

The promises and perils of applying AI for social good in entrepreneurship

Artificial intelligence (AI) is viewed as a new breeding ground for entrepreneurial opportunities. While researchers agree that AI holds great potential for economic growth, one question arises: How can it be applied for the greater good of society? Georg von Richthofen, Nicole Siebold, and Ali Aslan Gümüşay interviewed European entrepreneurs and found that applying AI in social entrepreneurship is associated with both specific promises and perils. They explain their key findings and offer recommendations for entrepreneurs.

How can AI be applied for the greater good of society?

In today's society, artificial intelligence (AI) is an extremely powerful technology that is expected to generate a wide range of innovations. These, in turn, make AI an instigator for an unprecedented level of entrepreneurial opportunity (Kabir 2018). But beyond this potential for economic growth, can AI also have a positive impact on society?

Researchers note that AI-based technologies may contribute to alleviating societal problems in various domains, including equality and inclusion; education, health, and hunger; or climate action (Tomašev et al. 2020). And yet, the entrepreneurship literature does not shed sufficient light to date on how entrepreneurial ventures can apply AI for the greater good of society.

Given our previous research on (social) entrepreneurship (Scheidgen et al., 2021; Siebold et al., 2019) and artificial intelligence (von Richthofen et al., 2021), we decided to explore this question in greater depth. In our [recent study](#), we identify four main promises and perils associated with applying AI for social good in entrepreneurship.

Entrepreneurial ventures apply AI for social good in a variety of domains

We sought out and conducted interviews with founders and managers of 15 entrepreneurial ventures that successfully apply AI for social good in all sorts of domains: from agriculture and banking to education, environmental services, and healthcare. For example, one venture used image recognition and classification as well as object detection and localisation to identify, categorise, and map plastic waste. Another venture provided a mobile app to farmers in developing countries and used image recognition and classification to detect plant diseases, pests, and soil deficiencies. A third venture used image recognition and classification to digitise medical images and develop applications for medical analysis and diagnosis.

Promises

Our study identifies four notable promises of venturing with AI for social good:



Stakeholder engagement

Beneficial collaborations with heterogeneous stakeholders from both the public and private sector are sought. With a focus on social good and common objectives (e.g., reduction of plastic waste), ventures can engage different types of stakeholders, such as NGOs, government agencies, and corporate clients. In some cases, this even included competitors and companies that were considered partly responsible for **societal issues the social enterprise was trying to tackle** (e.g., suppliers of plastic packaging).



Structural flexibility

The ventures can flexibly make use of for-profit, not-for-profit, and hybrid structures. This means that they are in a unique position to act as a bridge between communities that were interested in either technological or societal advancement.



The discontinuous technological nature of AI can accomplish tasks beyond traditional human abilities. Indeed, AI promises both new ways to perform organisational activities and novel outcomes that were previously unattainable but now offer breakthrough progress.



Ventures are able to deliver a service or product that is highly customised to each individual client's need without incurring high costs. This means that AI allows ventures to benefit from economies of scale **while maintaining** high levels of individualised outputs.

Perils

Our study reveals that founders interested in venturing with AI for social good must find ways to cope with four main perils:



Systemic bias

There is a risk of introducing systematic bias (e.g., related to race, age, religion) that prevails in existing knowledge and past experience into AI systems. This concerns prejudices that are designed into an AI system, for example, due to bias in the data sets that are used to train AI models. **Social ventures tackling inequalities and exclusion risk embedding** in their AI models the same bias that they set out to fight.



Black box problem

The black-box problem is about having non-human systems make opaque decisions that ultimately affect humans. This peril relates to not knowing how the system arrives at conclusions, which is especially critical for human-related applications in areas such as health care, employment, or criminal justice.



Scarce technological skills

There is competition for scarce technological skills. It is extremely difficult to secure these skills that are highly in demand in both the private and public sector. In particular, the interviewees explained that they need people with strong scientific, mathematical, and engineering knowledge in order to build and continuously develop AI technologies.



Difficult-to-measure outcomes

It is difficult to measure venturing activities that mostly generate indirect outcomes for their main client groups. While the societal value of such activities appears evident, it is often challenging to find a path to monetisation and returns.

What are the implications for entrepreneurs?

The variety of cases reported in this study should encourage entrepreneurs to apply AI to societal challenges. We offer entrepreneurs four key insights from our study that can help them use AI for social good. First, entrepreneurs need to overcome a trust gap as they contend with systematic bias and use systems affected by the black-box problem while aiming to deliver difficult-to-measure outcomes. Second, entrepreneurs need to manage resource scarcity (**the challenge of securing scarce technological skills**). Third, entrepreneurs can engage in **holistic venturing—when** they leverage structural flexibility to collaborate with multiple stakeholders from both the for-profit and non-profit sectors. Finally, entrepreneurs can leverage the affordances of AI to create large-scale impact through breakthrough progress, customisation at scale, or a combination of both.

Conclusion

Despite AI's increasing relevance, there is a paucity of research on how it can be used to benefit society – especially in regard to entrepreneurship. We hope that our study can shed light on the applicability of AI for positive societal change in ways that can help alleviate grand challenges in a wide range of domains, including equality and inclusion, education, health, hunger, and climate action.



Notes:

- *This blog post is based on [The Promises and Perils of Applying ARTIFICIAL INTELLIGENCE for Social Good in Entrepreneurship](#), Alexander von Humboldt Institute for Internet and Society*
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