The Human Side of Service Engineering, Vol. 108, 2023, 114–122
https://doi.org/10.54941/ahfe1003112

Ethical AI for a Better Society: The Challenging Task of Driving the Digital and Ecological Transformation in Italy

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ABSTRACT

Artificial Intelligence (AI) is expected to play a significant transformative role for a better society and collective well-being in line with the goals of the 2030 Agenda UN. To drive social innovation, AI must be built on ethical principles and human-centred values. The link between AI, ethics, and social innovation is quite unexplored in the literature and has never been more relevant as European countries develop national plans for post-pandemic recovery. In Italy, the Plan for Recovery and Resilience (PNRR) identifies AI as a strategic asset for investment in all sectors to support the country's transition to a more digital and sustainable economy and an inclusive society. This paper explains the role of ethical AI in the context of ecological and digital transformation, which is at the heart of the Italian Recovery Plan - Next Generation EU for Italy. It expands knowledge on the transformative role of AI in management studies; it provides highlights to policy makers for the development of socially oriented AI from a service ecosystem perspective.

Keywords: Ethical AI, Social innovation, PNRR, Service ecosystem, Well-being

INTRODUCTION

The relationship between ethics and artificial intelligence (AI) is controversial, and although the public debate on the ethical implications of AI dates back to the 1960s (Morley et al., 2020) the topic is currently high on the agenda of policymakers (European Commission, 2021). In the management and business literature, the relationship between AI and ethics is still quite unexplored; nevertheless, in recent years it is gaining attention (Colurcio & Altimari, 2021).

In the last three years, there has been a significant increase in the number of publications. Management and marketing studies on AI and ethics, mainly empirical in nature, have addressed specific application areas of AI and the related implications, including legal and liability implications. Specifically: i) customers acceptance and trust in healthcare (Borau et al., 2021) and banking services (Cui, 2022); ii) employees acceptance of AI in the workplace (Glikson & Woolley, 2020; Wei & Prentice, 2022); iii) consequences of AI-enabled employees (Wirtz et al., 2018); iv) the impact of AI in human-resource management (Tambe et al., 2019); v) legal and transparent human-machine interaction (Campbell et al., 2020; Davenport et al.,

2020; Dwivedi et al., 2021; Park & Woo, 2022; Przegalinska et al., 2019). The analysis of the literature shows that the main ethical concerns related to AI proliferation generally relate to human rights protection, transparency, accountability, trust, and sustainability. The resulting policy issues underscore the need for rules that allow humans and AI to coexist (Kaplan and Haenlein, 2020).

In practice, AI has a strong impact on shaping the economy and the human ecosystem (Davenport et al., 2020) and is expected to play a significant role in solving many societal challenges: "*(...) machines are tasked not only to promote well-being and minimize harm, but also to distribute the well-being they create, and the harm they cannot eliminate*" (Awad et al., 2018, p. 59).

Although scholars have called for research on the AI's impact on people and society since 2014 (Horvitz, 2017), little is known about how to maximise AI's societal benefits (Mulgan, 2018; Russell et al., 2015). To become the driver of new societal values for a "good AI society," ensure human dignity and promote human well-being, AI must be at the service of the human project, not vice versa (Cath et al., 2018). Accordingly, it must be built on ethical principles and human-centred values (Cath et al., 2018; Floridi et al., 2018, 2020) and linked to social infrastructures or services that have a strong public interest component.

The authors believe that the issue of AI's transformative role for a better society and collective well-being has never been more timely, as European countries grapple with national plans for post-pandemic recovery funded by EU Next Gen.

In Italy, the PNRR (National Plan for Recovery and Resilience) was developed specifically to support the country's transition to a more digital and sustainable economy, which is seen as essential to promoting long-term economic resilience and reducing the country's vulnerability to future crises. A key focus of the plan is to support Italy's digital and ecological transformation.

Based on the observation that the current discourse on AI doesn't pay enough attention to ethical AI for a better society, and in light of the above considerations as well as the potential applications of the PNRR, the aim of this paper is to shed light on the links between social innovation, ethics and AI.

The paper hypothesizes that a framework exists that links AI ethics and social innovation. In particular, the framework aims to better explain the role of ethical AI in the context of ecological and digital transformation, which is the main theme of the Italian Recovery Plan - Next Generation EU for Italy (PNRR).

AI, ETHICS AND SOCIETY

The emerging research stream of the "good AI society" (Cath et al., 2018; Floridi et al., 2018; Wamba et al., 2021) or AI for social good has sparked both public and academic interest in projects/applications, principles, policies, incentives, and ethical frameworks to balance the benefits and risks of AI adoption, as well as individual and organizational benefits, with those

of the larger community. Chui et al. (2018) and, more recently, Wamba et al. (2021) have identified potential areas of AI for social impact (transportation, home/service robotics, healthcare, education, resource-poor communities, public safety, employment and workplace, and entertainment) to describe the state of research in AI for good. These works emphasise the growing social relevance of AI and, on the other hand, show that research on the social and societal aspects of AI has lagged behind the increasing emphasis on its technical aspects (Wamba et al., 2021).

According to Floridi et al. (2018), to create a Good AI Society "*AI should be designed and developed in ways that decrease inequality and further social empowerment, with respect for human autonomy, and increase benefits that are shared by all, equitably*" (p. 701). To achieve the above goals, AI technology must gain people's trust, serve the public interest, and enhance shared social responsibility. This requires a multistakeholder approach and adherence to five ethical principles: i) beneficence, promoting wellbeing, preserving dignity, and sustaining the planet; ii), non-maleficence, ensuring privacy, security, and prudence in capabilities; iii) autonomy, protecting the intrinsic value of human decisions including the ability to delegate decisions; iv) justice, promoting prosperity and preserving solidarity; and v) explicability, incorporating intelligibility and accountability. However, these principles alone are not sufficient to create socially good AI, as they are usually defined at a very high level and independently of any specific context. Therefore, important issues arise within the concrete context of an application as well as the organizational and social context (Prem, 2023).

Although the AI literature clearly refers to ethics and a good AI society, there is little evidence of how ethical AI can be explicitly integrated to instigate a good AI society, which is confirmed by the lack of a basic theoretical framework for a good AI society. To go a step further, we consider ethical AI under the umbrella of social innovation.

To this end, we define social innovation and provide an overview of some of its key features that are relevant to the question of what ethical AI might look like to solve social problems.

Social innovation refers to the creation and implementation of novel, scalable, and sustainable ideas and solutions that meet social needs, solve systemic social problems (Aksoy et al., 2019; Mulgan et al., 2007; van Wijk et al., 2019) and create value that primarily benefits society as a whole rather than individuals (Phills et al., 2008). These solutions are more effective and efficient than existing ones because they lead to new or improved capabilities and relationships and better use of assets and resources (Caulier-Grice et al., 2012). Social innovations are not only considered good for society, but also for improving society's ability to act (Caulier-Grice et al., 2012). They range from new ideas to the creation of new processes and procedures and occur only when a social idea or invention is implemented, accepted, and integrated into a social system, i.e., when it contributes to human and social life (Howaldt & Schwarz, 2011). More recently, Pel et al. (2020) explicitly referred to social innovation as a socially constructed entity relying on specific socio-material context defined as the people, materials and technologies, institutional rules, and their interactions. Social innovation deepens

interactions among people within a social system (cultural, political, psychological, economic, technological, environmental, and spatial) because it implies changes in social relations (Moulaert et al., 2005; Pel et al., 2020) and a transformative change resulting from collective, and purposeful actions that challenge, change, or replace dominant institutions in a specific sociomaterial context (Pel et al., 2020) to reconstruct how social goals are achieved (Cajaiba-Santana, 2014).

Social innovation initiatives are therefore understood as emergent collectives of individuals (Pel et al., 2020) developed with and by users rather than delivered to and for them (Caulier-Grice et al., 2012, p. 22).

Moreover, the synergistic relationship between social innovation and AI for a better society has been emphasized in the literature related to public sector innovation and resilient governance (Misuraca & Viscusi, 2020), smart city design and management (Bokhari & Myeong, 2022), and social service (Minguijon & Serrano-Martinez, 2022).

ECOLOGICAL AND DIGITAL TRANSITION IN ITALY: STATE OF ART

PNRR stands in Italian for "Piano Nazionale di Ripresa e Resilienza" (National Reconstruction and Resilience Plan, in English). It is the Italian government's plan for using funds (about €190 billion) from the EU's Recovery and Resilience Facility to support the country's reconstruction efforts and promote long-term economic resilience, with a focus on supporting the digital and ecological transition. The Italian PNRR programme encompasses a wide range of investments and reforms in several key areas, including digitalization, sustainability, infrastructure, and social inclusion. This is intended to support Italy's transition to a more digital and sustainable economy, which is seen as essential to promoting long-term economic resilience and reducing the country's vulnerability to future crises. Both the digital and green transitions are seen as essential to promoting sustainable growth and job creation while reducing carbon emissions and mitigating the effects of climate change.

The digital transition component of the Italian PNRR includes investments in digital infrastructure, such as broadband networks and 5G, as well as workforce training in digital skills. The goal is to support the digitization of public administration, education, and businesses, which will help increase the country's productivity and competitiveness. The ecological transition component, on the other hand, includes investments in renewable energy, energy efficiency, sustainable mobility and ecosystem restoration, among others. The goal is to reduce carbon emissions, improve air and water quality, and protect biodiversity while creating new green jobs.

PNRR provides funding for education and training, research and innovation, and social services. The aim is to promote greater social inclusion and reduce inequality, as well as create new jobs and promote sustainable growth.

Therefore, we can affirm that PNRR promotes social innovation as a means to promote sustainable and inclusive economic growth as social innovation refers to the development and implementation of new ideas, practices, and solutions that address social needs and add social value (Aksoy et al., 2019; Mulgan et al., 2007; van Wijk et al., 2019). In particular, examples

of social innovation initiatives that could be supported by the PNRR include programs to promote digital skills training and online learning, social entrepreneurship and impact investing, and community-led initiatives that address social and ecological challenges. Overall, the PNRR's focus on social innovation is an important step toward creating a more sustainable, inclusive, and resilient Italian (and European) economy that can help reduce inequality and improve the quality of life for all citizens.

AI FOR SOCIAL INNOVATION

The PNRR identifies AI as a strategic area for investment across all of its intervention areas (see Table 1). As the above table indicates, AI can play a critical role in fostering the creation of social and environmental value and contribute significantly to the creation of social innovation.

The emphasis on AI in a plan for a country's recovery and resilience after a pandemic highlights the importance of AI as a trigger for social innovation processes, both in terms of social and ecological dimensions. On the other hand, real-world examples of AI applications show that AI is being used to improve societal well-being, both in urban contexts (e.g., smart cities) and in the transport or health sectors. Of course, the potential of AI applications to create social and diffuse value depends primarily on the availability of large amounts of (big) data and on the operational ability to manage data. Nevertheless, the link between AI and social value, AI and social innovation is not inevitable. To foster and support social innovation, AI must meet ethical requirements. This means that AI development must focus on economic and social inclusion, human rights, and environmental sustainability (Floridi et al., 2020; Wamba et al., 2021).

Our idea is that AI needs an ecosystem approach (Vargo et al., 2017) to its application to respond to societal challenges. AI's potential contribution to social innovation should include an in-depth plan for linking in a comprehensive socio-political design issues of multi-stakeholders responsibility, cooperation among them, and shareable values that underpin our understanding of a good AI society. From this point of view, the formation of

Table 1. AI in PNRR.

Area of intervention	Area of investment	Value creation goal
Developing AI skills and talent	Education and training programs to develop AI skills and talent in Italy	Creating a strong workforce capable of driving innovation in the field
Supporting AI research and development	Research and development in AI	Creating new technologies and applications that can drive economic growth and promote social progress
Developing AI infrastructure	Infrastructure, such as high-performance computing facilities and data centers	Support AI research and development
Promoting the use of AI in various sectors	Healthcare, transportation, and energy	Improve efficiency, safety, and quality of life

service ecosystems is crucial because only when people with different skills and backgrounds are strongly committed to working for a common cause can solutions be created that have a positive social impact.

However, given the complexity of the context of analysis related to human well-being and the major problems related to climate change, the need for an "orchestrator" (Caridà et al., 2022) for the AI ecosystem for well-being emerges. Munoko (2020) emphasises that policy makers should ensure the physical and psychological safety of people interacting with AI, the objectivity of AI, and value-based design of AI. In addition, AI systems should be accompanied by appropriate licensing procedures and certifications (Munoko et al., 2020). We believe that only the government can act as an orchestrator, as only it can simultaneously play the different roles of actor, facilitator, and promoter of ethical AI (Caridà et al., 2022; Hurmelinna-Laukkanen & Nätti, 2018). Indeed, effective internal governance, the ability to make decisions, communicate, and act to support the achievement of mission/purpose, is an essential prerequisite for transformative social innovation (Pel et al., 2015). With the aim of linking AI and social innovation, we have shed light on the conditions under which social innovation initiatives are strengthened by AI and how they can ensure ethical and sustainable development, referring to the Italian PNRR.

According to Pel et al. (2020), changes in the socio-material context shape the trends of transformative social innovation initiatives. By promoting digital and environmental transformation, PNRR is changing the socio-material context in Italy, but ethical principles should also be crucial in addressing these trends, which brings the role of ethical AI into focus. For social innovation initiatives arising from this context, it is necessary to focus on ethical aspects to avoid their possible undesirable effects.

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