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Tanita Martin

*Munich Business School, [tanita.martin@student.shu.ac.uk](mailto:tanita.martin@student.shu.ac.uk)*

Alexander Richter

*Victoria University of Wellington, [alex.richter@vuw.ac.nz](mailto:alex.richter@vuw.ac.nz)*

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# ADDING AI FOR INCLUSION (IMPACT) TO INCLUSIVE AI

*TREO paper*

Tanita Martin, Sheffield Hallam University, Sheffield, UK, tanita.martin@student.shu.ac.uk

Alexander Richter, Victoria University of Wellington, Wellington, New Zealand,  
alex.richter@vuw.ac.nz

## Abstract

*The term Inclusive Artificial Intelligence (Inclusive AI) comprises issues of AI bias and inclusive design, but also emphasises AI's potential to promote inclusion across diverse fields. Based on a systematic literature review, we found that the academic discourse has mostly tackled AI bias and design, while the issue of fostering inclusion with AI has attracted less research interest. Our study aims to contribute to a better understanding for and awareness of AI's capability to take up broader societal challenges related to inclusion, e.g. in the workplace. Building on the current literature gap and on the presentation of the Inclusive AI framework, we hope to gain feedback and further perspectives on our concept of the Impact dimension of Inclusive AI, its areas of application, and to discuss suggested research directions for future work at the TREO forum.*

*Keywords: Inclusive AI, Inclusion, Impact.*

## 1 Introduction

In the past years, Artificial intelligence (AI) has shown its potential in countless areas and applications such as health care, education, mobility, security, entertainment, and sustainability for business and society. Many recent case studies demonstrated impressive outcomes of AI implementations, e.g., in terms of productivity. Notwithstanding, striking a balance between innovation and ethical responsibility is vital and staying abreast of societal impacts is crucial. In this context, there have been calls for not only explainable, but also inclusive AI systems in order to be able to harness AI's potential and at the same time address the challenges of using AI (Sambasivan and Holbrook, 2019; Stephenson and Harvey, 2022; Tilmes, 2022; Ahmad *et al.*, 2023; Ovalle *et al.*, 2023). Yet, there seems to be a lack of clarity surrounding the term Inclusive AI, its role, and the methods to achieve it (Avellan, Sharma and Turunen, 2020; Drobotowicz *et al.*, 2023).

In this paper, we argue that we need to develop a holistic perspective on Inclusive AI – most importantly, one that acknowledges the impact of AI, especially in terms of using AI proactively to create positive effects for individuals and society as a whole. Based on a literature analysis we identify gaps in the current discourse on Inclusive AI and provide suggestions on how to address these gaps.

## 2 Literature Analysis

Our literature analysis was conducted at 13.01.2024 on Scopus with the optimized search query TITLE-ABS-KEY ("inclusive ai") AND NOT ("avocado" OR "all-inclusive"). It yielded 39 documents.

It revealed that most publications focus on the fairness and accessibility aspects of AI but neglect the positive impact of Inclusive AI on our society, individuals, and businesses. Most publications could be summarized under the umbrella term “equity” (26), followed by “policies” (10), and “accessibility” (8). Only eight publications have somehow considered (often rather superficially) the potential positive

impact of AI. Exceptions were four publications the authors had no access to, or which were otherwise not classifiable, e.g. a publication calling for a workshop. The framework presented in Figure 1 provides an overview of the categories of inclusive AI we were able to build.



Figure 1. The three dimensions of Inclusive AI are Equity, Access, and Impact.

AI is not a neutral and objective technology but rather a product of human choices and assumptions that can reflect and reinforce existing biases and inequalities. Inclusive AI tackles biases, increases inclusive system design, and enhances inclusion. By adding the dimension “Impact”, Inclusive AI becomes a multifaceted approach. It marks a proactive approach to ensure that AI is not only ethical and lawful but participatory and empowering for everyone. “Everyone” goes beyond the most researched communities of ability and gender. Inclusive AI is relevant and important for all domains and applications where AI is or could be used and addresses all diverse and marginalised communities.

The dimension “Impact” of Inclusive AI symbolises the power of AI for inclusion in various domains and communities. The academic discourse focuses mainly on the negative capabilities of AI, such as discrimination and exclusion. Yet, we believe that Inclusive AI can do more than removing barriers. It can be proactively leveraged as tool to foster greater inclusion in our society. Researchers such as Park et al. (2021) and Ovalle et al. (2023) identify hopes and elaborate on the powerful AI applications to help people with disabilities in their daily lives and increase gender representation in conversational AI (Park et al., 2021; Ovalle et al., 2023).

Tech companies such as Amazon, Apple, Google, IBM, and Microsoft have products on the market supporting people in their daily lives to be more included, such as AI-driven tools to support persons with visual or hearing impairments. Yet, AI is, if, only limited used to proactively impact the society or our work cultures to be more inclusive to people with impairments or marginalised groups. Additionally, existing literature and practice examples show, that only a limited scope of our society is currently addressed.

Impact is the key dimension of Inclusive AI to ensure that AI is not only benign but beneficial. It increases inclusion in our global society, including the business environment. The academic discourse on Inclusive AI promoting inclusivity in all domains and areas of life must be more extensive as there is a substantial opportunity to add knowledge to an AI for inclusion. One starting point is the conference paper from Raji et al. (2020) who provided a end-to-end framework on auditing internal algorithm to close the accountability gap within the development process including ethics and inclusion (Raji et al., 2020). Research avenues are open in areas such as education, governments, and organisations and in fields such as change management, conversational AI, and leadership.

### 3 The Power of “AI for Inclusion”

There are already some examples of AI for inclusion in practice, mainly in the ability area. Yet, there is a need for a better conceptual understanding as well as more applications in practice to realize the positive opportunities coming with AI for inclusion. With this TREO paper we aim to raise awareness and stimulate a discourse on how AI can be a tool to increase inclusion in various domains and context rather than a source of exclusion or discrimination.

- What is influencing the Inclusive AI dimension Impact? How can these factors be influenced?
- How does Inclusive AI impact users (people and organisations)? How can Inclusive AI enhance our society?
- How does Inclusive AI impact technology provider and developer?
- How does AI development need to change to respect Inclusive AI need to be impactful towards inclusion? How can Inclusive AI – Impact be measured?
- What are challenges for organisations to provide fair, and accessible AI for inclusion?

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