Harnessing the Power of Artificial Intelligence for a Sustainable Tomorrow

Optimistic Tunisia 3 @ COP28, Dubai

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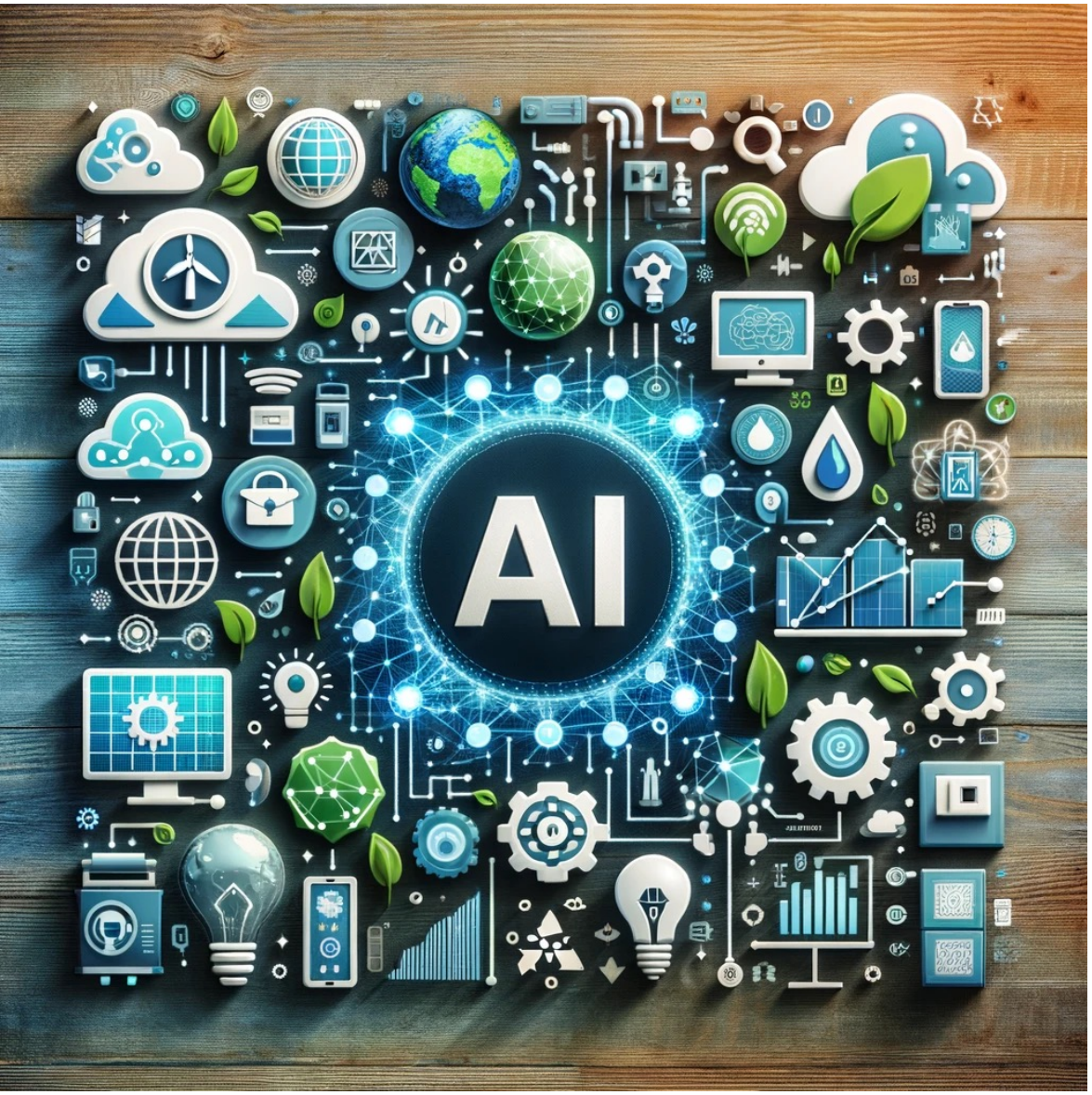
The Intersection of Technology and Environment

❖ Unprecedented challenges, compounded by our past and present technological advancements :

- Climate change
- Resource depletion
- Ecological imbalance

❖ Technology - a double-edged sword…



Artificial Intelligence: A Game Changer in Sustainability?

❖ AI's unique position in addressing environmental issues:

- Analyze vast amount of data
- Identify complex patterns and predict trends
- Provide innovative solutions:
  - Resource management
  - Conservation efforts
  - Policy making

AI in Climate Change Prediction

- AI's predictive models help understand and anticipate climatic shifts, allowing for proactive measures, e.g.:
  - enhancing air quality monitoring
  - sustainable urban planning

AI-Driven Resource Optimization

❖ AI enables us to use our natural resources more efficiently, reducing waste and enhancing sustainability, e.g.

- more efficient water usage in agriculture (drip irrigation)
- reduced energy use in transport through shared driving or better routing of ships

Fostering Green Innovations through AI

- Eco-friendly technologies and sustainable practices across industries, e.g.:
  - Revolutionizing renewable energy, smart grids and energy-efficient buildings
  - Enhancing recycling efficiency
  - Wildlife conservation and biodiversity

AI in Action: Real-World Impact

CO2 AI

IBM Green Horizons

THE OCEAN CLEANUP

Be Resilient

smartfarm

DeepMind

dendra SYSTEMS

SmartFarm – Nigeria:

- Objective: Improve soil quality and optimize irrigation
- Soil health is analysed through AI algorithms, providing personalized recommendations to farmers for fertilizer use
- Creation of smart irrigation systems, based on real-time weather and soil data

US$5,000 grand prize of Innov8Agric Challenge

Increased cassava yield by **25%**

THE OCEAN CLEANUP

The Ocean Cleanup

- Non-profit organization that employs AI technology in its efforts to remove plastic waste from the oceans
- AI-powered cameras and sensors on their cleanup systems detect and collect plastic debris efficiently
- Preserves marine ecosystems and addresses the critical issue of ocean pollution

80 080 kg of trash removed in the last 30 days

7 465 125 kg of trash removed in total

Be-Resilient – Southern Africa:

- Significant climate change impacts, including floods and droughts, threatening natural resources and security.
- Objective: Strengthen biosphere reserves as observatories for climate adaptation and sustainable development.
- AI for climate impact assessment, innovative climate services, and Citizen Science initiatives for localized data collection and education.

Funded through the Flanders
UNESCO Science Trust Fund

CO2 AI

CO2 AI

- Objective: help complex organizations manage their carbon reduction journey
- CO2 AI software provides clarity and transparency to emissions data at scale
- Allows companies to measure, track, simulate and reduce their carbon emissions, building an action-oriented roadmap to transition to net zero.

Created in 2020, already has a track record of managing more than **300 million tons** of CO2

HpO AI Project - Uganda

- Objective: optimizing the management of the drinking water distribution network
- Uses AI to enhance water management in Kampala – efficient use of resources, leak detection and prediction, sustainable infrastructure development

The project covers a 3000 km distribution network in Kampala

Kampala Water has a minimum of 36% Non-Revenue Water (leaks)

Greyparrot AI

- Objective: help companies work in a circular economy by highlighting inefficiencies in sorting and waste facilities.
- The unique AI can capture real-time images of waste flows and identify characteristics like mass, brand and emissions potential across over 67 categories of material.

95%+ accuracy

Today, over **50b** of waste objects are identified each year

75+ Greyparrot Analyser Units across **13+ countries**.

Building Advisor

- Objective: detect hidden energy costs and inform decisions to improve the situation
- AI can efficiently monitor and analyse the energy consumption and conditions of a building
- Allows to improve up-time, performance, and energy use, while reducing time spent on preventive maintenance

Electricity savings are up to **30%** without impacting on indoor comfort and conditions

24/7
continuous monitoring

Dendra – Jellinbah Group's Mine Rehabilitation

- Objective: enhance the efficiency and effectiveness of the Jellinbah Mine rehabilitation program
- Drones captured high-resolution data of the entire site
- Processes by ecology-aware machine learning, combining georeferenced drone imagery with satellite data

Guarantees responsible mining and environmentally sustainable outcomes for future generations

Achieved a milestone by surveying **1000 hectares of land in one week**

Towards a Synergistic Future

- Need to create a roadmap where technology and nature coexist harmoniously

- Not just to mitigate environmental risks but to thrive SUSTAINABLY

Harnessing AI for sustainability is a collective quest, requiring collaboration, innovation, and a shared vision.

THANK YOU - شكرا