

There were investments with a very long, decades-long, implementation period, in which huge financial resources were involved (an example may be the Large Hadron Collider located at CERN, International Thermonuclear Experimental Reactor - ITER at the research centre in Cadarache in the south of France, or the financing of space programs implemented by NASA). In the near future, there will be a need to finance exploitation of mineral resources of the solar system, and above all, the colonization of Mars and, in the longer term, the conquest of exoplanets.

First of all, the project will examine the currently existing legal and financial mechanisms for financing long-term and capital-intensive investments, taking into account legal regulations. Then, on the basis of this research, the best legal and financial mechanism, including a completely new mechanism, will be determined, the point being that it should take into account specific investment features, such as, for example very long duration of a given investment (even decades), the need to involve very large funds, high risk of investment failure, including for random reasons, or the possibility of commercialization of technologies developed as part of a given investment. It seems that the best way to finance an investment with such features will be distributed financing, based on a structure that dynamically changes depending on circumstances, where the financing of a given program is not controlled by one entity. The following assumptions for the functioning of such distributed financing can be initially indicated:

- Distribution and decentralization,
- Universal access (i.e. no restrictions for people who intend to invest in a given project),
- Democratization of program management,
- Maintaining continuity of competences and knowledge accumulated during the operation of a given program,
- Creating a possibility of contributing other values to a given program, not just money, such as e.g. assets (including real estate), know-how, patents, unique competences.

Currently, these assumptions are best matched by distributed ledger technology, which, among others, enables the use of smart contracts, the creation of DAO (decentralized autonomous organization) and the so-called tokens.

Therefore, a research hypothesis should be put forward that the best way to finance long-term and capital-intensive investments is a special, integrated platform dedicated to a given investment, operating on the basis of blockchain technology with the DEX function (i.e. fully decentralized, one that is not controlled by one entity), on which smart contracts could operate, enabling the issue of tokens, primarily of a share nature, but also auxiliary – of a payment or utility nature. So, this platform would allow for the creation of an advanced intelligent contract called DAO (decentralized autonomous organization), it would be used to issue tokens, and it would also allow for their purchase and sale. The key here is the ability to create DAO - distributed autonomous organization, thanks to which investors could vote, manage and supervise a given investment. In addition, the platform could be used by entities implementing a given investment to exchange and certify documentation in supply chains (e.g. subassemblies) and by investors and contractors to confirm, guarantee and track the progress of investment implementation. The objective of the research project will be to prove that this hypothesis is correct, as well as to attempt to define the basic legal and economic assumptions for the functioning of such distributed financing. For the correct operation of the proposed platform, it is necessary to identify formal and legal limitations and propose appropriate solutions, both *de lege lata* and *de lege ferenda*.

Therefore, it will be necessary to analyse the functionality of the proposed platform in the field of capital law, payment law, existing and proposed supervisory regulations, tax law, law relating to the finances of public entities and public-law partnerships, provisions on counteracting money laundering and financing terrorism, and, to the appropriate extent, provisions of international law. This legal analysis will be conducted at least in relation to the law of the European Union, selected European countries, the law of the USA and Great Britain.

The achieved research results will be disseminated through a scientific monograph in open access in English written by team members, and articles presented at conferences and published in renowned scientific journals in Poland and abroad.