

Project Title: Blockchain Technology Futurology in Power Industry

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Project Summary:

The main aim of this project is to investigate and study the blockchain technology and its related concepts, its applications in the electricity industry and the feasibility study of its implementation in Iran, especially in the electricity sector. In the first phase of the project, the concept of blockchain, its relationship with other cutting edge technologies, its applications in various domains and industries, and a number of the most important actual applications were studied. In the second phase, an overview of existing blockchain-based project in power industry and their infrastructure requirements was provided. The third phase is dedicated to identify the challenges and feasibility of using this technology in the Iranian power industry and to provide solutions to overcome these challenges and obstacles.

Project Results:

In addition to study the advantages and disadvantages of blockchain, its applications in various domains are explored in this project. Blockchain applications in power industry were classified according to IEEE 2030 smart grid standard and the existing samples in each category were studied. The Blockchain Value Added Matrix was designed for various domains of the power industry. Findings show that most of the challenges in the power industry can be solved using blockchain technology, except for those that require new hardware and materials. Moreover, blockchain implementation steps were extracted.

The current status of blockchain in Iran was examined and existing blockchains were expressed. Blockchain Implementation in Iran, especially in the power industry, faces major challenges in terms of technical and non-technical, infrastructure, legal, jurisprudential and cultural, economic and governmental. These challenges along with key challenges of the power industry were investigated. Finally, a list of measures to address the challenges of blockchain implementation in power industry along with a list of blockchain-based solutions to address the key challenges of the power industry were proposed.

Project Documentation:

The project is presented in three reports under the following headings:

1. Investigation of the concept of blockchain and its key concepts
2. Challenges, Benefits and Applications of Blockchain in the Power Industry
- 3- Investigation of the use of blockchain in the Iranian power industry