings regarding the use of EMA in environmental management were also reported by Martin et al. (2017). The study found that institutional factors within the social environment could encourage local governments to adopt EMA practices as part of their waste management efforts. Moreover, the information generated through EMA was utilized by these local governments to support waste management processes. This finding indicates that the use of EMA information is not limited to corporate settings but can also be applied within public organizations responsible for environmental management.

Furthermore, Swansom (2015) demonstrated that EMA tools or instruments can assist organizations in improving environmental performance by providing significant environmental information for decision-making processes. Such information provides management with a basis for understanding environmental aspects associated with organizational activities and incorporating them into the determination of actions or policies. Accordingly, EMA serves a function that extends beyond the recording of environmental information, as it also facilitates the utilization of such information as part of managerial processes aimed at improving organizational environmental performance.

Christ and Burritt (2013) also found that the use of EMA was associated with the environmental strategies adopted by organizations, organizational size, and the characteristics of companies oriented toward environmentally responsible practices. These findings suggest that the implementation of EMA may be influenced by organizational conditions and orientations in responding to environmental issues. However, the study also indicated that organizational structure was not associated with accountants' perceptions of EMA use within their organizations. Thus, EMA adoption appears to be more closely related to environmental orientation and certain organizational characteristics than to organizational structure alone.

Despite its potential benefits in supporting environmental management, the implementation of EMA faces various challenges. Nzama et al. (2022) found that one of the major barriers to EMA implementation among companies in South Africa was limited access to funding. EMA practices were considered to require relatively substantial implementation costs because financial resources are needed to integrate environmental information and practices into companies' business processes and systems. This condition indicates that financial capacity is one of the factors that may determine the sustainability of EMA implementation within an organization. Challenges associated with the identification and allocation of environmental costs were also identified in the study by Mohr-Swart (2008) in the South African mining sector. The study found that environmental costs were recorded as

part of general overhead costs and allocated in a manner that did not always reflect their actual use or consumption. Such a condition may result in environmental cost information that does not adequately represent the actual relationship between the costs incurred and the activities that generate those costs.

Arun et al. (2024) developed a multi-objective optimization model aimed at establishing an integrated, sustainable, and resilient food supply chain capable of responding to various disruptions. The study considered sustainability from multiple perspectives rather than focusing on a single aspect, incorporating three key dimensions of sustainability: economic, environmental, and social dimensions. In addition to these three dimensions, the study incorporated resilience as an objective to be considered in the design of the food supply chain. Accordingly, the proposed model sought to view supply chain sustainability and resilience as interrelated aspects within the decision-making process.

To obtain solutions for the proposed model, Arun et al. (2024) employed the augmented ϵ -constraint method. This approach was used to analyze the multiple objectives incorporated into the model while identifying the relationships and trade-offs between the sustainability dimensions and resilience. The findings demonstrated that achieving an optimal outcome in one dimension does not necessarily result in an optimal condition in other dimensions. In other words, placing greater emphasis on a particular aspect may generate consequences for other dimensions of sustainability or resilience.

One of the key findings of the study indicated that an orientation focused exclusively on the economic dimension may adversely affect environmental sustainability, social sustainability, and the resilience of the food supply chain. A similar condition was observed when decision-making focused solely on a single dimension of sustainability or resilience. An overly specific focus on one objective may result in insufficient consideration of other dimensions. These findings indicate that food supply chain management requires an approach that simultaneously considers multiple objectives rather than focusing exclusively on economic performance or a single sustainability indicator.

Based on these findings, Arun et al. (2024) emphasized the importance of developing balanced solutions that integrate economic, environmental, social, and resilience dimensions. The proposed model is expected to assist decision-makers in identifying alternatives capable of accommodating these various interests. This integrated approach also seeks to address gaps in the literature on sustainable and resilient supply chain modeling, particularly the need for models that can incorporate sustainability and resilience within a unified decision-making framework.

4. Conclusion

The development of digital food bank platforms represents an important approach to addressing food insecurity while simultaneously reducing food surplus that may otherwise become food waste. Although existing digital food bank platforms have contributed to improving the efficiency of food collection, matching, inventory management, and distribution, their development has predominantly focused on technical and logistical aspects. Consequently, information concerning environmental impacts, resource utilization, and environmental costs has not yet been adequately integrated into the platform management process.

The discussion demonstrates that Environmental Management Accounting (EMA) can provide a relevant framework for addressing this limitation. EMA enables the identification, measurement, and provision of information concerning environmental costs and impacts arising from operational activities. In the context of digital food bank platforms, such information can support the management of food collection, storage, sorting, recording, and distribution while providing a basis for evaluating the environmental benefits associated with food waste reduction. The integration of EMA therefore has the potential to expand the function of digital food bank platforms from merely facilitating food redistribution toward supporting more comprehensive sustainability-oriented decision-making.

Previous studies further demonstrate that EMA can contribute to environmental information disclosure, waste management, environmental performance improvement, and managerial decision-making. However, its implementation continues to face challenges, including limited environmental knowledge, financial constraints, and difficulties in identifying and allocating environmental costs. These challenges indicate that the effectiveness of EMA requires not only an accounting framework but also adequate managerial understanding, organizational support, and appropriate information systems.

Furthermore, the findings of Arun et al. (2024) regarding sustainable and resilient food supply chains demonstrate that economic, environmental, and social dimensions should be

considered simultaneously rather than independently. This perspective is particularly relevant to digital food bank platforms because their objectives inherently encompass economic and operational efficiency, environmental waste reduction, and social benefits through improved access to food for vulnerable communities. Accordingly, the integration of EMA into digital food bank platforms can contribute to a more balanced approach by providing environmental and cost information that complements existing logistical and operational information.

Thus, the development of a digital food bank platform integrated with EMA constitutes a potential direction for strengthening the sustainability of food redistribution systems. Such integration can support the identification of environmental costs, assessment of resource utilization, evaluation of food waste reduction, and provision of environmental information for managerial decision-making. This approach can bridge the existing gap between the technological and logistical orientation of digital food bank platforms and the broader requirements of sustainable environmental management, while simultaneously strengthening their social and environmental contributions.

References

- Agada, A. (2018). The role of management accountants in accounting for sustainable development. *IOSR Journal of Business and Management*, 20(12), 70–74.
- Agustia, D., Sawarjuwono, T., & Dianawati, W. (2019). The mediating effect of environmental management relationship. *International Journal of Energy Economics and Policy*, 9(2), 299–306 <https://doi.org/10.46984/sebatik.v27i2.2415>
- Al Fadli, M. J., & Imaningsih, E. S. (2025). The influence of electronic word of mouth, green marketing practices, and green brand image on the intention to choose green hotels with green attitude mediation. *Formosa Journal of Multidisciplinary Research*, 4(9), 4151–4170.
- Al-Waeli, A. J. (2026). Integrated accounting approaches for addressing environmental costs and promoting corporate sustainability. *European Journal of Accounting, Finance & Business*, 14(2) <https://doi.org/10.20961/performa.22.1.73141>
- Azzahra, A. C., Damayanti, D., & Dewi, A. K. (2025). The influence of green accounting, sustainability report disclosure and environmental performance on firm value. *Goodwood Accounting and Auditing Review*, 4(1), 73–85.
- Christ, K. L., & Burritt, R. L. (2013). Environmental management accounting: The significance of contingent variables for adoption. *Journal of Cleaner Production*, 41, 163–173.
- Corrado, S., Caldeira, C., Eriksson, M., Hanssen, O. J., Hauser, H. E., van Holsteijn, F., Liu, G., Östergren, K., Parry, A., Secondi, L., Stenmarck, Å., & Sala, S. (2019). Food waste accounting methodologies: Challenges, opportunities, and further advancements. *Global Food Security*, 20, 93–100.
- Damiani, M., Pastorello, T., Carlesso, A., Tesser, S., & Semenzin, E. (2021). Quantifying environmental implications of surplus food redistribution to reduce food waste. *Journal of Cleaner Production*, 289, 125813.
- Dewi, K. G. P., Martini, N. P. R., & Ratnasari, N. M. D. (2026). The impact of sustainability reports, sustainability accounting, and environmental innovation on the achievement of the Sustainable Development Goals (SDGs): Empirical evidence on consumer goods companies in the food and beverage sub-sector in Indonesia. *Journal of Governance, Taxation and Auditing*, 4(3), 673–682.
- Elias, A. A., Pepper, M., Gurumurthy, A., & Shukla, A. K. (2024). *Sustainable and resilient supply chains: Opportunities for research*.
- Fitriana, A. I., Febrianto, H. G., Negara, A. K., Pambudi, J. E., & Kartaloglu, M. (2025). Environmental management accounting and green innovation on financial performance: The moderating role of regulatory pressure. *Jurnal Riset Akuntansi dan Keuangan Indonesia*.
- Freedman, M., & Jaggi, B. (2017). *Reflections on editing advances in environmental accounting & management*.
- Gunawardena, Y., & Dissanayake, K. (2021). Environmental management accounting as a perspective for hotel sustainability: A case study from a Sri Lankan hotel. *International Journal of Accounting & Business Finance*.
- Haribowo, I., & Augustin, Y. (2024). Environmental management accounting, carbon disclosure emission, and their effects on environmental performance with green competitive advantage as a moderating variable. *International Journal of Environmental, Sustainability and Social Science*, 5(4), 1053–1066.
- Huang, Y., Hall, C. M., & Chen, N. (Chris). (2025). The sustainability characteristics of Michelin Green Star restaurants. *Journal of Foodservice Business Research*, 28(2), 219–244.
- Huliselan, M. (2025). Environmental accounting and financial management: A strategic approach to corporate sustainability. *Journal of Economics and Management Sciences*, 7(3), 164–170.
- Hunt, H. G., & Grinnell, D. J. (2003). *Financial analysts' views of the value of environmental information*.
- Huynh, Q. L., & Nguyen, V. K. (2024). The role of environmental management accounting in sustainability. *Sustainability*, 16(17), 7440.
- Iredele, O. O., Tankiso, M., & Adelowotan, M. O. (2020). The influence of institutional isomorphism and organisational factors on environmental management accounting practices of listed Nigerian and South African firms. *South African Journal of Accounting Research*, 34(3), 183–204.
- Jamil, C. Z. M., Ramli, A., & Darus, F. (2014). Environmental management accounting practices and Islamic corporate social responsibility compliance: Evidence from ISO 14001 companies. *Procedia - Social and Behavioral Sciences*, 145, 343–351.

- Jannah, M., Tarmizi, M. I., & Herianti, E. (2024). Influence of environmental management accounting, organizational strategy, and green human resource management on environmental performance and corporate innovation. *MARGINAL: Journal of Management, Accounting, General Finance and International Economic Issues*, 3(3), 694–705.
- Khan, P. A., Johl, S. K., & Ntim, C. G. (2019). Nexus of comprehensive green innovation, environmental management system-14001-2015 and firm performance. *Cogent Business & Management*, 6(1), 1691833.
- Kitchenham, B., Brereton, O. P., Budgen, D., Turner, M., Bailey, J., & Linkman, S. (2009). Systematic literature reviews in software engineering – A systematic literature review. *Information and Software Technology*, 51(1), 7–15.
- Latan, H., Jabbour, C. J. C., de Sousa Jabbour, A. B. L., Wamba, S. F., & Shahbaz, M. (2018). Effects of environmental strategy, environmental uncertainty and top management's commitment on corporate environmental performance: The role of environmental management accounting. *Journal of Cleaner Production*, 180, 297–306.
- Maleki Vishkacai, B., & De Giovanni, P. (2026). Smart food-sharing platforms for social sustainability: A heuristic algorithm approach. *International Transactions in Operational Research*, 33, 2893–2920.
- Mohr-Swart, M. (2008). *An environmental management accounting model for the South African mining industry* [Doctoral dissertation, Tshwane University of Technology].
- Mokhtar, N., Jusoh, R., & Zulkifli, N. (2016). Corporate characteristics and environmental management accounting (EMA) implementation: Evidence from Malaysian public listed companies (PLCs). *Journal of Cleaner Production*, 136, 111–122.
- Muhammad Jamil, C. Z., Mohamed, R., Muhammad, F., & Ali, A. (2015). Environmental management accounting practices in small medium manufacturing firms. *Procedia - Social and Behavioral Sciences*, 172, 619–626.
- Mutanda, G. W. (2026). Food waste management in the hospitality sector: A systematic review of the strategies and barriers. *Frontiers in Sustainability*, 7, 1795366.
- Nzama, S., Olarewaju, O. M., & Arise, O. A. (2023a). Evaluating the influence of barriers to environmental sustainability on environmental management accounting in the food and beverage manufacturing firms in Durban, South Africa. *Journal of Accounting and Management*, 13(1), 79–88.
- Nzama, S., Olarewaju, O. M., & Arise, O. A. (2023b). Influence of barriers to environmental sustainability on environmental management accounting in the food and beverage manufacturing firms. *Journal of Environmental, Sustainability & Social Science*, 4(3), 832–841.
- Nzama, S., Olarewaju, O. M., Arise, O. A., & Ganiyu, I. (2022). Environmental management accounting (EMA) practices and plastic pollution control in selected food and beverage firms. *Cogent Business & Management*, 9(1), 2085368.
- Olabode, O., Kumar, N., & De, D. (2025). Food loss and waste management in the retail food supply chain: Methods and framework to achieve environmental sustainability. *Journal of Environmental Management*, 387, 125718.
- Pramuditha, I. N. T., Wiryanata, I. G. N. A., & Susanti, C. (2025). Analysis of sustainable practices based on the triple bottom line concept and green accounting treatment at The St. Regis Bali Resort. *Formosa Journal of Applied Sciences*, 4(8), 2799–2818.
- Principato, L., Trevisan, C., Formentini, M., Secondi, L., Comis, C., & Pratesi, C. A. (2023). The influence of sustainability and digitalisation on business model innovation: The case of a multi-sided platform for food surplus redistribution. *Industrial Marketing Management*, 115, 156–171.
- Solovida, G. T., & Latan, H. (2017). Linking environmental strategy to environmental performance: Mediation role of environmental management accounting. *Sustainability Accounting, Management and Policy Journal*, 8(5), 595–619.
- Swanson, G. A. (2006). *A systems view of the environment of environmental accounting*.
- Talwar, S., Dhir, A., Taheri, B., & Kaur, P. (2026). Why do hospitality and food service businesses use food redistribution to reduce food waste. *International Journal of Hospitality Management*, 134, 104563.
- Thomsen, M., Bairaktari, A., Raupach, R. R., Pandey, S., Zhou, X., Siemiatkowska, M., & Budhathoki, M. (2026). Dual accounting and decision support for food surplus management in circular food systems. *Cleaner Food Systems*.
- Triandini, E., Jayanatha, S., Indrawan, A., Putra, G. W., & Iswara, B. (2019). Metode systematic literature review untuk identifikasi platform dan metode pengembangan sistem informasi di Indonesia. *Indonesian Journal of Information Systems*, 1(2), 63.
- Uddin, M. M., Khan, M. M. I., Islam, M. T., & Babu, M. A. (2026). From waste to worth: How environmental accounting translates sustainability practices into organizational value. *Cleaner Waste Systems*, 13, 100456.
- Yilmaz, G., & Çırak, K. (2022). A conceptual framework for determinants, resources, and outcomes of food waste in restaurants. *Journal of Travel and Hospitality Business*, 19(2), 269–286.