

SECTION 4. INTERNATIONAL RELATIONS

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INFRASTRUCTURE MAPPING OF UKRAINE AND ARTIFICIAL INTELLIGENCE AS THE KEY FOR THE RECOVERY ENERGY SECTOR

Abstract. *The recovery of Ukraine after the war has been a critical topic of discussion for both academics and policymakers. The country will need to invest in energy projects to rebuild its economy and provide employment opportunities for its citizens. Using mapping applications, Artificial Intelligence (AI) and block chain ones allow to identify suitable areas for investment and development, make clear partnership for international cooperation. And we understand that Ukraine's economic recovery model will be based on a new model of the energy system, with the necessary decarbonization reconstruction in the first place. This paper aims to explore the use of international mapping applications to identify energy projects for investment and development during the recovery period after the war in Ukraine.*

Investments in energy projects are crucial for reducing a country's dependence on foreign oil and ensuring energy security. The use of international mapping applications can help identify areas, plants that are suitable for energy investments in the context of decentralization and renewable energy development. These applications can provide a comprehensive understanding of available energy resources, infrastructure, and other essential factors that are critical for investment.

International mapping applications, such as the World Bank's Global Solar /Wind Atlas [1], can provide critical information on energy resources available in Ukraine. This application provides solar radiation and temperature data that can help investors determine suitable areas for solar projects. Also, the Wind Atlas helps to identify suitable areas for the installation of wind turbine. Other international mapping applications like the International Energy Agency's Global Energy Efficiency Map [2], can provide information on energy efficiency measures that can help Ukraine save energy and reduce its overall energy demand.

Mapping could be used as an investment tool for project development in Ukraine, examples:

1. Land mapping: Before investing in a project that involves land acquisition, it is important to get an accurate mapping of the land in question. This can help identify any potential roadblocks or complications that may arise during the project, such as encroachments or land disputes.

2. Infrastructure mapping: If the project involves the development of infrastructure, such as roads or power lines, mapping can be used to identify the most viable routes and locations for the infrastructure. This can help optimize the cost and efficiency of the project.

3. Market mapping: Before investing in a business project, it is important to understand the market conditions and potential demand for the product or service being offered. Mapping can be used to identify areas of high demand, as well as potential competitors and partners.

4. Demographic mapping: Understanding the demographics of a target market can also be useful for investment decisions. Mapping can help identify patterns in population density, age, income levels, and other factors that can impact the success of a project.

Overall, using mapping as an investment tool can help reduce risks and optimize returns for project development in Ukraine.

Blockchain technology for invest process can certainly be implemented in the energy sector to help reduce corruption and improve transparency in Ukraine. Here are some ways in which blockchain can be used:

1. Smart contracts: Smart contracts are self-executing agreements with the terms of the agreement between buyer and seller being directly written into lines of code. Smart contracts can be used to automate various transactions in the energy sector, such as meter readings, payments, and transfers of energy. By using blockchain, these transactions can be recorded in a tamper-proof and transparent manner, reducing the risk of corruption and fraud.

2. Supply chain management: Blockchain can also be used to track the entire supply chain of energy, from production to delivery. This can help ensure that all intermediaries are correctly accounted for, payments are accurately calculated and allocated, and the risk of illegal activities (such as smuggling) is reduced.

3. End-user engagement and transparency: Blockchain can also help improve transparency and trust between energy suppliers and their customers. By providing consumers with access to real-time data on their energy usage and costs, blockchain can help create a more accountable and competitive energy market, reducing opportunities for corruption.

Implementing blockchain technology in the energy sector can help create a more transparent and accountable system that can reduce the risk of corruption in Ukraine.

Growing numbers of participants small and decentralization members of energy market, need a huge potential for work with "big data" for balancing new model energy. AI (artificial intelligence) is becoming an increasingly important tool in energy research, energy security and smart grids. Here are some examples of how AI is being used in this field:

1. Energy forecasting: AI algorithms can analyze diverse data sets to build predictive models for energy production and consumption.

2. Load balancing: AI can help optimize the balance of energy production and demand in real-time, by analyzing data and making adjustments to prevent energy overproduction or underproduction.

3. Maintenance detection: AI can monitor equipment and detect when maintenance is needed, reducing the likelihood of equipment breakdowns and thereby increasing efficiency.

4. Energy loss prevention: AI can help identify areas where energy loss is occurring, such as in transmission lines, and recommend strategies to minimize losses.

5. Energy storage optimization: AI algorithms can help optimize the deployment of energy storage systems, such as batteries, to increase the efficiency and reliability of the energy grid.

6. Compliance monitoring: In order to ensure that organizations are meeting legal and regulatory requirements, AI can monitor compliance and identify areas of potential concern. Furthermore, AI can help detect attempts to evade regulation or circumvent laws, reducing the risk of corruption.

7. Predictive analytics: AI can also provide predictive analytics to forecast future corruption risks and help leaders take proactive measures to prevent corruption. By identifying patterns of fraudulent activities, AI can help leaders and organizations develop stronger anti-corruption measures.

Conclusion

The use of international mapping applications can provide critical information on energy resources available in Ukraine. This information is essential for identifying suitable areas for energy investments and development. Investing in new energy projects is key to reducing Ukraine's dependence on foreign oil and ensuring energy security.

AI is being used to improve the efficiency and reliability of energy production and distribution, reduce costs and environmental impact, and accelerate the transition towards clean energy. Can process large databases: photos and videos to record the damage to infrastructure and confirm the reconstruction on maps. Can be a powerful tool in the fight against corruption in Ukraine by increasing efficiency, transparency, and accountability across various sectors. Here are some ways in which AI can be used: fraud detection (AI can be used to detect patterns of potential fraudulent activity in financial transactions, procurement processes, and other transactions); reduction of human intervention (since human interaction creates opportunities for corruption, AI can be used to automate certain processes in government and business). This reduces the likelihood of bribery and corruption by removing human discretion from decision-making processes.

Reconstruction and reset of Ukraine's energy infrastructure should be based on the latest principles of green energy and modern information management requirements. This, if implemented, will accelerate Ukraine's European integration and accelerate recovery.

References:

1. Global Solar Atlas (2023) URL: <https://globalsolaratlas.info/map>
2. International Energy Agency (2023) URL: <https://www.iea.org/countries/ukraine>