Migration Letters

Volume: 20, No: S5(2023), pp. 887-900

ISSN: 1741-8984 (Print) ISSN: 1741-8992 (Online)

www.migrationletters.com

Financial Profitability Model for Sustainability in Latin America's Circular Economy: A Systemic Analysis

Darwin Daniel Ordoñez-Iturralde[1], Rafael Alberto Iturralde-Solórzano[2], Christian Xavier Proaño-Piedra[3], Stalin Oswaldo Guamán-Aguiar[4], Patricia Elizabeth Saltos-Zúñiga[5], Luisa Patricia Navarrete-Zavala[6]

Abstract

A systematic review was carried out on the production and publication of research papers related to the study of the variables Financial Profitability Model and Circular Economy, the PRISMA approach (Preferred Reporting Items for Systematic reviews and Meta-Analyses). The purpose of the analysis proposed in this document was to know the main characteristics of the publications registered in the Scopus and Wos databases and their scope in the study of the proposed variables, achieving the identification of 37 publications in total. Thanks to this first identification, it was possible to refine the results through the keywords entered in the search button of both platforms, which were FINANCIAL PROFITABILITY MODEL, CIRCULAR ECONOMY, reaching a total of 14 documents, excluding duplicates and those that did not meet the analysis criteria. From this analysis, it is expected to know the contributions of the scientific community to the study of profitability models in the financial area of companies, for sustainability through circular economy practices at the Latin American level. However, the study was carried out from research without discriminating country of origin, in order to analyze the perspective of the business sector in different countries at a global level.

Keywords: *Financial Profitability Models, Sustainability, Circular Economy.*

1. Introduction

Financial profitability in the circular economy is a fundamental concept to foster sustainability in Latin America, where the intersection of economic growth and environmental conservation plays a fundamental role. The approach that the circular economy brings with it highlights those regenerative and restorative aspects which allow the use of resources, leaving behind those traditional economic mechanisms and opening the possibility of incorporating more environmentally friendly models for Latin American economies. This content, which is characterized by a high range of natural resources and rich biodiversity, is in constant struggle with economic challenges and the unlimited resources we have with the environment. Integral power, financial profitability,

[1] Universidad Laica VICENTE ROCAFUERTE de Guayaquil, dordonezy@ulvr.edu.ec, https://orcid.org/0000-0003-2175-4488

[2] Universidad de León (ULe), rafael.iturralde@hotmail.com, https://orcid.org/0000-0002-2033-3916

[3] Universidad Laica VICENTE ROCAFUERTE de Guayaquil, cproanop@ulvr.edu.ec, https://orcid.org/0000-0002-9896-6932

[4] Universidad de Especialidades Espíritu Santo, stalinguaman@uees.edu.ec, https://orcid.org/0000-0002-3226-8103

[5] Universidad Tecnológica Empresarial de Guayaquil, pesaltosz@gmail.com, https://orcid.org/0000-0002-1586-6144

[6] Independent researcher, pnavarretezavala@gmail.com, https://orcid.org/0000-0002-5624-0201

encompasses a new framework of the circular economy, which has given rise to a strategic imperative of global interest.

The recent need for different nations to impart a balance in economic development, Latin America aims to be able to renew its economic policies since these circular economies opt for a development path where the environmental factor is a topic of interest, as well as in the optimization of resources and achieve minimization of the environmental impact present in the large economies. Achieving financial profitability in this context of circular economies in this geographical region requires the implementation of new business models where innovation is the main axis, technological advances and new development policies that comprehensively support and can promote new sustainable practices. Investment in research and development, coupled with strategic collaborations between governments, businesses and communities, can catalyse the transition to a more circular and financially viable economy.

Likewise, financial profitability models are based on the premise of being able to play a fundamental role in the transformation and renewal of new economic models, which seeks to promote sustainability in order to incorporate circular economy principles into their strategies and investments. By allowing companies and the productive and economic sectors of economies in Latin America to sponsor these circular practices and integrate environmental, social and governance criteria into financial decision-making, based on this context, these financial models contribute to the creation and renewal of new ecosystems, where profitability is aligned with the sustainable development goals.

Taking into account the context imparted by the circular economy in financial profitability models, this is not without challenges since Latin America, along with its vast economic diversity, requires the implementation of personalized approaches which seek to improve financial profitability in circular economies. From sustainable agriculture and a mining sector that is much more responsible and friendly to ecological manufacturing processes, the multiple opportunities offered by this circular economic model for companies where financially increase their productivity and net income and at the same time achieve a contribution to the ecological well-being of the regions of this continent. This comprehensive integration of financial profitability and sustainability not only safeguards natural resources, but also positions Latin America as a global leader in responsible economic practices, attracting international investment and fostering a resilient and equitable future for the region.

2. General Objective

To analyze, from a bibliometric and bibliographic perspective, the production of research papers on the variables Financial Profitability Model and Circular Economy, published in high-impact journals indexed in the Scopus and Wos databases by Latin American institutions.

3. Methodology

The present research is qualitative, according to Hernández, et al., qualitative approaches correspond to the investigations that carry out the procedure of obtaining information to review and interpret the results obtained in these studies; To do this, it searched for information in the Scopus and Wos databases using the words FINANCIAL PROFITABILITY MODEL and CIRCULAR ECONOMY (2015)

Scopus

TITLE-ABS-KEY (financial AND profitability AND model, AND circular AND economy) AND PUBYEAR > 2016 AND PUBYEAR < 2023

Wos

Results for FINANCIAL PROFITABILITY MODEL, CIRCULAR ECONOMY (All Fields) and 2022 or 2021 or 2018 or 2019 or 2020 (Publication Years)

3.1 Research design

The research design proposed for the present research was the Systematic Review that involves a set of guidelines to carry out the analysis of the collected data, which are framed in a process that began with the coding to the visualization of theories On the other hand, it is stated that the text corresponds to a descriptive narrative since it is intended to find out how the levels of the variable affect; and systematic, because after reviewing the academic material obtained from scientific journals, theories on knowledge management were analyzed and interpreted. (Strauss & Corbin, 2016) (Hernandez, Baptista, & Fernandez, 2015)

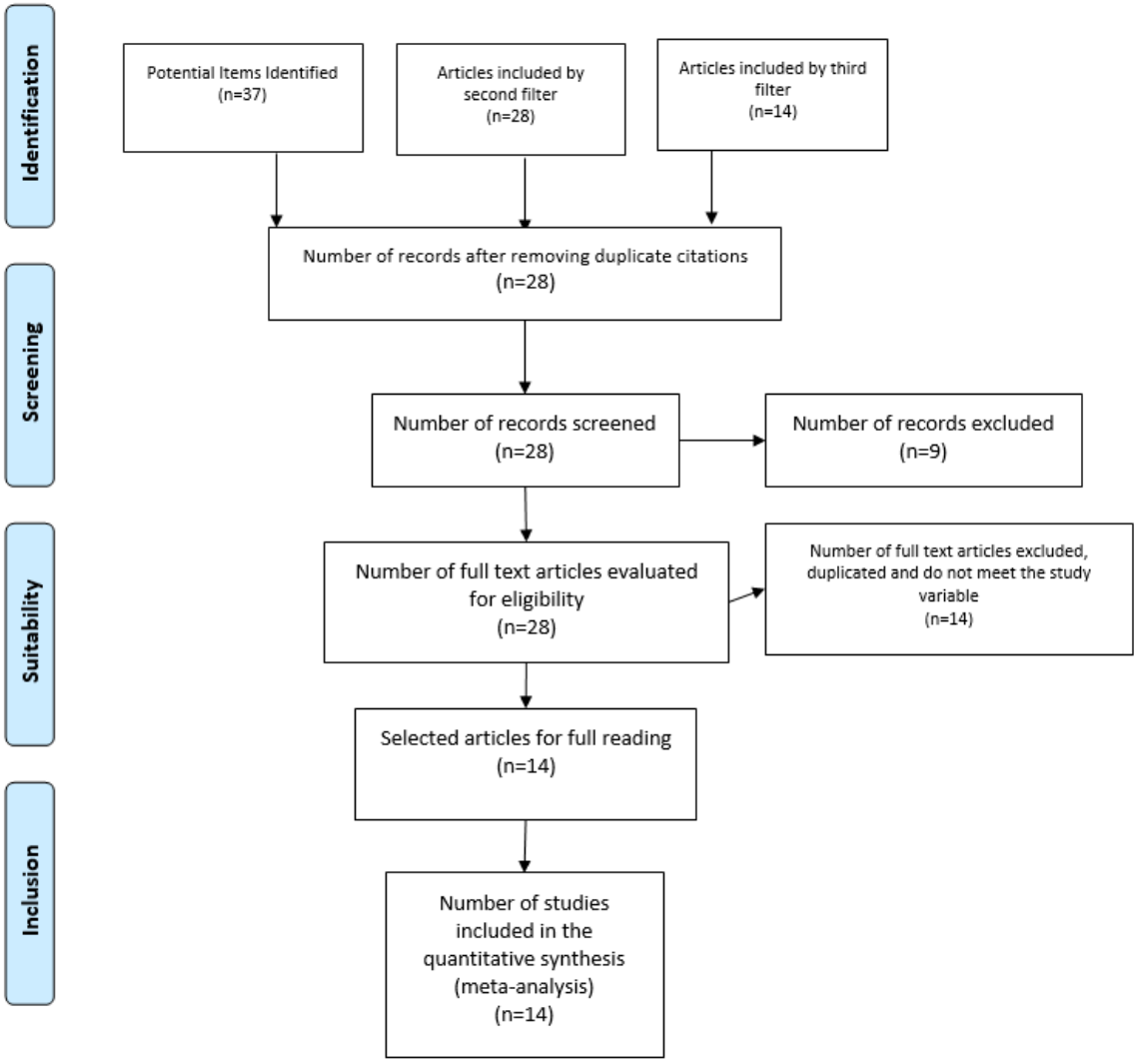

Figure 1. Flowchart of a systematic review carried out under the PRISMA technique (Moher, Liberati, Tetzlaff, Altman, & Group, 2009)

Source: Authors' own creation; Based on the proposal of the Prisma Group (Moher, Liberati, Tetzlaff, Altman, & Group, 2009)

4. Results

Table 1 shows the results after applying the search filters related to the methodology proposed for this research, after recognizing the relevance of each of the referenced works.

Table 1. List of articles analysed

No	RESEARCH TITLE	AUTHOR/YEAR	COUNTRY	TYPE OF STUDY	INDEXING
1	Sustainability assessment of circular economy over time: Modelling of finite and variable loops & impact distribution among related products	Schaubroeck, T., Gibon, T., Igos, E., & Benetto, E. (2021).	LUXEMBOURG	Qualitative	Scopus
2	Application of sharing economy to address shortage of medical equipment in covid-19 pandemic	Ashraf, A. M., & Abdul-Kader, W. (2020).	CANADA	Qualitative	Scopus
3	A Metric for Quantifying Product-Level Circularity	Linder, M., Sarasini, S., & van Loon, P. (2017)	SWEDEN	Quantitative	Scopus
4	The management of Industry 4.0 technologies and environmental assets for optimal performance of industrial firms in Malaysia	Ali, Q., Parveen, S., Yaacob, H., & Zaini, Z. (2022).	MALAYSIA	Quantitative	Scopus
5	Material flow cost accounting (MFCA) for the circular economy: An empirical study of the triadic relationship between MFCA, environmental	Nishitani, K., Kokubu, K., Wu, Q., Kitada, H., Guenther, E., & Guenther, T. (2022).	JAPAN, GERMANY	Quantitative	Scopus

	performance, and the economic performance of Japanese				
6	Environmental sustainability and service quality beyond economic and financial indicators: A performance evaluation of Italian water utilities	D'Inverno, G., Carosi, L., & Romano, G. (2021)	BELGIUM, ITALY	Qualitative	Scopus
7	CIRCULAR ECONOMY IN RELATION TO FINANCIAL DATA	Vlčková, M. (2022).	CZECH REPUBLIC	Qualitative	Scopus
8	The effects of circular economy initiative implementation on business performance: the moderating role of organizational culture	Kwarteng, A., Simpson, S. N. Y., & Agyenim-Boateng, C. (2022).	GHANA	Qualitative	Scopus
9	Circular economy: A review from business models and corporate social responsibility	Melendez, J.R., Delgado, J.L., Chero, V., Franco-Rodríguez, J. (2021)	ECUADOR	Qualitative	Scopus
10	Assessment of Circular Economy within Portuguese Organizations	Fonseca, L. M., Domingues, J. P., Pereira, M. T., Martins, F. F., & Zimon, D. (2018).	PORTUGAL, POLAND	Quantitative	WOS
11	Drivers and barriers to circular economy implementation An explorative	Agyemang, M., Kusi-Sarpong, S., Khan, S. A., Mani, V.,	GHANA, FRANCE, PAKISTAN,	Qualitative	WOS

	study in Pakistan's automobile industry	Rehman, S. T., & Kusi-Sarpong, H. (2019).	UNITED ARAB ISLANDS		
12	Briquettes production from green coconut shells: technical, financial, and environmental aspects	Clasen, A. P., Bonadio, J. C., & Agostinho, F. (2022)	BRAZIL	Quantitative	WOS
13	Noncooperative Game Theory To Ensure the Marketability of Organic Fertilizers within a Sustainable Circular Economy	Cobo, S., Fengqi, Y., Dominguez-Ramos, A., & Irabien, A. (2020).	UNITED STATES, SPAIN	Qualitative	WOS
14	Green product innovation: A means towards achieving global sustainable product within biodegradable plastic industry	Moshood, T. D., Nawanir, G., Mahmud, F., Mohamad, F., Ahmad, M. H., AbdulGhani, A., & Kumar, S. (2022).	MALAYSIA	Quantitative	WOS

Source: Authors' own creation

4.1 Co-occurrence of words

Figure 2 shows the relationship between the keywords used to search for the study material for the systematic analysis proposed for this research.

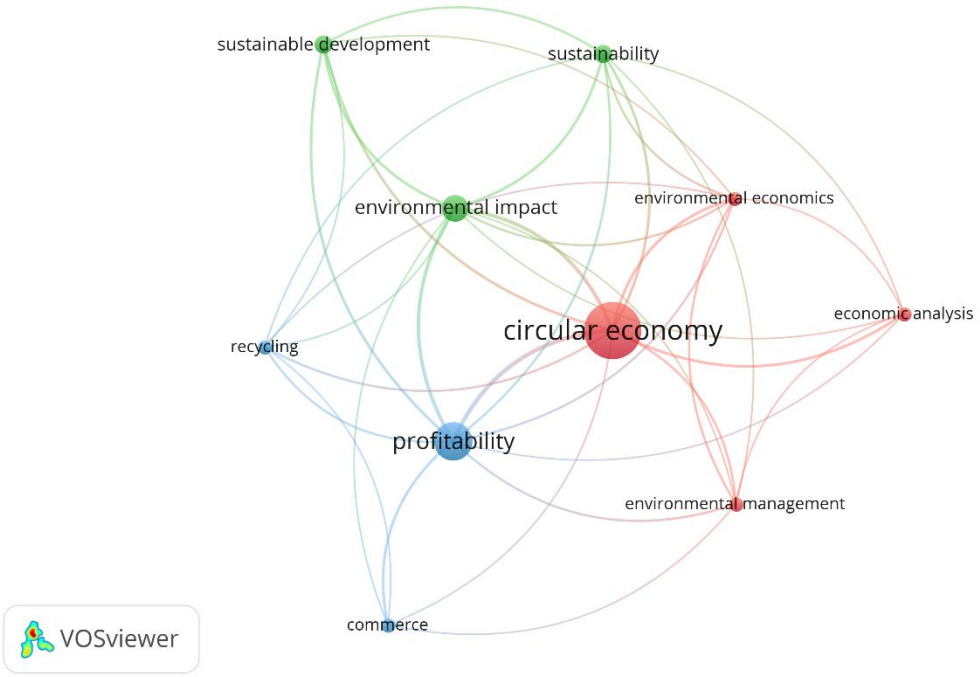

Figure 2. Co-occurrence of keywords.

Source: Authors' own creation

Figure 2 shows the most frequently used keywords and their correlation with research on topics associated with the problems of Financial Profitability Model and Circular Economy. In this way, it is possible to affirm that Circular Economy constitutes the central axis of the research identified for the analysis developed in this article. directly related to research in Environmental Impact, Environmental Economics, Data Analysis, Recycling, Sustainable Development, Sustainability, among others, The circular economy in Latin America has gained relevance as a comprehensive approach to address the economic and environmental challenges facing the region. Governments in the region are beginning to implement policies and regulations that encourage the adoption of circular practices. This includes tax incentives, subsidies, and regulations that promote extended producer responsibility and the recycling economy. Companies that adopt circular principles can improve their competitiveness by reducing operating costs, minimizing risks related to resource scarcity, and responding to growing consumer demand for sustainable products. Although significant progress has been made, challenges remain, such as the need for adequate infrastructure, public education and awareness, and the effective implementation of circular policies. The circular economy in Latin America represents a path towards more sustainable development, where economic prosperity is balanced with environmental conservation.

4.2 Discussion

The purpose of this article was to analyze, from a systematic perspective, the contribution of the authors, through their publications, to the study Financial Profitability Model and Circular Economy, carried out in high-impact journals indexed in Scopus and Wos databases during the period 2018-2021 by authors affiliated with Latin American institutions. In this way, it is possible to affirm that the publications indicated in the body of this document have carried out research at different levels whose findings contribute to the generation of new knowledge regarding the variables proposed for this study, this is how great contributions are identified as contemplated in the article entitled "The management of Industry 4.0 technologies and environmental assets for optimal performance of industrial companies in Malaysia" aimed to explain the role of I4.0 (I4.0Tec) technologies in strengthening the management of environmental assets, as well

as the optimization of financial performance. The data in this research was collected from 738 industrial companies in Malaysia between 2009 and 2018. Analyses of least squares statistics and structural equation modeling outlined three main findings. The individual effect of packaging, robotization and flexibility in production technologies has a marginal impact on sales, exports, and labor productivity indicators. The complements of these variables represent a similar effect on performance indicators. Findings related to gross operating margin clarify that ENVASS and I4.0Tec do not have individual or complementary effects. This was explained by developing a robust model integrating packaging, I4.0tec, expenses and investing in R+D, flexibility in production and human capital management. Our findings have confirmed that the proposed model offers a functional toolkit for firms considering optimizing their profitability. This research also contributes to the development of an ethical business model for the circular economy. Therefore, it is absolutely necessary to know first-hand the real needs of them in order to line strategies that pursue success within their training. Supporting the above idea, the contribution made by the development of the article entitled "The circular economy in relation to financial data" is evidenced, whose objective was based on comparing financial indicators for companies affected by the circular economy and companies that are not affected by the circular economy. These indicators were divided into five groups, namely: the area of indebtedness, liquidity, profitability, the area of employment-related indicators, and the analysis of bankruptcy and solvency models. Statistically significant differences were found in the indicators of indebtedness, liquidity, and employment-related indicators. Companies affected by the circular economy were found to have higher indebtedness. Similarly, these companies have lower liquidity. By personal cost per employee and average monthly salary, the indicators are higher for companies that are not affected by the circular economy. The survey shows that this is likely due to increased investment during the implementation of circular economy elements. Companies affected by the circular economy are more in debt and have higher liabilities, so liquidity is worse. Due to higher depreciation costs, these companies have a lower profit on the employee. The circular economy is an essential topic of this era, and in the coming years, it will become an integral part of many companies. The importance of the circular economy is based on minimizing waste raw materials and maximizing environmental protection. This paper aims to compare financial indicators for companies affected by the circular economy and companies that are not affected by the circular economy. However, like any methodology, it is not without its problems(Qaisar Ali, 2022)(Vlčková, 2022) through their use, as shown in the article entitled "Production of briquettes from green coconut shells: technical, financial and environmental aspects." The United Nations Sustainable Development Goals emphasize the need to better understand and propose solutions to the growing demand for resources and waste generation by anthropogenic systems at any scale and intensity. This work proposes a "circular" model by using the biomass of green coconut shells generated by the cities of the Baixada Santista region as raw material for the production of briquettes. Technical-operational, environmental and financial aspects are considered to evaluate the proposed "circular" model in comparison with the existing "linear" model. The results show that the technical-operational aspects of the "circular" model are feasible due to the technologies already existing on the market that can be easily adapted for the purposes of converting green coconut shells into briquettes.(Clasen, 2022)

5. Conclusions

This review article concludes by highlighting the importance of knowing the updated status of the bibliography published in databases such as Scopus or Wos, referring to the study of usability problems Financial Profitability Model and Latin American Circular Economy during the period between 2018 and 2021, It can be concluded that at the intersection of financial profitability and sustainability within the circular economies of

Latin America It aims for this region to intensify the benefits and economic advances offered by these economic and environmental models. Likewise, while at the international level each nation faces multiple environmental challenges, Latin America is not exempt from these hardships as this region deals with resource limitations, waste management and climate change, taking into account these challenges it is of vital importance that these Latin economies manage to effectively adopt circular economic principles which these models have the potential to offer many benefits that achieve countering the challenges of these economies. The circular economy's emphasis on reducing, reusing, and recycling aligns with the urgent need to implement good sustainable practices in Latin America. By being able to adopt this circular model, financial profitability only seeks to contribute to environmental conversations, based on these benefits offered by this circular model, it is based on the idea that not only companies increase their revenues in a sustainable way and improve cost savings opportunities, but also that these practices are much friendlier to the ecosystems and limited resources that this region has.

In addition, financial institutions and investors are increasingly recognizing the value of sustainable practices, providing incentives and support to companies that prioritize circularity. This recognition has the potential to attract more capital to the region, further fueling the growth of circular economy initiatives. However, these sustainable practices need the help of regulatory frameworks that encourage the business sector to adopt these circular practices, as well as the improvement of the infrastructure with which it seeks to support the management and efficiency of resources and thus improve recycling systems. The collaborations that governments, companies and communities must have is crucial for decision-making that seeks to create an optimal environment and dynamism that helps the circular economy prosper

References

Clasen, A. P. (2022). Production of briquettes from green coconut shells: technical, financial and environmental aspects. BRAZIL.

Qaisar Ali, ,. S. (2022). The management of Industry 4.0 technologies and environmental assets for optimal performance of industrial companies in Malaysia. MALASYA.

Vlčková, M. (2022). The circular economy in relation to financial data. CZECH REPUBLIC.

Aguilar, M. G., Jaramillo, J. F., Ddiba, D., Páez, D. C., Rueda, H., Andersson, K., & Dickin, S. (2022). Governance challenges and opportunities for implementing resource recovery from organic waste streams in urban areas of latin america: Insights from chía, colombia. Sustainable Production and Consumption, 30, 53-63. doi:10.1016/j.spc.2021.11.025

Aguilar-Murguía, D. M., Martínez-Guido, S. I., García-Trejo, J. F., Hernández, S., & Gutiérrez-Antonio, C. (2022). Optimal configuration of a biodiesel production network using oil from black soldier fly larvae doi:10.1016/B978-0-323-95879-0.50151-X Retrieved from www.scopus.com

Aguilar-Rivera, N. (2022). Bioindicators for the sustainability of sugar agro-industry. Sugar Tech, 24(3), 651-661. doi:10.1007/s12355-021-01105-z

Aguiñaga, E., Henriques, I., Scheel, C., & Scheel, A. (2018). Building resilience: A self-sustainable community approach to the triple bottom line. Journal of Cleaner Production, 173, 186-196. doi:10.1016/j.jclepro.2017.01.094

Akram, S. V., Malik, P. K., Singh, R., Gehlot, A., Juyal, A., Ghafoor, K. Z., & Shrestha, S. (2022). Implementation of digitalized technologies for fashion industry 4.0: Opportunities and challenges. Scientific Programming, 2022 doi:10.1155/2022/7523246

Alanya-Beltran, J., Hassan, A. M. M., Bag, A., Debnath, M., & Bora, A. (2022). Critical analysis of intelligent IoT in creating better smart waste management and recycling for sustainable development doi:10.1007/978-3-031-07012-9_19 Retrieved from www.scopus.com

Albuquerque, A. R. L., Merino, A., Angélica, R. S., Omil, B., & Paz, S. P. A. (2022). Performance of ash from amazonian biomasses as an alternative source of essential plant nutrients: An integrated and eco-friendly strategy for industrial waste management in the lack of raw fertilizer materials. Journal of Cleaner Production, 360 doi:10.1016/j.jclepro.2022.132222

Alejandrino, C., Mercante, I., & Bovea, M. D. (2021). Life cycle sustainability assessment: Lessons learned from case studies. Environmental Impact Assessment Review, 87 doi:10.1016/j.eiar.2020.106517

Alejandrino, C., Mercante, I. T., & Bovea, M. D. (2022). Combining O-LCA and O-LCC to support circular economy strategies in organizations: Methodology and case study. Journal of Cleaner Production, 336 doi:10.1016/j.jclepro.2022.130365

Ali, S. H., & Puppim de Oliveira, J. A. (2018). Pollution and economic development: An empirical research review. Environmental Research Letters, 13(12) doi:10.1088/1748-9326/aaeea7

Ali, S. S., Al-Tohamy, R., Mohamed, T. M., Mahmoud, Y. A. -., Ruiz, H. A., Sun, L., & Sun, J. (2022). Could termites be hiding a goldmine of obscure yet promising yeasts for energy crisis solutions based on aromatic wastes? A critical state-of-the-art review. Biotechnology for Biofuels and Bioproducts, 15(1) doi:10.1186/s13068-022-02131-z

Ali, S. S., Elsamahy, T., Abdelkarim, E. A., Al-Tohamy, R., Kornaros, M., Ruiz, H. A., . . . Sun, J. (2022). Biowastes for biodegradable bioplastics production and end-of-life scenarios in circular bioeconomy and biorefinery concept. Bioresource Technology, 363 doi:10.1016/j.biortech.2022.127869

Alvarez-Risco, A., Del-Aguila-Arcentales, S., Villalobos-Alvarez, D., & Diaz-Risco, S. (2022). Leadership for sustainability in crisis time doi:10.1007/978-981-19-0549-0_3 Retrieved from www.scopus.com

Amorim Junior, S. S., Hwa Mazucato, V. S., Machado, B. D. S., de Oliveira Guilherme, D., Brito da Costa, R., & Correa Magalhães Filho, F. J. (2021). Agronomic potential of biosolids for a sustainable sanitation management in brazil: Nutrient recycling, pathogens and micropollutants. Journal of Cleaner Production, 289 doi:10.1016/j.jclepro.2020.125708

Amorim Júnior, S. S. D., Pereira, M. A. D. S., Lima, P. D. M., Marishigue, M., Guilherme, D. D. O., & Magalhães Filho, F. J. C. (2021). Evidences on the application of biosolids and the effects on chemical characteristics in infertile tropical sandy soils. Cleaner Engineering and Technology, 4 doi:10.1016/j.clet.2021.100245

Ampese, L. C., Sganzerla, W. G., Di Domenico Ziero, H., Mudhoo, A., Martins, G., & Forster-Carneiro, T. (2022). Research progress, trends, and updates on anaerobic digestion technology: A bibliometric analysis. Journal of Cleaner Production, 331 doi:10.1016/j.jclepro.2021.130004

Anacleto, T. M., Oliveira, H. R., da Silva, C. F. C., Calegari, R. P., Rocha, M. E., Figueira, T. A., ... Enrich-Prast, A. (2022). ANAEROBIC DIGESTION AS A TOOL TO REDUCE ANTHROPOGENIC IMPACTS ON AQUATIC ECOSYSTEMS. Oecologia Australis, 26(2), 169-186. doi:10.4257/oeco.2022.2602.07

Anacleto, T. M., Oliveira, H. R., Diniz, V. L., de Oliveira, V. P., Abreu, F., & Enrich-Prast, A. (2022). Boosting manure biogas production with the application of pretreatments: A meta-analysis. Journal of Cleaner Production, 362 doi:10.1016/j.jclepro.2022.132292

Andrade, R. O., & Yoo, S. G. (2019). A comprehensive study of the use of LoRa in the development of smart cities. Applied Sciences (Switzerland), 9(22) doi:10.3390/app9224753

Araoz, M. E., Marcial, A. F., Trejo González, J. A., & Ávila, A. M. (2021). Renewable and electroactive biomass-derived tubes for CO2Capture in agroindustrial processes. ACS Sustainable Chemistry and Engineering, 9(23), 7759-7768. doi:10.1021/acssuschemeng.1c00547

Araújo, M. F. R. S., Lima, P. C., Cardoso, C. C., & Pasa, V. M. D. (2020). Biocrude production from sugarcane bagasse and ethanol over green catalysts based on shellfish waste. Journal of Cleaner Production, 277 doi:10.1016/j.jclepro.2020.123709

Arekrans, J., Sopjani, L., Laurenti, R., & Ritzén, S. (2022). Barriers to access-based consumption in the circular transition: A systematic review. Resources, Conservation and Recycling, 184 doi:10.1016/j.resconrec.2022.106364

Arruda, E. H., Melatto, R. A. P. B., Levy, W., & Conti, D. D. M. (2021). Circular economy: A brief literature review (2015–2020). Sustainable Operations and Computers, 2, 79-86. doi:10.1016/j.susoc.2021.05.001

Aschemann-Witzel, J., & Stangherlin, I. D. C. (2021). Upcycled by-product use in agri-food systems from a consumer perspective: A review of what we know, and what is missing. Technological Forecasting and Social Change, 168 doi:10.1016/j.techfore.2021.120749

Ashby, A., Callegaro, A. M., Adeyeye, K., & Granados, M. (2019). The spiral economy: A socially progressive circular economy model? doi:10.1007/978-3-030-15066-2_5 Retrieved from www.scopus.com

Aznar-Sánchez, J. A., Piquer-Rodríguez, M., Velasco-Muñoz, J. F., & Manzano-Agugliaro, F. (2019). Worldwide research trends on sustainable land use in agriculture. Land use Policy, 87 doi:10.1016/j.landusepol.2019.104069

Bacovis, M. M. C., Nascimento-e-Silva, D., Borchardt, M., & Antônio de Melo, P. (2020). Framework proposal to organize sustainability strategies towards a transition to the circular economy. Paper presented at the Springer Proceedings in Mathematics and Statistics, , 337 257-272. doi:10.1007/978-3-030-56920-4_21 Retrieved from www.scopus.com

Banguera, L., Lucio, E., Duran, C., Fuentealba, D., Hidalgo, J., & Carrasco, R. (2021). Academic perspective on the sustainable supply chain. Paper presented at the 2021 IEEE CHILEAN Conference on Electrical, Electronics Engineering, Information and Communication Technologies, CHILECON 2021, doi:10.1109/CHILECON54041.2021.9703080 Retrieved from www.scopus.com

Barcelos, S. M. B. D., Salvador, R., Barros, M. V., de Francisco, A. C., & Guedes, G. (2021). Circularity of brazilian silk: Promoting a circular bioeconomy in the production of silk cocoons. Journal of Environmental Management, 296 doi:10.1016/j.jenvman.2021.113373

Barone, A. S., Matheus, J. R. V., de Souza, T. S. P., Moreira, R. F. A., & Fai, A. E. C. (2021). Green-based active packaging: Opportunities beyond COVID-19, food applications, and perspectives in circular economy—A brief review. Comprehensive Reviews in Food Science and Food Safety, 20(5), 4881-4905. doi:10.1111/1541-4337.12812

Barragán-Ocaña, A., Silva-Borjas, P., & Olmos-Peña, S. (2021). Scientific and technological trajectory in the recovery of value-added products from wastewater: A general approach. Journal of Water Process Engineering, 39 doi:10.1016/j.jwpe.2020.101692

Barraza, R., Sepúlveda, J. M., & Derpich, I. (2022). Location of the intermediate echelon to add purchase value and sustainability criteria in a mining supply network. Sustainability (Switzerland), 14(19) doi:10.3390/su141912920

Barrios-Rodríguez, Y. F., Salas-Calderón, K. T., Orozco-Blanco, D. A., Gentile, P., & Girón-Hernández, J. (2022). Cocoa pod husk: A high-pectin source with applications in the food and biomedical fields. ChemBioEng Reviews, 9(5), 462-474. doi:10.1002/cben.202100061

Barros, M. V., Salvador, R., de Francisco, A. C., & Piekarski, C. M. (2020). Mapping of research lines on circular economy practices in agriculture: From waste to energy. Renewable and Sustainable Energy Reviews, 131 doi:10.1016/j.rser.2020.109958

Barros, M. V., Salvador, R., do Prado, G. F., de Francisco, A. C., & Piekarski, C. M. (2021). Circular economy as a driver to sustainable businesses. Cleaner Environmental Systems, 2 doi:10.1016/j.cesys.2020.100006

Batista-Barwinski, M. J., Venturieri, G. A., Miller, P. R. M., Testolin, R. C., Niero, G., Somensi, C. A., . . . Cotelle, S. (2022). Swine slaughterhouse biowaste: An environmental sustainability assessment of composting, amended soil quality, and phytotoxicity. Environmental Technology (United Kingdom), doi:10.1080/09593330.2022.2143291

Batlles-delaFuente, A., Abad-Segura, E., González-Zamar, M. -., & Cortés-García, F. J. (2022). An evolutionary approach on the framework of circular economy applied to agriculture. Agronomy, 12(3)doi:10.3390/agronomy12030620

Becerra, L., Carenzo, S., & Juarez, P. (2020). When circular economy meets inclusive development. Insights from Urban Recycling and Rural Water Access in Argentina. Sustainability (Switzerland), 12(23), 1-21. doi:10.3390/SU12239809

Beermann, K., & Austin, M. C. (2021). An inspection of the life cycle of sustainable construction projects: Towards a biomimicry-based road map integrating circular economy. Biomimetics, 6(4) doi:10.3390/biomimetics6040067

Bejarano, P. -. C., Rodríguez-Miranda, J. -., Maldonado-Astudillo, R. I., Maldonado-Astudillo, Y. I., & Salazar, R. (2022). Circular economy indicators for the assessment of waste and by-products from the palm oil sector. Processes, 10(5) doi:10.3390/pr10050903

Belmonte-Ureña, L. J., Plaza-Úbeda, J. A., Vazquez-Brust, D., & Yakovleva, N. (2021). Circular economy, degrowth and green growth as pathways for research on sustainable development goals: A global analysis and future agenda. Ecological Economics, 185 doi:10.1016/j.ecolecon.2021.107050

Benachio, G. L. F., Freitas, M. D. C. D., & Tavares, S. F. (2021). Interactions between lean construction principles and circular economy practices for the construction industry. Journal of Construction Engineering and Management, 147(7) doi:10.1061/(ASCE)CO.1943-7862.0002082

Berardi, P. C., Betiol, L. S., & Dias, J. M. (2020). Food waste and circular economy through public policies: Portugal & brazil. Paper presented at the Wastes: Solutions, Treatments and Opportunities III - Selected Papers from the 5th International Conference Wastes: Solutions, Treatments and Opportunities, 2019, 99-105. doi:10.1201/9780429289798-16 Retrieved from www.scopus.com

Bertassini, A. C., Calache, L. D. D. R., Carpinetti, L. C. R., Ometto, A. R., & Gerolamo, M. C. (2022). CE-oriented culture readiness: An assessment approach based on maturity models and fuzzy set theories. Sustainable Production and Consumption, 31, 615-629. doi:10.1016/j.spc.2022.03.018

Bertassini, A. C., Ometto, A. R., Severengiz, S., & Gerolamo, M. C. (2021). Circular economy and sustainability: The role of organizational behaviour in the transition journey. Business Strategy and the Environment, 30(7), 3160-3193. doi:10.1002/BSE.2796

Bertolini, T. C. R., Fungaro, D. A., & Mahmoud, A. E. D. (2022). The influence of separately and combined bentonite and kaolinite as binders for pelletization of NaA zeolite from coal fly ash. Ceramics, 68(387), 375-384. doi:10.1590/0366-69132022683873322

Betancourt Morales, C. M., & Zartha Sossa, J. W. (2020). Circular economy in latin america: A systematic literature review. Business Strategy and the Environment, 29(6), 2479-2497. doi:10.1002/BSE.2515

Bianchini, A., Guarnieri, P., & Rossi, J. (2022). A framework to assess social indicators in a circular economy perspective. Sustainability (Switzerland), 14(13) doi:10.3390/su14137970

Bigolin, M., De Moura Ferreira Danilevicz, A., & da Silva Filho, L. C. P. (2017). Sustainability requirements for concrete block elements based on recycled CDW: A case study for supporting social production in southern brazil. Paper presented at the PICMET 2016 - Portland International Conference on Management of Engineering and Technology: Technology Management for Social Innovation, Proceedings, 2413-2419. doi:10.1109/PICMET.2016.7806800 Retrieved from www.scopus.com

Boloy, R. A. M., da Cunha Reis, A., Rios, E. M., de Araújo Santos Martins, J., Soares, L. O., de Sá Machado, V. A., & de Moraes, D. R. (2021). Waste-to-energy technologies towards circular economy: A systematic literature review and bibliometric analysis. Water, Air, and Soil Pollution, 232(7) doi:10.1007/s11270-021-05224-x

Bonato, S. V., Augusto de Jesús Pacheco, D., Schwengber ten Caten, C., & Caro, D. (2022). The missing link of circularity in small breweries' value chains: Unveiling strategies for waste

management and biomass valorization. Journal of Cleaner Production, 336 doi:10.1016/j.jclepro.2021.130275

Bonfante, M. C., Raspini, J. P., Fernandes, I. B., Fernandes, S., Campos, L. M. S., & Alarcón, O. E. (2021). Achieving sustainable development goals in rare earth magnets production: A review on state of the art and SWOT analysis. Renewable and Sustainable Energy Reviews, 137 doi:10.1016/j.rser.2020.110616

Borges de Oliveira, K., & de Oliveira, O. J. (2022). Making hospitals sustainable: Towards greener, fairer and more prosperous services. Sustainability (Switzerland), 14(15) doi:10.3390/su14159730

Bortoli, M., Hollas, C. E., Cunha, A., Steinmetz, R. L. R., Coldebella, A., de Prá, M. C., . . . Kunz, A. (2022). Water reuse as a strategy for mitigating atmospheric emissions and protecting water resources for the circularity of the swine production chain. Journal of Cleaner Production, 345 doi:10.1016/j.jclepro.2022.131127

Botelho Junior, A. B., Pavoski, G., Silva, M. D. C. R., da Silva, W. L., Bertuol, D. A., & Espinosa, D. C. R. (2022). Promising technologies under development for recycling, remanufacturing, and reusing batteries: An introduction. Nano technology for battery recycling, remanufacturing, and reusing (pp. 79-103) doi:10.1016/B978-0-323-91134-4.00006-6 Retrieved from www.scopus.com

Bravo-García, J., Huerta-Rosas, B., Sánchez-Ramírez, E., & Segovia-Hernández, J. G. (2021). Sustainability evaluation of intensified alternatives applied to the recovery of nylon industry effluents. Process Safety and Environmental Protection, 147, 505-517. doi:10.1016/j.psep.2020.11.040

Braz, A. C., De Mello, A. M., de Vasconcelos Gomes, L. A., & de Souza Nascimento, P. T. (2018). The bullwhip effect in closed-loop supply chains: A systematic literature review. Journal of Cleaner Production, 202, 376-389. doi:10.1016/j.jclepro.2018.08.042

Buller, L. S., Sganzerla, W. G., Berni, M. D., Brignoli, S. C., & Forster-Carneiro, T. (2022). Design and techno-economic analysis of a hybrid system for energy supply in a wastewater treatment plant: A decentralized energy strategy. Journal of Environmental Management, 305 doi:10.1016/j.jenvman.2021.114389

Buller, L. S., Sganzerla, W. G., Lima, M. N., Muenchow, K. E., Timko, M. T., & Forster-Carneiro, T. (2022). Ultrasonic pretreatment of brewers' spent grains for anaerobic digestion: Biogas production for a sustainable industrial development. Journal of Cleaner Production, 355 doi:10.1016/j.jclepro.2022.131802

Bustamante, G., Giannetti, B. F., Agostinho, F., Liu, G., & Almeida, C. M. V. B. (2022). Prioritizing cleaner production actions towards circularity: Combining LCA and emergy in the PET production chain. Sustainability (Switzerland), 14(11) doi:10.3390/su14116821

Cano, N. A., Hasenstab, C., & Velásquez, H. I. (2019). Life-cycle assessment (LCA) of exergy indicators in the colombian gold mining sector: A case study in an open-pit and in an alluvial mining processes. Paper presented at the ECOS 2019 - Proceedings of the 32nd International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, 681-695. Retrieved from www.scopus.com

Cantero, D., Jara, R., Navarrete, A., Pelaz, L., Queiroz, J., Rodríguez-Rojo, S., & Cocero, M. J. (2019). Pretreatment processes of biomass for biorefineries: Current status and prospects. Annual Review of Chemical and Biomolecular Engineering, 10, 289-310. doi:10.1146/annurev-chembioeng-060718-030354

Carbajal-Valenzuela, I. A., Medina-Ramos, G., Caicedo-Lopez, L. H., Jiménez-Hernández, A., Ortega-Torres, A. E., Contreras-Medina, L. M., . . . Guevara-González, R. G. (2021). Extracellular dna: Insight of a signal molecule in crop protection. Biology, 10(10) doi:10.3390/biology10101022

Carlos-Hernández, S., & Díaz-Jiménez, L. (2022). Strategy based on life cycle assessment for telemetric monitoring of an aquaponics system. Industrial Crops and Products, 185 doi:10.1016/j.indcrop.2022.115171

Carvalho Machado, R., & Kindl Da Cunha, S. (2022). From urban waste to urban farmers: Can we close the agriculture loop within the city bounds? Waste Management and Research, 40(3), 306-313. doi:10.1177/0734242X211068248

Carvalho, J., Bastchen, G., & Borsato, M. (2018). Methods for supporting the prospection of opportunities and the feasibility analysis of the reuse of waste — opportunities and trends. A literature review. Paper presented at the Proceedings of International Conference on Computers and Industrial Engineering, CIE, , 2018-December Retrieved from www.scopus.com

Casarejos, F., Bastos, C. R., Rufin, C., & Frota, M. N. (2018). Rethinking packaging production and consumption vis-à-vis circular economy: A case study of compostable cassava starch-based material. Journal of Cleaner Production, 201, 1019-1028. doi:10.1016/j.jclepro.2018.08.114

Casiano Flores, C., Bressers, H., Gutierrez, C., & de Boer, C. (2018). Towards circular economy – a wastewater treatment perspective, the presa guadalupe case. Management Research Review, 41(5), 554-571. doi:10.1108/MRR-02-2018-0056

Cassani, L., Marcovich, N. E., & Gomez-Zavaglia, A. (2022). Valorization of fruit and vegetables agro-wastes for the sustainable production of carotenoid-based colorants with enhanced bioavailability. Food Research International, 152 doi:10.1016/j.foodres.2021.110924

Cassiani, J., Martinez-Argüelles, G., Peñabaena-Niebles, R., Keßler, S., & Dugarte, M. (2021). Sustainable concrete formulations to mitigate alkali-silica reaction in recycled concrete aggregates (RCA) for concrete infrastructure. Construction and Building Materials, 307 doi:10.1016/j.conbuildmat.2021.124919

Cassol, M., & Sellitto, M. A. (2020). Socio-biodiversity supply chain: Sustainable practices of a brazilian cosmetic company. Environmental Quality Management, 30(1), 25-31. doi:10.1002/tqem.21700