



Risks of Implementing Circular Economy Practices in Smes in Albania

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Abstract

The main objective of this paper is to give an overview of the risks of implementing circular economy practices in Albanian SMEs. The methodology used for research and design in this paper will be based on a literature review, that involves systematically searching, analyzing, and synthesizing existing scholarly articles, books, and other sources related to implementing circular economy practices in SMEs. In conclusion, the adoption of circular economy principles by SMEs in Albania has the potential to improve economic and environmental sustainability but on the other hand, there are inherent risks associated with transitioning to a circular economy model for SMEs. Our research helps to focus attention on the problems of implementing circular practices in Albanian SMEs and possible interventions by the authorities in the form of regulation.

Keywords: circular economy, linear economy, financial indicators, sustainability risks

1. Introduction

We can define the circular economy as an economy "where the value of products, materials, and resources is kept in the economy for as long as possible and the generation of losses is minimized," according to the European Commission. (EU Commission, 2015).

First defined in the 1960s and 70s by Kenneth Boulding and reintroduced by environmental economists David Pearce and R. Kerry Turner in the 1990s, the circular economy is a characterization of how goods and services can be produced and consumed in a healthy and sustainable ecological environment that solves the problem of overuse of resources, waste management, and climate change, among others, through the conscious interconnection of different economic activities (Donaghy, 2022).

Albania started to implement the circular economy in the period of the communist regime. The lack of economic support from abroad and the severance of economic relations with other countries would bring about a complete revision of economic policy in the country. The need and strain experienced by the country's production cycle as a result of the collapse of the economy brought this concept to life (ASET).

Small and medium enterprises (SMEs) play a major role in most economies, especially in developing countries. According to the World Bank, they represent about 90% of businesses and more than 50% of employment worldwide

(World Bank).

In this study, we will focus on the risks that affect the application of circular practices. Therefore, the aim is to take a deeper look to study the link between the circular economy and sustainability risk. This study finds inspiration in the triple bottom line (TBL) theory, the TBL framework considers three dimensions of sustainability: economic, environmental, and social. TBL is an accounting structure used to assess sustainability.

The main objectives of the paper are:

1. To present a theoretical picture of the circular economy and its development in recent years in Albania.
2. To review in a theoretical aspect the types of risks that implicate the company as a result of the application of circular methods in production.
3. To identify the benefits of implementing circular practices.
4. To understand the relationship that exists between the level of circularity and risk in a company.

2. Literature Review

Throughout its evolution and diversification, our industrial economy has not moved beyond a fundamental characteristic established in the early days of industrialization: a linear pattern of resource consumption that follows a take-make-dispose pattern. Companies collect and extract materials, use them to make a product, and sell the product to a consumer - who then discards it when it no longer serves its purpose (MacArthur, 2013).

A linear economy is a business model that focuses on the take-make-dispose philosophy. After extracting resources from the earth, consumer goods are produced. The waste from this food is later collected in a landfill or incinerated. Unfortunately, unhealthy competition between firms has shortened product life cycles, made things obsolete, and turned them into waste, causing a collapse in the ecological balance.

The circular economy advocates a transition from the traditional take-make-dispose economy to a recuperative and regenerative approach, which emphasizes extending the life cycle of products for use in order to obtain maximum value from it. The circular economy transforms end-of-life goods into alternative resources, thus closing the loop in the industrial ecosystem and reducing waste. Its philosophy is based on reuse, recycle, repair and reproduction (Webster, 2017)

The use of risk indicators as an assessment method can play an important role in establishing a full understanding and proper integration of the circular economy system (Saidani, 2018).

Due to the dynamic nature of the impact of sustainability risk on organizational performance, integrating these risks with the organization's strategy can achieve organizational goals (Wijethilake, 2018).

Categorizing risks into different types can help a business in many ways, including managing risks by reducing the probability of the risk occurring or minimizing its impact. We identify risk categories based on prior academic research, existing risk frameworks and interviews with risk management professionals. Risk categories include strategic risk, operations risk, financial risk, and governance and compliance risks (Srinivasan.P, 2020).

A structured risk assessment is vital to understand the interrelationship between several types of risks. Sustainability risks affect the sustainable development of an organization and its long-term social, economic and environmental prospects. Therefore, sustainability risk assessment should be consistent with the three pillars of sustainability (environmental, social and economic risks) (Kazancoglu, Deniz, Ozen, Kumar, & Mangey, 2022). To assess and manage these risks, a systematic method is essential (Kazancoglu Y. O.-O., 2022). The success of circular economy startups is related to risks, which may include environmental risks, raw materials, technology, supply chains, etc. (Lin, et al., 2019).

3. Research Methodology and Instruments Used

This section presents an overview of the research methodology and design used for this paper. The objective of this paper is a literature review to see the effects of sustainability risks on the implementation of circular economy practices in small and medium enterprises, as well as possible regulatory interventions by the authorities.

To accomplish this objective, two approaches will be considered: *the systematic review and the narrative review*.

Systematic review: This involves an in-depth investigation of previous research using predefined search criteria. Usually, several databases are searched during the search process. The studies are then evaluated and selected depending on how well they address the issue of the study. *Narrative review*: A narrative review uses a less formal method to summarize the body of literature. Less attention is paid to methodological research and selection of studies and more emphasis is placed on providing a comprehensive overview of the available research on the topic (Prendi,

Borakaj, & Prendi, 2023).

This study develops these two methods for conducting a comprehensive and systematic literature review as well as qualitative interpretation. We will study publications from several sources. We will conclude by gathering evidence from different sources and debating the results of different approaches to analyzing sustainability risks and their impact on the circular economy.

A total of 200 publications were gathered and checked for duplicates, yielding a preliminary selection of 50 papers. Then refining the initial selection by manually reviewing the titles and abstracts for alignment with the main topic of using the circular economy and the risks affecting its implementation. The alignment check consists of three consecutive closed questions:

- Circular Economy in Albania?
- Does the study address sustainability risks and their impact on the circular economy?
- Does the study address possible regulatory interventions by the authorities?

If the answer to at least one question will be —no, the publication will be excluded from the final selection. Conversely, if all the publications were included in the final selection they should have answered "yes" to the three questions. After the content compatibility check, the final selection consists of 20 publications.

After that, we will quantitatively evaluate the data of the final selection of publications, based on the number of publications, type and year of publications, total number of citations, and country of first author of publication. Next, we will conduct a qualitative content analysis of the final selection based on the abstracts and full text, to categorize the publications into distinct primary and secondary content groups. Depending on the findings of the studies that we will review, we will also highlight the importance of developing sustainability risks. This paper consults also the original reports published by the European Central Bank and other sources such as articles and books written by various economists and universities. The circular economy is relatively new and to this day, experts around the world are still arguing and giving opposing opinions. We will try to find different treatments for the same questions to compare and analyze them.

4. Findings and Results

In the first part, referring to the results from the review of the literature related to the types of sustainability risks and the effects they have on the application of circular economy methods in small and medium-sized enterprises, we will be able to give a broader understanding to companies that implement or intend to implement circular practices. We will also draw results regarding the possible measures that SMEs should take into account in their internal policies.

There is a need for countries to make more sustainable use of the environment and natural resources, while maintaining and improving living standards and reducing poverty (Prendi, Llambi; Murrja, Arif, 2023).

In recent years, Albania has also begun to embrace the principles of the circular economy and has made significant progress in its development (Hysa et al., 2020). Albania has recognized the importance of transitioning from a linear economy to a circular economy and has taken steps to promote sustainable resource use and waste reduction. The government of Albania has implemented various policies and initiatives to support the circular economy. These include the adoption of renewable energy sources, promotion of recycling and waste management, and support for sustainable business practices (Nazaj & Tolica, 2014). Additionally, there has been an increased emphasis on education and awareness programs to promote the circular economy among businesses and the public. These efforts have led to the formation of a strong network of organizations and businesses working towards implementing circular economy principles in Albania (Hysa et al., 2020).

Before 1990, families in Albania were encouraged to share at the source the paper, cardboard, and glass. Within these frames, wood scraps will be turned into furniture, plastic into clothes, and metal will be recycled into new goods through processing. Once processed to create fertilizer, the food waste will be used in agriculture. The fact that Albanian families can transfer different types of waste to specific places and be compensated with monetary means makes this fact one of the few capitalist characteristics in Albania (ASET). The concept of "circular economy" is new when it comes to the Republic of Albania. The country's circular economy needs are met by reformulating the current legal framework, which regulates nuclear regulations, strategic documents, and national action plans. To find out the capabilities of the country to find better and better sources of life or raw materials, goods, and products, it is necessary to improve the current legislation (EnvNet, 2018).

At the same time, civil society organizations, scientific research, and the Ministry of Tourism and Environment are interested in this topic through conferences, seminars, and media posts. however, there is still an end to knowledge and

understanding in the parties involved. The National Waste Management Strategy 2018-2033 aims to establish minimum standards for the management of waste in the country and to establish a uniform methodology for the Costs associated with the provision of integrated waste management services (EnvNet, 2018).

In Albania, SME activities play a role in the economy of our country, which according to the statistics of 2021, account for 99.8% of active enterprises in Albania, 81.6% of employees in the country, 79.0% of net sales are realized by SMEs, 76.4% of investments, 76.1% are estimated to be realized by SMEs (INSTAT, 2021). Improving the financial performance of SMEs through circular economy practices can help improve economic and environmental sustainability, reducing the negative impact on the environment and making smarter use of natural resources (M.Sarfraz, L.Ivascu, A.E.Arte, N.Bobitan, D.Dumitrescu, O.Bogdan & Valentin Burca, 2022)

Where there are opportunities, there will always be challenges, and the implementation of circular economy practices in Albanian SMEs presents both opportunities and challenges. On one hand, adopting circular economy practices can bring various benefits to SMEs, such as saving material costs, creating competitive advantages, and accessing new markets (Rizos et al., 2016). Circulating current materials could reduce the quantity of material input needed, saving billions of dollars annually for the world economy. Implementing circular design and manufacturing techniques results in optimized products. The need for management expertise in the circular economy increases business opportunities in the market (Kyle J.Rotchie, 2021). On the other hand, based on the literature review comprised of 20 papers, there are the following risks associated with implementing circular economy practices in Albanian SMEs. The availability and high quality of natural and environmental resources, which are increasingly in demand, are vital to Albania's economic success. Albania has taken a few steps in the areas of energy efficiency and renewable energy. From 1980 to 2021, CO2 emissions will be decreased, and the government pledged to cut them by 12% when compared to the baseline. (Prendi, Llambi; Gashi, Jonida, 2023).

Limited financial resources and inability to hire external experts, resulting in the need to rely on existing staff and knowledge;

- Lack of awareness and understanding of circular economy principles among SMEs;
- Potential difficulties in classifying circular business models;
- Uncertainty about the regulatory framework and lack of government support;
- Lack of a supporting supply and demand network;
- Difficulty in securing capital for investments in circular economy practices;
- Lack of access to suitable technologies and infrastructure;
- Limited availability of sustainable inputs and materials;
- Lack of collaboration and partnerships with other organizations.

These risks can hinder the successful implementation of circular economy practices in Albanian SMEs and may require careful planning, resource allocation, and collaboration with stakeholders to overcome (E.Hysa, A.Kruja, N.U.Rehman and R.Laurenti, 2020)

5. Conclusions

The results show that companies are beginning to implement sustainability practices such as recycling, reuse, and reduction in their processes, especially when it comes to production facilities. Also, the results show that companies are trying to be more innovative by integrating new processes that support new thinking, a complete circular economy framework cannot be found in the analyzed data. This deficiency should be addressed in the future and a comprehensive framework should be implemented as a standard, especially for the manufacturing industry where closed loops will be important in the future.

References

- Abuaf, N., and Jorion P. (1990). Purchasing Power Parity in the Long Run. *Journal of Finance*, 157-174.
- Adler, M., & Lehmann, B. (1983). Deviation from PPP in the long run. *Journal of Finance*, 50(38), 1971-1987.
- Agresti, A. (1990). *Categorical Data Analysis*. New York: John Wiley and Sons.
- Alba, J., and Papell, D. (2007). Purchasing power parity and country characteristics: Evidence from panel data tests. *Journal of Development Economics*, 83(1), 240-251.
- AlMashaqbeh.S, Hernandez.J.E.M. (2023). Risk Analysis under a Circular Economy Context Using a Systems Thinking Approach. <https://www.mdpi.com/2071-1050/15/5/4141>.

- ASET. (n.d.). <file:///C:/Users/Lenovo/Downloads/Guide%20mbj%20ekonomine%20qarkulluese.pdf> [Retrieved 25.09.2023].
- Asplund, F., Macedo, H. D., & Sassanelli, C. (2021). Problematising the Service Portfolio of Digital. *22nd Working Conference on Virtual Enterprises*, 433-440. Retrieved from https://pure.au.dk/ws/portalfiles/portal/281935293/40_pro_ve_vf.pdf
- Ayyub, B. (2014). Risk Analysis in Engineering and Economics; CRC Press: Boca Raton, FL, USA, ISBN 1466518251.
- Balassa, B. (1964). The Purchasing Power Parity Doctrine: A Reappraisal. *Journal of Political Economy*, 72(6), 584-596.
- Beko, J., and Borsic, D. (2007). Purchasing power parity in transition economies: Does it hold in the Czech Republic, Hungary and Slovenia? *Post-Communist Economies*, 417-428.
- Bhagwati, J. (1984). Why are services cheaper in the poor Countries. *The Economic Journal*, 94, 279-286.
- Cassel, G. (1918). Abnormal deviations in international exchanges. *The Economic Journal*, 72, 584-596.
- Coakley, J. (2000). Is There a Base Currency Effect In Long-Run PPP? *International Journal of Finance and Economics*, 5, 253-263.
- Crowder, W. (1996). A Reexamination of Long-Run PPP: The Case of Canada, the UK, and the US. *Review of International Economics*, 4(1), 64-78.
- Cumby, R., and Huizinga, J. (1988). Consumption risk and international equity returns: some empirical evidence. *Journal of International Money and Finance*, 9(2), 182-192.
- Cumby, R., and Obstfeld, M. (1984). *International Interest-Rate and Price-Level Linkages Under Flexible Exchange Rates: A Review of Recent Evidence*. The National Bureau of Economic Research.
- Davidson, R., and MacKinnon, J. (2004). *Econometric Theory and Methods*. New York: Oxford University Press.
- Dickey, D., and Fuller, W. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association*, 74(366), 427-431.
- Donaghy, K. A. (2022). <https://link.springer.com/article/10.1007/s11067-022-09559-8>.
- Dornbusch, R. (1994). *Exchange Rates and Inflation*. Massachusetts: The MIT Press.
- Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J., . . . Raman, R. (2021). Setting the future of digital and social media marketing research: Perspectives and research propositions. *International Journal of Information Management*, 59.
- E.Hysa, A.Kruja, N.U.Rehman and R.Laurenti. (2020). 10.3390/su12124831.
- Engle, R., & Granger, C. (1987). Co-integration and error correction: representation, estimation, and testing. *Econometrica*, 55(2), 251-276.
- EnvNet. (2018). http://env-net.org/wp-content/uploads/2019/10/CE_Report_2018_Albania.pdf.
- EUCommission. (2015). https://environment.ec.europa.eu/topics/circular-economy/first-circular-economy-action-plan_en Retrieved 25.09.2023.
- European Commission. (2019). *Digital Innovation Hubs: helping companies across the economy make the most of digital opportunities*. Brussels: Shaping Europe's digital future.
- European Union. (2022). *A Policy Brief from the Policy Learning Platform on SME Competitiveness*. Interreg Europe. Retrieved from https://www.interregurope.eu/sites/default/files/good_practices/Policy%20brief%20on%20digital%20hubs%20PLP%20.pdf
- Flood, R., and Taylor, M. (1996). *Exchange Rate Economics: What Wrong with the Conventional Macro Approach?* Chicago: National Bureau of Economic Research.
- Frankel, J. (1978). Purchasing power parity: Doctrinal perspective and evidence from the 1920s. *Journal of International Economics*, 8(2), 169-191.
- Frankel, J., & Rose, A. (1996). A panel project on purchasing power parity: Mean reversion within and between countries. *Journal of International Economics*, 40, 209-224.
- Froot, K., and Rogoff, K. (1995). Perspectives on PPP and Long-Run Real Exchange Rates. *Handbook of International Economics*, 3, 1647-1688.
- Georgescu, A., Avasilcai, S., & Peter, M. K. (2020). Digital Innovation Hubs—The Present Future of Collaborative Research, Business and Marketing Development Opportunities. *Smart Innovation, Systems and Technologies*, 205, 363-374. Retrieved from https://www.researchgate.net/profile/Sandra-Miranda-2/publication/349929783_Communication_in_Times_of_Pandemic_Analysis_of_Engagement_on_Social_Networks/links/62ebffe45322476937cc789/Communication-in-Times-of-Pandemic-Analysis-of-Engagement-on-Social-Net
- Georgescu, A., Avasilcai, S., & Peter, M. K. (2021). Digital Innovation Hubs—The Present Future of Collaborative Research, Business and Marketing Development Opportunities. In Á. Rocha, J. Reis, M. Peter, R. Cayolla, S. Loureiro, & Z. Bogdanović (Eds.), *Marketing and Smart Technologies*. *Smart Innovation, Systems and Technologies* (Vol. 205, pp. 363-374). Singapore.
- Giaccone, S. C., & Longo, C. (2016). Insights on the Innovation Hub's Design and Management. *International Journal of Technology Marketing*, 11(1). doi:10.1504/IJTMKT.2016.073318
- Grant, M. J., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*. <https://onlinelibrary.wiley.com/doi/10.1111/j.1471-1842.2009.00848.x>.
- Guner, O. (2020). Digital Innovation Hubs within the scope of the European Union Innovation Policy. In G. Ekinci, & B. Akyilmaz (Eds.), *The Last Technological Innovations and Its Effects on Growth Process, Labor* (pp. 161-178). Livre de Lyon.
- Haimes, Y. (2009). Risk Modeling, Assessment, and Management, 3rd ed.; Wiley & Sons: Hoboken, NJ, USA, ISBN 9780470282373.
- Hervás-Oliver, J.-L., & Artés, A. A. (2021). The Digitization of European business. The Digital Innovation Hubs, what is next? *Digital Economy and Innovation Journal*, 1(1), 38-58.
- Hervas-Oliver, J.-L., Gonzalez-Alcaide, G., Rojas-Alvarado, R., & Monto-Mompo, S. (2021). Emerging regional innovation policies for industry 4.0: analyzing the digital innovation hub program in European regions. *Competitiveness Review*, 31(1), 106-129.

- Huizinga, J. (1987). An empirical investigation of the long-run behavior of real exchange rates. *Carnegie-Rochester Conference Series on Public Policy*, (pp. 149-214).
- Hysa et al. (2020). Circular Economy Innovation and Environmental Sustainability Impact on Economic Growth: An Integrated Model for Sustainable Development. https://www.researchgate.net/publication/342130289_Circular_Economy_Innovation_and_Environmental_Sustainability_Impact_on_Economic_Growth_An_Integrated_Model_for_Sustainable_Development.
- INSTAT. (2021). <https://www.instat.gov.al/en/themes/industry-trade-and-services/structural-business-statistics/publication/2023/statistics-on-small-and-medium-enterprises-2021/>.
- Isard, P. (1995). *Exchange Rate Economics*. New York: Cambridge University Press.
- Johansen, S. (1988). Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models. *Econometrica*, 59(6), 1551-1580.
- Kazancoglu, Y. O.-O. (2022). Risk assessment for sustainability in e-waste recycling in circular economy. *Clean Techn Environ Policy*. <https://link.springer.com/article/10.1007/s10098-020-01901-3#citeas>.
- Kazancoglu, Y., Deniz, Y., Ozen, O., Kumar, S., & Mangey, M. (2022). Risk assessment for sustainability in e-waste recycling in circular economy. *Clean Technol. Environ. Policy*. DOI: <https://dx.doi.org/10.1007/s10098-020-01901-3>.
- Knetter, M. (1992). *International Comparisons of Pricing-to-Market Behavior*. The National Bureau of Economic Research.
- Kyle J.Rotchie, E. C. (2021). *Circular Economy for dummies*. New Jersey: John Wiley & Sons, Inc.
- Lafrance, R., & Schembri, L. (2002). *Purchasing-power parity: definition, measurement, and interpretation*. Canada: Bank of Canada Review.
- Lenssen.J.J & Dentchev, N. &. (2014). Sustainability, Risk management and governance: towards an integrative approach. *Corporate Governance: The international journal of business in society*. https://www.researchgate.net/publication/280193893_Sustainability_Risk_management_and_governance_towards_an_integrative_approach.
- Lin, S., Shen, B., Yong, S., Angelo, M., Promentilla, B., & Yatim, P. (2019). Prioritization of sustainability indicators for promoting the circular economy : The case of developing countries. *Renew. Sustain. Energy* .
- M.Sarfraz, L.Ivascu, A.E.Arteno, N.Bobitan, D.Dumitrescu, O.Bogdan & Valentin Burca. (2022). 10.1080/1331677X.2022.2101019.
- MacArthur, E. (n.d.). <https://ellenmacarthurfoundation.org/what-is-the-linear-economy> [Retrieved 24.09.2023].
- MacArthur, E. (2013). <https://ellenmacarthurfoundation.org/towards-the-circular-economy-vol-1-an-economic-and-business-rationale-for-an>.
- MacArthur, E. (2021). <https://ellenmacarthurfoundation.org/articles/why-our-current-economy-will-not-work-long-term>.
- Miörner, J., Kalpaka, A., Sörvik, J., & Wernberg, J. (2019). *Exploring heterogeneous Digital Innovation Hubs in their context*. Luxembourg: Gabriel Rissola; Annita Kalpaka .
- Nazaj & Tolica. (2014). Environmental Policies and Sustainable Development in Transition Countries: Case Study of Albania. https://www.academia.edu/81802735/Environmental_Policies_and_Sustainable_Development_in_Transition_Countries_Case_Study_of_Albania.
- Nogueira, E., Gomes, S., & Lopes, J. (2023). https://www.researchgate.net/publication/370029243_Triple_Bottom_Line_Sustainability_and_Economic_Development_What_Binds_Them_Together_A_Bibliometric_Approach.
- O'Connell, P. (1998). The overvaluation of purchasing power parity. *Journal of International Economics*, 44, 1-19.
- Oeij, P. R., Dhondt, S., Rus, D., & Hootegeem, G. V. (2019). The digital transformation requires workplace innovation: an introduction . *Int. J. Technology Transfer and Commercialisation*, 16(3), 199-207.
- Papell, D. (1997). Searching for Stationarity: Purchasing Power Parity Under the Current Float. *Journal of International Economics*, 43, 313-332.
- Philip, R. (2000). *The Impact of Productivity Differentials on Inflation and the Real Exchange Rate: an Estimation of the Balassa-Samuelson Effect in Slovenia*. IMF Staff Country Report.
- Phillips, P., and Perron, P. (1988). Testing for a Unit Root in Time Series Regression. *Biometrika*, 75(2), 335-346.
- Planes-Satorra, S., & Paunov, C. (2019). *The Digital Innovation Policy Landscape in 2019*. OECD. Retrieved from https://read.oecd-ilibrary.org/science-and-technology/the-digital-innovation-policy-landscape-in-2019_6171f649-en#page3
- Plekhanov, D., Franke, H., & Netland, T. H. (2023). Digital transformation: A review and research agenda. *European Management Journal*, 41(6), 821-844. doi:<https://doi.org/10.1016/j.emj.2022.09.007>
- Prendi, L., Borakaj, D., & Prendi, K. (2023). The new money laundering machine through cryptocurrency: Current and future public governance challenges. *Corporate Law & Governance Review* , 84-94. doi:10.22495/clgrv5i2p9
- Prendi, Llambi; Gashi, Jonida. (2023). Albanian Green Economy Trends. In *Creating a Roadmap Towards Circularity in the Built Environment*. doi:10.1007/978-3-031-45980-1_15
- Prendi, Llambi; Murrja, Arif. (2023). How Are the Balkan Countries Progressing Toward Green Economy? *Review of Economics and Finance*. doi:10.55365/1923.x2023.21.20
- Rissola, G., & Sörvik, J. (2018). *Digital Innovation Hubs in Smart Specialisation Strategies*. Luxembourg: Publications Office of the European Union.
- Rogoff, K. (1996). The Purchasing Power Parity Puzzle. *Journal of Economic Literature*, 34(2), 647-668.
- Saidani, M. Y. (2018). A taxonomy of circular economy indicators. . <https://www.semanticscholar.org/paper/A-taxonomy-of-circular-economy-indicators-Saidani-Yannou/e9bf895c62aaffb08f4e693e98081284c212ce11>.
- Samuelson, P. (1964). Theoretical Notes on Trade Problems. *Review of Economics and Statistics*, 46(2), 145-154.

- Sarraipa, J., Zamiri, M., Marcelino-Jesus, E., Artifice, A., Jardim-Goncalves, R., & Moalla, N. (2023). A Learning Framework for Supporting Digital Innovation Hubs. *Computers*, 12(6).
- Sassanelli, C., & Terzi, S. (2022). The D-BEST Based digital innovation hub customer journey analysis method: Configuring DIHs unique value proposition. *International Journal of Engineering Business Management*, 14. doi:10.1177/18479790221124634
- Sassanelli, C., Terzi, S., Panetto, H., & Doumeings, G. (2021, June). Digital Innovation Hubs supporting SMEs digital. *27th IEEE International Conference on Engineering, Technology and Innovation*, 1-8.
- Siebert, E., Wasserman, M., & Fisher, S. (2019). Using Innovation Hubs as Global Educational Collaboration Centers: Changing the International Education Model. *Journal of International Business Research and Marketing*, 4(5), 19-23.
- Srinivasan, P. B. (2020). Sustainability Risk Management: An Exploratory Study. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3571257.
- Stojanova, S., Cvar, N., Verhovnik, J., Bozic, N., Trilar, J., Kos, A., & Duh, E. S. (2022). Rural Digital Innovation Hubs as a Paradigm for Sustainable Business Models in Europe's Rural Areas. *Sustainability*, 14(21).
- Tagscherer, F., & Carbon, C.-C. (2023). Leadership for successful digitalization: A literature review on companies' internal and external aspects of digitalization. *Sustainable Technology and Entrepreneurship*, 2(2). doi:https://doi.org/10.1016/j.stae.2023.100039
- Taylor, A. (2001). Potential pitfalls for the purchasing power parity puzzle? Sampling and specification biases in mean-reversion tests of the law of one price. *Econometrica*, 69, 473-498.
- Taylor, A., & Sarno, L. (1998). The behaviour of real exchange rates during the post-Bretton Woods period. *Journal of International Economics*, 46, 281-312.
- Taylor, M. (1988). An empirical examination of long-run purchasing power parity using cointegration techniques. *Applied Economics*, 20, 1369-1381.
- Taylor, M., and Taylor, P. (2004). The Purchasing Power Parity Debate. *Journal of Economic Perspectives*, 18(4), 135-158.
- Ujwary-Gil, A., & Florek-Paszowska, A. (2022). A Network Approach to the Digital Innovation Hub as an Ecosystem Supporting the Digital Transformation of Enterprises in a Region. Porto: ECIE; Fernando Moreira and Shital Jayantilal.
- Vakirayi, T., & Belle, J.-P. V. (2020). Exploring the role of digital innovation hubs in socioeconomic development. *Conference on Information Communications Technology and Society (ICTAS)*, 1-5. doi:doi: 10.1109/ICTAS47918.2020.233992.
- Webster, K. (2017). *The circular economy: A wealth of flows*. Ellen Macarthur Foundation.
- Wijethilake, C. & (2018). Wijethilake, C., & Lama, T. (2018). Sustainability core values and sustainability risk management: Moderating effects of top management commitment and stakeholder pressure. *Business Strategy and the Environment*.
- Wintjes, R., & Vargas, F. (2023). *Digital Innovation Hubs. Insights from European Experience in Supporting Business Digitalization*. Rachel Thalmann. Retrieved from <https://publications.iadb.org/publications/english/viewer/Digital-Innovation-Hubs-Insights-from-European-Experience-in-Supporting-Business-Digitalization.pdf>
- World Bank. (n.d.). <https://www.worldbank.org/en/topic/smefinance> [Retrieved 24.09.2023].
- Wu.D.D, O. (2009). <https://www.tandfonline.com/doi/abs/10.1080/10807030902760967>.