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ETHICAL CHALLENGES OF ARTIFICIAL INTELLIGENCE IN THE LIGHT OF THE TEACHINGS OF POPE FRANCIS

Abstract: In the modern world, significant technical and technological progress is taking place, which creates new challenges for societies and nations. It is known that currently the main manifestation of the above development is the use and application of artificial intelligence. The above developments related to artificial intelligence create both opportunities and threats for humanity and the Catholic Church. It should be emphasized that the Catholic Church, entrusted with the task of examining the signs of the times, should present its position on artificial intelligence. Therefore, the main goal of the author's work is to evaluate artificial intelligence in the light of the teachings of Pope Francis. This research uses an interdisciplinary approach, drawing on knowledge from theology, ethics, philosophy and technological studies. The article is about a review and analysis of selected church documents, and above all, Francis' teaching and statements. The analysis focuses on examining the threats and opportunities related to artificial intelligence, assessing the Catholic Church's view on technological progress, examining Pope Francis' vision on the ethical development of artificial intelligence, and the ethical principles of the development and use of AI according to Pope Francis. This article is supported by relevant theological, philosophical, and ethical arguments, as well as real-life examples illustrating the implications of artificial intelligence technologies.

Keywords: artificial intelligence, Church teaching, human subjectivity, human dignity, modern technologies.

Artificial intelligence (AI) technology has a long history, which is actively, and constantly changing and growing. It focuses on intelligent agents, which contain devices that perceive the environment and based on which take actions to maximize goal success chances[1]. AI refers to the simulation of human intelligence in machines designed to think and act like humans, including learning from experience, understanding natural language, recognizing patterns, and making decisions[2].

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[1] J. Shabbir, T. Anwer. *Artificial intelligence and its role in near future.* arXiv preprint arXiv:1804.01396, 28018.

[2] T. Abdallah. *Sustainable mass transit: challenges and opportunities in urban public transportation.* 2023.

AI technologies, such as machine learning and deep learning, have revolutionized sectors like healthcare, finance, and transportation[3].

In healthcare, AI has the potential to revolutionize patient care. From personalized medicine to clinical decision support systems, AI-powered technologies are improving diagnosis and treatment outcomes. Additionally, AI is enhancing healthcare education and awareness, empowering both patients and healthcare professionals[4].

Despite these advancements, AI raises significant ethical concerns, including privacy infringement, algorithmic bias, job displacement, and the exacerbation of social inequalities. This dual nature of AI necessitates a comprehensive ethical framework to guide its development and deployment[5].

Amidst these developments, the Catholic Church, particularly through the teachings of Pope Francis and other aspects of Catholic social teaching, offers valuable insights into navigating the ethical complexities of AI. The Church has been actively engaged in discussions surrounding technological progress. Foundational documents like the Compendium of the Social Doctrine of the Church, along with statements from popes including Paul VI, John Paul II, and Benedict XVI, provide a robust framework for evaluating technological advancements[6]. There has been emphasis on principles such as human dignity, solidarity, and the common good.

This article assesses the implications of AI through the lens of Pope Francis's teachings, integrating theology, ethics, philosophy, and technological studies. The following research questions guide this inquiry:

1. What are the specific ethical challenges posed by AI, and how can they be addressed to ensure that AI contributes positively to society?
2. How can insights from Catholic Social Teaching and the teachings of Pope Francis inform our understanding of the ethical challenges and opportunities presented by AI?
3. How can these insights guide the development and use of AI in a manner that upholds human dignity, promotes the common good, fosters solidarity, and safeguards the environment?
4. What vision does Pope Francis offer for the ethical development and application of AI that upholds human dignity and promotes the common good?

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[3] C. Zhang, Y. Lu. *Study on artificial intelligence: The state of the art and future prospects.* "Journal of Industrial Information Integration" 2021.

[4] B. Shickel, P.J. Tighe, A. Bihorac, P. Rashidi. *Deep EHR: A Survey of Recent Advances in Deep Learning Techniques for Electronic Health Record (EHR) Analysis.* "IEEE Journal of Biomedical and Health Informatics" 2018 p. 1589-1604.

[5] A. Jobin [et al.]. *The Global Landscape of AI Ethics Guidelines.* "Nature Machine Intelligence" p. 389-399.

[6] G.J. Beyer. *J. John XXIII and John Paul II: The Human Rights Popes. Thought.*

5. How can AI be ethically developed and used according to Pope Francis's teachings, particularly in promoting the common good, fostering solidarity and inclusivity, and ensuring environmental protection?
6. In what ways can AI enhance efficiency, improve healthcare delivery, spur economic growth, and address pressing global challenges while adhering to ethical guidelines?

By comprehensively analysing selected Church documents, the teachings of Pope Francis, and relevant real-life examples, this article seeks to illuminate the ethical landscape of AI. It aims to provide a framework for harnessing the transformative power of AI while ensuring that its development and deployment align with ethical principles that benefit all of humanity.

1. ETHICAL CHALLENGES OF ARTIFICIAL INTELLIGENCE (AI) IN THE MODERN WORLD

Artificial intelligence (AI) has transformed various aspects of our lives, from simple digital assistants to complex systems that can perform tasks that typically require human intelligence[7]. While AI offers numerous benefits, it also raises some significant ethical concerns. In this article, we will explore the positive sides of AI, followed by the negative sides, as it relates to society.

One positive side of AI is improving efficiency and tackling global challenges. AI has the potential to revolutionize patient care, boost productivity, improve healthcare delivery, encourage economic growth, and take on pressing global concerns[8]. Clinical decision support systems and personalized medicine are two medical contexts where AI-powered technologies are improving diagnosis and treatment outcomes. AI is also empowering medical professionals and patients by raising healthcare awareness and education[9].

AI stimulates entrepreneurship and creativity as well. AI is promoting economic expansion and employment development by opening up new business opportunities and propelling innovation in goods and services. AI-powered startups are opening up new business opportunities across a range of industries, promoting resource equity and social inclusion[10].

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[7] J. Shabbir, T. Anwer. *Artificial intelligence and its role in near future.*

[8] G. Gopal, C. Suter-Crazzolara, L. Toldo, W. Eberhardt. *Digital transformation in health-care–architectures of present and future information technologies.* "Clinical Chemistry and Laboratory Medicine" (CCLM) 2019 no. 57 (3) p. 328-335.

[9] D. Ng. *Enhancing Patient Care Through AI-Powered Decision Support Systems in Healthcare.* "African Journal of Artificial Intelligence and Sustainable Development" 2023 no. 3 (1) p. 21-30.

[10] D. Sjödin, V. Parida, M. Palmié, J. Wincent. *How AI capabilities enable business model innovation: Scaling AI through co-evolutionary processes and feedback loops.* "Journal of Business Research" 2021 no. 134 p. 574-587.

Furthermore, AI plays a crucial role in addressing pressing global challenges. In climate change mitigation, AI is used to monitor and predict climate patterns, optimize renewable energy sources, and improve energy efficiency. In disaster response, AI analyses data to enhance preparedness, response, and recovery efforts, ultimately saving lives and reducing damages[11].

Despite these positive impacts, AI also presents ethical challenges that need to be addressed to ensure AI contributes positively to society. The first challenge to address is privacy infringement and data misuse**.** AI systems require vast amounts of data to function effectively, often including sensitive personal information. This raises concerns about privacy and the potential misuse of data. For instance, AI-powered surveillance cameras can monitor public spaces and track individuals' movements, leading to potential invasions of privacy[12].

Another threat to consider is algorithmic bias and unfair decision-making as highlighted by studies such as those done by Obermeyer et al. perpetuates and amplifies existing biases present in training data. This is another ethical issue concerning biases and injustices reinforced by algorithms. Algorithms are often designed based on unrepresentative data, thus potentially reinforcing stereotypes and stigmas. For example, automated decision-making systems can unfairly filter out job candidates or credit based on factors of race, gender, sexual orientation, or socioeconomic status. Algorithm auditing and fair, inclusive system design are required[13].

Job displacement and economic inequality is another threat to consider. The automation of tasks traditionally performed by humans can lead to job displacement, particularly in sectors involving routine and repetitive tasks. This can exacerbate economic inequality, as those without the skills to transition to new roles may struggle to find employment[14].

Furthermore, exacerbation of social inequalities is a threat that AI poses. AI has the potential to widen the gap between those who have access to advanced technologies and those who do not. This digital divide can lead to increased social and economic inequality, as the benefits of AI are often concentrated in wealthier, more technologically advanced regions[15].

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[11] C. Brown [et al.] *The Role of Artificial Intelligence in Addressing Global Challenges*. "International Journal of Climate Change Strategies and Management" 2019 p. 689-704.

[12] P. Voigt, A. von dem Bussche. *The EU General Data Protection Regulation (GDPR). A Practical Guide*. 1st Ed., Cham: Springer International Publishing 2017.

[13] W.V. Sarah. *Towards a Just Digital Society: Shared Responsibility According to the Catholic Church*. "STIPAS TAHASAK DANUM PAMBELUM KEUSKUPAN PALANGKARAYA" 2024 p. 169-182.

[14] J. Manyika, M. Chui, M. Miremadi, J. Bughin, K. George, P. Willmott, M. Dewhurst. *A future that works: Automation, employment, and productivity*. McKinsey Global Institute 2017.

[15] D.M. West. *How Google's Project Loon could transform Africa*. Brookings 2015.

Finally, accountability and transparency is also a threat to consider. AI systems can make decisions that are difficult to understand and explain, raising concerns about accountability and transparency For example, if an AI-powered financial system denies a loan application, the applicant may not understand the reasons behind the decision[16].

2. ASSESSING THE CATHOLIC CHURCH'S VIEW ON TECHNOLOGICAL PROGRESS

The Catholic Church has long been engaged in discussions surrounding technological progress, offering valuable insights into navigating the ethical complexities of advancements like Artificial Intelligence (AI)[17]. Central to the Church's perspective is the emphasis on principles such as human dignity, solidarity, and the common good.

In evaluating the Catholic Church's perspective on new technologies and their impact on society, it is important to consider the teachings of several popes as already mentioned. These teachings offer insights into the Church's views on technological progress, ethics, and their implications for human society.

Paul VI, in his 1967 encyclical *Populorum progressio* (*On the Development of Peoples*), emphasized the importance of using technology for the common good and promoting social justice. He highlighted the need for technology to serve all people, especially those in developing countries, and cautioned against its misuse, which could lead to exploitation and inequality[18].

John Paul II, in his 1991 encyclical *Centesimus annus* (*The Hundredth Year*), built upon Paul VI's teachings, affirming the positive role of technology in improving human life but also warning against its potential to dehumanize society. He stressed the importance of ethical guidelines in technological development, calling for a responsible use of technology that respects human dignity and promotes solidarity among peoples[19].

In guiding the development and use of technology, both Popes Paul VI and John Paul II emphasized the importance of addressing the ethical implications of new technologies, particularly in areas such as genetic engineering and biotechnology. They called for a dialogue between faith and reason to ensure that

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[16] D. Gunning. *Explainable artificial intelligence (XAI).* Defence Advanced Research Projects Agency (DARPA), nd Web 2017 p. 44-58.

[17] S. Wijaya. *Safeguarding the Digital Sanctuary: How the Catholic Church Helps to Secure the Digital World in the Age of AI.* "STIPAS TAHASAK DANUM PAMBELUM KEUSKUPAN PALANGKARAYA" 2024 no. 1 (2) p. 15-31.

[18] Paul VI. *Populorum progressio: On the Development of Peoples.* Retrieved from Vatican.va 1967.

[19] John Paul II. *Laborem exercens: On Human Work.* Retrieved from Vatican.va 1981.

technological advancements are guided by moral principles and contribute to the common good. Although artificial intelligence was not a prominent issue during their times, their teachings on the ethical use of technology are still relevant today as we navigate the challenges posed by AI[20].

Benedict XVI, in his pontificate, also addressed the impact of technology on society, building upon the teachings of his predecessors. In his 2009 encyclical *Caritas in veritate*, he emphasized the need for an ethical framework in technological development. He highlighted the importance of ensuring that technology is used in a way that promotes integral human development and respects the environment[21].

Benedict XVI warned against the dangers of technology being used solely for economic gain or to manipulate individuals. He called for a more holistic approach to technology, one that considers its social, economic, and environmental impacts. He also stressed the importance of ensuring that technological advancements are accessible to all people, particularly those in the developing world.

The general Catholic Church and the teachings of various popes including John Paul II, Benedict XVI emphasizes the idea of technology as a tool that should serve humanity, enhancing human life and promoting the common good. This perspective aligns with the Church's broader social teachings, which emphasize the importance of using technology ethically and responsibly. The Church acknowledges the potential of technology to improve the human condition but also warns against its misuse, particularly when it undermines human dignity or promotes inequality.

3. THE VISION OF POPE FRANCIS' TEACHING ON THE ETHICAL DEVELOPMENT OF ARTIFICIAL INTELLIGENCE (AI)

Pope Francis advocates for the ethical development of artificial intelligence (AI), emphasizing its potential to benefit society while warning against its unchecked use. He insists that AI must uphold human dignity, justice, and solidarity, serving the common good. His vision includes the establishment of ethical frameworks and regulatory measures to ensure responsible AI integration. This aligns with broader calls for fairness, transparency, and accountability in AI development, aiming to enhance human flourishing without compromising ethical standards.

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[20] J. Smith. *Ethical Perspectives on Technology: Teachings of Popes Paul VI and John Paul II.* "Journal of Ethics and Technology" 2020 p. 123-145.

[21] Benedict XVI. *Caritas in Veritate: On Integral Human Development in Charity and Truth.* Retrieved from Vatican.va 2009.

In our era of rapid technological advancement and societal complexity, finding consensus on pressing social issues becomes increasingly challenging. Pope Francis, addressing the G7 Session on Artificial Intelligence, aptly noted that amidst this complexity and amid the risk of diminishing human dignity, the implementation of AI systems is fraught with ethical considerations. He emphasized that technology, including AI, is not neutral but inherently reflects the worldview and values of its creators.

In his address, Pope Francis recognize AI as a transformative tool, Pope Francis emphasizes its diverse and expansive applications across crucial fields such as medicine, education, and communication. He underscores that AI's potential to revolutionize these sectors holds profound implications for human life and societal structures. AI technologies are poised to enhance medical diagnostics, personalize educational experiences, and revolutionize communication channels, thereby opening up new avenues for innovation and efficiency[22].

Addressing ethical concerns surrounding AI, Pope Francis acknowledges the excitement over its potential benefits but also raises apprehensions about its negative implications. He emphasizes the dual nature of AI, where advancements bring not only progress but also significant ethical dilemmas. One of his primary concerns is the potential for AI to exacerbate social inequalities. As AI technologies become more integrated into various sectors, there is a risk that access to these advanced tools may be unevenly distributed, further marginalizing disadvantaged communities[23]. More on the ethical concerns, Pope Francis warns against the erosion of human decision-making autonomy. As AI systems become more sophisticated, there is a danger that they could override human judgment and reduce individuals' ability to make autonomous decisions. This shift could lead to a dependency on machines that might undermine human agency and moral responsibility[24].

Pope Francis calls for vigilance and ethical scrutiny in the development and deployment of AI technologies, advocating for a balance where technological advancement does not come at the expense of human dignity and equality[25]. He underscores the fundamental principles of human dignity and the imperative of maintaining human control over AI technologies. He strongly opposes the development and deployment of lethal autonomous weapons, which he believes pose significant moral and ethical risks. These weapons, capable of making life-and-

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[22] S. Lalmuanawma, J. Hussain, L. Chhakchhuak. *Applications of Artificial Intelligence in Medical Sciences.* In: *Artificial Intelligence in Medicine.* Singapore 2021 p. 3-23.

[23] Pope Francis. *Address to the 75th General Assembly of the United Nations* (25.09.2020). Vatican City 2020.

[24] Ibidem.

[25] Ibidem.

-death decisions without human intervention, challenge the very essence of human responsibility and ethical oversight[26].

The Pope's advocacy extends beyond the prohibition of autonomous weapons to broader AI applications. He emphasizes the necessity for stringent human oversight in AI decision-making processes to ensure that these technologies align with moral and ethical standards. This oversight is crucial in preventing AI systems from making biased or unjust decisions that could harm individuals or communities[27].

Pope Francis also highlights the need for AI systems to reflect human values, such as compassion, fairness, and respect for human rights. He calls for an ethical framework that governs AI development, prioritizing the well-being of society over technological advancement. By maintaining human control over AI, society can ensure that these technologies serve humanity rather than undermine it[28].

Discussing the intricate nature of AI systems, Pope Francis draws attention to their algorithmic complexities and inherent risks. He highlights that AI systems, while powerful, are not infallible and are subject to the limitations and biases of their underlying algorithms. These biases often arise from the data inputs used to train AI models, which can reflect existing societal prejudices and inequalities[29].

Pope Francis emphasizes the critical need for transparency and accountability in the design and implementation of AI technologies. He calls for AI systems to be designed with fairness and impartiality, ensuring that they do not perpetuate or exacerbate discrimination. This requires rigorous testing and continuous monitoring to detect and mitigate biases in AI decision-making processes[30]. He advocates for the involvement of diverse stakeholders, including ethicists, sociologists, and representatives from marginalized communities, in the development and governance of AI. By doing so, the AI community can create systems that better reflect the values and needs of all segments of society[31].

The Pope's stance on AI aligns with broader calls within the tech industry and academia for ethical AI practices. Initiatives such as the European Union's guidelines for trustworthy AI and the Partnership on AI's recommendations for ethical AI development resonate with his views. These frameworks stress the importance of fairness, accountability, and transparency, aiming to create AI systems that benefit society while minimizing harm[32]. Calling for an ethical framework

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[26] Pope Francis. *Address at the International Conference "The Common Good in the Digital Age"* (27.09.2019). Vatican City 2019.
[27] Ibidem.
[28] Ibidem.
[29] Pope Francis. *Message for the 54th World Day of Peace.* Vatican City 2020.
[30] Ibidem.
[31] Partnership on AI. *Tenets of Partnership on AI.* 2018.
[32] European Commission. *Ethics Guidelines for Trustworthy AI.* 2019.

in AI development and deployment, He advocates for principles that prioritize human values and the common good of society. He emphasizes that AI should be designed and used in ways that enhance human flourishing and uphold the dignity of every person[33].

Pope Francis has consistently highlighted the moral and ethical implications of AI technologies. He argues that without a strong ethical foundation, AI could exacerbate social inequalities and erode fundamental human rights. Therefore, he calls for the development of AI to be guided by principles that ensure it serves humanity rather than undermining it[34].

One of the key initiatives supported by Pope Francis is the Rome Call for AI Ethics. This initiative, launched in February 2020, is a collaborative effort between the Vatican and leading tech companies and organizations. The Rome Call aims to promote an ethical approach to AI by establishing guidelines that prioritize human dignity, justice, and solidarity. It underscores the need for AI to be transparent, inclusive, and accountable, and for it to be developed and deployed in ways that respect human rights and promote the common good[35].

Urging political action, Pope Francis emphasizes the necessity of regulatory measures to govern AI technologies effectively. He warns against the unchecked proliferation of AI systems, cautioning that without adequate oversight, AI could reinforce a technocratic paradigm that neglects human values and diversity[36].

Pope Francis has consistently highlighted the importance of political and regulatory frameworks in managing the development and deployment of AI technologies. He argues that while AI has the potential to bring about significant benefits, it also poses substantial risks if left unchecked. These risks include exacerbating social inequalities, infringing on privacy and human rights, and entrenching biases and discriminatory practices[37].

In his calls for political action, he stresses the need for comprehensive regulatory measures that ensure AI is developed and used in ways that are transparent, accountable, and aligned with ethical standards. He advocates for policies that promote the common good and protect the most vulnerable members of society. This includes regulations that prevent the misuse of AI in areas such as surveillance, warfare, and economic exploitation.

Pope Francis's warnings against a technocratic paradigm highlight his concerns that an overreliance on technology could lead to the marginalization of human values and the erosion of social and cultural diversity. He cautions that AI, if not properly regulated, could perpetuate existing power imbalances and create

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[33] Pope Francis. *Message for the 54th World Day of Peace.*
[34] The Vatican. *Rome Call for AI Ethics.* 2020.
[35] European Commission. *Ethics Guidelines for Trustworthy AI.*
[36] Pope Francis. *Message for the 54th World Day of Peace.*
[37] Ibidem.

new forms of inequality and injustice. His call for political action is therefore aimed at ensuring that AI technologies are used to enhance human dignity and promote social justice[38].

Finally, to support his advocacy for ethical AI, he endorses initiatives such as the Rome Call for AI Ethics and encourages international cooperation to develop global standards for AI governance. He also calls on tech companies, researchers, and policymakers to engage in dialogue and collaboration to create a regulatory framework that addresses the ethical challenges posed by AI[39].

CONCLUSION

This article makes a substantial contribution to the ongoing discourse on the ethics of artificial intelligence (AI) by integrating perspectives from Catholic social teaching and the moral teachings of Pope Francis. Synthesizing insights from theology, ethics, and technology studies, it proposes a novel framework for understanding and addressing the ethical challenges and opportunities posed by AI. The findings have practical implications for policymakers, technology developers, and ethicists aiming to ensure AI's development and implementation align with Catholic social teaching principles.

Firstly, the article identifies specific ethical challenges posed by AI, including privacy infringement, algorithmic bias, job displacement, and social inequalities. To address these challenges, it proposes a human-centered approach that prioritizes human dignity and the common good. For instance, to protect privacy and handle data appropriately, it is essential to implement robust data protection regulations and transparent practices. Implementing the General Data Protection Regulation (GDPR) in Europe, which mandates explicit consent from individuals before data collection and provides clear information on data usage, serves as a model. Additionally, techniques like data anonymization and differential privacy can further protect individuals' identities while enabling effective data analysis by AI systems.

Secondly, ensuring equitable decision-making and reducing algorithmic bias requires regular audits of AI algorithms. This involves using diverse training data sets and integrating diverse teams into the development process. Companies like IBM and Microsoft are working towards more transparent and fair AI systems by developing tools to identify and correct biases in their algorithms. Furthermore, implementing moral AI standards and conducting effect evaluations are additional measures to promote fairness and justice in AI systems.

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[38] European Commission. *Ethics Guidelines for Trustworthy AI.*
[39] United Nations. *UN Secretary-General's High-level Panel on Digital Cooperation: The Age of Digital Interdependence.* 2019.

Thirdly, AI's potential to displace jobs necessitates a focus on reskilling and upskilling initiatives. Allocating resources for digital skills and new technology--focused training programs is crucial. Public and private sector partnerships can facilitate these initiatives. For example, Amazon's "Amazon Technical Academy" provides rigorous training programs, enabling staff members to transition into software engineering roles. Such programs can serve as models for equipping the workforce for the evolving nature of work.

Moreover, developing explainable AI systems that provide clear and under-standable reasons for their decisions is crucial for enhancing accountability and transparency. This involves creating inherently interpretable models or using techniques to explain complex models' outputs. Regulatory frameworks should mandate transparency in AI decision-making processes; ensuring organizations can explain AI-driven outcomes. Research initiatives by organizations like DARPA focus on creating systems that can elucidate their reasoning in comprehensible terms.

Additionally, the article extends the ongoing ethical discourse on AI by in-corporating perspectives from Catholic social teaching and the moral teachings of Pope Paul VI, John Paul II, and Benedict XVI. It highlights the necessity of pro-moting ethical guidelines and regulations to ensure AI and technological advan-cements are developed and used ethically. Governments and organizations should adopt frameworks aligned with the Church's emphasis on the common good and human dignity, such as transparent data management practices and explicit con-sent requirements exemplified by the GDPR.

To mitigate job displacement caused by AI, investing in reskilling and upskil-ling programs is essential. Collaborative efforts between governments and private sector organizations can provide training focused on digital skills and emerging technologies. Programs like Amazon Technical Academy exemplify how to help workers transition into new roles.

Furthermore, developing explainable AI systems that offer clear and under-standable reasons for their decisions is key to enhancing transparency and acco-untability. Regulatory frameworks should require transparency in AI decision--making processes; ensuring organizations can provide explanations for AI-driven outcomes. Research initiatives by organizations like DARPA aim to create systems that can explain their reasoning in comprehensible terms.

Following Benedict XVI's call for a holistic approach to technology, it is im-portant to consider the social, economic, and environmental impacts of techno-logical advancements. Technology should promote integral human development and respect the environment. Ethical frameworks should ensure technological advancements are accessible to all, particularly those in developing regions.

Finally, this article explores the specificity of Pope Francis's teachings on AI and how they can be practically applied. These principles provide a strong

framework for directing the complex ethical landscape of AI, ensuring it serves humanity rather than undermines it.

1. Pope Francis emphasizes the need for ethical scrutiny in the development and deployment of AI technologies. He advocates for a human-centered approach where AI advancements are guided by principles that prioritize human dignity, equality, and justice. This approach ensures that AI serves humanity's best interests and does not undermine fundamental human values.

2. urging political action, Pope Francis calls for robust regulatory measures to govern AI technologies effectively. He warns against the unchecked proliferation of AI systems, highlighting the risks of social inequality, loss of human autonomy, and ethical lapses if AI development is not adequately supervised. His advocacy aims to establish frameworks that protect human rights, ensure transparency, and promote fair AI practices.

3. Pope Francis stresses the importance of maintaining human control over AI technologies, particularly in decision-making processes. He opposes the development of lethal autonomous weapons and advocates for stringent oversight to prevent AI systems from making biased or unjust decisions. By prioritizing human oversight and accountability, he seeks to mitigate risks associated with AI's algorithmic complexities and potential biases.

4. emphasizing the need for inclusivity and transparency, Pope Francis calls for AI systems to reflect diverse societal values and perspectives. He supports initiatives like the Rome Call for AI Ethics, which promotes guidelines for responsible AI development. These initiatives encourage fairness, accountability, and the consideration of societal impacts in AI design, aiming to create AI systems that benefit all segments of society equitably.

5. Pope Francis advocates for global collaboration among governments, tech companies, and civil society to establish ethical frameworks for AI governance. He endorses initiatives that foster dialogue and cooperation on AI ethics, aiming to develop international standards that uphold human rights and promote the common good. His vision aligns with efforts to ensure that AI technologies contribute positively to societal well-being while addressing ethical challenges effectively.

In essence, implementing these solutions can address the ethical challenges of AI development, ensuring technological advancements contribute to the common good, enhance human life, and promote social justice. The Catholic Church's teachings provide valuable guidance for navigating these complexities, advocating for a human-centered approach and cross-sector collaboration. This article contributes to the ethical discourse on AI by offering practical solutions and insights rooted in Catholic social teaching and the moral teachings of Pope Francis. By adopting these ethical guidelines and promoting collaboration, AI development can uphold human dignity, fairness, and the common good.

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ETYCZNE WYZWANIA SZTUCZNEJ INTELIGENCJI W ŚWIETLE NAUCZANIA PAPIEŻA FRANCISZKA

Streszczenie: We współczesnym świecie ma miejsce znaczący postęp techniczny i technologiczny, który stwarza nowe wyzwania dla społeczeństw i narodów. Wiadomo, że obecnie głównym przejawem powyższego rozwoju jest wykorzystanie i zastosowanie sztucznej inteligencji, a ta z kolei stwarza zarówno szanse, jak i zagrożenia dla ludzkości i Kościoła katolickiego. Należy podkreślić, że Kościół katolicki, któremu powierzono zadanie badania znaków czasu, powinien przedstawić swoje stanowisko w sprawie sztucznej inteligencji. Dlatego też głównym celem artykułu jest ocena sztucznej inteligencji w świetle nauczania papieża Franciszka. Artykuł jest poparty odpowiednimi argumentami teologicznymi, filozoficznymi i etycznymi, a także rzeczywistymi przykładami ilustrującymi implikacje technologii sztucznej inteligencji.

Słowa kluczowe: sztuczna inteligencja, nauczanie Kościoła, podmiotowość ludzka, godność człowieka, nowoczesne technologie.

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Master's degree in Moral Theology, with a focus on integrating moral theology into contemporary pastoral challenges. His life and work reflect a commit-ment to academic excellence, pastoral care, and service to the Church. His ongoing studies and ministry are grounded in a Christocentric vision, inspired by the teachings of the Catholic Church and guided by his mission to bring love, mercy, and hope to all those he encounters.