BLOCKCHAIN SOLUTIONS FOR DECARBONIZATION: INSIGHTS FROM A BIBLIOMETRIC ANALYSIS

Anete KALNIŅA[1*], Francesco ROMAGNOLI[2], Maksims FEOFILOVS[3]

[1–3] *Institute of Energy Systems and Environment, Riga Technical University, Azenes iela 12/1, LV-1048 Riga, Latvia*

*   ***Corresponding author.*** *Email address: anete.kalnina_2@edu.rtu.lv*

Abstract – The integration of decentralized and digital technologies like blockchain in sectors that aim to fulfil certain decarbonization goals could be a promising solution to facilitate the transition to climate neutrality. With the aim to construct a comprehensive and systematic bibliometric analysis on the inclusion of blockchain technology in renewable energy, transport (electric vehicles) and agri-food industry this paper provides in-depth analysis of existing studies on these topics to identify future research opportunities. Using R-studio, Web of Science and Scopus data were analysed and visualized. The results of this study indicate growth of the publication count throughout the years. This research shows that the most productive countries are China and India, although the average citations per article is higher in United States of America and United Kingdom. Trend topics, thematic evolution and co-occurrence network from this study suggests that the application of blockchain technology in analysed sectors should be combined with other digital solutions like Internet of Things and artificial intelligence to increase security, facilitate systems' management and assist in policy planning. The identified research gaps are connected to blockchain technology and renewable energy storage systems (e.g., hydrogen), materials used in electric vehicles' batteries and circularity (including life cycle and recycling) in agri-food sector and other studied sectors.

Keywords – agri-food; blockchain; decarbonization; electric vehicles; renewable energy
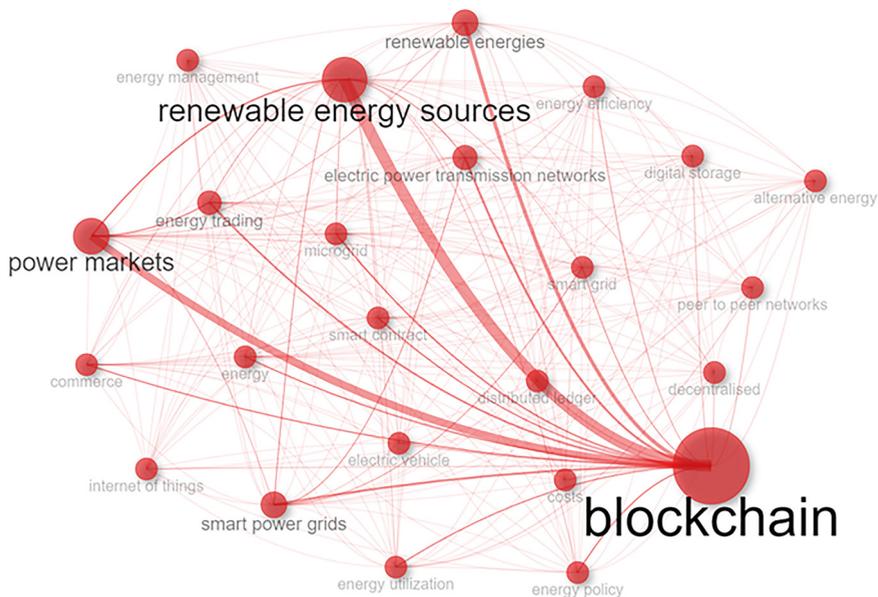
Co-occurrence network for "blockchain" and "renewable energy", Scopus data