

THE ROLE OF BIG DATA IN ACHIEVING THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

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Introduction. To achieve the United Nations Sustainable Development Goals (UN SDGs), numerous national and international strategies have been developed, including the European Green Deal, the African Union's Agenda 2063, the UN Global Compact, and the Paris Agreement. In this context, Big Data play a crucial role in identifying issues, finding solutions, detecting patterns, and monitoring progress toward the achievement of the UN SDGs. The objective of this study is to examine how big data are utilized in the implementation of measures aimed at achieving the SDGs.

Main body. Through the analysis of relevant Big Data, progress has been successfully made toward achieving the first and tenth SDGs.

1. Big Data analysis in the Smart Mobility system is used to optimize transport infrastructure in Singapore [2]. This project is particularly significant for low-income areas, where improved transport accessibility helps reduce social inequality.
2. Siemens factories utilize Big Data and machine learning for predictive maintenance [3]. This approach minimizes production losses and enhances energy efficiency, thereby improving overall manufacturing performance and reducing maintenance costs.
3. In Kenya, the M-Pesa platform leverages Big Data to analyze mobile phone payments, fostering the growth of small businesses [4]. The analysis of financial transactions and digital footprints enables banks to develop alternative credit scoring models for individuals without formal credit histories. This approach expands access to financial resources for low-income populations, contributing to the achievement of SDG 10.
4. In Barcelona, a smart lighting management system uses data on human activity and natural light levels to reduce energy consumption and improve environmental sustainability [5]. This initiative is part of Barcelona's broader «Smart City» strategy.
5. The World Bank employs satellite imagery and AI to analyze urban areas with high poverty levels, ensuring aid is directed where it is most needed [6]. Mobile data and satellite images are analyzed to identify disparities in resource distribution, poverty levels, and social mobility.

Outcomes. Big Data play a central role in the development and implementation of international strategies aimed at achieving SDG 9 (Industry, Innovation, and Infrastructure) and SDG 10 (Reduced Inequalities). Their application enables the optimization of infrastructure, enhances financial inclusion, and facilitates the development of effective sustainable development strategies. Big Data analysis helps reduce social and economic imbalances while ensuring precise monitoring of global progress. International organizations leverage these technologies to make informed decisions and allocate resources more equitably. The integration of Big Data accelerates progress toward the SDGs and improves the efficiency of global strategies.

Sources:

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