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DICASTERY FOR THE DOCTRINE OF THE FAITH
DICASTERY FOR CULTURE AND EDUCATION

ANTIQUA ET NOVA

Note on the Relationship Between Artificial Intelligence and Human Intelligence

I. Introduction

1. With wisdom both ancient and new (cf. Mt. 13:52), we are called to reflect on the current challenges and opportunities posed by scientific and technological advancements, particularly by the recent development of Artificial Intelligence (AI). The Christian tradition regards the gift of intelligence as an essential aspect of how humans are created "in the image of God" (Gen. 1:27). Starting from an integral vision of the human person and the biblical calling to "till" and "keep" the earth (Gen. 2:15), the Church emphasizes that this gift of intelligence should be expressed through the responsible use of reason and technical abilities in the stewardship of the created world.

2. The Church encourages the advancement of science, technology, the arts, and other forms of human endeavor, viewing them as part of the "collaboration of man and woman with God in perfecting the visible creation."[1] As Sirach affirms, God "gave skill to human beings, that he might be glorified in his marvelous works" (Sir. 38:6). Human abilities and creativity come from God and, when used rightly, glorify God by reflecting his wisdom and goodness. In light of this, when we ask ourselves what it means to "be human," we cannot exclude a consideration of our scientific and technological abilities.

3. It is within this perspective that the present *Note* addresses the anthropological and ethical challenges raised by AI—issues that are particularly significant, as one of the goals of this technology is *to imitate the human intelligence that designed it*. For instance, unlike many other human creations, AI can be trained on the results of human creativity and then generate new "artifacts" with a level of speed and skill that often rivals or surpasses what humans can do, such as producing text or images indistinguishable from human compositions. This raises critical concerns about AI's potential role in the growing crisis of truth in the public forum. Moreover, this technology is designed to learn and make certain choices autonomously, adapting to new situations and providing solutions not foreseen by its programmers, and thus, it raises fundamental questions about ethical responsibility and human safety, with broader implications for society as a whole. This new situation has prompted many people to reflect on what it means to be human and the role of humanity in the world.

4. Taking all this into account, there is broad consensus that AI marks a new and significant phase in humanity's engagement with technology, placing it at the heart of what Pope Francis has described as an "epochal change."[2] Its impact is felt globally and in a wide range of areas, including interpersonal relationships, education, work, art, healthcare, law, warfare, and international relations. As AI advances rapidly toward even greater achievements, it is critically important to consider its anthropological and ethical implications. This involves not only mitigating risks and preventing harm but also ensuring that its applications are used to promote human progress and the common good.

5. To contribute positively to the discernment regarding AI, and in response to Pope Francis' call for a renewed "wisdom of heart,"[3] the Church offers its experience through the anthropological and ethical reflections contained in this *Note*. Committed to its active role in the global dialogue on these issues, the Church invites those entrusted with transmitting the faith—including parents, teachers, pastors, and bishops—to dedicate themselves to this critical subject with care and attention. While this document is intended especially for them, it is also meant to be accessible to a broader audience, particularly those who share the conviction that scientific and technological advances should be directed toward serving the human person and the common good.[4]

6. To this end, the document begins by distinguishing between concepts of intelligence in AI and in human intelligence. It then explores the Christian understanding of human intelligence, providing a framework rooted in the Church's philosophical and theological tradition. Finally, the document offers guidelines to ensure that the development and use of AI uphold human dignity and promote the integral development of the human person and society.

II. **What is Artificial Intelligence?**

7. The concept of "intelligence" in AI has evolved over time, drawing on a range of ideas from various disciplines. While its origins extend back centuries, a significant milestone occurred in 1956 when the American computer scientist John McCarthy organized a summer workshop at Dartmouth University to explore the problem of "Artificial Intelligence," which he defined as "that of making a machine behave in ways that would be called intelligent if a human were so behaving." [5] This workshop launched a research program focused on designing machines capable of performing tasks typically associated with the human intellect and intelligent behavior.

8. Since then, AI research has advanced rapidly, leading to the development of complex systems capable of performing highly sophisticated tasks.[6] These so-called "narrow AI" systems are typically designed to handle specific and limited functions, such as translating languages, predicting the trajectory of a storm, classifying images, answering questions, or generating visual content at the user's request. While the definition of "intelligence" in AI research varies, most contemporary AI systems—particularly those using machine learning—rely on statistical inference rather than logical deduction. By analyzing large datasets to identify patterns, AI can "predict"[7] outcomes and propose new approaches, mimicking some cognitive processes typical of human problem-solving. Such achievements have been made possible through advances in computing technology (including neural networks, unsupervised machine learning, and evolutionary algorithms) as well as hardware innovations (such as specialized processors). Together, these technologies enable AI systems to respond to various forms of human input, adapt to new situations, and even suggest novel solutions not anticipated by their original programmers.[8]

9. Due to these rapid advancements, many tasks once managed exclusively by humans are now entrusted to AI. These systems can augment or even supersede what humans are able to do in many fields,

particularly in specialized areas such as data analysis, image recognition, and medical diagnosis. While each "narrow AI" application is designed for a specific task, many researchers aspire to develop what is known as "Artificial General Intelligence" (AGI)—a single system capable of operating across all cognitive domains and performing any task within the scope of human intelligence. Some even argue that AGI could one day achieve the state of "superintelligence," surpassing human intellectual capacities, or contribute to "super-longevity" through advances in biotechnology. Others, however, fear that these possibilities, even if hypothetical, could one day eclipse the human person, while still others welcome this potential transformation.[9]

10. Underlying this and many other perspectives on the subject is the implicit assumption that the term "intelligence" can be used in the same way to refer to both human intelligence and AI. Yet, this does not capture the full scope of the concept. In the case of humans, intelligence is a faculty that pertains to the person in his or her entirety, whereas in the context of AI, "intelligence" is understood functionally, often with the presumption that the activities characteristic of the human mind can be broken down into digitized steps that machines can replicate.[10]

11. This functional perspective is exemplified by the "Turing Test," which considers a machine "intelligent" if a person cannot distinguish its behavior from that of a human.[11] However, in this context, the term "behavior" refers only to the performance of specific intellectual tasks; it does not account for the full breadth of human experience, which includes abstraction, emotions, creativity, and the aesthetic, moral, and religious sensibilities. Nor does it encompass the full range of expressions characteristic of the human mind. Instead, in the case of AI, the "intelligence" of a system is evaluated methodologically, but also reductively, based on its *ability to produce appropriate responses—in this case, those associated with the human intellect—regardless of how those responses are generated*.

12. AI's advanced features give it sophisticated abilities to *perform tasks*, but not the ability to *think*.[12] This distinction is crucially important, as the way "intelligence" is defined inevitably shapes how we understand the relationship between human thought and this technology.[13] To appreciate this, one must recall the richness of the philosophical tradition and Christian theology, which offer a deeper and more comprehensive understanding of intelligence—an understanding that is central to the Church's teaching on the nature, dignity, and vocation of the human person.[14]

III. **Intelligence in the Philosophical and Theological Tradition**

Rationality

13. From the dawn of human self-reflection, the mind has played a central role in understanding what it means to be "human." Aristotle observed that "all people by nature desire to know."[15] This knowledge, with its capacity for abstraction that grasps the nature and meaning of things, sets humans apart from the animal world.[16] As philosophers, theologians, and psychologists have examined the exact nature of this intellectual faculty, they have also explored how humans understand the world and their unique place within it. Through this exploration, the Christian tradition has come to understand the human person as a being consisting of both body and soul—deeply connected to this world and yet transcending it.[17]

14. In the classical tradition, the concept of intelligence is often understood through the complementary concepts of "reason" (*ratio*) and "intellect" (*intellectus*). These are not separate faculties but, as Saint Thomas Aquinas explains, they are two modes in which the same intelligence operates: "The term *intellect* is inferred from the inward grasp of the truth, while the name *reason* is taken from the inquisitive

and discursive process."[18] This concise description highlights the two fundamental and complementary dimensions of human intelligence. *Intellectus* refers to the intuitive grasp of the truth—that is, apprehending it with the "eyes" of the mind—which precedes and grounds argumentation itself. *Ratio* pertains to reasoning proper: the discursive, analytical process that leads to judgment. Together, intellect and reason form the two facets of the act of *intelligere*, "the proper operation of the human being as such."[19]

15. Describing the human person as a "rational" being does not reduce the person to a specific mode of thought; rather, it recognizes that the ability for intellectual understanding shapes and permeates all aspects of human activity. [20] Whether exercised well or poorly, this capacity is an intrinsic aspect of human nature. In this sense, the "term 'rational' encompasses all the capacities of the human person," including those related to "knowing and understanding, as well as those of willing, loving, choosing, and desiring; it also includes all corporeal functions closely related to these abilities." [21] This comprehensive perspective underscores how, in the human person, created in the "image of God," reason is integrated in a way that elevates, shapes, and transforms both the person's will and his or her actions. [22]

Embodiment

16. Christian thought considers the intellectual faculties of the human person within the framework of an integral anthropology that views the human being as essentially embodied. In the human person, spirit and matter "are not two natures united, but rather their union forms a single nature."[23] In other words, the soul is not merely the immaterial "part" of the person contained within the body, nor is the body an outer shell housing an intangible "core." Rather, the entire human person is simultaneously both material and spiritual. This understanding reflects the teaching of Sacred Scripture, which views the human person as a being who lives out relationships with God and others (and thus, an authentically spiritual dimension) within and through this embodied existence.[24] The profound meaning of this condition is further illuminated by the mystery of the Incarnation, through which God himself took on our flesh and "raised it up to a sublime dignity."[25]

17. Although deeply rooted in bodily existence, the human person transcends the material world through the soul, which is "almost on the horizon of eternity and time."[26] The intellect's capacity for transcendence and the self-possessed freedom of the will belong to the soul, by which the human person "shares in the light of the divine mind."[27] Nevertheless, the human spirit does not exercise its normal mode of knowledge without the body.[28] In this way, the intellectual faculties of the human person are an integral part of an anthropology that recognizes that the human person is a "unity of body and soul." [29] Further aspects of this understanding will be developed in what follows.

Relationality

18. Human beings are "ordered by their very nature to interpersonal communion,"[30] possessing the capacity to know one another, to give themselves in love, and to enter into communion with others. Accordingly, human intelligence is not an isolated faculty but is exercised in relationships, finding its fullest expression in dialogue, collaboration, and solidarity. We learn with others, and we learn through others.

19. The relational orientation of the human person is ultimately grounded in the eternal self-giving of the Triune God, whose love is revealed in creation and redemption.[31] The human person is "called to share,

by knowledge and love, in God's own life."[32]

20. This vocation to communion with God is necessarily tied to the call to communion with others. Love of God cannot be separated from love for one's neighbor (cf. 1 Jn. 4:20; Mt. 22:37-39). By the grace of sharing God's life, Christians are also called to imitate Christ's outpouring gift (cf. 2 Cor. 9:8-11; Eph. 5:1-2) by following his command to "love one another, as I have loved you" (Jn. 13:34).[33] Love and service, echoing the divine life of self-giving, transcend self-interest to respond more fully to the human vocation (cf. 1 Jn. 2:9). Even more sublime than knowing many things is the commitment to care for one another, for if "I understand all mysteries and all knowledge [...] but do not have love, I am nothing" (1 Cor. 13:2).

Relationship with the Truth

21. Human intelligence is ultimately "God's gift fashioned for the assimilation of truth."[34]In the dual sense of *intellectus-ratio*, it enables the person to explore realities that surpass mere sensory experience or utility, since "the desire for truth is part of human nature itself. It is an innate property of human reason to ask why things are as they are."[35] Moving beyond the limits of empirical data, human intelligence can "with genuine certitude attain to reality itself as knowable."[36] While reality remains only partially known, the desire for truth "spurs reason always to go further; indeed, it is as if reason were overwhelmed to see that it can always go beyond what it has already achieved."[37] Although Truth in itself transcends the boundaries of human intelligence, it irresistibly attracts it.[38] Drawn by this attraction, the human person is led to seek "truths of a higher order."[39]

22. This innate drive toward the pursuit of truth is especially evident in the distinctly human capacities for semantic understanding and creativity,[40] through which this search unfolds in a "manner that is appropriate to the social nature and dignity of the human person."[41] Likewise, a steadfast orientation to the truth is essential for charity to be both authentic and universal.[42]

23. The search for truth finds its highest expression in openness to realities that transcend the physical and created world. In God, all truths attain their ultimate and original meaning.[43] Entrusting oneself to God is a "fundamental decision that engages the whole person."[44] In this way, the human person becomes fully what he or she is called to be: "the intellect and the will display their spiritual nature," enabling the person "to act in a way that realizes personal freedom to the full."[45]

Stewardship of the World

24. The Christian faith understands creation as the free act of the Triune God, who, as Saint Bonaventure of Bagnoregio explains, creates "not to increase his glory, but to show it forth and to communicate it." [46] Since God creates according to his Wisdom (cf. Wis. 9:9; Jer. 10:12), creation is imbued with an intrinsic order that reflects God's plan (cf. Gen. 1; Dan. 2:21-22; Is. 45:18; Ps. 74:12-17; 104),[47] within which God has called human beings to assume a unique role: *to cultivate and care for the world*.[48]

25. Shaped by the Divine Craftsman, humans live out their identity as beings made *in imago Dei* by "keeping" and "tilling" (cf. Gen. 2:15) creation—using their intelligence and skills to care for and develop creation in accord with God's plan.[49] In this, human intelligence reflects the Divine Intelligence that created all things (cf. Gen. 1-2; Jn. 1),[50] continuously sustains them, and guides them to their ultimate purpose in him.[51] Moreover, human beings are called to develop their abilities in science and technology, for through them, God is glorified (cf. Sir. 38:6). Thus, in a proper relationship

with creation, humans, on the one hand, use their intelligence and skill to cooperate with God in guiding creation toward the purpose to which he has called it.[52] On the other hand, creation itself, as Saint Bonaventure observes, helps the human mind to "ascend gradually to the supreme Principle, who is God."[53]

An Integral Understanding of Human Intelligence

26. In this context, human intelligence becomes more clearly understood as a faculty that forms an integral part of how the whole person engages with reality. Authentic engagement requires embracing the full scope of one's being: spiritual, cognitive, embodied, and relational.

27. This engagement with reality unfolds in various ways, as each person, in his or her multifaceted individuality[54], seeks to understand the world, relate to others, solve problems, express creativity, and pursue integral well-being through the harmonious interplay of the various dimensions of the person's intelligence.[55] This involves logical and linguistic abilities but can also encompass other modes of interacting with reality. Consider the work of an artisan, who "must know how to discern, in inert matter, a particular form that others cannot recognize"[56] and bring it forth through insight and practical skill. Indigenous peoples who live close to the earth often possess a profound sense of nature and its cycles.[57] Similarly, a friend who knows the right word to say or a person adept at managing human relationships exemplifies an intelligence that is "the fruit of self-examination, dialogue and generous encounter between persons."[58] As Pope Francis observes, "in this age of artificial intelligence, we cannot forget that poetry and love are necessary to save our humanity."[59]

28. At the heart of the Christian understanding of intelligence is the integration of truth into the moral and spiritual life of the person, guiding his or her actions in light of God's goodness and truth. According to God's plan, intelligence, in its fullest sense, also includes the ability to savor what is true, good, and beautiful. As the twentieth-century French poet Paul Claudel expressed, "intelligence is nothing without delight."[60] Similarly, Dante, upon reaching the highest heaven in *Paradiso*, testifies that the culmination of this intellectual delight is found in the "light intellectual full of love, love of true good filled with joy, joy which transcends every sweetness."[61]

29. A proper understanding of human intelligence, therefore, cannot be reduced to the mere acquisition of facts or the ability to perform specific tasks. Instead, it involves the person's openness to the ultimate questions of life and reflects an orientation toward the True and the Good.[62] As an expression of the divine image within the person, human intelligence has the ability to access the totality of being, contemplating existence in its fullness, which goes beyond what is measurable, and grasping the meaning of what has been understood. For believers, this capacity includes, in a particular way, the ability to grow in the knowledge of the mysteries of God by using reason to engage ever more profoundly with revealed truths (*intellectus fidei*).[63] True intelligence is shaped by divine love, which "is poured forth in our hearts by the Holy Spirit" (Rom. 5:5). From this, it follows that human intelligence possesses an essential *contemplative* dimension, an unselfish openness to what is True, the Good, and the Beautiful, beyond any utilitarian purpose.

The Limits of AI

30. In light of the foregoing discussion, the differences between human intelligence and current AI systems become evident. While AI is an extraordinary technological achievement capable of imitating certain outputs associated with human intelligence, it operates by performing tasks, achieving goals, or

making decisions based on quantitative data and computational logic. For example, with its analytical power, AI excels at integrating data from a variety of fields, modeling complex systems, and fostering interdisciplinary connections. In this way, it can help experts collaborate in solving complex problems that "cannot be dealt with from a single perspective or from a single set of interests."[64]

31. However, even as AI processes and simulates certain expressions of intelligence, it remains fundamentally confined to a logical-mathematical framework, which imposes inherent limitations. Human intelligence, in contrast, develops organically throughout the person's physical and psychological growth, shaped by a myriad of lived experiences in the flesh. Although advanced AI systems can "learn" through processes such as machine learning, this sort of training is fundamentally different from the developmental growth of human intelligence, which is shaped by embodied experiences, including sensory input, emotional responses, social interactions, and the unique context of each moment. These elements shape and form individuals within their personal history.In contrast, AI, lacking a physical body, relies on computational reasoning and learning based on vast datasets that include recorded human experiences and knowledge.

32. Consequently, although AI can simulate aspects of human reasoning and perform specific tasks with incredible speed and efficiency, its computational abilities represent only a fraction of the broader capacities of the human mind. For instance, AI cannot currently replicate moral discernment or the ability to establish authentic relationships. Moreover, human intelligence is situated within a personally lived history of intellectual and moral formation that fundamentally shapes the individual's perspective, encompassing the physical, emotional, social, moral, and spiritual dimensions of life. Since AI cannot offer this fullness of understanding, approaches that rely solely on this technology or treat it as the primary means of interpreting the world can lead to "a loss of appreciation for the whole, for the relationships between things, and for the broader horizon."[65]

33. Human intelligence is not primarily about completing functional tasks but about understanding and actively engaging with reality in all its dimensions; it is also capable of surprising insights. Since AI lacks the richness of corporeality, relationality, and the openness of the human heart to truth and goodness, its capacities—though seemingly limitless—are incomparable with the human ability to grasp reality. So much can be learned from an illness, an embrace of reconciliation, and even a simple sunset; indeed, many experiences we have as humans open new horizons and offer the possibility of attaining new wisdom. No device, working solely with data, can measure up to these and countless other experiences present in our lives.

34. Drawing an overly close equivalence between human intelligence and AI risks succumbing to a functionalist perspective, where people are valued based on the work they can perform. However, a person's worth does not depend on possessing specific skills, cognitive and technological achievements, or individual success, but on the person's inherent dignity, grounded in being created in the image of God. [66] This dignity remains intact in all circumstances, including those unable to exercise their abilities, whether it be an unborn child, an unconscious person, or an older person who is suffering. [67] This dignity underpins the tradition of human rights (and, in particular, what are now called "neuro-rights"), which represent "an important point of convergence in the search for common ground"[68] and can, thus, serve as a fundamental ethical guide in discussions on the responsible development and use of AI.

35. Considering all these points, as Pope Francis observes, "the very use of the word 'intelligence'" in connection with AI "can prove misleading"[69] and risks overlooking what is most precious in the human person. In light of this, AI should not be seen as *an artificial form* of human intelligence but as *a product*

of it.[70]

IV. **The Role of Ethics in Guiding the Development and Use of AI**

36. Given these considerations, one can ask how AI can be understood within God's plan. To answer this, it is important to recall that techno-scientific activity is not neutral in character but is a *human* endeavor that engages the humanistic and cultural dimensions of human creativity.[71]

37. Seen as a fruit of the potential inscribed within human intelligence,[72] scientific inquiry and the development of technical skills are part of the "collaboration of man and woman with God in perfecting the visible creation."[73] At the same time, all scientific and technological achievements are, ultimately, gifts from God.[74] Therefore, human beings must always use their abilities in view of the higher purpose for which God has granted them.[75]

38. We can gratefully acknowledge how technology has "remedied countless evils which used to harm and limit human beings,"[76] a fact for which we should rejoice. Nevertheless, not all technological advancements in themselves represent genuine human progress.[77] The Church is particularly opposed to those applications that threaten the sanctity of life or the dignity of the human person.[78] Like any human endeavor, technological development must be directed to serve the human person and contribute to the pursuit of "greater justice, more extensive fraternity, and a more humane order of social relations," which are "more valuable than advances in the technical field."[79] Concerns about the ethical implications of technological development are shared not only within the Church but also among many scientists, technologists, and professional associations, who increasingly call for ethical reflection to guide this development responsibly.

39. To address these challenges, it is essential to emphasize *the importance of moral responsibility grounded in the dignity and vocation of the human person*. This guiding principle also applies to questions concerning AI. In this context, the ethical dimension takes on primary importance because it is people who design systems and determine the purposes for which they are used.[80] Between a machine and a human being, only the latter is truly a moral agent—a subject of moral responsibility who exercises freedom in his or her decisions and accepts their consequences.[81] It is not the machine but the human who is in relationship with truth and goodness, guided by a moral conscience that calls the person "to love and to do what is good and to avoid evil,"[82] bearing witness to "the authority of truth in reference to the supreme Good to which the human person is drawn."[83] Likewise, between a machine and a human, only the human can be sufficiently self-aware to the point of listening and following the voice of conscience, discerning with prudence, and seeking the good that is possible in every situation.[84] In fact, all of this also belongs to the person's exercise of intelligence.

40. Like any product of human creativity, AI can be directed toward positive or negative ends.[85] When used in ways that respect human dignity and promote the well-being of individuals and communities, it can contribute positively to the human vocation. Yet, as in all areas where humans are called to make decisions, the shadow of evil also looms here. Where human freedom allows for the possibility of choosing what is wrong, the moral evaluation of this technology will need to take into account how it is directed and used.

41. At the same time, it is not only the ends that are ethically significant but also the means employed to achieve them. Additionally, the overall vision and understanding of the human person embedded within these systems are important to consider as well. Technological products reflect the worldview of their

developers, owners, users, and regulators,[86] and have the power to "shape the world and engage consciences on the level of values."[87] On a societal level, some technological developments could also reinforce relationships and power dynamics that are inconsistent with a proper understanding of the human person and society.

42. Therefore, the ends and the means used in a given application of AI, as well as the overall vision it incorporates, must all be evaluated to ensure they respect human dignity and promote the common good.[88] As Pope Francis has stated, "the intrinsic dignity of every man and every woman" must be "the key criterion in evaluating emerging technologies; these will prove ethically sound to the extent that they help respect that dignity and increase its expression at every level of human life,"[89] including in the social and economic spheres. In this sense, human intelligence plays a crucial role not only in designing and producing technology but also in directing its use in line with the authentic good of the human person.[90] The responsibility for managing this wisely pertains to every level of society, guided by the principle of subsidiarity and other principles of Catholic Social Teaching.

Helping Human Freedom and Decision-Making

43. The commitment to ensuring that *AI always supports and promotes the supreme value of the dignity of every human being and the fullness of the human vocation* serves as a criterion of discernment for developers, owners, operators, and regulators of AI, as well as to its users. It remains valid for every application of the technology at every level of its use.

44. An evaluation of the implications of this guiding principle could begin by considering the importance of *moral responsibility*. Since full moral causality belongs only to *personal* agents, not artificial ones, it is crucial to be able to identify and define who bears responsibility for the processes involved in AI, particularly those capable of learning, correction, and reprogramming. While bottom-up approaches and very deep neural networks enable AI to solve complex problems, they make it difficult to understand the processes that lead to the solutions they adopted. This complicates accountability since if an AI application produces undesired outcomes, determining who is responsible becomes difficult. To address this problem, attention needs to be given to the nature of *accountability* processes in complex, highly automated settings, where results may only become evident in the medium to long term. For this, it is important that ultimate responsibility for decisions made using AI rests with the human decision-makers and that there is accountability for the use of AI at each stage of the decision-making process.[91]

45. In addition to determining who is responsible, it is essential to determine the objectives given to AI systems. Although these systems may use unsupervised autonomous learning mechanisms and sometimes follow paths that humans cannot reconstruct, they ultimately pursue goals that humans have assigned to them and are governed by processes established by their designers and programmers. Yet, this presents a challenge because, as AI models become increasingly capable of independent learning, the ability to maintain control over them to ensure that such applications serve human purposes may effectively diminish. This raises the critical question of how to ensure that AI systems are ordered for the good of people and not against them.

46. While responsibility for the ethical use of AI systems starts with those who develop, produce, manage, and oversee them, it is also shared by those who use them. As Pope Francis noted, the machine "makes a technical choice among several possibilities based either on well-defined criteria or on statistical inferences. Human beings, however, not only choose, but in their hearts are capable of deciding."[92] Those who use AI to accomplish a task and follow its results create a context in which they are

ultimately responsible for the power they have delegated. Therefore, insofar as AI can assist humans in making decisions, the algorithms that govern it should be trustworthy, secure, robust enough to handle inconsistencies, and transparent in their operation to mitigate biases and unintended side effects. [93] Regulatory frameworks should ensure that all legal entities remain accountable for the use of AI and all its consequences, with appropriate safeguards for transparency, privacy, and accountability. [94] Moreover, those using AI should be careful not to become overly dependent on it for their decision-making, a trend that increases contemporary society's already high reliance on technology.

47. The Church's moral and social teaching provides resources to help ensure that AI is used in a way that preserves human agency. Considerations about justice, for example, should also address issues such as fostering just social dynamics, upholding international security, and promoting peace. By exercising prudence, individuals and communities can discern ways to use AI to benefit humanity while avoiding applications that could degrade human dignity or harm the environment. In this context, the concept of responsibility should be understood not only in its most limited sense but as a "responsibility for the care for others, which is more than simply accounting for results achieved."[95]

48. Therefore, AI, like any technology, can be part of a conscious and responsible answer to humanity's vocation to the good. However, as previously discussed, AI must be directed by human intelligence to align with this vocation, ensuring it respects the dignity of the human person. Recognizing this "exalted dignity," the Second Vatican Council affirmed that "the social order and its development must invariably work to the benefit of the human person."[96] In light of this, the use of AI, as Pope Francis said, must be "accompanied by an ethic inspired by a vision of the common good, an ethic of freedom, responsibility, and fraternity, capable of fostering the full development of people in relation to others and to the whole of creation."[97]

V. **Specific Questions**

49. Within this general perspective, some observations follow below to illustrate how the preceding arguments can help provide an ethical orientation in practical situations, in line with the "wisdom of heart" that Pope Francis has proposed.[98] While not exhaustive, this discussion is offered in service of the dialogue that considers how AI can be used to uphold the dignity of the human person and promote the common good.[99]

AI and Society

50. As Pope Francis observed, "the inherent dignity of each human being and the fraternity that binds us together as members of the one human family must undergird the development of new technologies and serve as indisputable criteria for evaluating them before they are employed."[100]

51. Viewed through this lens, AI could "introduce important innovations in agriculture, education and culture, an improved level of life for entire nations and peoples, and the growth of human fraternity and social friendship," and thus be "used to promote integral human development."[101] AI could also help organizations identify those in need and counter discrimination and marginalization. These and other similar applications of this technology could contribute to human development and the common good. [102]

52. However, while AI holds many possibilities for promoting the good, it can also hinder or even counter human development and the common good. Pope Francis has noted that "evidence to date suggests that

digital technologies have increased inequality in our world. Not just differences in material wealth, which are also significant, but also differences in access to political and social influence."[103] In this sense, AI could be used to perpetuate marginalization and discrimination, create new forms of poverty, widen the "digital divide," and worsen existing social inequalities.[104]

53. Moreover, the concentration of the power over mainstream AI applications in the hands of a few powerful companies raises significant ethical concerns. Exacerbating this problem is the inherent nature of AI systems, where no single individual can exercise complete oversight over the vast and complex datasets used for computation. This lack of well-defined accountability creates the risk that AI could be manipulated for personal or corporate gain or to direct public opinion for the benefit of a specific industry. Such entities, motivated by their own interests, possess the capacity to exercise "forms of control as subtle as they are invasive, creating mechanisms for the manipulation of consciences and of the democratic process."[105]

54. Furthermore, there is the risk of AI being used to promote what Pope Francis has called the "technocratic paradigm," which perceives all the world's problems as solvable through technological means alone.[106] In this paradigm, human dignity and fraternity are often set aside in the name of efficiency, "as if reality, goodness, and truth automatically flow from technological and economic power as such."[107] Yet, human dignity and the common good must never be violated for the sake of efficiency,[108] for "technological developments that do not lead to an improvement in the quality of life of all humanity, but on the contrary, aggravate inequalities and conflicts, can never count as true progress."[109] Instead, AI should be put "at the service of another type of progress, one which is healthier, more human, more social, more integral."[110]

55. Achieving this objective requires a deeper reflection on the relationship between autonomy and responsibility. Greater autonomy heightens each person's responsibility across various aspects of communal life. For Christians, the foundation of this responsibility lies in the recognition that all human capacities, including the person's autonomy, come from God and are meant to be used in the service of others.[111] Therefore, rather than merely pursuing economic or technological objectives, AI should serve "the common good of the entire human family," which is "the sum total of social conditions that allow people, either as groups or as individuals, to reach their fulfillment more fully and more easily."[112]

AI and Human Relationships

56. The Second Vatican Council observed that "by his innermost nature man is a social being; and if he does not enter into relations with others, he can neither live nor develop his gifts."[113] This conviction underscores that living in society is intrinsic to the nature and vocation of the human person.[114] As social beings, we seek relationships that involve mutual exchange and the pursuit of truth, in the course of which, people "share with each other the truth they have discovered, or think they have discovered, in such a way that they help one another in the search for truth."[115]

57. Such a quest, along with other aspects of human communication, presupposes encounters and mutual exchange between individuals shaped by their unique histories, thoughts, convictions, and relationships. Nor can we forget that human intelligence is a diverse, multifaceted, and complex reality: individual and social, rational and affective, conceptual and symbolic. Pope Francis underscores this dynamic, noting that "together, we can seek the truth in dialogue, in relaxed conversation or in passionate debate. To do so calls for perseverance; it entails moments of silence and suffering, yet it can patiently embrace the

broader experience of individuals and peoples. […] The process of building fraternity, be it local or universal, can only be undertaken by spirits that are free and open to authentic encounters."[116]

58. It is in this context that one can consider the challenges AI poses to human relationships. Like other technological tools, AI has the potential to foster connections within the human family. However, it could also hinder a true encounter with reality and, ultimately, lead people to "a deep and melancholic dissatisfaction with interpersonal relations, or a harmful sense of isolation."[117] Authentic human relationships require the richness of being with others in their pain, their pleas, and their joy.[118] Since human intelligence is expressed and enriched also in interpersonal and embodied ways, authentic and spontaneous encounters with others are indispensable for engaging with reality in its fullness.

59. Because "true wisdom demands an encounter with reality,"[119] the rise of AI introduces another challenge. Since AI can effectively imitate the products of human intelligence, the ability to know when one is interacting with a human or a machine can no longer be taken for granted. Generative AI can produce text, speech, images, and other advanced outputs that are usually associated with human beings. Yet, it must be understood for what it is: a tool, not a person.[120] This distinction is often obscured by the language used by practitioners, which tends to anthropomorphize AI and thus blurs the line between human and machine.

60. Anthropomorphizing AI also poses specific challenges for the development of children, potentially encouraging them to develop patterns of interaction that treat human relationships in a transactional manner, as one would relate to a chatbot. Such habits could lead young people to see teachers as mere dispensers of information rather than as mentors who guide and nurture their intellectual and moral growth. Genuine relationships, rooted in empathy and a steadfast commitment to the good of the other, are essential and irreplaceable in fostering the full development of the human person.

61. In this context, it is important to clarify that, despite the use of anthropomorphic language, no AI application can genuinely experience empathy. Emotions cannot be reduced to facial expressions or phrases generated in response to prompts; they reflect the way a person, as a whole, relates to the world and to his or her own life, with the body playing a central role. True empathy requires the ability to listen, recognize another's irreducible uniqueness, welcome their otherness, and grasp the meaning behind even their silences.[121] Unlike the realm of analytical judgment in which AI excels, true empathy belongs to the relational sphere. It involves intuiting and apprehending the lived experiences of another while maintaining the distinction between self and other.[122] While AI can simulate empathetic responses, it cannot replicate the eminently personal and relational nature of authentic empathy.[123]

62. In light of the above, it is clear why misrepresenting AI as a person should always be avoided; doing so for fraudulent purposes is a grave ethical violation that could erode social trust. Similarly, using AI to deceive in other contexts—such as in education or in human relationships, including the sphere of sexuality—is also to be considered immoral and requires careful oversight to prevent harm, maintain transparency, and ensure the dignity of all people.[124]

63. In an increasingly isolated world, some people have turned to AI in search of deep human relationships, simple companionship, or even emotional bonds. However, while human beings are meant to experience authentic relationships, AI can only simulate them. Nevertheless, such relationships with others are an integral part of how a person grows to become who he or she is meant to be. Therefore, if AI is used to help people foster genuine connections between people, it can contribute positively to the full realization of the person. Conversely, if we replace relationships with God and with others with

interactions with technology, we risk replacing authentic relationality with a lifeless image (cf. Ps. 106:20; Rom. 1:22-23). Instead of retreating into artificial worlds, we are called to engage in a committed and intentional way with reality, especially by identifying with the poor and suffering, consoling those in sorrow, and forging bonds of communion with all.

AI, the Economy, and Labor

64. Due to its interdisciplinary nature, AI is being increasingly integrated into economic and financial systems. Significant investments are currently being made not only in the technology sector but also in energy, finance, and media, particularly in the areas of marketing and sales, logistics, technological innovation, compliance, and risk management. At the same time, AI's applications in these areas have also highlighted its ambivalent nature, as a source of tremendous opportunities but also profound risks. A first real critical point in this area concerns the possibility that—due to the concentration of AI applications in the hands of a few corporations—only those large companies would benefit from the value created by AI rather than the businesses that use it.

65. Other broader aspects of AI's impact on the economic-financial sphere must also be carefully examined, particularly concerning the interaction between concrete reality and the digital world. One important consideration in this regard involves the coexistence of diverse and alternative forms of economic and financial institutions within a given context. This factor should be encouraged, as it can bring benefits in how it supports the real economy by fostering its development and stability, especially during times of crisis. Nevertheless, it should be stressed that digital realities, not restricted by any spatial bonds, tend to be more homogeneous and impersonal than communities rooted in a particular place and a specific history, with a common journey characterized by shared values and hopes, but also by inevitable disagreements and divergences. This diversity is an undeniable asset to a community's economic life. Turning over the economy and finance entirely to digital technology would reduce this variety and richness. As a result, many solutions to economic problems that can be reached through natural dialogue between the involved parties may no longer be attainable in a world dominated by procedures and only the appearance of nearness.

66. Another area where AI is already having a profound impact is the world of work. As in many other fields, AI is driving fundamental transformations across many professions, with a range of effects. On the one hand, it has the potential to enhance expertise and productivity, create new jobs, enable workers to focus on more innovative tasks, and open new horizons for creativity and innovation.

67. However, while AI promises to boost productivity by taking over mundane tasks, it frequently forces workers to adapt to the speed and demands of machines rather than machines being designed to support those who work. As a result, contrary to the advertised benefits of AI, current approaches to the technology can paradoxically *deskill* workers, subject them to automated surveillance, and relegate them to rigid and repetitive tasks. The need to keep up with the pace of technology can erode workers' sense of agency and stifle the innovative abilities they are expected to bring to their work.[125]

68. AI is currently eliminating the need for some jobs that were once performed by humans. If AI is used to replace human workers rather than complement them, there is a "substantial risk of disproportionate benefit for the few at the price of the impoverishment of many."[126] Additionally, as AI becomes more powerful, there is an associated risk that human labor may lose its value in the economic realm. This is the logical consequence of the technocratic paradigm: a world of humanity enslaved to efficiency, where, ultimately, the cost of humanity must be cut. Yet, human lives are intrinsically valuable, independent of

their economic output. Nevertheless, the "current model," Pope Francis explains, "does not appear to favor an investment in efforts to help the slow, the weak, or the less talented to find opportunities in life." [127] In light of this, "we cannot allow a tool as powerful and indispensable as Artificial Intelligence to reinforce such a paradigm, but rather, we must make Artificial Intelligence a bulwark against its expansion." [128]

69. It is important to remember that "the order of things must be subordinate to the order of persons, and not the other way around."[129] Human work must not only be at the service of profit but at "the service of the whole human person […] taking into account the person's material needs and the requirements of his or her intellectual, moral, spiritual, and religious life."[130] In this context, the Church recognizes that work is "not only a means of earning one's daily bread" but is also "an essential dimension of social life" and "a means […] of personal growth, the building of healthy relationships, self-expression and the exchange of gifts. Work gives us a sense of shared responsibility for the development of the world, and ultimately, for our life as a people."[131]

70. Since work is a "part of the meaning of life on this earth, a path to growth, human development and personal fulfillment," "the goal should not be that technological progress increasingly replaces human work, for this would be detrimental to humanity"[132]—rather, it should promote human labor. Seen in this light, AI should assist, not replace, human judgment. Similarly, it must never degrade creativity or reduce workers to mere "cogs in a machine." Therefore, "respect for the dignity of laborers and the importance of employment for the economic well-being of individuals, families, and societies, for job security and just wages, ought to be a high priority for the international community as these forms of technology penetrate more deeply into our workplaces."[133]

AI and Healthcare

71. As participants in God's healing work, healthcare professionals have the vocation and responsibility to be "guardians and servants of human life."[134] Because of this, the healthcare profession carries an "intrinsic and undeniable ethical dimension," recognized by the Hippocratic Oath, which obliges physicians and healthcare professionals to commit themselves to having "absolute respect for human life and its sacredness."[135] Following the example of the Good Samaritan, this commitment is to be carried out by men and women "who reject the creation of a society of exclusion, and act instead as neighbors, lifting up and rehabilitating the fallen for the sake of the common good."[136]

72. Seen in this light, AI seems to hold immense potential in a variety of applications in the medical field, such as assisting the diagnostic work of healthcare providers, facilitating relationships between patients and medical staff, offering new treatments, and expanding access to quality care also for those who are isolated or marginalized. In these ways, the technology could enhance the "compassionate and loving closeness"[137] that healthcare providers are called to extend to the sick and suffering.

73. However, if AI is used not to enhance but to replace the relationship between patients and healthcare providers—leaving patients to interact with a machine rather than a human being—it would reduce a crucially important human relational structure into a centralized, impersonal, and unequal framework. Instead of encouraging solidarity with the sick and suffering, such applications of AI would risk worsening the loneliness that often accompanies illness, especially in the context of a culture where "persons are no longer seen as a paramount value to be cared for and respected."[138] This misuse of AI would not align with respect for the dignity of the human person and solidarity with the suffering.

74. Responsibility for the well-being of patients and the decisions that touch upon their lives are at the heart of the healthcare profession. This accountability requires medical professionals to exercise all their skill and intelligence in making well-reasoned and ethically grounded choices regarding those entrusted to their care, always respecting the inviolable dignity of the patients and the need for informed consent. As a result, decisions regarding patient treatment and the weight of responsibility they entail must always remain with the human person and should never be delegated to AI.[139]

75. In addition, using AI to determine who should receive treatment based predominantly on economic measures or metrics of efficiency represents a particularly problematic instance of the "technocratic paradigm" that must be rejected.[140] For, "optimizing resources means using them in an ethical and fraternal way, and not penalizing the most fragile."[141] Additionally, AI tools in healthcare are "exposed to forms of bias and discrimination," where "systemic errors can easily multiply, producing not only injustices in individual cases but also, due to the domino effect, real forms of social inequality."[142]

76. The integration of AI into healthcare also poses the risk of amplifying other existing disparities in access to medical care. As healthcare becomes increasingly oriented toward prevention and lifestyle-based approaches, AI-driven solutions may inadvertently favor more affluent populations who already enjoy better access to medical resources and quality nutrition. This trend risks reinforcing a "medicine for the rich" model, where those with financial means benefit from advanced preventative tools and personalized health information while others struggle to access even basic services. To prevent such inequities, equitable frameworks are needed to ensure that the use of AI in healthcare does not worsen existing healthcare inequalities but rather serves the common good.

AI and Education

77. The words of the Second Vatican Council remain fully relevant today: "True education strives to form individuals with a view toward their final end and the good of the society to which they belong."[143] As such, education is "never a mere process of passing on facts and intellectual skills: rather, its aim is to contribute to the person's holistic formation in its various aspects (intellectual, cultural, spiritual, etc.), including, for example, community life and relations within the academic community,"[144] in keeping with the nature and dignity of the human person.

78. This approach involves a commitment to cultivating the mind, but always as a part of the integral development of the person: "We must break that idea of education which holds that educating means filling one's head with ideas. That is the way we educate automatons, cerebral minds, not people. Educating is taking a risk in the tension between the mind, the heart, and the hands."[145]

79. At the center of this work of forming the whole human person is the indispensable relationship between teacher and student. Teachers do more than convey knowledge; they model essential human qualities and inspire the joy of discovery.[146] Their presence motivates students both through the content they teach and the care they demonstrate for their students. This bond fosters trust, mutual understanding, and the capacity to address each person's unique dignity and potential. On the part of the student, this can generate a genuine desire to grow. The physical presence of a teacher creates a relational dynamic that AI cannot replicate, one that deepens engagement and nurtures the student's integral development.

80. In this context, AI presents both opportunities and challenges. If used in a prudent manner, within the context of an existing teacher-student relationship and ordered to the authentic goals of education, AI can

become a valuable educational resource by enhancing access to education, offering tailored support, and providing immediate feedback to students. These benefits could enhance the learning experience, especially in cases where individualized attention is needed, or educational resources are otherwise scarce.

81. Nevertheless, an essential part of education is forming "the intellect to reason well in all matters, to reach out towards truth, and to grasp it,"[147] while helping the "language of the head" to grow harmoniously with the "language of the heart" and the "language of the hands."[148] This is all the more vital in an age marked by technology, in which "it is no longer merely a question of 'using' instruments of communication, but of living in a highly digitalized culture that has had a profound impact on […] our ability to communicate, learn, be informed and enter into relationship with others."[149] However, instead of fostering "a cultivated intellect," which "brings with it a power and a grace to every work and occupation that it undertakes,"[150] the extensive use of AI in education could lead to the students' increased reliance on technology, eroding their ability to perform some skills independently and worsening their dependence on screens.[151]

82. Additionally, while some AI systems are designed to help people develop their critical thinking abilities and problem-solving skills, many others merely provide answers instead of prompting students to arrive at answers themselves or write text for themselves.[152] Instead of training young people how to amass information and generate quick responses, education should encourage "the responsible use of freedom to face issues with good sense and intelligence."[153] Building on this, "education in the use of forms of artificial intelligence should aim above all at promoting critical thinking. Users of all ages, but especially the young, need to develop a discerning approach to the use of data and content collected on the web or produced by artificial intelligence systems. Schools, universities, and scientific societies are challenged to help students and professionals to grasp the social and ethical aspects of the development and uses of technology."[154]

83. As Saint John Paul II recalled, "in the world today, characterized by such rapid developments in science and technology, the tasks of a Catholic University assume an ever greater importance and urgency."[155] In a particular way, Catholic universities are urged to be present as great laboratories of hope at this crossroads of history. In an inter-disciplinary and cross-disciplinary key, they are urged to engage "with wisdom and creativity"[156] in careful research on this phenomenon, helping to draw out the salutary potential within the various fields of science and reality, and guiding them always towards ethically sound applications that clearly serve the cohesion of our societies and the common good, reaching new frontiers in the dialogue between faith and reason.

84. Moreover, current AI programs have been known to provide biased or fabricated information, which can lead students to trust inaccurate content. This problem "not only runs the risk of legitimizing fake news and strengthening a dominant culture's advantage, but, in short, it also undermines the educational process itself."[157] With time, clearer distinctions may emerge between proper and improper uses of AI in education and research. Yet, a decisive guideline is that the use of AI should always be transparent and never misrepresented.

AI, Misinformation, Deepfakes, and Abuse

85. AI could be used as an aid to human dignity if it helps people understand complex concepts or directs them to sound resources that support their search for the truth.[158]

86. However, AI also presents a serious risk of generating manipulated content and false information, which can easily mislead people due to its resemblance to the truth. Such misinformation might occur unintentionally, as in the case of AI "hallucination," where a generative AI system yields results that appear real but are not. Since generating content that mimics human artifacts is central to AI's functionality, mitigating these risks proves challenging. Yet, the consequences of such aberrations and false information can be quite grave. For this reason, all those involved in producing and using AI systems should be committed to the truthfulness and accuracy of the information processed by such systems and disseminated to the public.

87. While AI has a latent potential to generate false information, an even more troubling problem lies in the deliberate misuse of AI for manipulation. This can occur when individuals or organizations intentionally generate and spread false content with the aim to deceive or cause harm, such as "deepfake" images, videos, and audio—referring to a false depiction of a person, edited or generated by an AI algorithm. The danger of deepfakes is particularly evident when they are used to target or harm others. While the images or videos themselves may be artificial, the damage they cause is real, leaving "deep scars in the hearts of those who suffer it" and "real wounds in their human dignity."[159]

88. On a broader scale, by distorting "our relationship with others and with reality,"[160] AI-generated fake media can gradually undermine the foundations of society. This issue requires careful regulation, as misinformation—especially through AI-controlled or influenced media—can spread unintentionally, fueling political polarization and social unrest. When society becomes indifferent to the truth, various groups construct their own versions of "facts," weakening the "reciprocal ties and mutual dependencies" [161] that underpin the fabric of social life. As deepfakes cause people to question everything and AI-generated false content erodes trust in what they see and hear, polarization and conflict will only grow. Such widespread deception is no trivial matter; it strikes at the core of humanity, dismantling the foundational trust on which societies are built.[162]

89. Countering AI-driven falsehoods is not only the work of industry experts—it requires the efforts of all people of goodwill. "If technology is to serve human dignity and not harm it, and if it is to promote peace rather than violence, then the human community must be proactive in addressing these trends with respect to human dignity and the promotion of the good."[163] Those who produce and share AI-generated content should always exercise diligence in verifying the truth of what they disseminate and, in all cases, should "avoid the sharing of words and images that are degrading of human beings, that promote hatred and intolerance, that debase the goodness and intimacy of human sexuality or that exploit the weak and vulnerable."[164] This calls for the ongoing prudence and careful discernment of all users regarding their activity online.[165]

AI, Privacy, and Surveillance

90. Humans are inherently relational, and the data each person generates in the digital world can be seen as an objectified expression of this relational nature. Data conveys not only information but also personal and relational knowledge, which, in an increasingly digitized context, can amount to power over the individual. Moreover, while some types of data may pertain to public aspects of a person's life, others may touch upon the individual's interiority, perhaps even their conscience. Seen in this way, privacy plays an essential role in protecting the boundaries of a person's inner life, preserving their freedom to relate to others, express themselves, and make decisions without undue control. This protection is also tied to the defense of religious freedom, as surveillance can also be misused to exert control over the lives of believers and how they express their faith.

91. It is appropriate, therefore, to address the issue of privacy from a concern for the legitimate freedom and inalienable dignity of the human person "in all circumstances."[166] The Second Vatican Council included the right "to safeguard privacy" among the fundamental rights "necessary for living a genuinely human life," a right that should be extended to all people on account of their "sublime dignity."[167] Furthermore, the Church has also affirmed the right to the legitimate respect for a private life in the context of affirming the person's right to a good reputation, defense of their physical and mental integrity, and freedom from harm or undue intrusion[168]—essential components of the due respect for the intrinsic dignity of the human person.[169]

92. Advances in AI-powered data processing and analysis now make it possible to infer patterns in a person's behavior and thinking from even a small amount of information, making the role of data privacy even more imperative as a safeguard for the dignity and relational nature of the human person. As Pope Francis observed, "while closed and intolerant attitudes towards others are on the rise, distances are otherwise shrinking or disappearing to the point that the right to privacy scarcely exists. Everything has become a kind of spectacle to be examined and inspected, and people's lives are now under constant surveillance."[170]

93. While there can be legitimate and proper ways to use AI in keeping with human dignity and the common good, using it for surveillance aimed at exploiting, restricting others' freedom, or benefitting a few at the expense of the many is unjustifiable. The risk of surveillance overreach must be monitored by appropriate regulators to ensure transparency and public accountability. Those responsible for surveillance should never exceed their authority, which must always favor the dignity and freedom of every person as the essential basis of a just and humane society.

94. Furthermore, "fundamental respect for human dignity demands that we refuse to allow the uniqueness of the person to be identified with a set of data."[171] This especially applies when AI is used to evaluate individuals or groups based on their behavior, characteristics, or history—a practice known as "social scoring": "In social and economic decision-making, we should be cautious about delegating judgments to algorithms that process data, often collected surreptitiously, on an individual's makeup and prior behavior. Such data can be contaminated by societal prejudices and preconceptions. A person's past behavior should not be used to deny him or her the opportunity to change, grow, and contribute to society. We cannot allow algorithms to limit or condition respect for human dignity, or to exclude compassion, mercy, forgiveness, and above all, the hope that people are able to change."[172]

AI and the Protection of Our Common Home

95. AI has many promising applications for improving our relationship with our "common home," such as creating models to forecast extreme climate events, proposing engineering solutions to reduce their impact, managing relief operations, and predicting population shifts.[173] Additionally, AI can support sustainable agriculture, optimize energy usage, and provide early warning systems for public health emergencies. These advancements have the potential to strengthen resilience against climate-related challenges and promote more sustainable development.

96. At the same time, current AI models and the hardware required to support them consume vast amounts of energy and water, significantly contributing to CO_2 emissions and straining resources. This reality is often obscured by the way this technology is presented in the popular imagination, where words such as "the cloud" [174] can give the impression that data is stored and processed in an intangible realm, detached from the physical world. However, "the cloud" is not an ethereal domain separate from the

physical world; as with all computing technologies, it relies on physical machines, cables, and energy. The same is true of the technology behind AI. As these systems grow in complexity, especially large language models (LLMs), they require ever-larger datasets, increased computational power, and greater storage infrastructure. Considering the heavy toll these technologies take on the environment, it is vital to develop sustainable solutions that reduce their impact on our common home.

97. Even then, as Pope Francis teaches, it is essential "that we look for solutions not only in technology but in a change of humanity."[175] A complete and authentic understanding of creation recognizes that the value of all created things cannot be reduced to their mere utility. Therefore, a fully human approach to the stewardship of the earth rejects the distorted anthropocentrism of the technocratic paradigm, which seeks to "extract everything possible" from the world,[176] and rejects the "myth of progress," which assumes that "ecological problems will solve themselves simply with the application of new technology and without any need for ethical considerations or deep change."[177] Such a mindset must give way to a more holistic approach that respects the order of creation and promotes the integral good of the human person while safeguarding our common home.[178]

AI and Warfare

98. The Second Vatican Council and the consistent teaching of the Popes since then have insisted that peace is not merely the absence of war and is not limited to maintaining a balance of powers between adversaries. Instead, in the words of Saint Augustine, peace is "the tranquility of order."[179] Indeed, peace cannot be attained without safeguarding the goods of persons, free communication, respect for the dignity of persons and peoples, and the assiduous practice of fraternity. Peace is the work of justice and the effect of charity and cannot be achieved through force alone; instead, it must be principally built through patient diplomacy, the active promotion of justice, solidarity, integral human development, and respect for the dignity of all people.[180] In this way, the tools used to maintain peace should never be allowed to justify injustice, violence, or oppression. Instead, they should always be governed by a "firm determination to respect other people and nations, along with their dignity, as well as the deliberate practice of fraternity."[181]

99. While AI's analytical abilities could help nations seek peace and ensure security, the "weaponization of Artificial Intelligence" can also be highly problematic. Pope Francis has observed that "the ability to conduct military operations through remote control systems has led to a lessened perception of the devastation caused by those weapon systems and the burden of responsibility for their use, resulting in an even more cold and detached approach to the immense tragedy of war."[182] Moreover, the ease with which autonomous weapons make war more viable militates against the principle of war as a last resort in legitimate self-defense,[183] potentially increasing the instruments of war well beyond the scope of human oversight and precipitating a destabilizing arms race, with catastrophic consequences for human rights.[184]

100. In particular, Lethal Autonomous Weapon Systems, which are capable of identifying and striking targets without direct human intervention, are a "cause for grave ethical concern" because they lack the "unique human capacity for moral judgment and ethical decision-making."[185] For this reason, Pope Francis has urgently called for a reconsideration of the development of these weapons and a prohibition on their use, starting with "an effective and concrete commitment to introduce ever greater and proper human control. No machine should ever choose to take the life of a human being."[186]

101. Since it is a small step from machines that can kill autonomously with precision to those capable of

large-scale destruction, some AI researchers have expressed concerns that such technology poses an "existential risk" by having the potential to act in ways that could threaten the survival of entire regions or even of humanity itself. This danger demands serious attention, reflecting the long-standing concern about technologies that grant war "an uncontrollable destructive power over great numbers of innocent civilians,"[187] without even sparing children. In this context, the call from *Gaudium et Spes* to "undertake an evaluation of war with an entirely new attitude"[188] is more urgent than ever.

102. At the same time, while the theoretical risks of AI deserve attention, the more immediate and pressing concern lies in how individuals with malicious intentions might misuse this technology.[189] Like any tool, AI is an extension of human power, and while its future capabilities are unpredictable, humanity's past actions provide clear warnings. The atrocities committed throughout history are enough to raise deep concerns about the potential abuses of AI.

103. Saint John Paul II observed that "humanity now has instruments of unprecedented power: we can turn this world into a garden, or reduce it to a pile of rubble."[190] Given this fact, the Church reminds us, in the words of Pope Francis, that "we are free to apply our intelligence towards things evolving positively," or toward "decadence and mutual destruction."[191] To prevent humanity from spiraling into self-destruction,[192] there must be a clear stand against all applications of technology that inherently threaten human life and dignity. This commitment requires careful discernment about the use of AI, particularly in military defense applications, to ensure that it always respects human dignity and serves the common good. The development and deployment of AI in armaments should be subject to the highest levels of ethical scrutiny, governed by a concern for human dignity and the sanctity of life.[193]

AI and Our Relationship with God

104. Technology offers remarkable tools to oversee and develop the world's resources. However, in some cases, humanity is increasingly ceding control of these resources to machines. Within some circles of scientists and futurists, there is optimism about the potential of artificial general intelligence (AGI), a hypothetical form of AI that would match or surpass human intelligence and bring about unimaginable advancements. Some even speculate that AGI could achieve superhuman capabilities. At the same time, as society drifts away from a connection with the transcendent, some are tempted to turn to AI in search of meaning or fulfillment—longings that can only be truly satisfied in communion with God.[194]

105. However, *the presumption of substituting God for an artifact of human making is idolatry*, a practice Scripture explicitly warns against (e.g., Ex. 20:4; 32:1-5; 34:17). Moreover, AI may prove even more seductive than traditional idols for, unlike idols that "have mouths but do not speak; eyes, but do not see; ears, but do not hear" (Ps. 115:5-6), AI can "speak," or at least gives the illusion of doing so (cf. Rev. 13:15). Yet, it is vital to remember that AI is but a pale reflection of humanity—it is crafted by human minds, trained on human-generated material, responsive to human input, and sustained through human labor. AI cannot possess many of the capabilities specific to human life, and it is also fallible. By turning to AI as a perceived "Other" greater than itself, with which to share existence and responsibilities, humanity risks creating a substitute for God. However, it is not AI that is ultimately deified and worshipped, but humanity itself—which, in this way, becomes enslaved to its own work.[195]

106. While AI has the potential to serve humanity and contribute to the common good, it remains a creation of human hands, bearing "the imprint of human art and ingenuity" (Acts 17:29). It must never be ascribed undue worth. As the Book of Wisdom affirms: "For a man made them, and one whose spirit is borrowed formed them; for no man can form a god which is like himself. He is mortal, and what he

makes with lawless hands is dead, for he is better than the objects he worships since he has life, but they never have" (Wis. 15:16-17).

107. In contrast, human beings, "by their interior life, transcend the entire material universe; they experience this deep interiority when they enter into their own heart, where God, who probes the heart, awaits them, and where they decide their own destiny in the sight of God."[196] It is within the heart, as Pope Francis reminds us, that each individual discovers the "mysterious connection between self-knowledge and openness to others, between the encounter with one's personal uniqueness and the willingness to give oneself to others."[197] Therefore, it is the heart alone that is "capable of setting our other powers and passions, and our entire person, in a stance of reverence and loving obedience before the Lord,"[198] who "offers to treat each one of us as a 'Thou,' always and forever."[199]

VI. **Concluding Reflections**

108. Considering the various challenges posed by advances in technology, Pope Francis emphasized the need for growth in "human responsibility, values, and conscience," proportionate to the growth in the potential that this technology brings[200]—recognizing that "with an increase in human power comes a broadening of responsibility on the part of individuals and communities."[201]

109. At the same time, the "essential and fundamental question" remains "whether in the context of this progress man, as man, is becoming truly better, that is to say, more mature spiritually, more aware of the dignity of his humanity, more responsible, more open to others, especially the neediest and the weakest, and readier to give and to aid all."[202]

110. As a result, it is crucial to know how to evaluate individual applications of AI in particular contexts to determine whether its use promotes human dignity, the vocation of the human person, and the common good. As with many technologies, the effects of the various uses of AI may not always be predictable from their inception. As these applications and their social impacts become clearer, appropriate responses should be made at all levels of society, following the principle of subsidiarity. Individual users, families, civil society, corporations, institutions, governments, and international organizations should work at their proper levels to ensure that AI is used for the good of all.

111. A significant challenge and opportunity for the common good today lies in considering AI within a framework of relational intelligence, which emphasizes the interconnectedness of individuals and communities and highlights our shared responsibility for fostering the integral well-being of others. The twentieth-century philosopher Nicholas Berdyaev observed that people often blame machines for personal and social problems; however, "this only humiliates man and does not correspond to his dignity," for "it is unworthy to transfer responsibility from man to a machine."[203] Only the human person can be morally responsible, and the challenges of a technological society are ultimately *spiritual* in nature. Therefore, facing those challenges "demands an intensification of spirituality."[204]

112. A further point to consider is the call, prompted by the appearance of AI on the world stage, for a *renewed appreciation of all that is human*. Years ago, the French Catholic author Georges Bernanos warned that "the danger is not in the multiplication of machines, but in the ever-increasing number of men accustomed from their childhood to desire only what machines can give."[205] This challenge is as true today as it was then, as the rapid pace of digitization risks a "digital reductionism," where non-quantifiable aspects of life are set aside and then forgotten or even deemed irrelevant because they cannot be computed in formal terms. AI should be used only as a tool to complement human intelligence rather

than replace its richness.[206] Cultivating those aspects of human life that transcend computation is crucial for preserving "an authentic humanity" that "seems to dwell in the midst of our technological culture, almost unnoticed, like a mist seeping gently beneath a closed door."[207]

True Wisdom

113. The vast expanse of the world's knowledge is now accessible in ways that would have filled past generations with awe. However, to ensure that advancements in knowledge do not become humanly or spiritually barren, one must go beyond the mere accumulation of data and strive to achieve true wisdom. [208]

114. This wisdom is the gift that humanity needs most to address the profound questions and ethical challenges posed by AI: "Only by adopting a spiritual way of viewing reality, only by recovering a wisdom of the heart, can we confront and interpret the newness of our time."[209] Such "wisdom of the heart" is "the virtue that enables us to integrate the whole and its parts, our decisions and their consequences." It "cannot be sought from machines," but it "lets itself be found by those who seek it and be seen by those who love it; it anticipates those who desire it, and it goes in search of those who are worthy of it (cf. Wis 6:12-16)."[210]

115. In a world marked by AI, we need the grace of the Holy Spirit, who "enables us to look at things with God's eyes, to see connections, situations, events and to uncover their real meaning."[211]

116. Since a "person's perfection is measured not by the information or knowledge they possess, but by the depth of their charity,"[212] how we incorporate AI "to include the least of our brothers and sisters, the vulnerable, and those most in need, will be the true measure of our humanity."[213] The "wisdom of the heart" can illuminate and guide the human-centered use of this technology to help promote the common good, care for our "common home," advance the search for the truth, foster integral human development, favor human solidarity and fraternity, and lead humanity to its ultimate goal: happiness and full communion with God.[214]

117. From this perspective of wisdom, believers will be able to act as moral agents capable of using this technology to promote an authentic vision of the human person and society.[215] This should be done with the understanding that technological progress is part of God's plan for creation—an activity that we are called to order toward the Paschal Mystery of Jesus Christ, in the continual search for the True and the Good.

The Supreme Pontiff, Francis, at the Audience granted on 14 January 2025 to the undersigned Prefects and Secretaries of the Dicastery for the Doctrine of the Faith and the Dicastery for Culture and Education, approved this Note *and ordered its publication.*

Given in Rome, at the offices of the Dicastery for the Doctrine of the Faith and the Dicastery for Culture and Education, on 28 January 2025, the Liturgical Memorial of Saint Thomas Aquinas, Doctor of the Church.

Víctor Manuel Card. Fernández
Prefect

José Card. Tolentino de Mendonça
Prefect

Msgr. Armando Matteo
Secretary, Doctrinal Section

Most Rev. Paul Tighe
Secretary, Culture Section

Ex audientia die 14 ianuarii 2025
Franciscus

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[1] *Catechism of the Catholic Church*, par. 378. See also Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 34: *AAS* 58 (1966), 1052-1053.

[2] Francis, *Address to the Participants in the Plenary Assembly of the Pontifical Academy for Life* (28 February 2020): *AAS* 112 (2020), 307. Cf. Id., *Christmas Greetings to the Roman Curia* (21 December 2019): *AAS* 112 (2020), 43.

[3] Cf. Francis, *Message for the LVIII World Day of Social Communications* (24 January 2024): *L'Osservatore Romano*, 24 January 2024, 8.

[4] Cf. *Catechism of the Catholic Church*, par. 2293; Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 35: *AAS* 58 (1966), 1053.

[5] J. McCarthy, *et al*., "A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence" (31 August 1955), http://www-formal.stanford.edu/jmc/history/dartmouth/dartmouth.html (accessed: 21 October 2024).

[6] Cf. Francis, *Message for the LVII World Day of Peace* (1 January 2024), pars. 2-3: *L'Osservatore Romano*, 14 December 2023, 2.

[7] Terms in this document describing the outputs or processes of AI are used figuratively to explain its operations and are not intended to anthropomorphize the machine.

[8] Cf. Francis, *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 3; Id., *Message for the LVII World Day of Peace* (1 January 2024), par. 2: *L'Osservatore* Romano, 14 December 2023, 2.

[9] Here, one can see the primary positions of the "transhumanists" and the "posthumanists." *Transhumanists* argue that technological advancements will enable humans to overcome their biological limitations and enhance both their physical and cognitive abilities. *Posthumanists*, on the other hand, contend that such advances will ultimately alter human identity to the extent that humanity itself may no longer be considered truly "human." Both views rest on a fundamentally negative perception of human corporality, which treats the body more as an obstacle than as an integral part of the person's identity and call to full realization. Yet, this negative view of the body is inconsistent with a proper understanding of

human dignity. While the Church supports genuine scientific progress, it affirms that human dignity is rooted in "the person as an inseparable unity of body and soul." Thus, "dignity is also inherent in each person's body, which participates in its own way in being *in imago Dei*" (Dicastery for the Doctrine of the Faith, Declaration *Dignitas Infinita* [8 April 2024], par. 18).

[10] This approach reflects a functionalist perspective, which reduces the human mind to its functions and assumes that its functions can be entirely quantified in physical or mathematical terms. However, even if a future AGI were to appear truly intelligent, it would still remain functional in nature.

[11] Cf. A.M. Turing, "Computing Machinery and Intelligence," *Mind* 59 (1950) 443-460.

[12] If "thinking" is attributed to machines, it must be clarified that this refers to calculative thinking rather than critical thinking. Similarly, if machines are said to operate using logical thinking, it must be specified that this is limited to computational logic. On the other hand, by its very nature, human thought is a creative process that eludes programming and transcends constraints.

[13] On the foundational role of language in shaping understanding, cf. M. Heidegger, *Über den Humanismus*, Klostermann, Frankfurt am Main 1949 (en. tr. "Letter on Humanism," in *Basic Writings: Martin Heidegger*, Routledge, London – New York 2010, 141-182).

[14] For further discussion of these anthropological and theological foundations, see AI Research Group of the Centre for Digital Culture of the Dicastery for Culture and Education, *Encountering Artificial Intelligence: Ethical and Anthropological Investigations* (Theological Investigations of Artificial Intelligence 1), M.J. Gaudet, N. Herzfeld, P. Scherz, J.J. Wales, eds., *Journal of Moral Theology*, Pickwick, Eugene 2024, 43-144.

[15] Aristotle, *Metaphysics*, I.1, 980 a 21.

[16] Cf. Augustine, *De Genesi ad litteram* III, 20, 30: PL 34, 292: "Man is made in the image of God in relation to that [faculty] by which he is superior to the irrational animals. Now, this [faculty] is reason itself, or the 'mind,' or 'intelligence,' whatever other name it may more suitably be given"; Id., *Enarrationes in Psalmos* 54, 3: PL 36, 629: "When considering all that they have, humans discover that they are most distinguished from animals precisely by the fact they possess intelligence." This is also reiterated by Saint Thomas Aquinas, who states that "man is the most perfect of all earthly beings endowed with motion, and his proper and natural operation is intellection," by which man abstracts from things and "receives in his mind things actually intelligible" (Thomas Aquinas, *Summa Contra Gentiles* II, 76).

[17] Cf. Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 15: *AAS* 58 (1966), 1036.

[18] Aquinas, *Summa Theologiae*, II-II, q. 49, a. 5, ad 3. Cf. *ibid*., I, q. 79; II-II, q. 47, a. 3; II-II, q. 49, a. 2. For a contemporary perspective that echoes elements of the classical and medieval distinction between these two modes of cognition, cf. D. Kahneman, *Thinking, Fast and Slow*, New York 2011.

[19] Aquinas, *Summa Theologiae*, I, q. 76, a. 1, *resp*.

[20] Cf. Irenaeus of Lyon, *Adversus Haereses*, V, 6, 1: PG 7(2), 1136-1138.

[21] Dicastery for the Doctrine of the Faith, Declaration *Dignitas Infinita* (8 April 2024), par. 9. Cf. Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 213: *AAS* 112 (2020), 1045: "The intellect can investigate the reality of things through reflection, experience and dialogue, and come to recognize in that reality, which transcends it, the basis of certain universal moral demands."

[22] Cf. Congregation for the Doctrine of the Faith, *Doctrinal Note on Some Aspects of Evangelization* (3 December 2007), par. 4: *AAS* 100 (2008), 491-492.

[23] *Catechism of the Catholic Church*, par. 365. Cf. Aquinas, *Summa Theologiae*, I, q. 75, a. 4, resp.

[24] Indeed, Sacred Scripture "generally considers the human person as a being who exists in the body and is unthinkable outside of it" (Pontifical Biblical Commission, *"Che cosa è l'uomo?" (Sal 8,5): Un itinerario di antropologia biblica* [30 September 2019], par. 19). Cf. *ibid*., pars. 20-21, 43-44, 48.

[25] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 22: *AAS* 58 (1966), 1042: Cf. Congregation for the Doctrine of the Faith, Instruction *Dignitas Personae* (8 September 2008), par. 7: *AAS* 100 (2008), 863: "Christ did not disdain human bodiliness, but instead fully disclosed its meaning and value."

[26] Aquinas, *Summa Contra Gentiles* II, 81.

[27] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 15: *AAS* 58 (1966), 1036.

[28] Cf. Aquinas, *Summa Theologiae* I, q. 89, a. 1, *resp*.: "to be separated from the body is not in accordance with [the soul's] nature […] and hence it is united to the body in order that it may have an existence and an operation suitable to its nature."

[29] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 14: *AAS* 58 (1966), 1035. Cf. Dicastery for the Doctrine of the Faith, Declaration *Dignitas Infinita* (8 April 2024), par. 18.

[30] International Theological Commission, *Communion and Stewardship: Human Persons Created in the Image of God* (2004), par. 56. Cf. *Catechism of the Catholic Church*, par. 357.

[31] Cf. Congregation for the Doctrine of the Faith, Instruction *Dignitas Personae* (8 September 2008), pars. 5, 8; Dicastery for the Doctrine of the Faith, Declaration *Dignitas Infinita* (8 April 2024), pars. 15, 24, 53-54.

[32] *Catechism of the Catholic Church*, par. 356. Cf. *ibid*., par. 221.

[33] Cf. Dicastery for the Doctrine of the Faith, Declaration *Dignitas Infinita* (8 April 2024), pars. 13, 26-27.

[34] Congregation for the Doctrine of the Faith, Instruction *Donum Veritatis* (24 May 1990), 6: *AAS* 82 (1990), 1552. Cf. John Paul II, Encyclical *Veritatis Splendor* (6 August 1993), par. 109: *AAS* 85 (1993), 1219. Cf. Pseudo-Dionysius, *De divinis nominibus,* VII, 2: PG 3, 868B-C: "Human souls also possess reason and with it they circle in discourse around the truth of things. […] [O]n account of the manner in which they are capable of concentrating the many into the one, they too, in their own fashion and as far as

they can, are worthy of conceptions like those of the angels" (en. tr. *Pseudo-Dionysius: The Complete Works*, Paulist Press, New York – Mahwah 1987, 106-107).

[35] John Paul II, Encyclical Letter *Fides et Ratio* (14 September 1998), par. 3: *AAS* 91 (1999), 7.

[36] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 15: *AAS* 58 (1966), 1036.

[37] John Paul II, Encyclical Letter *Fides et Ratio* (14 September 1998), par. 42: *AAS* 91 (1999), 38. Cf. Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 208: *AAS* 112 (2020), 1043: "the human mind is capable of transcending immediate concerns and grasping certain truths that are unchanging, as true now as in the past. As it peers into human nature, reason discovers universal values derived from that same nature"; *ibid*., par. 184: *AAS* 112 (2020), 1034.

[38] Cf. B. Pascal, *Pensées*, no. 267 (ed. Brunschvicg): "The last proceeding of reason is to recognize that there is an infinity of things which are beyond it" (en. tr. *Pascal's Pensées*, E.P. Dutton, New York 1958, 77).

[39] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 15: *AAS* 58 (1966), 1036. Cf. Congregation for the Doctrine of the Faith, *Doctrinal Note on Some Aspects of Evangelization* (3 December 2007), par. 4: *AAS* 100 (2008), 491-492.

[40] Our *semantic capacity* allows us to understand messages in any form of communication in a manner that both takes into account and transcends their material or empirical structures (such as computer code). Here, intelligence becomes a wisdom that "enables us to look at things with God's eyes, to see connections, situations, events and to uncover their real meaning" (Francis, *Message for the LVIII World Day of Social Communications* [24 January 2024]: *L'Osservatore Romano*, 24 January 2024, 8). Our *creativity* enables us to generate new content or ideas, primarily by offering an original viewpoint on reality. Both capacities depend on the existence of a personal subjectivity for their full realization.

[41] Second Vatican Ecumenical Council, Declaration *Dignitatis Humanae* (7 December 1965), par. 3: *AAS* 58 (1966), 931.

[42] Cf. Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 184: *AAS* 112 (2020), 1034: "Charity, when accompanied by a commitment to the truth, is much more than personal feeling […]. Indeed, its close relation to truth fosters its universality and preserves it from being 'confined to a narrow field devoid of relationships.' […] Charity's openness to truth thus protects it from 'a fideism that deprives it of its human and universal breadth.'" The internal quotes are from Benedict XVI, Encyclical Letter *Caritas in Veritate* (29 June 2009), pars. 2-4: *AAS* 101 (2009), 642-643.

[43] Cf. International Theological Commission, *Communion and Stewardship: Human Persons Created in the Image of God* (2004), par. 7.

[44] John Paul II, Encyclical Letter *Fides et Ratio* (14 September 1998), par. 13: *AAS* 91 (1999), 15. Cf. Congregation for the Doctrine of the Faith, *Doctrinal Note on Some Aspects of Evangelization* (3 December 2007), par. 4: *AAS* 100 (2008), 491-492.

[45] John Paul II, Encyclical Letter *Fides et Ratio* (14 September 1998), par. 13: *AAS* 91 (1999), 15.

[46] Bonaventure, *In II Librum Sententiarum*, d. I, p. 2, a. 2, q. 1; as quoted in *Catechism of the Catholic Church*, par. 293. Cf. *ibid*., par. 294.

[47] Cf. *Catechism of the Catholic Church*, pars. 295, 299, 302. Bonaventure likens the universe to "a book reflecting, representing, and describing its Maker," the Triune God who grants existence to all things (*Breviloquium* 2.12.1). Cf. Alain de Lille, *De Incarnatione Christi*, PL 210, 579a: "*Omnis mundi creatura quasi liber et pictura nobis est et speculum*."

[48] Cf. Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 67: *AAS* 107 (2015), 874; John Paul II, Encyclical Letter *Laborem Exercens* (14 September 1981), par. 6: *AAS* 73 (1981), 589-592; Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), pars. 33-34: *AAS* 58 (1966), 1052-1053; International Theological Commission, *Communion and Stewardship: Human Persons Created in the Image of God* (2004), par. 57: "human beings occupy a unique place in the universe according to the divine plan: they enjoy the privilege of sharing in the divine governance of visible creation. […] Since man's place as ruler is in fact a participation in the divine governance of creation, we speak of it here as a form of stewardship."

[49] Cf. John Paul II, Encyclical Letter *Veritatis Splendor* (6 August 1993), pars. 38-39: *AAS* 85 (1993), 1164-1165.

[50] Cf. Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), pars. 33-34: *AAS* 58 (1966), 1052-1053. This idea is also reflected in the creation account, where God brings creatures to Adam "to see what he would call them. And whatever [he] called every living creature, that was its name" (Gen. 2:19), an action that demonstrates the active engagement of human intelligence in the stewardship of God's creation. Cf. John Chrysostom, *Homiliae in Genesim*, XIV, 17-21: PG 53, 116-117.

[51] Cf. *Catechism of the Catholic Church*, par. 301.

[52] Cf. *Catechism of the Catholic Church*, par. 302.

[53] Bonaventure, *Breviloquium* 2.12.1. Cf. *ibid*., 2.11.2.

[54] Cf. Francis, Apostolic Exhortation *Evangelii Gaudium* (24 November 2013), par. 236: *AAS* 105 (2023), 1115; Id., *Address to Participants in the Meeting of University Chaplains and Pastoral Workers Promoted by the Dicastery for Culture and Education* (24 November 2023): *L'Osservatore Romano*, 24 November 2023, 7.

[55] Cf. J.H. Newman, *The Idea of a University Defined and Illustrated*, Discourse 5.1, Basil Montagu Pickering, London 1873^3, 99-100; Francis, *Address to Rectors, Professors, Students and Staff of the Roman Pontifical Universities and Institutions* (25 February 2023): *AAS* 115 (2023), 316.

[56] Francis, *Address to the Members of the National Confederation of Artisans and Small- and Medium-Sized Enterprises (CNA)* (15 November 2024): *L'Osservatore Romano*, 15 November 2024, 8.

[57] Cf. Francis, Post-Synodal Apostolic Exhortation *Querida Amazonia* (2 February 2020), par. 41: *AAS* 112 (2020), 246; Id., Encyclical Letter *Laudato Si'* (24 May 2015), par. 146: *AAS* 107 (2015), 906.

[58] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 47: *AAS* 107 (2015), 864. Cf. Id., Encyclical Letter *Dilexit Nos* (24 October 2024), pars. 17-24: *L'Osservatore Romano*, 24 October 2024, 5; Id., Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 47-50: *AAS* 112 (2020), 985-987.

[59] Francis, Encyclical Letter *Dilexit Nos* (24 October 2024), par. 20: *L'Osservatore Romano*, 24 October 2024, 5.

[60] P. Claudel, *Conversation sur Jean Racine*, Gallimard, Paris 1956, 32: "*L'intelligence n'est rien sans la délectation*." Cf. Francis, Encyclical Letter *Dilexit Nos* (24 October 2024), par. 13: *L'Osservatore Romano*, 24 October 2024, 5: "The mind and the will are put at the service of the greater good by sensing and savoring truths."

[61] Dante, *Paradiso*, Canto XXX: "*luce intellettüal, piena d'amore; / amor di vero ben, pien di letizia; / letizia che trascende ogne dolzore*" (en. tr. *The Divine Comedy of Dante Alighieri*, C.E. Norton, tr., Houghton Mifflin, Boston 1920, 232).

[62] Cf. Second Vatican Ecumenical Council, Declaration *Dignitatis Humanae* (7 December 1965), par. 3: *AAS* 58 (1966), 931: "[T]he highest norm of human life is the divine law itself—eternal, objective and universal, by which God orders, directs and governs the whole world and the ways of the human community according to a plan conceived in his wisdom and love. God has enabled man to participate in this law of his so that, under the gentle disposition of divine providence, many may be able to arrive at a deeper and deeper knowledge of unchangeable truth." Also cf. Id., Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 16: *AAS* 58 (1966), 1037.

[63] Cf. First Vatican Council, Dogmatic Constitution *Dei Filius* (24 April 1870), ch. 4, DH 3016.

[64] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 110: *AAS* 107 (2015), 892.

[65] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 110: *AAS* 107 (2015), 891. Cf. Id., Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 204: *AAS* 112 (2020), 1042.

[66] Cf. John Paul II, Encyclical Letter *Centesimus Annus* (1 May 1991), par. 11: *AAS* 83 (1991), 807: "God has imprinted his own image and likeness on man (cf. Gen 1:26), conferring upon him an incomparable dignity […]. In effect, beyond the rights which man acquires by his own work, there exist rights which do not correspond to any work he performs, but which flow from his essential dignity as a person." Cf. Francis, *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 3-4.

[67] Cf. Dicastery for the Doctrine of the Faith, Declaration *Dignitas Infinita* (8 April 2024), par. 8. Cf. *ibid*., par. 9; Congregation for the Doctrine of the Faith, Instruction *Dignitas Personae* (8 September 2008), par. 22.

[68] Francis, *Address to the Participants in the Plenary Assembly of the Pontifical Academy for Life* (28 February 2020): *AAS* 112 (2024), 310.

[69] Francis, *Message for the LVIII World Day of Social Communications* (24 January 2024): *L'Osservatore Romano*, 24 January 2024, 8.

[70] In this sense, "Artificial Intelligence" is understood as a technical term to indicate this technology, recalling that the expression is also used to designate the field of study and not only its applications.

[71] Cf. Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), pars. 34-35: *AAS* 58 (1966), 1052-1053; John Paul II, Encyclical Letter *Centesimus Annus* (1 May 1991), par. 51: *AAS* 83 (1991), 856-857.

[72] For example, see the encouragement of scientific exploration in Albertus Magnus (*De Mineralibus*, II, 2, 1) and the appreciation for the mechanical arts in Hugh of St. Victor (*Didascalicon*, I, 9). These writers, among a long list of other Catholics engaged in scientific research and technological exploration, illustrate that "faith and science can be united in charity, provided that science is put at the service of the men and woman of our time and not misused to harm or even destroy them" (Francis, *Address to Participants in the 2024 Lemaître Conference of the Vatican Observatory* [20 June 2024]: *L'Osservatore Romano*, 20 June 2024, 8). Cf. Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 36: *AAS* 58 (1966), 1053-1054; John Paul II, Encyclical Letter *Fides et Ratio* (14 September 1998), pars. 2, 106: *AAS* 91 (1999), 6-7.86-87.

[73] *Catechism of the Catholic Church*, par. 378.

[74] Cf. Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 34: *AAS* 58 (1966), 1053.

[75] Cf. Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 35: *AAS* 58 (1966), 1053.

[76] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 102: *AAS* 107 (2015), 888.

[77] Cf. Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 105: *AAS* 107 (2015), 889; Id., Encyclical *Fratelli Tutti* (3 October 2020), par. 27: *AAS* 112 (2020), 978; Benedict XVI, Encyclical *Caritas in Veritate* (29 June 2009), par. 23: *AAS* 101 (2009), 657-658.

[78] Cf. Dicastery for the Doctrine of the Faith, Declaration *Dignitas Infinita* (8 April 2024), pars. 38-39, 47; Congregation for the Doctrine of the Faith, Instruction *Dignitas Personae* (8 September 2008), *passim*.

[79] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 35: *AAS* 58 (1966), 1053. Cf. *Catechism of the Catholic Church*, par 2293.

[80] Cf. Francis, *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 2-4.

[81] Cf. *Catechism of the Catholic Church*, par. 1749: "Freedom makes man a moral subject. When he acts deliberately, man is, so to speak, the father of his acts."

[82] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 16: *AAS* 58 (1966), 1037. Cf. *Catechism of the Catholic Church*, par. 1776.

[83] *Catechism of the Catholic Church*, par. 1777.

[84] Cf. *Catechism of the Catholic Church*, pars. 1779-1781; Francis, *Address to the Participants in the "Minerva Dialogues"* (27 March 2023): *AAS* 115 (2023), 463, where the Holy Father encouraged efforts "to ensure that technology remains human-centered, ethically grounded and directed toward the good."

[85] Cf. Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 166: *AAS* 112 (2020), 1026-1027; Id., *Address to the Plenary Assembly of the Pontifical Academy of Sciences* (23 September 2024): *L'Osservatore* Romano, 23 September 2024, 10. On the role of human agency in choosing a wider aim (*Ziel*) that then informs the particular purpose (*Zweck*) for which each technological application is created, cf. F. Dessauer, *Streit um die Technik*, Herder-Bücherei, Freiburg i. Br. 1959, 70-71.

[86] Cf. Francis, *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 4: "Technology is born for a purpose and, in its impact on human society, always represents a form of order in social relations and an arrangement of power, thus enabling certain people to perform specific actions while preventing others from performing different ones. In a more or less explicit way, this constitutive power-dimension of technology always includes the worldview of those who invented and developed it."

[87] Francis, *Address to the Participants in the Plenary Assembly of the Pontifical Academy of Life* (28 February 2020): *AAS* 112 (2020), 309.

[88] Cf. Francis, *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 3-4.

[89] Francis, *Address to the Participants in the "Minerva Dialogues"* (27 March 2023): *AAS* 115 (2023), 464. Cf. Id., Encyclical Letter *Fratelli Tutti*, pars. 212-213: *AAS* 112 (2020), 1044-1045.

[90] Cf. John Paul II, Encyclical Letter *Laborem Exercens* (14 September 1981), par. 5: *AAS* 73 (1981), 589; Francis, *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 3-4.

[91] Cf. Francis, *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 2: "Faced with the marvels of machines, which seem to know how to choose independently, we should be very clear that decision-making […] must always be left to the human person. We would condemn humanity to a future without hope if we took away people's ability to make decisions about themselves and their lives, by dooming them to depend on the choices of machines."

[92] Francis, *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 2.

[93] The term "bias" in this document refers to *algorithmic bias* (systematic and consistent errors in computer systems that may disproportionately prejudice certain groups in unintended ways) or *learning bias* (which will result in training on a biased data set) and not the "*bias vector*" in neural networks (which is a parameter used to adjust the output of "neurons" to adjust more accurately to the data).

[94] Cf. Francis, *Address to the Participants in the "Minerva Dialogues"* (27 March 2023): *AAS* 115 (2023), 464, where the Holy Father affirmed the growth in consensus "on the need for development processes to respect such values as inclusion, transparency, security, equity, privacy and reliability," and

also welcomed "the efforts of international organizations to regulate these technologies so that they promote genuine progress, contributing, that is, to a better world and an integrally higher quality of life."

[95] Francis, *Greetings to a Delegation of the "Max Planck Society"* (23 February 2023): *L'Osservatore Romano*, 23 February 2023, 8.

[96] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 26: *AAS* 58 (1966), 1046-1047.

[97] Francis, *Address to Participants at the Seminar "The Common Good in the Digital Age"* (27 September 2019): *AAS* 111 (2019), 1571.

[98] Cf. Francis, *Message for the LVIII World Day of Social Communications* (24 January 2024): *L'Osservatore Romano*, 24 January 2024, 8. For further discussion of the ethical questions raised by AI from a Catholic perspective, see AI Research Group of the Centre for Digital Culture of the Dicastery for Culture and Education, *Encountering Artificial Intelligence: Ethical and Anthropological Investigations* (Theological Investigations of Artificial Intelligence 1), M.J. Gaudet, N. Herzfeld, P. Scherz, J.J. Wales, eds., *Journal of Moral Theology*, Pickwick, Eugene 2024, 147-253.

[99] On the importance of dialogue in a pluralist society oriented toward a "robust and solid social ethics," see Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), pars. 211-214: *AAS* 112 (2020), 1044-1045.

[100] Francis, *Message for the LVII World Day of Peace* (1 January 2024), par. 2: *L'Osservatore Romano*, 14 December 2023, 2.

[101] Francis, *Message for the LVII World Day of Peace* (1 January 2024), par. 6: *L'Osservatore Romano*, 14 December 2023, 3. Cf. Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 26: *AAS* 58 (1966), 1046-1047.

[102] Cf. Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 112: *AAS* 107 (2015), 892-893.

[103] Francis, *Address to the Participants in the "Minerva Dialogues"* (27 March 2023): *AAS* 115 (2023), 464.

[104] Cf. Pontifical Council for Social Communications, *Ethics in Internet* (22 February 2002), par. 10.

[105] Francis, Post-Synodal Exhortation *Christus Vivit* (25 March 2019), par. 89: *AAS* 111 (2019), 413-414; quoting the *Final Document of the XV Ordinary General Assembly of the Synod of Bishops* (27 October 2018), par. 24: *AAS* 110 (2018), 1593. Cf. Benedict XVI, *Address to the Participants in the International Congress on Natural Moral Law* (12 February 2017): *AAS* 99 (2007), 245.

[106] Cf. Francis, Encyclical Letter *Laudato Si'* (24 May 2015), pars. 105-114: *AAS* 107 (2015), 889-893; Id., Apostolic Exhortation *Laudate Deum* (4 October 2023), pars. 20-33: *AAS* 115 (2023), 1047-1050.

[107] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 105: *AAS* 107 (2015), 889. Cf. Id., Apostolic Exhortation *Laudate Deum* (4 October 2023), pars. 20-21: *AAS* 115 (2023), 1047.

[108] Cf. Francis, *Address to the Participants in the Plenary Assembly of the Pontifical Academy for Life*

(28 February 2020): *AAS* 112 (2020), 308-309.

[109] Francis, *Message for the LVII World Day of Peace* (1 January 2024), par. 2: *L'Osservatore Romano*, 14 December 2023, 2.

[110] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 112: *AAS* 107 (2015), 892.

[111] Cf. Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), pars. 101, 103, 111, 115, 167: *AAS* 112 (2020), 1004-1005, 1007-1009, 1027.

[112] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 26: *AAS* 58 (1966), 1046-1047; cf. Leo XIII, Encyclical Letter *Rerum Novarum* (15 May 1891), par. 35: *Acta Leonis XIII*, 11 (1892), 123.

[113] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 12: *AAS* 58 (1966), 1034.

[114] Cf. Pontifical Council for Justice and Peace, *Compendium of the Social Doctrine of the Church* (2004), par. 149.

[115] Second Vatican Ecumenical Council, Declaration *Dignitatis Humanae* (7 December 1965), par. 3: *AAS* 58 (1966), 931. Cf. Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 50: *AAS* 112 (2020), 986-987.

[116] Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 50: *AAS* 112 (2020), 986-987.

[117] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 47: *AAS* 107 (2015), 865. Cf. Id., Post-Synodal Exhortation *Christus Vivit* (25 March 2019), pars. 88-89: *AAS* 111 (2019), 413-414.

[118] Cf. Francis, Apostolic Exhortation *Evangelii Gaudium* (24 November 2013), par. 88: *AAS* 105 (2013), 1057.

[119] Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 47: *AAS* 112 (2020), 985.

[120] Cf. Francis, *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 2.

[121] Cf. Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 50: *AAS* 112 (2020), 986-987.

[122] Cf. E. Stein, *Zum Problem der Einfühlung*, Buchdruckerei des Waisenhauses, Halle 1917 (en. tr. *On the Problem of Empathy*, ICS Publications, Washington D.C. 1989).

[123] Cf. Francis, Apostolic Exhortation *Evangelii Gaudium* (24 November 2013), par. 88: *AAS* 105 (2013), 1057: "[Many people] want their interpersonal relationships provided by sophisticated equipment, by screens and systems which can be turned on and off on command. Meanwhile, the Gospel tells us constantly to run the risk of a face-to-face encounter with others, with their physical presence which challenges us, with their pain and their pleas, with their joy which infects us in our close and continuous interaction. True faith in the incarnate Son of God is inseparable from self-giving, from membership in the community, from service, from reconciliation with others." Also cf. Second Vatican Ecumenical

Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 24: *AAS* 58 (1966), 1044-1045.

[124] Cf. Dicastery for the Doctrine of the Faith, Declaration *Dignitas Infinita* (8 April 2024), par. 1.

[125] Cf. Francis, *Address to Participants at the Seminar "The Common Good in the Digital Age"* (27 September 2019): *AAS* 111 (2019), 1570; Id, Encyclical Letter *Laudato Si'* (24 May 2015), pars. 18, 124-129: *AAS* 107 (2015), 854.897-899.

[126] Francis, *Message for the LVII World Day of Peace* (1 January 2024), par. 5: *L'Osservatore Romano*, 14 December 2023, 3.

[127] Francis, Apostolic Exhortation *Evangelii Gaudium* (24 November 2013), par. 209: *AAS* 105 (2013), 1107.

[128] Francis, *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 4. For Pope Francis' teaching about AI in relationship to the "technocratic paradigm," cf. Id., Encyclical *Laudato Si'* (24 May 2015), pars. 106-114: *AAS* 107 (2015), 889-893.

[129] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 26: *AAS* 58 (1966), 1046-1047.; as quoted in *Catechism of the Catholic Church*, par. 1912. Cf. John XXIII, Encyclical Letter *Mater et Magistra* (15 May 1961), par. 219: *AAS* 53 (1961), 453.

[130] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par 64: *AAS* 58 (1966), 1086.

[131] Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 162: *AAS* 112 (2020), 1025. Cf. John Paul II, Encyclical Letter *Laborem Exercens* (14 September 1981), par. 6: *AAS* 73 (1981), 591: "work is 'for man' and not man 'for work.' Through this conclusion one rightly comes to recognize the pre-eminence of the subjective meaning of work over the objective one."

[132] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 128: *AAS* 107 (2015), 898. Cf. Id., Post-Synodal Apostolic Exhortation *Amoris Laetitia* (19 March 2016), par. 24: *AAS* 108 (2016), 319-320.

[133] Francis, *Message for the LVII World Day of Peace* (1 January 2024), par. 5: *L'Osservatore Romano,* 14 December 2023, 3.

[134] John Paul II, Encyclical Letter *Evangelium Vitae* (25 March 1995), par. 89: *AAS* 87 (1995), 502.

[135] *Ibid*.

[136] Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 67: *AAS* 112 (2020), 993; as quoted in Id., *Message for the XXXI World Day of the Sick* (11 February 2023): *L'Osservatore Romano*, 10 January 2023, 8.

[137] Francis, *Message for the XXXII World Day of the Sick* (11 February 2024): *L'Osservatore Romano*, 13 January 2024, 12.

[138] Francis, *Address to the Diplomatic Corps Accredited to the Holy See* (11 January 2016): *AAS* 108

(2016), 120. Cf. Id., Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 18: *AAS* 112 (2020), 975; Id., *Message for the XXXII World Day of the Sick* (11 February 2024): *L'Osservatore Romano*, 13 January 2024, 12.

[139] Cf. Francis, *Address to the Participants in the "Minerva Dialogues"* (27 March 2023): *AAS* 115 (2023), 465; Id., *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 2.

[140] Cf. Francis, Encyclical Letter *Laudato Si'* (24 May 2015), pars. 105, 107: *AAS* 107 (2015), 889-890; Id., Encyclical Letter *Fratelli Tutti* (3 October 2020), pars. 18-21: *AAS* 112 (2020), 975-976; Id., *Address to the Participants in the "Minerva Dialogues"* (27 March 2023): *AAS* 115 (2023), 465.

[141] Francis, *Address to the Participants at the Meeting Sponsored by the Charity and Health Commission of the Italian Bishops' Conference* (10 February 2017): *AAS* 109 (2017), 243. Cf. *ibid*., 242-243: "If there is a sector in which the throwaway culture is manifest, with its painful consequences, it is that of healthcare. When a sick person is not placed in the center or their dignity is not considered, this gives rise to attitudes that can lead even to speculation on the misfortune of others. And this is very grave! […] The application of a business approach to the healthcare sector, if indiscriminate […] may risk discarding human beings."

[142] Francis, *Message for the LVII World Day of Peace* (1 January 2024), par. 5: *L'Osservatore Romano*, 14 December 2023, 3.

[143] Second Vatican Ecumenical Council, Declaration *Gravissimum Educationis* (28 October 1965), par. 1: *AAS* 58 (1966), 729.

[144] Congregation for Catholic Education, *Instruction on the Use of Distance Learning in Ecclesiastical Universities and Faculties*, I. Cf. Second Vatican Ecumenical Council, Declaration *Gravissimum Educationis* (28 October 1965), par. 1: *AAS* 58 (1966), 729; Francis, *Message for the LXIX World Day of Peace* (1 January 2016), 6: *AAS* 108 (2016), 57-58.

[145] Francis, *Address to Members of the Global Researchers Advancing Catholic Education Project* (20 April 2022): *AAS* 114 (2022), 580.

[146] Cf. Paul VI, Apostolic Exhortation *Evangelii Nuntiandi* (8 December 1975), par. 41: *AAS* 68 (1976), 31, quoting Id., *Address to the Members of the "Consilium de Laicis"* (2 October 1974): *AAS* 66 (1974), 568: "if [the contemporary person] does listen to teachers, it is because they are witnesses."

[147] J.H. Newman, *The Idea of a University Defined and Illustrated*, Discourse 6.1, London 1873[3], 125-126.

[148] Francis, *Meeting with the Students of the Barbarigo College of Padua in the 100th Year of its Foundation* (23 March 2019): *L'Osservatore Romano*, 24 March 2019, 8. Cf. Id., *Address to Rectors, Professors, Students and Staff of the Roman Pontifical Universities and Institutions* (25 February 2023): *AAS* 115 (2023), 316.

[149] Francis, Post-Synodal Apostolic Exhortation *Christus Vivit* (25 March 2019), par. 86: *AAS* 111 (2019), 413, quoting the XV Ordinary General Assembly of the Synod of Bishops, *Final Document* (27

October 2018), par. 21: *AAS* 110 (2018), 1592.

[150] J.H. Newman, *The Idea of a University Defined and Illustrated*, Discourse 7.6, Basil Montagu Pickering, London 1873[3], 167.

[151] Cf. Francis, Post-Synodal Apostolic Exhortation *Christus Vivit* (25 March 2019), par. 88: *AAS* 111 (2019), 413.

[152] In a 2023 policy document about the use of generative AI in education and research, UNESCO notes: "One of the key questions [of the use of generative AI (GenAI) in education and research] is whether humans can possibly cede basic levels of thinking and skill-acquisition processes to AI and rather concentrate on higher-order thinking skills based on the outputs provided by AI. Writing, for example, is often associated with the structuring of thinking. With GenAI […], humans can now start with a well-structured outline provided by GenAI. Some experts have characterized the use of GenAI to generate text in this way as 'writing without thinking'" (UNESCO, *Guidance for Generative AI in Education and Research* [2023], 37-38). The German-American philosopher Hannah Arendt foresaw such a possibility in her 1959 book, *The Human Condition*, and cautioned: "If it should turn out to be true that knowledge (in the sense of know-how) and thought have parted company for good, then we would indeed become the helpless slaves, not so much of our machines as of our know-how" (Id., *The Human Condition*, University of Chicago Press, Chicago 2018[2], 3).

[153] Francis, Post-Synodal Apostolic Exhortation *Amoris Laetitia* (19 March 2016), par. 262: *AAS* 108 (2016), 417.

[154] Francis, *Message for the LVII World Day of Peace* (1 January 2024), par. 7: *L'Osservatore Romano*, 14 December 2023, 3; cf. Id., Encyclical Letter *Laudato Si'* (24 May 2015), par. 167: *AAS* 107 (2015), 914.

[155] John Paul II, Apostolic Constitution *Ex Corde Ecclesiae* (15 August 1990), 7: *AAS* 82 (1990), 1479.

[156] Francis, Apostolic Constitution *Veritatis Gaudium* (29 January 2018), 4c: *AAS* 110 (2018), 9-10.

[157] Francis, *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 3.

[158] For example, it might help people access the "array of resources for generating greater knowledge of truth" contained in the works of philosophy (John Paul II, Encyclical Letter *Fides et Ratio* [14 September 1998], par. 3: *AAS* 91 [1999], 7). Cf. *ibid*., par. 4: *AAS* 91 (1999), 7-8.

[159] Dicastery for the Doctrine of the Faith, Declaration *Dignitas Infinita* (8 April 2024), par. 43. Cf. *ibid*., pars. 61-62.

[160] Francis, *Message for the LVIII World Day of Social Communications* (24 January 2024): *L'Osservatore Romano*, 24 January 2024, 8.

[161] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par 25: *AAS* 58 (1966), 1053; cf. Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), *passim*: *AAS* 112 (2020), 969-1074.

[162] Cf. Francis., Post-Synodal Exhortation *Christus Vivit* (25 March 2019), par. 89: *AAS* 111 (2019), 414; John Paul II, Encyclical Letter *Fides et Ratio* (14 September 1998), par. 25: *AAS* 91 (1999), 25-26: "People cannot be genuinely indifferent to the question of whether what they know is true or not. […] It is this that Saint Augustine teaches when he writes: 'I have met many who wanted to deceive, but none who wanted to be deceived'"; quoting Augustine, *Confessiones*, X, 23, 33: PL 32, 794.

[163] Dicastery for the Doctrine of the Faith, Declaration *Dignitas Infinita* (4 April 2024), par. 62.

[164] Benedict XVI, *Message for the XLIII World Day of Social Communications* (24 May 2009): *L'Osservatore* Romano, 24 January 2009, 8.

[165] Cf. Dicastery for Communications, *Towards Full Presence: A Pastoral Reflection on Engagement with Social Media* (28 May 2023), par. 41; Second Vatican Ecumenical Council, Decree *Inter Mirifica* (4 December 1963), pars. 4, 8-12: *AAS* 56 (1964), 146, 148-149.

[166] Dicastery for the Doctrine of the Faith, Declaration *Dignitas Infinita* (4 April 2024), pars. 1, 6, 16, 24.

[167] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes*, (7 December 1965), par. 26: *AAS* 58 (1966), 1046. Cf. Leo XIII, Encyclical Letter *Rerum Novarum* (15 May 1891), par. 40: *Acta Leonis XIII*, 11 (1892), 127: "no man may with impunity violate that human dignity which God himself treats with great reverence"; as quoted in John Paul II, Encyclical Letter *Centesimus Annus* (1 May 1991), par. 9: *AAS* 83 (1991), 804.

[168] Cf. *Catechism of the Catholic Church*, pars. 2477, 2489; can. 220 *CIC*; can. 23 *CCEO*; John Paul II, *Address to the Third General Conference of the Latin American Episcopate* (28 January 1979), III.1-2: *Insegnamenti* II/1 (1979), 202-203.

[169] Cf. Permanent Observer Mission of the Holy See to the United Nations, *Holy See Statement to the Thematic Discussion on Other Disarmament Measures and International Security* (24 October 2022): "Upholding human dignity in cyberspace obliges States to also respect the right to privacy, by shielding citizens from intrusive surveillance and allowing them to safeguard their personal information from unauthorized access."

[170] Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 42: *AAS* 112 (2020), 984.

[171] Francis, *Message for the LVII World Day of Peace* (1 January 2024), par. 5: *L'Osservatore Romano*, 14 December 2023, 3.

[172] Francis, *Address to the Participants in the "Minerva Dialogues"* (27 March 2023): *AAS* 115 (2023), 465.

[173] The 2023 *Interim Report* of the United Nations AI Advisory Body identified a list of "early promises of AI helping to address climate change" (United Nations AI Advisory Body, *Interim Report: Governing AI for Humanity* [December 2023], 3). The document observed that, "taken together with predictive systems that can transform data into insights and insights into actions, AI-enabled tools may help develop new strategies and investments to reduce emissions, influence new private sector investments in net zero, protect biodiversity, and build broad-based social resilience" (*ibid*.).

[174] "The cloud" refers to a network of physical servers throughout the world that enables users to store, process, and manage their data remotely.

[175] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 9: *AAS* 107 (2015), 850.

[176] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 106: *AAS* 107 (2015), 890.

[177] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 60: *AAS* 107 (2015), 870.

[178] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), pars. 3, 13: *AAS* 107 (2015), 848.852.

[179] Augustine, *De Civitate Dei*, XIX, 13, 1: PL 41, 640.

[180] Cf. Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), pars. 77-82: *AAS* 58 (1966), 1100-1107; Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), pars. 256-262: *AAS* 112 (2020), 1060-1063; Dicastery for the Doctrine of the Faith, Declaration *Dignitas Infinita* (4 April 2024), pars. 38-39; *Catechism of the Catholic Church*, pars. 2302-2317.

[181] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 78: *AAS* 58 (1966), 1101.

[182] Francis, *Message for the LVII World Day of Peace* (1 January 2024), par. 6: *L'Osservatore Romano*, 14 December 2023, 3.

[183] Cf. *Catechism of the Catholic Church*, pars. 2308-2310.

[184] Cf. Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), pars. 80-81: *AAS* 58 (1966), 1103-1105.

[185] Francis, *Message for the LVII World Day of Peace* (1 January 2024), par. 6: *L'Osservatore Romano*, 14 December 2023, 3. Cf. Id., *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 2: "We need to ensure and safeguard a space for proper human control over the choices made by artificial intelligence programs: human dignity itself depends on it."

[186] Francis, *Address at the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (14 June 2024): *L'Osservatore Romano*, 14 June 2024, 2. Cf. Permanent Observer Mission of the Holy See to the United Nations, *Holy See Statement to Working Group II on Emerging Technologies at the UN Disarmament Commission* (3 April 2024): "The development and use of lethal autonomous weapons systems (LAWS) that lack the appropriate human control would pose fundamental ethical concerns, given that LAWS can never be morally responsible subjects capable of complying with international humanitarian law."

[187] Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 258: *AAS* 112 (2020), 1061. Cf. Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 80: *AAS* 58 (1966), 1103-1104.

[188] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 80: *AAS* 58 (1966), 1103-1104.

[189] Cf. Francis, *Message for the LVII World Day of Peace* (1 January 2024), par. 6: *L'Osservatore Romano*, 14 December 2023, 3: "Nor can we ignore the possibility of sophisticated weapons ending up in the wrong hands, facilitating, for instance, terrorist attacks or interventions aimed at destabilizing the institutions of legitimate systems of government. In a word, the world does not need new technologies that contribute to the unjust development of commerce and the weapons trade and consequently end up promoting the folly of war."

[190] John Paul II, *Act of Entrustment to Mary for the Jubilee of Bishops* (8 October 2000), par. 3: *Insegnamenti* XXIII/2 (200), 565.

[191] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 79: *AAS* 107 (2015), 878.

[192] Cf. Benedict XVI, Encyclical Letter *Caritas in Veritate* (29 June 2009), par. 51: *AAS* 101 (2009), 687.

[193] Cf. Dicastery for the Doctrine of the Faith, Declaration *Dignitas Infinita* (8 April 2024), pars. 38-39.

[194] Cf. Augustine, *Confessiones*, I, 1, 1: PL 32, 661.

[195] Cf. John Paul II, Encyclical Letter *Sollicitudo Rei Socialis* (30 December 1987), par. 28: *AAS* 80 (1988), 548: "[T]here is a better understanding today that the mere accumulation of goods and services […] is not enough for the realization of human happiness. Nor, in consequence, does the availability of the many real benefits provided in recent times by science and technology, including the computer sciences, bring freedom from every form of slavery. On the contrary, […] unless all the considerable body of resources and potential at man's disposal is guided by a moral understanding and by an orientation towards the true good of the human race, it easily turns against man to oppress him." Cf. *ibid*., pars. 29, 37: *AAS* 80 (1988), 550-551.563-564.

[196] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 14: *AAS* 58 (1966), 1036.

[197] Francis, Encyclical Letter *Dilexit Nos* (24 October 2024), par. 18: *L'Osservatore Romano*, 24 October 2024, 5.

[198] Francis, Encyclical Letter *Dilexit Nos* (24 October 2024), par. 27: *L'Osservatore Romano*, 24 October 2024, 6.

[199] Francis, Encyclical Letter *Dilexit Nos* (24 October 2024), par. 25: *L'Osservatore Romano*, 24 October 2024, 5-6.

[200] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 105: *AAS* 107 (2015), 889. Cf. R. Guardini, *Das Ende der Neuzeit*, Würzburg 1965^{9}, 87 ff. (en. tr. *The End of the Modern World*, Wilmington 1998, 82-83).

[201] Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et Spes* (7 December 1965), par. 34: *AAS* 58 (1966), 1053.

[202] John Paul II, Encyclical Letter *Redemptor Hominis* (4 March 1979), par. 15: *AAS* 71 (1979), 287-288.

[203] N. Berdyaev, "Man and Machine," in C. Mitcham – R. Mackey, eds., *Philosophy and Technology: Readings in the Philosophical Problems of Technology*, New York 1983^2, 212-213.

[204] N. Berdyaev, "Man and Machine," 210.

[205] G. Bernanos, "La révolution de la liberté" (1944), in Id., *Le Chemin de la Croix-des-Âmes*, Rocher 1987, 829.

[206] Cf. Francis, *Meeting with the Students of the Barbarigo College of Padua in the 100th Year of its Foundation* (23 March 2019): *L'Osservatore Romano*, 24 March 2019, 8. Cf. Id., *Address to Rectors, Professors, Students and Staff of the Roman Pontifical Universities and Institutions* (25 February 2023).

[207] Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 112: *AAS* 107 (2015), 892-893.

[208] Cf. Bonaventure, *Hex*. XIX, 3; Francis, Encyclical Letter *Fratelli Tutti* (3 October 2020), par. 50: *AAS* 112 (2020), 986: "The flood of information at our fingertips does not make for greater wisdom. Wisdom is not born of quick searches on the internet nor is it a mass of unverified data. That is not the way to mature in the encounter with truth."

[209] Francis, *Message for the LVIII World Day of Social Communications* (24 January 2024): *L'Osservatore Romano*, 24 January 2024, 8.

[210] *Ibid*.

[211] *Ibid*.

[212] Francis, Apostolic Exhortation *Gaudete et Exsultate* (19 March 2018), par. 37: *AAS* 110 (2018), 1121.

[213] Francis, *Message for the LVII World Day of Peace* (1 January 2024), par. 6: *L'Osservatore Romano*, 14 December 2023, 3. Cf. Id., Encyclical Letter *Laudato Si'* (24 May 2015), par. 112: *AAS* 107 (2015), 892-893; Id., Apostolic Exhortation *Gaudete et Exsultate* (19 March 2018), par. 46: *AAS* 110 (2018), 1123-1124.

[214] Cf. Francis, Encyclical Letter *Laudato Si'* (24 May 2015), par. 112: *AAS* 107 (2015), 892-893.

[215] Cf. Francis, *Address to the Participants in the Seminar "The Common Good in the Digital Age"* (27 September 2019): *AAS* 111 (2019), 1570-1571.