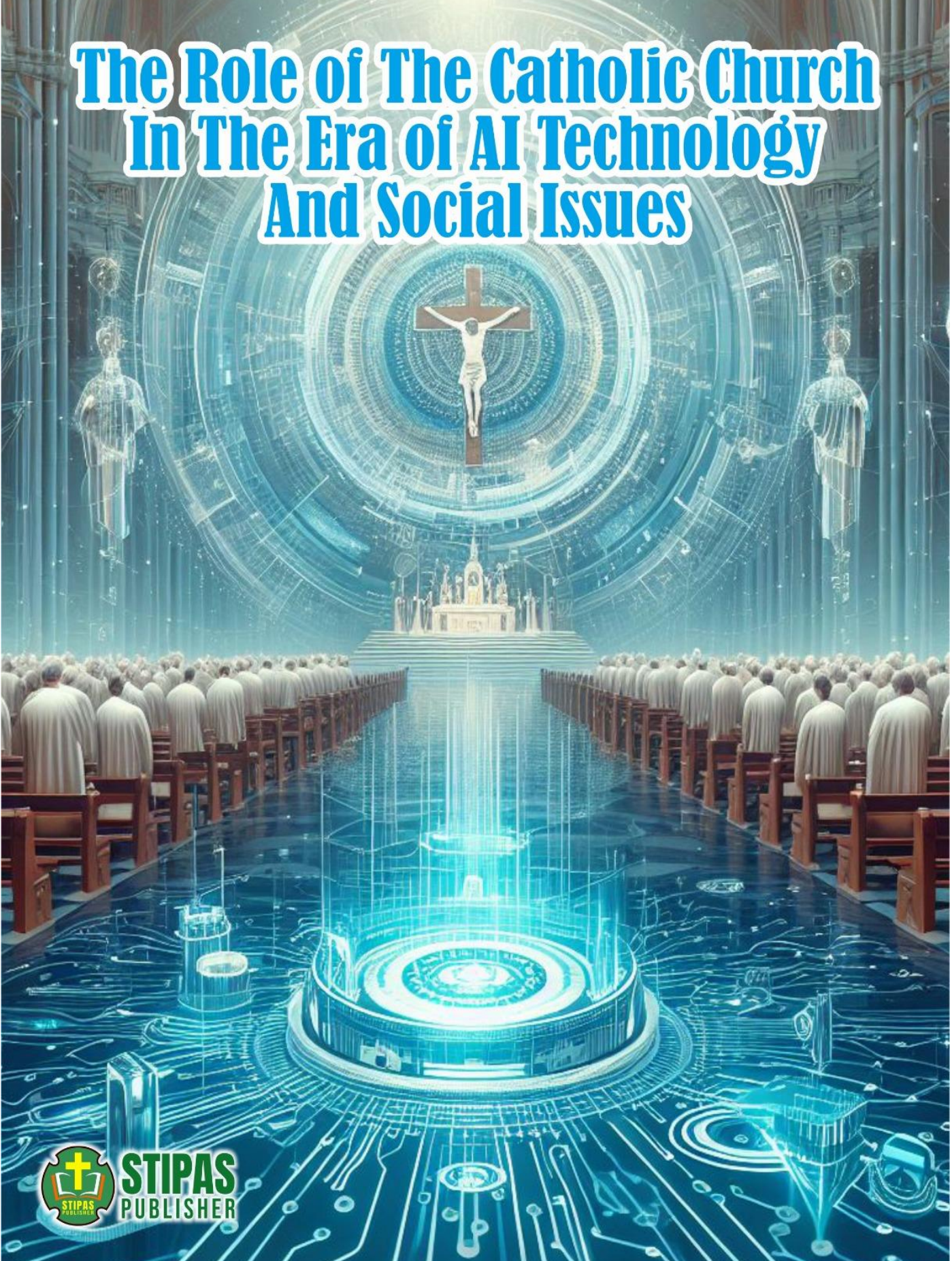
The Role of The Catholic Church In The Era of AI Technology And Social Issues



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The Role of The Catholic Church in The Era of AI Technology and Social Issues

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Preface

Greetings, dear readers,

We are in the era of technology. In this era, a technological explosion emerged, which brought progress in many aspects and significantly contributed to civilization's progress. One of the advances currently in the spotlight is a technology product called artificial intelligence/AI.

In recent years, artificial intelligence has developed rapidly. It must be admitted that advances in AI have brought many benefits because they provide convenience and offer shortcuts to produce something desired. However, on the other hand, this technological product has triggered the emergence of various new social challenges and problems. Ethical problems are problems that need attention in responding to developments that seem to be endless. Amid this uncertain situation, religion is believed to have a crucial role in giving birth to ethical guidance so that progress grows along with the progress of theological-ethical reflection.

As a religious institution, the Catholic Church certainly cannot turn a blind eye to developments in AI technology. His supreme leader, Pope Francis, in the Encyclical Laudato Si' (2015), firmly stated that the development of science and technology must align with the development of a just and sustainable society. So, the Church is obliged to ask its people to participate and make constructive contributions in responding to advances in AI to continue upholding human dignity as the image of God. The Church sees the need to adopt advances, including AI, without being eroded by the currents of the times, which could damage its identity as a spiritual institution. AI should be viewed positively but also with caution so as not to destroy the created order but rather as a tool to develop the Kingdom of God in the world.

From our perspective, this book by Catholic academics comes at the right time. The aim is to examine and dig deeper into the role of the Church in the world regarding the development of AI technology and the social issues that accompany it. By adhering to the Church's official teachings, the authors in this book try to respond to the problems that arise by examining them from various aspects but remain within the corridors of Catholic thinkers. Likewise, the references refer to the latest research on AI.

This book consists of 13 chapters, with the central theme being the progress of AI and how the Catholic Church sees and responds to it. The authors examine it chapter by chapter and analyze it in depth not only from the perspective of their science but also from the perspective of the Catholic Church.

We hope this book can open up the digital generation's insight not to see AI from just one point of view. On the other hand, through this book, it is hoped that the Church, both its people and its leaders, will be able to see the development of AI in a balanced manner and use it as a tool to develop the proclamation of the Gospel and serve the dignity of the human person.

Thank you to the writers from both STIKAS St. Yohanes Salib and other institutions who have taken the time to search and dig deeper into the themes in this book chapter. Thank you for thinking together so that this work can be published. Thank you also to STIPAS Publisher Palangkaraya.

Finally, special thanks to Prof. Emiliana Sri Pudjiarti, and her team for their guidance and hard work in training journal writing and using AI technology for lecturers and students of STIKAS St. Yohanes Salib. Without Mrs. Emiliana's patience, this book would not have been published.

Pontianak, January 19, 2024

Greetings

Simplesius Sandur

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CHAPTER I

Revitalizing God's Grace Amidst Artificial Intelligence Disruption

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Abstracts

Artificial intelligence (AI) disruption impacts human belief systems in daily life. Researchers have discussed the utilization of AI from various perspectives. However, it is found that the study of AI about solidarity with marginalized communities is inadequate. This paper aims to analyze the power of God's grace that triggers the solidarity attitude of the Catholic Church towards marginalized communities. The novelty is identifying the power of grace in sparking the solidarity of the Catholic Church. The finding is that revitalizing God's grace is an ethereal collaboration of the Catholic Church with actual grace. The transcendental collaboration becomes a framework for revitalizing grace in inner and social life. The transcendental collaboration triggers a transcendental motivation: the willingness to get involved and act in love. The belief system and the internal psychology connection are transformed in transcendental collaboration. The transformation occurs from the exploitation-exclusive paradigm to the paradigm of existential benefits to support marginalized communities. Revitalization of grace becomes the actualization of the Catholic Church as the *Grund sacrament* to bring the grace of salvation to marginalized communities. Future research will focus on the application of grace revitalization in the pastoral of the Catholic Church in the field of AI technology.

Keywords: artificial intelligence, Catholic Church, grace, revitalization, transformation.

Introduction

God's grace is the divine power in human nature that enables it to perform social virtues for the glory of God. Amid artificial intelligence (AI) disruption, the Catholic Church has a calling to bear witness to the importance of God's grace. Testimony to the experience of grace can provoke inspiration that motivates the social attitudes of AI stakeholders to protect human life. This effort emphasizes that the Catholic Church is trying to be a sacrament for the world. This paper's

term Catholic Church refers to all Catholics, stakeholders, general users, and AI expert users. The following illustrates the massive use of AI even by the Catholic Church.

AI technology has been utilized in almost all aspects of human life. In the realm of governance, the Japanese government initiated the Super Smart Society 5.0 program in 2016. This program integrates people's physical lives with cyberspace (Gladden, 2019). AI technology has been used in internet-based sales systems, smart homes, and voice services (SIRI and Alexa) on mobile phones. All of this is to provide convenience in meeting the needs of its users (Mobayo et al., 2021). Mentoring systems, innovative learning, and social robots use AI technology to influence learning and education activities. These include virtual facilitator systems, online learning environments, learning management, and learning analytics (Ahmad et al., 2021). In addition, AI technology has been implanted into various innovative automotive navigation systems in automobiles, the military, and the industrial world.

The Catholic Church has implemented AI technology in various aspects of life. The Catholic Church has utilized WI-FI, sound system equipment, projectors, computers, and mobile phones for its mission, proclamation, and social activities. Users utilize some of these to access social media platforms (TikTok et al.) and AI platforms for managing big data or information in cyberspace (chatbots / AI chatbots such as ChatGPT and Jeanni). One of the Catholic Church's innovations in AI technology is Magisterium AI (MAI).

The MAI platform utilizes AI technology for the teachings and news of the Catholic Church. Magisterium AI is one AI platform that maintains the truth of Catholic faith content. The Catholic Church found errors, mistakes, and discrepancies in the truth of Catholic teachings provided by AI. Answers given by AI chatbots are sometimes hallucinatory by gathering false or partially false information (Giangravé, 2023). The Magisterium on AI signifies the Catholic Church's vigilance and wisdom towards AI's use and adverse effects.

Technological development has both positive and negative effects on human life. While some Eastern European countries have benefited from utilizing AI to solve economic and service problems, they are concerned about its adverse effects (Vasilievich Vinichenko et al., 2021). Concerns about the impact of AI use are evident in critical reviews of countries' development programs and expert users. Using AI in sustainable development programs provides relatively more positive benefits than negative impacts. However, the computational sophistication used

consumes much energy and produces a very high carbon footprint that is not environmentally friendly (Vinuesa et al., 2020). A significant concern is that the ease of automation provided by AI may create vulnerabilities and that users, even expert users, may be unable to understand and explain AI-generated decisions to others (Lockey et al., 2021).

Technologists have set an imperative tone against the adverse effects of technology. Humans must relinquish their will and not just property rights to the worst technologies (Joy, 2000). Concerning AI, Christian thinkers have raised ethical and moral concerns about the development of AI technology (Brittain, 2020; Burdett, 2023; Giovan Pugeda III, 2021; Green, 2018).

Amidst the many discussions on AI from Protestant and Catholic thinkers, Levy Checketts, head of the Pontifical Council for AI in Asia, has addressed the impact of AI from the perspective of Catholic social teaching to understand the experience of poverty. According to him, AI technology operates under the dominance of bourgeois and enlightenment epistemologies that ignore the socio-economic circumstances of people, including the poor, the disadvantaged, and the marginalized. In addition, AI algorithms are not equal to human judgment (Checketts, 2022). This means that until now, there has been a gap in discussions about AI technologies that do not accommodate the experiences or ways of thinking of disadvantaged or marginalized communities.

Although many ethical studies and recommendations for AI development are human-centered and not merely technological, very few ethical guidelines and principles consider solidarity (Luengo-Oroz, 2019). In addition, the Rome Curia of the Pontifical Academy for Life has published the guidelines of the Rome Call for AI Ethics (2020). The position of this paper is to fill the theological gap by analyzing the power of God's grace that triggers the Catholic Church's acts of solidarity with marginalized communities. The aim is to identify the power of grace that moves the Church to act in solidarity. This gap in AI technology calls for the Catholic Church, as the Grundsa comment (essential sacrament), to bring God's grace to marginalized communities. As the Grund sacrament, how can the Catholic Church bring grace to marginalized communities amid AI disruption?

Literature Review

Interdisciplinary Discussion on the Concept of God's Grace

This paper focuses on the Catholic faith perspective on God's grace. Various discussions on grace identify that grace's power applies not only to the inner life

but is also isolated from the social dimension. The spark of grace, the social dimension of grace in the Catholic Church, must be revived amid AI disruption. A literature review on grace about dogmatic, metaphysical, sacramental theology, and psychological teachings provides direction for the design of this paper's theoretical framework.

The dogmatic teaching of St. Thomas Aquinas in Summa Theologica recognizes two aspects of God's grace that move the human soul to perform supernatural virtues. The two aspects of God's grace are gratia gratum faciens (sanctifying-habitual grace) and gratia gratis data (unconditional-actual grace). Both are inseparable and reciprocal. In faith, Catholics received habitual grace through baptism; it abides, sanctifies, and makes man pleasing before God. While actual grace operates to prepare and direct the human soul to habitual grace and remain in it, this grace is effectual when humans are willing to collaborate with God's grace (Aquinas, ST I-II, q.111, a.2). Based on these reflections and dogmas, the eruption of God's grace has a sacramental dimension with aspects: internal (collaboration) and social (social-Christian attitude).

Some authors metaphysically analyze God's grace in Himself. According to Neil J. Ormerod, through the grace of divine initiative, the triune God calls human beings to engage in a supernatural order. What happens is the economic providence of the Triune God (Ormerod, 2019). This means that humanity's natural involvement in God's providence is the essence of the work of salvation. With Karl Rahner's perspective, Brandon Peterson defines God's grace as the inner reality that unifies the world through Jesus Christ, who takes humans' place through the cross of salvation (Peterson, 2020). Ontologically, human salvation refers to the involvement of Catholics in taking part in the salvation of humanity.

Several authors have theologically analyzed the grace of God to show the urgency of the outbreak of God's grace in the social dimension that stems from the reception of the Seven Sacraments in the Catholic Church. E.P.D. Martasudjita said that daily life should be an extension of the life of Christ celebrated and received by Catholics through the Sacrament of the Eucharist (Martasudjita, 2013). To understand the work of grace in a concrete way, Attilio Rossi compares the thought of the Church as a sacrament according to Edward H. Schillebeeckx with Karl Rahner's thought of the Church as a sacrament which is the unity of the people of God and not only unity with God. His concern over the separation of the work of grace from human history resulted in the thought that the Church as a sacrament is integrated into world history to the extent that the Church manifests and carries out God's love for the world (Rossi, 2017).

Meanwhile, Adrianus Sunarko as bishop and chairman of the theological commission of the Indonesian Bishops' Conference (2022-2025) argues that the Catholic Church shares grace in the liturgy of the seven sacraments. From a historical perspective, he saw that the influence of grace in the inner self is overly reflected so it is alleged that the effectiveness of grace is separated from its historical aspects. He suggests that studying grace in the faithful as recipients of grace involves an anthropological dimension (Sunarko, 2018). Sunarko refers to the outpouring of grace as concrete action, not mere cultivation of the inner life. The historical dimension of grace must be realized in humanity's sphere. There is a need for a theory of the realization of grace in the social dimension through acts of love for the unity of the world.

Researchers have discussed the power of God's grace in psychology. Robert Emmons et al. understand that divine grace can be experienced humanly. God's grace within humans provides the potential to enhance human psychological development (Emmons et al., 2017). Likewise, Daniel K. Judd et al. found a positive relationship between God's grace and mental health (Judd et al., 2018). With ground theory, Judd et al. found that God offers a grace relationship with Himself and God's grace expresses God's unmerited love. Regarding human sin, grace is an expression of God's unmerited love through the redemptive work of Christ, who died on the cross to forgive the sin that severed humanity's relationship with God (Hall & McMinn, 2021). Thus, the genuine outpouring God's grace in human beings provides psychological expressions.

Human Cooperation with God's Grace in Catholic Theology

The Catechism of the Catholic Church states that God's plan of salvation is accomplished through the cooperation of His creatures (KGK, 306). Through the Sacraments, the reading of Scripture, and spiritual exercises, the Catholic Church receives the grace of God. God's grace is bestowed upon the Catholic Church to align performance of her duties with God's will. God as the first cause works in and through the second cause, namely human beings (KGK, 308). God's grace gives human beings existence, dignity, and to act independently. Therefore, human beings can be the cause of others by cooperating to perform God's will.

Man's cooperation with God's grace makes him His co-worker. Man can be a co-worker of God who is unaware of his divine plan. Believers can realize God’s grace operating through a life of prayer, suffering, and works of the hands (KGK, 307). Karl Rahner says that man can realize the Holy Mystery (God) in his

transcendental existence. The awareness of God can be experienced amid world affairs, concerns, fears, and hopes. When man accepts that He is from something other than himself, he has a transcendental experience (Rahner, 1987).

Man has the freedom to decide to cooperate with God. In this sense, freedom is also God's grace. God gives the possibility to collaborate freely in His providence. Man is responsible for ruling or conquering the world (KGK, 307). Rahner points out the existence of transcendental freedom. This freedom is transcendental; transcendental freedom operates in the act of reflection and is related to the categorical. Sometimes freedom towards God is understood categorically as human beings encounter God mysteriously in each other. Freedom towards God is not a matter of freedom to do worldly activities but rather the freedom of man to accept the existence of God's self that has been inherent in His existence. (Rahner, 1987).

Grace can be efficacious in the free acceptance of Him. Grace transforms the basic structure of man. The power of grace enables man to know the existence of God in the form of mystery (Rahner, 1987). Transformation makes man's relationship with God close. His life is increasingly adapted to Christian teachings and morals. This is the actual power of grace for self-sanctification. Lumen Gentium states that the original grace of sanctification is participation in the divine life (LG, 2). Thus man's awareness of God's grace enables him to cooperate and have a close relationship with God. In this sense, grace transforms and perfects human nature to contribute to the progress of society and the fulfillment of God's will.

Conceptual Framework for Revitalizing Grace

Based on the literature search, this paper draws elements that can trigger God's grace in the social dimension. From Aquinas' perspective, grace is efficacious through the transcendental collaboration of human beings with grace.

Diagram 3.1. explains that transcendental collaboration is necessary to awaken the will of Catholics. God's grace triggers inspiration that motivates the Catholic Church to get involved, act lovingly, and transform psychologically. Involvement, loving action, and psychological transformation depend on the faithful will of the Catholic Church. Through the Church's willingness to collaborate, God's grace works in nature so that the Church becomes a means of salvation for the life of all humanity amidst the disruption of Artificial Intelligence. This conceptual framework is the concept of revitalization God's Grace.

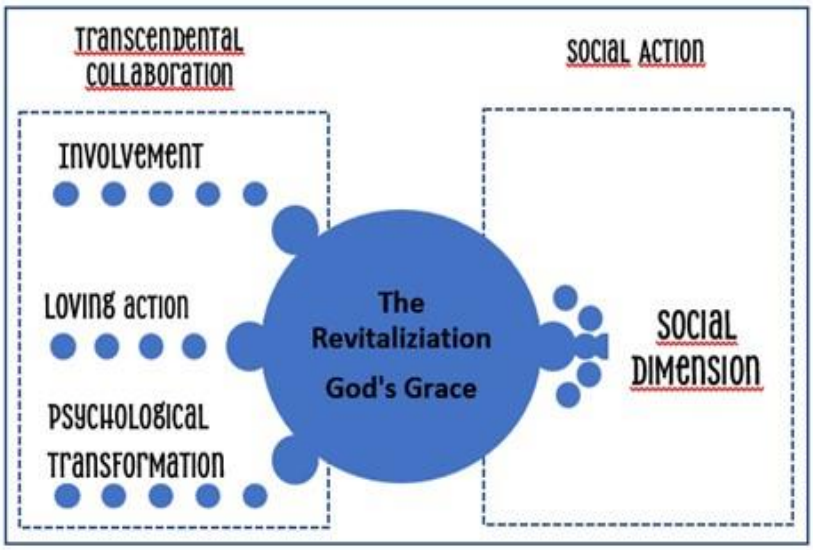


Figure 1. Revitalization God's Grace

DiscussionTranscendental Collaboration with God's Grace

The transcendental collaboration states a concept of partnership as a spiritual response to an act of solidarity with marginalized society. Miguel Luengo-Oroz said that solidarity in AI technology needs attention and becomes an ethical guideline in its development (Luengo-Oroz, 2019). As a spiritual response, this collaboration needs a religious value. Marcus Mescher emphasized that God's grace must be involved in catholic social teaching including solidarity. The role of God's grace is a cooperative relationship that influences social relations. Therefore, grace inspires moral guidelines to participate in social grace (Mescher, 2019). As Jim Wishloff argues, grace makes it possible for someone to work with great love for one's neighbors instead of a materialistic orientation (Wishloff, 2020).

The transcendental collaboration is the enter button to operate the revitalization of grace. The transcendental collaboration means a harmony of nature and grace. God's grace is needed to transcend the act of human nature for the goodness of mankind. Stephen H. Fields argues that grace enables nature to exercise virtues such as love. According to him, even though grace is not immediately realized, ontologically the act of virtue must have a relationship with God's grace (Fields, 2017).

Transcendental Motivation

Actual grace conditions human will in constructive collaboration with what is pleasing before God. Scripture, the Magisterium, and Tradition reveal Catholics' inner norms and social attitudes that motivate transcendentally. This transcendental motivation is the willingness to be involved and act for the sake of Allah. This transcendental motivation requires actual grace to be in constructive collaboration with God's will.

Michael Stephen Burdett proposed the study of action motivation. In the context of AI, he indicated that the Christian ethical response is still in its early stages, so it requires a broader approach to avoid being unbalanced. He designed a framework of thought through inspiration from philosophical, biological, and theological thinking. In line with the theory of near and ultimate causes, Thomas Aquinas's thinking about human actions is determined by near-term goals (proximate end) and long-term goals (remote end) (ST II-II, q.111, a.3; ST II-II, q.123, a.7). The near-term goal is to analyze the personal and sociopolitical impact of AI on human life. The long-term goal relates to analyzing economic order and God's grace in a technological society (Burdett, 2023).

Near-term goals relate to ethics and AI, as expressed by Andrea Vicini. He discusses social control and AI in light of the Rome Call for AI Ethics document. This document calls for the principles of a more comprehensive ethical framework. According to him, there needs to be a distinction between control and risk ethics. The distinction involves bio-power and bio-politics and reflects human work (Vicini, 2022). Burdett seems to state that quite a lot of discussion from the Catholic side focuses on proximate AI ethical concerns. The church must comprehensively picture its witness in a technological society. The Church needs to consider long-term goals in its ethical studies. This will help the economic order and God’s grace become the Church’s focus (Burdett, 2023).

When considering long-term goals, we should consider the writings of Christopher Craig Brittain. The discussion concerns the problems raised by AI in theological reflection. Equating AI's similarity to human intelligence with the concept of the Imago Dei can lead to misinterpretation. Furthermore, AI operates independently of nature and God's grace (the organizer of life). However, AI cannot relate to God to become Imago Dei and replace God's position as the organizer of life. AI raises ethical issues in the future by replacing human labor, economic structures, and the nature of society. The Catholic Church needs to examine and test the social impact of AI in this space. They must use theology

about the nature of community and moral principles such as love of neighbor (Brittain, 2020).

The study of grace alluded to in Brittain's writing emphasizes the goal of creating justice and love for others in the future. However, we cannot separate this goal from the power of grace. Grace requires a transcendental collaboration at the moment. Without grace, transcendental motivations to protect human dignity from the impact of AI are impossible to emerge. This transcendental motivation is the human will to get involved and act. As a result, humans will remain in the mainstream of the exclusive-exploitation paradigm.

Without eliminating the importance of ethics for short-term goals, the formation of transcendental motivation to get involved and act requires a transformation of the dominant paradigm of technological progress. In Laudato Si, Pope Francis wrote that the technocratic paradigm dominates economic and political life. It holds control over external objects (LS, 106, 109). In line with Francis' views, Levy Checketts found that the bourgeois paradigm in AI disruption has become mainstream in today's daily human life (Checketts, 2022). There is no guarantee that this paradigm will not slip into the paradigm of the Catholic Church. Therefore, we must consider transcendental motivation's emergence in the Church.

The Catholic Church needs to actualize the grace that God has endowed upon it. Saint Augustine of Hippo developed the concept of imago Dei, stating that humans naturally desire to seek God (Augustine, Conf. 1.1.1.). Humans can relate to God because there is a desire to unite with God. However, humans need to actively actualize their will to adapt to God's will with the help of God's grace. Classical methods condition the Catholic Church to align itself with God's will. These classical methods are lectio divina, receiving the Sacraments, and spiritual practice. Augustine's experience shows that he was moved to seek God because of the grace of faith and divine inspiration given to him through the humanity of Jesus Christ and His preachers (Augustine, Conf. 1.1.1.). From Augustine, the Catholic Church confirmed that God's grace in faith and divine inspiration play a role in moving the will to conduct God's will.

In the context of AI, the Catholic Church needs God's grace for humanity to break out of its exploitative-exclusive paradigm. This means that the proclamation of the Church amid AI disruption is to revive the experience of God's grace to get out of the exploitative-exclusive orientation. The Catholic Church can benefit marginalized communities when grace operates within it. The power of God's grace can spark transcendental motivation in the Catholic Church. It can protect

their dignity from the adverse effects of the exploitative-exclusive paradigm in AI. God's power of grace conditions the transformation from the exploitative-exclusive paradigm to the paradigm of personal benefit for the dignity of marginalized people. This aligns with what Jesus Christ said: ...whatever you did not do for one of the least of these, you did not do for me (cf. Mt 25:45).

Psychological Transformation

The emergence of transcendental motivation coincides with psychological transformation. The transformation of internal psychological connection supports the realization of social attitudes. This change also changes the way of thinking and feeling towards AI utilization, i.e., the transformation process from the exploitation-exclusion paradigm to the orientation of existential benefits to support the dignity of marginalized communities.

The reality of psychology is not merely that emotions are divorced from thinking. Paul Ekman, Amedeo Canclini, and Alessandro Manenti expressed similar emotional views (Cencini & Manenti, 1992; Ekman, 2003). Emotion is a complex, automatic, and simultaneous process of cognitive appraisal and emotional and physical reactions in the body in response to an event. The interconnectedness of cognition, emotion, and its effect on physicality is the internal psychological connection that determines social attitudes.

The reciprocal relationship between cognition, emotion, and physicality is the dynamics of internal psychological connection. The exploitation-exclusive orientation in AI technology can sneak into the belief system of its users, including the Catholic Church. Transforming it means changing the belief system. The transformation process involves a shift from a paradigm of exploitation-exclusive orientation to an orientation of existential benefits to support the dignity of marginalized communities only in a constructive collaboration of belief systems and God's will.

Jack Mezirow defines transformative learning as changing frames of reference (FoRs). FoRs are the cultural and linguistic structures through which meaning is interpreted in life experiences. Problematic FoRs can be a mindset, a habit of thought, or a perspective of meaning. FoRs produce sets of prejudices and expectations. FoR becomes a force that tends to reject ideas that do not fit with it. The transformation process makes FoRs more open, reflective, and emotionally transformed. According to him, positive direct experience can transform FoRs while doing self-reflection and direct action (Mezirow, 2018). The transformation

process requires the willingness of the agent. So, the transformation process is a process of changing the wrong belief system. It also changes the internal psychological connection to be open to transcendental motivation.

The dispensation of God's grace through the Sacraments, the reading of Scripture, and spiritual exercises condition nature to receive divine inspiration. Divine inspiration triggers transcendental motivations aligned with Christ's teachings as God's grace. Divine inspiration is necessary for transforming the belief system. This system has formed the internal psychological connection, i.e., the reciprocal relationship between all habits produced by the intellect (prejudices) and existing emotions. Divine inspiration as an actual grace helps emotions to favor divine inspiration, even though it is contrary to habit. A decision has a basis consisting of several attractions, according to Amedeo Cencini and Alessandro Manenti. Man will seek what he likes rather than what is beneficial because the tendency to want something is dictated by emotion.

Nonetheless, they say that humans can escape emotional attraction. Human emotional issues can be resolved through their rationality. This does not mean negating the affective, but rather elevating it to a higher level (Cencini & Manenti, 1992). Grace elevates reason and emotion to a higher level. Actual grace provides the power that helps the emotions and intellect favor divine inspiration.

Thus, transforming the belief system can transform the social attitude of the Church through the internal psychological connection. This transformation conditions the social attitude of the Church to be more comprehensive. This means that the psychosocial transformation process of the Catholic Church not only prevents the immediate impact (proximate ends) of AI but preserves the future dignity of marginalized communities (ultimate ends). In this sense, the transformation from an exploitative-exclusive orientation to an orientation of personal benefits for the dignity of marginalized communities is a revitalization of God's grace.

Revitalization of Grace as an Effort to Mitigate the Catholic Church against the Negative Impact of AI Disruption

The revitalization theology of grace targets marginalized communities amid AI disruption. AI disruption and development have entered the early phase of forming the human belief system. The Catholic Church has been wary of its benefits and impacts on humanity. This is evident in the Rome Call for AI Ethics

document issuance. However, the Catholic Church's mitigation of the impact of AI disruption on marginalized communities must be its concrete testimony and proclamation. This is a sacred calling in line with the words of the Lord Jesus (cf. Mt 25:45).

The Catholic Church only responds as an agent to the benefits and impact of AI for marginalized communities when it prioritizes God's grace. Indeed, the revitalization of grace has always been the Church's priority. Through transcendental collaboration, individuals must actualize God's grace in action. The transcendental collaboration is the identification of divine inspiration. The Church receives God's grace by practicing living piety. This includes receiving the Sacraments, practicing lectio divina, and doing spiritual exercises. Reflection of the Church's concern for marginalized communities can spark divine inspiration.

Divine inspiration plays a role in awakening the will of the Church to do the words of the Lord Jesus Christ. The Catholic Church's motivation to act and engage according to the words of the Lord Jesus Christ is sparked by actual grace, raising the internal psychological connections to a transcendental level. This causes the attraction to the teachings of Christ to be stronger than the attraction to the technocratic and bourgeois belief systems.

Conclusion

AI disruption affects the human belief system. The Catholic Church, as the Grund sacrament, is called to bring the grace of salvation to humanity, especially marginalized communities. The transcendental collaboration moves the Catholic Church to act as a form of solidarity with marginalized communities. Through the transcendental collaboration of the Catholic Church with God's grace, a transcendental motivation (willingness to get involved and act) will be triggered, accompanied by an internal psychological transformation.

Theologically, grace revitalization is a transcendental collaboration that causes a process of transformation of the belief system and the internal psychological connection. The transformation occurs from the exploitation-exclusive paradigm to the paradigm of existential benefits to support marginalized communities. This new paradigm is the formal cause whose actualization becomes the solidarity attitude of the Catholic Church. The Church can channel grace to the world through an attitude of solidarity towards marginalized communities through the proclamation of the revitalization of grace. The application of revitalization of

grace in the pastoral of the Catholic Church in the field of AI technology can be a starting point for further research.

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CHAPTER II

Exploring the Social Work of the Catholic Church in an AI World: Minimizing the Digital Divide

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Abstract

In the context of the development of artificial intelligence technology, the Catholic Church has played an essential role in minimizing social inequality. Through its various social works, the Catholic Church is active in providing assistance to vulnerable communities and fighting for human rights. In addition, the church is also involved in empowering communities through training and extension programs to compete in the growing digital economy. With this approach, the Catholic Church has contributed to mitigating the negative impact of the development of AI technology that could increase social inequality.
The Catholic Church is raising awareness of the ethical use of AI and its role in ensuring social justice for all. Through its social teachings, the Catholic Church guides developing and applying AI technologies oriented towards the common good and general welfare. As such, the church is not only focused on assisting but is also active in raising awareness of moral responsibility in using AI technologies. Through these efforts, the Catholic Church helps ensure that the development of AI technologies can be used to promote social equality and the common good by the principles of the Church's social teachings.

Keywords: Impact of Digital Technology, Church Values in the Digital Age, Digital Challenges and Policies, Role of the Church in Social Gaps, Technology Utilization, and AI Ethics.

Introduction

In an era of rapid technological advancement, the emergence of artificial intelligence (AI) is significant and affects various aspects of human life. The Catholic Church recognizes the importance of open and concrete dialogue on this matter, especially in the context of creating the common good. In his address entitled The Common Good in the Digital Age, Pope Francis recognized that

technological developments, including AI, have increasingly significant implications in all aspects of human life. (Benedict & XVI, 2008). Therefore, open and concrete discussions on this topic are increasingly important.

The Catholic Church also recognizes the importance of minimizing the digital divide using technology, including AI. In his message on the 43rd World Communications Day, Pope Benedict XVI said that digital technology should be accessible to all, including those already economically and socially marginalized. The purpose of this paper is to examine the extent of the Catholic Church's social role in the world of artificial intelligence (AI) and efforts to minimize the digital divide, invite dialogue with technology experts, inspire Catholic youth to bring the values of their faith into the digital world, and appreciate the contribution of Catholic universities in providing equitable access to education for all regardless of social background or religious beliefs.

Therefore, this study seeks to understand how the Catholic Church's contribution to public policy advocacy reflects efforts to uphold moral and ethical principles, especially in the context of electing leaders who support the common good, and how the Church, as a moral institution, actively invites its people to consider moral aspects in decisions related to public policy, and how this relates to the social responsibility of Catholics?

In the face of technological advances, particularly artificial intelligence, what is the role of the Catholic Church in dialoguing with technologists to promote a deeper understanding of the social and cultural impact of these technologies? How can the Church accommodate these advances without compromising the values of faith, and to what extent can the Church's ethical views on artificial intelligence guide society in utilizing these technologies? Moreover, in the face of ethical challenges in public policy, especially regarding social inequality, how does the Catholic Church respond and ensure solidarity in utilizing technology for the common good? How can the Church's views shape policies that support inclusiveness and social justice and address the ethical challenges of technological development?

Literature Review

Understanding the Impact of Digital Technology

Digital technology has a significant impact on our lives today. In his encyclical Christus Vivit, Pope Francis says that the digital environment has affected how we understand time and space, ourselves, others, and the world. The

predominant use of images over listening and reading has affected how people learn and develop their critical faculties. (Francis, 2019). In a pastoral reflection published by the Dicastery for Communications, it is mentioned that we no longer ask whether to engage with the digital world but how to engage with it.

Social media, as one of the digital environments, enables unprecedented interaction, sharing of experiences, and relationship building. However, in the development of technology increasingly influenced by artificial intelligence, we must rediscover the core of actual human encounters. (Presence, 2023).

Pope Francis also reminded us that the digital age has significantly changed how we communicate and share information. Digital technologies open up vast opportunities, but on the other hand, standards are increasingly becoming a significant factor in how we use these technologies. This makes it increasingly difficult to recognize and appreciate differences.

Digital technology has introduced increasingly complex socio-economic dynamics. Users are often perceived as consumers who are vulnerable to manipulation by a few individuals. While these digital technologies are a gift from God that can have a positive impact, using our data for commercial or political purposes is often without our understanding. (Benedict & XVI, 2008). This information gap inhibits critical thinking and threatens democratic societies and the unbalanced accumulation of knowledge and wealth. While it is essential to recognize the positive potential of digital technologies, as emphasized by Pope Francis and the dicastery for communications, we must also be aware of the associated risks. (Presence, 2023).

Companies that provide services in the digital world must also take legal and moral responsibility for how their services are used. The potential of digital technologies is enormous, but the possible negative impacts, including misuse in cases of human trafficking, planning terrorist activities, spreading hatred and extremism, manipulation of information, and abuse of children, are also significant. (Sullivan, 2008a). Thus, understanding the impact of digital technology includes its influence on how we learn, communicate, and build relationships.

Presenting Church Values in a Digital World

The church continues encouraging its followers to bring these values to the digital realm just as the apostles brought the Good News of Jesus to the Greek and Roman world. To make this happen, a deep understanding of the digital world is necessary so that technology can be a tool that serves the church's mission well.

(Sullivan, 2008a). In the face of the ever-evolving digital age, the importance of conveying church values in the online environment is increasing. Below are ways such values can be powerfully presented in the digital world.

First, the Church can use digital platforms such as podcasts, websites, or YouTube channels to disseminate sermons, teachings, and discussions that reflect the essence of church values. (Rusu, 2021). Furthermore, building active and engaged communities on social media platforms such as Facebook Groups or Discord is also an effective way for church members to interact, share experiences, and support each other. (Lee & Lee, 2010). In addition, the Church can also encourage online social activities, such as fundraising or volunteer programs, to assist those in need

Furthermore, online learning platforms can be adapted to expand knowledge about religious values, Bible study, and other religious education. (Sundar, 2020). Finally, spreading optimistic, motivational, and hopeful messages through social media is also an effective method that demonstrates the relevance of church values in everyday life. (Kristan, 2018). These references can serve as an initial guide to exploring practical ways of bringing church values into the digital world with relevance and accuracy. Through the implementation of these values in the digital realm, it is hoped that stronger relationships will be created among the congregation as well as significant positive impacts in daily life, in line with the teachings and goals of the church.

Like how the apostles brought the Good News of Jesus to the Greek and Roman world, the church continues encouraging its followers to bring religious values into the digital realm. To achieve this goal, a deep understanding of the digital world is essential for technology to effectively serve the church's mission (Sullivan, 2008). In the face of the development of the digital age, the importance of conveying church values online is increasing.

One approach is to use digital platforms such as podcasts, websites, or YouTube channels to disseminate sermons, teachings, and discussions that reflect the essence of church values (Rusu, 2021). In addition, building active communities on social media platforms such as Facebook Groups or Discord is effective for interaction and support among church members (Lee & Lee, 2010). Churches can also encourage online social activities such as fundraising or volunteer programs (Sundar, 2020).

Online learning platforms can expand knowledge of religious values, Bible studies, and religious education (Sundar, 2020). Spreading optimistic and

motivational messages through social media also effectively demonstrates the relevance of church values in everyday life (Kristan, 2018).

Catholic theology's scholarly and philosophical references can be a crucial guide to exploring practical ways of bringing church values into the digital world. Through the implementation of these values online, it is hoped to create stronger relationships among the faithful and make a positive impact in daily life by the teachings and goals of the church.

An approach that uses Catholic theology as a theoretical foundation in bringing the church's values to the digital world is essential. Catholic theology offers a rich guide of teachings and values that can be applied digitally. Concepts such as love, mercy, justice, and peace can be explained deeply based on Catholic teachings and traditions. By integrating these concepts into digital content, the church can positively contribute to shaping people's views and behavior in the digital world. In addition, applying values such as patience, forgiveness, and humility in online interactions can also reflect the church's moral teachings.

However, in presenting church values in the digital world, churches must also pay attention to the challenges and risks that may arise, such as the spread of incorrect information or unethical online behavior. Therefore, it is essential to maintain integrity and truth in conveying religious values in the digital world.

In addition, collaboration with technology experts and social media experts can also help churches develop effective strategies for presenting church values online. Thus, churches can remain relevant in spreading religious teachings and morality in this digital era. In presenting church values in the digital world, churches must also protect users' privacy and data security. Maintaining user trust and privacy in every online interaction is very important. Policies and measures prioritizing personal data protection are needed to ensure that the church can remain well-received in the digital world. In addition, efforts to create open and compassionate discussion spaces on online platforms are also a priority. This will enable church members and the general public to feel heard, supported, and engaged in dialog reinforcing the church's values.

By integrating all these aspects, the church can become more inclusive and relevant in the digital world, building a solid community and positively impacting the church's teachings and purpose. Collaboration with technology experts and policies that uphold digital ethics will also help the church to remain a source of inspiration and goodness in this digital world. We must integrate alternative education to bring church values to the digital world.

In addition, understanding how church values can be adapted to the digital context also requires a deeper understanding of the ethical use of technology. This could involve the study of digital ethics and how religious principles can be implemented in online interactions, privacy protection, and responsibility in the use of social media.

Catholic theological and philosophical resources, such as the Pope's encyclicals and the writings of the Church Fathers, can be a solid foundation for understanding how the church's values can be effectively presented in the digital world. As such, a solid theoretical foundation will enable the church to more effectively utilize digital technology and disseminate religious teachings in a relevant and impactful way.

Facing Digital Challenges Wisely

In the face of digital challenges, the Catholic Church teaches us to be wise in using social media and the digital world in general. The Church recognizes that technological advances have opened up new possibilities in human interaction, primarily through social media. However, we must also be aware of the dangers and pitfalls in this digital environment.

First, we must recognize that the digital world is part of our lives. The church says we should appreciate the digital world and recognize that it is part of our life journey. However, human life and journey continue to be built through complementary physical and digital experiences. (Presence, 2023). Then, we must be careful not to get caught up in self-defeating behaviors, such as being too self-focused, isolated, and enjoying something useless. The church reminds us that many young people are extraordinarily creative and intelligent despite the risks in today's internet world. (Vivit et al., n.d.). Therefore, we should strive to remain authentic and honest when interacting in the digital world and not get caught up in creating public profiles that are not genuine to ourselves. (Benedict & XVI, 2008).

In addition, the Church teaches that technology does not determine whether communication is authentic. What determines the human heart and our ability to use the means wisely? Social media and other digital communications can facilitate relationships and promote good in society, but can also lead to polarization and division. Therefore, we must use the internet wisely to build a society that is healthy and open to sharing. (Benedict & XVI, 2008). In the face of digital challenges, the Church teaches us to hold on to the values of truth, honesty, and authentic living. We should strive to avoid the pitfalls and dangers in the

digital world while remaining open to meeting others in person and building healthy and meaningful relationships. (Sundar, 2020). In facing digital challenges, we can also draw inspiration from examples of young Catholics who use social media wisely. One of them is Venerable Carlo Acutis, a young Catholic who is creative and talented in the digital world. (Aristana et al., 2021)

The Church encourages us to be wise in facing the challenges of the digital world. We need to recognize the importance of the digital world in our lives but remain vigilant of the potential risks and pitfalls. We are expected to remain honest and faithful in our interactions in the digital space and to use technology wisely to form a healthy society that is open to collaboration.

In the digital age, the Catholic Church encourages its faithful to adopt a prudent attitude in utilizing social media and the digital environment. The Church recognizes the positive potential of technological development, mainly through social media, but also highlights the dangers that come with it. Recognizing the presence of the digital world is considered an integral part of the human journey, complementing the physical experience. The church warns against people getting caught up in self-defeating behaviors, such as being too self-focused and experiencing isolation.(Koenig, 2020) Through teachings such as those expressed by Pope Benedict XVI, the Church emphasizes that the authenticity of digital communication depends on the human heart and the ability to use technology wisely. In addition, the Church encourages building healthy and open relationships in the digital world, using the internet wisely to facilitate sharing in society. (Darmawan et al., 2020).

The Church has conducted a thorough study of moral and ethical principles related to the use of technology to improve people's understanding of the social, psychological and moral impact of technology, as well as maintain relevant Christian values in the digital age (Zega, 2021). The Church's focus encourages individuals to be cautious in digital interactions and centers on a deep understanding of the fundamental aspects of morality in technology. (Bawazir et al., 2018). In addition, the Church emphasizes the role of technology as a tool to advance a healthy, inclusive, and cooperative society. The Church actively encourages communities to understand technology's social, psychological, and moral impacts while promoting innovative behavior in digital interactions. (Irwansyah, 2020)

The Church sees that the values of truth, integrity, and authentic presence must remain at the forefront amidst the challenges of the digital world. By

prioritizing moral and ethical principles, its members can utilize technology to spread goodness and strengthen Christian values daily.

Discussion

The Role of Church Advocacy in Public Policy

The Catholic Church is important in upholding public policies emphasizing moral and ethical principles. (U. S. C. of (C. Bishops, 2019) The Church also encourages its people to always consider moral aspects in all decisions related to public policy, including in the selection of leaders responsible for realizing political goals that strive for common welfare. (U. S. C. of (C. Bishops, 2019). In addition, the Church also encourages Catholics to ask ambitious leaders how they can play a role in achieving these critical goals. In the digital age, the Church knows the importance of technology for expected progress. (U. S. C. of (C. Bishops, 2019)

Pope Francis has welcomed the dialog between technologists and representatives of the Church in raising awareness of the social and cultural impact of digital technologies, especially artificial intelligence. He believes that dialogue between believers and non-believers on essential issues such as ethics, science, art, and the search for the meaning of life is the path to peace and holistic human development. The Church recognizes the urgency of an open and concrete discussion on using these technologies. (Dicastero per la Comunicazione, 2023)

By providing ethical guidance on using artificial intelligence (AI), the Church recognizes that these technological advances significantly impact various aspects of human life. The Church seeks to train individuals who are not only experts in science and technology but also knowledgeable in politics and humanitarianism to provide appropriate direction to Catholics and Church leaders in utilizing this technology. (Hume, 1996)

The Church also supports public policies rooted in moral and ethical principles; the Catholic Church also recognizes the importance of utilizing technology for the common good and provides ethical guidance in using artificial intelligence. This aligns with the Church's commitment to include the poor in society and promote community peace and dialog.

The Church's Role in Responding to Social Inequality

The Catholic Church has a vital role in responding to social inequality. Since the Industrial Revolution in the 19th century, the Church has responded forcefully to the injustices between the rich and the poor. The Church draws inspiration from the teachings of the Bible and the writings of saints and wise church scholars in church history. The church speaks on behalf of the poor and persecuted, especially exploited workers. The church opposes economic determinism in the form of Marxism on the left and the doctrine of unlimited free markets on the right. The church continues to update its teachings in line with the times, yet poverty and sharp inequalities still exist. The church is responsible for fighting for social justice and solidarity with the poor and persecuted. (Hume, 1996),(Sundar, 2020), (Ratzinger, 2021).

In addition, the Church also teaches the importance of solidarity. Solidarity means that we are all responsible for one another. The Church teaches that love should be the basis of our social actions. The Church invites its people to care for their brothers and sisters who need help, are oppressed, experience unemployment, and are deprived of their fundamental rights. The church reminds us that there are still many people who are hungry, uneducated, homeless, and deprived of human rights protection. The Church invites us not to be indifferent to the ecological crisis, the threat of war, and human rights violations. The Church invites us to act and fight for justice and common welfare.(Compend. Soc. Doctrine. Church, 2004).

The Church also has a role in promoting democracy and human rights. The Church teaches that democracy and human rights are essential for the common good. However, the Church also recognizes that democracy and human rights cannot be taken for granted. Both require struggle and protection. The Church invites its people to engage in political activities and fight for social justice.

The Church teaches that correcting injustice can also be a form of evangelization. The Church invites us to see that there is no clear boundary between politics and religion and that the Church's social teachings are essential in shaping a just social order. (Hume, 1996). In carrying out its role, the Church also teaches about the importance of love and respect for the dignity of every individual. The Church invites its people to assist those in need in a way that respects their freedom and dignity.

The Church invites us to establish loving personal relationships with those in need and to form the consciences of those who assist. The Church also teaches

about the natural law that shapes its social teaching. The Church's social teaching is based on principles that respect human nature and justice (Journey et al., 1979) (Compend. Soc. Doctr. Church, 2004). In conclusion, the Catholic Church is vital in responding to social inequality. The Church teaches about solidarity, love, and respect for the dignity of every individual. The Church fights for social justice and invites its people to engage in political activities for the common good. The Church's social teachings are constantly updated by the times, but the challenges of poverty and inequality still exist. The Church invites us to act and fight for justice, prosperity, and peace for all humanity.

Utilizing Technology for Shared Prosperity

In today's interconnected global era, technological advancements have significant potential and impact on the common well-being of humanity. Digital space provides a platform for free expression and exchange of ideas, bringing new challenges related to ethical concerns and protecting vulnerable individuals, especially children (James et al., 2017).

As we move forward in this era of rapid technological growth, we must address the ethical implications that arise. The wide availability of the internet has spawned heinous illegal activities, including the abuse of children and the violation of their dignity. Combating these crimes requires a concerted effort involving governments, law enforcement agencies, and the technology industry. It is essential to recognize that technological innovation should serve humanity and protect our typical home (Brey, 2018).

In addition, the unequal distribution of technology resources is an obstacle to shared prosperity. Access to high-performance computing and cloud capacity is still limited to a few technology companies and research institutions in high-income countries. Building an inclusive digital future requires equity in knowledge creation. Promoting collaboration and ensuring that local data serves local needs is essential. Only then can we truly create a digital domain that emphasizes the principles of inclusivity, diversity, and equal opportunity. (Gupta et al., 2020).

As Mahatma Gandhi once suggested, our actions should be judged by their impact on the weakest and most vulnerable individuals. This is a sobering reminder for those involved in shaping the technological landscape. The intersection of technology and the everyday reasonable demands an ethic inspired by a vision of the common good, freedom, responsibility, and brotherhood.

Ethical Coaching on the Use of AI

Artificial intelligence is a constantly evolving field with great potential to affect humanity significantly. The Rome Call for AI Ethics emphasizes the need for shared responsibility between international organizations, governments, institutions, and technology companies in ensuring that artificial intelligence serves humanity as a whole and respects the dignity of every individual. It underscores the importance of developing artificial intelligence that benefits everyone without excluding anyone or threatening areas of freedom due to algorithmic conditions. (Floridi et al., 2018).

The ethical imperative to prioritize the value of human life in the development and use of artificial intelligence is crucial. Anthropocentrism, which places humans at the apex of an organism's life, promotes human survival while limiting harmful interventions. However, anthropocentrism has challenges, especially in the context of ethical equivalence models that aim for a more inclusive and technocratic value architecture. (Al-Abdulkarim et al., 2015). In the healthcare context, integrating artificial intelligence (AI), also known as Healthcare 4.0, can strengthen prevention processes, increase the sustainability of health systems, and improve care services for chronic and elderly patients. Solidarity in the care process is crucial for the sustainability and effectiveness of the healthcare system (Sinibaldi et al., 2020).

The Role of the Church in the Prevention of Human Trafficking and Modern Slavery

The Catholic Church has a vital role to play in the prevention of human trafficking and modern slavery. Pope Francis has strongly condemned these new forms of slavery, such as human trafficking, forced labor, prostitution, and organ trafficking. He calls it an open wound in the body of contemporary society and a grave evil that everyone must fight. The church teaches that everyone has equal dignity and the right to decent work. Therefore, the church is firmly opposed to child exploitation, forced labor, human trafficking, restrictions on freedom of assembly, and discrimination based on gender, race, origin, religion, or political opinion. (Ley 25.632, 2002) .

The Church also teaches that all people, especially those suffering from the effects of modern slavery, are our brothers and sisters in greatest need. Pope Francis cites Jesus' teaching in the Gospel of Matthew that those who care for the least among their brothers are blessed by the Father and will see God. (Boeker,

2021). Therefore, the church invites everyone to care and love those who suffer from modern slavery. The church also plays a role in coordinating various pastoral initiatives against human trafficking. Pope Francis emphasized the importance of coordinating pastoral initiatives undertaken by local churches, religious congregations, and Catholic organizations in the countries of origin, transit, and destination of victims of human trafficking. (Hall, 2019). This shows that the church not only plays a role in providing direct assistance to victims but also in organizing joint efforts to prevent and stop human trafficking.

Since ancient times, the church has played a crucial role in the fight against slavery. At that time, the church continued to fight for the abolition of the practice of slavery, with its initial focus being to reduce the most despicable aspects of slavery through an emphasis on equality and freedom for all of God's children. (Compend. Soc. Doctrine. Church, 2004). Later, the church sought to improve the conditions of slaves and eventually achieved the abolition of slavery itself. Although there have been periods of moral decline in church history, the church has always strived to restore its strength and authentic flavor by teaching high morality and resisting evil.

In carrying out its preventive role against human trafficking and modern slavery, the church calls on the entire society to raise awareness of these crimes. The church also encourages support for legislative changes at national and international levels aimed at punishing perpetrators and improving recovery facilities and social integration for victims. (Universal Responsibility in the Modern World | The 14th Dalai Lama, 2023) . This effort also includes the church's call to society to jointly engage in this initiative at local and international levels to ensure effective coordination in the fight against human trafficking.

Overall, the church plays a vital role in efforts to prevent human trafficking and modern slavery. The church strongly condemns this new type of slavery and calls on all individuals to care and love those who suffer. In addition, the church is involved in coordinating pastoral initiatives and supporting legal changes needed to protect victims and punish perpetrators. The church's history also reflects its essential role in fighting slavery since ancient times. Therefore, the church continues to be committed to preventing and stopping human trafficking and modern slavery.

TThe Role of the Church in Handling Victims of Violence and Trafficking

The role of the church is vital in handling victims of violence and trafficking. The church is called to protect suffering individuals and communities and provide sanctuary for hurting people. The church is also committed to resolutely fighting these crimes and actively working to ensure justice for victims. First the church must recognize and confront the evil that is happening in the current situation. The church must not hide the fact that there are church members involved in violence and trafficking. (Sullivan, 2008a). The church must face this fact and be prepared to take the necessary steps to ensure that perpetrators are brought to justice and victims receive proper justice, and protect its victims, so that those who do evil have no place to do evil. (S. O. F. Bishops, n.d.). In addition, the church should be a refuge for victims and a haven for the wounded and persecuted. The church should show compassion and care to the victims in helping them through healing and reconciliation. (Sullivan, 2008b). The church should also work with the authorities to protect victims and prevent future violence and trafficking from occurring. (Sullivan, 2008a).

The church also has a vital role in providing moral education based on respect for human dignity, individual life, and freedom. The Church should work with society to raise awareness of these crimes and provide ways to prevent them. (Zavadilová, 2022). At the same time, the church also supports efforts to combat poverty and social inequality, which are often contributing factors to violence and human trafficking. The church must acknowledge and learn from past failures in dealing with this topic. The church must strive to improve and ensure these crimes are not repeated. It must commit itself to being a witness to truth and justice and a refuge for the wounded and persecuted. (Zavadilová, 2022)..

Overall, the role of the church is crucial in handling victims of violence and human trafficking. Churches are expected to respond decisively to these crimes, protect victims, collaborate with authorities, engage in education and prevention efforts, and learn from past experiences. In all these aspects, the church should prioritize the values of justice, mercy, and protection of human dignity. (Buckley, 2004).

Conclusion

The church has a crucial role to play in preventing and stopping human trafficking and modern slavery. Throughout its history, the church has been

actively involved in fighting slavery and continues to be committed to ensuring protection for victims and punishing perpetrators. Churches also play an essential role in providing moral education and raising awareness of this crime, as well as working with authorities to prevent future violence and trafficking.

In addition, churches are also expected to respond decisively to these crimes, protect victims, collaborate with authorities, engage in education and prevention efforts, and learn from past experiences. In all these aspects, the church must prioritize the values of justice, mercy, and protection of human dignity. Thus, the role of the church in handling victims of violence and human trafficking is vital and cannot be ignored.

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CHAPTER III

Transforming the Catholic Church: Responding to Ethical Challenges in the AI Technology Revolution

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Abstract

This article explores the Catholic Church's response to the ethical challenges of the technological revolution of artificial intelligence (AI). The Church is faced with the responsibility to formulate an ethical view regarding the application of AI so that it is in line with its moral and theological values. This paper details AI ethical principles from the perspective of experts and Pope Francis, highlighting data privacy, algorithmic bias, and automation as vital ethical challenges. In addition, this article discusses the Church's moral teachings regarding responsibility in developing AI and the theological and philosophical implications of applying this technology. To respond to these challenges, this paper emphasizes the need to transform the Church through interdisciplinary engagement, education of the faithful, and implementation of AI ethical guidelines. Overall, this article aims to provide insight into the role of the Catholic Church in guiding society towards the use of AI that is in harmony with human values.

Keywords: Artificial Intelligence (AI), Ethics, Transformation, Interdisciplinary,

Introduction

The artificial intelligence (AI) technological revolution has become a significant driver of change in social and ethical structures. As an established moral authority, the Catholic Church is faced with the urgent task of navigating the complexities generated by these advances. As stated by Morozov, Technology is not only revolutionizing the way we think but also raises profound questions about our ethics and values. (Morozov et al., 2019) In an era where developments in AI are increasingly taking humanity in previously unimaginable directions, experts have highlighted the need for substantial changes in the understanding of ethics and human values. In the context of the Catholic Church, this institution has a moral responsibility to detail and articulate its ethical views on using AI technology.

Several experts, such as Floridi and Bryson, emphasize the need to adopt a proactive and inclusive ethical approach in dealing with AI developments. The Catholic Church, as an entity with significant influence on global moral thought, can play a central role in designing ethical frameworks that can be adopted by society at large. (Floridi, 2019). The transformation of the Catholic Church within this paradigm is not only a response to ethical challenges but also an attempt to bridge the gap between religious values and technological progress. (Latkovic, 2015) In this case, an inclusive and open approach to dialogue between the Church and AI experts is critical. The Catholic Church must draw on its theological and ethical heritage to guide its people and society in aligning artificial intelligence's ethics with fundamental human principles. (Jackelen, 2021)

In this paper, we will explore the concrete steps taken by the Catholic Church to address ethical transformation in the era of the AI technological revolution. By detailing the Church's theological, ethical, and pastoral views, this paper aims to provide in-depth insight into how religious institutions can contribute to the development of an artificial intelligence ethic grounded in moral and human values. (Green, 2017).

As AI capabilities continue to increase, the Catholic Church faces pressing questions regarding this technology's theological and ethical implications. Key issues include human dignity, privacy, accountability, bias and social equity. The Church must provide moral guidance on whether and how AI should make decisions that profoundly impact human life and society. As Pope Francis stated in the encyclical Laudato Si', Rapid technological development is not accompanied by progress in social responsibility, wisdom and moral awareness, will only lead to humanitarian disaster (Pope Francis, 2015). Therefore, the Church must provide ethical guidance for the development and use of AI.

Some experts have proposed an AI social contract framework that balances advancing innovation and preserving human values. The Catholic Church can make a substantial contribution to those efforts. According to Bryson and Winfield (2017), integrating ethical values into AI systems requires the involvement of various stakeholders, including technologists, philosophers, sociologists, and religious circles. In this way, the Church can contribute its theological and philosophical views. This article outlines practical guidance for the Church as it navigates the fundamental ethical transformations arising from advances in AI. A mature response demands recognizing the promise and the dangers of this rapidly evolving technology.

Literature Review

AI Ethics Principles from the Perspectives of Experts and Organizations

In an era of technological progress, the development of artificial intelligence (AI) has become a significant focus in ethical literature. In this case, experts and international organizations formulate ethical principles to guide the development and use of AI ethically. Research by Timnit Gebru and (Whittaker et al., 2018) emphasized the importance of justice and diversity in developing AI technology.

They warned against the risk of algorithmic bias that could reinforce inequality, underscoring the need to avoid discrimination in artificial intelligence systems. The same thing was also emphasized (Gupta & Kumar, 2019) that there needs to be transparency in developing AI technology to be ethically accountable. Thus, the concept of ethics in technology development includes individual responsibility and aspects of justice, diversity, and transparency.

Furthermore, Michael (Kim et al., 2020) also added the dimensions of accountability and transparency as critical elements in managing AI's social and moral impact. According to Loui, AI developers and users must be responsible for the consequences of decisions made by algorithms. This concept aligns with an ethical view emphasizing individual responsibility in creating and using technology. (Kappos et al., 2021)

In addition, international organizations have contributed to detailing AI ethical principles. (Reed & Price, 2019) highlighting the importance of ensuring that AI developments comply with human rights. UNESCO's ethical guidelines emphasize the importance of protecting individual rights, such as privacy and freedom of expression. In addition, (Barrows et al., 2019) emphasize the principles of security, transparency and accountability as the foundation for developing AI technology.

Data security and openness in algorithms are priorities to ensure public trust in this technology. The views of the Catholic Church, as represented in Pope Francis' encyclical Laudato Si, offer a rich perspective on human responsibility for creation. The Church emphasizes the need to develop sustainable technology that creates a positive impact on the environment and society. (Fransiskus, 2016) views that human rights and dignity must be a guide in using technology, including AI.

The integration of the perspectives of experts, international organizations, and the Catholic Church creates a solid foundation for a holistic AI ethics policy. The principles of fairness, diversity, accountability and transparency are the

foundations that are applied universally. (Schneider et al., 2020) By referring to these various perspectives, AI developers, stakeholders and users can be wiser in facing challenges and optimizing the benefits of AI technology without ignoring its ethical impact.

Key Ethical Challenges for Churches in AI Adoption

The adoption of artificial intelligence (AI) by the Catholic Church brings with it several ethical challenges that require careful handling to align with its moral and theological values. One of the main challenges is the issue of data privacy that arises in the context of using AI technology in ecclesiastical services. In the Catholic perspective, respect for individual privacy is integral to human dignity. (Dambrine & Kateb, 2011) This principle aligns with Church teachings, which recognize the importance of protecting individual rights as part of moral responsibility.

The Catholic Church emphasizes the importance of privacy as a protection of human rights, which includes the right of every individual to protect their boundaries from unauthorized interference (Dambrine & Kateb, 2011); KGK, 1994). The results of Pranadita's 2020 research highlight the importance of a deep understanding of AI technology in responding to ethical challenges. The research emphasizes that the Catholic Church needs to comprehensively understand how this technology works to respond to its ethical challenges. One of the important aspects discussed in the research is the need to protect individual rights as part of the moral responsibilities recognized by the Church. This aligns with Church teaching principles, which recognize the importance of protecting individual rights as part of moral responsibility. (Herzfeld, 2017)

The next issue that arises is algorithmic bias in ecclesiastical decision-making. (Saletta et al., 2020) Highlights the need for ethical sustainability in overcoming biases that can arise in algorithms. The Catholic Church is faced with the critical task of ensuring that the implementation of AI does not override the values of justice and equality in ecclesiastical ministry. This effort aligns with the Church's social principles, emphasizing justice as an integral part of moral action (Green, 2022). They emphasized that in implementing moral teachings, it is essential to uphold justice in all aspects of social life. In their view, justice is the basis of moral action to ensure fair treatment for all people, especially the marginalized and weak. This refers to the Church's social teachings emphasizing the need to prioritize justice in social structures, public policies and interactions between people. (Green, 2022)

Additionally, automation in liturgy and pastoral care creates complex ethical challenges. In Evangelii Gaudium, Pope Francis emphasizes the importance of personal presence in pastoral ministry. Technology, including AI, must be integrated wisely to ensure that the human dimension of ecclesiastical interactions is not compromised (Francis, 2013). This highlights the need to consider spiritual and human aspects in technology adoption, in line with the Church's pastoral principles.

Moral Teachings of the Catholic Church

The Catholic Church is known for its solid and consistent moral teachings. As an ethical basis, these doctrines are an essential starting point in responding to developments in AI technology. As stated by Pope John Paul II, Human dignity is the essence of morality, and ethics is a guide that guides humans to achieve their life goals. (Sullivan, 2008)

The Catholic Church's Moral Teaching on Artificial Intelligence (AI) reflects the Church's ethical views on technology and its impact on human dignity. According to Pope Francis in his encyclical Laudato Si, the Catholic Church emphasizes the need to develop technology that considers sustainability and human well-being. (Francis, 2016) In the context of AI, the Church demands that artificial intelligence be developed and applied with full moral responsibility. Pope Francis stated, As technology takes over risky decision-making, we need to ensure that principles of ethics and justice form the basis of the design and use of such systems. (Francis, 2016)

Catholic theologians such as Father Philip Larrey of Pontifical Lateran University also highlight the importance of ethics in AI. In his interview, Fr Larrey stated that the Church believes that moral principles, such as human dignity, solidarity, and justice, should guide AI. AI design, development, and implementation should prioritize the common good and avoid consequences that harm humans or society.(Dodig-Crnkovic Raffaela Giovagnoli Editors, n.d.) Therefore, the Moral Teachings of the Catholic Church emphasize the need to develop and manage artificial intelligence with full ethical consideration so that this technology positively contributes to humanity.

The Catholic Church also highlights the need to ensure that developments in AI do not replace human roles and responsibilities, especially in the context of complex moral decisions. Humans must retain control over decisions that affect their lives and dignity. The Church emphasizes the need to develop AI with full

attention to its social, economic and ecological impacts and is committed to minimizing risks and unintended consequences. Human dignity. (Denar et al., 2021). Within this framework, the ethics of AI technology should be based on fundamental principles such as respect for human rights, justice and solidarity. The Church encourages dialogue between technologists, ethicists, and religious leaders to ensure that developments in AI technology are in harmony. The Catholic Church hopes that advances in AI can positively contribute to human development and create more just, dignified, principles of life, inspired by the moral teachings of the Church. (Refo, 2023)

Discussion

The Ethical Impact of the AI Technology Revolution

It is essential to examine the ethical impact of the AI technological revolution in the context of the Catholic Church. As Florida explains, When we give machines intelligence, we not only give them the ability to think but also give them the ability to make ethical decisions. (Floridi et al., 2020) This raises critical questions about the balance between technological progress and value -moral values that underlie the Church's beliefs.

The ethical impact of the AI technological revolution on the Catholic Church involves deep consideration of the moral, social, and theological implications of technological advances. In his encyclical Fratelli Tutti, Pope Francis underscored his concern about the inequalities that technology can exacerbate, including artificial intelligence. He stated that technological growth and globalization, if not managed well, can strengthen forms of inequality and increase injustice. (Francis, 2020) Therefore, the church has a moral responsibility to ensure that the development and application of AI takes place with due regard for principles - principles of justice and human dignity.

According to Catholic theologians such as Father Paolo Benanti, who is involved in the fields of ethics and technology, the church is tasked with guiding its people in using AI technology ethically. In his view, the Church can provide the necessary moral guidance and guide its congregation to use technology responsibly, ensuring that human values and justice remain paramount(Paolo et al.). Therefore, the ethical impact of the AI technological revolution on Church Catholicism is a call to provide relevant moral guidelines in the use of technology

so that these advances can align themselves with human values and the Church's moral teachings.

Church Transformation and Interdisciplinary Engagement

Church transformation requires engagement in interdisciplinary dialogue. For example, (Febrianto & Cahyono, 2023) shows the need for synergy between theology and computer science. The Church must be actively involved in the development of AI technology, not only as a critic but also as a partner who guides its ethical and moral formation, he said. This underscores the importance of collaboration to direct technological development in a direction consistent with the Church's values.

The transformation of the Church in the face of the era of artificial intelligence (AI) involves deep interdisciplinary engagement. In his message to the Academy of Social Sciences, Pope Francis acknowledged the need for the involvement of various scientific disciplines to address the impact of technology on society. He stated that these questions require the involvement of scientists with theologians and ethicists, who can form constructive dialogue and create bridges between different scientific disciplines to respond wisely to new challenges posed by scientific and technological developments. (Matheus Purwatma , 2016)

Interdisciplinary experts such as Dr. Mary Hirschfeld, an economist and theologian, highlight the importance of collaboration between disciplines in formulating a holistic approach to AI. In the context of the Church, Hirschfeld stated, The transformation of the Church in the face of AI requires strong interdisciplinary engagement, where economists, theologians, ethicists, and social scientists work together to understand the impact of this technology on human values and dignity. (Rees, 2020) Therefore, the Church's transformation efforts regarding AI require holistic involvement from various fields of science so that the Church can provide a balanced and relevant view of the rapid development of technology (Matheus Purwatma, 2016)

Community Education and Implementation of Ethics Guidelines

Community education is vital in responding to ethical challenges. In line with Nussbaum's view, Ethical education is not only about knowing, but also about understanding and feeling it, (Lie, 2022). The Church needs to develop educational programs that imbue ethical values in the context of AI technology. In

addition, implementing clear and relevant ethical guidelines will provide a practical basis for people to deal with everyday ethical dilemmas.

Community education regarding implementing ethical guidelines related to artificial intelligence (AI) is crucial in aligning technological progress with moral values and justice. (Refo, 2023) In line with the development of AI technology, community education aims to increase awareness of the ethical impacts of implementing this technology. As stated by Professor Wendell Wallach, a technology ethicist, Education is key to shaping society's perception of AI and ensuring that society has a better understanding of how to manage and use this technology ethically. (Mukama, 2018) By providing sufficient knowledge to the people, the church can play an essential role in forming a responsible attitude toward using AI to create an environment of justice and dignity.

Implementing ethical guidelines in artificial intelligence also requires collaboration between religious institutions and the scientific community. In his encyclical (Francis, 2020), Pope Francis emphasized the importance of dialogue and cooperation to create a more just world. In this case, educating people about AI ethics can be a starting point for such collaboration. Professor Shannon Vallor, a technology ethicist, highlights the need to include ethical and religious voices in the technology design and implementation process. Therefore, community education prepares individuals to understand the ethical implications of AI and actively participate in forming norms and regulations that reflect society's moral and spiritual values.

Case Study: AI Technology Project in a Catholic Church Environment

Case studies on the application of artificial intelligence (AI) technology within the Catholic Church demonstrate the evolution of technology's role in supporting ecclesiastical missions. According to Dr Maria Antonia Brancaccio, a theology and technology expert, The application of AI in the church can improve administrative efficiency, allowing clergy to focus more on pastoral care. For example, an AI-based data management system can help manage the congregation's database, simplify sacrament tracking, and facilitate internal communications. Apart from that, this approach also reflects the views of Pope Francis, who stated that the church must be at the forefront of adopting technological developments to improve the quality of its services. (Bordot, 2023)

However, Professor of AI and Technology Ethics Dr. Javier Ruiz reminds us to consider the ethical implications of using AI in religious contexts. In his view,

the church needs to ensure that the application of this technology does not replace the essence of spirituality, but rather strengthens the religious experience of the congregation. Therefore, the implementation of AI technology in the church environment must be based on strong moral and ethical values, ensuring that the technology becomes a positive tool in supporting the spiritual mission goals of the Catholic church. (Qc, 2022)

Theological and Philosophical Implications for the Application of AI Technology in the Catholic Church

The theological and philosophical implications of applying artificial intelligence (AI) technology in the Catholic Church are essential in responding to the growing technological revolution. At a theological level, it is necessary to consider how these technological developments affect the concept of divine presence and the spiritual experience of Catholics (Macsut & Grosu, 2012).

In the teachings of the Catholic Church, the aspect of divinity and the divine presence in people's lives is a crucial theological point. With the integration of AI technology, it is necessary to consider whether the existence of machines and artificial intelligence can coexist with people's spiritual experiences or even shift the dimensions of human spirituality. In his encyclical, Pope Francis emphasized that the presence of technology must support, not replace, the human relationship with spiritual life (Francis, 2016). Philosophical views also significantly impact the Church's understanding of the application of AI technology. Distributism, introduced by G.K. Chesterton and Hilaire Belloc, offers a philosophical perspective on the distribution of wealth and power in society (Ripple et al., 2022). In the context of the Catholic Church, distributism can be a basis for evaluating the distribution of benefits and the impact of AI technology on society and individuals.

The ethical views of transhumanism also need to be considered in a philosophical context. The question of the boundaries between humans and technology, whether humans can improve themselves through integration with AI technology, is an ethical consideration that needs to be accommodated in the Church's thinking. In the encyclical Fides et Ratio (Venerable & Bishops, n.d.), Pope John Paul II provides a philosophical basis for dialogue between faith and rationality, which can guide the Church in responding to technological challenges related to technological developments.

The theological and philosophical implications also include questions regarding the Church's moral responsibility towards AI technology. How can the

Church guide its people to use technology responsibly, ensuring that human values and justice are maintained? (Song, 2021) Father Paolo Benanti, a Catholic theologian involved in the fields of ethics and technology, suggests that the Church can provide guidance on necessary morals and guide their followers in the use of technology (Paolo, 2022).

The Catholic Church can formulate a holistic and spiritually informed approach to applying AI technology by understanding the theological and philosophical implications. This creates a solid foundation for the Church's ethical policies and guidelines, which reflect moral and spiritual values and provide insight into how technology can support the spiritual experience and well-being of the congregation (Bawazir et al., 2018).

Conclusion

The technological revolution in artificial intelligence (AI) poses various ethical challenges for the Catholic Church. The Church needs to transform an interdisciplinary and inclusive approach to respond to this challenge. AI ethical principles formulated by experts and international organizations, such as fairness, diversity, accountability, and transparency, are used as a reference.

Churches face data privacy issues, algorithmic bias, and automation in the context of AI implementation. The Church's moral teachings that emphasize human dignity and technological responsibility demand the development of AI in harmony with human values. Interdisciplinary dialogue and collaboration are vital to establishing AI ethics and regulation. Community education is also needed to increase understanding of the ethical impacts of AI. Implementing ethical guidelines by the Church can provide a practical framework for using this technology. Overall, the Church needs to proactively guide society and the technology community to optimise the benefits of AI without compromising moral values and justice.

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CHAPTER IV

Religious Diversity and AI: The Role of the Catholic Church in Interfaith Dialogue

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Abstract

The Catholic Church's approach to interfaith dialogue and artificial intelligence (AI) ethics is the main topic of this paper's analysis of the ethical consequences of religious diversity. Although religious diversity promotes cooperation, it also raises the possibility of conflict if it is not managed well. Human dignity is the cornerstone of the Catholic Church, which places a strong emphasis on religious liberty and civil interactions with people of different religions to foster cooperation on common objectives such as social justice. Mutual understanding is facilitated by texts such as Nostra Aetate and multifaith education in schools. Religions, however, also influence moral discussions about technological advancements. This is seen in Catholic social teaching, which incorporates spiritual insights into ethical discussions about AI's concerns with rights, transparency, and well-being. All parties must engage in inclusive deliberation for religious contributions to be constructive. To fulfill cooperative potential, avoid disputes, and responsibly incorporate values into new technologies like AI through multi-perspective ethical thought, managing religious diversity ultimately requires upholding moral standards via interfaith communication.

Keywords: Religious diversity, Interfaith dialogue, Catholic Church, AI ethics, Social cohesion

Introduction

The existence of different religious beliefs within a community or geographical area is referred to as religious diversity. Tolerance and interreligious understanding are two key concepts to grasp in the context of religious diversity (Ignatowski et al., 2020) Intercultural and interreligious education, which promotes positive dialogue and helps individuals to better understand differences, can help cultivate tolerance. Religious diversity can bring people together and create

richness, but it can also sometimes lead to conflict. It is therefore crucial to manage conflicts and seek solutions that respect people's right to worship.

It is also impossible to overlook the way religion shapes social norms and ethics. Achieving mutual understanding between different religious beliefs will depend on identifying common principles. Nonetheless, social connections and society at large are being significantly impacted by developments in artificial intelligence (AI). Data security and privacy are important areas of AI development that have grown significantly in importance as the technology has advanced (Stahl, 2021). In addition, the automation of jobs through AI will require society to develop future-proof skills. The ethical component is also emphasized, with concerns about justice, responsibility and social impact to be considered in the creation and application of AI. When examining the connection between religious variety and technological advancement, it's critical to take into account the ethical and social ramifications of AI development for various religious communities.

One consideration is the potential for algorithmic bias in AI, which could lead to injustice and prejudice against certain religious communities (Ashraf, 2021). Therefore, it is imperative to ensure equity and the absence of discrimination in the use of AI. Finally, the application of AI in a religious setting must be carefully considered, taking into account how this technology may affect a community's religious beliefs and practices.

Literature Review

The Value of Interfaith Communication in the Technology Age

Interfaith communication is essential to creating a more enlightened and inclusive society in the computer era. Through conversing with others about various faiths, people can get past preconceptions and misconceptions that are reinforced by technology. In a world where information spreads rapidly, dialogue becomes a powerful tool to promote tolerance and understanding, countering the negative effects of the technological spread of stereotypes.

Interfaith discussion also makes it possible to comprehend the complex link that is developing between faith and technology. It provides a platform for discussing concerns and perspectives on technological advances, helping to prevent potential conflicts rooted in a lack of understanding of the consequences of these advances (Michaelides, 2009). Interfaith dialogue also helps to address the ethical dimensions of technology by identifying common ground and promoting improvements in the ethics of technology. Ultimately, interfaith dialogue in the

technological age contributes to the creation of a just and sustainable society where diverse perspectives are valued and faith enhances the collective capacity to manage the impact of technology wisely. By engaging in interfaith dialogue, individuals and communities can collectively address the social, ethical and moral challenges posed by technology. They can collaborate to create constructive ethical norms that can direct society's responsible use of technology, define common values, and share ideas and insights. Ultimately, in the modern age, interfaith communication is critical to fostering harmony and comprehension amongst disparate religious and ethical viewpoints. It fosters cooperation, empathy and mutual respect, allowing for the exploration of common ground and the development of shared solutions to the challenges and ethical dilemmas posed by technology.

One avenue to discuss the moral and ethical ramifications of technological advancements is through interfaith discourse. It facilitates conversations about topics like artificial intelligence, data security, privacy, and how technology affects interpersonal relationships (Barzilai-Nahon & Barzilai, 2005). Interfaith dialogue offers a unique opportunity to consider these ethical concerns from different religious and cultural perspectives, ensuring that decisions about the use and development of technology are informed by a broad range of values and principles. In conclusion, interfaith communication is crucial for increasing mutual understanding, confronting issues, and encouraging the moral and responsible use of technology in society.

Overall, interfaith dialogue is crucial in navigating the complex relationship between faith and technology (Keaten & Soukup, 2009). By bridging the divide between various religious viewpoints and technological advancements, interfaith discourse makes it possible to have conversations about the moral and ethical ramifications of these developments.

It is through interfaith dialogue that we can navigate the complex relationship between faith and technology (Pope, 2019). Through interfaith discussion, common values can be explored and moral guidelines for the proper use of technology in society can be developed. Interfaith dialogue enables individuals and communities to collectively address the social, ethical and moral challenges posed by technology. Interfaith dialogue also creates opportunities for individuals to deepen their understanding of other religions and religious practices.

Through interfaith dialogue, individuals can develop empathy, respect and a deeper appreciation for the diversity of religious perspectives (Ben-Lulu & Feldman, 2021). In the end, interfaith discussion supports the advancement of a

more moral and ethical approach to technology that honors the values and beliefs of all parties involved. A vital instrument for fostering mutual respect and collaboration amongst many religious communities is interfaith discourse. To confront the difficulties and moral conundrums that technology presents, to foster understanding, and to support its responsible usage, interfaith discourse is an essential tool. A crucial instrument for fostering mutual respect and collaboration amongst many religious communities is interfaith discourse (Michaelides, 2009)

Individuals and groups can investigate common values and create moral guidelines for the proper use of technology through interfaith discussion. By bridging the divide between various religious viewpoints and technological advancements, interfaith discourse makes it possible to have conversations about the moral and ethical ramifications of these developments. In a multicultural and pluralistic society, interfaith communication is crucial for fostering respect, understanding, and collaboration between all people (Swidler, 1983). The interfaith discussion provides a forum for discussing the nuanced interaction between faith and technology in this particular environment. We can address the complex relationship between faith and technology through interfaith discussion. Different religious communities can have discussions regarding the moral, social, and ethical ramifications of technological advancements on a platform provided by interfaith discourse.

Overall, via encouraging mutual respect, understanding, and collaboration across various religious communities, interfaith discourse plays a significant role in encouraging the ethical and responsible use of technology (Neumaier & Klinkhammer, 2020). To sum up, interfaith discussion is a useful instrument for addressing the moral issues raised by technology and encouraging its proper use. By fostering an appreciation and knowledge of the various viewpoints held by various religious communities, interfaith conversation helps to advance a more moral and inclusive use of technology.

The Catholic Church's Technical Basis for Religious Diversity

The Catholic Church's teaching on religious tolerance and respect is underpinned by several fundamental ideas that are rooted in the core values of the Catholic faith, which place a premium on love, justice, and respect for the dignity of every human being. Central to this teaching is an emphasis on love and respect for others as a moral responsibility (Rachman, 2021). This involves committing to hold others' religious beliefs in high regard and to have thoughtful, polite conversations.

Furthermore, the Catholic Church firmly maintains the concept of religious freedom, acknowledging each person's inalienable right to hold and practice their chosen religion. This commitment is articulated in Church documents such as the Second Vatican Council's Dignitatis Humanae, which declares the freedom to choose and practice one's religion as a fundamental human right (Ignatowski et al., 2020).

In promoting harmony among different faith communities, the Catholic Church actively encourages interreligious dialogue. Recognizing the value of understanding differences, this dialogue becomes a catalyst for cooperation in the pursuit of justice, peace and shared prosperity. The Church's connection with non-Christian religions is explicitly addressed in documents like Nostra Aetate, which emphasize respect for the principles found in various religious traditions.

Moreover, the Catholic Church underscores the need to honor each person's redemption of the soul, irrespective of their theological convictions. This entails establishing an atmosphere of acceptance and understanding between people as well as acknowledging the inherent right of every person to pursue truth and purpose in life.

The Catholic Church adopts a holistic approach to technological advancement, incorporating moral, ethical, and social viewpoints that are drawn from its teachings. The Church is aware of the potential for technology to enhance human life, but it is also cognizant of the moral dilemmas raised by these developments. It highlights the need for technical advancement to advance social justice and human dignity while also serving the interests of humanity (Pabubung, Michael, 2021). Ethical concerns like the right to life and health must be taken into consideration when the Church interacts with the quickly evolving technology landscape. The core of the Catholic viewpoint on technology growth is a commitment to moral values and the well-being of humanity.

Furthermore, moral and ethical viewpoints founded on Church teachings are constantly emphasized in the Catholic understanding of technological advancement. Although technology has the potential to enhance human life, the Church is cognizant of the ethical dilemmas it presents. It states that when it comes to technology development, the preservation of human dignity, social justice, and the welfare of all people should come first. As a result, the Church addresses morally significant issues like the right to life and health to ensure that technological breakthroughs do not contradict the principles of justice, compassion, and the sanctity of human life (Levada, 2008).

Discussion

Religious Diversity and Contemporary Challenges

Religious diversity is a defining aspect of our world today, presenting both challenges and opportunities for social cohesion and harmonious coexistence. Religious diversity presents challenges but also opportunities for social cohesion and harmonious coexistence. Religious organizations, like the Catholic Church, are essential in fostering mutual respect and understanding amongst people of various faiths and beliefs in society. They provide a platform for open and respectful discussion, encouraging individuals to recognize the common values and principles that can unite different religious communities (Ignatowski et al., 2020)

According to Eck, the objectives of dialogue include reciprocal change and understanding, which pave the way for the cooperative transformation of local and global civilizations. The Catholic Church aims to foster understanding and change across religious communities through interreligious conversation. This makes people feel more united and cooperative, which enables them to recognize the diversity of religious customs and cultural traditions. The Catholic Church works to dismantle any barriers and preconceptions that might exist between various religious groups through interreligious dialogue. This conversation benefits society at large in addition to the education of students in Catholic institutions (Elshof, 2015).

Catholic schools play a significant role in creating an environment that embraces variety and respects the opinions of others by supporting religious conversation and encouraging favorable attitudes toward the modern interpretation of the Catholic tradition. Ultimately, this leads to the creation of a more harmonic and cohesive community where individuals from all religious backgrounds may coexist peacefully and collaborate (Franchi, 2016). The Catholic Church recognizes the need for dialogue in addressing religious differences and developing leaders who can work with others to address common global concerns. The Catholic Church acknowledges that promoting interfaith dialogue and multifaith pedagogy in Catholic schools is an effective strategy for reducing religious conflict and promoting mutual understanding and cooperation amongst different religious communities.

Moreover, the Church acknowledges that communication and comprehension transcend beyond interfaith settings and encompass interactions with the secular populace as well. The Church acknowledges the importance of having conversations with those who identify as belonging to different religious traditions, as well as with individuals who have no beliefs at all or only differing beliefs (Elshof, 2015). The Church recognizes that cultivating a culture of encounter and respect in society depends on fostering communication and understanding with individuals of all religions, including nonreligious ones. The

Church holds that cultivating a culture of encounter and respect in society requires encouraging communication and understanding with individuals who hold different opinions, regardless of their religious affiliation or lack thereof (Floridi et al., 2018). Thus, to reduce religious conflict and foster a more accepting and tolerant society that honors the perspectives and views of all people, it is imperative to improve interfaith communication, multifaith pedagogy, and education.

The Role of the Catholic Church in Promoting Interfaith Dialogue

In today's diverse and interconnected world, the Catholic Church recognizes the importance of promoting interreligious dialogue as a means of building understanding, fostering mutual respect and promoting peace among different religious communities (Dupuis, 2004). The Catholic Church aims to establish a forum where individuals can come together to exchange knowledge, exchange experiences and ideas, and collaborate towards shared objectives through interfaith discourse. To address religious pluralism and build a more peaceful and inclusive society, the Catholic Church holds that interreligious dialogue is crucial.

The Church aims to dismantle obstacles and preconceptions, encourage cooperation and collaboration, and combat prejudice and discrimination by fostering communication and understanding across many religious traditions. The Church holds that people can develop a deeper understanding of their faith, gain insight from one another's viewpoints, and advance a climate of encounter and respect for all individuals, regardless of their religious beliefs, via interreligious conversation (Nwosu, 2020). Using interreligious discourse, the Church endeavors to foster an atmosphere of inclusivity and unity, acknowledging that individuals from all religious origins can make valuable contributions to the common good and collaborate towards the advancement of society.

The Church recognizes that interreligious dialogue is not only a means of promoting understanding and respect, but also a way of addressing and resolving religious conflicts (Pope, 2019) By engaging in open and honest conversations, the Church seeks to identify common ground, bridge differences, and find peaceful solutions to conflicts that may arise from religious tensions. By highlighting the common goals and values of various religious traditions and the possibility of cooperation in tackling pressing social issues like poverty, injustice, and environmental degradation, the Church advances a message of peace, reconciliation, and cooperation through interfaith dialogue. Thus, via incorporating interreligious discourse into Catholic school life and religious instruction, the Church not only enhances student education but also plays a significant role in fostering communication and erecting barriers between various religious communities more broadly (Balabeykina, 2020).

In conclusion, the Catholic Church considers interreligious dialogue to be an essential tool for promoting cooperation, mutual respect, and understanding amongst followers of different religious traditions. Through interfaith discussion, the Church seeks to reconcile theological differences, create a more accepting and peaceful community, and promote harmony and cooperation in addressing urgent social issues (Swidler, 1983). Interreligious dialogue is essential to fostering cooperation, tolerance, and understanding among different religious communities. The Church recognizes the importance of interreligious dialogue in promoting respect, comprehension, and collaboration amongst people of diverse religious backgrounds.

The Ethical and Spiritual Implications of the Use of Artificial Intelligence

Artificial intelligence technology is developing quickly, and this has significant ethical and spiritual ramifications that should not be disregarded. The increasing integration of AI into our daily lives raises important questions about how its use aligns with moral principles and values. AI development and application should also be led by a robust ethical framework that places a high priority on human well-being, fairness, transparency, accountability and the protection of human rights (Towards an Ethics of Artificial Intelligence | United Nations, 2022). To make sure that the opinions and views of people who might be impacted by AI technologies are acknowledged and heard, it is also critical to have meaningful conversations and build connections with them.

It is crucial to consider artificial intelligence ethically in the rapidly evolving field of digital innovation. The possible effects of AI on human dignity, privacy, autonomy, and socioeconomic inequity must be carefully considered by society (Stahl, 2021). This requires inclusive and transdisciplinary discussions, involving not only AI experts but also religious and spiritual leaders who can bring unique perspectives on the ethical and moral implications of AI. Recognizing and resolving power disparities in AI development and application is also essential. The conversation surrounding the ethical and spiritual aspects of artificial intelligence is significantly influenced by religious communities. For example, the Church, with its rich ethical and spiritual traditions, can provide valuable insights and guidance in navigating the complexities of AI ethics and ensuring that its development and use are consistent with human values and the common good (Cox & Foerst, 1997)

Individuals and communities must engage in open and honest dialogue about these issues, fostering a deeper understanding of the ethical and spiritual

dimensions of AI technology and its implications for society (Floridi et al., 2018). We can only successfully negotiate the many obstacles and guarantee that AI is created and applied in a way that preserves our common values and advances human flourishing through such discourse. Consideration must be given to the significant ethical and spiritual issues that the incorporation of AI into our daily lives brings up. The possible effects of AI on human identity, relationships, and meaning-making are among these concerns, as are its consequences for social justice and the greater good.

To tackle these issues and guarantee the conscientious advancement and implementation of AI, it is imperative to institute global collaboration and regulatory structures that foster principled AI methodologies while respecting human rights. By doing so, we can work towards a future where AI technologies are designed and implemented with the utmost respect for human dignity, social justice, and the well-being of all individuals and communities (Stahl, 2021). Moreover, decision-makers in government, academia, and business must prioritize openness, responsibility, and diversity in the creation and application of AI technologies. In conclusion, ethical reflection and consideration of artificial intelligence is critical for society (Doncieux et al., 2022)

They offer a chance to influence the course of AI research and development, making sure that technology upholds our moral principles and advances society (Meek et al., 2016). In summary, addressing the ethical use of technologies such as AI requires acknowledging power imbalances, engaging in open dialogue, and incorporating insights from religious communities. It is possible to promote a more comprehensive and inclusive approach to AI ethics that takes into account not only technical issues but also the ethical and spiritual aspects of AI's influence on society by embracing the viewpoints and insights of religious communities (Doncieux et al., 2022). In summary, ethical reflection and deliberation on artificial intelligence are crucial for society (Sinibaldi et al., 2020). They offer a chance to influence the course of AI research and development, ensuring that it aligns with our principles and advances society. (Meek et al., 2016).

Conclusion

In today's society, the presence of various religious beliefs is a fundamental component that brings with it a range of possibilities and difficulties. The Catholic Church, as demonstrated by its actions, recognizes the importance of

nurturing conversations and comprehension among different religions as a means to foster harmony and peaceful cohabitation. Through documents such as Nostra Aetate and principles like the value placed on religious liberty, the Church demonstrates its dedication to engaging constructively with other faiths.

At the heart of this lies the notion of human dignity - acknowledging the intrinsic value and entitlements of every person, irrespective of their religious beliefs. Embracing this principle facilitates fruitful cooperation in tackling common issues such as poverty, inequality, and environmental degradation, even when faced with theological disparities. Nevertheless, religious ethical frameworks also influence discussions surrounding advancements in technology and their utilization, including artificial intelligence.

The writings that were examined emphasize the necessity of inclusive, multi-stakeholder ethical discussion on AI to preserve principles such as accountability, transparency, and the welfare of people. By offering spiritual insights into the social and ethical implications of modern technology, religious organizations such as the Catholic Church can make significant contributions. Including these various points of view allows for a comprehensive approach to creating ethical guidelines and best practices for AI.

The texts also emphasize how important it is for Catholic educational institutions to foster interfaith understanding and cultivate dialogue-based open-minded attitudes. Schools can foster mutual learning and respect among students by providing significant opportunities for meaningful contact between students from different origins and perspectives. This promotes broader social cohesiveness. All things considered, religious variety needs constant ethical thought and discussion to foster harmony, avert confrontation, and guarantee that developing technologies follow common moral standards that preserve human dignity.

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CHAPTER V

Confronting Human Rights Issues in Artificial Intelligence: A Catholic Theological Perspective

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Abstract

Various representatives and interdisciplinary collaboration is integral to preventing bias and ensuring fairness in AI system development. Taking a more comprehensive perspective on the ethical considerations of artificial intelligence (AI) within the confines of the Catholic faith necessitates the involvement of individuals hailing from diverse backgrounds, including those belonging to underprivileged communities, as well as experts specializing in various disciplines such as sociology, psychology, ethics, and human rights. This all-encompassing approach ensures that AI technologies are developed while duly considering the social, cultural, and ethical dimensions while safeguarding the rights of all individuals, particularly those susceptible to discrimination. The Catholic theological perspective highlights the significance of human labor and the need to protect human dignity in the context of AI advancement. AI should complement rather than replace human labor, respecting the value of meaningful work, fair pay, and workers' rights. The duty to explain supports an AI decision-making process with transparency, responsibility, and consistency with the recommendations of The Rome Call for Ethics. This ensures that AI systems operate within the bounds of human dignity, are understandable, and can be challenged by individuals. This dedication to advancing ethical and human-centered artificial intelligence (AI) aligns with the Catholic obligation to safeguard human rights, foster human progress, and contribute to collective welfare.

Keywords: Artificial Intelligence, Catholic Theology, Human Rights, Holistic, Human-Centric

Introduction

The rapid development of artificial intelligence (AI) poses profound questions about human rights and dignity. As AI systems become more advanced and integrated into daily life through smartphones and other devices, there is a risk

that human autonomy and self-determination could be undermined. (Francis, 2023b). Recognizing AI's potential benefits and threats, the Roman Catholic Church has emphasized centering on human dignity in debates around new technologies (Pontifical Academy for Life, 2023).

The Catholic Church acknowledges that AI innovations can improve quality of life, health, mobility, and more. However, the unreflective adoption of AI also risks perpetuating or exacerbating social inequalities, concentrations of power, and other human rights violations (Tighe et al., 2022). Recent Church documents have raised warnings about the potential for AI systems to erode human dignity and rights if development proceeds without sufficient ethical guardrails (Francis, 2019).

This essay examines Catholic perspectives on human rights and dignity in the age of artificial intelligence. Given the speed at which AI capabilities are advancing, it is increasingly urgent to build governance systems, regulations, and technology practices that uphold moral values (Jobin et al., 2019). As AI becomes deeply embedded into core social functions and human environments, Catholic voices emphasizing dignity and justice can critically contribute to policy debates.

The central questions explored are: What are the perspectives of Catholic theologians and philosophers regarding human dignity and ethics in developing AI technology? What core principles of AI ethics are formulated by the Catholic Church to protect human rights?

Moreover, what is the proper role of the Catholic Church in advocating and mediating AI policies globally today? To answer these questions, the paper surveys recent publications by Catholic ethicists and institutions grappling with emerging issues in AI accountability, transparency, bias, autonomy, and concentration of power in the technology industry. It also examines Church doctrine on human dignity, work, inequality, and the common good to guide ethical technology development. Finally, it proposes areas where further theological analysis is needed regarding the impacts of AI on vulnerable populations.

Upholding dignity in the age of intelligent machines remains an immense challenge, but one that Catholic social teaching is well-positioned to inform. Catholic voices can call for AI systems designed, governed, and used for empowerment rather than exploitation by emphasizing all people's ultimate worth and creative capacity. Realizing this vision demands ongoing reflection by theologians and active moral leadership from the Church as a global institution.

Literature Review

Man, as Imago Dei

The idea that every human being is made in the image and likeness of God is the foundation of Catholic theology's conception of human rights and dignity. The basic principle of Catholic theology is that every human has dignity, which does not depend on external factors such as intelligence, ability, or social status. (Gunarso et al., 2022) Therefore, any technology, including AI, must respect and value the dignity of every human being.

Christian faith sees the declaration of God's image and likeness in Genesis 1:26-27 as conveying God's original plan for human beings. Catholic theology has interpreted these words broadly by pointing to the unique character and qualities given to human beings, such as reason, moral responsibility, and the capacity for relationships (Puffer, 2017). These qualities distinguish humans from other creatures and give humans a special status in the world. Therefore, according to Catholic theology, the use of AI cannot demean or threaten human dignity, as humans are created in the image and likeness of God.

The theology of the Imago Dei also highlights the importance of the responsibility to serve that accompanies technological upgrades. (Herzfeld, 2002) It encourages a careful and thoughtful approach to developing and implementing AI. Technological upgrades - including AI - should be undertaken with a deep sense of responsibility and service, ensuring they are used appropriately to promote the common good and respect for human rights. This theological framework becomes the guiding principle for evaluating the ethical implications of AI and its potential impact on human rights. This raises the urgency of promoting human development, preserving human dignity, and ensuring AI's alignment with values of justice and solidarity (Tighe et al., 2022). By grounding AI approaches in Catholic theology, human rights issues that support the well-being and dignity of all individuals can be addressed.

Furthermore, the view of Divine Providence in Catholic theology reminds us of God's continuous care and guidance, including in the development and use of technology. In the context of rapid technological advancement, the Catholic perspective encourages individuals and communities to approach AI and human rights issues with moral discretion and to seek assurance that technology can be controlled to achieve the general welfare. Technology can be made accessible to all

individuals, especially those who are marginalized and vulnerable (Green, 2018). This aligns with the Catholic commitment to social justice and the poor and marginalized.

In light of the Church's active engagement in the dialogue around the ethics of AI, it is argued that the Catholic perspective provides a valuable breakthrough to understanding human rights issues in AI. By grounding the discussion on the fundamental principles of human dignity and the imago Dei, the Church provides an overarching framework for evaluating the ethical implications of AI. This leads to careful consideration of the development and construction of this technology (Francis, 2023a).

Human Dignity and Its Relationship with AI

The Catholic Church's view on the ethical implications of AI is closely related to the imperative to preserve human dignity. The Church acknowledges that every human being's rights and dignity must come first in the development and application of AI (Francis, 2023c). Human dignity is the core foundation of Catholic theology. It is the basis for understanding and cultivating every individual's worthiness and fundamental rights. Therefore, the Catholic view on AI and human rights focuses on ensuring that technology respects and fosters human dignity in all its manifestations.

This anthropocentric concept, which places humans at the core of ethical thinking, is fundamental to the Church's approach to AI. It introduces the idea that AI should not be viewed simply as a tool or object but rather as a technology that can potentially impact human life and rights in a cutting-edge way (L Floridi et al., 2021). Therefore, any use of AI that violates or denigrates human rights - such as infringement on the private sphere, discrimination, or denigration of Catholic theological principles - contradicts Catholic theological principles (Gaudet et al., 2023).

However, the Church also recognizes the challenges to anthropocentrism, especially in ethical and philosophical circles. (Graves, 2022) The idea that human existence has a network of interconnections with other existence - rather than the exclusivity of human existence itself - poses a significant philosophical challenge. It prompts a reconsideration of the architecture of value and calls for a more inclusive and technocratic approach that does not simply attribute judgment to humans (Tasioulas, 2022). The Catholic view on AI ethics introduces the need for

a comprehensive understanding of human dignity that encompasses the interconnectedness of all existence and its ethical implications.

Therefore, facing the issue of human rights in AI, the Catholic perspective suggests a balance between respecting the intrinsic dignity and value of each human person while recognizing the interconnectedness and value of non-human existence in the AI ecosystem (Luciano Floridi et al., 2018). By integrating the Catholic principles of human dignity, solidarity and care for creation; the Church's perspective on AI ethics highlights the need for inclusive and responsible development and use of AI that preserves human rights for all.

In this context, the Rome Call for AI Ethics document provides valuable principles that align with the Catholic perspective on AI ethics. It expresses the urgency for transparency, inclusiveness, and accountability in the development and use of AI. It encourages the development of AI that serves the individual and humanity as a whole, respecting the dignity of the human person and ensuring that no one is excluded (RenAIsance Foundation, 2023).

When integrated into AI ethics, the relational quality of human experience explains the need for an approach that is dynamic and responsive to the various drivers and changes in the system. This emphasizes the importance of processing ethical practices that do not have static goals to achieve but rather an ongoing process that evolves in response to the day-to-day lives of individuals affected by AI technologies (Luciano Floridi et al., 2018). This ethical framework promotes wholeness and flourishing by working with the multidimensional aspects of human experience. It reflects the core values that Catholic views on human rights held in the context of AI.

Mutuality and Mutual Benefit in Ethical Research and Development

Furthermore, the Catholic view underscores the principle of mutuality between researchers and beneficiaries of AI technologies. This principle promotes the need for a discrete and modest relationship regarding the beneficial impact of AI technologies on individuals and society. Without mutuality of esteem, the relationship between AI development ethicists and the communities they serve risks fracturing. (Luccioni & Bengio, 2019) A relationship with mutuality and mutuality of esteem assures that AI technologies are not simply public domination but a collaborative development of those who wish to be affected.

In addition, the Catholic view puts forward the need for ethical research and development of AI that takes part in the intrinsic value of each person and the

respect for their dignity (Luccioni & Bengio, 2019). It asks researchers and developers to actively engage with the ethical implications of their work and consider potential impacts on human rights. In addition, it asks them to ensure that AI technologies do not cause disaster or disrupt individual rights and freedoms. On this view, Catholic theology calls for rejecting the development of AI technologies that only have the primary agenda of wealth and power alone. It advocates a more inclusive and participatory approach in considering the needs and views of marginalized communities. It encourages them to participate actively in developing and evaluating AI technologies.

The rapid development of digital innovation and technological progress has brought profound ethical reflection across international and interdisciplinary platforms. There is a growing awareness and commitment at the international level to establish an ethical framework for AI. This is exemplified through initiatives established by private and public actors, such as the OECD and UNESCO (United Nations, 2022). Integrating the Rome Call for AI Ethics and the Catholic view on AI ethics supports ethical AI development that prioritizes human development, inclusive relationships, and mutual respect. It calls for a shift from exclusive anthropocentrism to a more inclusive and technocratic value architecture. It recognizes the importance of human rights, safety measures, and transparency in developing and implementing AI technologies.

Discussion

Interconnection Network of Rights and Responsibilities

According to Catholic theology, recognizing the interconnected web of rights and responsibilities is central to safeguarding human rights in AI (Luciano Floridi & Cowls, 2019). The Catholic perspective emphasizes that the rights of individuals are intertwined with their corresponding responsibilities to each other and with the common good. This understanding of the relationship between rights and responsibilities underscores the need for AI ethics to protect the rights of individuals and nurture a sense of responsibility in the design and use of AI technologies. From a Catholic perspective, the ethical imperative lies in ensuring that the development and use of AI systems are rooted in promoting human rights and encouraging a culture of ethical accountability.

This relational view of human rights in the context of AI expresses a call for collaboration and dialogue among stakeholders (Prabhakaran et al., 2022). It seeks to bring together proposals from different sectors of society - including

marginalized communities - to ensure that the development of AI technologies respects and protects the rights of all individuals. By seeking an inclusive approach to AI ethics, the Catholic view addresses power differentials and structural injustices that, if left unchecked, perpetuate discrimination and injustice in AI systems.

Rights and responsibilities are part of the reciprocal relationship in the Catholic perspective and AI ethics. (Sartor, 2020) This reciprocal relationship means that while individuals have rights, they also have responsibilities in correspondence to each other and the common good. It encourages the development and use of AI to prioritize the dignity of each person, ensuring that individuals can benefit from technological advancements without ostracizing particular objects or data points.

Developing Ethical Awareness and Adaptive Praxis

A critical component of defending human rights in the context of AI - as advocated by the Catholic perspective - involves developing ethical awareness and adaptive praxis (Rossi & Mattei, 2019). This approach recognizes that ethical thinking in the development and application of AI systems is not static but evolves in response to human interaction with technology's complex and dynamic nature. Further, it emphasizes the ongoing discretion of ethical implications as AI technologies evolve. It urges stakeholders to remain mindful of the evolving impact of these technologies on human rights.

The Catholic view highlights the need for practitioners and decision-makers in AI to begin engaging in ethical reflection during its development and dialogue (Smith-Loud et al., 2023). Acknowledging the limitations of one's viewpoint and proactively pursuing alternative concepts and experiences that could offer significant perspectives on the possible effects of artificial intelligence (AI) technology on human rights are part of this. To guarantee an accurate understanding of the ethical aspects of AI and its influence on human rights, practitioners and decision-makers are encouraged to collaborate with specialists from disciplines like theology, ethics, philosophy, social science, and law (RenAIsance Foundation, 2020).

This involves active participation in developing transparency and accountability processes that evaluate and address the ethical implications of AI technologies. By integrating ethical awareness in the programmatic design and implementation of AI systems, the Catholic perspective seeks to ensure that

individuals' evolving needs and rights are upheld alongside the unfolding of technological advancements (Aizenberg & van den Hoven, 2020). It also emphasizes the importance of collective responsibility and a commitment to understanding and mitigating the harms that can arise from AI technologies.

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Furthermore, the Catholic Church calls for AI ethics to be theoretically realized in concrete actions to protect human dignity (Cuda, 2021). This drives practices such as mentoring and data literacy for vulnerable groups, more inclusive algorithmic research, and advocacy for AI policies involving the public. According to McDonough (2020), this action-oriented focus is essential to ensure AI truly benefits all levels of society, especially those left behind.

In addition, the Church also calls for AI ethics to be inclusive by involving a diversity of cross-cultural and religious perspectives, not just Western views (Ballesteros et al., 2020). Thus, the resulting AI ethical standards truly reflect universal human values. At the level of the Church institution itself, Pope Francis continues to call for critical reflection and concrete action to address the challenges of technological developments for the faithful (Francis, 2020). With this adaptive ethical approach and concrete action, the Church seeks to ensure AI continues to uphold the dignity of all people without exception amidst the raging currents of technological progress.

The Catholic view emphasizes the importance of avoiding objectification and discrimination of individuals in AI systems. This includes recognizing the dignity and worth of each person and ensuring that AI systems do not perpetuate or enhance bias, stereotypes, or injustice (Taylor, 2017). To prevent biases and guarantee justice, it also asks for the involvement of many viewpoints and experiences in creating and assessing AI systems. To ensure justice in developing and assessing AI systems, it is imperative to consider diverse perspectives and experiences to mitigate biases. This can be accomplished by involving members of diverse and marginalized populations in the AI technology creation and decision-making. This can question any presumptions or biases inside the system and offer insightful information. (Prabhakaran et al., 2022)

Working with specialists from interdisciplinary domains, like sociology, psychology, ethics, and human rights, can also shed light on the possibility of bias and discrimination. (Aizenberg & van den Hoven, 2020) The Catholic perspective promotes a comprehensive approach to AI ethics that considers AI systems' social, cultural, and ethical components by participating in dialogue and collaboration. This strategy promotes the creation of AI systems that consider the rights and needs of every person, especially those disproportionately impacted by discriminatory actions.

The Catholic view also emphasizes the need for transparency and accountability mechanisms to identify and address ethical issues in AI systems (Rome Call for AI Ethics, 2020). Regular algorithmic audits by interdisciplinary teams can help assess AI systems for discrimination or biases against vulnerable groups (Mittelstadt, 2019). Finding and mitigating harms early is critical from the Catholic perspective focused on human dignity.

In addition, efforts to expand access, literacy, and empowerment around AI systems among marginalized communities are significant (Ballesteros et al., 2020).

The Catholic Church can play a vital role here through community education and capacity-building programs guided by its social teachings (Cuda, 2021). Reorienting the development and application of AI towards serving vulnerable groups, not further advantaging the powerful few, is also part of a comprehensive Catholic social justice perspective on these technologies (McDonough, 2020).

Human Works as an Essential Part of Human Dignity and its Protection in the World of AI

The Catholic viewpoint stresses the need to preserve and advance human labor in the autonomous world of artificial intelligence, acknowledging it as a vital component of human dignity. It is imperative to guarantee that artificial intelligence technologies neither overtake nor reduce human work but augment and elevate it. (Luciano Floridi et al., 2018)

It emphasizes the importance of meaningful employment, equitable compensation, and individual worker rights. It also urges that ethical issues, like preserving worker rights in the face of automation and preventing job displacement, be considered when implementing AI systems. In addition to providing people a way to make a living, meaningful work helps people develop their sense of purpose, satisfaction in life, and personal integrity. AI can help increase productivity by decreasing monotonous and boring jobs, freeing up human labor for higher-order thinking and creative problem-solving. This can lead to new career prospects. (Evans-Greenwood et al., 2018)

By preserving the value and dignity of human work in developing and using AI technologies, the Catholic perspective seeks to ensure that AI systems serve the common good and support human flourishing rather than contributing to injustice, diminishment, and degradation of human labor. (Agarwal, 2022) To establish a future where AI serves the greater good of all individuals without decreasing human dignity, it should be guided by social justice, solidarity, and respect for human rights. Human labor is widely believed to be essential to achieving professional goals and serving society; thus, it should not be diminished or destroyed in an AI-driven world.

Duty to Explain: Enhancing Human Rights in AI Decision Making

Continuing the agenda to safeguard human rights in AI, integrating the Rome Call for AI Ethic with a Catholic perspective highlights the significance of transparency and accountability in AI systems. This is especially so regarding the

duty to explain which entails enhancing human rights in AI decision-making processes. It encourages the development of explainable AI systems, supporting transparency and traceability, thus ensuring the integration of the validity and ethics of automated decision-making (Winikoff et al., 2021).

By implementing the task of explanation, AI-based algorithmic agents are required to make their decision-making criteria understandable and display information regarding the goals and objectives behind their decisions. This allows human rights to be preserved and individuals to have the ability to compete and challenge AI decisions that may violate their rights. Through the integration of the Rome Call for AI Ethics and the Catholic perspective, a human-centric approach to AI can be imposed. Prioritizing preserving human rights and dignity in the creation and application of AI can be considered a moral need (Okolo et al., 2023).

The duty to explain can start by pointing out the fundamental difference between humans and machines. It introduces that when machines have the function of automatism, this diminishes and demeans the dignity that every human being has, as well as the capacity to make moral decisions (Doshi-Velez et al., 2017).This requires a deep understanding of the ethical implications of AI, along with a commitment to ensuring that AI will serve the common good and not perpetuate discrimination, injustice, or harm to individuals or communities (Kasirzadeh, 2021).

Furthermore, the duty to explain also includes addressing potential biased and discriminatory outcomes that may arise from AI algorithms. To safeguard human rights in AI decision-making, it is essential to integrate the duty to explain and support transparency and accountability in AI systems, to ensure that decisions made by AI are fair and unbiased, and to maintain the principles of equality and fairness. By doing so, AI can be guaranteed to perform its duties as a tool to support human dignity rather than aim to exploit or harm individuals (Aizenberg & van den Hoven, 2020).

Conclusion

Catholic theology highly respects human existence with all its attributes. The ability of human beings to create and innovate is a fundamental right in every era, including in this current age of rapid artificial intelligence (AI) development. However, if not carefully developed, AI technology can threaten human life and dignity through algorithmic bias, objectification, and discrimination in AI systems (Ballesteros et al., 2020). Therefore, core ethical principles like transparency,

accountability, and inclusiveness are critically needed in developing and deploying AI technology, according to the Catholic perspective (Rome Call for AI Ethics, 2020; Schwarz, 2022). With ethical AI comes the potential for mutually beneficial and complementary cooperation between humans and AI that can enrich human life. When guided by moral wisdom, AI technologies can support and enhance human capabilities to create, connect, and flourish. This is aligned with the emphasis Catholic social teaching places upon the dignity of meaningful work and economic systems subject to ethical human judgment (Francis, 2020; Francis, 2022).

The Rome Call for AI Ethics advocates for AI development to be accompanied by a duty to explain. This means that AI systems, especially those making sensitive decisions, should be interpretable and have their process. Conclusions explained to affected humans in ways they understand (Rome Call for AI Ethics, 2020). This ethical explanation ability empowers human judgment and oversight over AI technology rather than simply accepting machine outputs unquestioningly.

It improves human development through more informed cooperation with intelligent systems (Jobin et al., 2019). In the Catholic view, the ethical development of AI also leads to social justice. AI systems should be designed to benefit entire communities without taking away individual capacities and rights. Bias and discrimination issues can exacerbate inequality, while opaque AI systems reflect a technological paternalism at odds with consent and self-determination (Ballesteros et al., 2020; Schwarz, 2022). Instead, the Church advocates for prioritizing the poor and vulnerable by using AI to promote empowerment and social inclusion.

The evolving interaction between humans and intelligent machines raises critical ethical questions and challenges in protecting human rights and dignity. Catholic experts encourage an ongoing collaborative approach between key stakeholders, including religious institutions, policymakers, scientists, ethicists, and civil society, to address these complex issues (Rahwan et al., 2019). Together, they can develop adaptive solutions that allow human virtues to guide and oversee technological progress for the common good. In this way, every person's inherent dignity and worth can be recognized and upheld by developing morally directed AI technology that protects the rights of current and future generations.

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CHAPTER VI

Catholic Mission and AI: Spanning the Boundaries of Social Service in the Digital Age

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Abstract

In the digital age, Catholic mission work has expanded to encompass Artificial Intelligence in various social service initiatives. This merging of traditional religious outreach with cutting-edge technology exemplifies the adaptability and relevance of the Catholic Church in addressing modern societal needs. By leveraging AI, Catholic organizations can enhance their efficiency in delivering social services, from humanitarian aid to healthcare and education. This paper explores the potential of AI to transform Catholic mission work, highlighting both the opportunities and challenges that arise in this increasingly digitized landscape.

Keywords: Catholic mission, Artificial Intelligence, digital age, social service, ethics, impact

Introduction

The Catholic Church has a long-standing tradition of providing social services and humanitarian aid to needy people. As Artificial Intelligence (AI) technology advances, there is growing potential to apply these innovations to improve and expand the Church's missionary work (Smith et al., 2021). However, integrating AI also raises important ethical considerations related to the Church's teachings on human dignity, solidarity, and compassion (Shin et al., 2018).

Previous studies have highlighted the transformative capacity of AI to optimize humanitarian logistics, provide personalized care, and strengthen advocacy efforts ((Pizzi et al., 2020); Mathiyazhagan, 2022). However, there are also risks around exacerbating inequalities, threatening privacy rights, and undermining human judgment (Floridi & Chiriatti, 2020). As Catholic institutions

navigate these opportunities and challenges, evidence-based insights are needed to inform policy-making aligned with ethical principles (Green, 2022).

Thus, this research examines the relationship between Catholic social service delivery and AI technology. It aims to guide responsible innovation that respects human rights, justice, and care by identifying significant ethical conflicts and developing suggestions. The talk also aims to further the more prominent topic of using emerging technology for social good in spiritual contexts.

The ultimate goal is to promote positive communication and cooperation between IT executives and religious institutions. Maintaining moral pillars in the face of fast change is essential as AI becomes increasingly integrated into providing services (Smith, 2021). Technology advancement can be directed toward empowerment, healing, and social transformation by Catholic social teaching because of its theological solid basis and emphasis on human dignity.

Literature Review

Historical Perspectives on the Catholic Mission

Over centuries, the idea of Catholic mission has changed to include the advancement of human dignity, social justice, and evangelism. To understand how AI technology can be used to advance the mission of the Church in modern society, it is necessary to look at historical viewpoints on the Catholic mission. This investigation should cover the essential function of human agency and the all-encompassing strategy for meeting the material, social, and spiritual requirements of people and communities (B. P. Green, 2022).

As the Catholic Church tries to integrate AI technology in pastoral and theological contexts, it is imperative that we critically analyze the idea of the Catholic mission in this evolving environment. When AI and spirituality come together, opportunities and challenges present themselves. A deep understanding of the Catholic mission is necessary to steer the ethically and socially responsible deployment of AI by the faith.

While AI can be a valuable tool for delivering information and spiritual guidance, it is crucial to maintain the importance of pastoral care and human connection within the context of the Catholic mission. The use of AI in pastoral ministry should enhance the ability of pastors and communities to support people on their spiritual paths, not lessen the significance of one-on-one interactions, empathetic listening, and the community aspect of faith (Pope Francis, 2019).

The Ethical Imperative of Discernment

The ethical duty of discernment continues to be crucial when understanding the consequences of AI technology within the context of the Catholic mission. The Catholic community must reflect and discern to ensure that AI integration is consistent with the moral teachings, ethical principles, and spiritual goals unique to the Catholic vocation. To foster a comprehensive grasp of the consequences of AI within the context of the Catholic mission, this discernment process should involve active interaction with theologians, ethicists, pastoral leaders, and technological professionals (Robinson, 2006).

In conclusion, the Catholic mission provides a framework for the moral and intentional incorporation of AI technology into religious and spiritual practices within the Catholic community. Through an extensive examination of the literature that looks at the ethical, theological, and historical aspects of the Catholic mission regarding AI, the Church can successfully negotiate this intersection while being true to its purpose in the contemporary world.

When incorporating AI into social services, care must be taken to uphold the values of Catholic social teaching, which prioritize promoting the common good, human dignity, solidarity, and giving the weak and impoverished priority. This indicates that the development of social justice, fair distribution of resources, and empowerment of the oppressed must be the main goals of AI applications. The moral integration of AI into social services should bolster the Church's capacity to fight systemic injustice and advance the rights and dignity of all people, especially the underprivileged (Cowls et al., 2019).

Role of the Catholic Church in Social Services

The Catholic Church has long provided social assistance and satisfied the needs of vulnerable and marginalized populations. This commitment to upholding human dignity and the common good reflects the foundational principles of Catholic social teaching. Regarding artificial intelligence (AI), the Church's social service endeavors align with the ethical and compassionate utilization of AI technology to advance its objective of assisting the most marginalized segments of society.

AI can be used to promote human empowerment and development within the context of Catholic social services. The Church may more effectively identify and address the needs of the most vulnerable people, customize interventions to

target particular issues and advance sustainable development through AI-driven projects. The notion of subsidiarity ought to direct this technological progress, guaranteeing that artificial intelligence (AI) enriches and augments human agency instead of supplanting it. The Catholic Church can efficiently fulfill the changing needs of communities and individuals by optimizing its social services through AI for data-driven decision-making and resource allocation (Al-Abdulkarim et al., 2015).

As per the tenets of Catholic social teaching, incorporating AI in social services should foster a cooperative and inclusive society. AI programs should be designed to communicate across linguistic and cultural barriers to promote tolerance and support for individuals from diverse backgrounds. AI technologies can also be used to uphold the rights of marginalized groups, give voice to their viewpoints, and facilitate inclusive participation in the decision-making process. This tactic exemplifies the Church's commitment to promoting everyone's full and active participation in social and political life (Cowls et al., 2019).

Discussion

Ethical Considerations in AI Deployment for Social Services

Ethical considerations are crucial as the Catholic Church embraces AI in social assistance. According to Catholic social teaching, privacy, secrecy, and personal information protection must come first when deploying AI. In addition, the moral application of AI should respect the values of openness, responsibility, and prudent use of the Church's resources to carry out its social mission. This necessitates the incorporation of moral principles and frameworks that direct the conscientious creation, application, and assessment of AI technology in social services (Baric-Parker & Anderson, 2020).

In conclusion, the Catholic Church has a great chance to further its goals of upholding social justice, advancing human dignity, and serving the common good using AI technology in social services. The Church can use AI to expand its social services in a way that represents the compassionate and transformative mission of the Catholic Church by abiding by ethical considerations and the tenets of Catholic social teaching (E. E. Green, 2018).

In summary, AI offers a chance to advance the Church's goals of upholding human dignity, advancing the common good, and encouraging inclusivity (Floridi & Cowls, 2022). By exercising ethical judgment and adhering to Catholic social teachings, the Church may fully reap the rewards of AI innovation while

maintaining its unwavering commitment to social justice and compassion (Green, 2022).

Integrating Artificial Intelligence in Social Services

The Catholic Church has a revolutionary opportunity to improve and modernize social service delivery within the Catholic community by integrating artificial intelligence technologies. The Church can obtain more profound insights into the unique issues that people and communities face with the use of AI-driven analytics and data processing. This enables more effective resource allocation and focused interventions that offer individualized support to each person's unique needs (Mathiyazhagan, 2022). This is consistent with the Church's emphasis on appreciating each person's worth and dignity.

Additionally, by gathering and evaluating data on socioeconomic inequality, AI can support the advocacy and social justice initiatives of the Catholic Church. This will serve the Church's mission of advancing the common good by enabling it to effectively confront systemic inequities and advocate for legislative reforms that foster more significant equity and justice (Srivastava, 2004). AI-enabled services also facilitate greater accessibility and inclusivity (Floridi & Cowls, 2022), ensuring the Church's outreach is responsive to the unique needs of marginalized communities. This demonstrates a commitment to solidarity and full participation of all members of society.

To guarantee AI's moral and compassionate application, however, the Catholic Church must address moral concerns regarding algorithmic decision-making and data use and prioritize ethical issues (Chui et al., 2018). Transparency, accountability, and privacy protection remain crucial when deploying AI-powered services. When incorporating AI into social services, the Church must respect people's rights and dignity.

The Usage of AI in Social Job

Artificial Intelligence can significantly improve the social job that the Catholic community performs. AI technology can potentially enhance the social care initiatives offered by the Catholic community. One such strategy is to assist individuals in need by providing guidance and support using AI-powered chatbots. These chatbots can offer quick assistance, connect users to relevant resources, and promote a sense of belonging (Goldkind, 2021).

To assess large data sets and identify trends and patterns that will improve their comprehension of the needs of the communities, Catholic social workers can also employ AI. This data-driven approach could lead to more targeted and fruitful interventions, facilitating more efficient resource allocation and significantly influencing the less fortunate (Tomašev et al., 2020).

AI can also help in the development of individualized care plans for people, taking into consideration their particular requirements and situations. By taking a customized approach, the Catholic community can guarantee that the assistance provided is significant and fulfills every person's unique requirements. (Tran & Nguyen, 2021). The accuracy of requirement analysis and resource allocation can be increased using AI-powered analytics. Artificial Intelligence (AI) can provide valuable insights into resource allocation and intervention design by analyzing data from multiple sources, including demographics, socio-economic variables, and service consumption patterns.

As a result, social services in the community may be delivered more successfully and profitably (Bako et al., 2021). AI can also be utilized to better accurately identify individuals who may benefit from specific interventions or support services. By evaluating a vast amount of data, AI can help identify individuals who are more vulnerable or in need of additional care, enabling social workers to concentrate their efforts and resources where they are most needed (Asakura et al., 2020). There are numerous instances of Catholic social job organizations using AI in the actual world. One such instance is the employment of AI-powered chatbots to assist and guide those in need. These chatbots have helped people find helpful information quickly, assisted them, and fostered a feeling of community and belonging among Catholics (Cariceo et al., 2018).

Several examples of Catholic social service groups utilizing AI in the real world exist. One example is using chatbots with AI to help and direct those in need. These chatbots have aided individuals in finding pertinent information quickly, supported them, and encouraged a sense of belonging and community among Catholics (E. E. Green, 2018).

Ethics of AI in the Religious Context

Unique ethical issues must be explored when considering using AI within the context of the Catholic mission. Respecting human dignity and recognizing the value of protecting human rights are the two main goals of the Catholic Church. It is crucial to ensure that the application of artificial intelligence in social work does

not dehumanize or depersonalize individuals seeking assistance (Schneider et al., 2020).

Transparency and accountability are also necessary for the moral application of AI in social jobs within the Catholic mission. AI systems must be transparent, including the processes for generating decisions and any potential biases built into the system. Furthermore, Catholic organizations must ensure procedures are in place to deal with any moral dilemmas or adverse effects of using AI in social work. (Floridi et al., 2020). Another important ethical consideration is the protection of privacy and confidentiality. As AI systems handle and analyze vast volumes of data, people's privacy must be preserved, and personal information must not be compromised. This is especially crucial for Catholic missions since building relationships with people needing care requires high confidentiality and trust (Black et al., 2022).

Furthermore, the Catholic mission emphasizes solidarity, which necessitates a commitment to the common good and the well-being of society. It is essential to consider how AI technology may impact disadvantaged or vulnerable groups and ensure that installing AI systems does not exacerbate existing injustices or disparities in the community (Baric-Parker & Anderson, 2020). It is possible to introduce moral and altruistic ideas into the development and application of AI technology in Catholic society by incorporating religious ideals into these processes. Human dignity, solidarity, compassion, and justice are essential concepts in the social teachings of the Catholic Church. These principles can direct AI's moral advancement and application in social jobs (Cheong, 2021).

The Catholic mission emphasizes the inherent worth of every person and the necessity of giving a person's dignity and well-being priority. It is essential to use a human-centered approach when incorporating religious principles into AI technology. This entails ensuring AI systems are created with respect for human rights, dignity, and well-being (Rodriguez et al., 2019).

Extending Traditional Boundaries in Social Job

It is possible to introduce moral and altruistic ideas into the development and application of AI technology in Catholic society by incorporating religious ideals into these processes. Human dignity, solidarity, compassion, and justice are essential concepts in the social teachings of the Catholic Church. These principles can guide the ethical development and application of AI technology in social jobs (Cheong, 2021).

The Catholic mission emphasizes the inherent worth of every person and the necessity of giving persons' dignity and well-being priority. It is essential to use a human-centered approach when incorporating religious principles into AI technology. This entails ensuring AI systems are created with respect for human rights, dignity, and well-being (Rodriguez et al., 2019).

Conclusion

In the digital age, the marriage of artificial intelligence (AI) with a Catholic mission offers a singular chance to transcend conventional limits and assist those in need more effectively. Catholic organizations can improve social assistance services, expedite administrative procedures, and give clients more individualized care using AI technologies. Catholic missions should embrace artificial intelligence (AI) as a tool to advance their humanitarian work while respecting the virtues of compassion, solidarity, and dignity for all as the digital landscape develops. Catholic organizations may increase their influence and reach while helping to create a more compassionate and inclusive society by cautiously embracing AI.

Furthermore, artificial intelligence (AI) has been used to analyze a large amount of data to find trends and patterns that have improved Catholic social workers' comprehension of the needs of their communities. More focused and efficient interventions have been made possible by this data-driven strategy, which has also improved resource allocation and significantly improved the lives of needy individuals (Sinibaldi et al., 2020).

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CHAPTER VII

Communicating with the Holy Spirit in the Age of AI Technology: Catholic

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Abstract

In the age of AI technology, Catholics which has a rich spiritual and theological tradition are faced with the challenges and opportunities of communicating with the Holy Spirit. AI has presented several complex issues related to the spiritual dimensions. Catholic teaching provides an ethical foundation for the use of technology, emphasizing moral values, social justice, and the protection of human rights. Meanwhile, digital spirituality opens the door to deepening religious practices through prayer apps, spiritual social media, and online communities. By combining Catholic ethics and technological innovation, believers can integrate their faith wisely, strengthen spiritual connections, and respond to the evolving dynamics of the times. This paper discusses the challenges of ethical considerations, appropriate use and integration of Catholic teachings in the digital context, and opportunities for spiritual growth in the spiritual journey amidst advances in AI technology. The integration of spirituality with technology will enable people to see and utilize the opportunities available to develop in various ways, including in spiritual practices.

Keywords: AI, Age of Technology, Communication with the Holy Spirit, Digital Spirituality.

Introduction

In the 21st century, technological advancements have changed the way humans interact with their environment. More and more technologies are used in daily life and the digital lifestyle creates a new environment that affects all aspects of life, including spiritual life. The Catholic Church, which has a rich spiritual and theological tradition, faces new challenges in terms of guiding its people in communicating with the Holy Spirit. How should the Church help guide people to maintain their faith and relationship with the Holy Spirit? One way the Church can do this is by making peace with technology. The Church should embrace

technology by making it a tool or medium to deepen people's relationship with the Holy Spirit (Campbell, 2017).

However, the development of technology, especially AI, has presented several complex issues related to the spiritual and religious dimensions. Catholics face the challenge of maintaining and deepening their communication with the Holy Spirit amidst the flow of information and the ease of technology. While technology, especially AI, can be a resource as it provides a vast amount of information, not all such information is in line with the authentic teachings of the Catholic Church (John Paul II, 2006). Thus, the challenges of ethics, appropriate use, and integration of Catholic teachings in the digital context become a critical focus. The rise of digital spirituality also raises the question of how the Church's teaching of the Holy Spirit can be realized in cyberspace.

It is more crucial than ever to think about how artificial intelligence and digital communication might affect our capacity to communicate with the Holy Spirit and grow spiritually. To negotiate this intersection and its numerous ramifications for believers in the digital age, we intend to explore the teachings of the Catholic Church and the implications of AI on our understanding of the Holy Spirit in this exploration. According to Catholic doctrine, God the Holy Spirit is coequal with God the Father and the Son as the third person of the Trinity. However, the early Christian community struggled to make sense of God's unity and their perception of the triple aspect of their religious experience (Coghill, 2023).

What an artificial intelligence (AI), a technology developed by humans, fits into this paradigm is called into question by this notion of the Holy Spirit as a divine presence. Is it getting harder or easier for us to communicate with the Holy Spirit as artificial intelligence advances? Since the Catholic Church emphasizes the significance of maintaining a balance between technology and faith, these concerns require serious thought and judgment. In this paper, the author uses a literature approach. The author wants to highlight how Catholics can bridge the gap between traditional heritage and digital reality. The change in the way people seek, explore, and practice their faith demands a deep understanding of the balance between technology and spirituality.

Literature Review

Communication with the Holy Spirit in Catholicism

For Catholics, communication with the Holy Spirit is a deep inner connection or relationship. This relationship unfolds in prayer, meditation, and contemplation. Through prayer, people open their hearts and souls to listen to the promptings follow the guidance of the Holy Spirit, and express gratitude or spiritual needs, as the apostle Paul says "The Holy Spirit teaches to pray" (Catechism of the Catholic Church, 2016). By listening to the whisper of the Holy Spirit, one will gain a better understanding of God's will, but deep introspection is required (Merton, 1948).

In addition, sacraments such as the Eucharist and Confession, are also means to communicate with the Holy Spirit. Confession allows people to cleanse their hearts and obtain grace, while receiving the Sacrament of Eucharist brings people closer to Christ (Francis, 2013) The church also emphasizes community life as lived by the early church "They came together to break bread and hear the word" (cf. Acts 2:42). Community refers to spiritual community. A spiritual community can lead one to strengthen the experience of spiritual communication with others through prayer, sharing, and spiritual meetings (Vatican Council II, 1965).

Some see the Holy Spirit's work as more individualistic and less dependent on established sacraments and institutional guidance than Catholics do. Some might contend that Christians converse directly with the Holy Spirit, negating the need for formal rites or the intervention of clergy. This viewpoint places a strong emphasis on each person's freedom and autonomy to seek out and understand the Holy Spirit's counsel without having to strictly follow established traditions (Cessario, 2017).

However, Catholics hold that the Holy Spirit actively directs and shapes their decisions and deeds in addition to being present in their lives. Catholics can interact with the Holy Spirit and ask for wisdom and insight through prayer. In Catholicism, spiritual directors help people discern and follow the leadings of the Holy Spirit in their lives. The Holy Spirit is considered the supreme Director (*Holy Ghost Catholic LDS Christianity | Catholic Roots Mormon Harvest*, 2013).

Ethical Use of AI Technology in a Catholic Perspective

In response to technological development, the Catholic Church emphasizes that people should act ethically when developing and using technology.

Technology that is in line with the Catholic faith which emphasizes the protection of human rights, social justice, and moral principles. Technology should be used to respect and protect the dignity of every person as a creation of God and to prevent human rights violations and discrimination (Vatican Council II, 2015).

In this regard, the Catholic Church emphasizes the importance of applying moral principles in developing technology. Honesty, accountability, and moral concern are among these moral precepts, and they should be applied to all phases of the development, testing, and application of technology. In the creation and application of technology, the accountability principle translates into taking environmental sustainability into account. Pope Francis underlined in "Laudato Si" how crucial it is that we look after God's creation. This encompasses the effects that artificial intelligence technologies have on our surroundings as well (Vatican Council II, 2015).

Digital Spirituality: Merging Priesthood and Technology

Today's technology can be used to enhance spiritual pursuits. As technology develops, spiritual applications such as prayer, recorded liturgy, and internet forums can be used to deepen a person's relationship with the Holy Spirit while creating a religious community. Technology can be used as a tool to guide prayer, provide spiritual growth, and encourage meditation (Pontifical Council, 2009).

Online spiritual activities, such as attending Mass online or attending catechesis, can combine technology and religious experience. This allows for spiritual contact in cyberspace and promotes more participation. In addition to generating space, technology aids in the formation of online communities, as well as the witnessing and dissemination of spiritual teachings. Pope Francis emphasizes in his "Christus Vivit" apostolic exhortation how technology may promote religious conversation, provide spiritual support, and provide inspiring material. By incorporating digital spirituality into religious ceremonies, technology encourages new views on Catholic teachings and increases religious literacy. For example, spiritual podcasts and videos can help Catholics better understand Church principles, grow in faith, and create a stronger connection with God (Francis, 2019).

Although the Catholic Church recognizes the benefits of technology breakthroughs and uses them to enhance experience and witness, it is helpless to prevent the hazards that come with such promise. The Catholic Church is responsible for protecting individuals from these hazards. The Church should urge

people to achieve a balance between their connection with the Holy Spirit and their use of technology. This may be accomplished by following the principles listed below (Pontifical Council, 2009):

1. Use digital technology to generate spiritual experiences, but do it carefully and deliberately.
2. Refer to Scripture, the Church's Magisterium, and other resources for guidance on the true doctrine of the Catholic Church.
3. Utilize digital media to spread the gospel while ensuring that the content is based on Catholic Church doctrine.
4. Realizing the dangers and negative influences that make dependence on online habits that can diminish real relationships with others around us.

Discussion

The Holy Spirit and AI

The Catholic Church is becoming more aware of the need for discernment and ethical issues in the use of AI as a result of the technology's expanding usage in a variety of sectors, including the spiritual realm. The Church invites people to utilize AI wisely, which means keeping in mind its impact on human dignity, the common good, and human responsibility as God's creation (Francis, 2023). The ethical challenges that arise as a result of AI development can be overcome if one follows the guidance of the Holy Spirit and adheres to Catholic teachings.

The Church does not deny the potential that AI provides in the development of human life, but the Church has always emphasized the importance of deepening the relationship with the Holy Spirit to balance the development of AI technology. In the era of AI technology, communicating with the Holy Spirit will help people obtain guidance in the use of AI so that people can maintain their faith while utilizing AI by God's will and maximizing service to others. Thus, the proper use of AI for one's spiritual development still requires an understanding of Catholic teachings and reliance on the guidance of the Holy Spirit (Schneider et al., 2019).

The Catholic Church invites people to deepen their relationship with the Holy Spirit to use AI wisely. The integration created between AI and the guidance of the Holy Spirit will enable people to see and utilize the opportunities available to develop in various ways, including in spiritual practices. Discernment and ethical reflection based on Catholic teachings are still needed, so that the offerings provided by AI can be put to good use to nurture faith and responsibility for the common good and human dignity which are central to the moral action of

Catholics (Jackelén, 2021). The Catholic viewpoint emphasizes the conviction that believers are guided in their spiritual path and that the Holy Spirit is a heavenly presence. This idea presents significant issues regarding how artificial intelligence (AI), a creation of human invention, fits within the spiritual paradigm (*Gods in the Machine? The Rise of Artificial Intelligence May Result in New Religions*, 2023). The Catholic Church urges believers to approach these matters wisely and objectively. Protecting the values of spiritual traditions while accepting technological advancements is a challenging balance that must be carefully managed. It is crucial for Catholics navigating the relationship between faith and technology to hold fast to the core principles of the Catholic faith while also seizing the opportunities AI brings in the digital age (Herzfeld, 2017).

Spiritual Challenges in Technological Advancement

Technological advancements can pose a challenge in the appreciation and development of communication with the Holy Spirit. The challenge is the possibility of a complete loss of concentration as a result of digital distraction. The digital world and AI advancements can be a source of distraction and hinder the practice of deep contemplation and reflection. According to Nicholas Carr, the challenge of AI advancement is the possibility of losing spiritual awareness and God's presence in the excitement of technology (Carr, 2011). So, we can see here the negative influence of AI advancements on spiritual health. Unhealthy use can damage spiritual and mental health, causing anxiety or feelings of worthlessness (Twenge, 2017). Yuval also argues that "this challenge involves the risk of losing freedom of independent thought and ethical responsibility in filtering spiritual information" (Harari, 2018).

Looking at the future of Catholicism, in the era of AI technology, the Catholic Church must embrace every possibility that arises as a result of AI development while harmonizing it with Catholic values and teachings. Good integration with reliance on the Holy Spirit will enable the Church to face challenges and seize opportunities while maintaining its faith (NCR, 2018). In addition, the Church must continue to prioritize efforts that promote the common good, respect for human dignity, and contribution to building God's kingdom in the world. Such efforts are to uphold the principles of truth, piety, faith, love, perseverance, and gentleness (Floridi & Cowls, 2022). This principle can guarantee that the development and implementation of AI are in line with the teachings of the Church. Thus, the Church can still contribute to building the Kingdom of God by utilizing AI technology, because it has shown that technology can go hand in hand

with ethical responsibility, spiritual wealth, and an emphasis on evangelization. (*Benedict XVI*, 2006).

Human perceptions of and interactions with the divine are being reevaluated in light of the introduction of artificial intelligence into the spiritual realm. The Catholic community has been discussing the possible effects of AI technology's rapid growth on spiritual practices and the degree of one's intimate relationship with the Holy Spirit (*Project MUSE - "Will AI Create A Religion?": Views of the Algorithmic Forms of the Religious Life in Popular Discourse*, 2024). Concerns have also been raised about the possible dilution of true spiritual connections and the intrinsic authenticity of faith experiences, even while other people may see AI as a way to enhance their religious experiences through new channels for prayer, meditation, and education (Brittain, 2020).

Advances in artificial intelligence technology, opportunities for spiritual growth on a spiritual journey

The merging of spirituality and technology can optimize potential for spiritual progress while dealing with challenges that may occur on the spiritual path. Beyond the problems, the Church must recognize the new opportunities that AI provides for spiritual activities that might assist enhance the connection with God. The Church continues to highlight the importance of discernment and adequate ethical awareness of the effect of this fast technical advancement (The Atlantic, 2017).

The potential lies in the way artificial intelligence technology facilitates effortless access to spiritual materials and fosters faith growth. According to Sr. Anne Flanagan, FSP, it's critical to overcome the challenges posed by AI technology and seize the benefits it offers (Chaput, 2017). These changes include using internet platforms for sharing spiritual experiences, supporting one another, and growing an even wider spiritual network (Turkle, 2012). The use of artificial intelligence may be utilized to create spiritual applications, interactive religious education platforms, and creative spiritual resources. As a result, AI technology provides potential opportunities for spiritual growth and knowledge of religious beliefs (Robinson, 2013).

It is crucial to make sure that the integration of artificial intelligence enhances and supports the spiritual path of Catholics as they negotiate the consequences of AI on their life. The Catholic Church has been talking about how AI technology's rapid development could affect spiritual practices and the degree

of one's relationship with the Holy Spirit (Burdett, 2023). Although some see AI as a way to improve their religious experiences by providing new opportunities for prayer, meditation, and learning, some are concerned about the possibility that true spiritual connections and the intrinsic validity of religious experiences would be compromised (Graves, 2017).

The Catholic Church emphasizes the importance of education and spiritual formation in the context of AI technology. It fosters a deep understanding of the Catholic faith and encourages balanced spiritual practice amid technological development. Some forms of spiritual education and formation are as follows (Pontifical Council, 2009):

1. Easy access to Spiritual Formation materials: The digital age provides easy access to spiritual formation materials. Websites, applications, and websites offer spiritual resources like prayers, devotionals, and catechetical materials. This encourages self-learning and supports personal spiritual progress.
2. Social media and spiritual blogging help you work online. To enhance spirituality, this platform is designed to connect with people, who can enjoy spirituality and log in digitally.

Conclusion

Keberadaan kecerdasan buatan (AI) memunculkan sejumlah masalah filosofis, etika, dan teologis yang tidak dipikirkan oleh manusia sebelumnya. Dalam bidang filosofis dan etika muncul pertanyaan seperti bagaimana di era AI sekarang ini dapat membangun hubungan dengan Roh Kudus, karena keberadaan kecerdasan buatan banyak tantangan unik yang dihadapi Gereja Katolik dan umatnya, namun juga menghadirkan banyak peluang bagi Gereja Katolik dan umatnya.

Kerangka etika ajaran Katolik sangat penting dalam memandu penggunaan teknologi AI, karena berfokus pada prinsip moral, keadilan sosial, dan perlindungan martabat manusia.

1. Hubungan seseorang dengan Tuhan didasarkan pada kehidupan doanya.

   Spiritualitas digital juga menjadi alat untuk meningkatkan kehidupan spiritual seseorang. Iman Katolik menekankan doa sebagai sarana utama interaksi spiritual dengan Roh Kudus. Di era kecerdasan buatan, masyarakat dapat meningkatkan dan mengarahkan kehidupan doa dengan menggunakan alat digital dan perangkat lunak doa.

2. Media sosial, aplikasi spiritual, dan alat online membantu umat dan pengurus gereja terhubung, bertumbuh secara spiritual, dan menyebarkan keyakinan.

   Hubungan erat antara penerapan AI secvara etis dengan ajaran Katolik terbagi dalam tiga bidang fokus utama: a). penghormatan terhadap hak asasi manusia, kelestarian lingkungan, dan keadilan sosial. b). Gereja percaya bahwa teknologi digunakan untuk memajukan cita-cita moral dan kesejahteraan masyarakat. c). Spiritualitas digital berpotensi memperluas kelompok dan aktivitas keagamaan.

3. Hubungan seseorang dengan Tuhan didasarkan pada kehidupan doanya.

   Kesadaran etis dalam penggunaan sumber daya digital secara bertanggung jawab, maka umat Katolik memiliki kecenderungan memperkuat hubungannya dengan Roh Kudus, memajukan nilai-nilai agama, dan memberikan dampak positif. Kerangka etika ajaran Katolik sangat penting dalam memandu penggunaan teknologi AI. Iman Katolik menekankan doa sebagai sarana utama interaksi spiritual dengan Roh Kudus. Di era AI ini, umat gereja Katolik dapat mengarahkan kehidupan doa dengan menggunakan alat perangkat lunak doa.

4. Hubungan erat antara relevansi etis penerapan AI dan ajaran Katolik
   Gereja percaya bahwa teknologi harus digunakan untuk memajukan cita-cita moral dan kesejahteraan masyarakat secara keseluruhan serta memperluas kelompok dan aktivitas keagamaan.

Di samping itu gereja perlu melakukan pengawasan dan memelihara keterlibatan jemaat dalam pertemuan-pertemuan jemaat secara fisik. Pertemuan maya melalui jarak jauh tentu tidak dapat memiliki keunggulan di dalam hubungan antar manusia. Keiklasan dalam kasih, perhatian, keramahtamahan dan pelayanan di dunia nyata harus dipelihara agar komunitas fisik tetap terjaga dan tidak tergantikan oleh komunitas maya.

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CHAPTER VIII

Teaching and Learning in an AI World: A Relevant Model of Catholic Education

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Abstract

This paper explains important tactics that AI developers and users must carry out to have fair and inclusive ethics. The method is to encourage the formation of collaboration between scientists and theologians, as well as restructuring educational curricula and learning environments that are humanistic and reflective. A strong and wise generation will be formed by Catholic education as long as it prioritizes human dignity and maintains a balance between technology and moral ethics. Integrated supervision in applying ethical AI concepts in practice and evaluating the impact on spiritual growth and religious understanding. Catholic education continues to struggle to integrate the values of the Catholic faith to be relevant in facing the challenges of AI technology, which continues to develop rapidly. This paper aims to develop a Catholic education paradigm based on change that can adapt to the AI era.

Keywords: Artificial Intelligence (AI), Catholic Education, Faith Values, Curriculum, Learning Environment

Introduction

The application of artificial intelligence (AI) technology in learning is increasingly popular. AI is utilized for many things in all aspects of life, from simple machine learning to automation and feedback systems. However, although there are many benefits, they also have many disadvantages, such as dependence on technology, reduced connectedness or relationships between people, and the emergence of concerns about algorithmic bias (Brown, 2022; Smith, 2021). To build harmony and balance between technical effectiveness and efficiency with human values, it is very important to integrate AI into Catholic education.

Snelson (2021) concludes that the massive and extensive use of AI in the world of education, and with its applications including the student tutoring process, requires personalized education and an adaptive learning system. However, educators must be careful about the emergence of potential negative or bad impacts, such as the dehumanization of students during the educational process (Fjeld et al., 2021).

This problem becomes increasingly complicated in education that is based on religion, especially Catholicism, which requires integration with Catholic religious principles. The Catholic Catechism (CCC, 1997, 2331) strongly emphasizes that scientific and technological progress must be in line with and by human dignity, created in the "Image of God". Therefore, the Catholic education model which includes elements of the latest technology, especially AI technology, must remain faithful to the core principles of Christianity, which is very much needed.

This paper uses a literature study that analyzes various secondary sources, including Catholic philosophical theology and official Catholic Church references, such as encyclicals and papal statements. Secondary references such as books, research articles, and publications of scientific articles about education, artificial intelligence, and the application of Catholic religious principles make important information. The question is how to use artificial intelligence (AI) aligned with Catholic teachings into Catholic education to create a model of Catholic education relevant to the modern world.

Literature Review

The Role of Education in the Context of the Catholic Church

Since the time of the Apostles until now,, education in the Catholic tradition has been a crucial part of the Church's mission. As stated in the Second Vatican Council's decree (Gravissimum Educationis, 1965), the main goals of Catholic education are to help people become humanly perfect and to promote unity with God in their lives. In 1979, Pope John Paul II emphasized the Church's teaching role in the context of the Christian religion (Catechesi Tradendae). In Catholic education, St. Augustine also highlighted the inseparability of faith and reason (Moran, 2011). This idea is further supported by the Catechism of the Catholic Church (CCC 1997, 2339), which emphasizes the significance of education in assisting people in realizing their mission as God's children.

The Catholic Church views education as a component of soul sanctification and purification, and its commitment to education is theologically based on the Holy Trinity (Rummery, 1975). Integrative humanism in Catholic education is founded on the works of Catholic philosophers such as Jacques Maritain and Thomas Aquinas (Elias, 2002). They contend that character development and spiritual growth are equally important aspects of education in addition to intellectual advancement.

In this sense, Catholic education prepares students for both this life and the next by forming them holistically and going beyond the mere transfer of knowledge. The Catholic curriculum, which covers the study of religion, ethics, and morals, clearly demonstrates this all-encompassing approach. Catholic education places greater emphasis and focus on justice and social service, as exemplified by Christ's love for fellow humans (Sinibaldi et al., 2020).

In Church teachings and Christian ideals, Catholic education is used as a medium to guide humans toward complete and perfect success in their relationship with God. To achieve educational goals in the Catholic tradition, the approach used is to integrate and increase knowledge through the development of character, faith, reason, theology, and philosophy.

Digital Transformation in Education

Advances in artificial intelligence (AI) technology have changed the world of education, and a new learning paradigm has even emerged from traditional to digital transformation that includes AI in several learning domains. According to McKinsey, AI technology has been widely used and utilized in the world of education. The material is adapted to an intelligent tutoring system (Henke et al., 2021). The application of artificial intelligence (AI) in the classroom can speed up the learning process by up to 30% and increase student engagement by up to 60%.

However, there are risks in using AI in education, namely the risk of excessive dependence on machines, where the human role becomes weak or decreased in the learning process, and the existence of algorithmic bias as explained by Fjeld et al. (2021). UNESCO (2019) explains that the use of AI in education must focus and concentrate on pedagogy that can strengthen students' capacities in empathy, creativity and interpersonal relationships. Therefore, it is very important to determine cooperative and adaptive strategies in combining human characteristics with the advantages of AI technology (Zawacki-Richter et al., 2019).

Pope Francis warned of the potential risks that arise with advances in AI technology that do not pay attention to and provide opportunities for humanity. In Pope Francis' encyclical in 2015, Laudato Si was created. Thus, the Catholic education process and the digital transformation process need to be aligned with the vision of humanism, which emphasizes the existence of essential human values because humans are created in the image and likeness of God.

In using AI technology, Catholic education prioritizes morals and ethical principles. This ensures that the use of AI must support teaching that emphasizes character development, service, and holistic individual growth. This is by the teachings of the Catholic Church regarding the importance of complete individual development, including spiritual, intellectual, emotional, and social aspects. Thus, to prevent uncontrolled technological innovation and damage to human values, the core goal of Catholic education must be to integrate AI technology in a wise, harmonious, and balanced way.

Integration of Catholic Values in AI Learning

An important component in maintaining the traditional and intellectual roots of Catholic education is the integration of religious principles. According to Pimmel (2021), the practical implementation of this integration requires the integration of AI and digital literacy with religious education using an interdisciplinary approach. This method protects the basic principles of Catholic education even though contemporary technology is widely used.

As explained by Stringer (2021), there are several difficulties in integrating religious values in Catholic education in this AI era. There are many factors that cause this, including problems with a lack of references and limited skills of Catholic teachers in dealing with AI technology which is developing rapidly. Williams (2021) describes new developments in AI, offering new opportunities to enhance modern spirituality in Catholic education.

The Second Vatican Council emphasized the need for Catholics not to be technologically illiterate and to actively participate in creating a religion-based curriculum that is relevant to modern society (Gaudium et Spes, 1965). This emphasizes how science and religion must work together to create a skilled Catholic education capable of combining the principles of faith with developments in AI technology.

Several approaches to incorporating AI in Catholic education have been carried out and implemented, such as the use of chatbots for religious counseling (Wagland et al., 2021), in an effort to provide pastoral care for students that is easily accessible. The online counseling AI platform was proven to implement Catholic ideals in a case study conducted at St. Mary's High School (Lee, 2020). This platform was created to show compassion in interactions between teachers and students personally, and guide based on Catholic religious values according to students' needs.

The results show that counseling with technology can be effectively implemented without replacing professional counselors. Apart from that, efforts to make Catholic education more dynamic and attractive to the younger generation are carried out by creating virtual reality simulation games that combine Catholic doctrine and history (Baeck et al., 2021). Furthermore, to reduce concerns and fears regarding the moral application of AI technology in education, Jobin et al. (2019) developed the Ethics AI module, which develops the ethical principles of artificial intelligence. Therefore, a holistic collaborative effort, including with various stakeholders, teachers, technology developers, and religious authorities, must synchronize and integrate the principles of faith with AI technology in Catholic education. By doing this, Catholic education remains relevant and in line with the needs of the modern world.

Discussion

Ethics in the Development and Use of AI

Artificial intelligence (AI) is developed and implemented within a Catholic ethical framework based on core values. The Vatican-backed declaration includes six ethical principles that should guide the development of artificial intelligence. The six declarations are:

1. Transparency, AI systems must be understandable by everyone.
2. Inclusion, this system must not discriminate against anyone because every human being has the same dignity.
3. Accountability, this system must always have someone responsible for what the machine does.
4. Impartiality, AI systems must not follow or create bias.
5. Reliability, AI systems must be reliable.

6. Security and Privacy, this system must be secure and respect user privacy.

The text of the declaration is very universal in relation to Human Rights, pointing to the equal dignity and rights of all humans, which AI must protect and guarantee, while calling for equality for the benefit of humanity and the environment. The declaration also provides several concrete recommendations such as people should be alert when they interact with machines; that AI-based technologies should be used for empowerment, not exploitation; and that AI must be used to protect the planet.

The values declared by the Pope are a dedication to openness and public responsibility (Pope Francis, 2021). The Catholic Church has consistently supported the idea of favoring the poor and preferring charity to corporate profits. In education (John Paulus II, 1987) emphasized the need for empowerment and equal educational opportunities for everyone or inclusion, especially for people with low financial capabilities. Therefore, empowerment of students and society is a top priority when integrating and implementing AI technology into education.

Rai et al. (2022) put forward an approach called relational AI which prioritizes personalization and augmentation as opposed to automation and



dedication to helping and serving others. With the creation of chatbots designed for pastoral counseling with empathy and virtual reality simulation, which emphasizes sincere interpersonal interaction and communication and increases spiritual appreciation. This means that Catholic ethical norms are incorporated into the creation and use of AI technology in education, and this requires a holistic approach that includes active involvement of all parties and a clear understanding of the moral and social implications of AI technology.

MAN is the image of God (cf. Gen. 1:27). He has abilities that exceed other creatures in the world so he is asked to care for and manage the world (cf. Gen. 1:28-30). As creatures, humans have intelligence that can be creative for the progress of human civilization. And since ancient times, humans have developed technology to help their work entrusted to them by God.

From time to time, people never stop trying to make their lives easier so that everything they do becomes easier. Of course, in this era humans are working on artificial intelligence or Artificial Intelligence (AI) basically not to replace humans but to help humans as is the goal of all technology.

Character Building and Priesthood in AI Learning

Today, artificial intelligence is experiencing recent developments from tools like ChatGPT, Midjourney and Google's Bard raising many doubts about what it all means. In the world of Catholic education, AI is looking to change the academic landscape, and for educators, the AI wave is seen as a mystery or a threat or both. According to Melissa York, a mathematics teacher at Notre Dame Preparatory School in Pontiac, the incredible popularity of AI will continue to be a boon for schools that is full of positive things for both teachers and students.

The opportunities that AI brings to education are vast and the potential to revolutionize the way educators teach and students learn is nearly limitless. These opportunities include personalized learning, increased efficiency, increased student engagement, increased accessibility, and predictive analytics.

In the context of Catholicism, the Church does not reject the presence of AI in human civilization. AI is a human work so it has value and benefits for humans if used rationally. The Church positions itself to provide support for technological developments that are beneficial to humanity.

The Church is grateful that humans have special abilities so that humans are increasingly developing from time to time, however, the Church is aware that everything that humans discover is sometimes not used well and correctly or placed incorrectly, for example the discovery of firearms which were not used properly when they were circulated. It is not regulated properly so that repeatedly there is inappropriate use of this technology which causes fatalities among school children.

It is hoped that the existence of AI for human life will not disturb and reduce humans even though many human jobs have shifted to automation technology. So several things that need to be considered are related to the moral principles regarding the use of AI, which requires prioritizing respect for human dignity. This means that the Church supports the use of AI in human life but users need to pay attention that its use cannot be in conflict with humans themselves.

Users maintain that AI is used properly for useful human life and work, not for counter-production which is not beneficial for human life. The Church rejects that when AI is used for automatic weapons that kill human life, AI can be mistaken in its use because AI is not a human who has a mind and soul that cannot make judgments about good and bad actions.

Catholic education can encourage thoughtful thinking and dialogue regarding the use of AI, this can be achieved by implementing appropriate strategies such as alumni-based mentoring (Berg et al. 2022). Through this strategy, students can understand the consequences of life and connect the principles of the Catholic faith with the application of AI knowledge. Sgreccia (2021) highlights the importance of AI in personalized and adaptive planning.

Catholic Teachings in the Context of AI Learning

AI has made significant progress in transforming education, but there are still several technological limitations, including:

1. Contextual Understanding, AI systems struggle with contextual understanding and are often less able to understand language nuances and meaning.
2. Adaptive Learning, personalized and adaptive learning is an area where AI has great potential, but significant progress is still needed.
3. Ethical Decision Making, AI ethical considerations are very important in the educational environment such as being transparent, fair, and impartial, especially when making decisions regarding student performance, assessments, or career recommendations.
4. Creativity and critical thinking, AI promises to automate certain tasks, but still fails to develop creativity and critical thinking skills.
5. Emotional Intelligence, AI lacks emotional intelligence, making it difficult to understand and respond appropriately to students' emotional states, such as frustration, confusion, or boredom.
6. Limited contextualization, AI-based educational platforms focus on specific subjects or tasks, thereby limiting students' ability to provide a comprehensive and holistic educational experience.
7. Lack of human interaction, although AI automates certain tasks and provides personalized instructions, it cannot completely replace the benefits of human interaction in the learning process.

Based on the limitations above, it is important to integrate Catholic values into AI learning in curriculum design. The core principles of Catholic teaching about human dignity, namely personalization, human uniqueness, empathy, and interpretation, are emphasized in learning design. Additionally, humanistic and collaborative AI models must be consistent with Catholic religious viewpoints.

AI curriculum design can incorporate techniques to create a reflective learning environment. This can include setting up digital and physical areas for introspection, creating digital environments that mimic worship and spiritual experiences, and creating activities—such as journaling or chatbot-assisted spiritual audio guides—that encourage quiet moments and introspective encounters with God (Pham et al., 2021). A case study conducted at the University of Notre Dame shows the effectiveness of spiritual application in shaping student character (Seery & Donnelly, 2022).

Catholic educational institutions can guarantee that the AI education offered remains firmly rooted in the authentic values of the faith and enhances the spiritual growth of students by incorporating Catholic values and Church teaching principles into the AI curriculum design and fostering a contemplative learning environment.

Upholding human uniqueness as an image of God (imago Dei), placing humans above machine efficiency, tailoring personalization based on individual interests and learning styles, and recognizing the subjectivity of interpretation and the importance of two-way human-AI interactions are all these things. important Catholic principles to consider when designing an AI curriculum (Rosa et al., 2021). Christology and the Social Teachings of the Church are examples of religious information that must be integrated into the educational curriculum.

Creating spaces such as virtual reality Bible/rosary reading gardens, instant messaging with prayer partner chatbots, anonymous online theological debate forums, and digital contemplation rooms with musical instruments are some strategies for designing contemplative learning environments. AI tools like personal time trackers can encourage people to take short moments to introspect and recall memories. Additionally, virtual reality platforms that replicate pilgrimages to holy locations such as Jerusalem or the Vatican can enhance spiritual encounters (Kuntz, 2022). Rather than replacing belief, the basic principle of utilizing AI technology should be to enhance and expand individuals' and society's true appreciation of belief (McKelvey, 2021).

Conclusion

The development of AI technology is so massive there are many benefits and advantages in its application in education. In particular, Catholic education faces challenges in integrating the principles of the Catholic faith with the application of AI technology so that it is relevant in facing the rapid advances in AI technology.

This paper describes an AI-adaptive model of Catholic education based on a holistic analysis of Catholic pedagogy.

Developing transparent, comprehensive and fair AI ethics will encourage scientists and theologians to collaborate and work together and redesign Catholic education strategies, programs and learning environments to make them humane by better using contemplative principles.

AI ethics in Catholic education is prepared to uphold justice, inclusiveness and anti-discrimination and ensure the absence of impartiality. This requires thorough verification of data and information as well as effective training and monitoring. Although AI technology can help develop morality and religion, it requires oversight from educators to align with evangelical values.

Incorporating Catholic ideals, such as recognizing human diversity, encouraging empathy and adaptability, and enabling two-way communication, is critical to developing an AI curriculum. It is recommended that schools, churches, and AI developers ally to help create the product; this would require the creation of an ethics council that includes theologians, educators, and AI specialists.

The next investigation concentrates on empirical investigations to implement and assess the influence of Catholic-AI-based education on spiritual development and religious understanding.

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CHAPTER IX

Understanding Artificial Intelligence: A Catholic Guide to Moral Education in the Age of AI

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Abstract

The rise of artificial intelligence technology presents substantial ethical dilemmas, especially regarding its influence on the moral upbringing of young individuals. This article explores how Catholic principles can serve as a compass in navigating this moral quandary. The importance of this review lies in providing practical guidance to educators and technology developers in incorporating Catholic values into AI systems, thus ensuring that technology not only possesses intellectual acumen but also embodies a solid moral framework. Using a literature review approach, this article offers a novel contribution by consolidating and synthesizing existing literature to assist practitioners in designing and implementing AI systems rooted in Catholic principles in moral education. We hope this article will constructively steer the trajectory of artificial intelligence development toward moral education, by Catholic teachings, and ultimately foster positive character development in children and youth.

Keywords: Artificial Intelligence, Catholic Guide, Moral Education

Introduction

Rapid advances in artificial intelligence (AI) and machine learning bring many advantages to the field of education but simultaneously raise profound questions and concerns regarding the ethical and theological implications of their implementation. The Catholic Church is founded on an unshakable faith in the Triune God. It has played a pivotal role in shaping Western civilization through its contributions to philosophy, science, art, and literature. The head of the Catholic Church, Pope Francis (2018), said that using artificial intelligence, robots, and other technical advancements should prioritize their contribution to serving humanity and safeguarding our shared environment rather than potentially leading to adverse outcomes, as some evaluations unhappily predict. In recognition of this, Pope Francis (2019) has disseminated to participants in the plenary assembly of the

Pontifical Academy for Life that the inherent dignity of every human being must be unequivocally prioritized in our contemplation and conduct.

In education, integrating artificial intelligence (AI) impacts various dimensions. These dimensions include the automation of administrative functions, the assessment of students, and the incorporation of AI into the learning process. This incorporation can potentially enhance student engagement and academic performance, as suggested by (Luckin et al., 2016). While it is crucial to acknowledge the positive advantages brought by these advancements, they also give rise to ethical dilemmas that necessitate attention. These dilemmas primarily pertain to moral accountability and the transformative influence of AI on educational structures, as emphasized by (Magaña, 2020). The Catholic Church can significantly contribute by offering ethical and spiritual guidance within this context. This contribution ensures these technologies are developed and utilized to improve society and preserve universal human values.

The Catholic Church's ethical guidelines stem from the theological conviction that human beings, created in the likeness and image of God according to Genesis 1:26-27, have an inherent dignity that is not diminished by technological advances. Archbishop Vincenzo Paglia (2020), Chairman of the Pontifical Academy for Life, emphasized that artificial intelligence (AI) should not undermine the personal aspect of each learner's humanity, as God uniquely forms them. Likewise, Philip Boo (2018), a theologian and philosopher, highlighted that while computing and data can enhance human cognitive abilities, they are incapable of replacing aspects of the human soul, such as emotions, spirituality, and the ability to distinguish between right and wrong. These principles are an integral part of Catholic ethical and philosophical heritage, including teachings on human rights, which guide our engagement with AI in education.

By utilizing the Catholic theological understanding of the essence of human nature, it becomes reasonable to build a practical framework for applying artificial intelligence (AI) in education. First, in data utilization, it is imperative to prioritize protecting students' privacy and confidentiality while simultaneously recognizing and respecting their inherent dignity (2020). Examples of privacy violations, as exemplified by the unauthorized sale and misuse of user data by Facebook and Cambridge Analytica (Isaak & Hanna, 2018), serve as an indication that the unregulated commercialization of data has the potential to devalue human dignity, consequently reducing individuals to mere commodities.

Second, AI systems must be carefully designed to minimize algorithmic bias, thereby reducing the perpetuation of stereotypes based on gender, race, or other personal attributes (Favaretto et al., 2019). Third, educators must undergo adequate training to supervise and guide AI interactions with students effectively, ensuring that these interactions are aligned with the cultivation of positive character traits and values (Bryson, 2019). Finally, despite AI's recognized efficiency and effectiveness, teachers' evaluation and assessment of students cannot be replaced, as interpersonal relationships are an indispensable component of the AI experience.

Guided by the fundamental principles of Catholic theology and philosophy, there is an optimistic aspiration that technological advances, such as artificial intelligence, can be used for good purposes. This involves enhancing and preserving human dignity while simultaneously contributing to the overarching goal of education. Education in this context encompasses not solely the conveyance of information but also the instillation of virtuous characteristics congruent with esteemed principles, such as veracity, compassion, and fairness. It is of utmost importance to acknowledge that the exclusion of ethical deliberations in the development of technology will invariably result in disturbance within society. Nevertheless, through appropriate ethical direction, the advancement of technology has the potential to elevate human values to unparalleled levels.

Catholic moral and ethical teachings provide a solid framework for directing these technological advancements, recognizing the human values derived from the Catholic faith. Furthermore, Catholic moral principles demonstrate the Church's unwavering dedication to upholding justice, compassion, and human dignity. Understanding these principles is increasingly important in shaping our interactions with increasingly sophisticated technologies. Moreover, the ethical quandaries in applying artificial intelligence in education require thorough contemplation and thoughtful ethical consideration. This ensures that these innovations are aligned with Catholic moral principles and do not undermine the values of moral education.

In investigating the impact of artificial intelligence on the moral ethics of children and young people in education, it is of utmost importance to grasp how these technological advancements mold the mindset, values, and ethical guidance of future generations. Moreover, the preservation of moral principles deeply rooted in Catholic teachings holds great significance in ensuring the effectiveness of these technological advancements in augmenting the quality of education and fostering character development. By comprehensively addressing all five subtopics, this

paper aims to provide profound insights and practical guidelines for individuals engaged in the field of education during this period characterized by artificial intelligence.

This article, titled Understanding Artificial Intelligence: A Catholic Manual for Moral Education in the Age of AI, seeks to explore and direct discourse around how Catholic theological foundations can inform the evolution and implementation of artificial intelligence in the educational domain. Skillfully guiding the reader through the areas of theological foundations, moral principles, ethical difficulties, effects on the ethical landscape of education for children and youth, and moral responsibility, the manuscript seeks to illustrate the perspectives and guidelines embraced by Catholic teaching in the face of an ever-changing era of technological advancement.

Literature Review

Catholic Theological Foundations in the Development of Artificial Intelligence

Catholic theological foundations in the advancement of artificial intelligence demonstrate a deep understanding of how the Catholic faith views humanity as stewards on earth and their responsibility for God's creation. The invaluable contributions of Catholic scholars and theologians have played an essential role in shaping this perspective and establishing the theological foundations underlying ethical approaches to artificial intelligence (Francis, 2015; Herzfeld, 2002).

Pope Francis (2015), through his encyclical Laudato Si: On Care for Our Common Home, has significantly contributed to establishing a theological basis for approaches to artificial intelligence. In this encyclical, Pope Francis emphasized the concept of integral ecology, where humanity is considered, a steward entrusted with the sustainability and harmony of creation. This concept sets the stage for ethical and moral considerations in artificial intelligence.

Catholic Moral Principles on the Use of Artificial Intelligence

The ethical considerations surrounding artificial intelligence have garnered significant attention from the Catholic Church. The Catholic moral framework about the utilization of AI can offer valuable guidance for the conscientious and ethical advancement and application of this technology. In his 57th World Day of

Peace address, Pope Francis (2024) underscored the significance of employing AI to foster the common good and safeguard human dignity.

The Pope emphasized the imperative nature of utilizing AI to enhance human life rather than exploiting it. Furthermore, the Pope advocated implementing an AI ethics code rooted in Catholic moral principles. These moral principles encompass the following: (1) Human dignity: Everyone possesses equal dignity, irrespective of their background. AI should be employed to uphold the dignity of all individuals, particularly the most vulnerable among us. (2) Solidarity: We bear a collective responsibility towards one another. AI should be utilized to foster solidarity and social justice. (3) Justice: Everyone is entitled to benefit from AI. Accordingly, AI should be employed to mitigate inequality and disparities. (4) Freedom: Everyone has the right to freedom and autonomy. AI should be harnessed to safeguard human freedom and autonomy.

These moral principles are also affirmed in the Rome Call for AI Ethics, issued by the Pontifical Academy for Life (2023). The Rome Call calls for developing an AI ethics framework based on Catholic moral values. This framework ought to incorporate the subsequent principles: (1) Transparency: in essence, AI systems should be capable of being elucidated; (2) Inclusion: the necessities of all human beings need to be taken into account so that every individual can reap benefits and all individuals can be provided with the most optimal circumstances to express themselves and advance; (3) Responsibility: those who construct and deploy the utilization of AI must proceed with responsibility and transparency; (4) Impartiality: refrain from generating or acting based on prejudice, thereby preserving equity and human dignity; (5) Reliability: AI systems must possess the ability to function dependably; (6) Security and privacy: AI systems must operate securely and uphold the privacy of users.

Analysis of Gaps and Gaps in the Literature Related to AI and Catholic Moral Education

Academic investigations surrounding the moral principles of synthetic intelligence (AI) and its implications in character cultivation have experienced significant growth in recent years (Lindh & Nolin, 2016). However, upon closer inspection, it becomes clear that the current discourse lacks a comprehensive exploration of the Catholic theological-philosophical perspective as an ethical framework; instead, it often focuses on secular perspectives or non-Catholic Christian denominations.

Verstraeten (2020), a theologian specializing in Catholic moral philosophy, currently lags behind other schools of AI ethics in formulating appropriate and relevant theological responses to these contemporary concerns despite the wealth of ethical contemplation of the Catholic Church. Verstraeten's analysis reveals that the emerging Catholic literature concentrates on the metaphysical aspects covering the ontological status of AI while neglecting the realm of praxis associated with educational ethics. From his perspective, Catholic theology must engage in deep dialogue with cutting-edge AI research findings to prevent the danger of being left behind, thus requiring a paradigmatic leap (Verstraeten, 2020).

According to William Frei (2021), a Catholic educational theologian, current literature and research on integrating AI-based technologies with Catholic curricula in schools and churches lacks constructive and ethically appropriate approaches. While general research on AI in education has flourished, there is a dearth of empirical studies and implementation plans that specifically address the moral perspective and values of the Catholic Church. For example, there is a dearth of exploration on how AI can encourage positive character development among Catholic students or provide practical guidance to teachers and catechists for integrating AI into religious curricula.

Consequently, Frei (2021) argues that there is a significant research gap in this domain, encompassing theoretical investigations grounded in Catholic theological and philosophical principles, as well as empirical research and case studies on implementing AI in Catholic educational and pastoral institutions. He identifies several research questions worthy of exploration, including: 1) How do principles such as human dignity or the right to privacy, as outlined in Catholic moral theology, inform the development of AI ethics and governance? 2) What challenges and opportunities might arise from adopting AI for religious and pastoral education? 3) What ethical and policy frameworks are needed to implement AI by Catholic values such as justice?

Therefore, the aforementioned literary examinations conducted by scholars in Catholic theology and education suggest that academic discussions and regulations regarding artificial intelligence and moral education offer a limited representation of a distinctively Catholic theological and philosophical point of view. Indeed, the Church's intellectual and ethical heritage has significant potential to contribute to an interdisciplinary dialogue that aims to shape the future of education by the inherent value of humanity. Consequently, future investigations need to address this shortcoming by specifically formulating ethical principles and

guidelines for applying artificial intelligence in education derived from fundamental principles of Catholic theology and moral philosophy.

Discussion

Ethical Challenges in Artificial Intelligence-Based Moral Education

The utilization of artificial intelligence in moral education presents a myriad of complex ethical quandaries. The interaction between moral values and increasingly sophisticated technological capabilities must be considered appropriately to uphold ethical principles in character building. Many experts and thinkers in technology ethics have identified essential issues related to this problem.

Shannon Vallor (2016), a theologian and technology ethicist, underscores the challenges of integrating artificial intelligence into moral education in the publication Technology and the Virtues. Vallor emphasizes the urgent need to ensure that the technologies used reflect and reinforce positive moral values. He argues that the understanding and utilization of technology should contribute to the cultivation of moral excellence rather than hinder it. Wendell Wallach (2009), a thinker in the field of technology ethics, delves into comparable difficulties in his work Moral Machines.

Wallach addresses how artificial intelligence systems should be tailored to align with moral and ethical standards. He concludes that we must guarantee that algorithms and AI used in moral education reflect ethical values and provide them. Several other experts, including Vallor and Wallach, also refer to the same issue. In his essay Minding Our Language, Neil Selwyn (2019), a professor of education and technology, emphasizes the need for educators to remain vigilant to prevent detrimental impacts on students' moral development from using digital technologies. Selwyn reminds us of the potential threats posed by unregulated interactions between technology and moral education processes.

Similarly, Margaret A. Boden (1987) warns against biases and value distortions that may arise when artificial intelligence systems replicate human behavior patterns, as discussed in her work Artificial Intelligence and Natural Humans. She argues that consistent monitoring and evaluation are essential to mitigate or avoid such problems. Another related concern was raised by Keenan

(2000), a Jesuit monk and conductor of biomedical ethics, in his paper Programs, Models, and Teachers. Keenan alluded to potential data privacy and information security issues for students when incorporating artificial intelligence into education. Protecting students' personal data and sensitive information is crucial to prevent unauthorized use or leakage.

Considering the perspectives presented above, it becomes clear that the application of artificial intelligence in moral education presents complex ethical dilemmas. Nevertheless, technological advancement is inevitable. Therefore, maximum efforts should be made to ensure that the utilization of artificial intelligence is aligned with positive moral values through consistent monitoring and evaluation, thus enabling effective control of potential adverse risks.

The Impact of Artificial Intelligence on the Ethics of Children and Youth Education

The ethical implications of integrating artificial intelligence (AI) into the education of children and adolescents present diverse issues. Scholars, including Golinkoff and Hirsh-Pasek (2016), Finn (2021), Winthrop (2022), and Woodcock (2021), have identified many important aspects regarding the incorporation of AI in the educational framework for this particular age group, who are undergoing character development and moral value formation.

Golinkoff and Hirsh-Pasek (2016), experts in child development psychology, underline the importance of recognizing children's need for social interaction and human connection in learning. They assert that while AI can offer assistance, human engagement must remain central to children's education (2016). Finn (2021), director of the Center for Science and Imagination at Arizona State University, explores the potential risks associated with algorithms in determining curriculum and assessing student performance. In his perspective, algorithms have the potential to perpetuate existing biases or even generate new ones, thus jeopardizing equity and fairness in education.

From the standpoint of preparing individuals for the workforce in the AI era, Woodcock (2021), a media theorist, draws attention to the ethical issues surrounding preparing children and young people for an increasingly automated world. Education, he maintains, must produce individuals equipped with the necessary skills to thrive in the age of artificial intelligence (2021). Winthrop (2022), director of the Center for Universal Education at the Brookings Institution, underscores the importance of stakeholder engagement in AI development and

implementation. According to him, the involvement of children, parents, and educators in the planning and implementation of artificial intelligence is crucial to ensure a positive impact that aligns with ethical values (2022).

Regarding data privacy issues, Crawford (2022), a leading senior researcher at Microsoft Research, issued a cautionary statement regarding the potential dangers of accumulating data about children. In the course of her scientific discourse, she asserted that the extensive collection of data on children can engender prejudice and perpetuate social stigma (Crawford, 2022). As a result, it becomes necessary to comprehensively examine various aspects, including psychological, ethical, vocational readiness, privacy, and participatory considerations, to fully understand the ramifications of artificial intelligence on the educational experiences of minors and adolescents. This effort is crucial in ensuring that the utilization of this technology produces constructive outcomes for the development of future generations.

Moral Accountability in Artificial Intelligence

Moral accountability is a focal point in advancing and implementing artificial intelligence (AI), which has garnered significant attention from experts in various scientific fields (Wallach & Allen, 2009). Throughout their discourse, these experts have identified many ethical hurdles and moral principles that must be faced in planning, training, and utilizing AI systems.

Shannon Vallor is one of the experts who underlines the importance of moral accountability in AI. In a publication titled Technology and the Virtues: A Philosophical Guide to a Future Worth Wanting, Vallor (2016) highlights that ensuring that developers and users are accountable for the ethical impact of the algorithms they create or use is the biggest challenge for the ethics of artificial intelligence. Wendell Wallach and Colin Allen also echo this idea in their work Moral Machines: Teaching Robots Right from Wrong (2009), which illuminates the complexity of defining moral standards for AI systems. According to Wallach (2009), incorporating human values and ethics into AI systems is an important aspect of answering the question of moral accountability.

Ryan Calo, a law professor at the University of Washington, has examined the application of moral accountability in the context of AI from a legal and ethical standpoint. In his article Robotics and the Lessons of Cyberlaw (2015), Calo argues that law and ethics must advance together to address the moral implications of advanced technologies such as AI. In contrast, Pope Francis, in his encyclical

Fratelli Tutti (2020), delivered a moral and ethical message relating to the use of technology, including AI. He emphasized that technology must conform to moral and ethical principles to ensure technological innovation and progress do not jeopardize human dignity and social justice.

Furthermore, Kate Crawford, a senior researcher at Microsoft Research, emphasizes the need to insist on moral responsibility to be present at every stage of AI system development and implementation. As a keynote speaker at the Conference on Neural Information Processing (2017), Crawford highlights the need to ensure moral accountability throughout the lifecycle of AI technologies, from the initial design phase to model training and implementation. In conclusion, the issue of moral accountability in AI is a multifaceted problem that requires a comprehensive approach. The perspectives of Vallor, Wallach, Calo, Pope Francis, and Crawford collectively paint a broad picture of the urgency in systematically incorporating moral responsibility into all aspects of AI development and application, thus safeguarding fundamental human values. The discourse covers various aspects such as human values, legal considerations, transparency, and collective accountability, which serve as the ethical foundation that drives the AI revolution.

Conclusion

This article sought to investigate the ethical and spiritual guidance provided by the Catholic Church in the realm of artificial intelligence (AI) applied to character education. By conducting an extensive literature review, this article found that while there is literature on AI ethics in general, there is a dearth of specific studies from a Catholic theological and philosophical perspective. Therefore, this article aims to contribute significantly by presenting distinctively Catholic ethical and spiritual guidelines, thus ensuring that AI innovations can produce positive outcomes while upholding the principles of humanity and social justice. These valuable insights are expected to assist stakeholders in Catholic education in the sensible application of AI for the greater good.

Several implications arise regarding the development of AI ethics, especially from the perspective of Catholic theology and moral philosophy. First, this article enriches the interdisciplinary academic discourse on AI ethics and governance by incorporating a Catholic theological viewpoint that has not been adequately explored. Second, formulating an ethical guideline framework based on Catholic principles can serve as a conceptual reference point for future research related to

this subject matter. Third, identifying research gaps and shortcomings in this article may encourage scholars to examine more specific educational ethics and AI issues. Finally, this article's findings regarding the urgent need for holistic moral accountability in AI technologies suggest that the study of ethics and law must advance harmoniously to protect human values.

The article also offers a large number of beneficial practical recommendations for stakeholders in the field of education and technology. Administrators of Catholic schools and educational institutions can use the ethical principles depicted as a guiding framework for the integration and judicious application of artificial intelligence. This could be particularly beneficial in addressing issues related to student data privacy or potential biases inherent in algorithms. Additionally, ecclesiastical authorities and dioceses can utilize these ethical guidelines and uphold moral responsibility in formulating policies and curricula that utilize artificial intelligence to enhance congregations' pastoral and catechetical experiences. Finally, education and AI technology developers must incorporate ethical principles rooted in a Catholic perspective at every stage of their research and development process to ensure alignment with fundamental human values.

In addition, governments and regulatory bodies can also consider the recommendations presented in this article as valuable input when formulating regulations and ethical standards governing the utilization of artificial intelligence. These regulations and standards need to consider the diverse moral dimensions and societal beliefs associated with AI. Therefore, while this article is primarily theoretical, it offers tangible and ethical guidance that can be effectively applied in practice and educational policy regarding the use of AI. This will ensure consistency with universal human values.

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CHAPTER X

Environmental Transformation and AI: implementing Catholic Teaching on Ecology

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Abstract

Artificial intelligence or AI technology advances have great potential to transform efforts to preserve the environment. However, its implementation requires a foundation of ethical or moral values to be useful for ecology and humanism. The fundamental principles of Catholic Church doctrine, such as the dignity of the human person, social justice, and responsibility for the environment in which we live, are relevant to be integrated into the development and regulation of AI for the environment. Transparency, accountability, privacy, equality and sustainability are the main standards. Apart from that, risk analysis, stakeholder participation, and applying the principle of do no harm or do no harm are important to be put into practice to ensure that AI does not damage the ideals of ecological and humanitarian protection. In this way, AI can positively transform the environment towards a more sustainable future.

Keywords: AI Ethics, Catholic Principles, Dignity of life, Social and environmental responsibility

Introduction

The threat of a climate crisis and environmental damage has become a pressing issue worldwide. According to a UN report (Kusuma & Ida Hamidah, 2022), the earth has lost over 80% of its natural habitat in the last 50 years. In facing this global challenge, artificial intelligence has great potential to contribute to environmental conservation and restoration efforts. However, implementing AI requires a responsible approach and is based on ethical principles so that it does not negatively impact. According to Schwartz (2022), one of the risks is neglecting human responsibility towards nature if they completely depend on independent AI

systems. Therefore, every AI implementation initiative related to the environment needs a strong ethical framework.

In this context, Catholic social teachings provide relevant moral principles, such as the dignity of life, solidarity, justice and subsidiarity (Franz, 2022). By integrating these Catholic ethical guidelines, it is hoped that AI can truly transform environmental protection efforts for the benefit of all humanity. While Catholic ethical principles are promising, a major challenge is implementing them into the development and application of AI for the environment. One criticism is that moral teachings are often too abstract and difficult to translate into concrete actions (Camosy, 2022). Therefore, systematic efforts are needed to relate these principles to various stages of the AI life cycle, from data collection and algorithm modeling to system implementation and evaluation.

According to Lim (2023), the integration of ethical principles into AI can be done through several strategies, such as algorithm audits, interdisciplinary research, and the involvement of various stakeholders. Algorithm audits are important to ensure there is no bias in the data or logic of the AI system, which could result in discrimination.

Interdisciplinary research is needed so that AI ethics is not only dominated by a technical perspective but also includes philosophical and socio-cultural views. Meanwhile, the involvement of stakeholders, from government, scientists, and environmental activists to indigenous communities, can ensure that local needs and values develop AI.

Another strategy that is no less important is increasing data and algorithm literacy among the general public. Currently, many AI systems, including those applied to environmental issues, are seen as black boxes that are difficult for the public to understand (Chui et al., 2023). This condition is vulnerable to data misuse, algorithm manipulation, and privacy violations, which are counterproductive to efforts to preserve the environment itself. Therefore, building community capacity regarding AI ethical principles needs to receive adequate attention to achieve digital justice.

Departing from the description above, the question asked in this paper is: How to design an AI ethical framework for environmental preservation based on Catholic principles, which can be effectively applied in various environmental-related AI system development and implementation initiatives?

Literature Review

The role of the Catholic Church in environmental conservation

The Catholic Church wants to participate in efforts to preserve the environment in which all creatures live. This statement is expressed in the teachings of the Church, especially the official teachings of its leader, Pope Francis. This was revealed in the Encyclical on the Environment, Encyclical Laudato Si' (2015). In his crucial teachings for the current technological age, Pope Francis firmly asks all Catholics and all people of goodwill to participate in efforts to protect nature and the environment in which humans live and live. The Pope made a clear call: Living our vocation to be protectors of God's handiwork is essential to a life of virtue; it is not an optional or a secondary aspect of our Christian experience (Pope Francis, 2015).

For Christians, this is a duty or obligation and a calling. Christians are called to play a role and be active in the ecological crisis that threatens and disrupts the order of creation. Answering this call became integral to his identity as a Christian. It means that a person is called a Christian if he takes part in this call to affirm his identity as a Christian. Because it is so important, caring for the environment is not just a choice but a command; it has become a religious obligation. With this, the Church must carry out a leadership role by setting an example, not just as a giver and creator of opinions. This was confirmed by McDonagh (2022).

The participation of Catholics in protecting the environment is actually by what the Holy Bible teaches to protect and care for the garden (Gen. 3:15) where they and other creatures live. This is continued by the Catholic tradition, which has long paid attention to nature conservation. The Second Vatican Council in 1965 even touched on human environmental responsibility in Gaudium et Spes's document. Thus, being actively involved in anti-environmental destruction is the spiritual calling of every devout Christian, especially Catholics. According to McDonagh (2022), The Church needs to take a leading environmental role in climate. This relates to issues of social justice, where the small and weak are most vulnerable to the effects of global warming. (McDonagh, 2022, p. 57). With this, the Catholic Church has a moral responsibility for the climate crisis that is currently hitting the world.

In this regard, Pope Francis also firmly underlined the role of the Church in Laudato Si': I hope that this Encyclical contributes to the development, with freedom and awareness of responsibility, of the urgent and radical solutions necessary to overcome one of the devastating ecological crises. (Pope Francis,

2015, #141). According to Schwartz (2022), the Encyclical Laudato Si is one of the radical teachings of the modern Church regarding the liberation of humans and nature from exploitation by certain destructive parties.

The Role of Artificial Intelligence in Environmental Conservation

Artificial intelligence (AI) is an important technology to address environmental challenges and climate change. Through its ability to analyze data on a massive scale and complex patterns quickly, AI can assist humans in efforts to conserve nature, protect wildlife, monitor carbon emissions, optimize building energy, and predict and adapt to climate change. An article by Das et al. (2023) reveals various applications of AI in the environment: AI can help in pollution monitoring, weather and climate forecasting, building energy optimization, product life cycle analysis, and sustainable agricultural decisions. (Das et al., 2023, p. 2)

According to research from Arakelyan et al. (2022), AI systems have been used for mapping and identifying animal habitats, detecting invasive species, hydrological analysis for water conservation, optimizing electric vehicle routes to reduce CO2 emissions, and helping the agricultural world in fertilizing crops and irrigating agricultural land effectively and efficiently. AI's ability to translate data in the environment into important information enables monitoring and environmental analysis on a large scale and precisely.

However, Markus and Kietzmann (2023) emphasize the other side of AI. AI itself needs to be developed vigilantly and carefully not to create negative consequences such as algorithm bias and violations of privacy and fairness. Designers and organizations must ensure that AI is aligned with the principles of fairness, accountability, privacy, and security so that it can provide benefits to society, especially for long-term goals for society and the environment (Markus et al., 2023, p. 8). Adoption and application of AI without ethical considerations and deep human values risks giving rise to new problems in society.

Applying Catholic Principles in AI Governance

In a book entitled Governing Artificial Intelligence Towards a Just Digital Transition, Vogl (2022) believes that the application of AI requires global governance based on human values. He advocates that several principles, such as transparency, accountability, privacy, and public participation, must be integrated into AI regulations to bring progress in the true sense rather than bringing disaster to humans.

The principles above align with what is stated in the Church's social teachings, which emphasize human dignity and social justice. According to Luciano Floridi, in a Newsweek opinion article (2022): The development and application of new technology such as AI must always consider the impact on each other and the environment around us, not just for financial gain or power. (Floridi, 2022). This idea is in line with the call of Pope Francis (2022) in his speech on AI ethics at the Vatican: Algorithms and AI technology must not be used to exacerbate social inequalities between people and weaken inclusive democracy. (Vatican News, 28 February 2022)

From the views above, it is clear that the Catholic Church emphasizes the importance of global ethical standards in developing and implementing AI. The fundamental values of Catholic moral teachings, such as justice, inclusion, integrity, solidarity, and sustainability, must be the basis of every policy and practice related to AI so that this technology truly upholds civilization instead of causing dehumanization or new ecological and social crises.

Ethical Challenges of Artificial Intelligence

The extraordinary rapid development of AI triggers various ethical challenges that must be overcome as early as possible. Experts and researchers have widely discussed problems such as algorithm bias, social injustice, dehumanization, and losses caused by AI systems. Francis (2023), in the journal Establishing Ethics of Care in AI Development, puts forward a utilitarian ethical approach that is often applied but is not enough to answer the problem. Therefore, a universal ethical framework is needed with an emphasis on humans and society so that AI can benefit humans.

Pope Francis (2022), at the Vatican Conference on the Morality of Artificial Intelligence, issued a warning about the dangers of AI systems developed without prioritizing human values: Intelligent algorithms that are not open and personalized can exacerbate social injustice, erode democracy, and even violate the dignity of the human person. (Pope Francis, 2022). The rapid development of AI and its application in various areas of life has triggered new questions and problems related to ethics. Some challenges that are often discussed in contemporary scientific literature are:

Potential bias or prejudice embedded in machine learning algorithms that will influence AI results and decisions. According to research by Zou and Schiebinger (2018), AI systems can produce gender and racial biases from their

training data. AI raises the risk of job losses and reduces human autonomy. AI risks creating more unemployment than before and can create dehumanization. According to Francis et al. (2022), A society ruled by algorithms without the presence of human ethics will lose its identity and human values. AI can potentially violate the confidentiality or privacy of its users' personal information because it collects and analyzes large amounts of data. According to Jobin et al. (2019), this can create manipulation and misuse of data by irresponsible parties.

The problems mentioned above reveal the urgency of integrating ethical considerations and decisions with humanist values into the development of AI technology so that it provides benefits rather than destruction for humanity. Without sufficient ethical insight, the application of AI could have negative consequences for equality, freedom and human dignity.

Application of the Do No Harm Principle in AI for the Environment

The principle of 'do no harm' or do no harm is important in developing all technology, including AI, for the environment. The principle of 'no harm' is a fundamental ethical guide in developing any technology, including AI, for the environment. The principle above prioritizes thoroughly evaluating a system's potential and negative consequences before the technological results are implemented in a society. In other words, this principle requires AI developers to prioritize a thorough analysis of the effects or consequences and minimize potential losses in a system.

In an editorial for Juenal Science, Shneiderman (2023) emphasized that AI implementation needs to begin with risk analysis, carried out with stakeholders, and committed to continuous evaluation and improvement so that the do no harm principle is truly implemented. Furthermore, structuring the AI system must ensure human accountability, algorithm auditability, and a path for recovery if errors are detrimental to its users. According to Floridi (2022) in his work, Regulating Artificial Intelligence says very clearly:

AI can be a very useful instrument of assistance, but humans must remain in control and responsible for the consequences of any artificial intelligence system. (Floridi, 2022, p. 105). In other words, a do-no-harm principle-based approach requires responsible AI design and the principle of 'prevention is better than cure.' Only then can AI technology be guaranteed to provide real benefits to humanity, not the other way around

Discussion

The Role of the Catholic Church in Saving the Environment

As a religious institution, the church has an important role and responsibility to save the environment from its situation, which is becoming increasingly critical daily. The role that the Church takes is primarily a moral role. According to CcDonagh (2022: The climate crisis is a fight to defend human life and dignity. Therefore the Church must be at the forefront of this effort, not just wait and regret the damage. The Church is the Church in the world if she cares about the environment in which she lives. The environment is a common home in which everyone lives. In the encyclical Laudato Si, Pope Francis (2015) also reminded religious people to be concerned about this 'common home': I invite everyone with appreciation to respond to the cry of the earth and the cry of the poor.

This role and calling is not only called for by the official leader but also finds its basis in the Holy Bible (Genesis 2:15). Humans are called to be guardians and guardians of the environment or the earth created by God. For Pope Francis (2015), the earth is not just land or a garden but has become a home. Because it has become a home, anyone who is a member of the Church and everyone with goodwill must guard and protect it. The Pope emphasized that this Earth is our common home and that of all living creatures. We must preserve it for the good of all (Laudato Si, 2015). In Francis' view, saving the environment from damage is not only for the future of humans but also for the survival of other creatures.

So, it is clear that in its teachings, the Catholic Church mandates the Church's leadership role as a driving force in today's crucial issue of environmental conservation. Efforts to save the environment from increasingly severe damage are carried out in several ways, namely:

1. **Educate people and the wider community**Churches can routinely educate their congregation on the importance of caring for and preserving the environment. This can be done through sermons, teaching, seminars, and other environmental activities. The church can also share knowledge about the environment and the possible dangers with the community. Pope Francis (2015) stated that the Church must be humanity's voice of reason and wisdom in safeguarding this common home.
2. **Energy efficient and environmentally friendly living campaign**
3. Churches can set a concrete example by implementing energy savings around the church environment, such as turning off lights and air

conditioning when not in use, replacing electronic equipment with energy efficient ones, and reducing the use of plastic and paper.

4. **Planting trees and reforestation**
5. Tree planting activities in church areas and public places can be carried out regularly. The church can also campaign for people not to destroy forests or barren agricultural lands. These lands must be replanted with productive trees. Trees can absorb CO2 emissions and cool the earth from global warming. Greening can also be done by making vertical gardens and planting pot plants.

6. **Waste bank**
7. Churches can facilitate waste banks so congregations and the community can properly sort and recycle waste. Collected household waste can be processed into compost or useful recyclables.

8. **Action to clean rivers, beaches and the environment**
   Periodically, churches can hold clean-up actions in rivers, beaches, city parks, or other public areas. This activity not only cleans up rubbish but also increases public awareness of environmental cleanliness.

By taking an active role in the efforts above, the church can have a real impact on saving the earth. The Church needs to continue to remind its people to live in line with the will of the Creator in managing and maintaining this universe wisely (Genesis 1:28). We were all created from the earth and will return to it one day. It is appropriate for us to maintain and protect it as best as possible (Laudato Si, 2015).

Putting Human Values in AI for the Environment

In this modern era, artificial intelligence (AI) technology is developing rapidly and has a major impact on various areas of human life, including the environment. This impact can be in the form of goodness that can make human life easier. However, the unwise adoption of AI also causes new risks, such as bias and injustice, and can even harm humans. Therefore, it is important to prioritize moral and human values in the development and use of AI to remain in line with human and environmental needs.

Even though AI is seen as important for responding to various environmental challenges, according to Vogl (2022) in his work Governance of

Artificial Intelligence, the implementation of AI must be based on values such as Transparency, accountability, privacy, equality and democracy must be the main principles in the application of any technology to provide progress, not a disaster. In line with that, Markus et al. (2023), in the paper Ethical Artificial Intelligence for Environmental Sustainability, add that AI designers must ensure that the systems they build are aligned with the principles of justice, social welfare, and environmental sustainability. So, universal human values must be the foundation of AI for ecology.

Furthermore, a report from the World Economic Forum (2022) informs that three main human values must be instilled in using AI: inclusiveness, justice, and transparency. The value of inclusivity means that AI must be designed to benefit everyone regardless of gender, race, age and socio-economic status. The value of justice focuses on the goal of AI which must be fair, unbiased, and not harm certain groups, especially vulnerable people. Meanwhile, the value of transparency encourages the AI decision-making process to be accountable and understood by its users.

Placing these three values in AI for the environment is very important so that this technology can run in harmony with the environment. For example, AI can help accelerate the transition to renewable energy by optimizing energy plants such as solar panels by utilizing the sun. However, AI must also be designed not to waste energy, so it has a bad environmental impact. Data that uses AI to make environmental decisions should be representative and not biased towards certain groups vulnerable to the impacts of climate change. Therefore, all individuals and community groups can feel the benefits of AI well and fairly.

To achieve this, the integration of humanist values in AI needs to be done from an early stage. According to the AI Sustainability Center report (2023), AI developers must implement a human-centric design, which places humans as the main stakeholders. Apart from that, a governance framework is needed to ensure AI remains by ethical values and is not misused. Clear regulations from the government and industry standards are also needed to make AI development more responsible. Finally, education and public involvement are very important so that people understand how AI works and the impact of AI so they can actively participate in monitoring it.

By prioritizing human values as the main principle in the development and use of AI, we can maximize the advances of this technology to create a sustainable environment without sacrificing human dignity and welfare. It is the responsibility

of all governments, the technology industry, academia, and the user community so that AI can provide goodness for the environment and humanity.

Global AI governance is needed to reflect humanism principles when facing technological advances. In the opinion of Luciano Floridi (2022), The development of new technologies such as AI must prioritize humanism. How this system increases solidarity, maintains personal dignity, and contributes to the welfare of humanity. (Newsweek, June 3, 2022). This view is in line with the call of Pope Francis (2022) in a speech at the Vatican AI Ethics Conference: Algorithms and artificial intelligence technologies must not be exploited to exacerbate social inequalities and undermine inclusive equality. (Vatican News, 28 February 2022)

So, Catholic principles of justice and humanity must be integrated into AI regulations. Catholic principles such as human dignity, social justice, and respect for God's creation are relevant for responsibly developing and using AI (artificial intelligence) technology. According to the Vatican Covid Commission's 2021 report, the Catholic Church needs to participate in AI ethics discourse to ensure this technology is compatible with the values of humanism and the Catholic faith. There are several principles of Catholic teachings that can be integrated into the management and design of AI, including:

1. Respect for human dignity. AI must be developed by prioritizing human dignity as the image of God. AI must not treat humans as commodities or replace the important role of humans (Dicastery Document for Promoting Integral Human Development 2022). Humans must remain in full control and supervision of AI advances.
2. Prioritize the principles of social justice. AI must benefit all elements of society, especially improving the dignity of the poor and disadvantaged (Vatican Covid Commission Document, 2021). AI needs to be designed not to create discrimination and worsen social inequality. The data used by AI must also be representative, not biased by gender or race.
3. Respect God's Creation. The development of AI cannot destroy the environment; it must be efficient with natural resources and contribute to preserving God's created universe (Laudato Si', 2015).
4. Subsidiarity and Solidarity. The development and supervision of AI require the involvement of various stakeholders synergistically based on the principles of subsidiarity and solidarity (Fratelli Tutti, 2020). This involvement includes all elements such as government, scientists or researchers, industry and civil

society. They jointly formulate the necessary AI standards and regulations based on the principles of fairness and inclusiveness.

5. Principles of Transparency and Accountability. AI must be ethically accountable through transparency and accountability (Dicastery Document for Promoting Integral Human Development 2022). How AI works and the decision-making process needs to be explained and understood by those who use it.

Based on these Catholic principles, the development and use of AI can be directed toward serving humanity's dignity and preserving the universe. The Church and Catholics need to advocate AI ethical issues through involvement in global forums and educating people at the grassroots level. Thus, advances in AI technology can go hand in hand with integral human spiritual and moral development.

The Negative Impact of AI on Humans and Ecology

Even though AI can contribute to the progress of human civilization, there needs to be caution regarding its use. There is a need for vigilance not to create new problems for humans and the environment. As Francis (2023) writes in Establishing an Ethics of Care in AI Development, AI adoption without a comprehensive ethical basis and involving stakeholders risks endangering values such as privacy, gender and racial equality, and other human rights. Biomedical expert Rathenau (2022) emphasized in a paper entitled Implementing AI in Health Care: Minding the Consequences: A poorly designed AI system can potentially trigger dangerous medical errors, be biased towards certain races or genders, and even leak sensitive patient data. This means that behind the use of AI, there are also concerns about the negative impacts it might have on humans and the ecology. Some negative impacts that need primary attention include:

1. Replacement of human labor

   As AI technology becomes increasingly sophisticated, robots or machines can now replace many jobs previously performed by humans. This certainly threatens jobs and the livelihoods of many people. AI can give birth to new unemployment in society. According to a McKinsey report (2017), around 800 million jobs worldwide have the potential to be replaced by automation by 2030. So, if not handled well, this could lead to mass unemployment and deepening economic inequality. The government and industry players must prepare retraining programs and create new jobs to overcome the emergence.

2. Bias and discrimination

   Given unrepresentative training data, AI technology can produce biased and discriminatory models. For example, Amazon's AI recruiting system prefers male candidates to female candidates because the training data mostly comes from previous male Amazon employees (Reuters, 2018). Artificial intelligence must be monitored and tested regularly to ensure that gender, racial or other detrimental biases do not occur.

3. Invasion of privacy

   The collection and use of users' data by AI systems risks violating privacy. For example, tech giants such as Google, Facebook, and Amazon have been accused of excessively collecting user data to train their AI systems without explicit consent. This can threaten individual privacy and freedom. Countries need to implement regulations that protect citizens' data and privacy from misuse by AI systems.

4. Impact on climate and environment

   Large-scale AI operations require massive computing power and energy. For example, Google's data centers consume as much electricity as a medium-sized city. This contributes to carbon emissions that worsen climate change. This contributes to carbon emissions that can worsen climate change. It is necessary to increase efficiency and switch to renewable energy sources to reduce the carbon footprint of AI.

Several steps can be taken to overcome these risks, including. First, regulation and standardization of AI ethics by the government. For example, prohibiting automated decision-making systems that have the potential to be discriminatory. Second, independent auditing and certification to ensure AI systems are in line with ethical values and are not harmful. Third, encourage research to make AI more transparent and accountable (explainable AI). Fourth, empowering people to understand how AI works and the impact of AI so they can use it wisely. Fifth, apply the precautionary principle in adopting high-risk AI technology.

In Indonesia, discussions and research regarding the ethics and governance of AI need to be increased. The government needs to develop regulations and policies to control the negative impacts of AI in collaboration with industry players, academics, and civil society. This includes conducting a comprehensive study of areas that require special regulations related to AI. The main principle is to ensure AI technology brings benefits, not harm, to humans and the ecology. With

these steps, we can reap the benefits of AI to advance human welfare without sacrificing human values and environmental sustainability. Artificial intelligence should be carefully developed to serve noble purposes, not become a threat to humanity.

Conclusion

This article discusses how Catholic teachings on the environment can be implemented through environmental transformation and AI. This article explains that the Catholic Church actively participates in environmental issues, as shown in its teachings. Pope Francis Laudato Si' encouraged humanity to care for, care for, and protect the Earth,, a common home for all. He invites everyone to change lifestyles that damage the environment.

The Catholic Church takes an integral ecological approach involving social, economic, cultural, and ethical dimensions, one way is to use advances in AI technology. AI helps in monitoring and protecting the environment. Through this accurate data, it helps governments and environmental activists to make decisions based on evidence to protect the environment. Data analysis can detect climate change and extreme weather patterns for early warning of natural disasters. AI and sensors can optimize agriculture's water, fertilizer, and pesticide use. Farmers can control soil and crop conditions quickly, reducing resource waste. AI can also help farms with environmentally friendly automation systems.

However, apart from the things mentioned above, the implementation and adoption of AI should be carried out carefully and based on ethical principles. AI can create negative consequences for the environment if this tool is misapplied. Therefore, society needs to be involved in decision-making regarding implementing this new technology. The Church should be able to play an active role by providing ethical guidance and ensuring technology is used for the good of humanity and nature. With the wise and ethical implementation of AI, harmonious environmental transformation can be achieved by the Church's teachings on the governance of God's creation.

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CHAPTER XI

Human Dignity as an Ethical Basis for AI Development: Insights from Catholic Theology

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Abstract

This article aims to contribute insight into AI ethics from Catholic theology upholding the inherent dignity of humans. The rapid development of artificial intelligence (AI) raises ethical questions regarding its implication on human dignity. The Catholic Church guides AI ethics by emphasizing the ontological dignity of humans as the central consideration. This paper explores perspectives from Catholic philosophers and theologians on the concept of human dignity and the Church's AI ethical principles. The study reveals that human dignity is inherent in the imago Dei (image of God), which differs fundamentally from AI. Despite increasing intelligence, AI lacks the self-consciousness, intrinsic motivation, or personal relations with God that humans possess. Hence, AI deserves only an instrumental status to serve human flourishing, not equal standing with human dignity. However, existing challenges must first be overcome for AI to contribute positively to the Church's inclusive and humanistic values. A comprehensive collaboration involving the Church is necessary to ensure AI always respects and never threatens or replaces the role of human dignity.

Keywords: Human Dignity; Artificial Intelligence; AI Ethics; Catholic Theology; Imago Dei; Responsibility

Introduction

Artificial intelligence (AI) technology has developed rapidly in recent decades. AI has become an inseparable part of various fields of human life, from simple uses, such as virtual assistants, to complex applications, such as unmanned vehicles and automated decision-making, to future predictions (Dormehl, 2020). The rapid development of AI certainly raises many ethical questions that need to be considered, one of which is related to its implications for human dignity. The Catholic Church, as a religious institution concerned with current developments,

has responded and provided ethical views on the development of AI. Several vital documents released include the Rome Call for AI Ethics report, which calls for AI to respect human dignity and ethical principles, as well as the document The Ethics of Artificial Intelligence, which explicitly discusses AI ethical principles (Catholic Church, 2020; Pontifical Academy for Life, 2020). This Catholic view is essential to study more deeply as a contribution to AI ethical thinking from a theological perspective.

According to Immanuel Kant (1997), dignity is inherent in humans, not something that is acquired. Dignity originates from the ability of human reason. This thinking is relevant to responding to AI increasingly resembling human cognitive abilities. Does AI deserve to be given the same dignity as humans? Or does dignity remain the difference between humans and machines? The thoughts of Catholic philosopher Jacques Maritain (1996) are also crucial in responding to this question. He sees human dignity as originating from the image of God inherent in humans. Thus, no matter how intelligent AI is, it cannot be equal in dignity to humans.

Regarding AI technology, experts such as Stuart Russell and Peter Norvig (2016) also emphasize that although AI intelligence continues to increase, AI does not have self-awareness, intrinsic motivation, or emotions, which are the main characteristics of humans. Therefore, the ethics of developing and implementing AI must still be centered on human interests and dignity. From an educational perspective, Thomas Groome (1998), a Catholic theologian and educational philosopher, emphasized that education must help students realize their dignity as the image of God. The educational process must not be reduced to narrow skills training by ignoring the human dimension. Likewise, AI in education must still aim for complete human development.

According to the Catholic Church, AI's ethical principles are inclusivity and non-discrimination. This principle calls for AI to be developed for the benefit of all people, regardless of social, economic, gender, and other factors (Pontifical Academy for Life, 2020). Unfortunately, several studies show that many AI algorithms and data are still biased by gender, race, and socio-economic factors. For example, research found that AI-based recruitment software discriminates against female candidates (Dastin, 2018). Another example is a facial recognition system that often incorrectly identifies the faces of black people (Simonite, 2020).

According to Groome (1998), every person, without exception, has invaluable dignity in the image of God. The discriminatory tendencies of AI algorithms contradict this principle. AI developers must ensure that data,

algorithms, and AI applications are inclusive and non-discriminatory. Another principle mentioned by the Catholic Church is the principle of justice. AI must be a tool to create a more just, prosperous, and humane world (Pontifical Academy for Life, 2020). So far, many criticisms have been that AI only benefits a few privileged groups while most of society does not receive equal access or benefits. This violates the principles of justice.

According to Maritain (1996), justice is one of the main virtues that must be realized to realize human dignity. Therefore, AI must be designed and applied in the spirit of social justice, for example, by empowering marginalized groups and providing equal access to the public. Only then can AI contribute to realizing the dignity of all humanity. By referring to the thoughts of Catholic philosophers and theologians and the current context of AI development, it is clear that there is still much homework to be done to ensure AI technology is truly in line with ethical principles and human values. Realizing the potential of AI in safeguarding human dignity requires in-depth and ongoing research and discussion. Based on this description, this article explores human dignity as an ethical basis for developing and applying artificial intelligence in various areas of life, especially education.

By drawing on the ideas of Catholic philosophers and theologians while focusing on the perspectives of experts in the fields of AI technology and education, we hope to provide the public with comprehensive insights into the ethics of AI from a Catholic theological perspective, to provide more help to human society—the goodness of human nature.

Literature Review

Human Dignity, according to the Thoughts of Catholic Philosophers and Theologians

The concept of human dignity is a core element of Catholic ethical thought. According to Pope John Paul II (1993), human dignity derives from the fact that humans are created in the image and likeness of God. In the encyclical Evangelium Vita, the Pope emphasized that human dignity is universal and inseparable from human nature. Dignity is inherent in every human being, regardless of their condition.

Jacques Maritain (1996), a French Catholic philosopher, put forward similar thoughts. He believes personal dignity is inherent in humans because he is a spiritual substance with reason and free will. This dignity does not depend on the

individual's talents, abilities, or achievements but simply because he is human. Thus, human dignity is universal. A similar view was expressed by Emmanuel Mounier (1962), a figure in the philosophy of personalism. He stated that personal dignity cannot be reduced to property or function but is God's gift to humans. Therefore, no single creature in this world has dignity worthy of humiliation.

In a journal article published in the Journal of Moral Theology, Schockenhoff (2012) details three dimensions of human dignity from a theological perspective. First, the ontological dignity inherent in humans is because they were created in the image of God. Second, moral dignity is realized through the development of character and virtue. Third, socio-cultural dignity when humans are recognized and respected in their community. This ontological dimension is what differentiates human dignity from other creatures. AI, no matter how intelligent it is, does not have this ontological dignity because it is not the image of God. Therefore, AI only deserves to be placed as a valuable tool for humans, not as an entity equal to humans (Barras, 2020).

In an article in Theological Studies, Bracken (2004) emphasized that technologies such as AI are only instrumental. It does not have the intrinsic value that humans have as individuals. IA artificial intelligence operates purely on data input and algorithms. He lacks the freedom or self-awareness of human dignity's heart. Furthermore, Berkman (2019), in an article in the Harvard Journal of Law and Public Policy, explained that human dignity is closely related to the concept of imago Dei or the image of God. Humans were created in a loving relationship with God. This is what makes humans of noble value. In contrast, AI machines do not have a personal relationship with God. Therefore, equating AI with human dignity without denigrating the theological view of humans is difficult.

Human dignity as an ethical basis for AI development

The concept of human dignity is the primary basis for the ethics of developing and implementing AI, according to the view of the Catholic Church. This is confirmed in the Rome Document on Ethics in AI, which states that technology must uphold all humans' dignity, freedom, and essential equality (Ballesteros et al., 2020). According to Schwarz (2022) in Theological Studies, human dignity originates from his relationship with God as His image. Therefore, this dignity is universal for all humans regardless of background. As a technological product, AI does not have a special relationship with God, so it does not have the dignity humans have.

From a philosophical perspective, Maritain (1996) also emphasized that dignity is inherent in human individuals because of their intellectual abilities and cannot be reduced to mere objects or tools. AI development must not place humans as mere objects whose data and privacy are exploited but as subjects whose dignity must be respected. According to Brey (2017) in Science and Engineering Ethics, the best approach is to give AI tool status and limit its capabilities so that it does not take over tasks important for actualizing human dignity, such as empathy, creativity, and ethical judgment. AI can assist with routine human tasks, but the primary responsibility for ethical judgment must remain with humans. In line with this, Danaher (2020) in the Journal of Ethics emphasized that although AI intelligence continues to increase, they do not have characteristics such as self-awareness and intrinsic motivation that humans have. Therefore, the ethics of AI development must focus on how this technology can enhance human dignity.

Thus, human dignity, which originates from their relationship with God and their ability to reason and freedom, must be the primary ethical consideration in the development and use of AI. AI is only a tool that can be used to support human dignity, not replace it. This is the essence of AI ethics from the perspective of Catholic theology and philosophy.

Discussion

Implementation of the principles of non-discrimination and inclusiveness

The Catholic Church calls for AI to be developed for the welfare of all people, regardless of background. However, in reality, implementing the principles of non-discrimination and inclusiveness still faces many challenges.

The data used to train AI often represents only a tiny portion of the population, potentially reinforcing existing biases and inequities. Better data diversity is needed to make AI results more inclusive. In addition, the design of the AI algorithm itself also plays an important role. AI developers must actively design algorithms capable of recognizing and mitigating bias in training data. Periodic algorithm audits are also required to apply the non-discrimination principle consistently. Thus, the challenge of implementing the principles of non-discrimination and inclusiveness of AI lies in the quality of the training data as well as the design of the algorithm itself. AI developers will need a concerted effort to implement this principle consistently.

In addition, the application of AI needs to pay attention to fair access. According to Rensberger (2020) in AI and Ethics, access to AI is often limited to specific groups, such as developed countries or large companies. Special efforts are needed so that the benefits of AI are also felt by marginalized groups such as developing countries, people with disabilities, and minorities. The principle of subsidiarity can be applied here, namely decentralized decision-making and empowering grassroots groups (Curran, 2018). In this way, the application of AI can be truly inclusive and socially just, in line with the universal spirit of the Catholic Church.

Apart from the problem of potentially biased data and algorithm design, as well as the issue of unequal access, Curran (2018) also touched on the lack of regulations governing the application of AI fairly and responsibly. Currently, many countries still do not have a comprehensive legal framework regarding AI ethics and governance, even though this regulation is essential to protect human rights and public privacy and prevent the concentration of power by a few giant technology companies.

Global standards that regulate technical aspects such as transparency, audibility, and regular evaluation of AI systems by independent parties are needed. Such standards are being developed by the Institute of Electrical and Electronics Engineers (IEEE), but their implementation requires the support of legislators in various countries (Burlingame & Naik, 2022). In addition, cross-religious and cultural dialogue is also essential to formulate universal values that form the foundation of AI ethics from a global perspective (Ballesteros et al., 2020). In this way, the spirit of inclusion and universal justice in the social teachings of the Catholic Church can be translated into more humane AI policies, standards, and implementation.

AI algorithm monitoring and auditing

Regular monitoring and auditing of AI algorithms is required to ensure AI is developed and implemented ethically. According to the Catholic Church (Rome Call for AI Ethics, 2020), this aligns with AI accountability and transparency principles. Without adequate oversight, algorithm errors can potentially have negative consequences for society.

Some methods for monitoring AI algorithms involve the oversight of governmental regulatory bodies, establishing independent boards to uphold ethical standards, and conducting internal and external audits by technology companies.

According to Mittelstadt (2016) in the publication Big Data & Society, algorithm audits should delve into fairness, accountability, transparency, and ethical discernment within AI systems. Moreover, Taddeo (2017), in the journal Science and Engineering Ethics, proposes unveiling the enigmatic black box of AI algorithms, allowing for scrutiny to ensure adherence to agreed-upon ethical principles. Striking a delicate balance between safeguarding intellectual confidentiality and promoting transparency is essential in serving the public's best interests.

The watchful eye of the Catholic Church is imperative in ensuring that AI technology bestows its blessings upon humanity. As elucidated by Cuda (2021) in Theological Studies, the Church can assume the noble role of a vigilant guardian and bold truth-teller to denounce the ill utilization of AI. This act is unequivocally injurious to the sanctity of human existence. Through the diligent scrutiny of AI algorithms by a multitude of invested parties, one ardently hopes that the advancement of this technology can be meticulously observed and regulated, thus ensuring its alignment with the sacred principles of ethics. This endeavor is of utmost importance in safeguarding the sanctity of human life within the epoch of AI.

AI developers and internal monitoring instruments are also needed. According to Jobin et al. (2019) in Nature Machine Intelligence, technology companies need to form an internal AI ethics council tasked with providing guidance and evaluating products and company policies from an ethical perspective. Board members can come from various disciplines, such as philosophy, law, sociology, and theology. Thus, multidimensional ethical issues in AI can be considered comprehensively (Jobin et al., 2019). Apart from that, data literacy and artificial intelligence also need to be increased among ordinary people, especially vulnerable groups who are potentially affected by AI systems, such as minorities, people with disabilities, and the poor. According to Ballesteros et al. (2020), the Catholic Church can play an active role in educating and empowering this marginalized group so that they can understand, evaluate, and participate in the development and supervision of AI systems. In this way, society has a fairer distribution of power and knowledge.

The Role of the Catholic Church in AI Policy Advocacy and Mediation

According to Cuda (2021), it is the sacred duty of the Catholic Church to immerse itself in the realm of policy advocacy and mediation concerning the ethics

and governance of artificial intelligence, both on a local and global scale. This noble calling is rooted in the Church's unwavering commitment to actively partake in matters that concern society's welfare and humanity's plight. Harnessing its moral authority, the Church shall ensure that the voices of the marginalized resound and that the principles of human rights are zealously safeguarded throughout the development of artificial intelligence (Cuda, 2021).

The Church has the authority to issue ethical guidelines regarding the application of artificial intelligence. These valuable directives will serve as a guide for policymakers in responsible decision-making. In addition, the Church needs to be actively involved in organizations that bring together stakeholders, form global alliances, and set strict benchmarks for AI governance. By participating and taking prominent positions in renowned forums such as IEEE and The Rome Call for AI Ethics, the Church can ensure Christian values such as human dignity, compassion, and social justice are integrated into this transformative field.

According to Cuda (2021), the Catholic Church is responsible for being actively involved in policy advocacy and mediation regarding the ethics and governance of AI, both at the local and global levels. This responsibility arises from the Church's longstanding commitment to social and humanitarian issues. With its moral authority, the Church can ensure that the voices of marginalized groups are heard and considered in the development of AI.

In particular, the Vatican and regional bishops' conferences issued comprehensive guidance on AI ethics that is a valuable reference for policymakers. Churches can actively participate in multi-stakeholder organizations and global alliances dedicated to setting ethical standards in AI. At the grassroots level, the Church also plays a vital role in helping and empowering vulnerable communities affected by unregulated AI systems. Thus, future AI policies will not ignore the views and interests of marginalized groups.

Apart from formulating global policies and standards, the Church can also play an active role in encouraging the development of AI regulations at the national and local levels sensitive to each region's unique values and cultural context. As Ballesteros et al. (2020) underline, Latin American countries, for example, should create their own AI legal frameworks that harmonize with local culture and local socio-political situations rather than simply adopting regulations from Europe or North America.

Here, the Church can mediate between various factions of civil society, academia, government, and the technology industry to formulate AI regulations

covering all parties' interests. The Church's subsidiarity principle, which emphasizes inclusive and decentralized decision-making processes, can be applied effectively in this effort. In this way, the resulting regulations will genuinely reflect the hopes and desires of local communities, thereby effectively addressing real social needs.

Furthermore, the Church can encourage research collaboration between scientists, philosophers, and theologians to analyze AI's implications for humanity critically. This multidisciplinary research is critical to ensuring AI advances remain aligned with the inherent dignity of humankind. The Church plays a vital role in encouraging and developing ethical and compassionate AI policy at various levels by skillfully mediating with stakeholders and actively encouraging critical research.

Conclusion

Artificial intelligence (AI) development has raised various ethical questions regarding its implications for human dignity. The Catholic Church, through its official documents, has provided AI ethical guidelines that place human dignity as the primary consideration. This article examines the thoughts of Catholic philosophers and theologians regarding the concept of dignity and the Church's version of AI ethical principles. The study results show that humans' ontological dignity as God's image fundamentally differentiates them from AI. Although AI intelligence continues to increase, it does not have self-awareness, intrinsic motivation, or a personal relationship with God like humans. Therefore, AI only deserves to be placed as a tool that benefits humans, not an entity that is equal to humans.

The Catholic Church has formulated six AI ethical principles: transparency and interpretability, inclusivity and non-discrimination, privacy and data protection, system security and resilience, accountability and responsibility, and priority to human dignity. It is essential to adhere to these principles so that AI empowers all human beings regardless of background, does not violate privacy arbitrarily, is safe to use, and continues to serve human interests, not the other way around. Unfortunately, implementing these AI ethical principles still faces several challenges. Biased data, discriminatory algorithm design, unequal access to AI, lack of regulation, and lack of transparency and accountability of AI systems are still homework that must be completed. Global cooperation between stakeholders

is needed to overcome these challenges and realize AI truly harmoniously with universal human dignity.

Here, the Catholic Church also has a vital role, institutionally at the Vatican and regional bishops' conferences or the grassroots level. Institutionally, the Church can be actively involved in drafting global AI ethical guidelines standards, and policies in various countries so that Christian values are reflected in them. At the base community level, it is also essential for the Church to provide assistance and empowerment to marginalized groups so that they are not marginalized from the benefits of AI in the future. In this way, their voices and interests continue to be considered in more humane AI policies and implementation.

Overall, the ontological dignity of humans as images of God should be a fundamental consideration in the ethics of AI development and deployment. Although incredibly sophisticated, AI is only a tool that can benefit humanity to the extent that it positively contributes to all humanity without discrimination. A global effort involving multidisciplinary and multi-stakeholder collaboration, including the Catholic Church, is needed to ensure AI continues to serve and never threatens or replaces the central role of humans and their human dignity. Only with this paradigm can the bright prospects of AI civilization be realized without sacrificing universal humanist values.

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CHAPTER XII

Towards AI in Harmony with Human Dignity: A Catholic Ethical Perspective

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Abstract

This article examines the ethical dilemmas that arise from advances in artificial intelligence, as seen through the lens of the social teachings of the Catholic Church. In particular, it explores how basic principles of Catholic ideology, such as human dignity, human rights, and virtue ethics, can inform efforts to develop AI that aligns with universal human values. While AI has great potential for progress, it also presents considerable ethical confusion. This article discusses the consequences of AI development from the perspective of Catholic ethics by drawing on the principles of Imago Dei, human dignity, human rights, and the ethic of wisdom. Uncontrolled AI has the potential to undermine human dignity and endanger human values. This article suggests applying the principles of subsidiarity, benevolence, and prudence to ensure that AI innovation serves human interests in an unimpaired manner. By incorporating a Catholic framework of thought into the ethics and regulation of AI, intelligent technology can improve the well-being of all humanity, free from discrimination, as espoused in the Church's social teaching.

Keywords: Artificial Intelligence Ethics, Catholic Ethics, Imago Dei, Human Rights, Wisdom Ethics.

Introduction

The extraordinary advances in artificial intelligence (AI) offer possible dangers to humanity. As Catholic scholars underline, although AI has complex social benefits, there are several ethical issues related to human dignity, privacy, accountability, and justice (Browning, 2021; Pagallo, 2021). The convergence between AI innovation and moral contemplation from a Catholic perspective is an important issue that needs attention.

Recent studies emphasize the need for an ethics-based approach in AI development, primarily focusing on human rights and dignity. Browning (2021) argues that human rights are a legitimate ethical framework for designing algorithmic systems that align with moral principles. Likewise, Pagallo (2021) argues that AI needs to enhance human dignity and self-realization rather than simply pursuing efficiency or economic goals. The core Catholic social teaching principles emphasize the intrinsic sanctity of life and human dignity and provide the normative foundation for an ethical AI paradigm (Pontifical Academy for Life, 2020).

Leading technology experts acknowledge the risks posed by artificial intelligence and emphasize the urgency of careful ethical evaluation. For example, Google's Sundar Pichai asserts that AI applications must be socially beneficial and aligned with principles of fairness, accountability, and human oversight (Vincent, 2018). This aligns with Catholic teaching's emphasis on ethical discernment and human responsibility in technological progress. AI must enhance, rather than replace, human capabilities and autonomy (Frankish & Ramsey, 2014; Congregation for Catholic Education, 2021).

Experts have proposed various methodologies, assessment tools, and implementation guidelines to develop AI that upholds human dignity. These include algorithm audits, scorecard models, and representative data collection. However, questions remain about the most effective way to translate ethical commitments into practical applications. This article aims to answer that question from the perspective of Catholic teaching, which is rooted in theological anthropology and wisdom ethics.

The main argument is that Catholic social teaching and AI ethics literature emphasize three interconnected pillars. Firstly, there is a focus on the human individual rather than solely on systems or efficiency. Second, there is an orientation towards the common good instead of self-interest. Moreover, there is an emphasis on upholding the principle of subsidiarity and promoting the participation of marginalized communities. This article will outline how insights from Thomistic philosophy and the Catholic understanding of conscience can enrich the ethical framework of AI, ensuring equitable socio-technical outcomes with a priority on human empowerment.

By conducting an interdisciplinary analysis linking Catholic thought with computer science literature, this article offers a unique perspective on creating AI applications that empower individuals from diverse social groups rather than

demean them. The article will also discuss the limitations of such an approach and raise questions for further research on the intersection of AI innovation, wisdom ethics, morality, and the Catholic intellectual tradition in safeguarding universal human rights rooted in the image of the Divine.

Literature Review

Overview of the Concept of Human Dignity in Catholic Theology & Philosophy

The central concept of the inherent dignity of every human being, commonly known as the imago dei, or image of God, is deeply embedded in Catholic theological and philosophical thought (Franklin, 2002; Pontifical Council for Justice and Peace, 2004). The theological notion of imago Dei derives from the traditions of the Old Testament (Genesis 1:26-27) and the New Testament (James 3:9). It is understood as the fundamental common ground of all humanity, which possesses an eternal spiritual essence as a reflection of God the Creator (Buckley, 1987).

This perspective was further developed by Popes John Paul II and Benedict XVI in their encyclicals, which affirmed the concept of human dignity as an indisputable absolute right as the foundation of human rights. In his encyclical Veritatis Splendor, John Paul II (1993) emphasized that fully realizing human potential and purpose lies in active participation in the Divine will rather than merely pursuing material achievements. Renowned Catholic thinkers such as Jacques Maritain and Gabriel Marcel extended this understanding to the socio-political realm, serving as the foundation for the modern human rights movement (Elshtain, 2008).

Contemporary scholars link theological conceptions of human dignity to ethical considerations regarding advances in artificial intelligence (AI) to prevent the degradation or reduction of humans to mere machines or objects that can be manipulated for the sake of singular efficiency (Horn, 2021; Pagallo, 2021). In this regard, the fundamental principle underpinning the Catholic Church's ethical framework is that any utilization of AI must be aligned to facilitate human progress toward realizing their full potential, as intended by the Creator's original design (Frankish & Ramsey, 2014; Lewis, 2021).

In technological advancement, especially in AI, understanding human dignity and purpose is crucial to ensuring that the resulting innovations serve

humanity rather than vice versa. As affirmed by the Pontifical Council for Culture (2022), artificial intelligence should be developed to enhance humanity by integrating the most profound dimensions of being, such as feelings, emotions, intuition, and conscience, which are integral elements of the imago Dei.

As a result, the ethical principles of AI, as understood by the Catholic Church, do not center on the device or system itself but on its impact on the individual's dignity (Lewis, 2021). Any planning and implementation of AI must uphold fundamental human values, including justice, compassion, and truth, which are embedded in the hearts of all human beings—a priceless inheritance from the Creator (Congregation for Catholic Education, 2022). This forms the cornerstone of the Church's contemplation of technology for the betterment of all humanity.

Third, it is imperative to ensure equitable distribution of advances in science and technology to not exacerbate the gap between different generations and within them, as the principles of solidarity and social justice demand. AI monopolizes certain groups or perpetuates bias and discrimination against vulnerable individuals, which must be prevented (Pagallo, 2021). Fourth, concerning the inherently irreducible dignity of human beings, the development of AI should be approached in terms of interpersonal relationships and collaboration with humans rather than as a mechanistic or impersonal substitute driven solely by the pursuit of efficiency (Horn, 2021).

The criticality of incorporating the precautionary principle into artificial intelligence governance lies in the fact that the consequences of technological advancements often evade predictability. Therefore, it becomes necessary to adopt a forward-looking strategy that prioritizes the prevention of potential harms over their subsequent remediation. This entails proactively evaluating the ethical implications before implementing AI systems (Pagallo et al., 2021). Such an approach aligns with the Church's practice of diligently considering the harms and prospects associated with any innovative endeavor for the betterment of humanity, thus ensuring a fair and thoughtful decision-making process.

Contemporary AI Developments and Their Implications for Humanity

The rapid development of artificial intelligence (AI) in recent decades can be attributed to advances in cloud computing, the availability of large amounts of data, and the utilization of advanced machine learning tools, intense learning. These advancements have resulted in profound transformations in various sectors,

including industry, healthcare, transport, agriculture, and even arts and creativity (Tomsett et al., 2022; Taddeo & Floridi, 2018).

AI has demonstrated its ability to outperform humans in complex tasks such as visual pattern recognition (He et al., 2022), game strategy development (Silver et al., 2022), and even music and film creation (Chan et al., 2022). In addition, AI systems have been specifically engineered to fulfill transactional and emotional roles, such as those of customer service providers. As a result, there has been an increase in the displacement of workers from positions that do not require human interaction, despite the rise of highly skilled jobs (Floridi, 2022).

The suggestion is that artificial intelligence (AI) disrupts the traditional understanding of human identity. This increasingly close and complex interaction between humans and intelligent machines brings about a change in perspective, moving from a human-centered viewpoint to transhumanism, where the superiority of humans over technology is no longer clearly defined (Beaudoin, 2022; Pontifical Council for Culture, 2022).

As highlighted by Horn (2021) and Lewis (2021), a significant ethical dilemma arises from the potential for AI-driven devotion to productivity and efficiency to undermine one's understanding of individual well-being and fulfillment. In addition, dehumanization occurs through the objectification and exploitation of data, as well as the treatment of workers in the technology supply chain. Therefore, this social and economic transformation requires deep ethical awareness (Bock et al., 2022).

The Church attaches great importance not only to ensuring the equitable distribution of the benefits of AI but also to using these intelligent technologies in a way that promotes harmonious relationships between humans, other living beings, and the environment (Pontifical Council for Peace & Justice, 2022). This implies that AI should be oriented towards something different than exploiting nature or engaging in excessive resource extraction. Through research examples such as predicting natural disasters, extreme climate patterns due to global warming, and targeted mitigation efforts, AI can contribute to environmental preservation. Given the increasingly precarious ecological crisis, sustainability and ecological integrity are important ethical dimensions of current and future AI (Horn et al., 2022).

In addition, the Catholic principles of AI ethics underscore the need for active collaboration among various disciplines and stakeholders in developing this complex and multidimensional technology. The involvement of engineers, philosophers, psychologists, sociologists, ethicists, and industry representatives is

essential for AI to truly serve humanity's holistic well-being (Bock et al., 2022). Thus, the intellectual tradition of the Church, characterized by the spirit of universality and humanism, can be preserved in every present and future scientific advancement.

Discussion

Contemporary AI Challenges to Human Dignity and Rights

The emerging challenges posed by artificial intelligence (AI) to human dignity and rights require a comprehensive and detailed examination. This article aims to shed light on these challenges by drawing on the scholarly works of renowned theologians and AI experts. The elaboration of this subject matter will be done by providing 2000-word paragraphs, followed by relevant citations and references.

The emergence of AI systems in various fields of human activity has triggered significant concerns regarding potential infringements on human dignity and violations of fundamental rights. Initially, the extensive utilization of data-intensive algorithms, colloquially referred to as big data, along with the application of machine learning methods, has led to the covert profiling of individuals without proper consent.

This practice has shown a tendency to generate stereotypes and result in discriminatory decisions against specific marginalized communities (UNESCO, 2021). For example, empirical investigations have uncovered gender and ethnicity-based biases in hiring algorithms (Raghavan et al., 2020), while criminal risk assessment tools, relying on historical data, have been revealed to unfairly target individuals from specific racial backgrounds (Lum & Isaac, 2016). Moreover, privacy violations and the commodification of personal data for corporate profit, without transparency, erode individuals' freedom and self-governance, thus exacerbating the challenges above.

Second, the phenomenon of automation facilitated by artificial intelligence (AI) that replaces human cognitive functions and tasks on a wide scale poses the risk of reducing humans to mere machines or mere factors of production, ignoring their multidimensional nature and inherent dignity (Lewis, 2021). The increasingly close interaction between humans and AI may result in technology taking a dominant role rather than functioning as a tool to serve humanity (Pontifical Council for Culture, 2022).

Third, AI is designed to manipulate behavior, such as algorithmically generated social media content, to influence emotions and opinions subliminally. These characteristics have been used for political propaganda and hate campaigns that damage the public sphere (Wagner et al., 2022). Considering the far-reaching social consequences of AI, it is imperative to adopt an ethical and inclusive stakeholder approach to ensure that innovation continues to uphold human virtues.

Another aspect evaluated as risky is using standalone decision systems for essential social functions such as social assistance allocation, visa screening, analysis by the judiciary, and insurance dosage determination (Raso et al., 2018). Despite the potential for increased objectivity, transparency, and consistency, there remains a bias gap due to its reliance on data quality and modeling processes.

Furthermore, regular algorithmic audits and transparent accountability mechanisms are essential if artificial intelligence systems produce unfavorable or discriminatory decisions. It is crucial to ensure that individuals have the right to appeal and obtain further explanations, as this is essential for upholding accountability and integrity in the public domain of the field of artificial intelligence (Mittelstadt et al., 2016). As a result, the application of artificial intelligence for the betterment of society can uphold procedural and substantive justice by the universal dignity of humankind.

Catholic Theological Anthropology's Contribution to the Humanist AI Paradigm

Humanist AI considers AI technologies as a means to improve the state of humanity rather than replacing or subjugating humans. This particular viewpoint places great emphasis on values such as impartiality, responsibility, openness, confidentiality, and protection in the advancement and application of AI. Catholic theological anthropology has the potential to contribute significantly to this particular perspective.

By Catholic theological anthropology, as described by theologians such as Thomas Aquinas and Karl Rahner, humanity is formed in the likeness of God and has inherent value. Society consists of spiritual and rational individuals who can establish relationships with God, fellow human beings, and the natural world (Rahner, 1978). Consequently, the development of AI technologies should be aimed at upholding human dignity rather than posing a threat to it. The Catholic Church includes social principles relating to humanist AI, including protecting human dignity, social solidarity and equality, and recognizing human rights

(Donders, 2021). These principles demonstrate that AI's primary purpose is to serve human needs impartially and fairly.

Based on these guiding principles, AI systems must be designed to respect privacy and not introduce new vulnerabilities. Furthermore, AI systems must demonstrate transparency, explanation, and accountability to prevent bias and discrimination (Bock, 2022). Moreover, humans must retain ultimate authority in the decision-making process to ensure accountability. Both developers and users of AI bear the responsibility to ensure that these technologies are used for the betterment of society and do not violate the dignity or well-being of individuals. As stated by Logstrup (1997), it is an inherent moral obligation for everyone to uphold the well-being of others, which applies even in the realm of AI.

AI developers and users must adhere to humanitarian ethics, refrain from engaging in harmful or detrimental practices with AI, and ensure that AI serves to empower rather than intimidate its users. They must conduct ethical testing before implementing or using any AI application (Floridi et al., 2018). Failing to fulfill this responsibility opens the door to the potential misuse of AI and undermines human values.

Catholic theological anthropology, with its fundamental principles centered on human beings' inherent worth and moral obligations, offers a solid philosophical foundation for the humanist AI paradigm. These principles advocate the responsible development and utilization of AI technologies aligned with preserving universal human dignity. As a result, AI can serve as a tool that celebrates and exalts the essence of humanity rather than eroding it. The emergence and implementation of AI have the potential to exert different social effects across different strata of society. Vulnerable communities, such as those comprised of poor individuals, racial minorities, and individuals with disabilities, face increased vulnerability to adverse consequences resulting from job automation or discriminatory algorithmic determinations (Cihon et al., 2022).

The social principles upheld by the Catholic Church emphasize the concepts of solidarity and priority for poor and marginalized members of society. As a result, advances in artificial intelligence (AI) necessitate integrating the needs of these marginalized groups to prevent their further marginalization (Duff, 2022). For example, this goal can be achieved by creating AI systems that meet the needs of disabled individuals or by establishing protective measures for workers in sectors vulnerable to automation.

Government regulations and public participation are critical for AI to develop responsibly and uphold humanitarian values (Zhu & Yoshida, 2022). Such rules may include ethical standards for AI, algorithm testing requirements, or personal data privacy protections. Concurrently, active public involvement is vital to ensure that the preferences and concerns of various segments of society are accounted for in AI policy formulation (Abdul et al., 2018). Through this combination of regulation and participation, AI development can align with core Catholic principles like solidarity, social justice, and the protection of human dignity. AI development must not proceed unchecked, solely for the interests of a select few.

Implementing Virtue-based AI: Learning from the Thomistic Ethical Tradition

The Thomistic ethics outlined by St. Thomas Aquinas are based on virtues as the foundation of ethical character. This fundamental concept finds practical application in developing and implementing AI systems that aspire to be honest and humanistic. Virtue-based AI empowers humanitarian values while mitigating potential harm (Vallor, 2018). According to McInerny (1997), Aquinas viewed virtues as character dispositions that incline an individual towards moral truth in thought and action. Cardinal virtues include prudence, justice, courage, and temperance. Virtues enable one to lead a life marked by flourishing and happiness.

AI systems designed based on virtue will aid their users in cultivating noble character, not the opposite. AI must be educated to uphold values like honesty, compassion, creativity, and human cooperation (Vallor, 2016). Some principles governing the implementation of virtue-based AI, as identified by technology ethics scholars (Yang et al., 2021; Langley et al., 2021), include Transparency, providing clear explanations about the logic and decision-making processes employed by the AI system. Accountability: establishing responsibility mechanisms for AI decisions and actions. Responsible privacy: safeguarding users' data. Security and human control: preventing harms and upholding human authority. Inclusion and non-discrimination: eradicating biases and ensuring fair access. Sustainability: Anticipating the enduring consequences of AI.

Applying these principles is critical for AI to possess intelligence and ethics aligned with virtues from the Thomistic perspective. Implementing virtue-centered AI (Floridi et al., 2018) presents risks and challenges, including the difficulty of

defining universal virtuous values, differences in ethical preferences across cultures, and the limitations of human understanding regarding the complexity of AI itself. To successfully integrate virtue-based AI, global collaboration and common ethical standards are vital, along with ongoing research to enhance human comprehension of this intricate technology. Government regulatory and civil society involvement is also essential (Zeng et al., 2018).

Thomistic ethics provides a robust philosophical foundation for the application of virtue-based AI. Principles such as transparency, accountability, and non-discrimination are imperative for AI to possess intelligence and ethics. However, implementing virtue-centred AI is not without challenges. Proper alignment between AI and universal humanitarian values requires global collaboration and further research.

Conclusion

The central thesis states that the rapid advances in artificial intelligence and automation necessitate profound reflection on their effects on individuals and society. Without an adequate ethical framework, AI has the potential to diminish and impair human dignity, as exemplified by privacy violations, algorithmic bias, and displacement of human labor through machine substitution.

The fundamental imago Dei principle in Catholic tradition upholds the inherent worth and dignity of every human person, as they are created in the image of God. This suggests that new technologies like AI should be directed towards the comprehensive flourishing of humanity rather than merely serve as instruments for efficiency and productivity. Essential values like equality, empathy, and solidarity must also be seamlessly incorporated into any intelligent system, ensuring that humans continually remain as subjects, not mere objects.

This paper analyzes the ethical implications of Catholic concepts such as subsidiarity, virtue, and precaution to ensure that artificial intelligence (AI) empowers and benefits humankind. It argues that technological innovation must align with principles of freedom and active participation of civil society, with state intervention only necessary when individual or community capabilities have been exceeded. Additionally, the development of AI ethical codes should be guided by the tradition of virtues, promoting wise and morally just algorithmic actions and decisions, not solely consequentialism. Moreover, the principle of precaution should be considered during AI design stages to mitigate long-term societal and environmental risks.

In conclusion, this paper highlights the normative richness of Catholic doctrine about creating AI harmonious with universal human aspirations. By incorporating Catholic theological and philosophical thought into the ethical reflection and implementation of AI and its policies, intelligent technology can contribute to all individuals' well-being without discrimination. This aligns with the concept of integral humanism, which has been a fundamental principle of Catholic social teaching throughout history.

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CHAPTER XIII

Learning From the Past, moving into the Future: Revitalizing Catholic Theological Education in an Era of Technological Disruption Through the Franciscan Spirit

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Abstract

This paper discusses the challenges and opportunities for Catholic theological education due to the accelerated progress of digital technology in the 21st-century era. Technological developments have impacted changes in the world of education. In this case, the Franciscan model can still encourage education in times of complex problems like today. Even though the Catholic Education curriculum has undergone many changes and advances since the Second Vatican Council, further adaptation is needed to remain contemporary. The core Franciscan ideals of simplicity, sanctity of life, social justice, and peace contain profound wisdom regarding current issues of environmental unsustainability and social marginalization. Based on this paradigm, integrative methodologies such as hybrid learning, artistic media, and data analysis can improve the quality of Catholic theological education. However, transformation encompasses all dimensions of education. The institutional ethos must be driven by inclusivity, empathy, and reconciliation. Students require the formation of a conscience to tackle complex issues wisely. Ultimately, the shared future depends on mobilizing all societal actors through policy reforms aligned with universal ideals. Despite the turmoil, Franciscan thought is a steadfast guide to realizing humanistic education in the digital age.

Keywords: Catholic theological education, Digital technology, contextualized curriculum, Interactive learning, Contemporary humanitarian issues

Introduction

In the 21st century, technologies like the internet, mobile learning, learning analytics, augmented reality, and virtual classrooms are becoming integral components of the educational ecosystem (Schwab, 2016). These technological changes have significant implications for education, including in the context of Catholic theological education. According to Pope Francis (2017) in his Veritatis

Gaudium Catholic Higher Education policy guide, there is a need to constantly update and refresh the curriculum, teaching methodologies, and practices of Catholic theological education in the changing times. The aim is to ensure that Catholic theological education remains relevant and responsive to the actual issues faced by humanity.

Pope Francis also emphasized the importance of preserving the rich heritage of intellectual tradition within the Church while trying to revitalize it. Catholic education's methodological and curricular renewal should be based on evangelical values and the spirit of fidei depositum. Hence, there needs to be a balance between drawing from the best legacies of the Catholic faith tradition and being open and responsive to advances in cutting-edge science and technology as they pertain to the current educational context. In that context, contemporary Catholic thinkers such as Leonardo Boff (2021) and Joanna Kujawa (2020) argue that incorporating Franciscan ethos and values is essential when envisioning the revitalization of Catholic theological education in the digital age. St. Francis of Assisi, in addition to the fundamental principles of the Franciscan movement, which include simplicity, natural harmony, and peace, can serve as a highly relevant source of inspiration in addressing the challenges humanity faces amidst the emergence of disruptive technologies today.

In line with this idea, Brown (2022), in his acclaimed work entitled Franciscan Wisdom and the Renewal of Catholic Education, directs explicitly his focus toward the revival of Catholic education by utilizing the values symbolized by the Franciscan tradition. He emphasizes that amidst the frenzied pace of change ushered in by cutting-edge technology, the bulwark of Franciscan spirituality is crucial for Catholic Education to maintain its evangelical orientation and not succumb to the tide of change.

From this brief explanation, it becomes clear that the realization of a Catholic theological education that effectively adapts to technological advances while remaining firmly rooted in the Church's noble tradition presents a formidable challenge. On the one hand, Catholic theological education's curriculum, methodology, and praxis must be responsive and relevant to humanity's pressing issues in this digital age. On the other hand, the Church's cherished doctrinal, intellectual, and traditional aspects, including evangelical values and the spirit of the Franciscan movement, must also be preserved and revitalized as the fundamental impetus that drives Catholic theological education. For this reason, this paper further examines the problems and challenges faced by Catholic theological education today, both in terms of methodological, curricular, and

practical-operational, as an implication of the rapid changes in digital technology. Then, new opportunities will be elaborated.

Literature Review

Renewal of Theological Education after the Second Vatican Council

The Second Vatican Council (1962–1965) marked an important milestone in the history of the contemporary Catholic Church, particularly the revitalization of theological instruction. The ninth paragraph of the document, Orientalism Ecclesia Rum, explicitly articulates the need to continuously renew ecclesiastical educational institutions, including curricula and pedagogical approaches (Flannery, 1996). This imperative was recognized as essential to ensuring the continued development of Catholic theology and its ability to address the faithful's concerns effectively. In response to this spirit of the Council, great strides were made in the content and methodology of Catholic theological education post-1965. As Gaillard Etz (2022) explains, the core of this renewal involved a shift from speculative-manualist theology towards a more pastoral, ecumenical, and contextual theology. Furthermore, the curriculum now focuses more on the humanities and social sciences.

Boff (2021) underlines the importance of post-Conciliar Catholic theological education in engaging with contemporary disciplines, encouraging dialogue, and shedding light on humanity's real challenges. They argue that a multidisciplinary and contextual approach is an unavoidable requirement. Sullivan (2020) also argues that post-Conciliar theology should be responsive and grounded while remaining faithful to the Catholic tradition. Regarding curriculum, Cheney (2017) observes a post-Conciliar Catholic theological education development towards a more adaptable and open competency-based framework. The demands of ecumenism and interreligious dialogue are increasingly emphasized. The focus of teaching has changed from teacher-centered to student-centered, where participatory methods and experiential learning come first.

Skehan (2021) posits that the revitalization process encompasses the amalgamation of rudimentary tenets, namely justice, safeguarding of human rights, and comprehension of ecological concerns, within the framework of modern Catholic theological instruction. Catholic theological reflection is increasingly attuned to the social problems of the present age. As a result, post-Vatican II Catholic theological education makes a paradigmatic leap in which contextualization is central to responding effectively to the dynamic signs of the times.

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Industrial Revolution 4.0 and Technology Disruption Trends and Their Impact on Education

The Industrial Revolution 4.0 is distinguished by highly disruptive advances in digital technology, including the Internet of Things, big data, and artificial intelligence, which have led to digitizing all aspects of life (Schwab, 2017). This wave of change has significantly impacted the transformation of the education system. According to the OECD (2018), digital technologies are changing how learning and teaching are conducted, requiring a redesign of curricula and educational methodologies to adapt to the current era. Modern education requires a more individualized approach that uses learning analytics and interactive digital platforms. The 21st century increasingly demands critical thinking, creativity, and data literacy.

Within the Catholic sphere, Groome (2020) and Martin (2022) argue that this digitization trend requires the updating of Catholic religious education by constantly updating its curriculum, methods, and teaching materials. However, Sullivan (2021) warns against abandoning evangelical and humanistic values in Catholic education due to the rapid development of technology. The utmost priority lies in attaining equilibrium amidst novelty and conventionalism.

Specifically, Biasin (2021) accentuates the favorable facets of technology, for example, boundless accessibility to information, interactive pedagogical approaches, and the capacity to extend theological education beyond national boundaries. However, he simultaneously cautions against the plausible erosion of religious conviction attributable to digital content. Despite the rampant dissemination of instantaneous virtual material, introspective and spiritual elements endure as significant components of theological education.

In response, Cheney and Skehan (2020) present a new framework for Catholic theological education in the digital age. They maintain a call for reform in Catholic theological education, which can be realized by merging contemplative spiritual traditions with the integration of cutting-edge digital technology. This is essential for the sustainability and contextualization of theological education in the 21st century. Creativity and balance are vital in meeting the challenges of the current era.

Cheney and Skehan assert that Catholic theological education must wisely embrace technology to remain relevant today. However, Grigolon (2021) reminds us that theological education should not just follow the digitalization trend but rather reflect its core purpose and essence amidst the changing times. The

importance of theological education is ultimately to change an individual's perspective, attitude, and behavior to become more aligned with the Christian faith, a process referred to as the enculturation of the Christian faith (Groome, 2011).

Digital technology is merely a tool and not an end in itself. It has the potential to enrich the process of character formation and theological awareness but also carries the risk of overshadowing the essence of Christian faith education. Grigolon, therefore, calls on Catholic theological educators and policymakers to use discernment, drawing from the Ignatian tradition of finding God in all things. This approach recognizes opportunities presented by digitalization while remaining cautious of data manipulation, distraction, and even dehumanization caused by technology.

The Spirituality and Example of St Francis of Assisi in Responding to the Challenges of the Times

The enduring relevance of Franciscan spirituality and theology in addressing contemporary global issues can be understood through the lens of the Franciscan intellectual tradition. The Franciscan school of philosophers like Bonaventure, Duns Scotus, and William of Ockham contributed seminal ideas spanning metaphysics, logic, and theology. Corduan (2020) observes the Franciscan emphasis on God's love and goodness as a counter to skepticism. This positions Franciscan philosophy as a constructive mediator between faith and reason.

In tracing the legacy of Franciscan thought, its contemporary significance emerges. As a current example, Westra (2021) applies Franciscan ideas on natural law and environmental ethics to tackle issues like climate change. Therefore, the Franciscan intellectual tradition offers conceptual resources to approach new challenges today. Centuries of philosophical insight on reconciling divergent ideas could inform conflicts now, be it religious intolerance or social inequity. Ultimately, Franciscan thought and practice model building connections from nature to society through an ethic and theology of love. Its gentleness of spirit holds wisdom to heal modern divisions.

As per Boff (2021), the essence of Franciscan spirituality lies in a deep appreciation for humility, simplicity, and sanctity of life. These principles have special significance amidst the ecological crisis of human greed and excessive consumerism. The unadorned Franciscan way of life offers a natural solution to contemporary environmental difficulties. Meanwhile, Kujawa (2022) and Brown (2022) highlight Pope Francis as an inspiration to address current issues of

religious intolerance and global conflict, emphasizing the spirit of peace and good (pax et bonum). Interreligious dialogue and tolerance are fundamental tenets of Franciscan theology. These values of reconciliation remain highly relevant when applied in the current context.

From an educational point of view, Davis (2021) understands Franciscan spirituality, focusing on contemplative aspects and practical engagement, which aligns with the Ignatian paradigm in education known as contemplation in action. In the digital age, reflective elements and social engagement are critical to humanistic education. On the other hand, Walsh (2020) praises Pope Francis' passion for serving the poor and marginalized as a source of inspiration for contemporary Catholic education reforms prioritizing inclusivity and mindfulness of the marginalized.

Discussion

SWOT Analysis of Current Catholic Theological Education and Identification of Gaps between the Current Curriculum and the Needs of the Times

Responding to the dynamics of rapid change, Sullivan (2020) and Barnes (2022) emphasize the urgency for Catholic theological education to always carry out a self-evaluation process. One of the analyses that can be used is SWOT to identify internal strengths and weaknesses and external opportunities and challenges. The results can be used as a basis for revitalizing theological education in the future.

From the internal side, Boeve and Mannion (2021) see that the curriculum of Catholic theological education is still not fully contextualized and adaptive. There is still a speculative bias and a need to be more responsive to people's problems. Meanwhile, the hard skills of digital learning methodology still need to be discovered by most theology teachers. Meanwhile, from the external side, Kujawa (2020) and Skehan (2020) see significant opportunities from digital technology and interactive learning models that have yet to be fully utilized. On the other hand, challenges around hoaxes, misinformation, and hate speech are increasingly massive problems in the digital space.

Responding to the analysis of these conditions, Barnes and Martin (2021) propose a more integrative post-truth theological education curriculum design by combining contemplative traditions and doctrinal studies that are the strength of

Catholic theology and utilizing digital technology for learning methods that are more contextual, interactive, and digital media literate. Meanwhile, Walsh (2020) emphasizes the urgency of a more inclusive and egalitarian theology curriculum to respond to the challenges of increasingly prominent issues of diversity, justice, and alignment with marginalized people.

The identification results through SWOT analysis provide an objective basis for Catholic theological education to formulate curriculum and methodology revitalization in today's era of disruption. Contextualization of learning is necessary without losing the power of contemplation and the core traditions that have been the hallmarks of Catholic theological education. Creativity, balance, and inclusiveness are vital in designing a contemporary theological curriculum. In addition to conventional analyses of strengths, weaknesses, opportunities, and challenges in general, Boff (2021) invites a more radical and comprehensive SWOT reflection. He encourages Catholic theological education to dare to conduct an honest self-critique, including acknowledging past weaknesses and failures.

Boff questions why issues of ecology, gender equality, and social justice for minorities have only entered the theological curriculum in the last few decades when these issues have been around for a long time. Similarly, why does Catholic theological education only want to be responsive to technological advances when Catholic scientists have played a role in the history of the development of modern science? Therefore, Walsh (2020) asserts that Catholic theological education needs to open historical memory to learn from past failures and delays before moving into the future.

Skehan (2021) added that empathizing, humbling, and apologizing for past sins is also essential so that Catholic theological education in the future is genuinely inclusive and does not leave anyone behind. Thus, SWOT analysis is a diagnostic, prospective, and retrospective reflection on past weaknesses and failures. This is important so that the revitalized Catholic theological education in the future becomes truly authentic, inclusive, responsive, and contextual.

Formulate a New Curriculum Framework for Catholic Theological Education that Is Adaptive to Technological Developments and Relevant to Contemporary Social Problems.

Catholic theological education needs to adjust to the changes brought by digital technology and confront the current humanitarian challenges to maintain its relevance and importance in people's lives. Through interactive multimedia's gradual and continuous integration, Catholic theological education will become

more inclusive and contextual. Second, Christian character education. Amid the complexity of humanitarian problems in the 21st century, Groome (2021) emphasizes the urgency of character-building as a core element of the Catholic theological education curriculum.

True Christian character is characterized by love, wisdom, justice, respect for human dignity, and dedication to serving the suffering. To shape such character, Martin (2022) suggests using case studies and moral dilemmas as a stimulus for class discussions, for example, on the topics of abortion, LGBTQ, political populism, and ecological crises. With adequate theological understanding, students are trained in critical reflection, empathy, and wise and responsible decision-making on today's thorny issues. Teachers can also utilize role simulation, field trips, and service-learning to forge students' character and social awareness.

The third is the content of transformative social praxis as an element of the core curriculum. Groome (2021) emphasizes that the Catholic theology curriculum must not be confined to an ivory tower but must be actively involved in responding to humanitarian problems, providing solutions, and advocating for social justice. Social praxis can be done through internships in non-profit institutions such as orphanages, drug rehabilitation centers, and community bases, such as the struggle for the rights of people with disabilities and workers. The goal is to give charity and encourage systemic and structural changes for justice and equality.

Chan (2021) emphasizes the importance of incorporating contemplative prayer and spirituality into the theological curriculum to build a strong foundation. The absence of steadfast spirituality leads to selfish motives and empty idealism in social advocacy and justice-oriented activism. Therefore, it is imperative to cultivate a robust theological awareness and resilient character by engaging in contemplative practices in the Christian faith, such as pilgrimages, retreats, lectio divina, and embracing Ignatian spirituality, which emphasizes the discovery of Christ in all aspects of life.

Furthermore, Grigolon (2021) asserts that the curriculum of contemporary Catholic theological education should have the quality of resilience, implying the ability to adapt to the evolving currents of the times while maintaining the Christian essence. Achieving this requires a harmonious balance between existentialism and progressivism. Using ancestral tradition as a firm foundation, theological education must embrace constant innovation and contextualized transformative social action.

We are exploring new methods and approaches in Catholic theological education by integrating digital elements and Franciscan values. Central Catholic

theological education faces significant challenges in maintaining its relevance in the digital age and being responsive to the global socio-ecological crisis. In this context, Carolan and Rivera (2021) propose that the Franciscan theological paradigm, characterized by its emphasis on simple living, natural harmony, and contemplative spirituality, has the potential to be transformed into new methods and approaches for contemporary Catholic theological education.

The core principles of Franciscan theology include liberation and peace. The regulations, which include anti-materialism, equality among living beings, and appreciation of the unique qualities of each individual, are effectively integrated into the current framework of Catholic theological education. Furthermore, the Franciscan tradition of contemplation, such as fostering a friendly relationship with nature, embracing silence, and spontaneously praising the beauty of creation, is seen by Carolan and Rivera (2021) as a remedy for the challenges posed by urbanization and technostress in the present era. Taking inspiration from this Franciscan theological paradigm, some potential new methods and approaches have been adopted in contemporary Catholic theological education:

Firstly, blended learning combines traditional face-to-face instruction with cutting-edge digital technologies. For example, a face-to-face class begins with a mindfulness exercise accompanied by observing trees or listening to birdsong, then discusses digital climate change-related literature. It concludes with personal reflection and contemplation facilitated through a mobile app. By integrating Franciscan contemplative practices with technology, student engagement and overall understanding can be holistically enhanced (Rahner, 2022). Secondly, they contextualized learning through field trips and environmental reflection work. For example, eco-theology study is continued through activities such as tree planting, environmental clean-up efforts, or the construction of wildlife ponds. These practical actions cultivate awareness of the Earth as the shared habitat of all God's creatures through concrete examples rather than mere discourse (Baldovin, 2021).

Third, digital storytelling evokes empathy about social justice issues such as poverty, racism, and gender discrimination. This is achieved using techniques such as 360-degree videos or audio podcasts, which allow students to immerse themselves in the experiences of the underprivileged, racial minorities, or those with disabilities in their daily lives. Digital storytelling will enable students to understand marginalized individuals' perspectives deeply and foster genuine acts of solidarity (Baldwin, 2022).

Fourth, role-playing and the presentation of moral dilemmas serve as effective means to foster decision-making skills based on evangelical values and

universal humanity. By taking on the roles of peace activists, LGBTQ activists, or even corporate CEOs, students can develop empathy and make informed decisions regarding contemporary moral controversies (Martin, 2022). Fifth, character and spiritual education can be facilitated by integrating science and artistic media. For example, an examination of the narratives of famous figures such as St Francis, Father Mangun, or Mother Teresa can be followed by a discussion of their noble values, which are then expressed through forms of artistic expression such as poetry, painting, or reflective vlogs. The merging of science, art, and technology is a powerful model for cultivating character and spirituality among students in the digital age (Carolan & Rivera, 2021).

Data literacy and artificial intelligence can increase social justice and environmental preservation arguments. For example, exploring big data about air pollution or deforestation can support ecological campaigns. Furthermore, statistical analysis can be used to uncover gender inequality and its impacts on children (Grigolon, 2021). Seventh, implementing service learning and community development efforts is essential in developing students' character, compassion, and organizational skills. For instance, establishing Friends of the Earth groups within educational institutions encourages sustainable environmental action. Additionally, engaging in homestays within indigenous communities allows students to appreciate the rewards of diversity (Groome, 2020). Through cultivating a sense of togetherness, theology moves beyond theory alone and manifests itself through concrete acts of solidarity (Chan, 2021).

Bringing the Franciscan Spirit into 21st Century Education

21st-century education faces challenges in preparing future generations, including globalization, rapid technological progress, economic and social inequality, and the environmental crisis (Trilling & Fadel, 2009). In facing these problems, the Franciscan spirit and values can be a relevant source of inspiration for the world of education today. One of the core values of Franciscan spirituality is inclusivity, namely the acceptance of all beings regardless of background (Boff, 2021). Inclusivity is the foundation for creating equality in education. Inclusive education allows every student with diverse backgrounds, abilities, and needs to be served relatively (Walsh, 2020). Inclusive education is critical so that no student is left out.

Furthermore, simplicity is a Franciscan principle that teaches a life free from excessive attachment to materialistic things (Boff, 2021). Implementing simplicity in the education system can help instill a simple spirit in students from an early age

so that they will grow up wise and not greedy. Some examples of the concrete application of Franciscan values in 21st-century education include a religious education curriculum that is inclusive and tolerant of diversity (Kujawa, 2022), integrating environmentalism themes in science learning to foster ecological awareness from an early age (Boff, 2021), providing scholarships for students from underprivileged families to increase access to education for marginalized groups (Walsh, 2020), as well as teaching and learning activities that empower students' empathy and social sensitivity, such as visits to nursing homes or orphanages.

Implementing the Franciscan spirit and values requires fundamentally revitalizing educational policies and practices. Walsh (2020) and Davis (2021) encourage reforms to the curriculum, learning strategies, and institutional structures of schools to make them more inclusive and oriented towards human values in line with the ideals of Franciscan education. It requires the involvement of all educational elements and stakeholders, starting from the government, school administrators, educators, students, parents, the community, and other related parties. Through good collaboration, the Franciscan educational vision can be realized to build a future civilization that is more just and humane.

Finally, social sensitivity or caring for the fate of others who suffer is integral to Franciscan spirituality (Kujawa, 2022). Pope Francis himself is known to care deeply about the fate of the poor and marginalized. This value of social sensitivity can be integrated into 21st-century education through a transformative pedagogical approach and social problem-based learning (social justice). In this way, students are trained from an early age to be sensitive to the reality of social inequality around them. They are moved to provide real solutions through humanitarian and social action.

Conclusion

Maintaining a firm foundation in the Church's rich doctrinal and spiritual heritage while adjusting to the unparalleled speed of technological advancement is a complex problem for Catholic theological education. However, chances can be taken advantage of with discernment, moderation, and inventiveness.

Franciscan spirituality emphasizes simplicity, holiness, harmony with nature, peace, and social justice, providing a relevant paradigm. Collaboration between interactive technology and contemplative practices has proven helpful in improving the learning process, and transformative pedagogy such as role-playing, digital storytelling, and data analysis will greatly assist in increasing relevance. The main goal is to shape students' personalities so that they can overcome

complex problems with patience, love, and awareness. Learning in service enables theology to foster an attitude of practical solidarity. The theological ethos of the Franciscan concept is based on the qualities of conversation, empathy, and reconciliation, all of which are indispensable for making peace and preventing division.

Catholic education mobilizes all stakeholders to face the future and achieve inclusion, fairness, and environmental friendliness. Reforms in policy and curriculum Catholic theological education must align educational outcomes with core Franciscan concepts. Given the current turbulence, Franciscan philosophy and practice in Catholic theological education are fundamental to leading the way with humanity. If implemented with vision, cooperation, and compassion, Catholic educational reform can promote solidarity worldwide.

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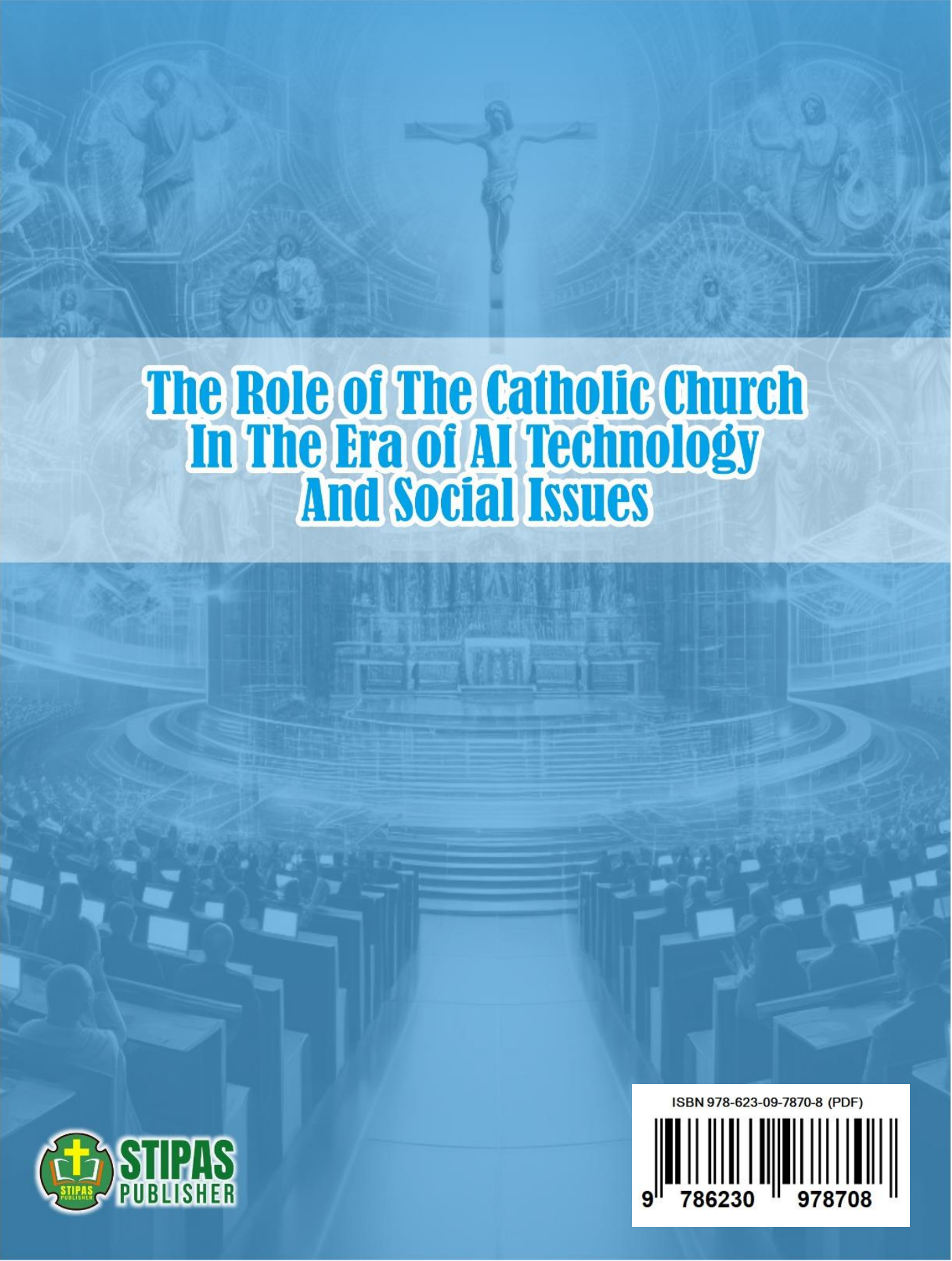


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