

The Power of Sharing in Disaster Management: Insights from a Bibliometric Review

Jelena Andreja Radaković*¹, Nataša Petrović²

¹University of Belgrade – Faculty of Organizational Sciences, Belgrade, Serbia, 0000-0001-8771-8215

²University of Belgrade – Faculty of Organizational Sciences, Belgrade, Serbia, 0000-0002-9576-7102

*Corresponding author: jelenaandreja.radakovic@fon.bg.ac.rs

Abstract. *For all of history, mankind built their cities in disaster-prone areas - the foothills of volcanoes with their fertile ground, the deltas of rivers that provided transport and fishing possibilities, but also earthquakes and floods. With changing weather patterns and climate change, natural disasters will only be more frequent and severe than they have ever been before. When disaster strikes, all people are one, no matter the economic or educational background, and no matter the state borders. In these times, the sharing economy must play a significant role in providing disaster relief and helping survivors. In this paper, a bibliometric analysis is conducted with the aim of exploring the evolving landscape of the sharing economy's role in disaster management. The authors of the study conducted a review of the literature throughout time to pinpoint important themes, trends, and research gaps. The objective was to furnish a comprehensive synopsis of the existing theoretical and empirical understanding in researched field. This was accomplished through descriptive qualitative investigation of Web of Science-WoS database documents.*

Keywords. *Sharing, sharing economy, disaster management, bibliometric analysis, SDGs 1 Introduction*

1 Introduction

Throughout human civilization, natural disasters have consistently had a profound impact on society's development and the way humans perceive catastrophic events and the entire life of the human community. Natural disasters have significantly influenced the course of human civilization across different historical periods. Their influence has impacted population migrations, the strengthening of religious, and the progress of science. "It should be pointed out that throughout history, natural disasters have represented an integral part of the life on Earth for millions of years, and that we, as a civilisation, have incessantly faced a destructive influence of the earthquakes, volcanoes, floods and various epidemics" (Petrović et al., 2017, p. 28). And when such disasters occur, which leave behind devastation in lost lives, damaged ecosystems, and destroyed infrastructure, governments and all societies put all their resources into repairing these catastrophic consequences. In these cases, therefore, the key role can be seen in collaboration, or rather collaborative economy or sharing economy (SE), too. The reason lies in the resulting situation which becomes especially critical when addressing and reacting to disruptive disasters, as the element of urgency introduces an additional layer of complexity. "Such collaboration is particularly urgent when coping and responding to disruptive disasters, because they have the added complication of urgency" (Guerrero et al., 2023). In addition, the role of SE is highly ecologically sustainable (Hamari et al., 2016; Prothero et al., 2011).

Lately, there has been an increasing interest in the implementation of an adequate model of SE with the aim of improving disaster response and recovery operations. Through the utilization of existing platforms specifically built for the purpose of sharing resources, community members can offer essential assistance to individuals impacted by emergencies. Both federal and certain local governments are currently conducting thorough investigations into the potential of SE, since Hurricane Sandy (October

22, 2012 – November 2, 2012), when accidentally the role of SE in disaster response was tested (Government Technology [GT], n.d.).

With all the above in mind, the authors of the paper conduct a literature review of studies on the role of SE in disaster management with the aim of emphasizing the significance of SE in effective disaster response, recovery, and management, as well as potential research gap in this field.

2 SE and Disaster Management

The notion of the SE has garnered considerable interest in recent years, not just among researchers and academia but also among “decision-makers, media, and other stakeholders” (Petrović et al., 2022). “The SE enables sharing goods, services, ideas, information, and skills through a network of individuals, facilitated through social networks and websites via computers, mobile applications and other information systems over the Internet” (Hu, 2019; Seddighi & Baharmand, 2020).

When it comes to disaster management, it must be emphasized that it represents “a process of effectively preparing for and responding to disasters. It involves strategically organizing resources to lessen the harm that disasters cause. It also involves a systematic approach to managing the responsibilities of disaster prevention, preparedness, response, and recovery” (Tulane University, 2022).

It can be said that the role of the SE is of particular importance in the response and recovery phases, whether it involves providing accommodation, transportation, sharing, volunteer work, sharing information for those at risk, and especially vulnerable populations as pointed out the authors Wong et al. (2020). For example, “the exchange of relevant information is critical in the immediate aftermath of a major disaster” (Bjerge, 2016).

Based on the review of the literature, as well as past practices during catastrophic events, the authors Seddighi and Baharmand (2020) have compiled Table 1. Table 1 shows the prospective participation of the various SE companies in disasters and disaster management: *Airbnb* as a platform for sharing accommodations; *Uber*, *Lyft*, and *Waze*, which provide transportation services; *Walk Score* as a platform that assesses walkability and suggests possible lodgings; and *TaskRabbit*, which links freelance labor with various local demands such as personal help, furniture assembly, moving, delivery, and handyman services.

Table 1. The possible engagement of the different SE companies in disasters and disaster management (Source: Cheng, 2016; Ganapati & Reddick, 2018; Hamari et al., 2016; Kornberger et al., 2018; Seddighi & Baharmand, 2020)

Activity	Airbnb	Lyft	Uber	Waze	Walk Score	TaskRabbit
Accommodation provider	✓					
Transportation provider		✓	✓	✓		
Volunteer management			✓		✓	✓
Information sharing					✓	✓

The different roles of the SE in disasters and disaster management could be from offering logistic activities and services, coordination of information especially among affected and people from

vulnerable groups, with emphasizing “effectiveness, efficiency, sustainability, and flexibility” (Seddighi & Baharmand, 2020).

3 Methodology

For the purpose of the research, a qualitative analysis of the papers in the Web of Science (WoS) database was performed. Analyzing bibliometric indicators served as the method of research. The selection of bibliometric analysis as a research approach is based on its widespread usage and its suitability for managing huge amounts of scientific data.

The paper performed a bibliometric analysis, analyzing the topics of the publications - titles, abstracts, and author keywords. The bibliometric analysis was carried out on the WoS database, which is characterized by the content of high-quality data and the wide scope of represented scientific areas. This database has access to more than 34,651 journals, books, proceedings, patents, and data sets (Clarivate, 2024).

4 Discussion and Conclusion

In their research, the authors of the paper used scientific mapping to facilitate the examination and evaluation of the connections among the studied elements. The co-word approach was employed. The search sample had the terms “*sharing economy*” (the inclusion of quotation marks) AND the associated keyword “*disaster management*” (the exclusion of quotation marks). A total of seven results were obtained, indicating a rise in the number of publications throughout the years (Graph 1).

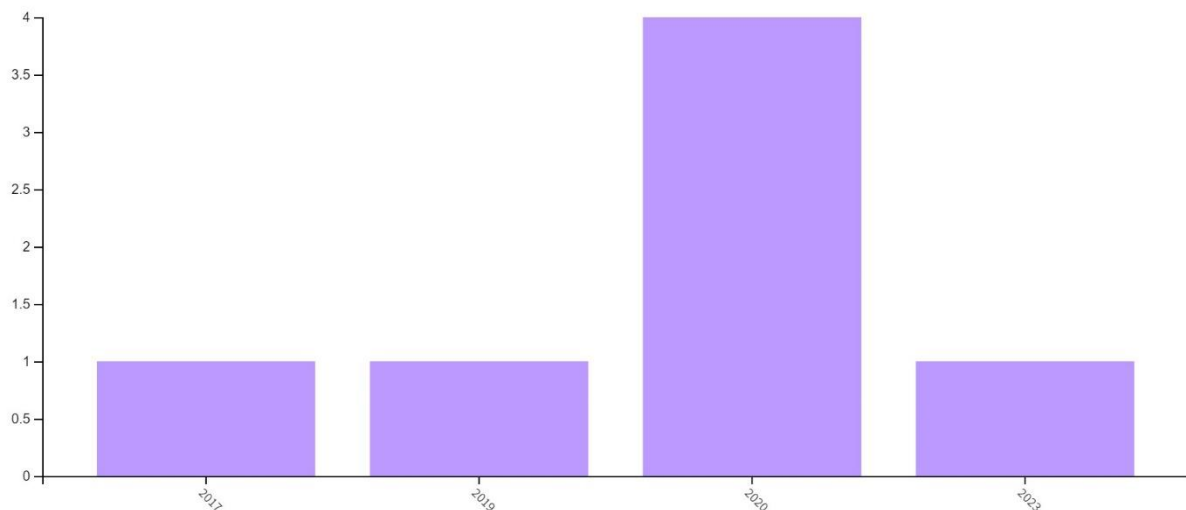


Figure 1. Publications in which the keywords “*sharing economy*” AND “*disaster management*” appeared, published from 2017. – 2023. (Source: Authors’ work)

As it can be seen from Graph 1, publications in the field of SE and disaster management are few and showed a tendency to grow in 2020, the year when there were the most of them. (The rise in the number of publications might be due to the following grave disasters in 2020: Hurricane Eta killed at least 150 people in Central America. Deaths were recorded in Honduras, Guatemala, Mexico, El Salvador, Panama, Nicaragua, and Costa Rica. The Australian bushfires killed at least 478 people). All of them (100 percent) were articles, published in English.

The research areas of publication were particularly interesting to the authors of the paper. They are:

- Social Sciences Other Topics - 57.143% of all papers.
- Transportation - 28.571%.

Engineering / Environmental Sciences Ecology / Information Science Library Science / Social Issues - each one 14.286%.

What can be noticed is that there are no papers published in the journals in the scientific fields of disasters, disaster management, environmental risk, sustainability, and SD. When it comes to the connection of publications with sustainable development goals (SDGs), the link is only with the following SDGs:

- SDG 8. Decent Work and Economic Growth - 14.286% papers;
- SDG 9. Industry Innovation and Infrastructure - 14.286% papers;
- SDG 11. Sustainable Cities and Communities - 14.286% papers; and
- SDG 13. Climate Action – 14.286% papers.

Having in mind that SE also directly affects SDG 12 and SDG 16 (e.g., Pérez-Pérez et al., 2021; Petrović et al., 2022), and disaster management is related to 10 of the 17 SDGs (above mentioned plus SDG 1 - SDG 4, SDG 6, SDG 14 - SDG 15) (UN Office for Disaster Risk Reduction [UNDRR], n.d.), it is reasonable to assume there is a lack of publications in the area of the achievement of all relevant SDGs.

In the end, the authors of the paper conclude that the connection between SE and disaster management, which is evident in practice, is unfortunately not followed by an adequate number of published scientific and academic research studies, as well as by authors Seddighi and Baharmand (2020), who claimed that their “findings indicate that very few studies discuss the different roles of SE in disasters, although SE companies have often provided effective solutions to address critical post-disaster logistics challenges.” This leaves a lot of room for further research in this critical field.

Acknowledgment

The research presented in the paper was supported by the Science Fund of the Republic of Serbia, Grant No 7523041, Setting foundation for capacity building of sharing community in Serbia – PANACEA.

References

- Ansell, C., & Gash, A. (2008). Collaborative governance in theory and practice. *Journal of public administration research and theory*, 18(4), 543-571. doi:10.1093/jopart/mum032
- Ansell, C., Boin, A., & Keller, A. (2010). Managing transboundary crises: Identifying the building blocks of an effective response system. *Journal of contingencies and crisis management*, 18(4), 195-207. <https://doi.org/10.1111/j.1468-5973.2010.00620.x>
- Bjerge, B., Clark, N., Fisker, P., & Raju, E. (2016) Technology and Information Sharing in Disaster Relief. *PLoS ONE* 11(9), e0161783. <https://doi.org/10.1371/journal.pone.0161783>
- Brown, G., & Susskind, D. (2020). International cooperation during the COVID-19 pandemic. *Oxford Review of Economic Policy*, 36(Supplement_1), S64-S76.
- Cheng, M. (2016). Sharing economy: A review and agenda for future research. *International Journal of Hospitality Management*, 57, 60-70.
- Clarivate. (2024). *Resources for Librarians*. Retrieved from <https://clarivate.libguides.com/librarianresources/coverage>.
- Ganapati, S., & Reddick, C. G. (2018). Prospects and challenges of sharing economy for the public sector. *Government Information Quarterly*, 35(1), 77-87. <https://doi.org/10.1016/j.giq.2018.01.001>
- Government Technology, GT. (n.d.). *How the Sharing Economy Is Changing Disaster Response and Recovery - Governments are recognizing that sharing economy platforms can provide a vital link between needs and resources in times of emergency*. Retrieved from <https://www.govtech.com/em/disaster/how-the-sharing-economy-is-changing-disaster-recovery.html>

- Guerrero, A. M., Bodin, Ö., Nohrstedt, D., Plummer, R., Baird, J., & Summers, R. (2023). Collaboration and individual performance during disaster response. *Global Environmental Change*, 82, 102729. <https://doi.org/10.1016/j.gloenvcha.2023.102729>
- Hamari, J., Sjöklint, M., & Ukkonen, A. (2016). The sharing economy: Why people participate in collaborative consumption. *Journal of the association for information science and technology*, 67(9), 2047-2059.
- Hu, X. (2019). B2c relationship quality in the sharing economy in the Chinese context. In *EAI International Conference on Technology, Innovation, Entrepreneurship and Education: TIE'2017* (pp. 277-287). Springer International Publishing.
- Kornberger, M., Leixnering, S., Meyer, R. E., & Höllerer, M. A. (2018). Rethinking the sharing economy: The nature and organization of sharing in the 2015 refugee crisis. *Academy of Management Discoveries*, 4(3), 314-335. <https://doi.org/10.5465/amd.2016.0138>
- Nohrstedt, D., Bynander, F., Parker, C., & 't Hart, P. (2018). Managing crises collaboratively: Prospects and problems-A systematic literature review. *Perspectives on Public Management and Governance*, 1(4), 257-271. <https://doi.org/10.1093/ppmgov/gvx018>
- Nowell, B., Steelman, T., Velez, A. L. K., & Yang, Z. (2018). The structure of effective governance of disaster response networks: Insights from the field. *The American Review of Public Administration*, 48(7), 699-715. <https://doi.org/10.1177/0275074017724225>
- Pérez-Pérez, C., Benito-Osorio, D., García-Moreno, S. M., & Martínez-Fernández, A. (2021). Is Sharing a Better Alternative for the Planet? The Contribution of Sharing Economy to Sustainable Development Goals. *Sustainability*, 13(4), 1843. <https://doi.org/10.3390/su13041843>
- Petrović, N., Bošnjak, I., & Nedeljković, S. (2017). Disaster risk reduction for sustainable development goals. *European Project Management Journal*, 7(2), 27-35.
- Petrović, N., Jeremić, V., & Ćirović, M. (2022). Sharing Economy and sustainable development goals, SymOrg 2022, June 11-14, Belgrade. *Sustainable business management and digital transformation: challenges and opportunities in the post-covid era*. ISBN 978-86-7680-411-5, COBISS.SR-ID 68451849, pp. 120-122.
- Prothero, A., Dobscha, S., Freund, J., Kilbourne, W.E., Luchs, M.G., Ozanne, L.K., & Thøgersen, J. (2011). Sustainable consumption: Opportunities for consumer research and public policy. *Journal of Public Policy & Marketing*, 30(1), 31-38.
- Seddighi, H., & Baharmand, H. (2020). Exploring the role of the sharing economy in disasters management. *Technology in Society*, 63, 101363. <https://doi.org/10.1016/j.techsoc.2020.101363>
- Tulane University. (2022, September 15). What Is Disaster Management: Prevention and Mitigation. School of Public Health. <https://publichealth.tulane.edu/blog/what-is-disaster-management/>
- UN Office for Disaster Risk Reduction, UNDRR. (n.d.). *SDGs with Targets related to Disaster Risk*. Retrieved from <https://www.preventionweb.net/sustainable-development-and-drr/sdgs-targets-related-disaster-risk>
- Wong, S. D., Broader, J. C., & Shaheen, S. A. (2020). Can sharing economy platforms increase social equity for vulnerable populations in disaster response and relief? A case study of the 2017 and 2018 California wildfires. *Transportation research interdisciplinary perspectives*, 5, 100131. <https://doi.org/10.1016/j.trip.2020.100131>