

Harvesting Intrinsically Verifiable Trust to Build a Honey Traceability System for Sustainable Development

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Abstract

Creating and building trust between consumers and producers is an important and challenging problem for the global economy, in particular for agricultural markets that rely on smallholder producers in mostly rural areas. We propose that Distributed Ledger Technology (DLT) can support a new, more scalable, and robust form of trust creation built on value congruence and *intrinsically verifiable trust*. A permissioned blockchain, in combination with a data-backed record-keeping system and IoT sensor data, allows producers and consumers to verify product characteristics such as provenance, production conditions, and environmental, social, and economic impacts. We study the application of DLT and our model for trust creation in the context of honey supply networks. Honey is one of the most adulterated food products globally and honey production offers high potential for rural development, livelihood fortification, and food security through crop pollination. We demonstrate how the implementation of DLT may help mitigate the deteriorating trust in honey product integrity while, at the same time, grant smallholder beekeepers greater access to markets and leverage for product differentiation.

Keywords: Economic Development, Sustainability, Blockchain, Trust, Value Congruence

An updated manuscript may be found at <https://jisar.org>