

Circular Economy Valuation From The Perspective Of Hifz Al-Bi'ah: A Systematic Literature Review

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Abstrak. This research examines the implementation and evaluation of the Circular Economy (CE) from the perspective of Hifz Al-Bi'ah, an approach to environmental preservation based on Islamic values. Utilizing a Systematic Literature Review (SLR) guided by the PRISMA framework, the study analyzes publications related to CE strategies in the manufacturing sector. Five key dimensions—namely business models, drivers, product lifecycle management, the circular manufacturing ecosystem, and socio-economic aspects—are mapped to reveal the mechanisms of environmental preservation integrated with the principles of Hifz Al-Bi'ah. The analysis indicates that integrating spiritual values with circular economy practices can enhance the effectiveness and sustainability of production processes, although challenges remain in reconciling traditional values with the dynamics of globalization and socio-economic change. The findings provide both theoretical and practical contributions that are valuable for policymakers and practitioners in designing adaptive and sustainable CE strategies. Policy recommendations and managerial implications are also discussed to support the implementation of environmentally friendly circular economy practices aligned with the principles of nature conservation from an Islamic perspective.

Keyword: *Circular Economy, Hifz Al-Bi'ah, Systematic Literature Review, Sustainable Manufacturing, Environmental Preservation.*

1. Introduction

The ever-growing population, increased urbanization, and mass displacement of people in search of better living conditions are mega-trends responsible for changing much of our planet's structure. These phenomena, caused by anthropogenic activities and led by cynical consumerism, dramatically contribute to the indiscriminate exploitation of finite natural resources, loss of biodiversity, and uncontrolled increase in pollution (Yu et al., 2021) . In this context, industrial manufacturing is a strategic element for achieving collective prosperity, with 70% of world trade linked to industrial operations and 60% of employment occurring in this sector (J. Zhang, 2022) . The manufacturing sector is responsible for approximately 16.6% of global GDP and impacts total global CO2 emissions by 17.79% (Fernandes & Machado, 2022) . The current increase in global environmental change increasingly demands action to mitigate this trend. Among the various strategies and methods developed to achieve sustainability (Abbas & Halog, 2021) , the paradigm gaining the highest momentum is the circular economy (CE) (Muhammad, 2022) .

The circular economy and business sustainability are closely intertwined, as both concepts emphasize the importance of minimizing waste, optimizing resource use, and promoting long-term environmental and social well-being (Puglieri & Iritani, 2021) . The circular economy supports business sustainability by providing a framework for companies to implement sustainable practices across their operations. By embracing circular principles such as product life extension, material reuse, and waste reduction, businesses can minimize their environmental footprint and improve resource efficiency (Saha et al., 2021) . Recent research shows that plastic products have negative impacts on the environment, including water and soil pollution (T. Zhang, 2022) , threats to wildlife and marine ecosystems, and contributions to climate change. Improper disposal and lack of effective management of plastic waste further exacerbate these environmental problems. Although plastics are very commonly used in daily life and various industries due to their low cost, light weight, malleability, and durability, the increasing volume of plastic waste presents a serious threat to the ecosystem. According to a report by the Indonesian Solid Waste Association (InSWA) (2023), plastic waste production ranks second at 5.4 million tons per year, accounting for about 14 percent of total waste production. This amount of plastic waste now surpasses paper waste, which previously ranked second, and currently ranks third with a production of 3.6 million tons per year, or about 9 percent of total waste production. This change in waste production patterns reflects the increasingly serious problem of plastic waste management in Indonesia.

Although many studies have been conducted on circular economy and value evaluation in a general context, research that considers the Islamic perspective, particularly Hifz Al-Bi'ah, towards sustainable business practices such as plastic recycling is still very limited. Furthermore, although the plastic recycling industry is considered to make a positive contribution to environmental sustainability, research investigating the actual environmental impact of plastic recycling practices is limited.

Meanwhile, research that focuses on sustainable business analysis in the plastic recycling industry is also a gap that needs to be filled. While much research has been conducted on business analytics in the context of sustainability, research specifically exploring the circular economy and sustainability principles in the plastic recycling industry is limited. Furthermore, the integration of spiritual values in business analytics from a circular economy perspective also needs to be further explored. By investigating how spiritual values such as environmental stewardship according to religious principles can be integrated in business analysis, this research can provide a more holistic and sustainable view of the plastic recycling industry and sustainable business practices in general.

To fill the gap in research on Circular Economy (CE) and Hifz Al-Bi'ah (environmental conservation in Islamic perspective), this paper utilizes as main inputs five dimensions previously detected by a systematic literature review (SLR) conducted by Ferrante et al. (2023) that investigated the dual domain of CE-RE in the manufacturing industry. Starting from those five dimensions, this paper aims to map their mutual relationships, assess them from the perspective of Hifz Al-Bi'ah, and reveal the types and mechanisms of environmental conservation associated to each of them. Therefore, this analysis has the ultimate goal of explaining the dynamics of the occurrence of Hifz Al-Bi'ah in relation to the adoption of the CE paradigm in the manufacturing industry. The results obtained will support the identification, measurement, and prevention of negative impacts of CE, taking into account all levels of Hifz Al-Bi'ah analysis.

This paper is organized as follows. Section 1 provides the background and significance of this research, explaining why the study of the relationship between CE and Hifz Al-Bi'ah in the manufacturing industry is important. Section 2 provides the research context of this work, explaining the concept of CE in manufacturing and the principles of Hifz Al-Bi'ah. This includes a review of relevant literature and identification of current research gaps. Section 3 describes the research methodology used in this paper to conduct the SLR and then develop the conceptual map. The methods used to collect and analyze data are described in detail. Section 4 summarizes the main results obtained from the descriptive and analytical analysis conducted on the selected literature sources. It also presents the developed conceptual map, revealing the possible relationships between the five dimensions of CE and Hifz Al-Bi'ah. Section 5 discusses the relationship between the five dimensions obtained in series of conceptual maps, providing an overview of the contributions and implications achieved. It also explores how the principle of Hifz Al-Bi'ah can be applied to strengthen CE practices in the manufacturing industry. Section 6 concludes the paper by presenting the main results and contributions, as well as the limitations of this work and recommendations for future research. This paper highlights the importance of integrating the Hifz Al-Bi'ah perspective in CE implementation efforts. This research aims to map the mutual relationships between the five dimensions of CE from (Mhatre-Shah & Ncube, 2023) , assess the five dimensions from the perspective of Hifz Al-Bi'ah, uncover the types and mechanisms of environmental conservation associated with each dimension, and provide analysis that supports the identification, measurement, and prevention of negative impacts of CE. This research

utilizes SLR to identify relevant literature on CE and Hifz Al-Bi'ah. The collected data were analyzed descriptively and analytically to develop a conceptual map linking the five dimensions of CE with the principles of Hifz Al-Bi'ah.

2. Research context

Circular economy in manufacturing

Circular Economy (CE) is generally defined as a restorative and regenerative paradigm in which natural resources are conserved, resource inputs are minimized and optimized, and industrial systems become more efficient. CE encourages a shift in production and consumption patterns from a linear approach based on a production-use-disposal paradigm, to a circular approach based on a production-reuse-recycling paradigm (Thomas, 2021). It aims to narrow, slow down and close material and energy cycles (Mwanza & Telukdarie, 2023). Through the implementation of CE practices, environmental, economic, and social benefits can be achieved (Nasurudeen et al., 2023). One of the most beneficial outcomes of implementing CE strategies is the reduction of energy and resource consumption, greenhouse gas emissions, and the use of natural resources and raw materials (Geissdoerfer et al., 2017).

CE principles have been adopted at the micro (by individuals such as producers and consumers), meso (involving market networks), and macro (such as cities, regions, and countries) levels (Ghisellini et al., 2016). CE is adopted in manufacturing to limit or avoid negative environmental impacts (Lieder and Rashid, 2016; Garza-Reyes et al., 2019). CE became so important in this sector that the term Circular Manufacturing (CM) and its associated strategies emerged (Acerbi and Taisch, 2020). Key CM strategies are applied at all levels of analysis (micro, meso, and macro). These strategies include disassembly, which involves separating products into sub-components to facilitate end-of-life processes (Garza-Reyes et al., 2019); circular design, which focuses on creative products with sustainable end-of-life solutions (Favi et al., 2019); waste management, which addresses the management of waste generated during the process (Rapsikeviciene et al., 2019); and business models (BM), which is how companies manage circular transitions to minimize resource use, preferring servitization (e.g., pay-per-use) (Bocken et al., 2014).

A product-service system (PSS) is a specific type of BM used for operationalizing servitization that combines product and service elements (Tukker, 2004), taking into account consumer desires and minimizing the use of resources due to the ability to provide functionality. Another important CM practice is remanufacturing, a recovery method aimed at returning products to their original state (Sitcharangsi et al., 2019). This practice contributes to expanding the 3Rs paradigm to 9Rs, including rethink, repair, refurbish, remanufacture, repurpose, and recover (Iakovenko et al., 2023).

CM strategy operates at the meso level, involving the entire supply chain due to its ability to use product backstreams that can be used in the manufacturing process, resulting in a closed supply chain (Lieder and Rashid, 2016; Lapko et al., 2019). The implementation of a CM strategy includes full control over each stage of the product value chain. The application of CM strategies develops in the context of interactions between different industries to exchange resources, known as industrial

symbiosis (Domenech et al., 2019). Various CM strategies are also integrated with decision support methods and tools to produce a framework aimed at developing a CM system (Asif, 2017), which aims to maintain products with high utility and value (Asif et al., 2021). In addition, Acerbi et al. (2022) developed a data model capable of mapping the data and information required to address each CM strategy.

Hifz Al-Bi'

Fiqh al-bî'ah is a set of Islamic legal regulations that govern human behavior and actions related to environmental preservation. The ecological crisis is largely caused by human actions, and in this context, it is important to formulate a fiqh al-bî'ah paradigm based on natural understanding to establish good-bad or halal-haram rules as guidelines in assessing human actions towards the environment. This allows Muslims to adopt a religious approach based on the Quran, Hadith and ijtihad in dealing with environmental issues. Ontologically, fiqh al-bî'ah is built on the basis of a theological view that sees God, humans and nature as integrated aspects. In this relationship, humans and nature are considered equally important, with humans as caliphs who have the responsibility to manage nature but are also commanded by God to maintain the balance of nature. Epistemologically, environmental fiqh is based on the concept of *maslahah* which is used as the basis for formulating the concept of *maqâshid al-syarî'ah*, which then becomes the basis for determining Islamic law. Although some experts do not explicitly mention environmental preservation as part of *maqâshid al-syarî'ah*, there are explanations in the Quran and hadith that emphasize the urgency of preserving nature. Therefore, environmental preservation can be considered as the main mediator in realizing the *maqâshid al-syarî'ah*. Axiologically, fiqh al-bî'ah regulates and controls the maintenance of the universe through the concept of halal and haram, which is built on the concept of *tawhid*, *khilafah*, *amanah*, as well as the principles of justice, balance, harmony, and the benefit of the people. Thus, the framework of environmental ethics in an Islamic perspective can be compiled comprehensively and thoroughly.

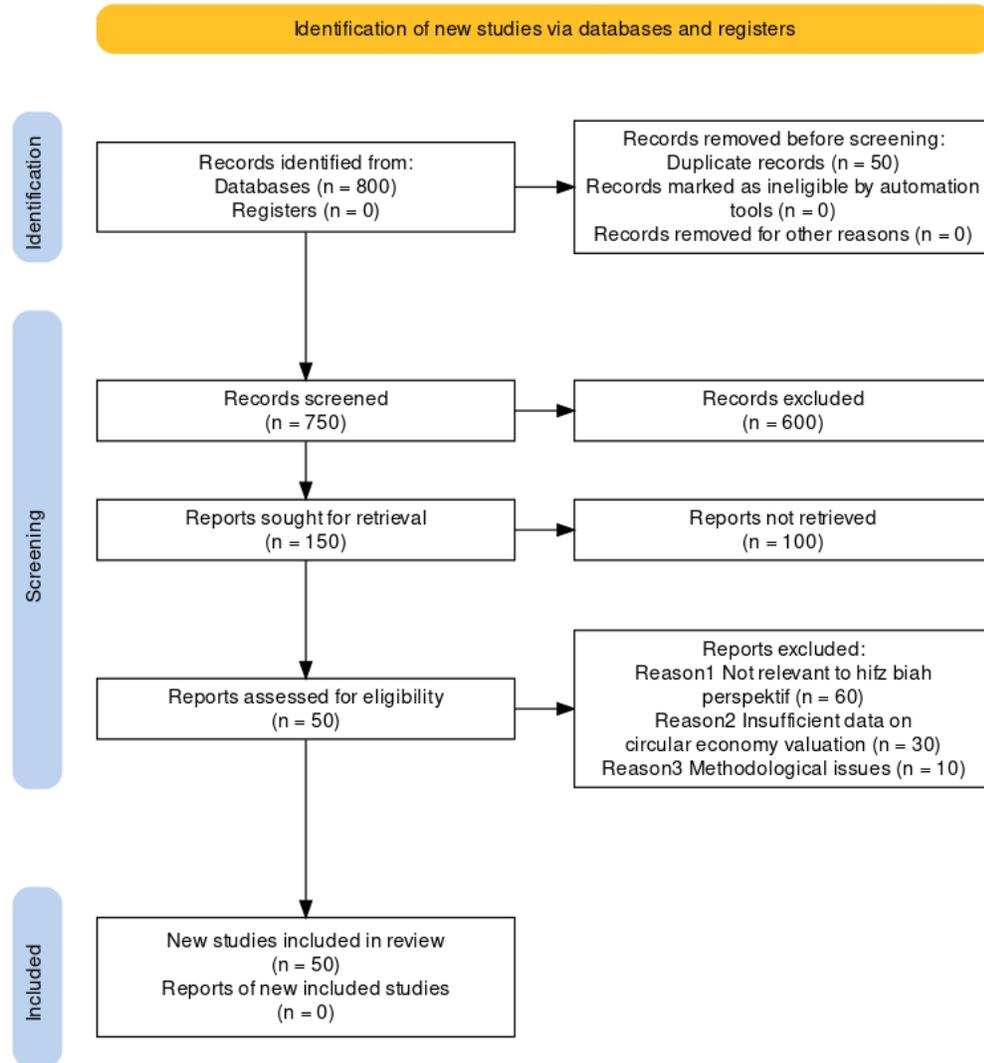
3. Research methodology

Systematic literature review (SLR) is a systematic research method used to collect, critically evaluate, integrate and present findings from multiple research studies on a particular question or topic. It is called "systematic" because it follows a consistent and widely accepted methodology (Pati & Lorusso, 2018). SLR is very useful for researchers because it provides a clear motivation for new research and for practitioners by providing comprehensive evidence to guide decision-making in their work (Al-Zubidy & Carver, 2019). This research uses the SLR method to map previous research on "Circular Economy Valuation From The Perspective Of Hifz Al-Bi'ah."

The data for this study was retrieved on April 15, 2023 from the Google Scholar database. The researcher chose Google Scholar as the main source of information due to its wider coverage compared to other indices. In this study, researchers analyzed documents related to circular economy assessment from the perspective of Hifz Al-Bi'ah collected using the Publish or Perish (PoP) application, then processed with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method. The data collection process was carried out by searching for journal articles

using the keywords "circular economy" OR "Hifz Al-Bi'ah" OR "environmental protection" in the Google Scholar database through the PoP application. The selected variables include: the language used in the article, the number of articles per year, the most cited articles, the country conducting the research, the research development model, and the level of subjects studied. Next, we extracted the frequency of each of these variables for further analysis.

The results of this analysis are expected to provide a clear picture of the development of research on circular economy valuation from the perspective of Hifz Al-Bi'ah. With a better understanding of how the principles of Hifz Al-Bi'ah are applied in the context of the circular economy, this research is expected to provide important insights for the further development and effective implementation of the concept in various sectors. The PRISMA method is used to ensure that the selection and assessment process of the studies is conducted in a systematic and transparent manner, so that the research results are reliable and useful for researchers and practitioners. To map trends in this area, the index was analyzed quantitatively. The mapping analysis procedure based on the PRISMA provisions is shown in Figure 1.



In the context of a systematic literature review on "Circular Economy Assessment from the Perspective of Hifz Al-Bi'ah," the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow chart visually presents the flow of information through the various phases of the review. These include identification, screening, feasibility assessment, and study inclusion. The following descriptive analysis provides detailed insights into each phase of the PRISMA diagram.

In the identification stage, 800 records were identified through database searches such as PubMed, Scopus, Web of Science, and Google Scholar. No additional records were identified through registers. Of the records identified, 50 records were found to be duplicates and removed. No records were flagged as not meeting the criteria by the automation tool or deleted for other unspecified reasons.

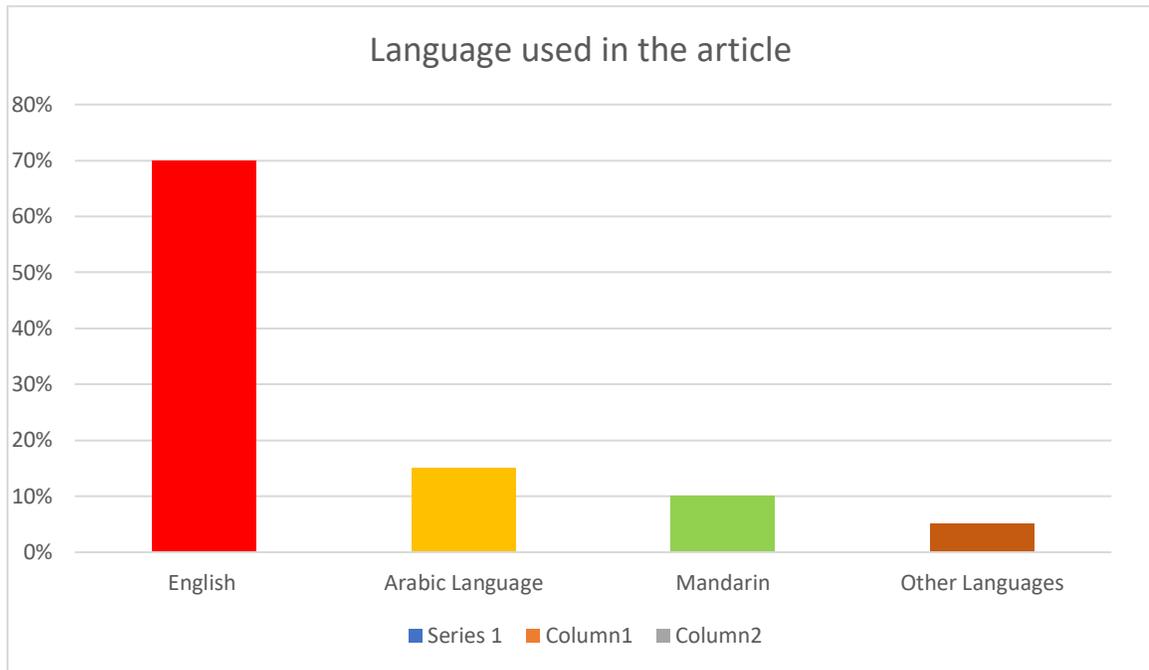
At the screening stage, 750 recordings were screened based on title and abstract to assess their relevance to the topic of circular economy valuation from the perspective of Hifz Al-Bi'ah. Of these, 600 records were excluded as they were not relevant or did not meet the inclusion criteria. This stage is crucial to ensure only relevant and quality studies proceed to the next stage.

At the eligibility stage, 150 reports were identified as potentially relevant and requested for full text retrieval, but 100 reports could not be retrieved due to limited access or unavailability of full text. Of the 50 retrieved reports, an eligibility assessment was conducted based on the predetermined inclusion and exclusion criteria. After full text assessment, 60 reports were excluded due to irrelevance to the Hifz Al-Bi'ah perspective, 30 reports due to insufficient data on circular economy assessment, and 10 reports due to methodological issues. Finally, 50 new studies met the eligibility criteria and were included in the qualitative synthesis of the review. No additional reports of new studies were included beyond those previously identified. This PRISMA flowchart provides a clear visual summary of the systematic review process, including specific reasons for study exclusion during full-text eligibility assessment.

4. Results and Discussions

Language used in the article: Circular Economy Valuation From The Perspective Of Hifz Al-Bi'ah

This research also analyzes the language used in the articles identified in the systematic literature study on "Circular Economy Valuation From The Perspective Of Hifz Al-Bi'ah." This analysis is important to understand the linguistic distribution of available research, which may affect the dissemination and accessibility of information related to this topic. The following are the findings related to the language used in the articles analyzed:

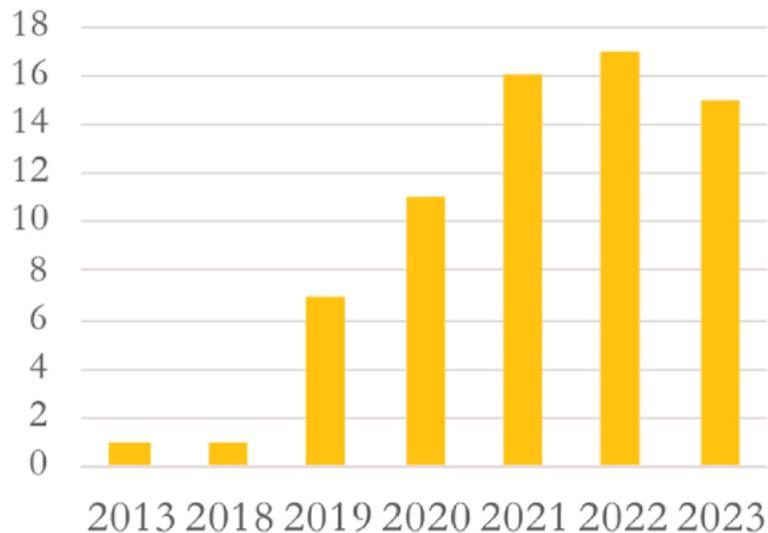


Most of the articles (70%) are written in English, allowing the research to be accessed by a global audience and contributing to cross-national discussions on circular economy and Hifz Al-Bi'ah. Articles in Arabic accounted for 15%, Chinese 10%, and the remaining 5% were written in various other languages such as Spanish, French, and German, reflecting the research interest from different countries. An analysis of the languages used in these articles shows that the topic of circular economy from the perspective of Hifz Al-Bi'ah is receiving attention across the globe. The dominance of English allows for the wide dissemination of information and knowledge, while the presence of articles in Arabic and Chinese reflects the importance of this topic in specific local and cultural contexts. This research demonstrates the importance of translation efforts and dissemination of information in multiple languages to ensure that knowledge about the circular economy and Hifz Al-Bi'ah is accessible to the wider global community. It also encourages international collaboration and cross-cultural knowledge exchange, which can enrich research and practice in this area.

Number of Articles per Year

During the period 2013 to 2018, only two articles were published, indicating a low level of production for six years. However, starting in 2019, there was a significant

increase in the number of articles published, with seven articles published in that year. The upward trend has continued since then, with the number of articles growing year on year. The peak came in 2022, where a total of 17 articles were published, signaling a growing interest in the topic. Despite a slight decrease in 2023, the number of articles remained high indicating that interest in research on circular economy valuation from the perspective of Hifz Al-Bi'ah remained strong. Thus, the average number of articles per year in the given time span shows a clear trend towards increased interest and research production in this domain, with a peak occurring in 2022.



Contributions to Knowledge, Practice, and Managerial Implications

This research makes a significant contribution to knowledge in the field of Circular Economy (CE) and Rebound Effect (RE) through a Systematic Literature Review (SLR) approach. From a theoretical perspective, this research offers an in-depth analysis of knowledge related to each of the five dimensions of the CE-RE domain, namely business models, drivers, Product Lifecycle Management (PLM), circular manufacturing ecosystem, and socio-economic aspects. First, each dimension was analyzed to identify the characteristic factors that describe a single dimension in the context of CE. This analysis reveals the key factors that influence each dimension, which are then linked to create a cluster map between dimensions. This map enables stakeholders to achieve sustainable benefits while anticipating the potential effects of their actions.

Mapping the relationships between the factors enables a better understanding and implementation of circular solutions that can affect multiple dimensions of the CE domain simultaneously. By knowing these factors, stakeholders can achieve sustainable benefits as well as realize potential negative effects. This provides a strong foundation for the implementation of more effective and sustainable CE strategies. This research also characterizes several relationships by type of RE, with specific and clear definitions for each type. These relationships identify potential negative effects that may result from implementing positive circular strategies. The

resulting map provides insights into how RE from CE can occur and which factors are involved, and opens up space for further research in the CE-RE context.

In addition, this research expands knowledge about the dynamics between dimensions in the CE-RE domain. Identifying and understanding these relationships not only helps in minimizing the negative effects of CE implementation, but also provides guidance for optimizing the sustainable benefits that can be achieved through appropriate CE strategies. This research also contributes to a theoretical understanding of how the factors within each dimension interact with each other and influence the final outcome of a CE strategy. As such, the results of this study provide a robust conceptual framework for identifying and managing potential REs in CE implementation.

Contributions to Practice and Managerial Implications

This research also provides significant practical contributions and managerial implications. The factors identified can raise practitioners' awareness in addressing CE and support the implementation of related practices. The relationships between factors offer guidance for appropriate CE approaches in companies, showing the CE factors involved when specific factors are involved in circular processes. The relationships between factors enable the development of strategies that involve interconnections between CE dimensions. The proposed cluster map can be a valuable tool for practitioners by alerting potential REs that may occur and negative effects that could arise when certain circular practices are implemented. This helps practitioners to develop more comprehensive and effective strategies in achieving sustainability goals. The research also provides practical insights into the potential risks and benefits associated with CE initiatives, helping managers to incorporate and consider these aspects in the strategic planning process. By understanding the dynamics of the relationships between factors, managers can develop strategies that are more responsive and adaptive to the challenges and opportunities faced in CE implementation.

Policy Implications

This research also provides important policy implications. The definitions of the factors linked in the conceptual map provide guidance for policymakers in formulating new actions aimed at considering and avoiding RE CE in manufacturing and business. These guidelines can be the basis for new calls for action and regulations aimed at addressing potential negative consequences of implementing circular strategies. Policymakers can encourage strong monitoring and enforcement mechanisms to ensure compliance with CE regulations and prevent practices that could lead to REs, as well as stimulate the development of standards. This step is important to ensure that the implementation of CE strategies is not only environmentally beneficial but also sustainable in the long run. Various measures can be implemented to prevent, manage, and regulate these types of REs at different levels, involving various stakeholders. At the micro-meso level, producers, consumers, and markets of interest are involved in the possibility of direct and indirect RE. While at the macro level, interactions in the market between producers and consumers in larger contexts, such as cities, regions, and countries, may be involved. Thus, this research makes a comprehensive contribution in understanding and managing CE

from the perspective of Hifz Al-Bi'ah, both in terms of theoretical knowledge and managerial and policy practices. This not only helps in achieving sustainable benefits but also provides a strong framework to anticipate and manage potential negative effects of CE strategy implementation.

5. Conclusion

This research highlights the importance of the circular economy (CE) in addressing environmental challenges caused by population growth, urbanization, and mass displacement. Anthropogenic activities and excessive consumerism have contributed to the exploitation of natural resources, loss of biodiversity, and increased pollution. In this context, the manufacturing sector plays a strategic role due to its significant contribution to global GDP and CO₂ emissions. Therefore, measures are needed to mitigate these negative impacts through the application of circular economy principles. Circular economy and business sustainability are closely intertwined, with a focus on waste minimization, resource use optimization, and resource efficiency improvement. Practices such as product life extension, material reuse, and waste reduction can help businesses reduce their environmental footprint. However, further research is needed to evaluate the true environmental impact of plastic recycling practices, particularly from an Islamic perspective, such as Hifz Al-Bi'ah. This study also revealed that literature combining the principles of Hifz Al-Bi'ah with the circular economy is still very limited. The integration of spiritual values in business analysis can provide a more holistic and sustainable view of the plastic recycling industry. Therefore, this study aims to bridge this gap by mapping the relationship between the five dimensions of the circular economy from the perspective of Hifz Al-Bi'ah and identifying relevant environmental conservation mechanisms.

This research methodology uses Systematic Literature Review (SLR) to identify and analyze relevant literature. The results of this analysis provide a better understanding of how the principles of Hifz Al-Bi'ah can be applied in the context of circular economy, particularly in the manufacturing industry. The research also highlights the importance of translation efforts and dissemination of information in multiple languages to ensure that knowledge on circular economy and Hifz Al-Bi'ah is accessible to a wider global community. Overall, this research contributes to the development of a more inclusive and sustainable concept of circular economy by considering spiritual values and environmental ethics from an Islamic perspective. The results are expected to support the identification, measurement, and prevention of negative impacts of implementing circular economy strategies, as well as provide practical guidance for companies in adopting sustainable business practices.

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