Article

Competitiveness of the Shared Economy Model for Sustainable Management of Logistics Systems

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Abstract. This paper analyses the shared economy model to sustainably manage the tangible and intangible resources of logistics systems. A critical review of literature on the current supply chain management policy and technological platform in current use that supports it was done to suggest a new conceptual framework for logistics processes' sustainable management on a shared economy platform. This was examined according to how the concepts of new technologies influence logistics and the role of sustainable management platforms of the shared economy in enabling greater improved logistics processes. The inductive methodology approach was applied using multi-criteria analysis interpretive research method. The impact of the shared business model on each stakeholder and beneficiary varies according to how resources are consumed and its adoption according to the core business models requirements of each. Current scientific literature does not identify the impact this phenomenon has on companies in different sectors, as there is a lack of detailed analysis and evidence to fill this gap, particularly as the Internet of Things (IoT) monetize digital assets autonomously through the Economy of Things (EoT) marketplaces. From the analysis conducted, the findings provide a concept of the prototype framework required for the shared economy in the e-logistics' ecosystems rather than traditional ones, modelled using multi-criteria analysis interpretive methods as a strategic resource within the shared economy of supply chain management systems.

JEL: Q01.

Keywords: crowdsourcing; sustainable management; sharing economy; digital assets.

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Introduction

The logistics sector is a main economic driver for Lithuania. A local shared logistics infrastructure should enable continuous operations without any costly significant disruptions during crisis situations [1-9]. Services of e-logistics became central for promulgating the digitalization of the logistics sector in the shared economy. However, there are some risks that require evaluation. The providing framework developed could integrate smart services and technologies as well as enable the elimination of risks [10-15].

In addition, the framework would promulgate management activities for such logistic processes corresponding to the directives of the 2030 Sustainable Agenda [16]. Crowdsourcing capabilities of the shared economy ensures liabilities face by secondary stakeholders are environmentally assessed during the early phases of implementation. Therefore, the main contribution is to provide justification of widening the realm of innovation smart technologies through the shared model. This would increase more resources and introduction of artificial intelligent autonomous systems into the present and future logistics ecosystems of Lithuania.

The aim of the paper is to propose conceptual sustainable processes that is supported by a shared economy model to improve logistics systems and increase the competitiveness of the logistics sector. As services of the logistics sector are inclined towards digitalized, improved technological processes, several problems identified currently impacts Lithuania's logistics sector.

1. The compromised, rippling consequences of the COVID-19 pandemic globally has led to dampening effects on the resilient EU regional economy and, nationally to Lithuania's very own. The logistics sector is one of the main economic drivers for Lithuania and with its enviable geographical positioning, its local shared logistics infrastructure should enable continuous operations without any costly significant disruptions during crisis situations like the pandemic. This trend continues accelerating, however valuable research on the shared economy during normal and crisis events is needed to understand the strategic benefits of smart technologies implementation for sustainably managing e-logistics within a shared economy framework.

2. The scalability of the current model could increase the nation's current market share and potentially increase to a projected margin capacity of 20% by 2025. Moreover, in line with the 2030 Sustainable Agenda, the shared economy platform is environmentally critical for reducing carbon imprint, utilization of warehouse spaces and offsetting climate change. Research on the management implications on the eco-efficiency and usefulness of the shared economy is required to understand the reverberating economic impacts and value capture of tangible and intangible logistics systems.

3. The theoretical categorization of the shared economy according to its economic, environmental, and social benefits substantiates the practical achievement of the 2030 Sustainable Agenda implementation. However, this implementation should be clear and cohesive with the common collaborative envisaged goals set for all stakeholders involved.

1. Conceptual Framework of the Shared Economy in Logistics Systems

Stakeholders of third party (3PL) and fourth-party logistics (4PL) logistics sector are unaware of innovative platforms that facilitate long-term competitive advantages. By reducing environmental

pollution, road corridor improvements as well as extending the design life of urban roadway, the management of the e-logistics shared model can minimize environment impacts, waste, and increase its scalability and use by all stakeholders. With the advent of the Internet of Things (IoT), the sharing of digital assets autonomously through marketplaces developed from the Economy of Things (EoT), has enabled ubiquitous commercialization of digital assets, immediate liquefaction of the physical assets indexed to be search and traded as online commodities [17-25]. The shared economy has ratified and authenticated the concept of crowdsourcing and partaking of digital assets through digitalized platforms.

In addition to this, sustainability has gained significance in Lithuania in recent years, with the current Lithuanian logistics sector morphing towards a sustainable, shared economy platform. A strategy for implementing and applying smart technologies for sustainable management of the processes in e-logistics should be grounded on an improved behavioural approach of all stakeholders of the sector. This entails inclining towards responsible economic, environmental, and corporate standards at all levels of the micro and macroeconomy [26-41]. The shared economy model would initiate ubiquitous productivity tools, software and digital technologies developed from the Economy of Things (EoT). The myriad of possibilities offered without the necessity of ownership is one of the appealing factors of the shared model. Moreover, transformation of logistics processes to resilient sustainable, management systems enable greater scalability of shared transport and warehousing systems models fostered by strategic eco-sustainable imperatives and green logistics. Baryšienė et al [42] points out that 'green logistics', a term synonymous to sustainability has gained increasing significance in Lithuania. Green logistics in Lithuania addresses only the environmental aspects of logistics and perceived as the main way to retain and increase business competitiveness in that sector [43,42].

The sharing economy has garnered attention by policymakers and scientists, due to the potential benefits granted to transform greater economic, technological, and environmental benefits of underutilized assets in P2P service platforms enabled by the Internet. The sharing economy is its action-based state which was initially demarcated by Belk [44], then applied as an economic concept by Zervas et al [45] and Hu et al [46] beyond rent seeking of good, services and resources at renting goods at reduced costs through a conventional supplier. Therefore, the viability of the shared economy concept as a sustainable competitive model through EoT in the logistics sector would be the associated reduced transactional costs typically associated with traditional purchasing or rental activities through the P2P platform, as a form of crowd-based capitalism. This capitalism, as contended by Hu et al [46] provides seamless transference of ownership made possible by on-demand access facilitated through internet connectivity which results in collaborative consumption of services and ubiquitous conversion of digital intangible resources to physical consumable goods. Though Hu et al [46] contends the sharing economy transcends into a triadic framework of agents consisting of service providers, customers, service enablers monetizing and converting underutilized assets in the shared economy model. Therefore, an understanding of its dynamic configuration and development, which disruptively changes according to the requirements (customers), markets (service enablers), technologies (service providers) and its structure of interactive commercial activities (an intent to share) is required to assess its attractiveness configured in a sustainable business model to increase competitiveness in the logistics sector. Hu et al [46] argues within this context, that mechanisms determining value capture, value creation, technological, economic as well as environmental drivers determining the level of sustainability is typically designated during the development of the framework initially before ascertaining competitiveness.

Despite this, the current situation reveals that the sector is unaware of the concept green or sustainable logistics or even a shared economy built on an EoT platform due to minimal information on that sphere [42]. Moreover, research has shown that strategies for implementing such initiatives should be grounded on the changing the behavioural needs of stakeholders economic, environmental, and corporate responsibility in the adoption of sustainable, innovative technological platforms. The shared economy could provide this for both traditional and electronic logistics systems in supply chain management. This potentially revolutionizes its traditional business model through disruptive sustainable innovations platforms offered by EoT, Big Data Analytics, Cloud Computing technologies' productivity tools [47-51] for the logistics sector in a shared, scalable model. The possibilities offered without the necessity of their ownership emphasize the resilience of the model for sustainable management of logistics processes for both traditional and electronic logistics. The shared economy model accelerates and broadens common use of intelligent artificial systems beyond the scope of 3PL and 4PL stakeholders for greater consumption with minimal environmental impact and waste.

Fig. 1 represents conceptual framework of the shared economy model.

2. Research Methodology

An analytical comparative review of related, limited research works in the field of logistics management in Lithuania was done to evaluate the proposed model of shared economy framework integrated in traditional and e-logistics ecosystems. The review focused on e-logistics which is a recent developing area of research in Lithuania. The sustainability of this model was evaluated through multi-criteria decision-based methods applied to demonstrate its feasibility as a strategic resource in e-logistics ecosystems' processes. A critical review of the literature on the current technological platform was done to support and identify its accompanying challenges particularly during crisis events such as Covid-19. The review and analysis done was according to how the concepts of new technologies impact the competitiveness of logistics network systems in the context of the sharing economy.

Researchers Batarlienė and Meleniakas [54], Dabbous and Tarhini [55], Apte and Davis [56] note that factors such as the level of application of technology have a significant impact on the growth of the sharing economy. Moreover, businesses in the logistics sector have throughout the years created valuable IoT data [57-58,49,59,48,47], stored and hosted on cloud-based servers processed by conventional analytical computer algorithms and applications, creating the EoT. The management of logistics processes is strongly focused on data, processing, and transmission. However, the use of smart technologies is not only for the realization of information collection, systemization, storage, and monitoring needs, but also for the rapid selection and transmission of targeted information to the end-user. Due to the full volume of information generated it enables automatic alerts or messages to both creators and users. The use of smart technologies for the management of logistics processes can accelerate digitalization, promote resource efficiency, and reduce environmental pollution as evidenced by Bučaitė-Vilkė and Tereškinas [60], Moldabekova [61], Akkad and Bányai [62], Davidavičienė et al [63], Wei et al [64], Junge [65], Leichteris et al [66] and Viederytė [67].

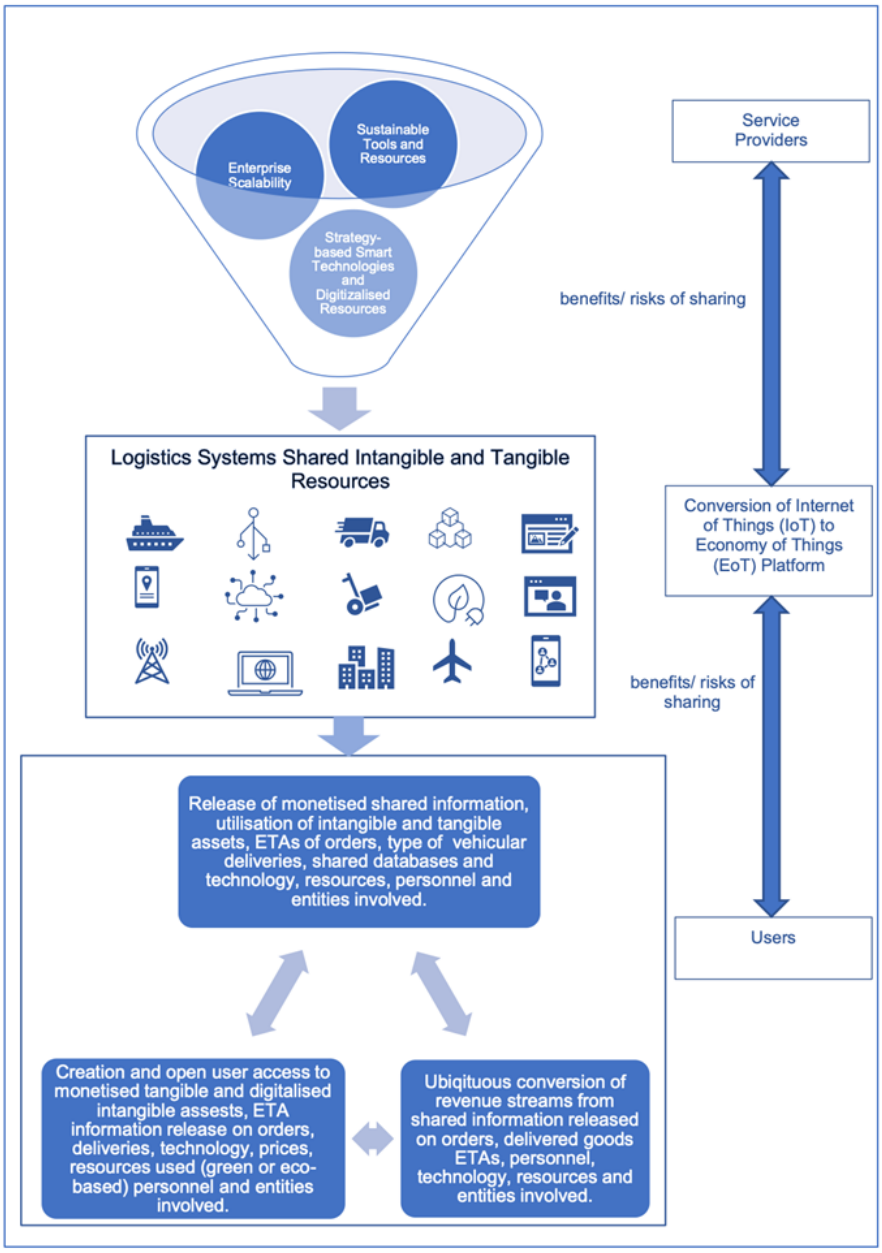

Fig. 1. Conceptual Framework of the Shared Economy Model. Developed by the Author according to Refs. [42,47-49,52-53].

Sustainability issues are seen as the future objectives of the European Union. These objectives are mentioned in the European Commission programme [68], which focus on saving materials, efficient energy consumption and reducing waste. The program set earmarked the priority areas of the EC for greater cost-effective and efficient use of resources within the economic activities of each EU Member State logistics sector that would increase its competitiveness and broaden common revenue streams from that sector, sustainably [69-77,62,78-80,42].

Regarding the competitiveness of Lithuania's logistics sector, Vienažindienė et al. [81] as well as further research by Bučaitė-Vilkė and Tereškinas [60], Katinienė et al [82] and Navickas et al [43] lack focus on key areas that contribute to the sector's competitiveness in Lithuania particularly in commercial enterprises services offered both private and public sector entities. Though the current analysis is focused on suggestions on how the shared model analyzed in a multi-dimensional approach could improve the competitiveness of the sector, potential complex unresolved challenges associated with the sustainability could rebuff the smart technology aspect of the model as contended by Bhawsar and Chattoopadhyay [83], Vyas et al. [84], Drobyazko et al. [85], Falciola et al [86] and Rahulina [53].

3. Results and Findings

For the shared economy model recommended for 3PL/4PL systems in Lithuania, achieved competitiveness are categorized according to 'the intent to share', 'ecological' and 'economic risks/benefits' for each stakeholder, which correspondingly are: a) intent to share; b) ecological eenefits; c) economic benefits - see Fig. 2.

3.1. Intent to Share

At the macro-regional level, the contribution of each EU Member State's logistics sector is evident for the common EU economy revenue streams as well as the job-creation capabilities created by the sector. The sector employs approximately eleven million (11 million) persons forming up to five percent (5the logistics sector is expected to grow by more than 50and vital to increasing its competitiveness under a shared economy model. The beneficiaries and stakeholders set to gain from this model, primarily are: a) enterprises; b) consumers; c) government. The benefits for each vary according to how resources are consumed within the model's ecosystem and core business models. Nonetheless, a hybrid situation should be adopted due to the networked structure of the proposed ecosystem and its impact on the type of resources shared: intangible and tangible.

Pertaining to ownership transference from shared activities for intangible and tangible resources that form part the transactional aspects of the model, this would vary according to the economic value interest of the goods and service being shared. Furthermore, it can be of several forms: non-ownership, renting, accessing, and temporary transference of ownership which dictates the type of framework system for the shared economy model recommended for Lithuania's competitiveness.

3.2. Ecological Benefits

Several ecological benefits could be described as presented below:

i) introduction of leaner, sustainable innovative technologies for management of e-logistics and conventional processes;
ii) ecological and sustainable use of resources;
iii) greater consumption of resources and reduced carbon imprint;
iv) establishment of a community consisting of all stakeholders that are driven by common goals.

3.3. Economic Benefits

Several economic benefits must be described as presented below.

1. Greater costs savings and eco-efficiency of resources.
2. Reduced time and maintenance costs of private and public infrastructure as well as conservation of energy utilized for contract execution of each transaction.
3. An interactive database at the governmental level where new and existing actors can update the goods or services offered and newer actors can register. This would transform the logistics industry from competitive to sharing which is an attractive feature of regional competitiveness.

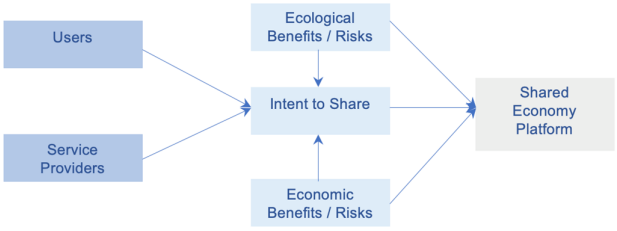

Fig. 2. Key Dimensional Drivers of the Shared Economy. Developed by the Author.

4. Generation of a new labour employment model. This new labour model would be termed as micro-entrepreneurships resulting from sustainable activities executed in the shared economy model.
5. Increased anti-theft solutions and greater security of capital infrastructure and technological resources.

4. Discussions

The sharing of resources, technology and cooperation is not a new phenomenon in Lithuania's logistics sector. One the most important strategic and operational success factors of this phenomena are leaner, sustainable systems that are crucial for increasing the attractiveness of the sector. The analysis done have supplement knowledge to the field of sustainability and supply chain management systems supported by innovative smart technologies. Therefore, improved technological processes sustained by the shared economy model could increase the attractiveness and competitiveness for Lithuania in the following ways.

1. Where logistics enterprises and business entities are more inclined towards those strategies that enable the efficient 'sharing' tangible and intangible assets in e-logistics processes, there will be more potential to focus less on the 'ownership of things' and more towards 'sharing of things' perspectives. This integration would be more inclined to consistent sustainable economic stability during normative and crisis events for Lithuania. Moreover, it would enable identification within the shared economy ecosystem the most important strategic factors for success and future requirements for sustainable management of the model. Moreover, decision-making processes concerning improving present physical infrastructure ecologically to achieve 'greener' logistics increase business competitiveness in Lithuania.

2. By analysing the peripheral interconnection between entities and stakeholders that share resources in the current model, partnerships forge according to common economic benefits increases Lithuania's competitive advantage regionally. This strategic orientation enables more eco-scalable operations in the sector, particularly with respect to the identification of roles that each stakeholder and entities would have in the shared model ecosystem. Through greater consolidation of capital infrastructure and resources at the national level, government subsidies can be better utilized to monitor tangible and intangible resources of the proposed shared model economically.

3. Due to the interconnectedness resulting from common shared activities, improved performance will enable the sector to increase its competitive advantage. The shared model supported by cloud computing hosting platforms, EoT and IoT intangible assets, Big Data analytics will foster greater use of physical and digital assets more meaningfully. The sharing of common resources increases greater utilization of available resources flexibility, lowered infrastructural and operational costs. This leads to quality in the services offered and enable better process management and planning at the policy level for the logistics sector of Lithuania.

Research Limitations. The main limitation of this paper is that more research is needed to explore which policies and practices would sustainably mitigate waste and greater resource management in the industry, through data warehousing capable IoT, EoT and other cloud hosting platform technologies, both for fourth-party logistics (4PL) and third-party logistics (3PL) framework systems in Lithuania. Moreover, it is recommended that further research on the key areas within the shared economy framework, that directs the designation and use of the green logistics strategy by stakeholders

of privately and publicly owned commercial enterprise services is needed to assess whether commercial competitiveness is sustained or depleted. This promulgates whether the shared economy model is attractive for the logistics sector.

Conclusions

1. A decade ago, a new phenomenon called the *shared economy* have steadily grown. The shared economy offers new opportunities for consumers and entrepreneurs as well as the environment through the efficient use of resources. It can be argued that the shared economy is a new business model that has a specific competitive advantage over traditional models used in the logistics sector.

2. The logistics sector is one of the main economic drivers for Lithuania and with it an enviable geographical positioning. The proposed shared economy model is central for promulgating the digitalization of the entire logistics sector within realms of sustainability, thereby garnering both economic relevance and environmental practicality for Lithuania according to the goals of the 2030 Sustainable Agenda. Furthermore, the study indicates that the crowdsourcing capabilities garnered by the shared economy ensures perceived liabilities faced by primary and secondary stakeholders are assessed during the early phases of implementation. This enhanced sustainable management system, supported by a shared economy platform promulgates further crowdsourcing, renting and monetizing of digitalized assets, infrastructure, and resources in both tangible and intangible logistics systems.

3. An initial understanding of the strategic use of the 'green logistics' to sustainably manage traditional and e-logistics systems should extend beyond the environmental scope to retain and increase commercial competitiveness as well as value capture for all stakeholders. Nonetheless, a hybrid situation is suggested due to the networked structure of the shared economy ecosystem. When extended to *Industry 4.0* policy projections earmarked for Lithuania, it becomes even more integral in achieving value capture as well as the creation of new labour market models in sustainable framework for logistics systems.

Abbreviations

EoT	-	Economy of Things
GDP	-	Gross Domestic Product
IoT	-	Internet of Things
P2P	-	Peer-to-Peer
3PL	-	Third-Party Logistics
4PL	-	Fourth-Party Logistics

References

1. Burinskienė A. (2021) Digitization Of Socio-Economic Processes in Term of the Pandemic. – Actual issues of modern development of socio-economic systems in terms of the COVID-19 pandemic, 258.
2. Liu W., Zhang J., Wei S., Wang D. (2021) Factors influencing organisational efficiency in a smart-logistics ecological chain under e-commerce platform leadership – *International Journal of Logistics Research and Applications* 24(4), 364-391.
3. Azhari B., Taufik T. (2021) Strategy Formulation of Smart Logistics Development in A National Logistics Company. – In Conference: The 3rd International Conference on Management of Technology, Innovation, and Project (MOTIP 03).
4. Woschank M., Zsifkovits H. (2021) Smart logistics–conceptualization and empirical evidence. – *CMUJ. Nat. Sci* 20(2), e2021030.
5. D'Amico G., Szopik-Depczyńska K., Dembińska I., Ioppolo G. (2021) Smart and sustainable logistics of Port cities: A framework for comprehending enabling factors, domains and goals. – *Sustainable Cities and Society* 69, 102801.
6. Göçmen E. (2021) Smart Airport: Evaluation of Performance Standards and Technologies for a Smart Logistics Zone. – *Transportation Research Record* 2675(7), 480-490.
7. Busso D., Berardino D. D., Tonelli A. (2021) The Debate on IC, Smart Technologies, and Digitalization. –In Intellectual Capital, Smart Technologies and Digitalization Springer, Cham.: pp. 1-20.
8. Yan X., Liu W., Lim M. K., Lin Y., Wei W. (2022) Exploring the factors to promote circular supply chain implementation in the smart logistics ecological chain. – *Industrial Marketing Management* 101: 57-70.
9. Li W., Wang Y. (2021, Dynamic evaluation of logistics enterprise competitiveness based on machine learning and improved neural network. – *Journal of Ambient Intelligence and Humanized Computing* 1-15.
10. Issaoui Y., Khiat A., Haricha K., Bahnasse A., Ouajji H. (2022, An advanced System to enhance and optimize Delivery Operations in a Smart Logistics Environment. – *IEEE Access*.
11. Aydınocak E. U. (2022, Internet of Things (IoT) in Marketing Logistics. – In: Logistics 4.0 and Future of Supply Chains (pp. 153-169). Springer, Singapore.
12. Bukhtoyarova M. V. (2022, The Need to Introduce Digital Technologies in Logistics Companies. – In: Proceedings of the International Scientific Conference "Smart Nations: Global Trends in The Digital Economy" – Springer, Cham.: pp. 395-401.
13. Morelli G., Magazzino C., Gurrieri A. R., Pozzi C., Mele M. (2022, Designing Smart Energy Systems in an Industry 4.0 Paradigm towards Sustainable Environment. – *Sustainability* 14(6), 3315.
14. Yuan H., Yang B. (2022, System Dynamics Approach for Evaluating the Interconnection Performance of Cross-Border Transport Infrastructure. – *Journal of Management in Engineering* 38(3), 04022008.
15. Ji Y. (2022, Exploratory Research on The Relationship Between Digital Service Supply Chain Capability and Supply Chain Performance. – *The EUrASEANs: Journal on Global Socio-Economic Dynamics* (1 (32)), 7-20.
16. 2030 Sustainable Agenda (2020)
17. Azcoitia S. A., Laoutaris N. (2022, A Survey of Data Marketplaces and Their Business Models. – *arXiv preprint* arXiv:2201.04561.
18. Da Silva F., Núñez Reyes G. (2022, The era of platforms and the development of data marketplaces in a free competition environment.
19. Salih K. O. M., Rashid T. A., Radovanovic D., Bacanin N. (2022, A Comprehensive Survey on the Internet of Things with the Industrial Marketplace. – *Sensors* 22(3), 730.
20. Staab P., Pietrón D., Hofmann F. (2022, Sustainable Digital Market Design: A Data-Based Approach to the Circular Economy.
21. Manganelli A., Nicita A. (2022, Digital Capitalism and the New Economy (ies). – In: Regulating Digital Markets (pp. 35-54). – Palgrave Macmillan, Cham.
22. Abbas A. E., Agahari W., van de Ven M., Zuiderwijk A., de Reuver M. (2021 Business Data Sharing through Data Marketplaces: A Systematic Literature Review. – *Journal of Theoretical and Applied Electronic Commerce Research* 16(7), 3321-3339.
23. Kumar A., Sharma S., Singh A., Alwadain A., Choi B. J., Manual-Brenosa J., Goyal N. (2021) Revolutionary Strategies Analysis and Proposed System for Future Infrastructure in Internet of Things. – *Sustainability* 14(1), 71.

24. Serrano W. (2021) Validation and Verification of Data Marketplaces. – In: IFIP International Conference on Artificial Intelligence Applications and Innovations. – Springer, Cham.: pp. 780-792
25. Vadlamudi S. (2021) The economics of internet of things: An information market system. – *Asian Business Review* 11(1), 35-40.
26. Barykin S. Y., Kapustina I. V., Kalinina O. V., Dubolazov V. A., Esquivel C. A. N., Alyarovna N. E., Sharapaev P. (2021) The Sharing Economy and Digital Logistics in Retail Chains: Opportunities and Threats. – *Academy of Strategic Management Journal* 20, 1-14.
27. Strulak-Wójcikiewicz R., Wagner N. (2021) Exploring opportunities of using the sharing economy in sustainable urban freight transport. – *Sustainable Cities and Society* 68, 102778.
28. Rześny-Cieplińska J., Szmelter-Jarosz A. (2021) Stakeholders' analysis of environmental sustainability in urban logistics: a case study of Tricity, Poland. Energies, 14(5), 1274.
29. Lazar S., Klimecka-Tatar D., Obrecht M. (2021) Sustainability orientation and focus in logistics and supply chains. – *Sustainability* 13(6), 3280.
30. Koshta N., Patra S., Singh S. P. (2022) Sharing economic responsibility: Assessing end user's willingness to support E-waste reverse logistics for circular economy. – *Journal of Cleaner Production* 332, 130057.
31. Ali S. S., Kaur R., Khan S. (2022) Evaluating sustainability initiatives in warehouse for measuring sustainability performance: an emerging economy perspective. – *Annals of Operations Research* 1-40.
32. Savin G., Katochkov V., Grishina V. (2022) Digital Logistics as Institution for Improving Coordination of Flow Processes. – In: Transport and Logistics System of the Smart City. – *Gene (Mutation)* 1(2.0), 3-0.
33. Li D., Huang Y., Sun H., Zhi B. (2022) Achieving sustainability in sharing-based product service system: A contingency perspective. – *Journal of Cleaner Production* 332, 129997.
34. Šepel'ová L., Calhoun J. R., Straffhauser-Linzatti M. (2022) Sustainability Drives of the Sharing Economy. – In: Developments in Information Knowledge Management for Business Applications, Springer, Cham.: pp. 139-154
35. Vorozheykina T. M., Larina L. B., Erokhin S. G., Vertiy M. V., Donskova L. I. (2022) Sharing Economy as a New Form of Consumer Cooperation in the Digital Age. – In: Cooperation and Sustainable Development (pp. 141-148). Springer, Cham.
36. Remondino M., Zanin A. (2022) Logistics and Agri-Food: Digitization to Increase Competitive Advantage and Sustainability. Literature Review and the Case of Italy. – *Sustainability* 14(2), 787.
37. Simonovits B., Balázs B. (2022) From Uberisation to Commoning: Experiences, Challenges, and Potential Pathways of the Sharing Economy in Food Supply Chains in Europe. – *The Sharing Economy in Europe* 137.
38. Yang H., Lee H. (2022) How does the perceived physical risk of COVID-19 affect sharing economy services? – *Current Issues in Tourism* 1-17.
39. Rosário A., Dias J. C. (2022) Sustainability and the Digital transition: a literature review.
40. Rojanakit P., de Oliveira R. T., Dulleck U. (2022) The sharing economy: A critical review and research agenda. – *Journal of Business Research* 139, 1317-1334.
41. Zhou Z., Wan X. (2022) Does the sharing economy technology disrupt incumbents? Exploring the influences of mobile digital freight matching platforms on road freight logistics firms. – *Production and Operations Management* 31(1) 117-137.
42. Baryšienė J., et al. (2015) Analysis of the current logistics and transport challenges in the context of the changing environment. – *Transport* 30. 233-241. 10.3846/16484142.2015.1046403.
43. Navickas V., Petrokė I., Bačiulienė V. (2021) Development of creative energy potential of managers in the aspect of increasing business competitiveness. – In: 14th international scientific-methodical-practical conference on sustainable regional development: Economics, management, law and technology opportunities 2021 Klaipeda, Lithuania, 1-2 October 2021: abstract book (pp. 36-37). Hungarian University of Agriculture and Life Science.
44. Belk R. (2007) Why not share rather than own? – *Ann. Am. Acad. Political Soc. Sci.* 611, 126–140.
45. Zervas G.; Proserpio D.; Byers J. (2015) A First Look at Online reputation on Airbnb, Where Every Stay Is above.
46. Hu H., Huang T., Cheng Y., Lu H. (2019) The evolution of sustainable business model innovation: Evidence from a sharing economy platform in China. – *Sustainability* 11(15), 4207.
47. Miller S. R. (2016) First Principles for Regulating the Sharing Economy. – *Harvard Journal on Legislation* 52.
48. Cusumano M. A. (2015) How Traditional Firms Must Compete in the Sharing Economy. – *Communications of the ACM* 58, 1, 32-24, http://dx.doi.org/10.1145/2688487.
49. Wieteska G., and Ocicka B. (2017) Sharing economy in logistics and supply chain management. – *LogForum* 13, 183-193, 10.17270/J.LOG.2017.2.6.
50. Pagoropoulos A., Pigosso D. C., McAloone T. C. (2017) The emergent role of digital technologies in the Circular Economy: A review. – *Procedia CIRP* 64, 19-24.
51. Trushkina N., Dzwigol H., Serhieieva O., Yu S. (2020) Development of the Logistics 4.0 Concept in the Digital Economy. – *Ekonomicheskij Vestnik Donbassa (in rus.)* (4 (62)), 85-96.
52. Prause G. (2015) Sustainable business models and structures for Industry 4.0. – *Journal of Security – Sustainability Issues* 5(2).
53. Rahulina E. (2022) Enhancing the use of sustainable transport in Logistics: the case of transportation companies in Lithuania –Master's thesis.
54. Batarlienė N., Meleniakas M. (2021) Claims Solutions Using a Blockchain System in International Logistics. – *Sustainability* 13(7), 3710.
55. Dabbous A., Tarhini A. (2019) Assessing the impact of knowledge and perceived economic benefits on sustainable consumption through the sharing economy: A sociotechnical approach. Technological Forecasting and Social Change. 149. 119775. 10.1016/j.techfore.2019.119775.
56. Apte U. M., Davis M. M. (2019) Sharing economy services: Business model generation. – *California Management Review* 61(2), 104-131.
57. Wasielewska-Marszałkowska I. (2021) Identification of Innovativeness Provided by Logistics Service Providers. – *European Research Studies* 24, 40-52.
58. Trenz M., Frey A. and Veit D. (2018) Disentangling the facets of sharing: A categorization of what we know and don't know about the Sharing Economy. – *Internet Research* Vol. 28 No. 4, pp. 888-925. https://doi.org/10.1108/IntR-11-2017-0441
59. Grybaitė V., and Stankeviciene J. (2016) Motives for participation in the sharing economy - Evidence from Lithuania. – *Ekonomia i Zarzadzanie* 8.10.1515/emj-2016-0028.
60. Bučaitė-Vilkė J., Tereškinas A. (2021) Key lessons from the seven COHSMO countries: Lithuania. Cohesion on the ground: perspectives and experiences/editors Maja Neergaard and Rikke Skovgaard Nielsen – Aalborg: Aalborg University, 2021.
61. Moldabekova A., Philipp R., Reimers H. E., Alikozhayev B. (2021) Digital technologies for improving logistics performance of countries. – *Transport and Telecommunication Journal* 22(2), 207-216.
62. Akkad M. Z., Bányai T. (2020) November, Applying Sustainable Logistics in Industry 4.0 Era. – In: Vehicle and Automotive Engineering, Springer, Singapore.: pp. 222-234.
63. Davidavičienė V., Raudeliūnienė J., Viršilaitė R. (2019) User experience evaluation and creativity stimulation with augmented reality mobile applications. – *Creativity Studies* 12(1), 34–48. https://doi.org/10.3846/cs.2019.3576
64. Wei F., Alias C., Noche B. (2019) Applications of digital technologies in sustainable logistics and supply chain management. – In: Innovative Logistics Services and Sustainable Lifestyles, Springer, Cham.: pp. 235-263

65. Junge A. L. (2019) Digital transformation technologies as an enabler for sustainable logistics and supply chain processes–an exploratory framework. – *Brazilian Journal of Operations & Production Management* 16(3), 462-472.
66. Leichteris E., et al. (2018) Lithuanian Industry Digitalization Roadmap 2019-2030 Annex I Analytical Report (Pre-Final Version). – Vilnius, 2018-05-25 (revised 2018-11-20). – [Interactive] [Accessed on 27-12-2020] retrieved from https://inovacijos.lt/media/industry%20digitalization%20roadmap%20ANNEX%20I%20pre-final%20draft.pdf.
67. Viederyte R. (2021) Organizational and Process Innovations in International Logistics Companies: The Relevance and Expected Benefits. – *Regional Formation and Development Studies* 20(3), 134-146. doi:10.15181/rfds.v20i3.1350.
68. European Commission (2021) Sustainable development in the European Union — Monitoring report on progress towards the SDGs in an EU context — 2021 edition. European Union. (2021). [Interactive] [Accessed on 15-11-2021] https://ec.europa.eu/eurostat/documents/3217494/12878705/KS-03-21-096-EN-N.pdf/8f9812e6-1aaa-7823-928f-03d8dd74df4f?t=1623741433852
69. Qian X., Fang S. C., Yin M., Huang M., Li X. (2021) Selecting green third party logistics providers for a loss-averse fourth party logistics provider in a multiattribute reverse auction. – *Information Sciences* 548, 357-377.
70. Qian X., Yin M., Chan F. T., Zhang J., Huang M. (2021) Sustainable–responsive winner determination for transportation service procurement auctions under accidental disruptions. – *Journal of Cleaner Production* 320, 128833.
71. Kiggell L. S., Kilbourn P. J., Heyns G. J. (2021) Sustainable cost reductions obtained by using a fourth party logistics provider. – *Journal of Transport and Supply Chain Management* 15, 13.
72. Koliński A., Werner-Lewandowska K. (2021) Determinants of the Use of Logistic Labels by 3PL and 4PL Operators-Results of Studies in Poland. – *European Research Studies* 24(2B), 871-881.
73. Dzwigol H., Trushkina N., Kvilinskyi O. S., Kvilinskyi O. S. (2021) Green logistics as a sustainable development concept of logistics systems in a circular economy – Doctoral dissertation, Proceedings of the 37th International Business Information Management Association (IBIMA)).
74. Singhdong P., Suthiwartnarueput K., Pornchaiwiseskul P. (2021) Factors Influencing Digital Transformation of Logistics Service Providers: A Case Study in Thailand. – *The Journal of Asian Finance, Economics and Business* 8(5), 241-251.
75. Cohen M.J. (2020) Does the COVID-19 Outbreak Mark the Onset of a Sustainable Consumption Transition? – *Sustain. Sci. Pract. Policy* doi:10.1080/15487733.2020.1740472.
76. Ivanov D. (2020) Predicting the Impacts of Epidemic Outbreaks on Global Supply Chains: A Simulation-Based Analysis on the Coronavirus Outbreak (COVID- 19/SARS-Cov-2). – *Case. Transp. Res. Part E Logist. Transp. Rev.* 136, doi: 10.1016/j.tre.2020.101922.
77. Kumar A., et. al. (2020) COVID-19 Impact on Sustainable Production and Operations Management. – *Sustainable Operations and Computers* Volume 1, Pages 1-7, ISSN 2666-4127. Interactive. [Access on 06/01/ 2021] (https://doi.org/10.1016/j.susoc.2020.06.001).
78. Hosseini S. et al. (2019) Review of Quantitative Methods for Supply Chain Resilience Analysis. – *Transp. Res. Part E Logist. Transp. Rev.* 125, 285–307, doi: 10.1016/j.tre.2019.03.001.
79. Kayikci Y. (2018) Sustainability impact of digitization in logistics. – *Procedia manufacturing* 21, 782-789.
80. Rossi et. al. (2015) The logistics service providers in eco-efficiency innovation. – *Supply Chain Management: An International Journal* 18/6 (2013) 583–603. Emerald Group Publishing Limited [ISSN 1359-8546] [DOI 10.1108/SCM-02-2012-0053].
81. Vienažindienė M., Tamulienė V., Zaleckienė J. (2021) Green Logistics Practices Seeking Development of Sustainability: Evidence from Lithuanian Transportation and Logistics Companies. – *Energies* 14(22), 7500.
82. Katinienė A., Jezerskė Ž., Vaičiūtė K. (2021) Research on competencies of logistics specialists in transport organisations. – *Journal of Business Economics and Management* 22(5), 1308-1322.
83. Bhawsar P., Chattopadhyay U. (2018) Evaluation of industry cluster competitiveness: a quantitative approach. – *Benchmarking: An International Journal* 25. 00-00. 10.1108/BIJ-02-2017-0022.
84. Vyas N., Beije A., and Krishnamachari B. (2019) Blockchain and the supply chain - concepts, strategies and practical applications. – New York, USA: Kogan Page Publishers.
85. Drobyazko S., Barwińska-Małajowicz A., Ślusarczyk B., Zavidna L., Danylovych-Kropyvnytska M. (2019) Innovative Entrepreneurship Models in the Management System of Enterprise Competitiveness. – *Journal of Entrepreneurship Education* 22(4).
86. Falciola J., Jansen M., Rollo V. (2020) Defining firm competitiveness: A multidimensional framework. – *World Development* 129. 104857. 10.1016/j.worlddev.2019.104857.