Learning module 8: Decentralized Autonomous Organizations

Description

The Decentralized Autonomous Organizations (DAOs) are organizations that run autonomously and could make decentralized decisions through the use of technology, e.g. Blockchain Technology, Directed Acyclic Graphs (DAG) technology, the Hashgraph algorithm, etc. A Decentralized Autonomous Organization (DAO) is typically an organization that is run through protocols encoded as various types of computer programs called smart contracts.

DAOs are sometimes also referred to as Decentralized Autonomous Corporations (DAC). Their financial transactions and program protocol records are maintained on blockchain or similar technologies. These types of organizations are similar to any organization in real world, however in digital world the rules of an organization (e.g. a company) are not enforced digitally. They are digital and already there by nature. DAOs are like a cryptographic democracy for an organization, where every stakeholder is able to vote to add new protocols, change existing protocols, or include and exclude a member among other such types of rights.

Learning Module 8 discusses the main characteristics of DAOs, as well as, their pros and cons. Particular attention will be given to the legal, cultural and political implications of the use of this disruptive paradigm. One case study of a DAO is analyzed in detail. Finally, a lab specifically designed for technical audience, will explain how to implement DAOs in the Ethereum infrastructure.

Dependencies

The learning module has the following prerequisites:
- Introduction to the DLT world (LM0)
- Smart Contracts (LM5)
- Privacy and Property Rights (LM6)

Learning Objectives

- To introduce the concept of Decentralized Autonomous Organization (DAO) as an extension of a dApp.
- To present the structure and governance mechanisms within a DAO.
- To discuss advantages and disadvantages of using a DAO to manage an organization.
- To present security issues, legal liability issues and risks of DAOs.
- To discuss cultural and political implications of DAOs.
- To analyze in-depth a specific use case of DAO.
- To present possible future developments of DAOs.
- To demonstrate how to implement a DAO on the Ethereum blockchain using Solidity.

Learning Outcomes

- **Understand** the basic concept of DAO.
- **Understand** the advantages and disadvantages of using DAOs.

4 DLT 4 ALL

Co-funded by the
Erasmus+ Programme
of the European Union

- **Recite** legal and security risks of DAOs.
- **Describe** most important case studies using DAOs.
- **Implement** a DAO in Solidity.

Syllabus

1. Introduction to Decentralized Autonomous Organizations (DAOs)
   1.1. Defining the DAOs
   1.2. From dApps to DAOs
   1.3. Structure of DAOs
   1.4. Democracy within DAOs

2. Advantages and Disadvantages
   2.1. Advantages of DAOs
   2.2. Disadvantages of DAOs
   2.3. Challenges with DAOs
   2.4. Effectiveness of DAOs

3. Security, Legal Liability, and Risks
   3.1. Security of DAOs
   3.2. Legal liability of DAOs
   3.3. Risks related to DAOs

4. Cultural and Political Implications
   4.1. Cultural differences and implications of DAOs
   4.2. Political systems and implementations of DAOs

5. A Case Study of Decentralized Autonomous Organizations (DAOs)
   5.1. Exploring a case of DAO
   5.2. Lessons learned from the case study

6. Future of DAOs

7. Lab: Implementing a DAO in Solidity