

Leveraging the Internet of Things to Achieve Sustainable Development: A Case for Developing Countries

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Abstract

This research examines the emerging Internet of things technologies and discusses how these technologies can help in promulgating developing countries such as Jamaica toward sustainable development.

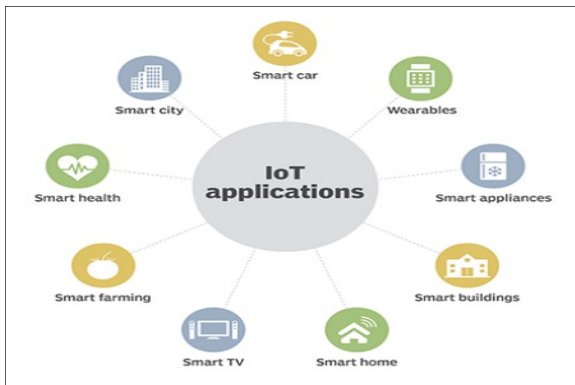


Figure 1. Applications of IoT

Introduction

The vision statement of Jamaica is a plan to make the country the place of choice to live, work, raise families and do business by the year 2030. To achieve this vision requires full access to reliable and efficient infrastructure and services, empowering individuals, building and strengthening communities and bridging the digital divide.

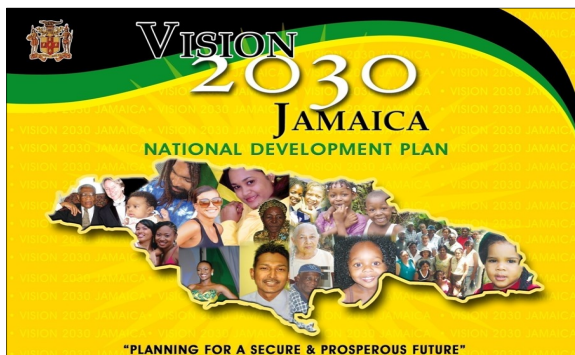


Figure 2. Jamaica's Vision 2030 National Development Plan

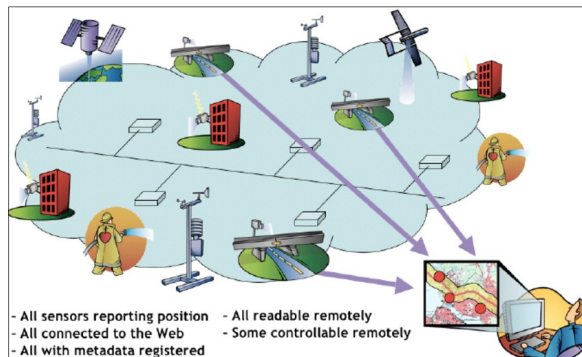


Figure 3. IOT Technologies in a Sensor Web Network

Current Status of IoT Technologies

McKinsey Global Institute stated that IoT holds significant potential in developing economies, and by 2025 up to 38% of the annual economic impact of IoT applications will emanate from less developed regions globally. Developed economies like China, have a high potential number of IoT users, global economic growth is shifting to these economies, and industrial IoT applications in factories, work-sites, transportation and other areas, are expected to drive economic value creation. Dominant IOT technologies include Sensor Web, Radio Frequency Identification (RFID), Cloud Computing, and Artificial Intelligence.

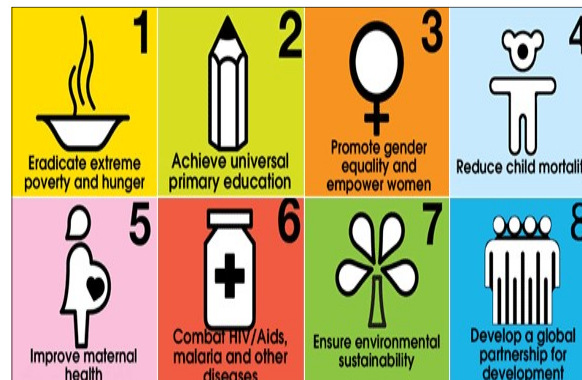


Figure 4. United Nation's Millennium Development Goals

Way Forward

The Millennium Development Goals (MDGs) were developed by the United Nations to eradicate poverty, establish peace and grow the world's economies. The UN also developed the Sustainable Development Goals (SDGs), to address sustainable agriculture, energy, water availability, industrialization, and management of terrestrial and maritime resources. Developing countries can work towards these goals and achieve first world status, by taking advantage of the role of IoT technologies in the process.



Figure 5. Smart City Applications

Future Work

Future studies could explore the potential impact of narrowing the implementation of IoT technologies in specific domain application for a test case e.g. in a critical industry such as the health care. IoT could be explored to improve the health sector for competitive advantage and foreign exchange earnings. Another area is to leverage IoT technologies to increase energy efficiency and sustainability in manufacturing, services, minerals and mining and other key growth sectors, addressing some of the key problems faced by the world and especially developing nations.

Credits for diagrams appearing in figures

[1] <https://internetofthingsagenda.techtarget.com/definition/Internet-of-Things-IoT>

[2] <https://jis.gov.jm/features/vision-2030-jamaica-national-development-plan/>

[3] https://www.researchgate.net/figure/Sensor-Web-Concept_fig1_221118254

[4] <https://www.un.org/en/africa/osaa/peace/mdgs.shtml>

[5] <https://www.un.org/en/africa/osaa/peace/mdgs.shtml>