SEEDING THE FUTURE OF AGRICULTURE WITH DECENTRALISED IDENTITIES AND BLOCKCHAIN TECHNOLOGY

Cosmin URSACHE[1], Lenuța ALBOAIE[1], Chiril BOTNARU[2], Gavril ȘTEFAN[2]

e-mail: botnaruchiril@gmail.com

Abstract

The rapid development of digital technology is transforming the agricultural sector, offering promising solutions to enhance productivity, traceability, and transparency. This article explores the potential benefits and challenges of implementing Decentralised Identities and blockchain technology in the agriculture industry. By leveraging this technology, stakeholders across the supply chain can increase transparency, reduce fraud, and improve the tracking and traceability of products. However, there are also some challenges on the way that need to be overcome, including investment in new technology and infrastructure and the need for training and education. Despite the challenges, the benefits of Decentralised Identities and blockchain in agriculture make it an area of great potential for innovation and growth. Blockchain technology, with its tamper-proof, transparent, and traceable nature, facilitates the establishment of a reliable, verifiable, and efficient agricultural supply chain. Combining these technologies provides farmers with access to information and resources, optimises decision-making processes, and promotes sustainability. This article concludes that the integration of decentralised identities and blockchain technology has the potential to catalyse a new era in agriculture, with benefits extending to farmers, suppliers, consumers, and regulators. The adoption of these innovations could lead to improved productivity, reduced waste, and increased trust throughout the supply chain. However, challenges remain in terms of technological complexity, implementation costs, and interoperability. Future research should focus on addressing these issues to accelerate the adoption and scaling of these technologies in the agricultural sector.

Keywords: blockchain, agriculture, farmers, Decentralised Identities, supply chain