



A Short Review of the Institute of Electrical and Electronics Engineers (IEEE) Well-being Initiatives

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Abstract

The Institute of Electrical and Electronics Engineers (IEEE) launched two efforts that can provide guidance to community well-being researchers as well as those creating, promoting and using artificial intelligence (AI). One effort is a publication entitled *Ethically Aligned Design (EAD)* which includes a chapter on well-being. This chapter identifies problems and points the way to solutions that are pertinent to community well-being. The other effort is a standard entitled *7010–2020 Recommended Practice for Assessing the Impact of Autonomous and Intelligent Systems on Human Well-being* which provides a method for measuring the impact of AI on community well-being as well as a near encyclopedic collection of well-being indicators from which both community wellbeing researchers and AI stakeholders can learn and draw when considering the impact of AI on community well-being.

Keywords Artificial intelligence · Well-being · Community well-being · Institute of electrical and electronics engineers · IEEE

This review is inspired by the work of the Institute of Electrical and Electronics Engineers (IEEE) Global Initiative on Ethics of Autonomous and Intelligent Systems (IEEE Global Initiative 2019). In 2019, the program published *Ethically Aligned Design, First Edition (EAD)*, a seminal report on the intersection of Artificial Intelligence Systems (AIS)¹ and the need for human-centric, values-driven design. EAD's chapter and focus on well-being was inspired by an event called *Prioritizing Human Well-being in the Age of Artificial Intelligence* held by the IEEE Global Initiative at the European Parliament in Brussels in 2017. The event focused on the idea that having triple-bottom-line (also known as *people, planet, and profit*) metrics would be a more

¹AIS is a synonym for AI used by the IEEE Global Initiative

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holistic and beneficial way to measure and validate the design and output of Artificial Intelligence Systems (AIS) than with single-bottom line metrics focused on exponential growth and financial metrics alone. Inspired by this event and the well-being chapter in EAD, the IEEE Standard 7010–2020 Recommended Practice for Assessing the Impact of Autonomous and Intelligent Systems on Human Well-being (IEEE Standard 7010) was created and launched (IEEE, 2020).

In 2019, the European Commission's High-Level Expert Group (2019) launched *The Ethics Guidelines for Trustworthy AI* providing a global precedent for an essential shift towards well-being as the definition of success for AI:

We believe that AI has the potential to significantly transform society. AI is not an end in itself, but rather a promising means to increase human flourishing, thereby enhancing individual and societal well-being and the common good, as well as bringing progress and innovation. In particular, AI systems can help to facilitate the achievement of the UN's Sustainable Development Goals...and supporting how we monitor progress against sustainability and social cohesion indicators (p. 4).

The European Commission's efforts as well as many others have focused on guidelines for AI to address issues of accountability, transparency, bias and many other principles. While this global focus is laudable, principles and guidelines without a prioritization on well-being will not include holistic metrics to measure and improve holistic societal success. The well-being chapter in the EAD and the IEEE 7010–2020 standard suggests that trust in AI will not come from a manufacturer stating their accountability within a larger system of data extraction or single bottom line prioritization but can come through the use of metrics to measure the impact on both individual and community well-being. A manufacturer's desire to avoid harm is immaterial when a product is optimized to be purchased and yield profit versus provide well-being in an economy where the goal of economic growth ignores human well-being and environmental health. Where genuine positive impacts on individual and community well-being from AI are desired, it is necessary to recognize the deep association of AI with an individual's data and identity as well as individual and collective well-being.

An orientation towards prioritizing community well-being as societal success begins with the recognition of the triple bottom line (people, planet and profit). In this scenario what is termed *AI for good* becomes an issue of fundamental design versus ill-defined intention. If all people are truly to be valued and community well-being is to truly count, it is empirically evident that indicators that fully encompass community well-being must be used to measure the impact of AI on community well-being. Similarly, empirically, data scientists and engineers must go beyond optimizing for the avoidance of risk and embrace optimization for individual and collective well-being. When those who create and operate AI prioritize a well-being for individuals and communities, then they will, by necessity, employ well-being metrics to ensure the attainment and increase of well-being. The IEEE EAD well-being chapter provides groundwork information and direction towards a re-orientation of AI towards well-being and the IEEE Standard 7010 provides the first methodology for the use of well-being indicators to guide AI from ideation to end of life or upgrade. As such, both provide a framework for understanding the impact of AI on community well-being. The IEEE EAD well-

being chapter and the IEEE 7010 standard can help researchers and data scientists in measuring and assessing the impact of AI on communities. Both also provide means and methods for the field of AI to measurably monitor and improve community well-being rather than singularly focus on exponential economic gain for the entities profiting from the use of AI by individuals and communities.

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