Coupling Agent-Based Modelling and BlockChain for rural studies in Vietnam.

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Our approach proposes to simulate different kind of rural scenarios including blockchain before deploying it. Blockchain works by creating a mechanism for trust between market actors without the need for a regulatory authority using cryptography to create a record of transactions (smart contracts). Blockchain is *potentially* interesting for rural communities, in developing economies and fragile states because of the trust dimensions. Banking, land rights and supply chain are the three areas where we are testing the usage of blockchain in rural area.

This project proposes a Blockchained Agent-based Simulator for smallholder farmers using Gama Platform [1]. This tool aims to verify the feasibility of the use of blockchain in simulated rural scenarios by considering the communication between farmers through smart contracts. In order to test the proposed tool, we implemented a model within the city of Can Tho, Vietnam. The blockchain was used in this case to store data among a distributed system of farmers in order to avoid a centralized entity. In this research, the relevant literature is explored, new methods are developed, and different solutions are designed and tested. Finally, conclusions about the feasibility of the combination between blockchain technology and agent-based simulations are drawn.

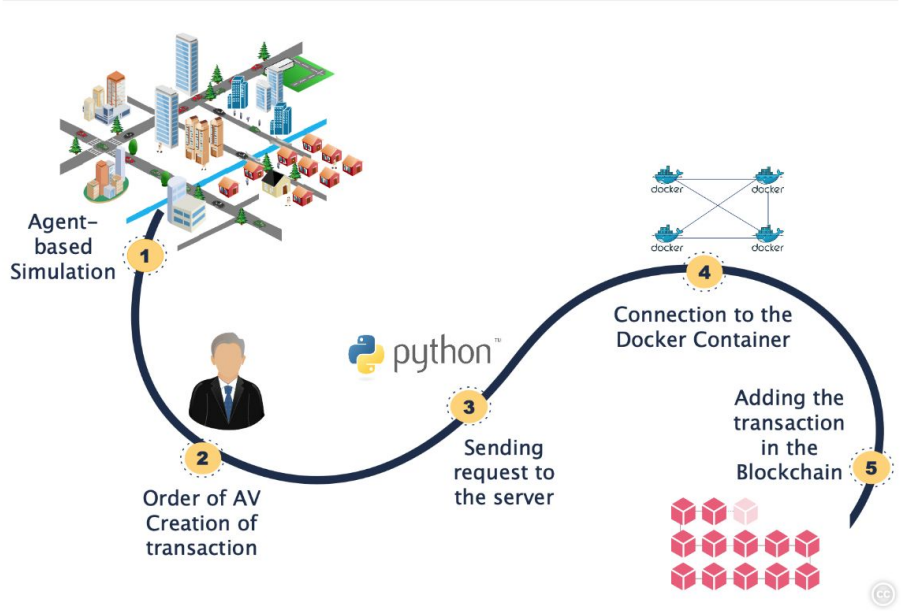

Fig 1: Exploring the usage of Blockchain by creating transaction using an ABM Model

References:

Grignard, Arnaud, et al. "GAMA 1.6: Advancing the art of complex agent-based modeling and simulation." *International Conference on Principles and Practice of Multi-Agent Systems*. Springer, Berlin, Heidelberg, 2013.