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# ProSocial artificial intelligence as a catalyst for holistic health: a multidimensional approach

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ProSocial artificial intelligence (PsAI) is a transformative approach aligned with the United Nations Sustainable Development Goals. It advocates for AI systems centered on human values, equity, and sustainability, aiming to enhance healthcare access, efficiency, and affordability, especially for underserved communities, promoting global well-being.

## The global context of health and well-being

The eight Millennium Development Goals (MDGs), set by the United Nations (UN) in 2000, aimed to tackle a range of global issues by 2015: eradicating poverty and hunger, achieving universal primary education, promoting gender equality, reducing child mortality, improving maternal health, combating HIV/AIDS and other diseases, ensuring environmental sustainability, and fostering global partnerships for development. Building on the unfulfilled promises of the MDGs, the UN adopted the Sustainable Development Goals (SDGs) in 2015, creating a renewed and more comprehensive global framework. These 17 goals are designed to foster peace and prosperity for people and the planet, addressing challenges that span poverty, health, education, inequality, and environmental sustainability. Unlike the MDGs, the SDGs emphasize the interconnectedness of these challenges, recognizing that economic growth must be pursued alongside efforts to reduce inequality, mitigate climate change, and protect natural ecosystems such as oceans and forests. With over

8 billion people on the planet—half of whom still suffer from preventable deprivation—the ambition to achieve a world free from want is immense. As of today, the world is thoroughly off-track in terms of achieving any of the SDGs [1]. However, the obstacle is not a lack of resources but the political will, collaborative efforts, and concrete actions needed to bridge the gap.

New technology, even one as far-reaching as generative artificial intelligence (genAI), will not change that—if it is driven by for-profit interests, like the technologies that came before as part of the First, Second, and Third Industrial Revolutions.

## The framework of ProSocial artificial intelligence: a holistic, multidimensional approach

The current Fourth Industrial Revolution, which is characterized by the internet, but also machine learning, quantum computing, and AI [2], has the potential to take humanity to the stage where every human being has a fair chance to fulfill their inherent potential. However, such positive outcomes will not arise automatically from the availability of ever more sophisticated artificial assets. To harness AI as a catalyst of social wellbeing in general, and universal access to quality care in particular, the underpinning vocation must change. Enter *ProSocial AI*, which refers to AI systems that are tailored, trained, tested, and targeted to bring out the best in and for people and planet [3]. We must reframe AI from a commercial determinant of society to a social determinant of life.

*ProSocial AI* offers a comprehensive framework that integrates AI across multiple dimensions of health and well-being. Anchored in the POZE paradigm—Perspective, Optimization, Zeniths, and Exposure—it enables AI to operate effectively at the *micro*, *meso*, *macro*, and

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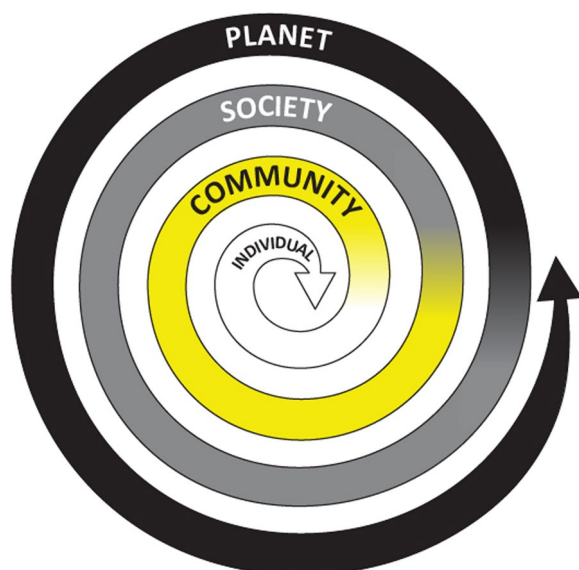
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*meta* levels of health [4]. This approach ensures that AI not only addresses individual health needs but also promotes community health, informs public health policy, and contributes to planetary well-being while optimizing the mutual interplays within and between these dimensions. Figure 1 illustrates the mutual influence of the four dimensions that constitute life in society. Examples:

- *Micro* (individual level): Personalized health interventions powered by AI, such as tailored mental health apps, support preventive behaviors and empower individuals to manage their own health.
- *Meso* (community level): AI-driven telemedicine solutions can extend health services to underserved populations, promoting health equity and reducing disparities in healthcare access.
- *Macro* (societal level): At the societal level, AI can inform public health strategies through data analytics and predictive modeling, helping policymakers design inclusive health policies that address systemic inequalities.
- *Meta* (planetary level): *ProSocial AI* supports environmental sustainability by optimizing healthcare resource use and reducing waste, contributing to the global goal of planetary health while empowering end-users to make not only informed but empowered choices.



**Fig. 1** Everything is connected; individuals (*micro*), communities/institutions (*meso*), society (*macro*), and the planet (*meta*) influence each other and the overall life dynamic; they mirror the mutual influence of the four dimensions that shape individuals (aspirations, emotions, thoughts, sensations). Technology influences this doubled 4-dimensionality directly and indirectly [4]

*ProSocial AI*, designed to prioritize human values, equity, and sustainability, has immense potential to support the SDGs. Unlike conventional AI focused on commercial gains, *ProSocial AI* emphasizes holistic, inclusive growth, addressing issues from poverty and health to environmental sustainability. By integrating AI that operates at individual, community, societal, and planetary levels, *ProSocial AI* can enhance access to essential services, improve efficiency in resource use, and promote sustainable practices. This approach aligns technology with global well-being, fostering a world where AI serves the public good and accelerates progress toward the SDGs.

Establishing a formal foundation for the power-couple AI@SDGs, or *ProSocial AI*, the recently adopted *Global Digital Compact* [5] underscores the need for a human-centered digital future that aligns technology with the broader goals of equity and sustainability. The compact highlights the importance of closing digital divides, advancing responsible AI governance, and ensuring that digital technologies, including AI, are harnessed for the public good. Hereby it addresses the recommendations of the *UN High-Level Report on Governing AI for Humanity* [6], which emphasizes the need for global cooperation to ensure AI promotes human well-being and planetary health, aligning AI governance with the SDGs.

### ProSocial AI and the SDGs: a blueprint for sustainable health

*ProSocial AI* represents a paradigm shift in the way AI can support the SDGs, particularly in the realm of health and well-being. By prioritizing human values, compassion, equity, and sustainability, *ProSocial AI* can contribute directly to achieving Universal Health Care (UHC), and hereby help humanity to reach Goal 3, which aims to ensure healthy lives and well-being for all, addressing issues like maternal and child mortality, epidemics, and access to affordable medicines. AI's data processing and predictive capabilities offer vast potential to support these objectives, especially by strengthening health systems. By enhancing healthcare delivery, particularly in underserved regions, AI-driven innovations like telemedicine can expand access to essential services. However, realizing this potential requires human commitment.

The related framework not only addresses immediate healthcare challenges but also aligns with other SDG goals, such as reducing inequalities (SDG 10), fostering innovation (SDG 9), and ensuring sustainable cities and communities (SDG 11). Examples from the realm of health that illustrate the complementarity of multiple goals:

**SDG 3: Good health and well-being**

- Individual (*micro*): AI-driven healthcare solutions, such as personalized health interventions and AI-powered diagnostics, cannot only enhance preventive care and treatment but also empower end-users, helping them understand and address their physical and mental health. In the short term, this facilitates shared decision-making of practitioners and patients and, in the long run, improves health outcomes.

**SDG 10: Reduced inequalities**

- Communities (*meso*): AI can bridge gaps in healthcare access between and within demographic groups. Expanding the reach of telemedicine and providing 24/7 diagnostic tools in remote areas, AI can help ensure that people, regardless of their geographic or socioeconomic status, have access to essential health services, while allowing end-users to go on a lifelong learning journey toward better decisions.

**SDG 9: Industry, innovation, and infrastructure**

- Country (*macro*): AI-driven telemedicine platforms and personalized health apps represent a new frontier in national and local healthcare, helping to modernize outdated health systems, expanding prevention and treatment choices, and improving service efficiency.

**SDG 11: Sustainable cities and communities**

- Planet (*meta*): AI can make health systems more resilient and appropriate to changing circumstances and more agile in responding to evolving end-user needs and preferences. With resource optimization, AI-human complementarity can reduce costs, both financial and environmental.

## Universal Health Coverage: leveraging AI for inclusive health systems

At least half of the world's population lacks access to essential health services, and about 100 million people are pushed into extreme poverty each year due to out-of-pocket spending on health [7]. Universal Health Coverage (UHC) aims to ensure that all people have access to the health services they need, when and where they need them, without financial hardship [8]. It is an integral part of SDG 3, and translating it from commitment to concreteness is overdue. Leveraging *ProSocial AI* aligns with this mission by enhancing healthcare access, availability, affordability, and appropriation.

**Access:** AI-driven telemedicine and diagnostic tools broaden access to essential health services, particularly for remote or underserved areas. By facilitating real-time

diagnostics, AI reduces the healthcare burden and improves the speed and accuracy of diagnoses.

**Availability:** AI boosts health system efficiency by automating tasks and optimizing resource use, thus lowering costs and enhancing response to public health needs, such as predicting outbreaks and directing resources effectively.

**Affordability:** AI lowers healthcare costs by improving resource allocation and reducing reliance on expensive in-person care. AI-powered early diagnostics and preventive measures minimize the need for costly interventions.

**Appropriation:** Personalized AI-driven care tailors treatment to individual needs, improving outcomes and patient satisfaction. Real-time data analysis enables tailored recommendations, enhancing the overall quality of care.

## Conclusions

*ProSocial AI* represents a transformative approach to integrating AI into healthcare systems, aligning with the SDGs, and catalyzing access and availability to holistic health and well-being. By prioritizing ethics, sustainability, and inclusivity, *ProSocial AI* ensures that AI becomes a forceful tool for fostering long-term health for individuals, communities, and the planet.

As we move towards a future where generative AI is increasingly influencing our lives it matters to remember that technology is a mirror of humans. We cannot expect artificial intelligence to reflect values that the people who design, deliver and use it do not manifest. Garbage in, Garbage out (GIGO) or Values in, Values out (VIVO). The choice is ours, but we must make it.

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