


# Assessing the AI Adoption. The Global AI Index Dataset Used to Build, Train and Test a Machine-learning Algorithm.

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**Abstract:** The paper aims to analyse the AI adoption at the company/country level and the efforts made to achieve this objective. The necessary changes for the use of AI solutions involve not only a significant financial effort, but also attracting talent, building adequate infrastructure, getting governmental support and, above all, consistent investments in research and development at the company/country level. The paper presents the key elements of the measurement process used in calculating the Global AI Index, as well as the results for 62 countries, having as an original contribution the creation, training and testing of a machine learning algorithm, aiming to extrapolate the AI Global Index. Also, the purpose of the paper is to demonstrate that AI machine-learning models can be created, trained and tested to achieve a higher accuracy of forecasting and can be used regularly in the decision-making process. The scientific journey was possible due to open access to the data used to determine the AI Global Index, as well as to the use of collective experience and wisdom (e.g. Google Colab and Python programming language). Even though the results have just a demonstrative value encourages the research expansion to calculate the Global AI Index for Romania, a country which is not listed among the 62 countries for which the Global AI Index was calculated in 2023.

**Keywords:** artificial intelligence, Global AI Index, machine learning, algorithm,

## Introduction

Nowadays, new technologies emerged and looking for higher economic performances, companies are eager to innovate incorporating state-of-the-art IT solutions to increase their competitiveness in the global economy. In the last decade, the top management faced a lot of challenges related to the adoption of new disruptive technologies and their reaction was complex in diversity. Referring to AI solutions able to improve companies' performance, professionals' and practitioners' voices are quite divergent. Some are considered highly innovators and are eager to use AI solutions in supporting the decision-making process, others milde innovators focus on adopting AI solutions in task automation, and conservatives, being the majority, still waiting for confirmation of the AI. Apart from these categories, the critics are vocal in considering AI just a bluff, a fashionable topic in discussions but still AI not confirm the majority's expectations.

Looking at AI adoption in companies, across the world, it must be seen as a two-way process: AI solutions adopted to support decision-making and to ensure task automation with a significant impact on operating costs reduction. In the last years, for example, the "cost of predictions started to downsize at an accelerating pace" (Agrawal et al. 2022) and

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