

Main results

- There is a **growth** in the number of publications throughout the years
- The topics are studied from **2017**
- Most relevant sources – **Energies, IEEE Access, Sustainability**
- Around 85% of authors have written one article in this topic
- The most productive countries – China, India
- The highest average citations per article – **USA, United Kingdom**
- Main collaboration happens between China and USA, UK and Australia
- In Web of Science and Scopus databases (articles without duplicates):
 - **576** on blockchain and renewable energy;
 - **358** on blockchain and electric vehicles;
 - **1359** on blockchain and agri-food sector

Background

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**.

The goal of this study is to construct a comprehensive and systematic bibliometric analysis on the inclusion of blockchain technology in **renewable energy**, transport (**electric vehicles**) and **agri-food** industry to provide in-depth analysis of existing studies on these topics and identify future research opportunities.

Methodology

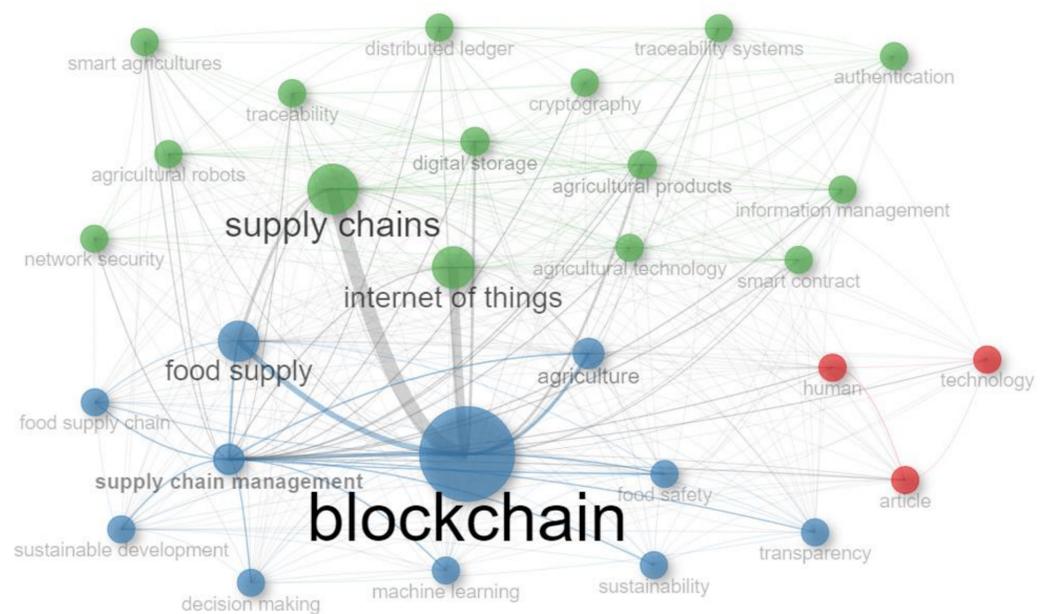
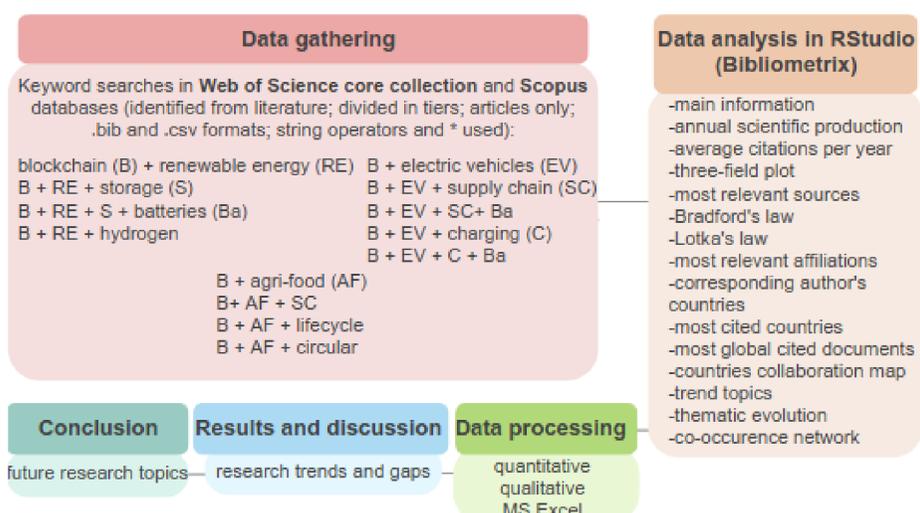


Fig. 1. Co-occurrence network for blockchain and agri-food, Scopus data

For example, keyword search for blockchain in agri-food forms three keyword co-occurrence clusters (Fig. 1) where main cluster represents technological aspects – smart solutions, Internet of Things (IoT), digital and network related keywords while the second cluster represents agricultural supply chains, food traceability, food security and sustainability.

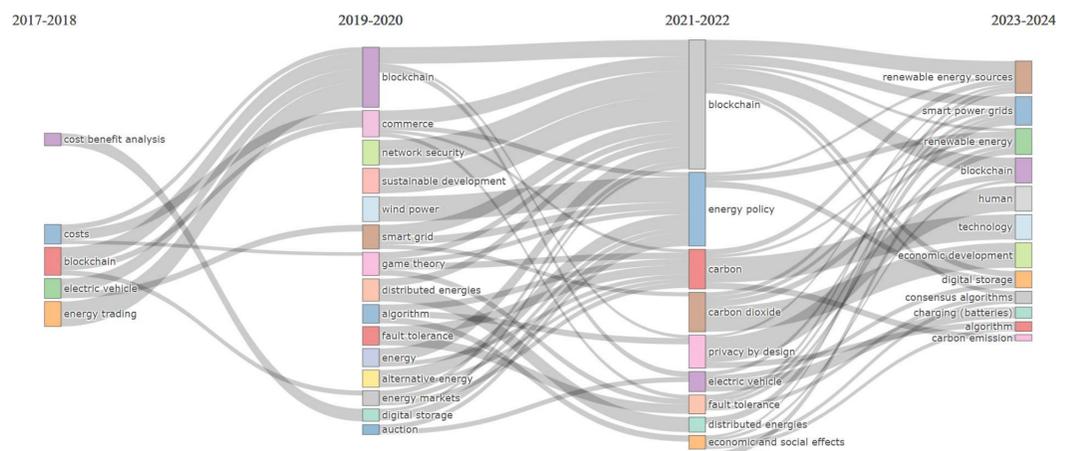


Fig. 2. Thematic evolution for blockchain and renewable energy, Scopus data

Trend topics, thematic evolution (Fig. 2) and co-occurrence network (Fig. 1) suggests that the application of blockchain technology in analysed sectors should be combined with other digital solutions like **IoT** and **artificial intelligence** to increase security, facilitate systems' management and assist in policy planning.

Conclusion

Future research should be focused on specific topics that are not widely studied at this point. Those would be, for example:

- blockchain in renewable energy with **hydrogen (storage) systems**;
- blockchain in electric vehicles' **batteries supply chains** considering **raw materials** and their **circularity**;
- blockchain in renewable energy (incl. storage) or electric vehicles considering **life cycle** and circularity details;
- blockchain in agri-food sector – **life cycle approach**, including circularity and **recycling** aspects.