

# Promote Sustainable AI to Limit the Ethical and Technological Futuristic Issues

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**ABSTRACT:** AI as a technology is effective in bringing about much transformations but it cannot be denied that along with the advantages that it is laced up with, there are certain challenges as well. These challenges mostly relate to ethical issues and the concern here is how sustainable is AI or how is the concept of sustainability related to AI. The main objective of the paper is to discuss on the ethical issues of AI in brief and then to figure out as to how the world can move towards sustainable AI technology. The study is needed in this time when across the world there are growing concerns as to how human activities can be sustainable. Sustainability has to be the core issue and with a technology as AI that is being taken as one of the major technologies, there is a need to evaluate it in terms of sustainability. Here the method used is simple and is fully based on reviewing of recent articles, journals and other secondary sources taken from the website Google Scholar. The major finding hints at the fact that sustainable AI is not a new concept and that it is already in its third phase. AI is known to play a versatile role by acting on many different targets across the SDG's and on different sectors. However, it is important to note that these effects may not always be positive, and that negative impacts are plausible and been recorded. And, in order to develop sustainable AI, there is a need to consider the three aspects that are environment, economy and society.

**KEY WORDS:** AI, sustainable usage, ethical issues

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## Introduction

There is no doubt in the fact that artificial intelligence (AI) is a transformative technology (van Wynsberghe 2021). On one hand when this technology has much potential in almost every realms or sector, on the other hand there are some serious challenges with this as well. In the present times a subject that is machine ethics has become common and this is linked with development of Artificial Moral Agents (AMAs) (Vinuesa et al. 2020). Scientists are trying to come up with machines that behave in a moral way. This is much required as with every passing day humanity is encountering an array of innovations in AI. Benefits of AI are grand but as is the challenges and the worries, all of which being more related to ethical issues. It is confirmed that the development of AI systems and the deployment of the same gives rise to ethical dilemmas and some really hard questions (van Wynsberghe 2021). Thus, in this paper, the ethical issues with AI will be discussed upon in brief and then it will be figured as to how the world can move towards sustainable AI technology. Sustainable AI though a new term has come into the forefront very recently. This has been so only due to the ethical issues that are linked with AI. Therefore, the paper as mentioned above as well will try to discuss on the point "Sustainable AI."

## Discussion

As per the research done by van Wynsberghe (2021), sustainable AI is nothing but a movement that has been taken up to bring about changes in the entire lifecycle of the AI products. The main aim is to move towards greater level of ecological integrity along with social justice. Yigitcanlar & Cugurullo (2020), opines that sustainable AI focusses not only on the AI Methods of implementation but relatively labels the entire sociotechnical approach associated with AI. It is not about sustaining the development of AI rather it is about the way in which AI can be developed to make it compatible with environmental resources. Pedro et al. (2019), lays stress on the fact that the current expansion of AI has been made likely by the growing volumes of data along with the power of computing thus this certainly can be taken to be as the root cause when dealing with the topic of ethics in AI. van Wynsberghe (2021), is of the opinion that sustainable AI is nothing new as there have

already been three waves in this context; the first wave focused on “what AI might do” while the second wave addressed the various practical concerns of machine learning methods including black box algorithm, problem of explainability, no equal depiction in training data and much more. Now it is time for the 3<sup>rd</sup> wave of AI ethics; this 3<sup>rd</sup> wave has to confront the environmental catastrophe of our time head-on and at the same time actively search for engaging academics, general public, AI developers and policy makers with environmental impact of AI (Milano, O’Sullivan & Gavanelli 2014). This wave has to keep sustainable development at its pivotal point.

As opined by Goralski & Tan (2020), there is a need to clear out the difference between AI for sustainability and sustainability of AI. AI for sustainability can be said to be much developed with the renowned nonprofit organization “AI4Good”. It is more about exploring AI’s application to accomplish sustainability by fair means, use of AI and machine learning (ML) for achieving the United Nations Sustainable Development Goals. Here AI or ML is just a method that has to be appraised to make accessible and unpolluted energy. Sustainable AI will not constrain itself to the use of the technology for sustainability. The author Yun et al. (2016), argues that sustainable AI can be thought of to be encompassing yet another branch of research that is not much developed and is rather under-funded. This zone deals with properly evaluating AI’s sustainability or in more simple terms sustainable development of AI. Mrówczyńska et al. (2019), agrees to this and suggests that AI for sustainability certainly impossible to be accomplished without concurrently authorizing AI’s sustainability.

As per the research done by Bergsten & Rivas (2019), sustainable development needs to be understood before getting into the other different aspects. It is put forward as a visionary having three pillars that are economic sustainability, environmental sustainability and lastly social sustainability. Being a proponent of sustainability, the author says that for sustainable AI there is a need for the technology to embody the existing tensions between innovation in AI for the various goals of sustainable development (Cheatham, Javanmardian & Samandari 2019). It is suggested that global discussion on this wholly addresses not just ethical concerns but in addition takes into consideration the pressure that is there in distributed demands of the environment, economy and lastly society. All the ethical issues such as loss

of job, bias and discrimination, unexplainable, non-transparency can be all addressed if sustainable AI is developed. There are security issues, issues related to invasion of privacy and many other such concerns that need to be addressed to ensure that sustainability is embraced (Dhar 2020). But this cannot happen by considering AI for sustainability it has to be consider the point sustainability of AI as well.

## **AI and societal outcomes**

The report suggests that 65 targets that is almost 79% within the Society group have high chances to be benefitted from AI based technologies. For examples in SDG 1 on poverty, SDG 6 on clean water and sanitation, SDG 11 on sustainable cities, SDG 7 on affordable and clean energy, AI serves as an enabler for all these targets by providing food, water, energy services and heath (Dhar 2020). This technology also supports low-carbon systems and the best example in this are the smart cities.

## **Findings**

The findings of the report suggest that there are two different concepts that are AI for sustainability and sustainable AI. Sustainable AI has been defined as a movement that has been already started off to bring about major modifications in the entire lifecycle of the AI products. The former has been focused on majorly while the latter still needs to be researched on in a deeper way. As is suggested by the results, it is more about attaining ecological integrity of the AI products. Again, these studies reviewed above also hint at the fact that sustainable AI is not a whole new concept as presently it is encountering its third phase. The first wave was more about “what AI might do” while the second wave was about addressing the various practical concerns of machine learning techniques including black box algorithm in the present times that is in the third phase it is about confronting the environmental disasters of these days. This is certainly the phase that is based upon the core concept of sustainable development.

The findings also suggest that AI on one hand is helping address the issue of sustainability with the help of smart grids, buildings and so on but at the same time it is also the major contributor of carbon emissions. Again,

some of the authors suggest that in order to understand what sustainable AI is, readers need to have a vivid idea on the concept of sustainable development itself. They suggest that for the purpose of development of sustainable AI, there is a need for the technology to embody the existing tensions between innovation in AI for the various goals of sustainable development. Sustainable development considers environment, economy as well as society and thus there is a need for sustainable AI to address all of these factors. It has been found that even missing on any one of the factors will lead to the failure of development of sustainable AI. The message of the authors is strong enough suggesting that sustainability can be a term highly linked with AI only if "AI for sustainability" and "sustainability of AI" are considered simultaneously. There is no other alternative to this, and it must be the starting point of research being conducted on integration of sustainability in AI.

## Conclusion

Thus, from the discussion it can be concluded that AI though helping address the issue of sustainability with the help of smart grids, buildings and so on but is also becoming the major contributor of carbon emissions. There is no doubt that AI as a technology has brought in much major modifications in the life of the people and is certainly transformative technology but the drawbacks that it is associated with cannot be ignored as well. It is high time that the focus of the research shifts from AI for sustainability to sustainability of AI. The ethical issues that are related to AI can be grouped under categories that are economy, society and environment and thus when thinking about sustainable AI all of the mentioned groups need to be taken into consideration. There can be made no such compromise in missing or leaving out a section. AI is certainly a good technology and has proven its potential, but humans need to harness its power well to ensure that sustainability is embraced.

## Recommendation

The study can be conducted in a better way by using primary data collection tools such as online survey. Different respondents can be made a part of the study and their knowledge base on the subject can help address the research objective better. This was the recommendation for the study. Apart from that,

considering the subject, it can be recommended that much investment needs to be made on researching on sustainable AI and in doing so the root causes and the different aspects of the technology should be taken into account.

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