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THE RELATIONSHIP BETWEEN AI AND PHILANTHROPY

From historical roots to modern convergence

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1 Introduction

Recent advancements in artificial intelligence (AI) technology have prompted sectors to critically assess how they can best adapt to an increasingly AI-operated world. The philanthropic sector is no exception, with philanthropists, practitioners, and academics questioning not only the implications of AI on the future of philanthropy but also the responsibility philanthropic organizations (POs) hold – as promoters of social good – in supporting the development of ethical and inclusive AI (EIAI) systems (Bernholz et al., 2010; Arrillaga-Andreessen, 2015; Chu & Wang, 2019; Madianou, 2021).

Philanthropies' two-way relationship with AI, as both users and developers, is not new but rather one of the latest expressions of the interlocking of the two fields (Henriksen & Richey, 2022). However, POs' engagement with AI varies greatly across the sector. On the one hand, philanthropies linked to tech giants are leading the integration of AI into philanthropy and largely shaping the AI for Social Good (AI4SG) movement, an example being the Schmidt Futures. On the other hand, the majority of more traditional POs are largely lagging behind in their adoption of AI-powered tools and overall digitalization (Google, 2019; Herzog et al., 2021). This raises questions about the role of philanthropy in an increasingly digitized civil society (Taddeo, 2016; Bernholz & Reich, 2017; Bernholz, 2021).

While most attention is currently focused on the organizational, legal, and ethical structures that need to be in place for a proper integration and development of AI within the philanthropic sector (Taddeo, 2016; Floridi et al., 2020; Kanter & Fine, 2020; Herzog et al., 2021), in this chapter we take a step back: we contextualize philanthropy's relationship with technology over time and highlight the forces driving modern applications of AI within the philanthropic sector. This exercise aims to provide a more informed approach to discussions on the future trajectory of AI and philanthropy. In more detail, with the goal of providing an overview narrative of the intersection of technology and philanthropy, this chapter adopts a historical lens and provides a trajectory over time from the mid-1950s to today. First, we outline philanthropy's early role in supporting AI research and development, and the subsequent rise of tech philanthropy and the AI for Social Good (AI4SG) movement. Second, we explore the opportunities and challenges that derive from philanthropies' adoption of technological tools, the latest of which are AI-powered tools. Finally, we dive into the AI4SG movement, mapping key stakeholders and prominent AI4SG initiatives and trends.

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2 The evolution of philanthropic support in AI research

2.1 Funding the future – philanthropy's early role in AI

The first recorded use of the term "Artificial Intelligence" (AI) is found in a 1956 grant application submitted by mathematician John McCarthy to the Rockefeller Foundation (Manning, 2020). Striding into uncharted territory, McCarthy needed to find a term to describe a new concept in computer science, where machines could perform tasks typically requiring human intelligence (Manning, 2020; Shubinski, 2022). McCarthy was seeking financial support from the Rockefeller Foundation to hold a two-month conference titled the "Dartmouth Summer Research Project on Artificial Intelligence." Granting the mathematician only half the amount he requested, namely $7,500, the conference took place in 1956 at Dartmouth College and is now widely recognized as the birthplace of modern AI (Rockefeller Philanthropy Advisors, 2019; Shubinski, 2022). Although this new field of computer science was understood by only a handful of researchers at this time, its significance was clear. Bell Laboratories, the International Business Machines Corporation (IBM), and RAND all supported the conference to enable their key researchers to attend (Shubinski, 2022).

Philanthropy's early endorsement of the development of AI technologies at Dartmouth College in 1956 set the ground for the sector's ongoing commitment, with contributions to AI, Machine Learning, and Data Science technology (AIMS) philanthropy reaching $2.6 billion in 2021 (Herzog et al., 2021). However, the use of philanthropic resources to support the research and development of unexplored technological fields was not a new phenomenon (Zinsmeister, 2016). On the contrary, the two fields have been experiencing a dynamic relationship for centuries; on the one hand, philanthropy contributes to technological progress, and on the other hand, technology allows philanthropy to achieve greater results and operate more effectively (as discussed in Section 3). The intersection of AI and philanthropy is one of the many manifestations of the intertwining of the fields of technology and philanthropy (Henriksen & Richey, 2022).

Philanthropy's long-standing commitment in supporting pioneering technological research and development is well documented in the literature (Bernholz et al., 2010; Michelson, 2020). From the Renaissance, where wealthy patrons supported inventors and scientists, to the Industrial Revolution, during which philanthropists played a pivotal role in the development of transportation, communication, and infrastructure, and up to the philanthropists of the 21st century who are spearheading disease eradication and technological revolutions, examples are plentiful (Zinsmeister, 2016; Michelson, 2020). Nonetheless, philanthropists' belief in the need to tackle societal problems through scientific research and technology took an important turn at the end of the 19th century. Led by the work of the Rockefeller philanthropies, the rise of "science philanthropy" was a direct response to what the American magnate philanthropists of the time saw as the inability of charities to address the root causes responsible for creating and perpetuating human suffering (Bremner, 1994; Sealander, 2003; Bishop & Green, 2008).

Science philanthropy commonly refers to the giving of charitable funds for scientific or technological research (Falk & Michelson, 2021). Although this philanthropic field of action has evolved and adapted over time, it retains one crucial feature, namely, its high-risk tolerance (Bennett et al., 2016; Falk & Michelson, 2021). Unlike government agencies, which are often bound to tight budgets and lengthy bureaucratic practices, POs enjoy greater operational freedom. Fields of research that are difficult to fund with taxpayers' money can be spearheaded by philanthropists who, as private individuals, are far more flexible and agile with their resources. A recent example is philanthropies' fast response to the Covid-19 pandemic, with POs committing more than $10 billion

globally in just over six months from the start of the pandemic in late 2019. Led by American and Chinese philanthropies, whose giving amounted to, respectively, more than USD 6 billion and USD 1 billion, POs' contribution by May 2020 represented 38% of all the total Covid-19 relief funds (Church, 2020; Council on Foundations, 2020; Watson, 2022). Moreover, as many POs are set up to help solve long-standing societal problems, they can invest in technologies that do not provide immediate or guaranteed results but that are expected to have a positive effect on society in the long term. This characteristic also distinguishes POs from the for-profit sector's short-term return approach.

Despite POs' long-standing role as funders of technology, it remains difficult to measure the extent to which POs fund science and technological innovations and the full impact of these investments on society. While education, health, and economic and community development remain the largest recipients of national and transnational philanthropic funds, the field of technology and science is rarely mentioned on its own in contemporary reports on philanthropic giving trends (Johnson, 2018; Rockefeller Philanthropy Advisors, 2022; Indiana University Lilly Family School of Philanthropy, 2023).[1,2] Quite exceptionally, the Rockefeller Philanthropy Advisors' report "Global Trends and Strategic Time Horizons in Philanthropy 2022" lists science and technology as the tenth focus area for that year. This appears to indicate that, although they exist as an individual focus area, technology and science are primarily funded by POs as a means to address global challenges such as education and health rather than for the sake of developing innovations in the field. This would align with the role of POs as promoters of social good rather than profit-seeking institutions.

2.2 The rise of tech philanthropists in the 21st century

Tech leaders began to play an increasingly prominent role in the field of philanthropy in the late 1990s and early 2000s following the dot-com boom. As the internet generated enormous wealth and boosted the software and computer industry, tech companies and their founders decided to devote part of this wealth to philanthropy (Bishop & Green, 2008; The Economist, 2023). New foundations and funds were established, pioneered by the Bill and Melinda Gates Foundation in 2000, with the ambitious missions to address some of the world's most challenging issues (Bennett et al., 2016). Tech moguls brought with them their own ideas on charitable giving, distancing themselves from the grandfathers of modern philanthropy like American industrialists Henry Ford, John D. Rockefeller, and Andrew Carnegie. These industrialists had created and operated foundations that were designed to outlive them, employing numerous advisors to provide funds over many years to achieve a goal. Tech philanthropists, instead, wanted to operate differently, prioritizing data, speed, and impact (Bishop & Green, 2008; The Economist, 2023). By framing their donations as an investment in humanity rather than charitable giving, tech founders bring not only their vast resources to the table but also their own culture and methodology (Bishop & Green, 2008; Bennett et al., 2016; Torres & Zinsmeister, 2018).

Today, tech actors are leading philanthropic players, contributing billions of dollars annually to philanthropic causes around the world (Torres & Zinsmeister, 2018). According to the Chronicle of Philanthropy, of the $33.4 billion given away by America's top 50 donors in 2021, about three-quarters of those donations came from people who have made their fortunes in the tech industry (The Economist, 2023). In India, the consultancy Bain & Company reports that tech titans hold about 8% of the total wealth of the country's super-rich yet their donations account for 35% of charitable giving (The Economist, 2023). In 2022, tech magnate Bill Gates made what is considered the biggest philanthropic contribution of the year with a $5 billion donation to the Bill and Melinda Gates Foundation (Di Mento, 2022).

In addition to their large and growing financial contributions, tech moguls' involvement in philanthropy continues to evolve as they craft new ways of practicing philanthropy. One such example is what is commonly referred to as "trust-based philanthropy." Popular among philanthropists of the caliber of Mackenzie Scott and Jack Dorsey, it involves moving away from philanthropy's traditional "hands-on," reporting-centered approach and giving trustees the freedom to decide how best to use the money (Kulish, 2021; The Economist, 2023). This frees grantees from time-consuming bureaucratic activities such as reporting requirements and grant applications, thus allowing them to focus on their work. For understaffed nonprofits operating with limited resources, this alternative way of giving is particularly valuable.

The recent rise of AI technologies, besides further enriching the tech industry, is also shaping tech moguls' engagement with philanthropy. Drifting away from the conventional practice of writing huge checks in support of philanthropic causes, tech philanthropies are now leveraging their own corporate expertise and technological resources to advance social good (Shi et al., 2020; Henriksen & Richey, 2022). The latest expression of the interlocking of the fields of philanthropy, humanitarianism, and technology, this AI-rooted philanthropic approach is commonly known as **AI for Social Good (AI4SG)** (Henriksen & Richey, 2022). While acknowledging that there is still a limited understanding of what exactly constitutes AI "for the social good" (Floridi et al., 2020; Shi et al., 2020), for the sake of clarity, this chapter adopts the following definition of AI4SG developed by Floridi et al. (2020): "the design, development, and deployment of AI systems in ways that (i) prevent, mitigate or resolve problems adversely affecting human life and/or the wellbeing of the natural world, and/or (ii) enable socially preferable and/or environmentally sustainable developments."

3 Technology's impact on philanthropy

3.1 Tech-driven change in philanthropy – a double-edged sword

With a legacy of supporting the advancement of scientific and technological developments, as illustrated in Section 2, the philanthropic sector itself is shaped by these developments. Recent technological advancements have been both positively and negatively disrupting traditional philanthropic practices.

On the one hand, POs have been benefiting from technological innovations on multiple fronts, from the creation of new avenues for donor engagement and fundraising, to the facilitation of impact measurement and reporting activities (Bernholz & Skloot, 2010). The emergence of online giving platforms, combined with the rise of digital communication and social media, is amplifying the reach and effectiveness of philanthropic efforts, allowing for information and resources to travel at an unprecedented speed. By providing greater access to information and lower barriers to entry, digital giving is contributing to the democratization of philanthropy and the forming of "networked philanthropy" (Bernholz et al., 2010; Arrillaga-Andreessen, 2015). Not only can people give directly to the causes they care about, but innovative giving mechanisms such as crowdfunding allow small donors to come together and pool their resources for greater impact, while forming networks dedicated to finding solutions to complex social problems. From peer-to-peer fundraising platforms such as GoFundMe and JustGiving, to the global philanthropic collaborative Co-Impact, which runs million-dollar funds and is financed by some of the world's most resourceful philanthropic actors, technology has been key to pushing down barriers to philanthropic collaboration (Co-Impact, 2023). Moreover, by narrowing the gap between giver and receiver, these technologies have the potential to empower both actors, giving donors more control and

information over their contributions and providing receivers a medium through which they can independently voice their demands (Arrillaga-Andreessen, 2015).

On the other hand, the adoption of technological tools by philanthropies continues to present a number of challenges, risks, and ethical considerations, as discussed in the literature (Taddeo, 2016, 2017; Bernholz & Reich, 2017; Floridi et al., 2018, 2020; Kanter & Fine, 2020; O'Brien, 2022). A first challenge is the availability of data within the philanthropic sector. Databases of POs' activities and strategies are often unavailable, incomplete, inaccurate, or contain irrelevant data (known as "data deserts") (Tudor et al., 2024). These shortcomings can severely hinder POs' ability to leverage the power of AI and, in worst-case scenarios, heighten bad practices that can dangerously magnify and reinforce preexisting inequalities and bias (Kanter & Fine, 2020; O'Brien, 2022). Second, even when data is available, storage and handling practices may not be aligned with the work of POs. Most AI software is designed to extract the maximum profit from digital data, which often entails the collection, long-term holding, and handling of digital data. Such practices, particularly in vulnerable humanitarian settings, can be dangerous and lead to discrimination and polarization (Tudor et al., 2024). In addition to these more tangible risks, several ethical concerns surround the incorporation of AI technologies in POs, as explored in detail by Floridi et al. (2018, 2020), Taddeo (2016, 2017), and Bernholz and Reich (2017). Overall, it appears that despite the numerous ethical frameworks and principles for AI that have been suggested, there remains a sense of disillusionment about their effectiveness, with POs questioning whether these frameworks adequately address the specific requirements of their sector (Coppi et al., 2021). This may well combine with a fear of alienation; being a largely human-centric sector, the delegation of tasks from humans to machines may be perceived as unnatural and inadequate by many philanthropic professionals, who may view it as a dilution of their efforts (Tudor et al., 2024).

External risks, such as cyber-attacks and data breaches, also exacerbate nonprofits' mistrust in technological tools and affect the sector's digitalization. Prominent examples include the cyber-attack conducted against the International Committee of the Red Cross (ICRC) and the data breach against the NPO Broward Health of California, both in 2022 (CBS Miami, 2022; Duguin, 2022; ICRC, 2022). In the United Kingdom (UK), the government's Cyber Security Breaches Survey reported in the winter of 2022–2023 that 24% of UK charities had been victims of cyber breaches and/or attacks (United Kingdom Government Department of Science, Innovation & Technology, 2023). However, the UK government data also comes with the recognition that the charity sector "still has a long way to go" when it comes to preventing and responding to such attacks (United Kingdom Government Department of Science, Innovation & Technology, 2023). In the Asia-Pacific region (APAC), the numbers are even higher. Infoxchange's recent APAC NGO Digital Capacity report shows that one in six of the surveyed nonprofits had been the victim of a cybersecurity incident in the past year, with the number rising to one in three in Indonesia (Infoxchange, 2023). These examples highlight that the relationship between NPOs and technological tools must be one of understanding, not just adoption; nonprofits must invest in building the necessary infrastructure to ensure the safe and effective use of these tools. This, undoubtedly, requires an investment of resources on the part of nonprofits that may not always be readily available.

Overall, the recent fast pace of AI development is opening up a myriad of new opportunities for all sectors, including the philanthropic sector. At the same time, however, this acceleration of digitalization has strained the ability of some actors to rapidly build the infrastructure needed to successfully adopt and benefit from AI-powered tools. In this race to adapt, the nonprofit sector has been lagging behind, with the sector continuing to have one of the lowest rates of AI usages (Google, 2019; Herzog et al., 2021). A recent survey investigating Swiss POs' current and potential use of AI tools appears to support this trend, indicating that, with a few exceptions,

the majority of Swiss philanthropies do not use AI tools or do so minimally, with less than 15% of POs reporting the use of any form of AI (Della Giovampaola et al., 2023). Moreover, the survey reveals a mismatch between POs' areas of current AI use and areas of desired AI support. Another study on Swiss POs also found an overall low level of digital presence, with only 30% of POs mapped across Switzerland having live websites (Tudor et al., 2024). In the UK, the Charity Digital Skills annual reports (2017–2023)[3] outline how the country's nonprofit sector continues to have a digital skills gap characterized by a lack of resources and unclear digital strategies, even after the Covid-19 pandemic and lockdown, which forced the sector to largely go remote (Charity Digital Skills Report, n.d.). At the European level, a 2023 survey led by Philea on data science, AI, and data philanthropy in foundations across Europe showcases how, despite the diverse spectrum of data maturity levels among foundations, the internal use of AI and data science remains widely infrequent, with only a handful of exceptions (Candela et al., 2024). The survey report identifies a lack of expertise and know-how as the primary reason for foundations' lack of engagement with AI. Noting that these considerations are informed by the European context, which limits their generalizability, the lack of data and reports on the digitalization of philanthropies in other regions could be taken as an indication that the sector is also lagging behind elsewhere.

In contrast, tech philanthropies are leading philanthropic actors, especially in the AI for Social Good (AI4SG) space. While traditional philanthropic organizations struggle to adopt AI and digital technologies, tech-focused philanthropies, particularly those specializing in AI4SG, are at the forefront of this movement. These tech philanthropies are not only more adept at using AI, but they are also driving innovation in this space. The contrast, then, is that while the broader philanthropic sector is lagging in AI adoption and struggling with digital transformation, a specific subset of the sector – tech philanthropies, especially those focused on AI4SG – are not only adapting but leading in the use of AI for philanthropic purposes. This creates a divide within the sector, where the capabilities and impact of different types of philanthropic organizations vary significantly based on their engagement with and adoption of AI technologies. This reinforces a somewhat paradoxical relationship between technology and philanthropy. While non-tech-led philanthropies continue to fund technological advancements, with AI serving as a prime contemporary example, they remain cautious about the widespread adoption of technological tools, including those they themselves fund.

In sum, while technological innovations offer unprecedented opportunities to democratize giving, enhance donor engagement, and foster collaborative impact, they also pose significant challenges, such as data privacy concerns, cybersecurity threats, and the potential to exacerbate inequalities. This way, the tech-driven change in philanthropy comes with both opportunities and challenges, representing a double-edged sword.

3.2 Data philanthropy – an example of opportunities and challenges

The recent phenomenon of "Data Philanthropy" exemplifies the opportunities and challenges that derive from integrating AI in philanthropy and how these can impact POs' digitalization. AI tools require data to operate, even when they are used to achieve social good. The digitalization of POs and the integration of AI technologies has created a demand for data, on the part of POs. While the philanthropic arms of tech companies can draw from their parent companies' data storages, this is somewhat unnatural for the rest of the philanthropic sector. First, the sector suffers from so-called "data deserts" due to a lack of good practices for uniformly collecting, filtering, and storing complete and accurate data (Kanter & Fine, 2020). Moreover, uneven data availability entails that issue areas where data is more abundant, such as health and climate change, receive far more attention,

as opposed to peace and justice, an issue area more complex to capture with data (Google, 2019). Second, due to the sensitive nature of the information, philanthropies often gather data with the principle of "collect little and destroy as soon as possible" (Bernholz & Reich, 2017). The corporate sector, on the contrary, is an important collector of data, particularly given the great value data holds in today's digital civil society (Lev Aretz, 2019). Thus, data itself has now become a philanthropic resource, potentially on par with the more traditional financial and human resources donated to philanthropic causes.

Data philanthropy,[4] the donation of data from private companies and individuals for socially beneficial purposes, and data-raising, the effort to get people to give their data for a cause, are gaining traction (Taddeo, 2016, 2017; Lev Aretz, 2019; Bernholz, 2021). Data philanthropy, in particular, is becoming increasingly popular following the pioneering 2015 Ncell-Flowminder collaboration that used mobile data to track the displacement of individuals after the Nepal earthquake (Lev Aretz, 2019). Today, private sector companies such as Pfizer, Genentech, and Reddit are donating data to organizations, including the UN. The practice of data philanthropy offers the opportunity to harness the value of data for the social good, unlocking the many benefits that are derived from the sharing of information, especially in emergency settings (Taddeo, 2016). It also allows for the harnessing of an abundant resource. In today's digital civil society, data is constantly being generated, whether actively through the use of devices or passively, such as passing through controlled spaces (Bernholz, 2021). While this constant tracking has many drawbacks, it also provides significant access in times of need.

Nonetheless, data philanthropy differs from the donation of other resources such as financial or human resources. This is because while philanthropy has, traditionally, focused on voluntary giving of private resources, the ownership of which is largely clear and undisputed, digital data donated by private companies is contested property (Bernholz & Reich, 2017; Lev Aretz, 2019; Bernholz, 2021). The question as to who is the "true" owner remains: the person whose information is involved, the company that provides the software collecting the data, or the platform on which the data is collected? According to Taddeo (2017), data philanthropy is both morally ambiguous and desirable. It is morally ambiguous because, as currently practiced, it is in tension with individual rights, and desirable because of the positive change it can promote, such as speeding emergency responses and advancing scientific knowledge. This tension between individual rights and data philanthropy, Taddeo (2017) explains, is operational rather than structural, and can and should be resolved by putting in place the right ethical principles, protocols, and infrastructure. While the recent enactment of the General Data Protection Regulation (GDPR) in Europe and the California Consumer Privacy Act (CCPA) are important steps toward giving individuals greater control over their data, the question of data ownership is far from resolved.

At the same time, regulations governing how AI technologies use this data remain largely inadequate. The fast pace of development of AI systems exacerbates this challenge, not only making it very difficult for policymakers and ethicists to keep up but also creating an imbalance of knowledge between the developers of AI systems and those charged with regulating them. The European Union's (EU) AI Act, which was passed in 2023 and will come into force at the end of 2025, is the world's first comprehensive AI law and an important step in the regulation of AI. Nevertheless, the regulation of AI and its data lags far behind the rapid developments seen in the AI space.

Overall, tech philanthropies' access to and ability to manage this new form of philanthropic resource, needed to run AI systems, namely data, allows them to position themselves as leaders in integrating AI into philanthropy. Moreover, tech philanthropies have the necessary mindset to drive change due to their culture of innovation. On the contrary, non-tech philanthropies, which suffer – from the start – from a low level of digitalization and potential resource limitations due to their

nonprofit nature, are at a disadvantage when it comes to capitalizing on the benefits that AI can bring to philanthropic actions. This divergence between the tech and non-tech philanthropies, however, should not obfuscate the fact that the innovation promoted by tech giants, including that advanced under the label of "philanthropy," does not always result in public social good. Traditional philanthropic entities, with their expertise, can and should act as important checks and balances on AI philanthropy. In other words, while tech philanthropies can help the sector benefit from AI technologies, NPOs can work to mitigate the potential harms of AI in the field of social good. As Floridi et al. (2018) outline, it is not only the misuse of AI that needs to be avoided but also its underuse. As Section 4 expands, the discrepancy between the nonprofit and for-profit AI4SG actors can be successfully bridged through cross-sector, multi-stakeholder partnerships, to ensure the successful deployment of AI.

4 AI for Social Good – stakeholders and modern applications

Having navigated the historical developments of the intersection of these two fields, AI and philanthropy, we now turn our attention to the main movement dominating this landscape – AI for Social Good (AI4SG). This section will illustrate some of the key players in the field, as well as emerging trends and modern applications.

4.1 AI4SG stakeholders

Leaders in the research, development, and implementation of AI systems, transnational tech companies are driving the integration of AI4SG through their philanthropic arms. Prominent examples include Google.org, Microsoft's AI for Good, and IBM's Open Source (see more stakeholder examples in Table 1.1), which are using their products, technological expertise, and financial resources to advance philanthropic endeavors. For example, in 2023 alone, Google.org invested $1 million to train NGOs in AI and cybersecurity, while Microsoft spent $60 million to empower NPOs and other organizations tackling the world's most challenging health issues, in part by providing them with the necessary AI tools and expertise (Choudhary, 2023; Microsoft, 2023).

However, the dominant role of tech companies should not obfuscate the fact that the AI4SG ecosystem is also populated by a variety of other stakeholders. It is important to recognize who these stakeholders are, their contribution(s), and how they interact, as it is the way they interact that determines the why, what, and how AI tools are used to advance social good. Table 1.1 provides an overview of the main actors present in the space of AI4SG, categorized by role.

The use of AI to propel positive societal impact can stem from one of the following three stakeholder dynamics:

1 Tech companies purposely developing AI technologies for social good;
2 NPOs adopting AI tools designed for the for-profit market and using them to propel positive societal impact;
3 NPOs partnering with tech companies to create new AI tools (Bernholz & Reich, 2017; Kanter & Fine, 2020; Shi et al., 2020; Henriksen & Richey, 2022).

The three dynamics show how, even though actors in the AI4SG space may act alone or in partnership(s), tech companies are always present in one form or another. This presence can be direct, when they consciously develop an AI tool intended to bring societal good, or indirect, when their AI for-profit products are utilized for such purposes. In other words, as Fine and Kanter (2020) note, a clear trend when it comes to AI and giving is the need of NPOs to partner with tech

Table 1.1 Primary, secondary, and regulatory AI4SG stakeholders

	Stakeholder	*Examples*
Primary stakeholder: Developer, user, and/or deployer of AI4SG technologies	Technology company or philanthropic arm of tech companies	Microsoft Philanthropies Google.org Google AI for Social Good DeepMind Ethics & Society NVIDIA Foundation
	Philanthropic organizations (encompasses all nongovernmental organizations working to achieve positive societal impact)	Mastercard Impact Fund Bloomberg Philanthropies Robin Hood Foundation OpenAI Inc.
Secondary stakeholder: Financier or beneficiary of AI4SG technologies	Donor	The Rockefeller Foundation The Ford Foundation The Bill & Melinda Gates Foundation The Open Society Foundations
	Beneficiary	Local communities affected by climate change Patients benefiting from AI-driven healthcare initiatives Students in underprivileged areas receiving AI-enhanced education Small-scale farmers using AI for agricultural improvement Refugees and displaced people receiving aid through AI-enabled systems
	(Potentially) Technology provider	Amazon Web Services (AWS) IBM Watson

(*Continued*)

Table 1.1 (Continued)

	Stakeholder	*Examples*
Regulatory stakeholder: Provide the legal and/or ethical framework for the development and/or deployment of AI4SG technologies	Governments[a] or supranational organizations	European Union's AI Act[b]
		European AI Alliance
	International organizations	United Nations' International Telecommunication Union (ITU) AI for Good Initiative[c]
		World Economic Forum – Centre for the Fourth Industrial Revolution
	Research institutions	Data Science for Social Good – University of Chicago
		AI Now Institute – New York University
		Ada Lovelace Institute (an independent research institute, funded by the Nuffield Foundation)
		Alan Turing Institute
		Oxford Internet Institute – University of Oxford
		Stanford Institute for Human-Centered Artificial Intelligence (Stanford HAI)
		The Berkman Klein Center for Internet & Society
		Swiss Data Science Center (SDSC) – a joint venture between EPFL and ETH Zurich
		Centre for Artificial Intelligence Policy (CAIP) – University of Zurich
		AI Ethics Lab – University of Basel
	Advocacy groups	Electronic Frontier Foundation (EFF)
		Access Now
		Future of Life Institute (FLI)
		Center for Humane Technology
		Algorithmic Justice League
		Partnership on AI (PAI)

a Governments are also an important element of these partnerships. Not only do they provide the legal framework within which these partnerships can operate, but both for-profits and NPOs often depend on governments for public data sources (Bernholz & Reich, 2017).

b https://artificialintelligenceact.eu/the-act/.

c https://aiforgood.itu.int/.

Table 1.2 Examples of partnerships between NPOs and for-profit companies

For-profit	*NPO*	*Objective*
Maxar Technologies' DigitalGlobe (a satellite imaging company)	USA for UNHCR (a nonprofit created to support UNHCR)	Provide satellite imaging to support with refugee assistance.
Microsoft	Operation Smile	Develop a facial modeling algorithm, which works with Microsoft Pix, to improve facial surgeries.
Salesforce.org	Philanthropy Cloud (philanthropic arm of Salesforce.org)	An employee engagement database product for corporations to facilitate employee giving, volunteering, and other social impact activities.

Based on Kanter and Fine (2020).

companies. Table 1.2 lists some examples. On paper, the partnering of NPOs with tech companies seems ideal. NPOs bring sector expertise and access to the problem(s) being addressed while tech companies provide the necessary resources and technical know-how, as otherwise very few organizations have both the social and technical expertise to successfully design and implement AI for good projects (Gosselink & Bromberg, 2019). Lacking either social or technical expertise, the risk of unintended consequences upon deployment majorly increases.

Increasing interconnectedness with and dependence on the private sector presents both opportunities and obstacles for the nonprofit sector. On the one hand, these partnerships can greatly benefit NPOs and their work. In the case of POs, the use of AI can improve operational efficiency, donor engagement, grantmaking, monitoring and evaluation, and communication. It allows organizations to be more transparent, thus building trust with their public (Chu & Wang, 2019; Kanter & Fine, 2020). AI technologies can also uncover synergistic partnerships among philanthropic actors, thus enhancing collaboration and maximizing pooling of resources for greater social impact (Tudor et al., 2024). In addition, once successfully adopted, these technologies can allow POs to cut down costs and operate on "new" budgets.

On the other hand, these ties can hinder the independence of the nonprofit sector. In particular, proximity to the for-profit sector leads to the clash of two very different cultures about the relationship between profit generation and social change. As Henriksen and Richey (2022) note in their research on Google's tech philanthropy, profitability is highlighted as a key element in the use of AI4SG, with profit generation seen as positive for the advancement of social change. But Google is not the only example. This form of "for-profit philanthropy," which combines making money with doing good, is particularly popular among tech philanthropists. The Chan Zuckerberg Initiative (CZI) caused quite a stir in 2015 when it registered as a for-profit limited liability company (LLC), openly blurring the lines between philanthropy and investment. Others, such as Peter Thiel and John Doerr, have also set up mechanisms designed to generate returns on their philanthropic investments. Open AI is another prominent example. Founded in 2015 by Elon Musk, Peter Thiel, and Sam Altman, among others, the research organization now consists of two entities: a nonprofit research segment, OpenAI Inc., and a for-profit subsidiary, OpenAI Global LLC, which was established at a later date to enable the commercialization of its AI technologies and applications.

Although this new approach of for-profit philanthropy can free philanthropic actors from some of the constraints of the nonprofit status and open new avenues for continuous reinvestment, Henriksen and Richey (2022) note how the message behind AI4SG problematically "frames controversial and profitable data practices as having public value, […] obscuring the power relations and politics of digital capitalism." Notably, this juxtaposition of different values is possible, in part, because AI4SG remains a vague concept, as there is still limited understanding of what exactly constitutes AI "for the social good" (Floridi et al., 2020; Shi et al., 2020). The lack of a clear definition can benefit AI4SG, allowing it to grow and innovate beyond definitional boundaries. Floridi et al. (2020) outline how "context-specific design and deployment could prevent such value misalignment and deliver successful AI4SG projects on a more consistent basis."

4.2 AI4SG modern applications

Alongside the diverse landscape of stakeholders of the AI4SG movement, equally important are the practical applications of this technology in philanthropic efforts. This section illustrates some of the varied ways in which AI is being used to address social challenges and enhance philanthropic initiatives. It is worth noting that under the umbrella of AI for philanthropic purposes, we distinguish between two types:

1 AI *adopted by* POs for an *internal* purpose, i.e., adopting AI technologies as part of the organization's normal operations to improve operational efficiency, such as AI-powered donor matching; and
2 AI *used by* POs or tech philanthropies[5] for an *external* purpose, i.e., adopting AI technologies to enhance their social impact, for AI-based satellite imagery analysis to better mitigate crisis response. The latter case is closely related to the broader concept of AI4SG, as previously defined in Floridi et al. (2020).

Concerning type (1) above, as discussed earlier, traditional POs remain either hesitant or underresourced to adopt AI tools for internal purposes, lagging behind other sectors in their level of digitalization and AI adoption. Traditional POs' unfamiliarity with AI systems also leads to a limited deployment of AI technology for external operations (type 2), which can hinder their ability to achieve philanthropic impact. In contrast, tech philanthropies are deploying extensive AI solutions for both internal (type 1) and external (AI4SG, type 2) purposes. This comes as no surprise, considering that "philanthropy is just a drop in the bucket compared to the goliath-sized tech platforms, the goliath-sized AI companies, the goliath-sized regulators and policymakers that can actually take a crack at this*"* (Dervishi, 2023). In addition, insights from the AI Index (Stanford University, 2023) reveal a shifting landscape in which the tech industry has rapidly outpaced academia in developing state-of-the-art AI and machine learning algorithms since 2014, reiterating its clear leadership in the AI space.

Most major tech companies have initiated AI4SG programs. For example, Microsoft Philanthropies has launched five initiatives: *AI for Health*, *Earth*, *Accessibility*, *Humanitarian Action*, and *Cultural Heritage*; as well as a closely related program called *Data for Society.* Alphabet, Google's parent company, has several programs, including *AI for Social Good*, *AI Impact Challenge*,[6] and *AI for Global Goals.*[7] Examples of implemented projects include preventing blindness by detecting diabetic retinopathy with AI,[8] forecasting river floods,[9] building greener cities,[10] and helping people with non-standard speech be better understood.[11]

From the side of traditional POs,[12] such as Novartis Foundation, several notable AI for Health have been developed. *AI4Leprosy* aims to accelerate leprosy detection through image analysis of skin lesions, while *AI4BetterHearts* is pooling cardiovascular health data from hospitals and primary care centers to improve heart health outcomes globally. Similarly, *AI4HealthyCities* set out to understand how heart health can be improved by modifying the underlying social, economic, or environmental health determinants. Lastly, they partnered with Tencent to develop an AI nurse for patients diagnosed with heart failure – used to anticipate disease progression and provide targeted interventions, while allowing medical practitioners to track patients remotely.

In such a vast and exorbitantly fast-paced field, understanding the landscape of possible AI4SG use cases is not a defined end goal, but rather an ever-shifting landscape of novel, emerging solutions. Overall, AI4SG projects have been implemented across most sectors, domains, and Sustainable Development Goals (SDG), with a McKinsey Global Institute (2018) report mapping over 160 non-exhaustive use cases across ten sectors. Examples range from improving cancer diagnostics, to enhancing blind people's ability to better navigate their environment, to aiding disaster relief efforts by using AI to analyze satellite imagery. It is worth noting that the pace of AI has evolved exponentially since 2018, with 2023 alone seeing the unprecedented rise of generative AI and the popularization of Large Language Models (LLMs), meaning that the number of use cases today has increased drastically. For instance, LLMs are finding new applications in fields previously thought to be the exclusive domain of human labor, such as mental health care (Ji et al., 2023; Xu et al., 2023). Today's use cases are virtually limitless to any social or environmental issue, provided the right data can be sourced and fed to an appropriate AI model (see Figure 1.1). Other notable examples include increasing accessibility for vulnerable populations,[13] supporting crisis response interventions,[14] human rights,[15] climate change,[16] charitable giving (Kanter & Fine, 2020), civic engagement,[17] and predicting poverty using satellite imagery (Jean et al., 2016).

In summary, while tech philanthropies are pioneering the AI4SG space, traditional philanthropic organizations are increasingly recognizing the imperative to adapt and integrate these powerful tools. However, as the sector evolves, it must also navigate the complexities of cybersecurity, data privacy, and ethical use to ensure that technological advancements effectively serve its mission to foster social good. To ensure that it fulfills this mission, it can be guided by principles to "become good at AI for good" (Kshirsagar et al., 2021). Key among these principles are:

Healthcare	Environment	Crisis Response	Climate	Education
• Drug discovery • Cancer screening • Automated diagnoses • Epidemic modelling	• Wildlife conservation • Predicting plant disease • Preventing overfishing • Predicting wildfires	• Satellite data to assess damage on a large area (floods, eartquakes) • Find missing people	• Predicting extreme precipitation • Modeling carbon sequestration • Energy efficiency	• Enhance classroom learning • Maximise student achievement • Identifying student distress
Examples of data sources include: satellite imagery, weather data, medical imaging, social media, text, images.				

Figure 1.1 Examples of AI for Social Good (adapted from Tudor et al., 2024).

1 **Educational Alignment –** continually educate POs about AI's potential and limitations, tailoring expectations to fit achievable and workflow-enhancing goals;
2 **Dynamic Scoping** – engage in ongoing dialogue with POs to develop solutions that remain practical and responsive to evolving needs;
3 **Data Integrity and Security** – ensure comprehensive understanding and management of datasets, their metadata, and associated privacy concerns to build reliable models. Several AI4SG domains suffer from subjective labeling or insufficient datasets;
4 **Inclusive Expertise** – integrate POs' domain expertise into model development to enhance feature selection and engineering, model choice, and model regularization;
5 **Ethical and Practical Deployment** – prioritize project constraints and domain-specific metrics in model development and deployment, to create solutions that are both ethical and practical;
6 **Human-Centric AI Design** – maintain a "human-in-the-loop" approach to AI projects that actively engages POs in the modeling process for better aligned outcomes;
7 **Long-Term Commitment** – recognize the need for sustained engineering resources for maintaining and updating deployed models, focusing on efficiency and practical impact rather than just machine learning metrics (Kshirsagar et al., 2021).

In the absence of these guiding principles, AI4SG is not without risks, unclear ethical standards, or even unintended consequences. Some of these risks arise from the tech industry's culture of moving fast and iterating solutions on the go (Tomašev et al., 2020), while not paying enough attention to long-term outcomes or sector-specific challenges. This culture is likely to bleed into tech philanthropies' approach to AI4SG projects, which currently dominates this space and therefore requires greater attention to ethical principles. Long-term commitment, dynamic scoping, and deep partnerships between the nonprofit and for-profit sectors remain paramount.

5 Conclusion

The relationship between technology and philanthropy is neither new nor static, with the interlocking of the fields of AI and philanthropy being one of its most recent expressions (Henriksen & Richey, 2022). This chapter provides an overview of the intersection of AI and philanthropy, from the early support of POs to AI development, to the modern application of AI in philanthropic work, with the aim of understanding its current status and charting its future trajectory.

We begin by exploring the early role of philanthropy in supporting AI research and development, and then focus on the rise of tech philanthropy and the AI4SG movement. This history shows that, prior to the rise of tech philanthropy and the AI4SG movement in the early 21st century, the relationship between the two was primarily one of philanthropic funding. In other words, philanthropes would fund technological innovation, but would rarely be users of those technologies themselves. Fast forward to today, and apart from a few leading foundations, philanthropic funding in the field of science and technology is primarily directed at fostering innovation as a means to address global challenges such as education and health, rather than for the sake of developing innovation in the field. Tech philanthropists, with their resources and expertise, are disrupting this relationship, positioning themselves as both funders and users of technological tools like AI. This gap in technological knowledge and resources within the philanthropic sector has created a wide discrepancy in the sector's digitalization levels.

In discussing the opportunities and challenges presented by philanthropies' adoption of technological tools, the latest of which are AI-powered tools, we outline the multiple elements that contribute to POs' varying AI adoption rates. This also helps explain, in part, why the majority of the

nonprofit sector is lagging behind when it comes to digitalization. In sum, we conclude that while technological innovations offer unprecedented opportunities to democratize giving, enhance donor engagement, and foster collaborative impact, they also pose significant challenges such as data privacy concerns, cybersecurity threats, and the potential to exacerbate inequalities. Overcoming these challenges is important to enable an equitable and inclusive digitalization of the sector.

Finally, we dive into the AI4SG movement, mapping key stakeholders and prominent AI4SG initiatives and trends. Again, the AI4SG movement is not static, but rather an ever-shifting landscape of novel, emerging solutions. These solutions are widely applicable across most sectors, domains, and SDGs, given appropriate and ethically sourced data that can be fed into appropriate AI models. However, this wide applicability speaks to the versatility and utility of such kinds of tools in addressing social and environmental issues, without forgetting the principles of "becoming good at AI for Good" (Kshirsagar et al., 2021) for successful implementation and deployment.

Notes

1 In total, 150 respondents from 30 countries completed the survey used to inform the report (Rockefeller Philanthropy Advisors, 2022).
2 The Global Philanthropy Tracker (GPT) presents data on four flows – philanthropic outflows, official development assistance (ODA), remittances, and private capital investment – for 47 countries. The data gathered represent the year 2020 or the most recent year with available data.
3 Established in 2017, the Charity Digital Skills Report is the annual barometer of UK charities' digital skills, attitudes, behaviors, and needs.
4 The term was reportedly coined by World Economic Forum CTO Brian Behlendorf during a spontaneous conversation at the 2011 World Economic Forum (Lev Aretz, 2019).
5 We distinguish between traditional philanthropic organizations (POs) and the philanthropic arm of tech companies (i.e., tech philanthropies) because the latter have access to massive tech capital and deep know-how tech expertise that most traditional POs often lack.
6 The Google AI Impact Challenge is an open call to nonprofits, social enterprises, and research institutions worldwide to submit their ideas for using AI to address social and environmental challenges. The program aims to support projects that address issues in the areas of health, economic opportunity and empowerment, environmental protection and conservation, education, misinformation, and crisis and emergency response.
7 Google's AI for Global Goals initiative is a program that aims to accelerate progress on the United Nations' Sustainable Development Goals (SDGs) by supporting organizations that use artificial intelligence (AI) to address social and environmental challenges.
8 Google's Project ARDA.
9 Google's Flood Forecasting Project.
10 Google's Project Green Light.
11 Google's Project Relate.
12 It is worth noting that it is predominantly large-scale POs that have been implementing and deploying AI tools, whereas most of the nonprofit sector, made up of small actors, is lagging behind.
13 E.g., Google's Project Along and Project Relate.
14 E.g., Facebook Disaster Maps.
15 UN Universal Human Rights Index.
16 E.g., Google's Project Contrails.
17 E.g., Salesforce's Philanthropy Cloud.

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