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A Continuing Relevance: *Rerum Novarum* in the Age of Artificial Intelligence

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Abstract

As artificial intelligence (AI) transforms the global landscape of labor and power, this paper reexamines *Rerum Novarum (1891)*— Pope Leo XIII's foundational social encyclial—as a normative framework for addressing ethical dilemmas in the digital age. The study argues that the encyclical's principles—human dignity, just labor, solidarity, and the common good remain urgently relevant as AI-driven automation disrupts traditional employment structures. Drawing on Catholic Social Teaching (CST), magisterial texts, and AI ethics literature, this paper explores how theological moral reasoning can inform the development of ethical, human-centered digital systems and policies. Using a qualitative doctrinal method, the study synthesizes Thomistic natural law, CST principles, and contemporary philosophical reflections to propose a moral vision for justice and human dignity amid technological change. The findings suggest that *Rerum Novarum* provides an enduring ethical foundation for fostering a just, human-centered AI future.

Keywords: Catholic Social Teaching, *Rerum Novarum,* Artificial Intelligence Ethics, Digital Labor, Human Dignity, Common Good

Introduction

The twenty-first century is experiencing a radical transformation driven by rapid advancement of artificial intelligence (AI), automation, and digital technologies. These innovations, giving rise to ethics about justice, dignity, and moral responsibility (Bryson, 2019) [1]. As intelligent systems increasingly influence production, governance, and communication, the moral implications of their development demand serious reflection.

Current discussion in AI ethics often emphasize utilitarian, secular, or technocratic approaches that prioritize efficiency, innovation, and risk management (Mittelstadt, 2019) [5]. However, religious and moral traditions—particularly those grounded in theological anthropology and social ethic—offer complementary insights that can enrich this discourse. Within this context, Catholic Social Teaching (CST) provides a holistic ethical vision that integrates human dignity, solidarity, and the common good.

Pope Leo XIII's *Rerum Novarum (1891)* [4] addressed the social injustices of industrial capitalism, and call for social justice resonated with contemporary concerns about algorithmic exploitation, digital inequality, and the displacement of labor.

Recent papal encyclicals, including *Laudato Si'* (Francis, 2015) [2] and *Fratelli Tutti* (Francis, 2020) [3], extend this tradition by warning against the "technocratic paradigm" that subordinates human and ecological values to technical efficiency. They call for an ethical framework where technology serves humanity rather than dominate it.

This study aims to reinterpret *Rerum Novarum* in light of emerging AI ethics discourse. It seeks to demonstrate that CST offers a robust moral foundation for guiding technological development toward the promotion of human dignity, justice, and the common good. By integrating the theological and ethical dimensions of CST with contemporary debates on Ai, this paper proposes a vision of human-centered technological progress that resists dehumanization and fosters moral responsibility in the digital age.

Materials and Methods

This study employed a qualitative and hermeneutical research design established in the interpretive tradition of moral theology and social philosophy. The research did not involve empirical experimentation but relied on textual conceptual, and ethical analysis of primary and secondary sources relevant to Catholic Social Teaching (CST) and artificial intelligence (AI) ethics.

Research Design

This Study utilizes a documentary and analytical approach, focusing on the critical interpretation of magisterial documents, theological writings, and contemporary AI ethics literature. Primary sources included papal encyclicals such as *Rerum Novarum* (Leo XIII, 1891) [4], *Laudato Si' Fratelli Tutti* (Francis, 2020) [3]. Secondary sources comprised academic journal articles, theological commentaries and philosophical works addressing the moral dimensions of technology and automation.

Data Collection Procedure

Data were gathered from official Vatican publications, peer reviewed journals, and recognized academic databases such as JSTOR, google scholar, and the Vatican Archives. Selection criterion emphasized sources that:

1. Directly discuss the ethical implications of technology or AI;
2. Reflect Catholic or Christian moral perspectives;
3. Provide historical or philosophical context for *Rerum Novarum* and its relevance to modern labor and technology.

The collected materials were examined using hermeneutical interpretation and thematic content analysis. The hermeneutical method allowed the researchers to interpret the enduring moral principles of CST in dialogue with contemporary ethical debates on AI. Thematic content analysis was applied to identify recurring moral concepts such as human dignity, justice, subsidiarity, solidarity, and the common good, as articulated in both theological and secular sources.

Results and Discussions

The analysis revealed that the moral principles articulated in *Rerum Novarum* (Leo XIII, 1891) [4] remain profoundly relevant to the ethical challenges presented by artificial intelligence (AI) and digital technologies. Three central themes emerged from the hermeneutical and thematic analysis:

1. Human dignity and the person-centered nature of labor;
2. The moral responsibility of technological development, and;
3. The pursuit of the common good through social justice.

Human Dignity and the Meaning of Work

Pope Leo XIII grounded *Rerum Novarum* in the conviction that human labor is not merely an economic transaction but a participation in God's creative work (Leo, XIII, 1891) [4]. This understanding affirms that technology must serve the human person rather than reduce individuals to instruments of production. In contemporary contexts, AI systems often prioritize efficiency and profit over the dignity of workers, leading to displacement, depersonalization, and new forms of inequality (Bryson, 2019) [1].

From the perspective of Catholic Social Teachings (CST), the anthropological foundation of AI ethics must recognize the human creativity and moral agency cannot be replicated by machines. The mechanization of human decision-making risks eroding personal responsibility and ethical discernment, both of which are essential to human flourishing (Pontifical Council for Justice and Peace, 2004) [6]. Thus, AI should be developed to enhance human potential rather than diminish it.

Moral Responsibility in Technological Development

Rerum Novarum emphasized the duties of employers and the state to regulate industrial practices in accordance with moral law. In the digital era, this moral framework extends to the designers, programmers and policy makers responsible for Ai technological. Pope Francis (201; 2020) [3] warns of a "technocratic paradigm" that subordinates ethics to technical efficacy, resulting in what he calls "moral atrophy."

Therefore, the moral responsibility of technological innovation lies in ensuring that AI systems are transparent, accountable, and aligned with human values (Mittelstadt, 2019) [5]. The ethical formation of developers and institutions becomes as crucial as technical proficiency. CST insists that technological progress without moral direction leads to social alienation and exploitation—phenomena reminiscent of the industrial injustice *Rerum Novarum* sought to address.

The Common Good and Social Justice

The principle of the common good—a cornerstone of CST—demands technological advancement benefit all members of society, particularly the marginalized. In this light, digital inequality, algorithmic bias, and data exploitation represent violations of justice and solidarity (Pontifical Council for Justice and Peace, 2004) [6].

The Church's call for solidarity challenges the competitive and profit-driven models that dominate the digital economy. Ethical AI must promote inclusive participation, equitable access to technology, and the protection of workers' rights in automated industries. Such an approach transforms AI from a tool of domination into an instrument of social cooperation and moral development (Francis, 2020) [3].

Theological Synthesis

Synthesizing these findings, the study suggests that *Rerum Novarum* provides and enduring moral grammar for evaluating AI ethics. Its insistence on human dignity, social justice, and the common good grounds a theological anthropology that can guide the digital transformation toward humane and just outcomes. By reinterpreting transformation toward humane and just outcomes. By reinterpreting *Rerum Novarum* in this context, the Church offers not merely historical insight but a prophetic moral vision that calls contemporary society to use technology in service of integral human development.

Conclusion

This Study demonstrated that Pope Leo XIII's *Rerum Novarum* (1891) [4] continues to provide a timeless ethical foundation for addressing the moral and social challenges of the digital age. Through a hermeneutical and thematic analysis, it was shown that the encyclical's central principles—human dignity, and moral responsibility and the common good—offer a coherent framework for evaluating the development and application of artificial intelligence (AI).

In reaffirming the sacred value of human labor, *Rerum Novarum* calls attention to the inherent worth of the person as the subject, not the global economy, this moral vision reminds society that technology must serve humanity rather than replace or dominate it (Leo XIII, 1891; Bryson, 2019) [4, 1]. Furthermore, the study emphasized that moral

accountability in technological design and governance is essential to prevent dehumanization and social injustice (Mittelstadt, 2019; Francis, 2020) [5, 3].

By integrating insights from *Laudato Si'* (2015) and *Fratelli Tutti* (2020), the research affirmed that Catholic Social Teachings (provides not only a critique of technocracy but also a positive ethical direction: one that orients AI toward Solidarity, justice and ecological responsibility. These theological principles highlight the need for human-centered innovation—technological progress guided by conscience, compassion, and the pursuit of the common good (Pontifical Council for Justice and Peace, 2004) [6].

In conclusion, *Rerum Novatum* remains a prophetic moral compass for the 21st century. Its enduring wisdom invites policymakers, developers, and ethicists to ground AI ethics in a holistic understanding of the human person. Future research should continue to explore the integration of CST with contemporary AI governance frameworks to promote a just, sustainable, and humane digital civilization.

Recommendations

Based in the findings and conclusions of this study, several recommendation are proposed for researchers, educators, policymakers, and technology developers concerned with the moral implications of artificial intelligence (AI):

1. AI governance models should incorporate moral principles derived from CST—particlarly human dignity, solidarity, adn the common good—as evaluative criteria in technological design adn implementation. This integration woul provide a holistic moral compass beyond technical utilitarian consideration.
2. Educational institutions and technology companies should promote moral formation among engineers, developers, adn data scientists. Ethical education rooted in the philosophical and theological understanding of the human person can help ensure that innovation aligns with justice and human welfare (Francis, 2015) [2].
3. Governments and international organizations should establish regulations ensuring that automation and AI do not compromise workers' rights, social equity, or privacy. Policies should uphold the inherent value of human labor and encourage technology that augments rather than replaces human creativity (Leo XIII, 1891) [4].
4. Further Scholarly collaboration is encouraged between theologians, philosophers, and ethicists, and computer scientists. Such interdisciplinary engagement can bridge the gap between moral theology and technical innovation, ensuring that AI ethics remain both contextually relevant and spiritually grounded (Bryson, 2019; Mittelstadt, 2019) [1, 5].
5. The digital divide should be addressed as a moral ands social justice issue. Efforts must be made to make AI and digital technologies accessible to marginalized communities, promoting inclusivity and participation in the benefits of innovation (Francis, 2020) [3].

By implementing these recommendations, society can foster a moral ecosystem where technology serves the flourishing of all people. The enduring wisdom of *Rerum Novarum* thus continues to guide humanity toward a future where digital transformation reflects both technical excellence and spiritual integrity.

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