

# Artificial Intelligence and Machine Learning Innovation in SDGs

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## INTRODUCTION

In 2015, all United Nations member states adopted the 2030 agenda to jointly achieve the Sustainable Development Goals (SDGs). Several studies using AI-related technologies have been conducted to support this goal. Artificial Intelligence (AI) and machine learning (ML) are believed to accelerate the achievement of the targets of the 17 SDGs. These two terms are often confused. Artificial Intelligence is a broader concept of machines capable of executing commands in “smart” ways. Meanwhile, ML is an AI application that focuses on forecasting by utilizing computational statistics (Gangula et al., 2020).

The rapid progress of AI and ML has significant implications for most of the achievements of the 17 SDGs. Thus, it can be concluded that AI technology may be required to achieve the SDGs targets, although AI-based technologies need to be supported by regulation and oversight to enable sustainable development (Vinuesa et al., 2020).

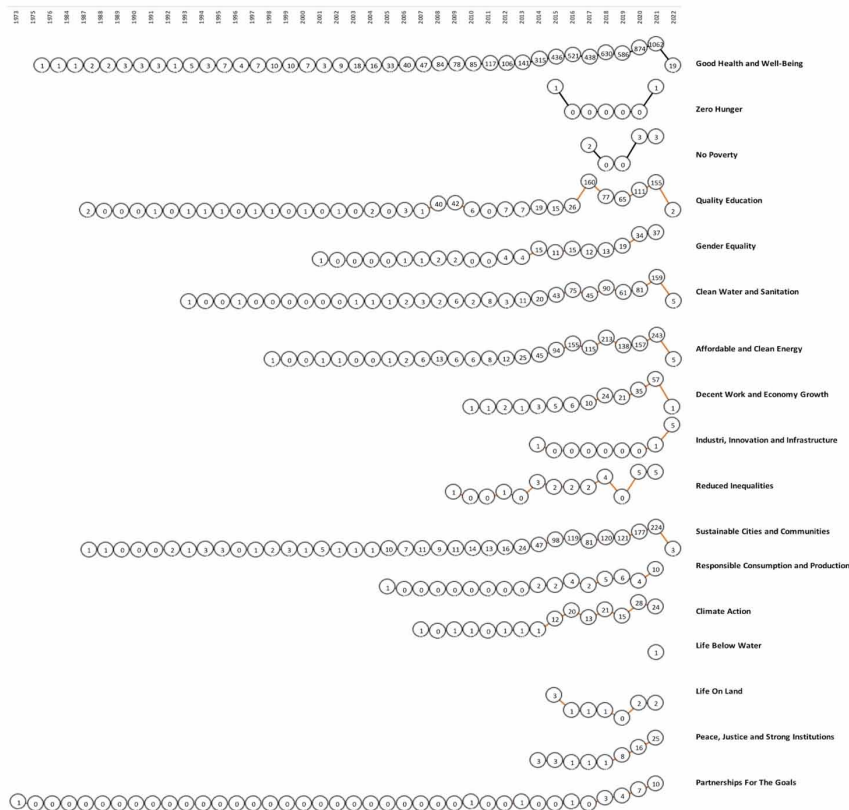


## BACKGROUND

AI and ML have become very popular recently and are increasingly becoming a part of our daily life. Figure 1 shows the increasing trend in the number of publications discussing AI and ML across the 17 SDGs. Data were taken from Scopus. The graph illustrates that some goals have long been of interest to AI developers, while others have only been in the last few years.

There have been many studies discussing the role of AI in the achievement of the SDGs. Among them is the role of AI in achieving 137 targets and failing to achieve 59 targets of SDGs (Vinuesa et al., 2020). Then, the role of AI in SDGs as an enabler to address research gaps in academic research, funding institutions, professionals, and industry, with an emphasis on the transportation sector (Gupta et al., 2021). Meanwhile, Sætra (2021) uses the concept of SDGs to provide a new and useful framework for analyzing and categorizing the benefits and harms of AI. To the best of the author’s knowledge, the focus of AI research on each of the SDGs has not been identified. This topic is important for analyzing the areas of the SDGs that AI developers are most interested in. In addition to providing information on some issues that AI has not approached. Using a bibliometrics approach, this chapter will provide a brief overview of the areas supported by AI and ML for each SDG. Furthermore, the paper applied narrative review to show the core research of AI and ML in the 17 SDGs and discuss the required future research direction. This study contributes to the academic community, regarding the focus of AI and ML research on the SDGs.

Figure 1. Illustration of the growing number of papers discussing AI and ML for the SDGs



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