



Exploring the Intersection Between Blockchain and Circular Economy

Meark Steinbeck*

Department of Food Science, University of Arkansas, Fayetteville, United States

DESCRIPTION

The agri-food sector must implement regenerative agriculture techniques while improving resource usage efficiency and preventing food loss or waste in order to make the transition to a circular economy. The agri-food sector needs to handle the food safety issues brought on by biomass recycling technologies in addition to the technological difficulties. Blockchain technology is gaining ground and heading towards more precise and sustainable agriculture. The blockchain is an open, shared database that is decentralised, unchangeable, and used to track the provenance of digital assets, making it an ideal platform for managing the food supply chain and traceability.

Pressure on natural resources has expanded swiftly as a result of population development and rising food consumption. This has an impact on the food supply chain since it requires more food to be produced sustainably while sustaining higher requirements for food quality. Many people are recognising the Circular Economy (CE) as a means of resolving this issue. The creation of regenerative natural systems, the reduction of food loss, and improved resource utilization productivity are all benefits of moving towards circular food supply chains. The primary interrelated CE techniques are outlined in the science. The R-framework, which focuses on the food supply chain, includes the preventive strategies of Reduce (food surplus or inputs), Refuse (preventing food loss), Reuse (redistribution for human consumption), and Re-purpose (redistribution for animal feed use), as well as the valorizing strategies of Recycle (extracting bio-components from waste), and Recover (recovering energy embedded in waste). The farming methods used in regenerative techniques protect natural resources.

Resource efficiency will be attained through technical advancements that lower the quantity of inputs (such as raw materials, land, energy, and water) required to generate a unit of output, as well as through waste recycling and by-product utilization. Also, better distribution and storage practises aid in reducing post-harvest losses. Regenerative agricultural techniques like conservation agriculture (such as zero-tillage), agroforestry (tree planting on crop farms), local food production, and organic

production make sure that the food is produced in a way that replenishes rather than degrades the general health of the nearby ecosystem. However in order to successfully transition to the CE, there are a number of obstacles to overcome, including ineffective traceability, a lack of eco-efficiency in technical processes, and insufficient cooperation among food chain players. The dynamic nature of the food supply chain necessitates that the agri-food sector manage numerous parties and unpredictable processes. However, the CE's focus on waste utilization across the supply chain may create new problems with trust and food safety. For instance, using recycled materials for food packaging may cause customers and regulators to worry about food safety. Also, the issue of safety dangers, such as the mycotoxin contamination of feed, the abuse of antibiotics in the treatment of livestock sickness, and the development of zoonotic diseases, is one of the causes of food waste at the farm level. As a result, food supply chains must make sure that recycling practises adhere to legal limitations.

The use of blockchain technology to address various issues in the food supply chain has gained popularity recently. A blockchain is a decentralised, public database used to track a digital asset's provenance. As a safe technology, blockchain may be utilised to improve supply chain performance by enhancing transaction transparency, fostering stakeholder integration, and utilising digitalization. By minimising food recalls due to more effective traceability features and assessing the accuracy of carbon emissions in the supply chain due to its irreversible and transparent nature, supporters of blockchain technology claim that it aids sustainable agriculture. The authors came to the conclusion that blockchain technology, among these solutions, has a significant potential to support the principles of CE, such as "Reduce," "Reuse," and "Recycle." Additionally, it has been shown that blockchain technology has the ability to eradicate fake goods in the agri-food industry and uphold confidence among the participants in the food supply chain. Despite its expanding importance, the topics and empirical data are covered in a very disjointed manner in existing studies. Prior analyses have thus far tended to concentrate on the factors that are driving and impeding blockchain adoption in the food industry,

Correspondence to: Meark Steinbeck, Department of Food Science, University of Arkansas, Fayetteville, United States, E-mail: mearkst@gmail.com

Received: 02-Feb-2023, Manuscript No. JFPT-23-20334; **Editor assigned:** 06-Feb-2023, PreQC No. JFPT-23-20334 (PQ); **Reviewed:** 20-Feb-2023, QC No. JFPT-23-20334; **Revised:** 27-Feb-2023, Manuscript No. JFPT-23-20334 (R); **Published:** 06-Mar-2023, DOI: 10.35248/2157-7110.23.14.990

Citation: Steinbeck M (2023) Exploring Intersection Between Blockchain and Circular Economy. J Food Process Technol.14:990

Copyright: © 2023 Steinbeck M. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

without ever offering any insights into the Circular Economy. In response, this scoping review explores how blockchain

technology and the circular economy connect in the agri-food industry.