Blockchain, AI, and other Digital Technologies: Applications and Implications for Sustainable Development
UNITAR

BACKGROUND

We are living in the era of the Fourth Industrial Revolution which has been causing significant disruptions in many fronts while offering potential solutions for a broad area of life. New technological innovations are constantly born and implemented with unprecedented speed and scale while altering the lives of people, businesses, governments and regulators. These large-scale transformations for economies and societies are ongoing and it is expected that humanity will experience more progress in the coming decade than in the past century combined. This progress however is not guaranteed to be even, sustainable and inclusive. Moreover, the COVID-19 pandemic and economic crisis have created additional challenges that we must tackle. For shared prosperity the potential benefits of technologies must be well understood and leveraged.
This course introduces four of the most impactful digital technologies with the biggest potential to improve our accelerating world, namely Artificial Intelligence (AI); blockchain and other distributed ledger technologies; robotics and automation; and the Internet of Things (IoT). It aims at explaining to a broad audience of curious minds why and how these digital technologies have unprecedented impact in our societies. During the 4-week course you will listen to and interact with well-known experts, you will explore the different technological innovations and their applications via inspiring case studies, stories and practical examples. You will also have the opportunity to assess the potential impact of one of these digital technologies on your own area of life/work.

CONTENT AND STRUCTURE

This 4-week course is going to cover the following four modules:

Module 1: Artificial Intelligence (AI) and Machine Learning

The first week of the course introduces the Fourth Industrial Revolution and its main digital technological innovations. It starts the learning process with the most fundamental and overarching digital technology, Artificial Intelligence (AI) and explains what AI means, what the role of big data and algorithms are, and how machine learning affects different parts of our lives by showcasing numerous examples.

Module 2: Blockchain and other distributed ledger technologies

The second week explores the so called distributed ledger technologies, including blockchain that received attention as the technology behind Bitcoin and other cryptocurrencies. However, the potential application areas of the distributed ledger technologies are much broader and we will discover them through cases from registration systems, international trade, global value chain management, financial services and more.

Module 3: Robotics, drones and automation

The third week discovers the technology of automation and showcases a few motivating examples from the endless options, including self-driving vehicles in transport or public transportation, robots supporting the daily care of elderly people or serving food in restaurants, and drones planting seeds as part of reforestation projects or distributing medicines in remote areas.

Module 4: Internet of Things (IoT)

The fourth week explores the rapidly spreading Internet of Things (IoT) where sensors, softwares and other technologies bring machines and objects into a connected network, and allow private and public sector actors to create more sustainable models of operations. We will discover examples such as monitoring flows of products to reduce carbon footprint, and measuring the moisture in a field of crops to optimize irrigation.

LEARNING OBJECTIVES

At the end of the course, the participants will be able to:

- Understand the process of the Fourth Industrial Revolution and the main digital technological innovations;
- Understand the meaning and main application areas of the following four technologies:
    - Artificial Intelligence (AI) and machine learning,
    - Blockchain and distributed ledger technologies,
    - Robotics, drones and automation,
    - Internet of Things (IoT);
- Analyse and adopt best practices and practical examples of digital innovations from different sectors and regions;
- Evaluate the potential impact of a selected digital technology for their own area of work.

METHODOLOGY

In order to ensure the best possible outreach, the course will be delivered through e-learning via UNITAR's online platform. The modules will be discovered via participating in live lectures and discussion forums, in the form of reading materials, case studies in written and video format. The course concludes with a written assignment of a brief project evaluating the potential impact of a selected digital technology for the participants' own area of work.
Using a state-of-the-art training architecture, UNITAR will combine self-learning with assessments and online discussions. The pedagogy - adapted specifically to professionals in full-time work - will help train participants through various experiences: absorb (read); do (activity); interact (socialize); reflect (relate to one's own reality).

TARGETED AUDIENCE

This course invites everyone who would like to learn about the recent digital technological innovations and their applicability, including innovative entrepreneurs, start-ups, government representatives, regulatory authority officials, and development experts, to join.